

44300

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

VOLUME TWO OF TWO VOLUMES

APOLLO 9 ONBOARD VOICE TRANSCRIPTION

(U)

RECORDED ON THE
COMMAND MODULE
ONBOARD RECORDER

DATA STORAGE EQUIPMENT
(DSE)

April 1969

GROUP 4

DOWNGRADED AT 3 YEAR INTERVALS
DECLASSIFIED AFTER 12 YEARS

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MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

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CLASSIFICATION CHANGED TO

BY AUTHORITY *U*
G. B. JSC *Memor*
2/3/73 *Class*
Sally

DATE *1/19/76* *3*

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05 05 49 49 CDR Okay, let me get this other one out, and I'll show you the - -

05 05 49 52 LMP We've each got a map and a camera; we can't miss.

05 05 49 55 CMP Say, - -

05 05 49 56 CDR Oh, shoot, it's way down in the bottom of that bag.

05 05 50 03 LMP 7 hours plus ...

05 05 50 05 CDR Oh, the heck with it. Listen, it's way down there. I'll get the other one.

05 05 50 09 CMP Oh ho, we just came across here.

05 05 50 18 LMP Look at this thing right here. Here is the map update right here. 119:10 ... 6 hours and 40 minutes. 6 hours and 40 minutes.

05 05 50 30 CMP Oh, I see. I read out - I was looking at the wrong - -

05 05 51 35 CDR You know where I think we are?

05 05 51 40 CMP Did you say there was an SO 65 map in the ...?

05 05 51 43 CDR Yes, ...

05 05 51 58 CMP You know this is going to be the last of the ...

05 05 52 02 CDR Yes.

05 05 52 57 CDR Well, this one here is, but it's all folded up ...

05 05 53 07 CMP Hasselblad? ... for SO 65.

05 05 53 10 CDR Okay, black is the Hasselblad, right?

05 05 53 15 LMP Great! I think I got a bunch of them.

05 05 53 17 CMP Did you, right there?

05 05 53 18 LMP Yes.

05 05 53 30 LMP ... we ought to have more of that SO 65 stuff ...

05 05 53 34 CDR Yes, I think ...

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05 05 53 37 CMP Let's see, we don't have a ..., do we?

05 05 53 47 LMP Yes, yes, by all means.

05 05 53 53 CDR We also need a lithium hydroxide canister change.

05 05 53 55 LMP Okay.

05 05 53 57 LMP Put this away. Put the optics away, and let me see.

05 05 54 03 CDR Where's our update book? Do you have that down there, Dave?

05 05 54 07 CMP No, not ... - -

05 05 54 08 CDR Oh, it's here, Dave. I've got it; I've got it. You've got the procedures book there though. Hey, listen, tomorrow we don't even have burn. And tomorrow ought to be nothing but absolute ...

05 05 54 19 CMP Jim, here's your ...

05 05 54 22 CDR Okay. Stick it up there, we've got to find a place to put that.

05 05 54 28 CMP How much film do we have left, Rusty?

05 05 54 30 LMP Well, that was - Just going to add up, here.

05 05 54 31 CDR Really?

05 05 54 34 LMP Also, I need the procedures.

05 05 54 36 CMP Okay.

05 05 54 46 CMP ... Oh, I know.

05 05 55 07 CMP Waste water dump at 128:50.

05 05 55 14 CDR 128:50; why don't I put it over here then.

05 05 55 33 CDR Hey, maybe having a lot of fuel in quad B is going to be a big help because we can use that for all our landmark tracking.

05 05 55 40 CMP Say, you're right. Maybe they were thinking of that.

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05 05 55 47 CDR Okay, got that. Okay, CO₂ filter change at 26 hours; that's in about 4 minutes. You want to do that, Dave?

05 05 55 54 CMP Yes, I'll do it right now.

05 05 55 55 CDR Okay, change number 11. Take 13 and put in A, and put 11 in A-3.

05 05 56 03 CMP Have we been using that grimy stuff every time?

05 05 56 06 LMP I have, yes. I didn't last time.

05 05 56 10 CDR (Laughter)

05 05 56 11 LMP I've used it once at least every time. ...

05 05 56 15 CDR You know, I've never done - I don't guess I've - I've always pulled the right one out, ... pulled that one out correctly, but when I started shifting the other one's around in there, I -

05 05 56 22 CMP You think it's really necessary?

05 05 56 23 CDR I don't know. I'd use it. Do it anyway; it pacifies everybody.

05 05 56 27 CMP 13 to A and 11 to what?

05 05 56 29 CDR ...

05 05 56 31 CMP I can't ever remember it. Gees.

05 05 56 33 CDR ... 11 to A-3. And the tape - Let's see, what do you do with the tape? Here's the tape right here.

05 05 56 45 LMP Oh, hey, we ought to clean the screens again. I bet they're full of gunk.

05 05 56 47 CDR Oh, yes. They really are. I looked at that one down there. I guess I couldn't quite get to it; I was down underneath the couch. ... is steady.

05 05 56 56 CMP Yes, in fact, the suit temperature's going up.

05 05 56 58 CDR It sure has.

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05 05 57 02 LMP I think this cabin temperature's up higher than it has been the whole damn flight. It's 75 degrees.

05 05 57 06 CMP Yea!

05 05 57 07 CDR (Laughter)

05 05 57 09 CMP Tonight I'm going to bathe.

05 05 57 12 LMP I was thinking the same thing. I'm going to take some hot water and a rag and really go over it all.

05 05 57 18 CDR Well, don't put your grubby rag back in the drinking water ..., after you've bathed your balls with it.

05 05 57 24 LMP I don't - I don't smell ... It's not me that's generating all these odors.

05 05 57 30 CDR I know, but I'm getting tired of drinking off of your urine bag.

05 05 57 35 LMP You mean you don't like - -

05 05 57 36 CDR ...

05 05 57 37 LMP - - for me to stow my ... over the ..., I mean.

05 05 57 39 CDR No, I don't. I keep the outside of me dirty, but the inside of me is clean.

05 05 57 43 CMP What's the P CO₂, Rusty?

05 05 57 45 LMP The P CO₂ is 1.7.

05 05 57 58 CMP Hope they hear us over Tananarive.

05 05 58 00 CDR So do I.

05 05 58 04 CMP Hey, great, if he's back there, my stereo set's up back there (laughter).

05 05 58 09 CDR (Laughter) Matter of fact, I didn't half believe that she ever even made it.

05 05 58 14 CMP You know what, ...

05 05 58 19 LMP Davey, how you going to get your car back?

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05 05 58 21 CMP Oh, I'll probably let somebody drive it.

05 05 58 25 LMP Oh, yes. Well, who's going to drive it?

05 05 58 27 CMP Well, I think I have, you know, somebody who's going to drive it; I'm not sure.

05 05 58 30 LMP Oh, really? Well, listen. If you can't find anybody -

05 05 58 35 CDR Did you have ...

05 05 58 36 CMP What?

05 05 58 37 CDR Did you have anybody to drive?

05 05 58 57 LMP Well, I know what we can do. When we get over there, let's just ...

05 05 59 02 CMP When we get over Tananarive, let's tell them we want to shut the IMU down. All we need is to keep an eye on the gimbal lock.

05 05 59 10 CDR ... what we're going to do; why don't you clean that other ...? Really got ...

05 05 59 31 CDR Well, I haven't found E. Does anyone know where MAG E is?

05 05 59 38 LMP I bet I know where it is - -

05 05 59 39 CMP I bet it's loaded in the camera, up there. James. Yes, it is. It's in the Hasselblad ... I just - I think I just saw it as I put that thing away.

05 05 59 50 LMP How about checking to see how many there is?

05 05 59 52 CDR Where did you put it? Magazine F, here.

05 05 59 54 LMP That's F?

05 05 59 56 CDR Yes.

05 05 59 57 CMP Oh, what have you got left?

05 06 00 08 CDR I've taken 49. That's about a 60 ... - 60 ..., 60 film pack.

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05 06 00 17 CMP Okay.

05 06 00 22 CDR Dave, you said you have - E was on the ... Where did you put the ...?

05 06 00 25 CMP In the - R-3 in the glove compartment where all the other stuff is, you know.

05 06 00 29 LMP In R-3.

05 06 00 30 CMP The one with the data cards and all that stuff is - -

05 06 00 32 LMP Okay. Got it.

05 06 00 35 CMP ... get away from you.

05 06 00 42 CDR Somebody losing a lot of hair.

05 06 01 12 CMP Okay, CO₂ canister has been changed.

05 06 01 17 CDR Oh.

05 06 01 32 CMP Want to break out the chow?

05 06 01 34 CDR Might as well.

05 06 01 44 LMP Where's a big bag of -

05 06 01 47 CDR Dave, both the food bags are down on top of the lower part of the L-shaped bag.

05 06 01 53 CMP I only find one!

05 06 01 55 CDR Well, they're supposed to both be there. I kind of felt there, but that little one was - -

05 06 02 07 CMP ... floating away.

05 06 02 16 CDR Hey, you know what? We don't have nearly as much filth - ... filthy over here today. ... gathered it up last night.

05 06 02 23 LMP Got rid of the LM.

05 06 02 25 SC Hell, yes.

05 06 02 27 LMP Yes, and every time you go in that tunnel, boy, it just fills up.

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05 06 03 37 CDR Let me ... the flight plan up.

05 06 03 39 CMP (Laughter)

05 06 03 41 CDR ... if we ever do. Wait until we get back and find out there's only ...

05 06 03 53 CMP Oh, well. We tried.

05 06 04 02 CDR Oh, hey, we aren't supposed to ...

05 06 04 31 CMP 126:04. Stow the SO 65 magazines and cameras. Now here's where the flight planner really did something right. He gave us 20 minutes to stow the magazines and cameras.

05 06 04 41 LMP Oh, you're kidding (laughter).

05 06 04 42 CDR (Laughter)

05 06 04 43 LMP And they give us 15 minutes to restow the tunnel alone.

05 06 04 46 CDR (Laughter) That's a hell of a ..., isn't it?

05 06 04 57 CMP You know how long they gave us to unstow and instal SO 65 cameras? 50 minutes.

05 06 05 03 CDR 50?

05 06 05 05 CMP Five zero (laughter).

05 06 05 08 CDR Well, that will be a nice one.

05 06 05 11 CMP (Laughter) No, I guess that's toward the end of the ...

05 06 05 15 CDR Figured we'd be tired.

05 06 05 18 CMP Hey, there's another plan for today.

05 06 05 20 CDR Another what?

05 06 05 21 CMP That frapping exerciser.

05 06 05 23 CDR Right. I had been thinking about that all day.

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05 06 05 45 CMP Oh, here's the grab bag. What's in the grab bag, today? Steaks. Ooh, ... I'm going to have fish ... Oh, it's pretty good.

05 06 06 02 CDR I think I'll have some fish with you.

05 06 06 06 LMP Is it Friday?

05 06 06 07 CDR I don't know.

05 06 06 09 LMP Hey, what day is it?

05 06 06 10 CMP I don't know.

05 06 06 11 CDR (Laughter) ... in the world.

05 06 06 13 LMP Shoot, I don't even know ... must be Friday about. ... Friday or Saturday.

05 06 06 22 CMP Probably catching up on our ...

05 06 06 32 LMP Hey, there's ... I use to hate that stuff, but ... they've changed it.

05 06 06 53 CDR Did you get those screens over here?

05 06 06 54 CMP Yes.

05 06 06 55 CDR Very good.

05 06 06 57 CMP I'm going to ... and go in a corner and write some things down about the rendezvous, because I don't have anybody to talk to about what I was doing.

05 06 07 03 CDR That's what I wanted to do, too. That's what I started to do last night, and I never got it done.

05 06 07 07 CMP I'm afraid I'm going to forget some of those things.

05 06 07 11 CDR Like that vroom-vroom of the descent engine ...

05 06 07 15 CMP Yes.

05 06 07 16 CDR (Laughter)

05 06 07 18 CMP No, fortunately, I'd like to ...

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05 06 07 21 CDR That'll happen when you ... I think ... might worry. Maybe we're just going to get a chance to do some of the NCC 109 maneuvers.

05 06 07 35 LMP Damn it! There was one film pack I didn't look a ... that right there.

05 06 07 38 CDR ... that right there.

05 06 07 44 CMP You don't want your ..., do you?

05 06 07 46 LMP Huh?

05 06 07 56 CDR ... you put the water in.

05 06 08 02 CMP Did I get Rusty's hot or cold?

05 06 08 05 LMP Cold. Gee, I'm really ... I got the camera, too

05 06 08 14 CMP Really?

05 06 08 15 LMP Yes. Except my camera's got a ...

05 06 08 17 CDR Hey, Rusty, are we in gimbal lock ...?

05 06 08 19 LMP No, I can't even see. Oh, ... We would be in the LM, but we're not in this (laughter).

05 06 08 28 CDR (Laughter)

05 06 08 34 LMP I sure ... will be glad when I get back to flying airplanes and driving automobiles and to hell with spacecraft.

05 06 08 39 CDR They all have that ..., right?

05 06 08 41 LMP I - I think I'm going to, take up ...

05 06 08 46 CMP Oh, hell!

05 06 08 47 CDR What?

05 06 08 48 CMP I put the hot water in the chicken salad.

05 06 08 50 LMP (Laughter)

05 06 08 51 CDR I bet it doesn't taste very good now.

05 06 09 03 CMP Now I have lukewarm salmon salad. God bless it!

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05 06 10 30 LMP Oh, shoot. That one film pack that I didn't look at, I don't know how the film ...

05 06 10 38 CDR Where is it?

05 06 10 39 CMP B-8.

05 06 10 40 CDR What?

05 06 10 41 CMP B-8.

05 06 10 42 LMP B-8.

05 06 10 43 CDR ...

05 06 10 45 CMP You are, huh? ...

05 06 10 51 CDR However, this is the McDivitt corner.

05 06 10 59 CDR What film pack is it, Rusty?

05 06 11 01 LMP I think it's ... on the camera - on the 16 millimeter -

05 06 11 05 CDR It's five film packs here.

05 06 11 06 CMP Oh, wait a minute. Shoot, there's no 16 milli -

05 06 11 11 CDR Let me tell you which film packs I have down here. I have I, M, K, R, and H.

05 06 11 25 CMP Yes, the one I need is J. I'm trying to think where it is.

05 06 11 27 CDR Oh, I know where J is. J, I think, is in A-7.

05 06 11 34 LMP No, no.

05 06 11 35 CMP What?

05 06 11 36 LMP No. It's got to be on the camera. Where is - where is our camera? The CSM camera, Dave?

05 06 11 43 CMP ...

05 06 11 44 LMP That's where it is, then.

05 06 11 47 CMP No, ... and put it somewhere.

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05 06 11 49 CDR Here's J, right here. How about that?

05 06 11 57 CDR J is ... It's full.

05 06 12 02 LMP Full?

05 06 12 03 CDR Full.

05 06 12 06 LMP Crazy. We ought to do some -

05 06 12 08 CMP ... set ORB rate up, point ... X-axis to the ground -

05 06 12 12 CDR Take some telephoto 75-millimeter movies.

05 06 12 16 CMP Telephoto 75-millimeter pictures.

05 06 12 17 LMP Okay - -

05 06 12 18 CDR Let me - let me - -

05 06 12 19 LMP - - you want a summary?

05 06 12 20 CDR Yes, let me - I'm put this down here. I'm going to put J, I'm going J in B-8 down here. I'm going to put it on the log here. ... count on using all the film tomorrow and the next day.

05 06 12 41 CMP Is that right?

05 06 12 42 CDR How many days have we been up here; this is 6. We'll be up here 11 days. 6 from 11 - Okay, that ... we've got 2 days and divide that by 3. Okay, what have we got?

05 06 12 58 CMP I think it's ... the 16 millimeter. Oh, we did use ... on the 16 millimeter, didn't we?

05 06 13 02 LMP Yes, we've got 7.1 magazines left.

05 06 13 06 CDR No, we've got ...

05 06 13 07 CMP Of 16 millimeter?

05 06 13 08 LMP Yes.

05 06 13 10 CMP Well, how come we didn't use ... - -

05 06 13 12 CDR Two of them are C-IN, though, by the way.

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05 06 13 15 CMP Yes, but we had that planned to use them all.

05 06 13 17 LMP I know; we - we were conservative.

05 06 13 22 CDR We didn't use any of the C-IN; we didn't take a single picture of the ...

05 06 13 24 LMP Yes, we did.

05 06 13 25 CDR Did we?

05 06 13 26 LMP Yes, I took a picture of Dave getting the tunnel cleared out.

05 06 13 31 CDR Oh, good.

05 06 13 33 CMP Did you really?

05 06 13 34 LMP Yes.

05 06 13 35 CMP How many of these that are remaining are C-IN?

05 06 13 38 CDR Two.

05 06 13 39 CMP Two. Oh, that's right, we added - we added one C-IN to take care of the tunnel thing, didn't we? So there's one C-IN and six other ones. Gee, I didn't even know you were taking pictures down ...

05 06 13 53 CDR You ought to run out these little bitty ones. 0.2, 0.3, 0.8 - -

05 06 13 57 LMP Yes.

05 06 13 58 CDR - - because we really have 1, 2, 3, 4, 5. Now, the 70 millimeter.

05 06 14 06 CDR 606 frames; not bad.

05 06 14 11 CMP 606!

05 06 14 12 CDR Yes.

05 06 14 13 CMP Remaining?

05 06 14 14 CDR Yes. 200 frames a day to take for the next 3 days.

05 06 14 19 CMP Hey, that's ... - -

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05 06 14 21 LMP Well, actually, let's take - save one of these for the last day just in case we need to shoot something for splashdown. I also think we probably ought to put the wide angle away, unless we've got some special shot for it. ...

05 06 14 39 CDR Very good, Mr. Schweickart. ...

05 06 14 43 LMP Yes, and the next thing I want to do is take all I - I've changed my mind on what I think we ought to do. I think we ought to take all the empty ones and stick them in the most inconvenient place.

05 06 14 52 CDR Yes, that's quite right.

05 06 14 54 LMP Like it's going to be load up B-8.

05 06 14 57 CDR But B-8 only takes - only takes 16 millimeter.

05 06 15 00 LMP I know it, but we've got enough - all of these 16 millimeters - -

05 06 15 02 CDR Right.

05 06 15 03 LMP - - to - 1, 2, 3, 4, 5, 6. Yes, we've got six empty ones, and there's room in there for six empties. We'll do that after dinner, okay?

05 06 15 22 CDR And speaking of dinner -

05 06 15 24 LMP Yes, I think I'd like some, too. I don't know what I'm going to eat, but I'm going to try.

05 06 15 29 CDR Yes, how does your stomach feel?

05 06 15 30 LMP Well, I don't know, it was pretty good at breakfast I ... dinner, but my stomach was good at breakfast. Honestly, I don't know if it's my stomach or what it is.

05 06 15 49 CMP FLOODLIGHTS are going OFF.

05 06 15 51 CDR Spaghetti.

05 06 15 52 LMP That's good stuff.

05 06 16 03 CDR That's not a very big seller up there, is it?

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05 06 16 05 LMP Not a very good what?

05 06 16 06 CMP A very big seller. Bacon.

05 06 16 08 LMP Oh, I've been eating it at least a package a morning.

05 06 16 12 CDR Well, we seem to have an awful lot left. ... want it, I thought we could just ... complaining so much, I -

05 06 16 18 LMP Well, me too, but - -

05 06 16 21 CMP ... mine.

05 06 16 22 LMP Yes.

05 06 16 23 CDR No, I could eat -

05 06 16 24 LMP It's awfully dry; in fact, so much drier than what it ever was on the ground, I can hardly believe - -

05 06 16 27 CDR Yes, well, you know, it's not all like that, Rusty. I had one the other day that was almost like powder. I had to take ... and eat it. But most of the other ones - -

05 06 16 37 CC Apollo 9, Houston through Tananarive.

05 06 16 40 CDR Hello, Houston; Apollo 9 here. Is she there?

05 06 16 44 CC Roger. Loud and clear, now.

05 06 16 47 LMP Roger; is Charlie there?

05 06 16 53 CC Affirmative.

05 06 16 55 CDR Affirmative.

05 06 16 57 CDR Okay, stand by, Charlie.

05 06 17 00 CDR/CMP/
LMP Happy birthday to you, happy birthday to you, happy birthday, dear Charlie, happy birthday to you.

05 06 17 17 CMP I wonder if they understood that.

05 06 17 20 CC She's getting a great kick out of it and says, "Thank you."

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05 06 17 25 CDR Sorry we didn't have time to celebrate it before the launch.

05 06 17 36 CC She said it was beautiful.

05 06 17 39 CDR Okay. We think she is, too.

05 06 17 44 CC Roger.

05 06 17 47 LMP Hey, that's the first time Tananarive - -

05 06 17 48 CC When you get a chance there, we could use the number of frames used on SO 65.

05 06 17 55 LMP 25 plus seven.

05 06 17 56 CDR Okay, I used 25 frames on - what we were supposed to from California on toward Texas, and we used seven frames across Houston. We used one frame to check the film out when we put it up - in the window to make sure that all the - the film magazine worked and we bumped up against the film starter one time and took one other additional frame.

05 06 18 26 CC Roger; one additional, and one to start, and seven over Texas, and seven somewhere else. Is that correct?

05 06 18 36 CDR You broke up a little, Ron. There was one to check things out to see if it worked, there's one accidental one, there were seven - I say again, seven over Houston, and there were 25, 25 across southwest U.S.

05 06 18 51 CC Roger. Copy the 25 and the rest of them.

05 06 18 56 CMP Okeydoke.

05 06 18 57 LMP 35, that leaves - there was also the one that we wound through. ...

05 06 19 04 CDR Oh, yes.

05 06 19 05 CDR Houston.

05 06 19 07 CC Houston; go.

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05 06 19 08 CDR Roger; and we were supposed to wind one film - each film pack one frame forward by hand so that one is also gone.

05 06 19 17 CC Roger. I understand you wound one frame by hand.

05 06 19 22 CDR Roger.

05 06 19 27 CMP The ...

05 06 19 29 CDR Hey, did you ever disable --

05 06 19 30 CMP ...

05 06 19 31 CDR -- the B-3 thruster when we went MANUAL?

05 06 19 32 LMP Hey, you want to ask him if we're going to power down?

05 06 19 34 CDR Oh, yes.

05 06 19 35 CDR Houston, this is Apollo 9.

05 06 19 37 CC Roger. Go.

05 06 19 39 CDR Roger. How about turning off our IMU now? All we're doing is spending fuel keeping it out of gimbal lock, and we don't need it anymore.

05 06 19 53 CC Roger. Stand by. We're checking it.

05 06 20 00 CMP Jim, did you get that thing aligned? ... get it aligned without the optics?

05 06 20 06 CC Apollo 9, Houston. Affirmative; IMU to STANDBY.

05 06 20 11 CDR Say again, please.

05 06 20 18 CDR Houston, Apollo 9. Say again.

05 06 20 21 CC Apollo 9, Houston. IMU to STANDBY. We still need the CMC.

05 06 20 25 CDR You're breaking up, Houston. Say again.

05 06 20 34 CDR Oh!

05 06 21 02 CMP About 187.

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05 06 21 32 CMP Where's the food?

05 06 21 34 LMP Here's the grab bag. ...

05 06 21 42 CMP Well, ... while I'm in the mood to eat.

05 06 21 50 CDR What? Well, shoot, ... to power down ...

05 06 22 25 LMP Where's the one in the LEB, Dave?

05 06 22 29 CMP It's in that - Actually, Rusty, it's drifted over by you, a little - -

05 06 22 33 LMP Oh, I see it; it's up here.

05 06 22 42 LMP Hey, where's the procedures book? We did find that today.

05 06 22 57 LMP Is that the one I want? Yes. I looked at that one; what other one is missing? There's your update book, procedures book, crew log. That's the one ...

05 06 23 40 LMP You think so. Boy, I thought it was awfully - really - Oh, I don't know ...

05 06 24 05 LMP While I'm thinking about it, I ...

05 06 25 09 LMP Well, that doesn't look bad. Let me try it out. There we go. That's day 5, meal C. ...

05 06 26 34 CMP 350-pound cake. Good God, cake! I can think of a lot better things that I want than cake!

05 06 26 49 CMP Oh, that's right.

05 06 28 35 LMP Boy, they sure use that helicopter 61 all the time. 60 and 61, they're all aides in the recovery.

05 06 31 05 LMP Wonder what else we can take movies of outside. You might be able to make a vertical pass across the western states or something. ... try it ...

05 06 31 35 LMP Hey, maybe we can take a vertical going across Australia. Do we get there in the daylight, toward the end of the flight? If we do - -

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05 06 31 41 CDR Yes, I think we will. Matter of fact, I think we ... about another day or so. Well, matter of fact, I think we can see it right now. ... Well, let's see, it's coming up on daylight right now. But we're not going to Australia, are we?

05 06 31 59 LMP ...

05 06 32 10 CDR Hmm, when do we get to Australia? Oh, shoot, we've already been over Australia.

05 06 32 25 LMP Yes, we're north of it now, aren't we?

05 06 32 27 CDR Not too far, only about two REV's ...

05 06 33 11 CDR Well, let's see, ... daylight now ...

05 06 33 14 CMP Oh, hey, you can see ...

05 06 33 22 CMP Hey, are we going up over Vietnam, yet?

05 06 33 24 CDR No, but that ... we should ... the next pass ...

05 06 33 31 LMP Wonder if we ought to turn on VHF B.

05 06 33 33 CDR We should see Sumatra, and Thailand, Borneo, Philippines. ... Let's see ... Yes. We could be coming up across all those islands between Australia and Asia. Would you believe that I'm going to be pointing at the sky, when you do that?

05 06 34 12 CDR Hey, ..., more to eat. Where's the big bag?

05 06 34 22 LMP It's right here?

05 06 34 24 CDR Let me look at the little bag, first.

05 06 34 25 LMP Okay, but there's one here, so -

05 06 34 42 CDR Yes, throw me the big bag, please.

05 06 34 45 LMP Okay.

05 06 34 59 LMP Hey, also we ought to start debriefing on our tape.

05 06 35 06 CMP Yes. I think ... dictate a tape on the rendezvous.

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05 06 35 54 CDR Hey, I looked at that burn for day after tomorrow, Dave; that's pretty short.

05 06 36 04 LMP Boy, that was quite a bounce today, wasn't it?

05 06 36 05 CDR It was a whop! ... the engine.

05 06 36 14 LMP Boy, ..., it's a bigger residual than we had all day long in the LM.

05 06 36 22 CMP ...

05 06 36 23 CDR (Laughter) Whop!

05 06 36 48 CMP Do we get up early tomorrow morning?

05 06 36 51 CDR Oh, I ...

05 06 36 55 SC (Laughter)

05 06 36 56 LMP I wish - You know what I wish? I wish I'd brought a book.

05 06 36 59 CDR Do you really?

05 06 37 00 LMP Yes. I really do.

05 06 37 01 CMP You've found time somewhere to read?

05 06 37 04 LMP Well, like right now, I think I would. You know, before I went to bed.

05 06 37 17 LMP Yes, I kind of feel like, you know, involving myself mentally in something aside from the flight for an hour at a time or something. Maybe I'll play my music. You guys mind if I play my music?

05 06 37 38 CMP What?

05 06 37 40 LMP I want to use the tape recorder later on ... right now.

05 06 37 45 CDR If we like the music, we'll let you play it; if ... don't like it, you can't play it. How about that? (Singing) Oh, there's a big hunk of land down there. I wonder what that is?

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05 06 39 05 CDR ... wild island. Look out - What island did I tell you we'd go over?

05 06 39 09 CMP Sumatra. I don't know.

05 06 41 10 CDR Huh?

05 06 41 17 CDR Yes.

05 06 41 53 CDR Yes. ... a little bit.

05 06 42 00 CMP 47:34.

05 06 42 24 CDR Oh, this is a good attitude. Looking at the sun.

05 06 42 35 CDR ... right out.

05 06 42 40 LMP Do you think so? Oh, yes.

05 07 09 06 CC Okay. At your normal powerdown time, we want you to perform the following: IMU to STANDBY - you already have that - SCS ELECTRONICS POWER switch to OFF; AUTO RCS SELECTION switches, OFF; ROT CONTROL POWER, OFF; TRANSLATION CONTROL POWER, OFF; and leave all other equipment powered up. Over.

05 07 09 56 CMP Okay, copy. IMU, STANDBY; SCS ELECTRONICS POWER, OFF; AUTO RCS, OFF; ROTATIONAL CONTROL POWER, OFF; TRANSLATION CONTROL POWER, OFF; everything else, ON. Is that correct?

05 07 10 09 CC Correct.

05 07 10 11 CMP Let's go back to H₂ again. Do you want us to get both H₂ tanks to go to 200 or below and then keep it between 190 and 200 by cycling the tanks and fans as required and not to let it get above 200 before we go to bed, then let it go?

05 07 10 30 CC That is correct.

05 07 10 32 CMP Okay, I guess we got that straight.

05 07 10 37 CC Yes, and before you - before you go to bed, we'll have you turn the tank 2 fans on.

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05 07 10 41 CMP Okay.

05 07 10 42 CDR Yes, ... difference right there.

05 07 10 44 CMP Because there's nothing that's going to bring it up, see.

05 07 10 45 CC ...

05 07 10 47 CDR This is where we are?

05 07 10 49 LMP Yes. Hey, Jim, you ought to get your camera because the Galapagos ...

05 07 10 58 CMP You're fading out. Would you say the last part again, please?

05 07 11 03 CC Roger. We'd just as soon call you early in your rest cycle, rather than in the middle of the night.

05 07 11 07 CMP What's that for?

05 07 11 22 CDR I think what he's saying is that it's ... earlier - I don't know what that might be.

05 07 11 30 CMP Neither do I.

05 07 11 31 CDR I think he's saying the same old thing. Just bring pressure down and then put the fans on.

05 07 11 37 CMP You have to do it ...

05 07 11 38 LMP Well, we did that earlier.

05 07 11 39 CDR Oh.

05 07 11 40 CMP Yes.

05 07 11 55 CMP ... south of the track.

05 07 11 57 LMP We're a little bit north.

05 07 11 58 CMP Hey, Jim, ...

05 07 12 00 LMP ... south.

05 07 12 02 CDR No, I'm looking for that one.

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05 07 12 04 CMP Yes, yes, we're rolling to the left of it, so I think in about 10 - about 1 minute.

05 07 12 12 LMP What was the time, Dave?

05 07 12 15 CMP 50:23 - 1 minute from now.

05 07 12 24 LMP Why don't you roll left and get a couple of blips?

05 07 12 29 CDR You're rolling right now.

05 07 12 32 CMP No, we're rolling left, Jim. At least, out the window we're rolling left. ...

05 07 12 56 CDR Yes.

05 07 12 57 CMP Well, you see him out the side windows, Jim?

05 07 12 58 CDR No.

05 07 13 22 CMP ... could now. You can see him through the optics.

05 07 13 34 LMP Let's figure that out.

05 07 14 11 LMP Hey, here's another thing - this REV we come across South America through another one of those preferred Hasselblad areas, don't we. Right across Venezuela and all those?

05 07 14 26 CMP I think it might be dark by the time we get there, Rusty.

05 07 14 30 LMP Oh, let's see, it's 5:15 in Houston. That ought to be real close.

05 07 14 37 CMP Yes.

05 07 14 47 LMP ... to get those cryos powered.

05 07 15 02 CMP Did you say the fan in 0 - in H₂ tank 1, or both of them?

05 07 15 05 LMP Both of them.

05 07 15 08 CMP Jim?

05 07 15 10 CDR Well, my understanding of what he said was - -

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05 07 15 13 LMP Maybe ... tape recorder - -

05 07 15 14 CMP Yes, that - that's kind of the way I heard it, both H₂ tanks ...

05 07 15 20 CDR Right, yes, that I got.

05 07 15 22 CMP That's right.

05 07 15 23 CDR Then I thought he said turn on the fan in tank 2 -

05 07 15 25 CMP That's what I thought.

05 07 15 27 CDR - - after I - -

05 07 15 28 CMP By cycling H₂ tank heaters or fans as required.

05 07 15 30 CDR Right. To get it down. Okay. ...

05 07 15 33 CMP And - to keep it above 190. He said keep it between 190 and 200 by cycling the fans and heaters as required. Then he said for the night, leave it on.

05 07 15 42 CDR No. Put on H₂ tank 2 fans.

05 07 15 47 CMP I didn't hear anything about that, Jim - -

05 07 15 49 CDR See ... is going to make it go up, Dave.

05 07 15 52 CMP It's going to fall down with the fans and heaters off; now what's going to make it go up?

05 07 15 56 CDR ... be a failure - -

05 07 15 58 LMP That's right.

05 07 15 59 CDR - - leave them alone after we go to bed - -

05 07 16 00 CMP Yes. You see right before that, he said - What he said was cut out.

05 07 16 04 CDR Are the fans and heaters off now?

05 07 16 05 CMP Yes. With the fans and heaters off, we're going to drop down. Well, that S-band kept dropping in and out. ...

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05 07 16 33 CMP Well, I don't think tank 2 is going to come down to 200. We're going to have to purge to get it down. It's been holding. It holds steady at 220

05 07 17 54 LMP We'll ... Now, we're back to the right again.

05 07 18 01 CDR Perhaps we did roll to the right.

05 07 18 17 LMP Well, I'm just looking out the window; I can't figure out how we could have missed, but I guess, if the needles say it, it's true. If the earth - I was looking south before, Jim, when we were coming up on that pass and then the earth disappeared out of my -

05 07 18 41 CMP Me, too.

05 07 18 44 LMP Well, I guess I had it upside down. What else are we doing, anything?

05 07 18 51 CDR No. Hey, here comes Guaymas.

05 07 19 23 CMP Oh, shoot, ...

05 07 23 32 LMP What the devil was that?

05 07 23 37 CMP Jim.

05 07 23 38 CDR Huh?

05 07 23 40 LMP ... know you could see it. ... lights out there.

05 07 23 46 LMP Oh? Yes. Did you see it? What the hell are the

05 07 23 49 CMP I'll be darned if I know. They're up in the sky?

05 07 23 53 LMP No, no, they're below the horizon. ... fire.

05 07 23 57 CMP ... they're fire?

05 07 23 58 LMP Yes.

05 07 24 14 LMP They look awfully red.

05 07 24 18 CMP Red ...

05 07 24 24 LMP It's really something how they don't look like if I don't know why. That one looks like two lights

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05 07 24 33 CMP ... see any more of those.

05 07 25 09 CMP That is a weird sensation.

05 07 25 18 CMP ... cycle those ... fans ... before I got ... you were 19.4; and I was 19.5; you were 0.4; I was 0.5; you were ...

05 07 25 38 CDR Oh, that - that. Yes, yes. ...

05 07 25 40 CMP The one at the time ...

05 07 25 48 CDR Yes, but what was your time?

05 07 25 51 CMP The final solution ...

05 07 34 31 CMP (Sneeze) Wow!

05 07 38 08 CMP ... that DSE.

05 07 38 26 CMP Where - Who - who cleaned out this? Where's the toothpaste? Anybody know?

05 07 38 32 CDR Yes, I ...

05 07 38 34 LMP Toothpaste was hanging today. I didn't want it to get lost in that - -

05 07 38 41 CDR Look in here. Is it in there?

05 07 38 44 CMP Yes.

05 07 41 12 CMP Anybody else want to use the toothpaste right now?

05 07 41 14 CDR ... I'll use it later.

05 07 41 17 CMP Where do you want to store it? You want to keep it up there in yours, Jim, or what?

05 07 41 20 CDR Yes, that's fine.

05 07 46 12 LMP Hey, Dave, you got a problem.

05 07 46 14 CMP Huh?

05 07 46 15 LMP You got the flight plan?

05 07 46 17 CMP Oh ...

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05 07 46 19 LMP What time is that waste water dump? ... we get the ... for that.

05 07 46 23 CMP Should be at 128 something - 128:50. Okay. ... Now.

05 07 46 55 CMP You know where the tape recorder is?

05 07 46 58 LMP Yes.

05 07 47 01 CMP Oh, in R-3. Yes. ... changed ... put on during the rendezvous yesterday. I don't even remember what they were. We didn't have time to write them down and I was going to do more and then I didn't even have time to do that.

05 07 50 02 CMP That's probably a good idea.

05 07 50 12 CC Apollo 9, Houston through Tananarive.

05 07 50 18 CMP Hi, Houston; Apollo 9.

05 07 50 28 CMP Houston, Apollo 9.

05 07 50 32 CMP What's the station again? That was never any good in Gemini. ... good in Apollo.

05 07 50 41 LMP I never have heard Pretoria. How did Pretoria get in the flight plan?

05 07 50 45 CC Apollo 9, Houston through Tananarive.

05 07 50 50 LMP Houston, Apollo 9.

05 07 50 54 CC Roger. I have you.

05 07 50 56 CMP Roger. Say, did you have anything between discussions on the H₂ and the powerdown? I think we might have missed something there if you had something.

05 07 51 20 CC 9, Houston. Are we with you now?

05 07 51 26 CMP Say again; you're broken.

05 07 52 17 CC Apollo 9, Houston.

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05 07 52 20 CDR Roger. I missed your answer. You're coming through loud and clear now. Did you have anything that you gave us between the discussion on the H₂ and the powerdown?

05 07 52 34 CC The only thing on the discussion on the H₂, I said that if, for some reason, you can't get it down to 200 psi before you retire, you can go ahead and do a fuel cell purge to decrease the pressure.

05 07 52 47 CMP Roger. I caught that and the next thing I heard was the powerdown, the IMU to STANDBY, and that sort of thing, and I thought maybe you'd said something in between.

05 07 52 56 CC Negative.

05 07 52 57 CDR Ask him if it's okay to purge --

05 07 53 01 CMP Okay, did you say it's alright to purge number 2?

05 07 53 07 LMP Oh, fuel cell.

05 07 53 08 CDR Yes.

05 07 53 10 CC Stand by.

05 07 53 12 CMP Okay, in other words, do we purge all three fuel cells?

05 07 53 15 LMP Hey, Dave, and ... said that earlier, Jim, ... Ask him how he wants the cryos left overnight ...

05 07 53 25 CC Apollo 9, Houston. You can purge all three, if necessary.

05 07 53 29 CMP Okay, and then overnight, do you want us to leave the fans on ON, AUTO, or OFF on the cryos? One tank or two?

05 07 53 36 CC On the cryos, we want the H₂ tank 2 fan on.

05 07 53 44 CMP Roger; understand. H₂ tank 2 fan on.

05 07 53 52 CC Roger.

05 07 53 53 CDR Okay. Thank you.

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05 07 53 56 CC And I have - We have no site coverage for REV 83, and I have the ARIA AOS/LOS times in case you want to call us. Over.

05 07 54 10 CDR Okay. Go ahead.

05 07 54 13 CC Roger. ARIA 6, 130 plus 42 to 130 plus 53; ARIA 2, 131 plus 35 to 131 plus 44. Over.

05 07 54 37 CMP Roger. ARIA 6, 130:42 to 130:53; ARIA 2, 131:35 through 131:44.

05 07 54 51 CC 9, Houston. Affirmative.

05 07 55 04 CC Apollo 9, Houston. About LOS. Stand by for block data at Hawaii, and I'll also give you a consumable update at Hawaii.

05 07 55 14 CDR Roger. Understand, block data and consumables at Hawaii.

05 07 55 20 LMP We probably ought to have a powerdown ... along about then?

05 07 55 22 CDR Yes.

05 07 55 32 LMP Oh, boy, it's a little bit warm, isn't it?

05 07 55 47 LMP Where was that from, the Redstone?

05 07 55 50 CMP Tananarive.

05 07 55 52 LMP Oh.

05 07 55 53 CMP So we have a long way to Hawaii.

05 07 58 57 CMP Does anybody happen to know where that BIOMED stuff is? ...

05 07 59 03 LMP Yes, it's in the medical kit - -

05 07 59 05 CDR - - ... the medical kit.

05 08 00 15 CDR Hurry up and get it.

05 08 00 17 CMP Huh?

05 08 00 18 CDR ... over there!

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05 08 00 24 CMP Wonder what ...

05 08 01 01 CDR Oop, excuse me.

05 08 01 03 CMP I think you might have got me.

05 08 01 10 LMP What were you taking a picture of?

05 08 01 13 CMP Sunrise through that hatch window.

05 08 01 17 LMP Sunrise through the number 2 window.

05 08 01 20 CMP It's even better now. There's some light. Do you have any ... over there, Rusty?

05 08 01 25 LMP Yes.

05 08 01 36 CDR Yes, it does.

05 08 02 38 LMP Take it off and see.

05 08 03 15 CDR Is it broken?

05 08 03 16 CMP Looks like it. ...

05 08 03 28 LMP Screwed up any ... pictures yet?

05 08 03 30 CMP Oh. Is this wide angle? Whatever ...

05 08 03 34 CDR ...

05 08 03 39 CMP Aah.

05 08 03 44 LMP That's right. ...

05 08 03 51 CMP They may as well be there ... open or closed. Did it that time. The first two times - That's why I wondered when I took it off, I just heard it go click, but I didn't hear it go click-click. Heard click, but didn't go back click.

05 08 04 13 CDR Very good ...

05 08 04 15 CMP A quarter of a second.

05 08 04 17 LMP I just heard it.

05 08 04 20 CMP Click?

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05 08 04 29 LMP Click-click. It's getting a little higher than I figured.

05 08 04 35 CMP That magazine doesn't fit on the other one, does it?

05 08 04 39 LMP Yes.

05 08 04 40 CMP It does? Click-click. Quarter of a second. ...

05 08 04 57 CDR Click-click. That's not bad. Click-click.

05 08 05 03 LMP That sounds about right.

05 08 05 04 CMP Yes.

05 08 05 58 LMP You know what I think we ought to do with that? We ought to stow that thing and let them look at it and decide - -

05 08 06 05 CDR Oh, yes, what the timing really is.

05 08 06 06 LMP Yes, because I decided on about six different ones, and it looks like it's about - it looks like they're all different, but it looks like there are about four or five ... supposed to be - each one.

05 08 06 18 CMP Yes. They could adjust the ... maybe - -

05 08 06 24 LMP Maybe - if they were consistent. Depending on when it happened.

05 08 06 32 CMP I think you're right. We ought to stow that away somewhere.

05 08 06 51 LMP Yes, sure do.

05 08 06 55 LMP ... all it was going to be was a simple little change of package.

05 08 06 58 CDR No, I think ... Is that it, Dave?

05 08 07 25 CMP Trouble is you know they take part of that film and process it. They just ... One frame out of the middle - one frame out of the middle to check i

05 08 07 41 CMP You mean I'm going to play doctor for myself.

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05 08 07 44 CDR You want some help?

05 08 07 45 CMP No, it's just the thought of me playing doctor.

05 08 07 48 CDR It bothers me a little, too (laughter).

05 08 07 53 LMP I bet they get a big kick out of having you do that. Oh, heck, Dave, at least you don't have to draw your own blood (laughter).

05 08 11 23 CDR Boy, there's a squall line down there that's a classic example of a squall line. Really.

05 08 11 30 LMP I'm afraid I ...

05 08 11 36 CDR See it? See that line of thunderstorms?

05 08 11 46 CDR No, ... look out through your hatch window ...

05 08 11 54 LMP Where did it go?

05 08 11 56 CDR Shoot, I don't see it now. ... I lost it. Yes, way out that way; way in back (laughter).

05 08 12 23 LMP Boy, this ... is falling apart.

05 08 12 26 CDR Gosh.

05 08 12 28 LMP Careful when you wash it off there; you're liable to get it really lost.

05 08 12 41 CDR We're going to cross Vietnam this time. ... going across Vietnam, fellows.

05 08 12 47 CMP Hey, should we turn on C?

05 08 12 50 LMP Huh? Do what?

05 08 12 51 CDR If you'd like to.

05 08 12 56 AA ... U6 on the base to pilot.

05 08 12 59 CDR There you go ... something "on the base to pilot."

05 08 13 15 AA TEMP is 709; winds 320 degrees at 4; cleared to land.

05 08 13 21 CMP 320 at 4; clear landing.

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05 08 41 22 CC Roger. 44 percent PU; 13 percent hybrid DAP.

05 08 41 28 CMP Okay, here we go. 127:44:13, 50, 16, 48, 17, 47, 17, 392, 30, 26, 26, 39, and then the redlines: 29, 37, 39, 39.

05 08 41 48 CC Roger. Dosimeter readouts - We got it all.

05 08 42 01 LMP Want to tell him we'll get them later?

05 08 42 03 CMP Ron, we'll have to do those dosimeters later. Would you call us at the next station and we'll pick them up?

05 08 42 31 LMP We ought to get those things out and tape them on the wall somewhere.

05 08 43 04 LMP Are you in the process of dumping things, there? ... for Scott? Would you get -

05 08 43 10 CMP Okay.

05 08 43 32 LMP (Laughter) That was a big one.

05 08 44 15 LMP Hey, what the hell's going on? ... started moving in a funny direction. Well, I'm looking at a couple of them way out there, and they're going - Yes, that's what I was wondering. I - I got a -

05 08 44 41 LMP Isn't that weird! Look at those - look at those - they're both going like hell. You're right - they're coming back this way.

05 08 44 54 LMP Hey, you know what we're doing, Jim? We're looking ahead in orbit out there, at least I - I'm looking - I think almost down the orbit path; those damn things are coming back.

05 08 45 18 LMP Yes, one of them came shooting right back past the right side of the spacecraft.

05 08 45 27 LMP You - you're not on the intercom now, Jim.

05 08 46 01 CDR They must have tremendous rotational velocity ...

05 08 46 12 LMP Yes, they really do, they spin like mad, don't they? And they're also plastering your window.

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05 08 46 24 LMP They must cling to the edge of the drain, and the bending moment must get too high or something huh?

05 08 46 31 CDR No, I mean, why they go - why do they go out and then turn - -

05 08 46 33 LMP Oh, yes.

05 08 46 35 CDR - - difference in the direction.

05 08 46 36 LMP Maybe they - Do they close? Have you ever seen one actually turn or have you just seen it after it turns?

05 08 46 40 CDR I've seen it after it turns - -

05 08 46 41 LMP Yes, so have I.

05 08 46 42 CDR - - watch - watching a couple of them turn.

05 08 47 01 CDR There's a tremendous velocity. Unusual.

05 08 47 04 LMP Now here's one, sits right out in front of the spacecraft; it's spinning like mad, and now it's coming back.

05 08 47 11 LMP Here comes three more.

05 08 47 17 CDR If you could use your energy in the spacecraft, ... die.

05 08 47 20 LMP Yes, that's right; it really is.

05 08 47 22 CDR Holy smokes! Just look at that one! (Laughter)

05 08 47 27 LMP That big piece?

05 08 47 28 CDR (Laughter) If you ever got hit by one that size it'd kill you.

05 08 47 32 LMP Yes. What, Dave? What?

05 08 47 41 LMP Jim, can you see this one right here?

05 08 47 48 LMP What did you say?

05 08 47 54 CDR Yes. Is that one off? I've missed it.

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05 08 47 58 LMP Yes. ...

05 08 48 05 LMP Did you get that one that went across in front of

05 08 48 07 CDR Yes. Wait a second - Dave, be very careful of those cracking ..., because that may come in two pieces there.

05 08 48 13 LMP Yes.

05 08 48 14 CDR But if you tighten it down too tight ... If you started off with that one, ... unscrewed ..., you might not be able to get that off.

05 08 48 25 LMP That's when the ... and give it a little squeeze.

05 08 48 32 CDR Yes.

05 08 48 35 LMP That ... came across in front of my window; came all the way around the side and went out the back.

05 08 48 44 CDR (Laughter) ... the curve; I saw one that I swear was ...

05 08 49 23 LMP There it goes, the big show has started.

05 08 49 35 CDR Look at those big ones. Wow!

05 08 49 38 LMP Yes. Here they come.

05 08 49 45 LMP You know, I bet, if you'd let it dribble out real slow, you'd really get big ones.

05 08 50 10 LMP Here comes one back at us. Boing! It bounced off the front of the spacecraft.

05 08 50 14 CDR Not coming very fast, is it, Dave? Look, there's one right there that actually - ... I can see it.

05 08 50 23 LMP I know, I - One just turned around and came back and hit the spacecraft, that I was watching. Here comes another one.

05 08 50 27 CDR Well, I saw this one curve and ricochet and go back under the ... path. ...

05 08 50 44 LMP Yes, man, I'm sitting here watching one - It turns right around - it made a U-turn - and it's coming

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back. Besides, it's going right - it's going from right to left across the front of your window.

05 08 51 04 LMP

And there's another one coming right now. Yoow!

05 08 51 26 CDR

...

05 08 51 31 LMP

I hope it's gone down. Hey, you have the waste water tank servicing valve open. That's what happened.

05 08 51 48 LMP

There it goes. Whoohoo! Look at that show.

05 08 51 56 CDR

Fast one, wasn't he?

05 08 51 58 LMP

My God. (Laughter) They're traffic whizzes. Her comes Florida down there, Jim.

05 08 52 18 CDR

Yes.

05 08 52 24 LMP

And here comes one right back through the whole damned storm.

05 08 52 26 CDR

It has a lot higher velocity, too, doesn't it? ..

05 08 52 34 CMP

Yes.

05 08 52 40 LMP

Way out there, there's some of them that go 90 degrees to the -

05 08 52 45 CDR

... Maybe ... couple of particles out there.

05 08 52 51 LMP

You know - The last downlink - cost me the last .. just before we ... him.

05 08 52 57 CDR

Look out that window at the sunlight.

05 08 53 03 LMP

Yes.

05 08 53 13 LMP

Dave, get way down here and look out that window at the sunlight. Right into the sun? You ... Hey, I wonder if - Hey, Jim, what - what are our r doing? Can't they - -

05 08 53 31 CDR

Pick up ...

05 08 53 43 CDR

Toward the - The last few days - According to Don Riggs, anyway, they want to try to get us to

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dump our waste water over - over some - tracking site. Some - These big telescopes - I think they call them the survey-type telescopes - so that they can watch the dispersion of the particles to tell something about whether they're going to hang around the spacecraft or the ...

05 08 54 17 LMP

Hey, I could ... stowage ... This is really something. Check ...

05 08 54 24 CDR

... do that.

05 08 54 25 LMP

How could you see the ..., Jim?

05 08 54 27 CDR

Oh, I'd try the ... put it on ...

05 08 54 30 LMP

Hey, I bet you put your ... right up against the window, you could probably see it even closer.

05 08 54 34 CDR

...

05 08 54 36 LMP

Yes, that ... that small.

05 08 54 47 CMP

Oh, you're all the way down to 49 percent.

05 08 55 22 LMP

Did you get them all, Dave?

05 08 55 24 CMP

No, I didn't get ...

05 08 57 45 CDR

35.

05 09 00 51 CDR

29.

05 09 00 57 LMP

I guess we're really getting - 26 - 20 - but, my God, it goes down like a rock when it gets to 30.

05 09 01 04 CDR

Go ahead and shut it off.

05 09 01 06 LMP

You know, it's amazing. It dribbles down there until it gets to 30, and then it goes mmwhomp.

05 09 01 18 CDR

...

05 09 01 30 CMP

They didn't give us any time to purge that fuel cell, did they?

05 09 01 37 LMP

... Just before we go to bed.

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05 09 09 35 CDR What are you doing down there, Dave Scott?

05 09 09 42 CMP ... pretty.

05 09 09 43 LMP You got a date on the ... the other night? Son of a gun.

05 09 09 48 CMP Yes, ...

05 09 09 54 LMP Going to change this homogenous atmosphere here to a positive cleanliness.

05 09 10 10 LMP You know what I lost? I think I must have lost it during EVA. Can't see any other time I could have lost it. That's my tape.

05 09 10 17 CDR Your tape. Oh, really?

05 09 10 21 LMP ... hide ...

05 09 10 27 LMP Yes. ... came down off the peg ...

05 09 10 42 LMP Oh, you got the valve open. That's a good warning. You know, if that warning ..., you'd run yourself out of oxygen.

05 09 10 54 CDR (Laughter)

05 09 11 03 CDR I'll tell you, ... sure have the mike ...

05 09 11 09 LMP Yes, that's part ... cryo. Temperature control, isn't it?

05 09 11 22 CDR Pressure.

05 09 11 34 LMP Huh?

05 09 13 20 LMP Yes, you do. Way up front here. Yes. Well, you guys are supposed to have one more than me. And I've got one on and one up there. You guys must have three. Hey, Jim. Are you guys down in front of my - if you're right in front of my suit, could you get my dosimeter right out of that pocket the

05 09 14 10 LMP Was there one in there?

05 09 14 36 LMP Hey, we got 200 for the ... today. I think - 238 hours.

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05 09 15 03 CDR 238?

05 09 15 14 LMP There's a piece of ...

05 09 16 51 CMP Whistle while you pee (singing).

05 09 18 59 LMP Hey, Dave, thanks for the - calls on that - transmitting that thing.

05 09 19 07 CDR Boy, I - That's really tough.

05 09 19 14 LMP Yes, I know (laughter). Luckily, we had a good sensor. I said "Luckily, we had a good sensor."

05 09 20 22 LMP You know, we ought to get that LM VOX ...

05 09 20 31 CDR With no A time, yes.

05 09 20 53 LMP Hey, Dave, could you tell any difference between the antenna combination for that VHF test? I couldn't either. It sounded exactly the same whenever we did it, except - when you got to the rendezvous configuration - on the rendezvous, Dave. Boy, all of a sudden things got - garbled and I couldn't put - Yes. And I turned off my B receiver, and I turned off my DCR switch and all kinds of things, and I - I never could quite figure out why, but it seemed to get noisy when you went to that configuration. I never could figure it out.

05 09 22 35 LMP Hey, Jim. Did your OPS work - check out okay on the - on the systems thing? What are we supposed to ... that problem? Do you remember? 2 days, I remember, but - That's right, we just take the pressure - that's right; you're right.

05 09 25 29 LMP I'm wondering how we can get rid of some. Throu the hose.

05 09 28 03 LMP Hey, Dave, you ought to take a crap that way. Repeat that old wives' tale about not spitting into the wind or something. Hey, Jim, what time are we supposed to make that COMM check? (Laughter) Yes; okay, I'll make it now and note the timing. 120 - 129 - Okay, COMM TECH, 1, 2, 3, 4, 5; 5, 4, 3, 2, 1. 1, 2, 3, 4, 5; 5, 4, 3

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2, 1. Or in ... at 110, 11, 100, 101, - 100, 11, 101. And the time is 129:29. Okay.

05 09 29 30 LMP Presumably, that was a CRYO PRESS; now, well, I don't know. No, it was O₂ FLOW HIGH. We dumping again?

05 09 30 24 CDR Okay.

05 09 31 22 LMP Hey, Jim, why don't you leave it open? It was - it was dumping quite a bit of stuff out. Yes. Right after you put that - the - valve back on the end there.

05 09 32 22 LMP I guess it's done. Okay.

05 09 33 01 LMP Okay. It's about done now. Oh, is that bright. Whoo!

05 09 33 57 LMP Yes, you want it?

05 09 34 08 CDR Yes, is that it?

05 09 34 24 LMP Did - did you close the vent, Jim?

05 09 34 25 CDR Yes, I guess so.

05 09 34 26 LMP Huh!

05 09 35 05 LMP ...

05 09 35 41 LMP You don't think that had anything to do with the EVA, huh? Oh, hell, you wouldn't know. You ... EVA on anyway. It's really funny. Right around your eyes, you don't have it. It's almost like you had a pair of goggles on and you were skiing or something, you know, and - yes. You look like a chipmunk or something. It feels like a sunburn though. Kind of warm and throbbing. Yes, it looks a little duller red. It's still real red, but it's - Hey, where the hell are we?

05 09 36 55 CDR China?

05 09 36 58 LMP Yes, that's got to be China. Oh, man, there are some really interesting mountains down there. It's a geosyncline - or something.

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05 10 10 34 LMP We'll take a ... on 190.

05 10 10 58 LMP Oh, yes, we ought to cycle these. 3 minutes on the O₂ fan.

05 10 11 40 LMP Yes.

05 10 13 37 LMP 1, 2, 3, 4, 5; 5, 4, 3, 2, 1. Great. ...

05 10 14 33 LMP Boy, that's a long purge on old fuel cell 2, I tell you. Gees!

05 10 14 53 LMP Did - did we ever power down the spacecraft?

05 10 15 37 LMP Yes.

05 10 15 44 LMP Oh, what? The configuration?

05 10 15 49 LMP The regular power on that ...?

05 10 17 04 LMP We're not turning off the BMAG's either?

05 10 17 30 LMP What am I turning off? Oh, the O₂ fan.

05 10 17 40 LMP Oh, I was just trying to figure out what it - what it ... for.

05 10 17 46 LMP Yes.

05 10 18 47 LMP Boy, oh boy, that damn tank 2 won't come down.

05 10 18 58 LMP Yes, and I don't want the damn thing waking me

05 10 19 06 LMP You want to let it purge some more?

05 10 19 13 LMP (Laughter) 15 minutes! Yes!

05 10 19 34 LMP Hey, are we supposed to purge O₂ in the other

05 10 19 45 LMP Oh, where's the - Hey, why don't you write down what time we did it, Dave? 130:20 - Okay?

05 10 19 59 LMP Here you go.

05 10 20 21 CMP Did you get it?

05 10 20 22 LMP No, I haven't purged it.

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05 10 20 26 LMP

Oh - Well, hell, I'll have to figure it out. Just a minute. It was at that Hawaii pass - I didn't - the time was about 01, so, it must have been about 18 minutes.

05 10 20 43 LMP

No, that - that time is all off, Dave. We get there about 130:01. It was about 18 minutes, I guess - 17 minutes.

05 10 21 05 LMP

Yes, we stopped that at the same time.

05 10 21 08 LMP

Yes.

05 10 21 11 LMP

Oh, okay. That's right.

05 10 21 16 LMP

Now we want to go to H₂ tank to - fan, ON. Man, I - I'll bet that thing is going to go boink.

05 10 23 40 LMP

Dave, you want to do exercises?

05 10 23 50 LMP

You want it out right now? Okay. I'll do it - I got a project. You want the bag? That's a good - that's a pretty good place for it, actually - so you don't knock your head on it.

05 10 24 10 LMP

Oh, where'd the tissues go, again?

05 10 24 17 LMP

I think there are two out, Jim, somewhere. Hey, what - what compartment are the towels in?

05 10 25 38 LMP

Are they wrapped up or something, Jim? Are they wrapped up in something?

05 10 25 53 LMP

Okay.

05 10 25 57 LMP

Yes, I got them. They were already out.

05 10 26 04 LMP

Oh, okay.

05 10 26 10 LMP

Okay. You want one of yours? You want one of yours? Okay. Okay.

05 10 27 42 LMP

Hey, Dave, the only configuring you have to do up there is turn that H₂ fan on. I think all the rest of it is all done.

05 10 28 21 LMP

Okay. You want to sleep under the couch, Jim?

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05 10 30 09 LMP Tell y'all what. Why don't we ...? One way to make it last.

05 10 30 43 LMP Boy, does that poor gas thing - Hey! We got to chlorinate this thing!

05 10 30 48 LMP We got to chlorinate the damn thing tonight.

05 10 31 43 LMP You ready for the headset, Jim?

05 10 31 46 LMP Okay, I'm on - I'm signaling through. Ooh.

05 13 15 18 CC 9, Houston. Have a good night. We'll see you tomorrow.

05 13 15 26 LMP Guten näben.

05 13 15 32 LMP Should have a good pass; we'll see you tomorrow.

05 13 15 35 CDR Hey, have a good night; see you tomorrow.

05 19 55 26 CC Apollo 9, this is Houston.

05 19 55 30 LMP Go ahead, Houston; Apollo 9.

05 19 55 35 LMP Houston, Apollo 9.

05 19 55 39 CC Ring-a-ring-a-ring! The alarm clock has just gone off, Apollo 9.

05 19 55 45 LMP Roger, Houston.

05 19 55 49 CDR Houston, Apollo 9.

05 19 55 51 CC Roger. We're reading you loud and clear.

05 19 55 53 CDR Oh, very well.

05 19 55 56 LMP How do you read me, Houston?

05 19 55 57 CC And a cheery good morning.

05 19 56 02 LMP Houston, how do you read me?

05 19 56 04 CC I read you loud and clear.

05 19 56 07 IMP Okay. Well, we're with you. What would you like to do first?

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05 19 56 13 CC

Okay. I've got some block data; I've got a short consumables pad, and I've got some changes to the flight plan. So, your choice.

05 19 56 27 LMP

Well, I've got the consumables sitting in front of me. Why don't you do that one?

05 19 56 32 CC

Okay, and the - I'm not reading any of the quads; that's the same thing as the - as they gave you last night. I'm starting on the cryo O₂. That is 365, and if you compare it to the one you had be - -

05 20 14 40 LMP

- - 095 4 Bravo, plus 333, minus 1640, 150:10:27, 2844; 096 4 Alfa, plus 291, minus 1650, 151:44:00, 2844; 097 Charlie Charlie, plus 174, minus 1610, 153:19:44, 2844; 098 Charlie Charlie, plus 095, minus 1710, 154:51:55, 2844; with a pitch trim of minus 0.89 and yaw trim of minus 1.15.

05 20 15 41 LMP

Oh, okay. You were sort of garbled there - 335, okay?

05 20 15 59 LMP

Okay, here comes the second one. 092 1 Bravo, plus 318, minus 0625, 144:19:36, 2844; 093 1 Alfa, plus 269, minus 0680, 145:52:18, 2844.

05 20 16 43 LMP

Roger. Verify both of those.

05 20 16 51 LMP

Houston, Apollo 9. I'd like to have a map update, please.

05 20 16 59 LMP

Roger. Carnarvon at 43, and could we get a map update then?

05 20 17 16 LMP

Want it well done?

05 20 17 34 LMP

Yes.

05 20 17 40 CMP

... 145 ...

05 20 17 42 CDR

(Laughter)

05 20 17 47 LMP

Houston ..., don't they?

05 20 18 10 CMP

What?

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05 20 18 30 CDR ... to get up.

05 20 18 32 LMP Yes, I thought they were trying to wake us up with reveille or something.

05 20 18 42 CDR Yes. You got about an hour or two to sleep.

05 20 18 55 LMP You got what?

05 20 19 01 LMP You got what?

05 20 19 14 CMP No, no ... stay awake. You don't think there are any ...?

05 20 19 53 CDR Okay.

05 20 20 04 LMP Hey, I tried the classic sleep last night - like this.

05 20 20 07 CDR (Laughter)

05 20 20 15 LMP Just relax, you're not in front of anything.

05 20 20 20 CMP ... loads P37.

05 20 20 26 CDR God, it's too hot in here.

05 20 21 09 LMP We ought to see some pretty scenery today. Okay, we're going to go right over Morocco.

05 20 21 24 CMP I see them there and there and there.

05 20 22 47 CMP Oh, I screwed up. ...

05 20 22 50 CDR Well, I'm going to check you. You mind if I get a verification from the ground?

05 20 23 09 LMP Hey, we're going to go right - No, that isn't too good.

05 20 23 12 CMP I thought I screwed up, but I screwed up because I thought I screwed up.

05 20 23 14 LMP Oh.

05 20 23 16 CMP But I didn't screw up.

05 20 23 19 CDR Not Dave Scott! ... screw up Jim.

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05 20 23 33 CDR Go!

05 20 23 43 LMP Yes.

05 20 24 03 LMP Put her in here and then checked all this -

05 20 24 17 LMP Oh, are we?

05 20 24 33 CDR State vector ...

05 20 24 47 CMP Okay.

05 20 25 03 CMP ... camera?

05 20 25 04 LMP My what? Oh? I'm not sure that it's the one up here, Dave.

05 20 25 58 CMP I can't see it.

05 20 25 59 CDR There's another camera in here, Dave.

05 20 26 03 CMP Huh?

05 20 26 11 CMP How about it?

05 20 27 32 CMP What?

05 20 27 47 LMP That must be the ... REPRESS. No.

05 20 28 04 LMP Sure looks like a lot over.

05 20 28 17 CMP I don't know.

05 20 28 18 LMP What?

05 20 28 49 LMP It looks like you've lost it.

05 20 28 50 CDR (Laughter)

05 20 28 52 LMP ... anybody else -

05 20 29 07 LMP No, no, no, no.

05 20 29 17 CMP Check, it's 140. Oh, no!

05 20 29 23 CDR Oh, yes!

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05 20 29 27 LMP We went by - and that's right, too. Yes. Add -
... add.

05 20 29 39 CDR That's right.

05 20 29 59 LMP You like those, huh? Hey, we're going to go right
over Carnarvon. Oh, man.

05 20 30 07 CMP ... Carnarvon.

05 20 30 11 CDR ... We should have been able to see Australia ...

05 20 30 34 CMP Right here over Carnarvon. I've got you.

05 20 30 50 LMP Get a map out.

05 20 31 03 CDR The next time ..., we'll ... (laughter).

05 20 31 33 LMP Yes, why don't we take it out? Yes, can you get
the length? ...

05 20 31 47 LMP We don't need all that other stuff. Take it out.

05 20 32 03 CDR I'm going to have a hot chocolate. ... hot
chocolate.

05 20 32 28 CDR That's what I'm going to do.

05 20 32 31 LMP ... get breakfast out of here.

05 20 32 36 CMP There's only -

05 20 33 05 CDR Hey, get to eating there - ... hot chocolate.

05 20 33 16 LMP Okay -

05 20 33 18 CMP Day 5, B and D.

05 20 33 47 CMP ... hot stuff.

05 20 33 51 CDR Yes, I got it.

05 20 33 54 LMP Okay.

05 20 34 11 CMP Yes, there isn't - On day 7, I've got one, you've
got one - and Rusty's got one. All three day
7's have one.

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05 20 34 26 CMP ... get two day 7's out ...

05 20 35 18 CDR Dave.

05 20 35 19 CMP Huh?

05 20 35 20 CDR Which day ...?

05 20 35 23 CMP I can tell you I know it doesn't have any hot chocolate in it, but I'll tell you what it is. Do you?

05 20 35 30 CDR Number 2, isn't it?

05 20 35 31 CMP I don't know. Okay, bacon, applesauce, sugar-coated corn flakes, brownies, grapefruit, and grapes.

05 20 35 43 CMP Yes.

05 20 35 52 CMP Yes.

05 20 35 57 CMP I'll give you this one.

05 20 35 58 CDR No, no. I got cupcakes.

05 20 36 18 LMP How did I get salmon salad for breakfast?

05 20 37 39 LMP There we go!

05 20 38 03 CMP Here's your ...

05 20 38 04 LMP Okay. Okay. I ...

05 20 38 12 CMP I'll just keep it in these bags.

05 20 38 14 LMP No, ...

05 20 38 45 LMP Yes, why don't you go change it for us? Huh? What could be plainer than that?

05 20 39 37 LMP Who wants a squirt of water?

05 20 39 39 CMP I will if you let me cut this. Alright.

05 20 40 12 LMP Yes, right in the ...

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05 20 40 37 LMP Okay.

05 20 40 50 CMP That's Thursday morning -

05 20 41 27 LMP Yes.

05 20 56 19 LMP -- ... In any case, I think we ought to ...

05 20 56 23 CDR Oh, yes, make sure we get that.

05 20 56 25 LMP But I - -

05 20 56 26 CDR ...

05 20 56 29 LMP ... that we have ... specially ... get up ...

05 20 56 58 LMP Yes.

05 20 57 21 LMP Oh, we're going to come right across the southern tip of Florida on this one - between Florida and Cuba.

05 20 57 36 LMP Boy, there's your longhorn steer.

05 20 57 49 LMP Let's see if we can't find another place to put this thing.

05 20 58 00 LMP Maybe we can get some pictures - that they want. Good ...

05 20 58 13 LMP When is our first - our activity with the ...?

05 20 58 19 LMP Oh, okay.

05 20 58 24 LMP Okay, here's our first target ... that they want. Right there, we come right up across here and so we go right through that area. Right up here.

05 20 58 47 CDR You still using that ..., Dave?

05 20 58 51 CMP Not the computer -

05 20 58 53 CDR ... or what?

05 20 58 55 CMP I'll keep my eye on it -

05 20 59 03 CMP No, it doesn't matter. I just want to go through -

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05 20 59 09 LMP We're going to be pretty busy pretty quick. Yes, we have three landmarks - we got - just ... - we got all this - Here, let me see. Then, we come down here and do ... then, after tracking, we got three landmarks - oh, two.

05 20 59 37 CMP Yes, yes!

05 20 59 38 LMP SO 65. You guys probably ought to try a couple landmark tracks, huh?

05 20 59 45 CMP At least, give each man the experience ...

05 20 59 48 LMP ... time, get data out of three ...

05 20 59 53 CDR No - We're not here to find out if we can train people to ...

05 21 00 00 CMP Accuracy is what you need - to pinpoint where you're at. Yes, ... view it with the sextant and I'm not sure that's ... AUTO optics - ... target in the sextant, too. You have perfect pointing or you're picking up a ... telescope and the sextant - -

05 21 00 22 CDR If you know the land.

05 21 00 24 CMP - - if you know the land, you're in.

05 21 00 43 CDR Hey, look here, my thermal underwear was ...

05 21 00 50 LMP I couldn't - zip my bag up until -

05 21 00 52 CDR I was very comfortable last night.

05 21 00 55 LMP Yes, I started dreaming last night.

05 21 00 57 CMP Hey, I had a dream last night, too. I ...

05 21 01 16 CMP ... he hollered out when ... and I could just see him reaching into ... and having a snake bite him. I don't know what made me think of that.

05 21 01 21 CDR Hey, Rusty, let me get that -

05 21 01 24 LMP I don't know where it is right now.

05 21 01 25 CDR Okay. Let me tweak the optics and have my hot chocolate ...

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05 21 01 31 LMP I want to take one, too.

05 21 02 16 LMP You got all those breakfasts out, didn't you, Jim?

05 21 02 31 LMP Yes, that must be your toothbrush down in your S-thing. Whatever your number is, huh?

05 21 03 00 LMP Hey, I was thinking of reentry stowage last night, too. We're not going to have to make some more changes to that. ... stowage garbage here sometime today.

05 21 48 04 CDR Are you sure you did, Dave? How do you know?

05 21 48 05 CMP ... What are you doing, Jim?

05 21 48 10 CDR Oh, yes, yes, ...

05 21 48 50 CMP Ooh, look at that! Holy cow, that's really neat.

05 21 48 53 LMP You getting some good pictures down there?

05 21 48 55 CMP Oh my; oh boy! Boy, that's spectacular!

05 21 49 07 LMP Hey, you got some lava flows or something coming up. Looks like it - It's black stuff anyway.

05 21 49 15 CMP Yes, whoo. Boy, those are great! Isn't that spectacular?

05 21 49 41 CMP It shifts like that, too, you know? I'll turn them on.

05 21 49 49 CDR If you just knew where you were.

05 21 49 51 LMP Oh, I can tell you where you are. 50 - Dave, go ahead and take it for another 2 minutes, and then we ought to go to the hatch window and start taking them - Oblique a little bit to the north and get Libya in there. Boy, those are beautiful!

05 21 50 21 CDR That is really pretty.

05 21 50 36 CMP I don't want to use all the film left, though. I've already used a hundred.

05 21 50 45 LMP Not really.

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05 21 51 05 LMP Here's a little coming across right now. We can hit that one. I want to get that one there. Right here is where we're going to shoot that one.

05 21 51 18 CMP There's where Lawrence of Arabia was. Yes, that reminds me of old Lawrence baby. God, that's spectacular. Look at the way it glows in there. Isn't that pretty? That's really something.

05 21 51 46 CDR Hey, this sightseeing's great.

05 21 51 52 LMP Hey, Dave, why don't you eat and let me take some out the hatch window here? Of this Libyan thing.

05 21 51 57 CMP Here?

05 21 51 58 LMP Let me get some here.

05 21 52 01 CMP Let me take one more, Rusty.

05 21 52 02 LMP Okay. Go ahead. I know.

05 21 52 07 CMP Here's a - -

05 21 52 08 LMP ...

05 21 52 09 CMP - - here's some more of that ... You're getting all the contours and the sand blowing and that stuff.

05 21 52 19 LMP Okay, well, look. No, you got a better view there anyway. Go ahead. I thought it rolled farther and 53:30 is when you come across that Libya thing, so - -

05 21 52 31 CMP Okay.

05 21 52 32 LMP No, I'm not saying that; I'm just saying keep taking pictures through 53:30.

05 21 52 39 CMP Those clouds are going to move in.

05 21 52 47 CMP A great big cloud. Ooh. Whoo! Geology and clouds. How can you beat that?

05 21 53 14 CMP Oh, there is where a meteor hit, too. I got a meteor hole out there, right in the middle of all the lava and all that jazz.

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501

05 21 53 26 LMP Do you really? Where is it?

05 21 53 27 CMP Yes, look at it right there. Looks like a big hole. A big round - -

05 21 53 31 LMP Oh, yes.

05 21 53 32 CMP See?

05 21 53 33 LMP Hey, look at - -

05 21 53 34 CMP What?

05 21 53 35 LMP - - and the flow - -

05 21 53 36 CMP Yes.

05 21 53 37 LMP - - the stuff flows around it.

05 21 53 38 CMP Cuts into the flow?

05 21 53 39 CDR Yes, right there.

05 21 53 40 LMP Take a couple of them of that, Dave. ...

05 21 53 42 CDR No, that's over on the coast.

05 21 53 43 CMP Well, one's enough.

05 21 53 47 CDR Yes, we're - we're way in there.

05 21 53 49 CMP ... is much more expensive than that.

05 21 53 55 CDR That's real pretty.

05 21 54 01 LMP Dave, the only thing is those - those other lines - those windblown lines kind of spread out and went around it, though. Kind of smacks like maybe it's a hill or something.

05 21 54 32 LMP Okay, we're in the Sudan now, Dave.

05 21 54 35 CMP Oh, yes?

05 21 54 36 LMP Yes. And we'll be coming up on the Ethiopian plateau here, pretty quick, another couple of minutes. If you want to get some for Mr. Selassie.

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05 21 54 51 CMP Oh, yes.

05 21 54 58 LMP Gimbal lock. Gimbal lock.

05 21 55 00 CDR Okay, I'll get it.

05 21 55 03 LMP Yes, sir.

05 21 55 12 CMP I'll give you two points if you catch me.

05 21 55 56 LMP Which one, Jim? No, I thought you said you wanted one.

05 21 56 04 CMP Will we be going across here, Rusty?

05 21 56 06 LMP Yes, we went across there and - -

05 21 56 08 CMP Right by that square, huh?

05 21 56 09 LMP Right below it. Right - you're down here.

05 21 56 11 CMP That way?

05 21 56 12 LMP Yes, and we're coming right across here right now.

05 21 56 13 CMP Huh!

05 21 56 16 LMP What is it, cloudy? Here's one they want, just north of Addis Ababa, but we're - -

05 21 56 27 CMP Cloudy right now.

05 21 56 32 CDR ...

05 21 56 34 LMP Okay, that's a good idea. Hey, Dave, why don't you finish out this camera right now? Okay?

05 21 56 52 LMP Oh, we got a whole batch.

05 21 56 53 CDR Yes.

05 21 56 55 LMP We've millions of them. Yes, look ... The easiest - the easiest ones to get are down here. There's a couple of them - I think there's a small one in there, Jim. As a matter of fact, up on this end. A and B both have pictures left on them.

05 21 57 40 CMP Gosh, that's really pretty.

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503

05 21 58 27 LMP Where's the photo log, Dave?

05 21 58 30 CMP Photo - photo log. Oh, it's probably - No, yes, here it is; I got it.

05 21 58 40 CDR You want this other film over there, Rusty?

05 21 58 42 LMP Yes, I want - I want the empty one. Whichever one you've emptied.

05 21 58 45 CDR ... the little ones, either one of them.

05 21 58 47 LMP Okay, go ahead and empty the little one, and then I'll put this new film back on it.

05 21 58 52 CDR I thought maybe you wanted ...

05 21 59 05 LMP Yes, the last one I took was a big one, magazine C ... 85.

05 21 59 10 LMP 85? Okay.

05 21 59 24 LMP Jim, that was REV 89, wasn't it, that update? You remember? Was the map update REV 89?

05 22 01 06 CMP You've got to get it over there now, Rusty.

05 22 01 11 LMP Yes, but I think we're - Yes, we're over the Indian Ocean, right?

05 22 01 15 CDR Yes.

05 22 01 18 LMP Yes.

05 22 01 22 CMP Yes, this thing says 65, and it - and it still looks like it's got film in it. 66. Looks like it's going to go up to 70.

05 22 01 34 LMP Sure that ... take too much?

05 22 01 43 LMP No, it doesn't say, because this just has the command module film in it, see, and it doesn't have the LM film back. And we didn't have any small ones in the command module, so - You know what we ought to do is, we ought to pick some fairly uninteresting shots and shoot away like mad and see - just to see what happens. See if it stops. Well. If

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that's the case, we ought to quit then. Dave, what numbers did you take? You have any idea?

05 22 02 24 CMP

Yes, I'm through 65. I took four.

05 22 02 29 LMP

So you took 61 through 65? No, you must have taken more than that, because - -

05 22 02 34 CMP

No really, I ... That must have been 59 through 65.

05 22 02 38 LMP

- - because you said there were only a couple - you said there were about four left or something.

05 22 02 41 CMP

You said that; Jim said that, there were only a couple left. You said there were only a couple left ... right? Little ones? But I went up through 65 and I don't know whether ...

05 22 02 56 LMP

What MAG is it?

05 22 03 08 CMP

F.

05 22 03 11 LMP

Okay.

05 22 03 13 CMP

This one.

05 22 04 40 CMP

125 and 45.

05 22 05 02 LMP

No, just mine, here.

05 22 05 11 LMP

Yes. Hand me that camera, Dave, and I'll - -

05 22 05 14 CMP

...

05 22 05 28 LMP

Hasselblad? Yes. I don't think that's a good idea. Hey, no, I want the small one, Dave. Well, here, I'll change the small one for you.

05 22 06 20 LMP

Jim, you want to stow this one?

05 22 06 25 CDR

Sure ...

05 22 06 29 LMP

Yes. Okay, Dave, you got 40 left on there.

05 22 07 48 LMP

Have we ever found that? Is that part of the photo log? Yes, it is.

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05 22 08 07 LMP We're going to come right across between Sydney and Brisbane.

05 22 08 09 CDR ...

05 22 08 11 LMP Just north of Adelaide. Oh, yes, because it's already getting dark. Yes. We have anything this night pass? We've - we've got to do that nominal align again. Right?

05 22 09 19 CDR We do all the fuel cell purges and all that stuff? ...

05 22 09 25 LMP No, as a matter of fact, no, we never did finish that part of our checklist. That's a good point.

05 22 09 28 CDR ...

05 22 09 30 LMP That's a good idea.

05 22 09 38 CDR ... go across that plateau ...

05 22 09 51 LMP He didn't mark anything for day 6. Today is day 7, isn't it? Yes, because 5 was the rendezvous day, yes.

05 22 10 28 LMP Want to do a DSKY lamp test, David? Get the DAP activated; you don't want to do an erasable dump; in plane, align GDC; you're going to do that, huh

05 22 10 52 LMP Should I purge 8, too?

05 22 10 54 CDR ...

05 22 11 05 LMP Purge hydrogen, okay.

05 22 11 39 LMP Oh, turn the cryo fans on. Stir up the cryos a b

05 22 12 26 LMP Let's go ahead and start your alignment, Davey.

05 22 14 37 LMP Dave, how about turning your floods down over the

05 22 14 44 CMP 142:16.

05 22 14 53 LMP It's 2.0.

05 22 15 38 LMP Are we rolling left, Dave?

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05 22 15 42 CMP We're rolling right.

05 22 15 44 LMP We're rolling right?

05 22 15 56 CMP Okay.

05 22 30 47 LMP Oh, my God!

05 22 30 48 CMP Ohh - -

05 22 30 49 LMP Wow!

05 22 30 50 CDR Hey, wasn't that something?

05 22 30 56 CMP Man!

05 22 31 01 CDR Let's see the - What's the time of that first tracking ...?

05 22 31 17 CMP 142:56.

05 22 33 13 CMP Hey, that gouge for Atria off the bottom of Scorpio really works nice.

05 22 33 18 CDR Dave, where are those cards that you had that were just the plain slick?

05 22 33 25 IMP Hey, I've got one here. You want this one?

05 22 33 28 CDR Let me turn around - Let me have that pad again. Thank you.

05 22 34 02 LMP You got any tissue stashed away - around here? Do you have any tissue stashed away? Here, I'll find them. Don't - don't go looking for them. You have too much work to do.

05 22 34 14 CDR Here.

05 22 34 15 IMP Oh, okay. Thank you.

05 22 34 42 LMP Is there anything I can do to help you guys over there?

05 22 34 45 CDR Think so, Rusty. Hang on to this thing. Keep it available for both Dave and I.

05 22 34 51 IMP Reading, or anything like that?

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05 22 35 34 CDR Yes, I tell you, there is one thing you can do. Get the flight plan and make sure we've done all that stuff that we're supposed to do, starting - -

05 22 35 47 LMP I'll get it.

05 22 35 49 CDR Here, start on this page, and make sure we've done all that stuff.

05 22 36 07 LMP Get the filter changed this morning?

05 22 36 09 CDR I got the ...

05 22 36 11 LMP Okay, the "chlorinate potable water" we're not going to do.

05 22 36 13 CDR No.

05 22 36 17 LMP The block data. Did they give you block data, Dave?

05 22 36 19 CMP Yes. I got it over ...

05 22 36 21 LMP Okay.

05 22 36 25 LMP Did you damp the rates, Jim?

05 22 36 27 CDR Yes. Damped the rates.

05 22 36 28 LMP Okay.

05 22 36 40 CDR Okay, Dave, it's 142:36.

05 22 36 43 CMP 20 minutes.

05 22 37 01 LMP Alright, we've - we've done everything so far, Jim.

05 22 37 03 CDR Okay. Thank you.

05 22 42 14 CMP That's not right.

05 22 42 16 CDR Why not?

05 22 42 17 CMP You got the right landmark?

05 22 42 21 CDR Yes. Looks pretty rough to me. That's why we're back to them.

05 22 42 23 CMP 021?

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05 22 42 26 CDR Huh?

05 22 42 30 CMP The landmark ID is 21?

05 22 42 32 CDR Yes.

05 22 42 33 CMP And we're going by the Redstone? 4 minutes before the landmark?

05 22 42 37 CDR We're very short of track, Dave.

05 22 42 39 CMP Huh?

05 22 42 40 LMP I got it right here.

05 22 42 42 CDR Look at the track.

05 22 42 45 IMP Here, Dave. We're coming up here. On this REV.

05 22 42 54 CMP Okay.

05 22 42 56 CDR We should be coming across the - the ... of the tip of Baja. You might be able to see that. Then you can see the Gulf, and then across Mexico and in - into the Gulf of Mexico. You're going to see -

05 22 43 12 CMP This is north of ground track, right?

05 22 43 15 CDR South of ground track. We'll be facing south. If we were facing north, we could get some nice picture of the states.

05 22 43 20 IMP We're going right over Houston.

05 22 43 22 CDR Okay, but we probably won't see it.

05 22 43 24 LMP This map update's out of date then already. According to here, we're going right over Houston, or - -

05 22 43 31 CMP Yes.

05 22 43 32 LMP Yes.

05 22 43 33 CMP If the target's south of track - -

05 22 43 35 CDR The target's Corpus Christi.

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05 22 43 37 LMP Yes, this map is already out of date, then, because this - On this route, it shows us going south of Houston by a long way.

05 22 43 50 CMP That doesn't sound very right, for some reason.

05 22 43 52 LMP No. Let me check this ...

05 22 43 57 CMP Yes, I think so, because it's still dark out there. How can you get a landmark ...?

05 22 44 03 CDR We're at 44 now. It's starting to get light up to it. It's coming up on sunrise.

05 22 44 07 LMP Oh, really?

05 22 44 08 CDR Yes.

05 22 44 09 CMP You know, it's not dark at Corpus Christi.

05 22 44 10 LMP I know it.

05 22 44 11 CMP It shouldn't be.

05 22 44 12 LMP Well, I don't know what time it is - -

05 22 44 14 CDR A quarter to - a quarter to 9 at Corpus Christi.

05 22 44 16 CMP Oh, really?

05 22 44 17 LMP Yes.

05 22 44 21 LMP ... 123, 123. Well, the map is still set right, but - it could be that the inclination was what's different, but - Why don't we ask them what our inclination is ...

05 22 44 41 CDR Boy, that's a pretty sun - sunrise. Woowee!

05 22 44 44 LMP Well, it would have to be a hell of a difference in inclination. We'd have to be around 38 degrees to be north of Houston, if this map is right.

05 22 44 56 LMP Look at that, Jim.

05 22 44 58 CDR Would you believe I see a satellite ricocheting across the sky out there?

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05 22 45 01 LMP Where, Jim?

05 22 45 03 CDR Just right over the sunset. The center. I don't want the map, Rusty.

05 22 45 09 LMP Okay.

05 22 45 14 CMP Sure looks like it, doesn't it? Is he really moving? I'm not sure he's moving, Jim.

05 22 45 33 CDR Oh, looks like he's moving with respect to the ground. He should be moving with respect to the sky.

05 22 45 38 CMP I got him on the edge of my window, and he doesn't seem to be doing anything.

05 22 45 43 CDR I'll be darned.

05 22 46 10 LMP What - what's the second landmark?

05 22 46 13 CDR On the coast of Africa.

05 22 46 15 LMP Oh, okay.

05 22 46 18 CMP ...

05 22 46 22 CDR Dave, I can't hear you. Is your interphone on?

05 22 46 24 CMP Yes. Can you hear me now?

05 22 46 26 CDR Yes, I want to be sure I can hear you when we're doing this.

05 22 46 33 CMP Yes.

05 22 46 38 CDR Ye old spacecraft is in the sun.

05 22 46 41 LMP Good.

05 22 46 42 CMP True ... ye old telescope isn't in the sun.

05 22 46 46 CDR Okay. I'm going to start rolling us out now.

05 22 46 48 CMP Okay. Now it comes in.

05 22 46 55 CDR Can you see the horizon?

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05 22 46 58 CMP Not yet. It's dark.

05 22 47 01 CMP ... can't really tell ...

05 22 47 02 CDR The horizon's not dark. It's well lighted.

05 22 47 05 CMP Let me take a look.

05 22 47 07 CDR And I think I'm banked around enough here for you.

05 22 47 10 CMP You're pointing south.

05 22 47 12 CDR We're pointing south. Want to pitch down about 30 degrees.

05 22 47 20 CMP You know, the middle two words you did there, completely disappeared.

05 22 47 24 CDR ...

05 22 47 25 CMP Yes. You said, "I'm banked around" and then you said that "mm-mm-mm" and "I'm pointing you south" or something.

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05 22 47 32 CDR Hmm!

05 22 47 37 LMP This mike seems to be very directional.

05 22 47 39 CDR Yes.

05 22 47 48 LMP Boy, this thruster over here really kicks out a bunch of crap. You ... fire yaw right?

05 22 47 55 CDR Yes.

05 22 47 56 LMP Okay.

05 22 48 13 CMP Oh, I'm getting to the horizon. Good, Jim.

05 22 48 15 CDR That okay there?

05 22 48 16 CMP Yes.

05 22 48 17 CDR Alright, I'll - You want to stop it right there?

05 22 48 19 CMP That's - that's - -

05 22 48 20 CDR Huh?

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05 22 48 21 CMP - - Oh, you could roll - No, I think that'll be fine, Jim.

05 22 48 29 LMP Now the horizon ought to be parallel to the bottom of your window.

05 22 48 36 CDR ...

05 22 48 39 LMP Yes, that's a pretty good gouge.

05 22 49 52 CDR Okay, Davey, I've got the attitude I'm going to

05 22 49 54 CMP Okay.

05 22 50 23 CDR And it's 142:50:24.

05 23 21 07 CDR Your times and everything are real well - real good, and AUTO optics seems to be doing real good

05 23 21 12 CC Okay, copy. I'm going to lose you in about 30 seconds off Canary. We'll see you in Tananarive at 35.

05 23 21 20 CMP Okay.

05 23 21 25 CDR Next on there is south of track 2. One's way south; one's way north. No, one's way south and one's a little north.

05 23 21 51 LMP Alright. ... landmark -

05 23 22 19 CMP Hey, yes, that - that's good, Rusty, telling me what - what you see on there, because I can - tell I don't have to take my eye out of there.

05 23 22 27 LMP Yes, if that's ... pass me the thing there; I want to see if I really got a picture of the landmark whether I was looking that far south of track. Okay, this is the one I got a picture of. I thought so, because it didn't look exactly like that.

05 23 22 49 CDR Yes, I know.

05 23 22 51 LMP Did you see that? Well, then I got a picture of it today. I looked at the shape of him, and it didn't look exactly like that.

05 23 22 59 CDR ... makes him more ...

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05 23 23 04 LMP It's hard to tell - The scale ...

05 23 23 08 CDR I think this is ...

05 23 23 15 LMP How far north of the track were we on that one?
60 miles? I want to go to ACKNOWLEDGE, here.

05 23 23 23 CMP Hey, I tell you, that's - very interesting.

05 23 23 28 LMP Dave's got the ...

05 23 23 31 CMP 0649 000. That means I took five perfect ones.

05 23 23 39 CDR No, we just ... to be perfect.

05 23 23 41 LMP No, that means our state vector is perfect, David.

05 23 23 43 CMP No, I didn't get any marks there, I guess. Hey,
I wonder if we were doing something wrong
procedurally.

05 23 23 48 CDR Well, I don't think so.

05 23 23 51 CMP We didn't have any trouble on the ... this time.

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05 23 23 53 CDR I know it.

05 23 24 21 CMP I'll take it. ... update the state vector.

05 23 24 26 CDR Did you get any marks here?

05 23 24 28 CMP Five.

05 23 24 29 CDR Did your mark counter say five ...?

05 23 24 31 CMP No.

05 23 24 32 CDR Can you check the mark counter?

05 23 24 33 CMP Yes.

05 23 24 35 LMP Maybe you have to check it before, Dave.

05 23 24 38 CMP Maybe I do. Maybe before - maybe before I proceed -
No, the mark counter should stay put. Let me look
into that. I zero the mark counter when I proceed
to - to incorporate them, but I don't do that in a
rendezvous program.

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05 23 25 00 CMP Oh, it got them. Hey, good show! It did incorporate the marks, and my doggone DELTA-V were zero.

05 23 25 07 LMP What's that? How do you know that -

05 23 25 09 CMP That's a new latitude and longitude.

05 23 25 12 LMP Of - of what? Of the point you marked?

05 23 25 13 CMP Yes. That's what our state - that's what our updated state vector is.

05 23 25 18 LMP Well, wait a minute now. That looks like we got the wrong option. Looks like we're locating what's on the ground, rather than our state vector.

05 23 25 24 CMP Well, you just changed it. We've just changed our state vector, and we reidentified the landmark coordinates with our new state vector. That's what that is.

05 23 25 34 CDR Well, that - that sounds like we're ... a landmark.

05 23 25 36 LMP Yes, that's the - -

05 23 25 37 CMP No, no, no, no, no - no landmark does that.

05 23 25 40 LMP Hey, Dave, what's that latitude? Should that latitude be the point? ...

05 23 25 47 CMP Latitude.

05 23 25 49 LMP Yes.

05 23 25 50 CMP That's the point.

05 23 25 53 CDR Well, if you're a lati - if you're doing a known landmark, shouldn't that come up the same?

05 23 25 57 CMP No, no, not after you update the state vector.

05 23 26 00 CDR No, you're saying that, just because you update the state vector, you can't use a point on the ground. You don't change that, Dave.

05 23 26 05 CMP Yes, you do.

05 23 26 06 CDR Dave, how can you? That's fixed to the earth.

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05 23 26 09 CMP I know, but - it's - it's fixed to the earth, but not in the state vector. It's not - -

05 23 26 13 CDR What you're trying to do is change your state vector, aren't you? Not the - not that point on the ground.

05 23 26 17 LMP ... 0649, not you.

05 23 26 19 CMP Now wait a minute. This tells you where your landmark - that landmark coordinate - where the coordinates of that landmark are now due to the incorporation of the marks into the state vector.

05 23 26 35 CDR Yes, but that sounds to me like that's an unknown landmark.

05 23 26 38 CMP No, that's a known landmark. Now it says if the known landmark is there.

05 23 26 44 CDR I don't - That doesn't make sense to me.

05 23 26 46 LMP That doesn't to me either, Dave.

05 23 26 47 CMP Well, that's the way it is.

05 23 26 48 LMP Okay. Fine - -

05 23 26 49 CDR Well, how would you do an unknown landmark, then? What are you trying to do, an unknown landmark -

05 23 26 52 CMP Okay, an unknown landmark you'd take some point, and it'll define the coordinates of that landmark; and then - -

05 23 27 00 CDR Yes. Isn't that what this is doing here?

05 23 27 02 CMP No, this has changed the coordinates of that landmark, I put in - Okay, let's start from the beginning. Okay, we got a state vector. I put in the first bunch of coordinates for the state vector. Then I said, "Okay, I want to go to that point on the world, AUTO optics." Okay. It goes to that point on the world; I take a bunch of marks, and I tell the state vector that that point on the world is - is there, relative to us. Okay, then it says, "Alright." When I incorporate those marks, that goes in and says, "What are the

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coordinates of that point on the world, latitude- and longitude-wise, from the update?" Then I ask the DAP and this is what it tells me the coordinates for that point are.

05 23 27 46 CDR Oh, it seems like if you know - -

05 23 27 48 CMP Well, that's the way it works, Jim.

05 23 27 49 CDR - - well, it seems, Dave, if you're using a known landmark, that that's the input; and the output, the thing that you're refining, is your known - is your orbit; it's not your knowledge of where it's fixed down on the ground - -

05 23 27 57 CMP That's right.

05 23 27 58 CDR - - because that's the thing that the whole update is based on. Do you see what I mean?

05 23 28 03 CMP Yes, but this - -

05 23 28 04 CDR You can even - -

05 23 28 05 CMP - - Jim, in that landmark coordinates - the landmark coordinates for that landmark have now changed, because we updated the state vector.

05 23 28 13 CDR But they really haven't changed. Your update - That point - that point's fixed on the ground.

05 23 28 16 CMP I know, but ... our state vector.

05 23 28 17 CDR ... drop out our DELTA-V.

05 23 28 19 CMP That's right. How about giving me my landmark for a second - -

05 23 28 23 LMP Yes.

05 23 28 24 CMP - - so I can find the ...

05 23 28 41 CMP Do you know what time it is and all?

05 23 28 44 CDR It's after we get into daylight; it's -

05 23 28 45 CMP Oh, we've got to go through a night pass first.

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05 23 28 46 LMP Where's the block update?

05 23 28 47 CMP Did I give you that?

05 23 28 48 LMP No, no. You kept that down there.

05 23 28 51 CDR ... I had it.

05 23 28 53 LMP Could I have that? Next landmark is 10 plus 42.

05 23 29 06 CMP Hey, I - I know this is right, so I guess there's no sense - -

05 23 29 09 LMP Well.

05 23 29 10 CMP - - going any further. I even got it written down right here in the book.

05 23 29 13 CDR Alright. It doesn't make sense, David. I don't see how you can - I ... if you know your orbit perfectly, you're changing the world underneath you.

05 23 29 20 CMP Right.

05 23 29 21 CDR If you are not remapping the world, you're trying to find out where you are with respect to it.

05 23 29 24 CMP That's right.

05 23 29 25 CDR And if you get a DELTA-R or DELTA-V display, what you're saying is that that thing should never be anything but zero, and I can't believe that that would be right.

05 23 29 33 CMP Well, okay.

05 23 29 35 LMP It looks to me like - Do you have any option codes going in there, Dave?

05 23 29 37 CMP Yes, I've got a bunch of them; let me get ready for the next one.

05 23 29 39 LMP Yes, go ahead ...

05 23 29 40 CMP I'll get ready - Teach you how to do it when we get through.

05 23 29 42 LMP Okay, go ahead.

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05 23 29 43 CDR I'm not interested in learning; I want to make sure that we're just doing it right, now.

05 23 29 46 CMP I'm doing it as best I know how.

05 23 29 49 CDR Okay.

05 23 29 50 CMP I've never had any time to spend on it - -

05 23 29 51 CDR I realize that.

05 23 29 52 CMP - - ... this writeup.

05 23 29 53 CDR I realize that.

05 23 29 54 CMP I'm just telling you what the writeup says, Jim. So I guess we can't change the writeup.

05 23 30 00 CDR Where did you get the writeup, Dave?

05 23 30 01 LMP No, but I guess the thing is, Dave, by chance, and I don't say we are; but if by chance we are doing it wrong, we have time to correct it.

05 23 30 12 CDR Hey - oh, shoot! What are the numbers on those things, Dave?

05 23 30 18 CMP 10 ...

05 23 30 21 LMP Oh, shoot! We got a whole - a whole hour.

05 23 30 24 CDR Yes. That's what I said; we've got to go through the nightside pass.

05 23 30 26 IMP Oh, oh, okay.

05 23 30 35 LMP Let me see the ... flight plan there a minute.

05 23 30 38 CMP Okay, let's just look through here ... let me get a rundown ...

05 23 30 42 CDR Okay.

05 23 30 52 CMP ... is off of California.

05 23 31 32 CMP Okay, it all makes sense to me. I don't know why you guys - it didn't make sense to you.

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05 23 31 36 CDR Well, Dave, it just seems like if you're trying to refine your orbit, which it seems to me is what you're - is what we're trying to do - -

05 23 31 43 CMP That's right.

05 23 31 44 CDR - - that you ... be moving the points around on the ground, but you'd be getting DELTA-R's and DELTA-V's into the thing.

05 23 31 48 CMP Okay, well, let's - let's - let me go through it again. I give it - We got a state vector.

05 23 31 55 CDR Right.

05 23 31 56 CMP And I give it a certain latitude and longitude.

05 23 31 58 CDR Right, for a known landmark.

05 23 32 01 CMP Right.

05 23 32 02 IMP You give it the - the actual latitude and longitude of the landmark.

05 23 32 04 CDR Yes.

05 23 32 05 CMP I give it a - some landmark. I know there's a point on the ground, and I know that the latitude and longitude of that point really is something.

05 23 32 14 CDR Yes, yes, if you - if you - know that.

05 23 32 16 CMP That's not an unknown; that's a known ...

05 23 32 18 CDR Right.

05 23 32 19 CMP Okay. Then I go to AUTO optics, and it drives ... somewhere over here. Because the state vector isn't perfect.

05 23 32 25 CDR Right.

05 23 32 26 CMP Okay, and it thinks that the latitude and longitude - say they're, you know, 3 and 1.

05 23 32 31 CDR Yes.

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05 23 32 32 CMP It thinks they're over there and really they're right there.

05 23 32 34 CDR Right.

05 23 32 35 CMP Okay. Now, I go through and I mark, and I improve my statement.

05 23 32 39 CDR Right.

05 23 32 40 CMP Okay. Now it says that it thinks the latitude and longitude is here, and it's better.

05 23 32 47 CDR No, no - -

05 23 32 48 CMP Why isn't it?

05 23 32 49 CDR - - No, let's go back even further. If this is the real point, and I have an orbit that runs down here, I think I'm on an orbit that runs down here. If this is the real point, and I take the mark, then it points over here.

05 23 33 02 CMP What points over there?

05 23 33 03 CDR The optics. I'm going to - I'm going to - -

05 23 33 04 CMP You can't take a mark over there.

05 23 33 05 CDR Alright, wait. I do AUTO optics on this point over here. Landmark's through there, and the point over here. But you see where it is, and you move the optics over here.

05 23 33 15 CMP Right.

05 23 33 16 CDR And you make a mark.

05 23 33 17 CMP Right.

05 23 33 18 CDR This is known. The thing that's not known is your orbit.

05 23 33 19 CMP No, no, that's - that's - -

05 23 33 21 CDR That's known.

05 23 33 22 CMP No, it's not. It doesn't have it stored in its mind

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05 23 33 24 CDR No, but that's what you're putting in there. You're putting in the latitude and longitude.

05 23 33 27 CMP That's right, but it's - -

05 23 33 28 CDR It's a known landmark. Now, let me finish. You've got an orbit which you're not sure of. You've got a landmark which you're positive about. And you take - You do AUTO optics, and it points the thing over here. You say, "That's not it." You go over here to your known landmark, take some marks on the thing, and then you approve them. You can't approve this because this is known. The unknown is here.

05 23 33 48 CMP Right.

05 23 33 49 CDR So, rather than move the landmark from here to here, move the orbit from here to here.

05 23 33 52 CMP That's right.

05 23 33 53 CDR Okay. So you should get a DELTA-R and a DELTA-V to move the orbit across here, and not a change in latitude and longitude moving the point from here to here.

05 23 34 00 CMP Okay. Well, that's - I -

05 23 34 04 CDR Now, I don't know how to do the program - but that's just what it seemed like to me. I've never even looked at the program.

05 23 34 10 CMP I know it; I really - I haven't looked at it much either, but I've looked at it enough to know that there are a number of different options - -

05 23 34 16 CDR Yes.

05 23 34 17 CMP - - and it's not a known landmark in the sense that you have known landmarks around the moon.

05 23 34 21 CDR No, those are unknown landmarks.

05 23 34 23 CMP No, those are known landmarks. Those are known, stored landmarks. And we have two kinds of known landmarks: stored and unstored.

05 23 34 30 CDR Okay.

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05 23 34 31 CMP Okay, this is an unstored, known landmark.

05 23 34 33 CDR Okay.

05 23 34 34 CMP Not a stored landmark.

05 23 34 35 CDR Right.

05 23 34 36 CMP Around the moon you have - -

05 23 34 37 CDR You'll have to put it in latitude and longitude to ..., if you want to milk it.

05 23 34 38 CMP That's right.

05 23 34 39 CDR Okay.

05 23 34 41 CMP So what you're saying - now, that point on the ground -

05 23 34 50 CDR I'm saying that that point is the known thing, and we inputted it, that we ought to get a change in the orbit rather than a change in the landmark. Do you see what I mean?

05 23 34 58 CMP ...

05 23 34 59 CDR Huh?

05 23 35 00 CMP Yes, but I think we're getting that. This says that the coordinates, the state vector coordinates of the landmarks that I marked on, now are the - -

05 23 35 14 CDR But that's not right.

05 23 35 15 CMP That's right, because you're comparing the state vector. It still doesn't know perfectly where this place is; but it says that that point on the ground there, that I marked on, was located at this set of coordinates. Now, what I can do with this is store this in the computer, this data.

05 23 35 34 CDR Okay.

05 23 35 35 CMP Then when we come back on the next REV - -

05 23 35 37 CDR Okay.

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05 23 35 38 CMP -- if it's stored in the computer, I can say, "Go there."

05 23 35 43 CDR Okay, if you're trying to do some of that with a lunar landmark tracking option, where you don't know the coordinates or anything, maybe what you're saying is right; but, on the earth, that sure doesn't make sense to me. It would seem that the thing we ought to change is the DELTA-R and DELTA-V.

05 23 35 56 CC ... through Tananarive.

05 23 35 58 CMP Hello, Houston; Apollo 9.

05 23 36 01 LMP ...

05 23 36 02 CC Roger. I have an update to your landmark tracking update.

05 23 36 09 CMP Who's got the book?

05 23 36 10 LMP I got it.

05 23 36 11 CMP Stand by 1.

05 23 36 13 CC Okay.

05 23 36 15 CMP Where did it go?

05 23 36 16 CDR Where's the book?

05 23 36 17 CMP I don't know. You just handed it to me. I saw it.

05 23 36 21 CDR Obviously - obviously, I've got it. Okay. Go ahead with it.

05 23 36 25 CC Okay, for landmark number 10, your next one coming up, your time of closest approach is 144:30:07. And now the east coast is overcast so you're not going to be able to get your Carolina pass in there. Your fourth landmark will be number 212; the time over the horizon, 144:50:3600; time of closest approach, 144:54:10. And since we have moved it, we want to delete that 16-millimeter film of that - of the thunderstorm over Africa. We'll get something on that later.

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05 23 37 24 CDR Okay, and this 212, is that north or south of track?

05 23 37 37 CDR Houston, Apollo 9 here.

05 23 37 52 CDR I tell you, I think for the purposes of this pass, it really doesn't make any difference, Dave.

05 23 37 56 CMP No, I don't think it does either, but we might as well try and work it right.

05 23 37 58 CDR Yes, and we ought to work it right; and it seems to me, if you get a DELTA-R and a DELTA-V display, it ought to switch the DELTA-R's and the DELTA-V's.

05 23 38 05 CMP You're right. I agree with that.

05 23 38 08 CC Okay, Apollo 9. Situation is normal here at Tananarive, but I'm not reading you, and we'll see you at Carnarvon at 51. We'll still be here for about another 3 minutes, but Carnarvon at 51.

05 23 38 20 CMP Roger, Houston; Apollo 9. Do you read?

05 23 38 23 CC Roger; read you loud and clear.

05 23 38 25 CMP Okay, is landmark 212 north or south of track?

05 23 38 30 CC I'm sorry. It's 3 $\frac{1}{4}$ miles south of track.

05 23 38 36 CDR Okay, I'll read back: 212; 144:50:36; 3 $\frac{1}{4}$ south; closest approach, 144:54:10; closest approach to landmark 10 is 144:30:07.

05 23 39 03 CC Roger. Your readback is correct, and we're deleting the 16-millimeter film of the African thunderstorm.

05 23 39 08 CDR Okay, delete 16-millimeter film. Rusty, I don't know where that hunk of information is.

05 23 39 13 CC Okay, and your readback is correct. Thank you.

05 23 39 16 LMP What hunk of information?

05 23 39 18 CDR About thunderstorm picture. I guess that's in the flight plan, isn't it? Or is that on here?

05 23 39 23 LMP The flight plan. Dave, what's the offset designator?

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05 23 39 32 CMP That's meaningless in earth orbit. It's zero.

05 23 39 36 LMP Okay. Oh, yes, okay. I didn't know that.

05 23 40 12 CDR Okay, both of these are south of track again, Dave, so we can go ahead and -

05 23 40 15 CMP Okay.

05 23 40 18 LMP How about - There must be some more stuff on this that's really pertinent to the technique rather than the program. I'll ... I identify the landmark.

05 23 40 31 CMP Okay.

05 23 40 32 LMP And - -

05 23 40 34 CMP Why don't you log this stuff, Rusty? We ought to get a - You got a piece of paper where we can log this?

05 23 40 39 LMP Yes, I'm logging it.

05 23 40 40 CC And Apollo 9, Houston. If you're still - reading me, we - there is a transducer that might be erratic on your helium pressure on quad Baker. It will not affect our gaging or our predictions; I just want to let you know this in case you see some funny readings.

05 23 41 03 CDR Okay, did you hear what the transducer was, anybody?

05 23 41 05 CMP Yes, helium pressure.

05 23 41 06 CDR Helium. Okay. Roger, Houston. Helium on quad B.

05 23 41 44 CMP Hey! Here's the - update. Let me see what that -

05 23 42 09 CDR Hey, that's another nice one, right on the coast.

05 23 42 14 LMP Dave, what do you put into a landmark ID if it's latitude and longitude, but not a - not an ID number?

05 23 42 20 CMP Zero zero. Or you can put in a 01 if you got it stored. You can store one landmark in earth orbit.

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05 23 43 30 LMP Dave, can I ask you a question here?

05 23 43 37 CMP Did you say something?

05 23 43 38 LMP Yes, can I ask you a question here?

05 23 43 40 CMP Well, yes, but I would like to sit here and think about this stuff for a while. What?

05 23 43 43 LMP Okay. No - -

05 23 43 44 CMP I really would like to go through it and see what -

05 23 43 47 LMP Okay, I'm - I'm - I'm - I don't - I don't - That's alright. I'm just trying to come up with clues also.

05 23 45 09 CMP Boy, you know, we've got a pretty high cabin TEMP ...

05 23 45 14 CDR That's what I thought ...

05 23 45 16 CMP Oh, yes?

05 23 45 17 IMP It got up there yesterday, too, I was noticing.

05 23 45 18 CMP Did it really?

05 23 45 19 LMP Yes. Especially toward the end of the daylight pass, it tends to get up there, and then it drops down a little bit, when it's at night ... It might do that - -

05 23 45 31 CMP Hey, the only thing that puzzles me is the DELTA-R and DELTA-V, and that ought to have a change ..., but - -

05 23 45 37 CDR Yes.

05 23 45 38 CMP - - this, I think, is the flow where you change - where now if we wanted to go back to that landmark again, we can store this data - -

05 23 45 44 CDR Yes.

05 23 45 45 CMP - - and the AUTO optics would take this and point it better, because it knows better - where the thing is. It stays on the mark, to do any good.

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05 23 46 03 LMP Dave, let me ask you a question.

05 23 46 04 CMP Okay.

05 23 46 05 LMP You get an 0689 over here before you take the mark, and that's where you load in the stuff, right?

05 23 46 11 CMP Yes.

05 23 46 12 LMP Now, if, after you take the mark, you get the 71 again, and, yes, I guess you put a 1 in there, right?

05 23 46 19 CMP Yes.

05 23 46 20 LMP Okay, now, when you get this one, is this the same 89, or is this a new one?

05 23 46 24 CMP That's the same one that allows you to check what you put in before.

05 23 46 28 LMP Okay.

05 23 46 46 CDR ...

05 23 47 42 LMP That's weird as hell. What happens on that last display if you PROCEED?

05 23 47 50 CMP It stores it..

05 23 47 52 LMP PROCEED stores, 32 doesn't store, and 34 exits, huh?

05 23 47 56 CMP That's right. Then you have - then you store your one landmark for earth orbit. Now, the next time, I can call that landmark.

05 23 48 14 CDR Certainly isn't very explicit, is it?

05 23 48 15 CMP No, it's not very explicit.

05 23 48 22 LMP Hey, I wish to hell we had a GSOP.

05 23 48 24 CMP Hey, listen, I went through the GSOP, and it was useless.

05 23 48 27 LMP Was it? ...

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05 23 48 28 CMP

Well, I didn't have time to go through it - I skimmed through it one time, and I asked Vince Parker to go through it and straighten it out and simplify things for earth orbit. It was really designed for lunar orbit, and I just didn't have time to - to dig into it. I got instructions ...

05 23 48 52 CDR

Right, by me. ...

05 23 49 06 LMP

Well, I don't know, I think everything you've been saying sure gets backed up by what's in there - -

05 23 49 12 CDR

No, except ... 0649 or use this display.

05 23 49 15 CMP

No, I said that - -

05 23 49 16 CDR

I can't believe that.

05 23 49 17 CMP

- - couldn't understand where that 0649 has to be. If that would give us a number, then I would think that I really understood it, but I don't get any number.

05 23 49 28 CDR

The thing that bothers - It looks like the difference between earth known landmarks and lunar known landmarks is that - that earth known landmarks, you know them; but lunar known landmarks, you don't really know them.

05 23 49 39 CMP

They're stored, too.

05 23 49 40 CDR

Yes. You do really approve your knowledge of the lunar landmark.

05 23 49 47 LMP

That's why it bothers me. It's almost just like there's an option code way somewhere in the beginning - -

05 23 49 52 CDR

That's right.

05 23 49 53 CMP

That's not even in here.

05 23 49 54 LMP

- - Yes, that's not even in that program thing; that makes the difference.

05 23 50 00 CMP

Hey, am I supposed to do an alignment - here?

05 23 50 02 CDR

Oh, shoot, I think you are.

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Day 6

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05 23 50 13 CMP ... unfortunately, I'm not in the right attitude.
Should be -

05 23 50 15 CDR Sorry.

05 23 50 16 LMP Yes, planet option - Jupiter.

05 23 50 17 CMP Yes. No, I think ... well ...

05 23 50 22 LMP ... see if I can find it ...

05 23 50 27 CMP Oh, boy!

05 23 50 28 CDR Why don't we get out the star chart, so we can figure
out where Jupiter was? ... see if he's over there.

05 23 50 36 LMP Okay. Big Jupe's by Leo.

05 23 50 40 CDR Is he?

05 23 50 41 LMP I think so.

05 23 50 54 CMP False cross?

05 23 50 56 LMP Either by Leo or Scorpio, I don't know.

05 23 50 58 CMP No, it's right by Spica.

05 23 51 00 LMP Okay, good.

05 23 51 01 CMP Makes an equilateral triangle with Corvus and Spica.

05 23 51 07 LMP Okay. Great! That's over by Leo.

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06 00 01 55 CDR That's nice to have it back there, isn't it?

06 00 02 05 CMP Hey, what does the flight plan say on the kind of alignment I'm doing here? Nominal again?

06 00 02 10 LMP Yes, you're doing a REFSMMAT.

06 00 02 11 CDR ... REFSMMAT.

06 00 02 12 CMP Oh, yes. Thank you.

06 00 02 14 LMP (Laughter)

06 00 02 16 CMP Well, I thought maybe you wanted to go through the nominal again.

06 00 02 18 LMP You got two guys watching you, buddy.

06 00 02 20 CMP Yes, I can tell that.

06 00 02 22 CDR Actually, the one before was a REFSMMAT, too, I believe.

06 00 02 24 LMP No, the last one was a nominal to the time. Then this one is a REFSMMAT to the same alignment.

06 00 02 35 CMP It looks like you did the REFS - you did the nominal, earlier, too, didn't you?

06 00 02 38 LMP Yes, we just did one extra nominal before we got our state-vector update.

06 00 02 56 LMP Sure are. (Laughter) Here, I'll get it, Jim.

06 00 03 11 LMP How are we doing? Holy smoke, we're upside down!

06 00 03 16 CDR Yes. Now I don't know where in the heck we are.

06 00 03 21 LMP Hey, I can give you a good idea, Jim. Let me see - Leo's ahead - Hey, you're in pretty good shape, now.

06 00 03 26 CDR I think we are ...

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06 00 03 27 LMP Yes, I can see the Big Dipper; and, therefore, Leo's right down there. Oh, he may be down a little bit too far though, Jim.

06 00 03 35 CDR Hey, I don't think ... - -

06 00 03 36 LMP We may have - we may have to pitch down.

06 00 03 39 CMP Hey, let me take a look out here and see if I can find him, either.

06 00 03 42 LMP Hey, Dave, here, look at this. Turn up your lights for just a second.

06 00 03 53 IMP Okay, look. See, here he is here. Right here's - -

06 00 03 56 CMP Okay, Leo is right by the tail.

06 00 03 58 LMP Yes, just down below the tail.

06 00 04 03 CDR ... Hey, wait. He's just coming up over the horizon. Boy, he's not very bright.

06 00 04 09 CMP Well, let's give it the real test and see if AUTO optics will find it.

06 00 04 13 IMP Yes, man.

06 00 04 15 CMP Out of the field of view.

06 00 04 17 IMP Yes, I'm going to pitch down.

06 00 04 22 CMP From what I can see, we sure do. Out of 90 degrees.

06 00 04 27 LMP Yes, I think we've got to pitch down a long way, Jim Yes. Hey, hey, wait - wait until they call it from the ground on this one.

06 00 04 47 CMP Alright, we've got quite a ways to go.

06 00 04 52 IMP But he should come up in the bottom of your field of view, Dave.

06 00 04 55 CDR Okay, ...

06 00 05 09 CMP ... the tail of Leo.

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06 00 05 11 LMP Let's see, I've got - What?

06 00 05 36 LMP Yes, Jim, see, the Big Dipper is over here, and from the Big Dipper you go down that way to get to Leo, because he's down there.

06 00 06 04 LMP Heck, no, you're in the southern sky, Jim. I'm looking at the Southern Cross right now.

06 00 06 09 CMP Yes.

06 00 06 10 LMP We've got to pitch down and roll a little bit right.

06 00 06 12 CMP Yes, roll right. Yes.

06 00 06 14 CDR ... right out of the ...

06 00 06 27 LMP Yes, in fact, if you roll right now more, Jim, he's going to come up in Dave's field of view from the bottom right.

06 00 06 40 IMP He's right about over there now.

06 00 06 51 LMP I'm sorry - Roll left. I'm sorry. God damn it! I'm backwards.

06 00 06 55 CDR What?

06 00 06 56 LMP I'm sorry, Jim. Yes, roll left. I'm sorry. God damn!

06 00 07 04 CDR ...

06 00 07 06 LMP Yes, yes. You're right. I - I'm looking at them. I got my gyros R cross Z. Okay, Dave, he should be coming into your field from the lower right-hand side.

06 00 07 46 CMP Yes, I think it is. Let me see, go right up from -

06 00 07 48 CDR ... radar ...

06 00 07 51 CMP You're doing good. I've got to where I can track in there a little bit ... Okay, he should be coming in there now. Just keep ... to rolling, keep rolling.

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06 00 08 26 CMP Corvus, that's Corvus. Okay, Corvus. There's Spica, a little bit more. There he comes. I think I got him ...; let's see if I can see ...

06 00 08 43 CDR Say again, Houston; Apollo 9.

06 00 08 53 CDR Say again about Jupe [Jupiter].

06 00 08 57 LMP Jupe [Jupiter].

06 00 08 59 CDR We're still tracking it down here.

06 00 09 04 CMP Okay, I've got him, Jim.

06 00 09 06 CDR Hey, do you want to stop here?

06 00 09 08 CMP Yes.

06 00 09 10 LMP We just found him.

06 00 09 17 CMP I want to see if AUTO optics will do the trick here, while we're at it.

06 00 09 36 CMP Oh, look at that thing! Wouldn't do it.

06 00 09 41 CDR Wouldn't do it!

06 00 09 42 CMP No. It goes out of the field of view. I could have the wrong -

06 00 09 48 IMP Numbers in?

06 00 09 50 CMP I just copied them right out of the book. We'll mark on it.

06 00 09 59 IMP David, if you put in the wrong numbers, it'll really torque you around the wrong way, babe. On, no, that's just for AUTO optics. Is that - let me see, is that right? No, you've got to get the right numbers in.

06 00 10 10 CMP You have to have the right numbers for the ...

06 00 10 12 LMP Yes, you sure do. So if AUTO optics doesn't work, that's because you must have the wrong numbers. Hey, why don't you mark on them and let me look at some numbers, and we can always reject it? Let me see if I can puzzle that out.

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06 00 10 22 CMP I can't mark on him, until I get by the numbers.

06 00 10 24 LMP Oh, that's right; that's right. You've got to mark and then load. Backwards, from the way - -

06 00 10 29 CMP No, I'm sorry. No - Well, I've got the right numbers. GMT, we're third month, ninth day, and 16th hour, aren't we? Tell me that. We launched on the third day.

06 00 10 44 CDR Yes.

06 00 10 46 CMP Of March, which is the third third, right?

06 00 10 47 LMP Right.

06 00 10 48 CMP Okay, now tell me where we are now. I figure we're third day, ninth month, and 16th hour.

06 00 10 52 LMP No, we're not ninth month; that's sure.

06 00 10 55 CMP I mean ninth - third month, ninth day.

06 00 10 59 CDR Sixth day.

06 00 11 01 LMP Hey, Smokey, is this the ninth?

06 00 11 08 LMP Thank you. We've kind of lost track here. The ninth.

06 00 11 16 CDR Do you have to put in right-now's time?

06 00 11 21 CMP You have to put in right-now's coordinates, yes.

06 00 11 23 CDR ...

06 00 11 24 CMP Oh, no, but it's not - No, it doesn't move that fast, Jim.

06 00 11 26 CDR Yes. Well, I'm just trying to - -

06 00 11 41 CDR Pretty close to 6 hours, isn't it?

06 00 11 47 CMP It depends on the planet. Venus is real fast and Mars is fairly fast, and Jupiter is real slow. I don't know what the - -

06 00 11 59 CDR How about orbits - -

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06 00 12 00 CMP -- ... timing --

06 00 12 08 CDR We got the update book, okay?

06 00 12 11 CMP -- ... I'll try one more. Hey, it got through. Okay.

06 00 12 17 CDR Alright.

06 00 12 18 LMP Just got to it, huh?

06 00 12 20 CMP I don't understand it. I took it out of AUTO to try and just get to it, so I could mark on it and see how it comes up. The AUTO optics didn't work.

06 00 12 32 LMP They did that time. Great.

06 00 12 37 CMP No, I'm just going to go ahead and - go over here and mark on it.

06 00 13 06 CMP Which ... should I mark on?

06 00 13 09 CDR (Laughter) Have you got her?

06 00 13 11 CMP Yes, I've got it. I'm - I'm going - I don't understand why AUTO optics rejected it, but we'll see what kind of data we get.

06 00 13 19 LMP Well, I know that's - -

06 00 13 20 CDR If it's all screwed up, don't torque the platform around - -

06 00 13 23 CMP Don't worry.

06 00 13 24 CDR -- until - get the next landmark tracking in.

06 00 13 34 CMP Okay, one mark on Jupiter. Proceed, and then we go get another fairly deep star here.

06 00 13 43 IMP That's 0171, Dave. Don't you have to put Jupiter in there?

06 00 13 47 CMP Well, I just - Yes, that says - -

06 00 13 51 IMP What star did you mark on?

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06 00 13 52 CMP -- that I was proceed here and go - go 688; there's Jupiter.

06 00 13 55 LMP Oh, okay.

06 00 13 56 CMP Yes, and we proceed here. Just not there, and we've got to load a new star. I just had to set all this in.

06 00 14 04 LMP Planets are zero, huh?

06 00 14 06 CMP Yes. ...

06 00 14 07 CDR ...

06 00 14 09 CMP Okay, I'm going to go get Acrux ...

06 00 14 22 CMP Get a good - good angle ...

06 00 14 25 CDR Would you believe we have 12 minutes until the - we start tracking on the next landmark?

06 00 14 29 CMP Yes, I'll be through in a jiff.

06 00 14 30 CDR No, I'm just trying to keep you up to date on where you are.

06 00 14 33 CMP Yes, that's fine. Good. I'm just -

06 00 14 35 CDR I'm not rushing you.

06 00 14 36 CMP ... hurry me. Acrux, 49.

06 00 14 43 CDR What did I do with the update book?

06 00 14 45 LMP This it?

06 00 14 46 CDR Yes.

06 00 14 49 CMP We'll skip that NAV check. ...

06 00 15 00 IMP You can probably get that NAV check back there. Get it while Dave's getting his map set up.

06 00 15 06 CDR Yes, I've got to get the spacecraft in the right spot, too. We're a long way from it.

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06 00 15 10 LMP Okay. Tell you what, want me to run the NAV check after Dave gets back?

06 00 15 13 CDR Okay.

06 00 15 14 LMP Yes, that's a nothing.

06 00 15 17 CDR Let me -

06 00 15 19 CMP Jim, could you take your rates out, please?

06 00 15 21 CDR Yes.

06 00 15 22 CMP I can't hold it. Okay, that's good.

06 00 15 45 LMP How about that in the nick of time?

06 00 15 49 CDR Put it back - -

06 00 15 50 LMP Let's see what it comes out, David.

06 00 15 51 CDR - - put it back in the ...

06 00 15 52 CMP 67.94 degrees.

06 00 15 54 LMP That's not very good, is it?

06 00 15 55 CMP Sure isn't.

06 00 15 56 LMP I would suggest we reject that?

06 00 15 58 CMP Yes. I want to - I will, but I want to write it down here.

06 00 16 01 LMP (Laughter)

06 00 16 02 CMP Yes.

06 00 16 06 CDR Okay, I'm going to start maneuvering, Dave, for the next attitude.

06 00 16 09 CMP Fine.

06 00 16 17 CDR ... Oh, yes.

06 00 16 18 CMP Hey, you guys give me credit for being able to find Jupiter and Acrux?

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06 00 16 22 LMP No (laughter).

06 00 16 23 CDR Yes. Yes.

06 00 16 26 IMP (Laughter) But not knowing the day of the month.
(Laughter)

06 00 16 29 CMP I want you to check my numbers; I must have done something wrong with the numbers.

06 00 16 31 CDR Yes.

06 00 16 32 LMP Jupiter I'll give you credit for; Acrux - Let me think of Acrux as a half-bright star ...

06 00 17 04 CMP Hey, I think we got the ...

06 00 17 06 CDR ...

06 00 17 18 IMP Hey, Dave, let me get this ...

06 00 17 20 CMP Yes. Okay.

06 00 17 21 LMP Just tell me what landmark it is.

06 00 17 23 CMP Okay.

06 00 17 33 IMP You want that? Okay, I'm going to take the computer and make a NAV check, Dave, for just a second.

06 00 17 40 CMP Yes, ...

06 00 17 57 CMP Jim, we're in the hundreds of hours now.

06 00 18 01 CDR Holy ...

06 00 18 03 CMP ...

06 00 18 07 LMP Oh, boy, we're going to go into Punta Yayahmeko, Mexico. The west tip of Point Yayahmeko.

06 00 18 25 CDR Okay.

06 00 18 28 LMP You've got the computer, Dave, and we're - we got a good NAV check.

06 00 18 33 CMP Okay.

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06 00 47 26 CMP ... Once we get the high spacecraft rates, then it's pretty easy to track it with the sextant.

06 00 47 37 CDR Stu, if we do any of these things tomorrow, we might jack up the rate in that erasable load. Okay?

06 00 47 44 CC Real good, Jim.

06 00 48 07 LMP Let's see, we're supposed to do a state vector - supposed to do a P52 again and ... to Jupiter.

06 00 48 15 CDR Yes.

06 00 48 20 CDR Houston, on this next night pass, we'll do that P52 to Jupiter if we can.

06 00 48 38 CDR You broke up.

06 00 48 42 LMP Maybe we just lost him.

06 00 48 45 CDR Okay, Davey, we're 5 minutes and 25 seconds out from being overhead.

06 00 48 49 CMP Okay, it's coming up on the horizon. Hey, the telescope hasn't hung up for a long time.

06 00 48 55 CDR I think it just needs to be exercised a little.

06 00 48 56 CMP Yes, maybe it does, because it's doing pretty good now.

06 00 48 58 CDR Maybe it's just the attitude we're going through ...

06 00 49 04 CMP ... It's doing the whole region where it used to get stuck.

06 00 49 18 CDR Tell you what we'll do, Rusty. When I finish this thing, I'll pitch it down a little so that the windows will be pointed down towards the ground when we go across Africa, and you can get some of that stuff down there at the bottom.

06 00 49 31 IMP Okay. Say, what's the time of this landmark?

06 00 49 43 CDR Time over it?

06 00 49 44 IMP Yes.

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06 00 49 45 CDR 144:52.

06 00 49 51 LMP Check. What number is it?

06 00 49 54 CDR 212.

06 00 49 56 CMP Hey, that's the smartest set of optics I ever saw. Know what it just did?

06 00 50 02 CDR What?

06 00 50 03 LMP We hit the 370-degrees limit on shaft around the other way, and it stopped and came all the way back around the other way. That is a smart fellow! I know about that. I was looking through the sextant, and it started moving real fast and I thought, "Uh oh" (Laughter) Gosh, come look at - Oh, look at those clouds - gray clouds.

06 00 50 30 CDR Oh, yes, get some pictures of that, Rusty.

06 00 50 31 LMP Yes. That stuff ... right down there?

06 00 50 34 CDR Oh, yes, get some pictures of that, Rusty. ... -

06 00 50 40 LMP ... - Okay, Jim, how about - -

06 00 50 42 CDR ... this set up here, too, get some of those as you go across.

06 00 50 45 LMP Mark when I tell you I can identify it, okay?
Yes, I'll get that, Dave; I'm logging all the crew log in.

06 00 50 52 CMP Okay.

06 00 50 54 CDR Okay, in 2 minutes ... must be over the hill ...

06 00 51 04 LMP No, it probably is - -

06 00 51 05 CDR ... 3 minutes and 14 seconds out from being directly overhead.

06 00 51 08 CMP Yes, I'm with you. I can't see it yet.

06 00 51 12 CDR You and I are having trouble speaking time to each other.

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06 00 51 16 LMP No, I'm with you on the time, there.

06 00 51 19 CMP Oh, there's an island. By damn.

06 00 51 20 CDR Yes, these - We're right around the Canaries. Those look like those are very ...

06 00 51 24 CMP Holy smoke.

06 00 51 27 CDR Try to get as many of them as you can.

06 00 51 28 CMP Oh, here is a tremendous vortex pattern out here in front of us, Rusty. You got to get those!

06 00 51 33 LMP I'm getting all these islands.

06 00 51 34 CDR Oh, yes. Where?

06 00 51 36 LMP Those cloud patterns - those ... they'll lose their gourds over that.

06 00 51 41 CMP Hey, you guys.

06 00 51 44 CDR Sorry, Dave (laughter). You're 2 minutes and 25 seconds out.

06 00 51 48 LMP You are a big part of the flight, Dave, but you're not everything, I'm sorry.

06 00 51 51 CMP Oh.

06 00 51 52 CDR I'm going to start the rates now, so that we don't - -

06 00 51 56 LMP Oh, there's clouds down there - -

06 00 51 58 CDR Are there really?

06 00 52 02 LMP Hey, I think we got a picture of every one of the Canaries.

06 00 52 05 CDR Okay, get a picture of these clouds, too.

06 00 52 06 LMP Oh, yes.

06 00 52 07 CDR They don't look as vortexy at this angle.

06 00 52 10 LMP No, I already got them all, Jim.

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06 00 52 11 CDR Okay.

06 00 52 18 CDR You're a minute 5⁴ out.

06 00 52 20 CMP Okay. It's tracking, but I haven't been able to identify it yet, because of the clouds.

06 00 52 26 LMP You don't think we ought to start rolling now, Jim?

06 00 52 27 CDR Yes, I already have. Oh, don't take any for just a minute here. Dave, let me get up a little farther. Tell me before you start taking them - -

06 00 52 33 CMP Okay.

06 00 52 34 CDR - - I can take some of the rate off.

06 00 52 41 LMP It's getting cloudy.

06 00 52 45 CMP Is that another piece of land we're ... up over here?

06 00 52 49 LMP Houston, 9. No, there isn't, Dave.

06 00 52 51 CC Go ahead, 9.

06 00 52 52 LMP Roger. Did you compute that into degrees per second, yet?

06 00 52 57 CC That's negative. I'm sorry, we don't have it.

06 00 53 00 LMP Okay.

06 00 53 02 CDR It looks like we're in pretty good shape right here, Dave; we're finally under ... tenths of a degree per second, and we should - -

06 00 53 10 CMP If we could find the thing, yes, we would be.

06 00 53 19 LMP Oh, boy, it really is cloudy down there.

06 00 53 22 CMP Yes, it really is. We're not having much luck.

06 00 53 25 LMP Well, it's just a question of, is it going to clear right at the coastline.

06 00 53 28 CMP No, it's not.

06 00 53 29 LMP It's not?

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06 00 53 30 CDR Oh, yes - No - Dave, I think it's coming out into the clear right now. I can see - -

06 00 53 36 CMP ... you're right, Jim. Okay, let me know when.

06 00 53 39 CDR You've got 30 - you have 30 seconds to go.

06 00 53 43 LMP You've got a flashing 51.

06 00 53 45 CMP Okay. I can't use it, though.

06 00 53 50 CDR Okay, we're going to be just right on the roll rate, it looks like. We've got 19 seconds to go until we're - -

06 00 53 56 CMP Oh, I've lost it.

06 00 53 57 CDR Did you identify it yet?

06 00 53 59 CMP I thought I did. It's really tough down there; it's hazy.

06 00 54 03 CDR I'll ...

06 00 54 04 CMP Oh, now, I got it.

06 00 54 05 CDR You got it?

06 00 54 06 CMP Yes - -

06 00 54 07 CDR Okay.

06 00 54 08 CMP - - ... get a picture of it.

06 00 54 09 CDR I flew right over it right now.

06 00 54 10 CMP How do I read - Oh, reject mark; that's it. Hey, that might be an idea - Oh, no, rejects it automatically. The sextant is no good at all; it's too hazy.

06 00 54 23 CDR Yes.

06 00 54 29 CMP Roll, Jim, roll.

06 00 54 35 CDR Program alarm.

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06 00 54 37 LMP We're going to have to slow down the roll - -

06 00 54 38 CDR Yes.

06 00 54 39 IMP - - or else get ahead of it, and then slow it down.

06 00 54 40 CDR That's what I did, and we went right over the thing at 0.4 degree per second.

06 00 54 45 LMP Why don't you hit the reject on that? The hell with it, the RESET, I mean. ... get another one.

06 00 54 50 CMP Yes. Could you roll it up? I might be able to see it if you could just crank it on around.

06 00 54 55 LMP Okay, I've got a program alarm again.

06 00 54 58 CDR Yes, it's just the ...

06 00 54 59 IMP Yes, why don't we reset it so we know?

06 00 55 04 CMP Boy, that sextant is useless when it's hazy like that.

06 00 55 07 CDR Okay, is that enough, I put in - -

06 00 55 08 CMP No, you got to go more. It's - The culprits are the side of the spacecraft right now. It's coming, it's coming. Keep cutting at it.

06 00 55 18 CMP No.

06 00 55 21 CDR Now?

06 00 55 23 CMP No, you've got to go more.

06 00 55 24 CDR I'm going more.

06 00 55 27 CMP Oh, it's over the horizon now.

06 00 55 29 CDR Doggone, not a - What?

06 00 55 32 CMP Pretty damn close.

06 00 55 35 CDR Yes, Dave, ...

06 00 55 37 CMP Okay, let's give it up, I guess.

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06 00 55 41 LMP Okay, I think you got two marks in, Dave, before it gave the program alarm.

06 00 55 44 CMP Okay. Yes, don't - don't - Well, it's coming. It almost looks like you got a pitchdown and I can see it. Right in there, that's right.

06 00 55 54 CDR It might be.

06 00 55 56 LMP What!

06 00 55 57 CMP Forget it, Jim.

06 00 55 58 LMP We got to be past it.

06 00 55 59 CMP Don't use any more fuel.

06 00 56 00 CDR I'm not; I'm just taking the rates out now.

06 00 56 09 CDR Okay, Houston; Apollo 9.

06 00 56 11 LMP No, they're not on.

06 00 56 12 CDR Oh, they're not, okay.

06 00 56 13 LMP No.

06 00 56 15 CMP Yes, I got two real good marks on it, when we were right overhead, but I just couldn't find it - -

06 00 56 19 CDR Yes.

06 00 56 20 CMP - - through those cloud covers. It's a good landmark.

06 00 56 23 CDR Hey, I kind of think that we've demonstrated the technique works fine.

06 00 56 26 CMP Yes.

06 00 56 42 CDR Yes, it really was hazy down there, wasn't it?

06 00 56 45 CMP Yes. Gee, and the sextant is just - almost useless in the - -

06 00 56 49 CDR Really?

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06 00 56 50 CMP

Oh, I couldn't see any definition. The telescope wasn't bad, but the sextant was really - There's a lot of reflection - That's something that I'm going to ask them about. Some stuff that I'm seeing through the sextant - There's a double image in the sextant, one image is the - -

06 00 57 08 CDR

Why don't you call off that program alarm? I hate to see it clunking around, there. There's a double image in the sextant? Yes.

06 00 57 27 CDR

You rejected one mark. Was that because it was the wrong target or you just - -

06 00 57 30 CMP

Yes, it was the wrong target.

06 00 57 32 CDR

It was very hazy. I was looking out there a second and, "Well, there isn't any land out there at all." There wasn't any land out there at all, and all of a sudden, I could just barely see the coastline through the haze.

06 00 57 40 CMP

Yes.

06 00 57 41 CDR

And it wasn't like we were coming up on it this way; we were already over it, we're just going down the coast like this.

06 00 57 54 CDR

... in Houston. It still has a pretty good ... in there.

06 00 57 58 CMP

It's 11 o'clock in Houston unless my watch stopped. Yes, 11 o'clock.

06 00 58 50 CMP

Hey, I did a perfect on doing 0649 again.

06 00 58 52 CDR

That's right, you're really good there. Why don't you change the landmark on the other side of the earth?

06 00 59 41 CMP

Hey, that was an interesting exercise.

06 00 59 43 CDR

Boy, I'll tell you; I don't think we ought to get any pictures out here, Rusty. It's just nothing but clouds, and the way the sun is shining on the clouds. You just can't even hardly see the water. Really had a low angle here ...

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06 01 00 17 CDR Hey, why don't we put this back to LATCH?

06 01 00 28 CDR Where do we go next? An SO 65?

06 01 00 31 LMP Yes.

06 01 00 34 CDR Why don't I get it out and put it up right now?

06 01 00 36 LMP Yes, that's what I was just thinking.

06 01 00 40 CMP Good; I'd like to come up and sit down and write for a while on all of this stuff -

06 01 00 44 CDR Okay.

06 01 00 48 CMP Hey, do we get to do any more? I think if we have a clear one now, you know, where we get a good clear target, we ought to be able to get some real good landmarks. That one I did yesterday afternoon for practice, that was clear as a bell.

06 01 01 01 CDR Yes. I bet we could really - even with setting that roll rate, so you don't have to get - You fix it on that. Because, man, it's really easy to track. I mean, boy, it's good in that RESOLVE mode; boy, you can hold it right down at the point.

06 01 01 14 LMP Yes, Dave, you're supposed to do another REFSMAT here, another 10 minutes or so.

06 01 01 19 CMP I'd like to do that right.

06 01 01 21 LMP Okay, I'll tell you what. While you're getting set up for that, here's the numbers.

06 01 01 24 CDR ... right now. Dave, we're coming over the coast of Africa.

06 01 01 35 LMP Have you got those numbers? Yes, the ones in the middle there; I've interpolated them - -

06 01 01 39 CMP Oh, good, good. Okay, let me write them on my checklist.

06 01 01 49 CDR Now, let's find out again where all this mess is. Up to the north. Doggone, you know it's dark over southern Africa already?

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06 01 02 01 LMP That's surprising. There's the coastline right down there.

06 01 02 04 CDR Yes, right down there.

06 01 02 06 LMP No pictures were to be taken now, huh?

06 01 02 08 CDR No, it was all socked in, and then it - it's dark right down there.

06 01 02 15 LMP You know, that's like a noon launch, and this is South Africa, but -

06 01 02 25 CMP Thank you.

06 01 02 27 CDR Okay.

06 01 02 30 CMP Okay, let's see if I can't do this right. Should have got up this morning and sat down and thought about all this stuff.

06 01 02 38 LMP That's no fun; real-time it.

06 01 02 40 CMP Oh, but then -

06 01 02 41 LMP Hey, I'm seeing stars in the daytime. How do you like that? I've got a lit horizon, and I'm seeing stars. And what am I looking at? I'm looking at urine dump! I may be looking at the Denebola. I can't be; I'm looking south. I'm looking at - No wonder, I'm looking at the - either the false cross or the Southern Cross - I may be looking at the Southern Cross. That's not too surprising then that I can see it in the daytime - Yes, I'm looking at the Southern Cross, because I can also see ... - -

06 01 03 19 CMP Jim, I'd say roll left.

06 01 03 22 CDR Roll left?

06 01 03 23 CMP Yes. Is that what you would say? That's what I would say.

06 01 03 26 CDR That when it's - that's when the ... we're banked about that.

06 01 03 30 LMP Oh, wait a minute now; hold on. Where is it from the Southern Cross, Dave?

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06 01 03 35 CMP From the Southern Cross, if you go - Can I say "up"? Does that make sense?

06 01 03 42 LMP Okay, then we don't want to roll left - we want to pitch up.

06 01 03 48 CMP It's up from the third Cross. Go from Acrux up through the Cross.

06 01 03 51 LMP Okay, and which way then, to the right or the left?

06 01 03 53 CMP Almost straight.

06 01 03 54 LMP Okay, then pitch up, Jim.

06 01 04 05 CDR Boy, look at the crap that's coming out of those thrusters, will you? (Laughter)

06 01 04 14 LMP It's amazing, isn't it?

06 01 04 15 CDR Yes.

06 01 04 16 LMP You notice - They don't even - they don't go out as fast as - -

06 01 04 17 CDR No.

06 01 04 18 LMP - - say, the water dump does. Yes, it's -

06 01 04 34 CMP Well, there's a star over there; what's that? You mean, there's nothing out there except that little fellow?

06 01 04 44 LMP Boy, a whole bunch of stars. Oodles of them.

06 01 04 54 CDR Ooh, do they grow them big in Africa. Those thunderstorms down there are really wingdingers.

06 01 05 02 CMP Got a very interesting double star out here ... There are these two real close together. Hm!

06 01 05 20 IMP Okay, I can see Jupiter.

06 01 05 21 CMP Can you?

06 01 05 22 LMP Yes.

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() 06 01 05 23 CMP Good. Oh, let's see ... out the middle window.

06 01 05 27 LMP You see it, Jim? It's right out in front of you. It's up - just a little up and to the left of you -

06 01 05 31 CDR I don't see any stars out there.

06 01 05 32 LMP You don't?

06 01 05 33 CMP No, I got Acrux.

06 01 05 36 LMP Above the horizon, Jim?

06 01 05 39 CDR Is that it right above the horizon?

06 01 05 41 LMP Yes.

06 01 05 43 CMP Yes, I got Acrux alright now.

06 01 05 45 CDR Well, that was the thing I said, "Well, I see something out there; it must be a planet."

06 01 05 48 LMP Yes, that's it; it is; it's called Jupiter, big Jupe with the red spot.

() 06 01 06 00 CDR Over here to the left. I don't see any other stars around. I don't see - -

06 01 06 06 LMP Yes, well, Gienah's down to the right of them, and Denebola is up there - -

06 01 06 09 CDR ... turn out my lights.

06 01 06 10 LMP - - and Regulus is up there, and - and there went a satellite above it; in fact, there's two of them going right over - Holy smokes, are they moving. That's funny, two of them - one right behind the other.

06 01 06 24 CDR Hey, I just looked out there and saw some of the stuff that was - that was from the thrusters going by that looked like a satellite.

06 01 06 30 CMP No, it's going the other way. And it's dark, I think -

06 01 06 47 CDR How we doing, Dave?

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06 01 06 49 CMP Well, you're doing pretty good; I'm a culprit as far as Houston goes.

06 01 06 52 CDR (Laughter)

06 01 06 53 LMP. Ouch.

06 01 06 54 CMP You're doing pretty good ...

06 01 06 57 LMP No, it's not dark out there. Do that again, Jim. Look at that; big ball of white stuff that goes out there.

06 01 07 06 CDR Yes, but there's a black spot in the middle of it. What the hell is the black spot; it's a shadow of something.

06 01 07 14 CMP Let me come up here and look out these windows, see what you guys are talking about.

06 01 07 16 CDR Hey, look out this window here, Dave.

06 01 07 18 CMP What do you see?

06 01 07 19 CDR ... Ready? Look straight out the center.

06 01 07 25 CMP Hey! You know what that is? That's our own shadow; the sun is directly behind us. Gegenschein.

06 01 07 31 CDR (Laughter) Yes, it looks like it.

06 01 07 32 CMP Hey, we need a movie of that, Jim -

06 01 07 34 CDR Think our camera would take a picture of that?

06 01 07 36 CMP That interior stuff would. Maybe it would. The sun must be directly behind our heads ...

06 01 07 47 CMP Get Jupiter, will you?

06 01 07 48 CDR We're not hitting the ...

06 01 07 50 LMP Sorry about that. It's just about on our X-axis now.

06 01 08 09 CDR Is AUTO optics ...?

06 01 08 11 CMP I haven't got it yet.

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06 01 08 38 LMP Oh, hey; let's all turn the lights way down when Dave is going to do that, because we're looking right at the gegenschein, too; Jim, we might want to try and see that.

06 01 08 46 CDR I've already seen her once; let me look and see if I can find her again. Yes, it looks like gegenschein, and airflow - airglow, I mean, and all kinds of funny games like that on Gemini IV. By gosh, they were all there.

06 01 09 07 CC Apollo 9, Houston through Tananarive.

06 01 09 14 CDR Roger, Houston; Apollo 9. Reading you loud and clear.

06 01 09 20 LMP They're all there; do you see the gegenschein?

06 01 09 24 CDR All I see is the thing out of my ...

06 01 09 28 CC Apollo 9, this is Houston. I am not reading you. I may be coming through to you. If so, on the P52 alignment, I'd like to have you check the unit vectors for Jupiter on the last page of section 7.

06 01 09 47 CDR Last page of section 7 something.

06 01 09 51 LMP Yes. Roger; we got that, Houston. Do you read? Let me try the other antenna.

06 01 09 57 CDR He has already said he's not reading us.

06 01 09 58 LMP Well, yes, but I'm going to switch antennas then.

06 01 10 00 CMP Oh, yes, he's just telling us that - where the numbers are here, huh?

06 01 10 02 LMP Yes.

06 01 10 03 CDR Yes.

06 01 10 04 LMP Houston, we got the numbers on that.

06 01 10 07 CMP Okay, Jim, you're in - -

06 01 10 08 CC Okay, Apollo 9. I got that transmission.

06 01 10 10 CDR ... okay?

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06 01 10 11 CMP Yes.

06 01 10 13 CDR Alright, we'll stop you here.

06 01 10 15 CMP AUTO optics is driving; AUTO optics has driv;
AUTO optics is on Jupiter.

06 01 10 23 CDR Beautiful.

06 01 10 24 CMP Right in the center. Very, very good. Okay -
stop the rates, old buddy.

06 01 10 31 CDR I think they're all stopped.

06 01 10 33 CMP Now that we got the right numbers in there, it
works pretty good.

06 01 10 42 LMP Will you turn your lights off, Dave, when you
mark?

06 01 10 44 CMP Turn them off anyway.

06 01 10 46 LMP Okay.

06 01 10 57 CDR ... thunderstorms down there. Whooee!

06 01 11 10 LMP Well, I'm looking right where it's supposed to be,
and I'll be damned if I see it.

06 01 11 15 CDR Where's it supposed to be now?

06 01 11 18 LMP An equilateral triangle between Regor, Denebola,
and then down below the line. Gee -

06 01 11 28 CMP Well, I don't understand that.

06 01 11 32 CDR What did you get?

06 01 11 40 CMP Huh. It shifted the vectors on me when I just
went from one to another. That's very interesting.
Had to load - I've got to reload it for telling
it, "Yes, it did that." Hmm!

06 01 11 58 LMP The other one was a different noun, wasn't it,
Dave?

06 01 12 01 CMP Yes, one of those nouns - No, they're both NOUN 88.

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06 01 12 05 LMP That is unusual.

06 01 12 06 CMP Yes.

06 01 12 17 CC Apollo 9, this is Houston. Our COMM is pretty bad. I'm going to wait until over Carnarvon to give you your SO 65 pad; and that will be Carnarvon about 24.

06 01 12 29 CDR Roger, Houston; over Carnarvon.

06 01 12 56 CMP Okay.

06 01 13 01 CDR Just can't quite get over it.

06 01 13 04 LMP Did you see it in Gemini?

06 01 13 05 CDR Yes.

06 01 13 06 CMP Yes.

06 01 13 07 LMP You could see the gegenschein?

06 01 13 08 CDR Yes.

06 01 13 09 LMP How did it look?

06 01 13 10 CMP ... program alarm here. It says that Acrux isn't there. Well, baloney! Manual RESET and ...

06 01 14 04 CMP Where is everything going? Oh, no wonder - we're losing - we're - -

06 01 14 08 CDR Hey, we picked up a rate.

06 01 14 11 CMP Ohh, great!

06 01 14 12 CDR Let me stop the rate for you.

06 01 14 14 CMP Yes, that's a good idea. Ohh, is that blinding - ohh! Hey, as a matter of fact, Jim, could you roll back left?

06 01 14 28 CDR Sure, roll left. Roll left.

06 01 14 40 CDR You ought to have Menkent there and maybe Antares.

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() 06 01 14 50 CMP I have that - that's what I wanted; okay, that's alright now.

06 01 14 54 CDR You want me to go some more or you want to stop

06 01 14 56 CMP That's good; I got Menkent. Oh! Blast! When you are dark adapted, that really blinds you. You got your old buddy. ... Yes. Boy, that moon really, really wipes things out. Whoo!

06 01 15 17 CDR It's a big help in some ways, and it's pretty ba other ways.

06 01 15 19 CMP Yes, in the telescope, it - you know, it sort of degrades things that aren't too good anyway.

06 01 15 56 CMP ... that's not bad.

06 01 15 57 LMP How many did you get?

06 01 15 58 CMP 0.04. I'll do it over, but I was right on it.

06 01 16 03 LMP Well, hey, Dave, that could be those coordinates

06 01 16 06 CMP Yes, that's not too bad.

06 01 16 12 CDR You better write that number down, that -

06 01 16 16 CMP I'm writing it - Well, I'm writing it all down. The numbers and the stars, what they use, and al that sort of thing.

06 01 16 23 LMP Can you see the bands on Jupiter, Dave?

06 01 16 26 CMP Pardon?

06 01 16 27 LMP Can you see the bands on Jupiter?

06 01 16 29 CMP The bands? No, I can't, Rusty. It looks almos like the moon. You know, it's a solid white.

06 01 16 42 CMP Well, okay, I'm pretty darned well dark adapted and I just can't see a gegenschein at all.

06 01 16 46 CDR I'm just not getting down that far.

06 01 16 50 CMP No, it's way over here, Jim. The torquing angl aren't very big.

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06 01 17 02 CDR Yes, they sure aren't ... not at all, isn't it?

06 01 17 07 CMP Yes, ...

06 01 17 20 LMP Okay, Jim, ready?

06 01 17 21 CDR Ready.

06 01 17 25 LMP I want 17:22, Dave -

06 01 17 29 CMP Oh, shoot! Thanks, Rusty. 145:17:22. I was thinking of - I'm going to go back and do it over and see what the repeatability is, to see if it's me or those numbers or what.

06 01 17 54 CMP Damn, they changed again. Something's dumping garbage in there; we had that in the Sundance, too.

06 01 18 00 CDR Really?

06 01 18 01 CMP Yes. We got it changed, but obviously part of the marking process is wiping that out.

06 01 18 10 CDR Yes. We're picking up some rates again, Dave; I'm going to damp them for you here.

06 01 18 17 CMP Okay.

06 01 18 27 CMP Out of the field of view. Yes, I'll go find it. Wonder where did it go.

06 01 18 39 LMP Dave, it's up and to the right.

06 01 18 53 LMP Jim, you might have to pitch up a little there.

06 01 18 57 CMP I think - I think you do, Jim. I'm - I'm sort of -

06 01 18 59 CDR Pitch up?

06 01 19 00 CMP/LMP Yes.

06 01 19 07 LMP Yes, you're going a good direction.

06 01 19 08 CMP Yes.

06 01 19 18 LMP You can really help out pretty well out these side windows, you know; but the front windows - Well,

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they're not too bad either. Oh, hey, there's Sirius. Let me make a star test on how many stars I can see - -

06 01 19 29 CMP Hey, oh, that's funny; I've got the moon and the landmark line of sight in the sextant.

06 01 19 36 CDR Oh, yes?

06 01 19 37 CMP It was just the star was superimposed on the moon. How about that!

06 01 19 42 LMP Jupiter was, huh?

06 01 19 43 CMP No, the - no, some other star.

06 01 19 46 LMP Oh.

06 01 19 47 CMP I was looking for Jupiter, and I -

06 01 19 53 LMP Still got to go up, I guess, Jim. Yes, he's getting real high now. Did those rates reverse on you, Jim?

06 01 20 13 CDR No, they just keep going up all the time. There shouldn't have been any reversal. They were supposed to go in zero.

06 01 20 26 CMP Keep it going.

06 01 20 33 LMP Ohh, that's very interesting. After you stopped thrusting, Jim, there was a cloud that stayed around it for a long while -

06 01 20 42 CDR Humph.

06 01 20 43 LMP Like it gets dimmer out there for the next 10 seconds.

06 01 20 47 CDR What's that?

06 01 20 49 LMP FUEL CELL 2, CRYO PRESS. Okay, that's CRYO PRESS; yes.

06 01 20 55 CDR How is fuel cell 2 doing, by the way?

06 01 20 57 LMP Oh, it's - High condenser exhaust, like it - -

06 01 21 00 CDR How high is it?

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06 01 21 02 LMP Same thing; it's 186 - -

06 01 21 04 CDR How we doing, Dave?

06 01 21 06 CMP Keep it going. You really went a long way. Okay, now wait a minute - I think I have it.

06 01 21 17 IMP Can you see out my window? It's really amazing how long that glowing cloud persists -

06 01 21 25 CDR I can't see out there, because - -

06 01 21 26 LMP Okay, next time you pitch, I'll just keep my head down. You watch it; it's just fantastic. Can you see the stars out there now?

06 01 21 34 CDR Yes.

06 01 21 35 LMP Okay.

06 01 21 36 CDR There's too much light between here and there.

06 01 21 38 LMP No, I think you'll see it.

06 01 21 46 CMP Okay, Jim, I got it again.

06 01 21 47 CDR Got it?

06 01 21 49 CMP Yes. You can stop right there.

06 01 21 50 CDR Okay.

06 01 21 52 IMP I guess it's when you fire the yaw thrusters that - Maybe the roll when you fire one out in that direction. What were those thrusters, Jim?

06 01 22 06 CDR Those were all pitch, except one yaw. There's the other yaw.

06 01 22 11 LMP Yes. Did you roll left back there one time or roll either way?

06 01 22 17 CDR I probably did.

06 01 22 19 IMP I think it may be when you squirt out from the direction you're looking that it does it; I don't know. Yes - clobbered again. They ought to fix that ... before they -

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06 01 22 35 CDR Yes. You mean Cherokee or Comanche?

06 01 22 41 IMP ..., is that what the name of it is?

06 01 22 43 CDR Oh, this is Colossus ...

06 01 22 45 IMP Oh.

06 01 22 48 CDR Wonder where they get their names? They must have some contest and the loser gets to pick the names.

06 01 22 53 LMP Chris Kraft's named Colossus.

06 01 23 46 LMP 0.03. I have a sneaky feeling that it's the vector.

06 01 23 52 CDR Yes.

06 01 23 54 LMP Let's see what the torquing angles are. Yes, nothing. It's - -

06 01 30 20 CC - - 54142.

06 01 30 23 CMP Okay, got 77775, 61331, all zips, 65732, 54142.

06 01 30 38 CC Okay, and the order of that is V, W, X, Y, Z.

06 01 30 44 CMP Roger; we got that. In fact, the charts onboard. That even agrees with the V component of preflight calculation. Okay, thank you very much.

06 01 30 54 CC Roger.

06 01 30 55 CDR It looks like it's just straight interpolation on here.

06 01 30 58 CMP Yes.

06 01 30 59 CMP Okay, I can give you a quick rundown on Jupiter - now that we've done it.

06 01 31 04 CC Okay.

06 01 31 07 CDR Matter of fact, let me go back to the checklist.

06 01 31 10 CC - - seconds to LOS here; we'll catch you over the Huntsville at 39.

06 01 31 15 CMP Okay, good - -

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06 01 31 16 CDR Did they - did they tell us how many frames per pass - -

06 01 31 18 CMP Yes - yes, it's all in the update form there, Jim. I better wait until we get this squared away.

06 01 31 31 CDR Be a short pass at Carnarvon.

06 01 31 32 CMP Yes. Okay -

06 01 31 52 CMP You didn't get this ..., huh, Jimmy?

06 01 31 55 CDR Well, it needs to be centered in those - -

06 01 31 57 CMP Oh, gosh, we haven't got all those -

06 01 32 01 CDR - - it needs to be centered in those screws there and then lined up - Just twist.

06 01 32 09 CMP Yes - -

06 01 32 10 LMP Think I'll look at it here.

06 01 32 12 CMP Can you see it? I can't - -

06 01 32 13 LMP Yes, I can see it.

06 01 32 14 CDR Can you get the thing lined up in the hole - the screwhole there?

06 01 32 20 CMP Ahh -

06 01 32 24 LMP Okay, that looks pretty good vertical.

06 01 32 25 CMP How about in rotation, I mean?

06 01 32 27 LMP Rotation good?

06 01 32 28 CMP Yes.

06 01 32 29 LMP Hey, I'm blocking you real good. Hey, I got a suggestion on that. Why don't we take a pen and mark the edge of the -

06 01 32 37 CMP Well, we're a little off on the screwhole -

06 01 32 39 CDR We got to go up - -

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06 01 32 40 LMP Yes.

06 01 32 41 CDR - - we got to go up towards the - this thing -

06 01 32 43 CMP Right there.

06 01 32 46 LMP I think a little more maybe, Dave.

06 01 32 48 CDR You'll have to go more, yes. Yes, it looks like it's lower to me.

06 01 32 58 CMP ... need a little more light on it.

06 01 33 03 CDR That looks pretty good.

06 01 33 05 LMP Hmm, maybe it needs to go -

06 01 33 08 CDR Aw, that's good.

06 01 33 09 CMP That looks pretty good to me, too.

06 01 33 12 LMP Okay. What time does it occur?

06 01 33 16 CMP We got a fairly good time.

06 01 33 22 CDR 125:57 -

06 01 33 24 LMP 33. That's in 35 minutes.

06 01 33 25 CDR That's when we start the ORBIT RATE.

06 01 33 28 CMP You got the inertial angles entered?

06 01 33 31 CDR Yes. 180, 273, and 20.

06 01 33 34 LMP Okay, Jimmy, you want to play installer here? You guys ... - -

06 01 33 42 CDR No, I'm going - Let's just do it this way.

06 01 33 43 CMP Okay.

06 01 33 45 LMP There's an orange - Oh, well, let me - Pull - pull the tab out, Dave. No, not that tab (laughter).

06 01 33 52 CMP I was just thinking - What the hell - What did you want me to pull the tab out for?

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06 01 34 02 CDR Tell me what to do.

06 01 34 03 CMP I was just pointing out that this thing ... - -

06 01 34 06 LMP ... rotate. Yes, just leave it right there -

06 01 34 07 CMP Just like that. Okay.

06 01 34 08 CDR Is that on it?

06 01 34 09 CMP Yes.

06 01 34 10 CDR On the orange?

06 01 34 11 CMP On the orange.

06 01 34 15 CDR Why don't you put the ... over there, Rusty?

06 01 34 16 LMP Okay. ON, and locked.

06 01 34 26 CMP Okay, here comes a black one. ...

06 01 34 42 LMP Oh, it's got a different kind of slot in the bottom
How about that? Did you notice that?

06 01 34 46 CMP Yes.

06 01 34 47 CDR No, I didn't.

06 01 34 49 LMP Some of them have different ends.

06 01 34 51 CDR Oh, you mean than the other ones?

06 01 34 54 LMP Yes, some of them - -

06 01 34 56 CMP No, all of these have got the same - I think they
all have the same.

06 01 34 58 CDR I think they're all the same.

06 01 35 00 LMP No. ...

06 01 35 01 CDR ...

06 01 35 02 CMP ...

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06 01 35 14 IMP Oh, look what came off of this one. Hey, that ma
be a little difficult to get off.

06 01 35 19 CDR What's that?

06 01 35 22 IMP The button on the pin there.

06 01 35 26 CDR Did what?

06 01 35 27 IMP Came off. It's not there; I'm not sure we're
going to be able to get that back off.

06 01 35 33 CDR Well, that's the way it's supposed to be, isn't
it?

06 01 35 34 LMP Oh, is it? Yes, ... - -

06 01 35 36 CDR Yes, that's the way it's supposed to be.

06 01 35 37 IMP I forgot. Whew! I was going to say, man, we mig
not be able to get that mother back off again; be
kind of hard to stow SO 67. Okay - close and loc
okay, cable coming up.

06 01 36 05 CDR Tell you what; while we're doing this -

06 01 36 53 CDR Here's my breakfast I haven't gotten around to
eating yet.

06 01 37 23 LMP Huh?

06 01 37 24 CMP This is my pencil, isn't it?

06 01 37 25 LMP Yes.

06 01 37 27 CMP I've been unable to locate mine today. I've loo
in all my pockets - all over the place - ...

06 01 37 48 LMP Okay - by remote cable, le monde. Now, I guess
want to test it one time, huh?

06 01 37 56 CDR I don't know what else to do; it seems like we'd
waste a picture that way. Why don't we get over
into the right attitude and test it when we get
there?

06 01 38 02 CMP How many - -

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06 01 38 03 LMP Yes, but then, you don't have any chance of fixing it though.

06 01 38 05 CMP -- how many pictures do you have?

06 01 38 07 CDR I don't know; there's only about 50 on that black ... thing.

06 01 38 09 LMP No, no, Jim. That's not right. Here, I can tell you how many we got; it's close to 200.

06 01 38 16 CDR They changed the film just before launch, Rusty. Put thick-base film on one of them.

06 01 38 21 LMP Oh, did they?

06 01 38 22 CDR Yes, they did.

06 01 38 24 LMP Where's the procedures book? You got that down here, Dave?

06 01 38 29 CMP ... Oh, here it is, I've got -- Oh, the update book.

06 01 38 32 LMP No, that's the update book.

06 01 38 47 LMP 140, 170, 100, and 170. Is that wrong, Jim?

06 01 38 58 CDR I don't know.

06 01 39 00 CC Apollo 9, Houston through Huntsville. Standing

06 01 39 07 CMP Roger, Houston; Apollo 9. How do you read?

06 01 39 12 CC Reading you loud and clear, Dave.

06 01 39 15 CMP Okay, stand by a minute, and I'll give you a run down on the Jupiter alignment.

06 01 39 21 CC Roger. We're taking a look at some of the data and it looks swell.

06 01 39 31 CMP Roger. And I got a couple comments on this -- Just a second.

06 01 39 45 CMP Okay, if you notice the data, I ran it two times to get the repeatability on numbers we had to print

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in; and the star-angle difference was 0.04 on the first one, and 0.03 on the second one - and did you get the torquing angles?

06 01 40 03 CC

That is affirmative, Apollo 9.

06 01 40 06 CMP

Okay. It seems to work real well; the planet fills up the whole inside of the sextant in between the reticle line. It's about the size of - I guess it's about 40 odd seconds in there; and one thing was noticed in the program is that, when you load the unit vectors for the planet and then let AUTO optics drive to it, then take the mark, the mark wipes out the load you put in, and you have to reload those unit vectors again. That might be an early thing for MIT to think about in Comanche, because it takes a lot of time to go reload those vectors.

06 01 40 50 CC

Roger, Dave; copy. Real good observation.

06 01 40 55 CMP

And other than that, it works real well. And the torquing angles were small, and the planets are easy to find. I think that would be a fine thing to use if you couldn't see the stars in the daytime.

06 01 41 08 CC

Okay, that sounds real great and that was an extremely good summary.

06 01 41 14 CMP

And our last landmark track - I think we got the hang of the whole thing. We had cloud coverage again, and I had to reject the first mark because I couldn't - just couldn't see it. Finally, we got almost overhead and I got two real good marks, and I think we've got that one nailed if we could get a clear target tomorrow.

06 01 41 35 CC

Okay, Dave, understand.

06 01 41 41 CMP

And we're getting ready for SO 65 right now.

06 01 41 44 LMP

I'll put those all back on again - -

06 01 41 46 CC

Real good.

06 01 41 48 LMP

- - just realized how we are supposed to do it.

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06 01 41 51 CDR

What?

06 01 41 53 LMP

I said I realized how we're supposed to do it; check it with the camera backs off. They're all turning - -

06 01 41 58 CC

If you've got time - ... Jim asked specifically for that - I got an entry for that ORB rate angle and to make sure that I'm giving you what you want. Is that what you want, your relation to the local vertical?

06 01 42 16 CDR

Roger, Stu. We have what we want here.

06 01 42 19 CC

Okay, real good.

06 01 42 21 CDR

We want an inertial angle to maneuver to and we wanted a relative local-vertical attitude to stay at.

06 01 42 28 CC

Okay. Real good. We'll slip it to you.

06 01 42 34 LMP

Well - that'll always be the same, once we got it there. Unless they decide not to take vertical pictures.

06 01 42 48 CMP

Got another one?

06 01 42 49 CDR

Yes.

06 01 43 07 LMP

... want more?

06 01 43 47 CMP

Houston, Apollo 9.

06 01 43 49 CC

Go ahead, Apollo 9.

06 01 43 50 CMP

One thing I forgot to mention on that alignment: the way we got the unit vectors was to interpolate between the times that we had on the charts onboard and so we tried to take the five-digit numbers and get as close as we could to the time, the GMT that we had right now; so I guess the repeatability really is a function of those numbers that you had in there - that we have on the chart or that we interpolated to.

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06 01 44 15 CC Okay, Dave, understand. We're about 1 minute LO
Huntsville; we'll see you Hawaii in about 5 minu
at 49.

06 01 44 24 CMP 49, Hawaii. Are we supposed to take those 70 mi.
limeters at Hawaii?

06 01 44 32 LMP I don't know.

06 01 44 33 CDR It's 150-some hours. 152 hours you had on the u
plan. I can't imagine we're even going to be up
in 152 hours. ... look there and see?

06 01 44 41 CMP What do you want to see?

06 01 44 43 LMP Flight plan update form - wherever that is. Rig
here.

06 01 44 51 CDR It's 152:06:08; should - probably already be in
by then.

06 01 44 57 CMP We haven't even had lunch yet. What do you mean
bed?

06 01 45 01 LMP It's not even 7 o'clock tonight, Jim - 6 o'clock
tonight.

06 01 45 08 CDR Okay, Davey, why don't - I'll get us maneuvered
over to that attitude - -

06 01 45 12 CMP Okay.

06 01 45 13 CDR - - and target the thing for the -

06 01 45 14 CMP Okay.

06 01 45 15 CDR Did you? Go along here? And press the button w
it gets ready to go, and I'll sit here and punch
the picture button.

06 01 45 22 CMP Okay.

06 01 45 24 CDR ... take the picture ... Well, all the monitors
say we're going the right way.

06 01 45 32 LMP (Laughter)

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06 01 45 39 CDR ... take the dark slide. Yes, don't mess with that.

06 01 45 41 LMP We haven't gone down the checklist, have we? Have we gone down the checklist?

06 01 45 44 CDR Yes.

06 01 45 45 LMP Okay, I'll read it. Four Hasselblads in bracket; remote cable; GET is 00 and up; disable A-3 jet; unstow camera unit less magazine; check camera setting against decal; and then install in hatch window - Okay, we've already checked that - guess they're not supposed to do that.

06 01 46 06 CDR They're supposed to be taped.

06 01 46 08 LMP Were they?

06 01 46 10 CDR Yes, they're all taped.

06 01 46 11 LMP Are they? Okay, attach remote control cable; actuate system less magazine to verify operation of all four camera bodies; unstow four film MAG's; advance film MAG's one frame - Oh, that's only the first time you use it - -

06 01 46 26 CMP Where's your pencil? Did I lose that, too?

06 01 46 28 LMP - - Leave film advanced tabs turned out; attach each magazine to proper colors; remove dark slides from all MAG's - Okay, let's get the dark slides out. Activate system one cycle and verify operation by observing film advance tab rotation.

06 01 46 48 CDR There's a nice little strap right down in the middle of ...

06 01 46 52 LMP How many did you get, Jim? Three?

06 01 46 53 CDR Three.

06 01 46 55 LMP Okay, here's four. Okay, so it's ...

06 01 46 59 CDR ... it's right there.

06 01 47 05 CMP Here's one right here.

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06 01 47 08 LMP So it asks us to use one cycle.

06 01 47 19 CDR ... get out to the sun ... If we actually have something down there, we might as well take a picture of something.

06 01 47 47 LMP At GET of 5 minutes prior to the first site, disable jet A-3, orient the spacecraft ... - -

06 01 47 51 CDR What time - 145:57 is the time we want for that -

06 01 47 56 LMP That's - 10 minutes.

06 01 48 14 CDR I don't - Let's see, I do get that ...

06 01 48 25 CDR Okay, why don't you call up 49 - and -

06 01 48 35 LMP Got your ... maneuvers here?

06 01 48 36 CDR Yes.

06 02 18 25 CDR We're going to be on this path.

06 02 18 33 CMP No. no. But you're not going to. You're going to be on this one. Yes, you go - -

06 02 18 41 CDR Oh, why don't we go the other way? Oh, balls. Okay. Man alive, I think we've already been up that way.

06 02 18 47 LMP Oh, yes. Okay. Hell.

06 02 18 49 CDR What would you keep it - Yes, I think the next pass should be really interesting.

06 02 18 58 LMP You go across the - just south of San Antonio.

06 02 19 00 CDR Hey, going across those islands is absolutely beautiful.

06 02 19 03 LMP The what?

06 02 19 05 CDR Down across those islands is absolute - -

06 02 19 06 CMP If the weather is good.

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06 02 19 12 LMP Ohh. Oh, hey, there's - That's where we're going to get those craters, damn it. We are going right across that - that whole section of craters in - in Mexico that - that I couldn't - could never think of the name of.

06 02 19 28 CDR All I have to do now is go to that dinner on May 10th (laughter). If I don't go to the dinner, I don't get them medals.

06 02 19 50 LMP What the heck is the name of that series of craters? I swear it begins with a P. You were with us on that trip, weren't you, Dave?

06 02 20 02 CMP Yes, and I ... - - El Legati.

06 02 20 03 IMP Crater El Legati.

06 02 20 04 CMP Piscadores, or -

06 02 20 06 IMP No, that's in the U.S. This is in Mexico. It's the crater El Legati and -

06 02 20 13 CMP Oh, I wasn't on that one.

06 02 20 17 LMP Oh, you weren't on that one? Oh, I can't think of the name of it!

06 02 20 32 LMP Just south of Tucson about 50 miles. That's right, there's Ajo. That's the only time my wife ever landed at Ajo.

06 02 20 58 LMP ... Hey, you know, I don't think that was Tucson, Jim. I think that was Phoenix. Oh, wait a minute, now; let me figure out which REV you're - No, no, no, okay, I'm sorry; that was Tucson. Yes. I got the wrong REV again. Okay. Oh, well, hell.

06 02 21 35 IMP Man, I can sure get these REV's all mixed up.

06 02 21 40 CDR (Laughter) Now the basic thing to remember is the earth isn't round.

06 02 21 59 CMP ... we came across on that one. So this is the next one. Okay. Yes, I was right, so we're going to come right across the - that section of craters. Okay.

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06 02 22 28 LMP We're also going to come right across the top of the Gulf of California.

06 02 22 34 CDR Yes, I took a real nice picture. It's really cloudy down there, though. The lower half - -

06 02 22 44 LMP The right at Yuma?

06 02 22 45 CDR - - the lower half of the peninsula is all socked in.

06 02 22 48 LMP Oh, Baja? Oh, no, we're way up - we're in the upper end of it on this next pass.

06 02 22 53 CDR I know, we were this time, too - -

06 02 22 55 LMP Yes.

06 02 22 56 CDR - - but you couldn't see down there. Well, Dave, if you get that crappy alignment out of the way, we can all rest.

06 02 23 08 CMP Doing it right now.

06 02 23 12 CDR What is it - I wonder what today is for? Just to prove that we can do five alignments in one day? They sure do wear you out (laughter). Have they stopped at all today, Dave?

06 02 23 20 CMP One time, Jim. Did you damp rates for me, old buddy? Oh, ho.

06 02 23 33 CDR Fire something. Let me see if I'm really set up.
...

06 02 23 44 LMP We're also going to come right across Havana.

06 02 23 48 CDR Well, that's something different ...

06 02 23 51 CMP You got the rates damped?

06 02 23 53 CDR No, I haven't, but ... doing that right now, David.
... 1 second ...

06 02 24 06 CMP Is it still dalight? I can see stars through the telescope.

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06 02 24 11 CDR Dave, it's ... The rates are damped.

06 02 24 15 CMP Alright.

06 02 24 19 LMP You say you can, Dave, huh?

06 02 24 21 CMP Yes. I - I can see the one I'm marking on.

06 02 24 26 CDR ... to be hungry (laughter).

06 02 24 36 LMP Can you identify them in the telescope, Dave?

06 02 24 40 CMP No. Afraid not.

06 02 24 53 LMP (Yawn) I wish we had all our fuel cells ready to go. 186 still, and it's beginning to drop again. Whoops!

06 02 25 10 LMP We're down at the normal 2 amps, every ...

06 02 25 12 CDR Great! Nothing like having a ... fuel cell (laughter)

06 02 25 15 LMP Well, so far. Except it's a little early in the day for it to be down to 2 amps.

06 02 25 22 CDR How high's the temperature there?

06 02 25 23 LMP 186. Same thing it's been the last 2 days. ...

06 02 25 35 LMP 2-A and B are okay. Looks good. The pressure's okay, but that one is getting down toward the bottom of the green. ...

06 02 25 54 CDR Alright. They are a little low, aren't they?

06 02 25 58 LMP Surge tank. How is your surge tank these days?

06 02 26 00 CDR Your - That should be about 700. I woke up in the middle of the night last night, and I ... filling that thing.

06 02 26 06 LMP Ahh.

06 02 26 08 CDR Let's see, it's 700, isn't it?

06 02 26 11 LMP It's down - Yes, it looks like it. I can't see exactly. This light's not very good.

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06 02 32 29 CC Apollo 9, Houston; 1 minute LOS, and Tananarive at 44.

06 02 32 35 CDR Roger.

06 03 32 49 LMP Would you believe that they want pictures of the Himalayas?

06 02 32 53 CDR Do they really?

06 02 32 59 LMP (Laughter) I'll be damned!

06 02 33 02 CDR Listen, we got to - Did you see those lakes the day? Were they on the other side of the spacecraft?

06 02 33 07 LMP Who, me? No, I didn't see them.

06 02 33 10 CDR Dave, you saw them, didn't you? There were five or six - -

06 02 33 13 CMP Yes. Very pretty.

06 02 33 14 CDR - - ... lakes.

06 02 33 15 CMP Cooper Lakes.

06 02 33 16 CDR Cooper Lakes, yes (laughter).

06 02 33 21 CMP Cooper Lakes? What's the other name?

06 02 33 23 CDR Watch it; watch the scissors, Dave.

06 02 33 25 CMP Huh?

06 02 33 26 LMP I think your scissors are floating around your head.

06 02 33 28 CMP Oh, me!

06 02 33 58 LMP Let's see. It's 12:30 in Houston, so it's midnight in India.

06 02 34 20 CDR (Laughter) There was a valuable piece of - (laughter)

06 02 34 24 LMP Well, it is, if you're trying to figure out where the terminator is. Okay, so I'll find it. ... anymore. Oh, well. Too bad.

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06 02 36 20 LMP Okay, we're going to go right over the Truk Islands

06 02 36 23 CDR Hot dog!

06 02 36 24 LMP Hot dog!

06 02 36 26 CDR You want to come down here for a while? Whee! Hey Dave, come on, you want to ... for a while?

06 02 36 33 LMP I want to go look out the window and see some of the scenery.

06 02 36 34 CDR Okay, go ahead.

06 02 36 35 LMP Hey, I'll carry it some time and look out the telescope. I've never even looked out that thing.

06 02 36 38 CMP Okay.

06 02 36 59 CDR Whoeee! Whoo! Hot, this is hot.

06 02 37 18 CMP It's nighttime though, isn't it?

06 02 37 22 LMP ...

06 02 37 24 CMP Oh!

06 02 37 27 CDR ... Jim's holding his nose and coming ...

06 02 37 30 CMP Yes, it sure is.

06 02 37 34 CDR ... nighttime ... daytime ... How's old fuel cell doing?

06 02 37 43 LMP Oh, it's hanging in there at 2-1/2 low, and 186 degrees.

06 02 37 50 CMP I was looking through my duff bag ... rendezvous last night, when I started the rendezvous, I ... before we separated ... it was 178 degrees.

06 02 38 00 CDR The ...

06 02 38 02 LMP Huh?

06 02 38 03 CDR The ...

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06 02 38 04 CMP What was it supposed to do? Rusty's right. Wasn't that what we were up here for?

06 02 38 20 CMP ...

06 02 38 24 CDR Ah, here she comes. Okay, I was ... what was going on here.

06 02 38 34 LMP What?

06 02 38 36 CDR Hey, that day I paid attention to what was going on in the spacecraft.

06 02 38 39 CMP Yes, I noticed, you must do that.

06 02 39 03 LMP Tuamotu Archipelago. Boy, there are a bunch of islands in that Pacific. Whooee!

06 02 39 26 CMP ...

06 02 39 32 CDR Yes. You can see where a people's interest lie (laughter).

06 02 39 37 CMP ... a drink in there?

06 02 39 40 CDR Heck, no ...

06 02 39 44 LMP Hey, your back still hurt, Dave?

06 02 39 45 CMP No.

06 02 39 46 LMP That's amazing; mine does.

06 02 39 47 CMP Does it really?

06 02 39 49 LMP Yes. The same places it hurt the whole flight; right there.

06 02 39 52 CMP Gee, mine quit after the first 3 days. I'm feeling fine.

06 02 39 56 LMP It doesn't really hurt bad, you know, but it - it a - it's a steady ache.

06 02 40 10 CMP The drinks are the popular thing, I think.

06 02 40 13 CDR Yes.

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06 02 40 37 CDR How far below the ... on the landmark tracking are we? Yes.

06 02 40 45 CDR 10 degrees? Outside the red? Why?

06 02 40 46 CMP That's something. That means there's no problem.

06 02 41 54 LMP You know, those eat periods may even be scheduled. Wouldn't that be a strange one?

06 02 41 58 CDR Yes.

06 02 42 00 LMP No, no. An hour and 40 minutes late for it.

06 02 42 05 CDR Yes.

06 02 42 26 LMP That orbit rate torquing's really nice, isn't it?

06 02 42 43 LMP What kind of deadband does that hold, Dave?

06 02 42 48 CMP It's a - I - I don't really know. It does its own deadband just like in the rendezvous ..., and so it looks like the ...

06 02 42 59 LMP ...

06 02 43 02 CMP But it doesn't ...

06 02 43 21 CMP That rendezvous ...

06 02 43 33 CMP ... always do better, even when you don't expect it to go.

06 02 43 38 CDR (Laughter)

06 02 43 41 LMP Boy, that pulse in the LM is really ... Man! Bomp, bomp.

06 02 43 51 LMP There wasn't any question like there was in the simulator whether the thing would fire. Bet that EVA was a pretty, too. Man! I sure hope that camera picked it up.

06 02 44 09 CMP ...

06 02 44 11 LMP Yes, we did, but we stowed it.

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06 02 44 14 CMP ...

06 02 44 20 CDR What happened to the film magazine that was on it?

06 02 44 23 CMP There's still one on it. I didn't know whether ...

06 02 44 27 LMP No, didn't you take that off just - just this morning, and finish it up on the other camera? I thought that's what we did.

06 02 45 03 LMP ... with MAG E. ...

06 02 45 21 LMP E's still in here. Yes, it is.

06 02 45 35 LMP Huh?

06 02 45 39 LMP Yes, before we take it off, we ought to mark down another ... And, Jim, you're not coming through.

06 02 46 08 IMP Maybe we ought to advance a few films on that, Jim, manually, so that they could find a place to cut it or something. And then take the rest.

06 02 47 25 LMP They've got to be done charging the battery B. My God!

06 02 47 32 IMP They said this morning they were going to put 5 amp-hours, didn't they? Start it out at 2-1/2 - 2-1/4, it's down to 0.6 now. And, let's see, that was at about - almost 6 hours ago. Maybe not.

06 02 48 41 LMP Hey, Jim, how about moving your mike up? ...

06 02 49 19 LMP Is that your ...?

06 02 49 23 CMP Yes.

06 02 50 27 IMP You want to put it on ...?

06 02 50 28 CDR No. ...

06 02 51 20 CMP My toothbrush ...

06 02 51 36 CDR Huh?

06 02 51 38 CMP It sure seems like a long time. ...

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06 02 52 40 CMP You're putting down on P00.

06 02 52 42 IMP Huh?

06 02 52 43 CMP You're putting down on P00, huh?

06 02 52 46 CDR I was going to put it - Take the abnormal-looking one out.

06 02 53 09 LMP Cabin TEMP is up now.

06 02 53 16 LMP You won't believe it, but, you know, we've been running today with the cabin fan on?

06 02 53 21 CMP Is it on?

06 02 53 23 LMP Yes, sure.

06 02 53 24 CMP Well, when did you turn it on?

06 02 53 25 LMP Yes, I was going to turn it on for a minute. Doesn't bother you down here, huh?

06 02 53 33 CDR You get stifled in here with that lack of circulation sometimes.

06 02 53 36 CMP Yes.

06 02 53 44 CDR ... I'm going to see if I can - You through with it

06 02 53 49 CMP Yes, oh, I was just going to put something on there.

06 02 53 52 LMP You want to wind some through, Jim - -

06 02 53 53 CDR ... when you're through with it?

06 02 53 54 CMP Yes.

06 02 53 56 CDR I think we ought to just put it away and see how the pictures go. If we don't use it, we won't use it; if we do, ... I wanted a couple to be logged.

06 02 54 05 CMP I was going to put something else in here that you accomplished.

06 02 54 07 CDR Oh, did I cut your feet up underneath you - -

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06 02 54 12 CMP No, no, I'm really - I'm trying to think of some other way to tell him to - ... because you - you don't know the point at which it pitched to, up until you look at it and figure out what the DELTA-P is - and you could run all the film through that DELTA-P. And you may screw up, you know, some part of it.

06 02 54 54 LMP (Cough) That sausage is hard to squeeze out of there, isn't it?

06 02 55 22 CMP What are you doing, Rus?

06 02 55 28 LMP Huh?

06 02 55 30 CDR Hey, ...; he probably wouldn't use it at all.

06 02 55 34 LMP I don't know. The way you guys take pictures. This friend of mine, named Anders, told me that one time.

06 02 55 47 CDR What?

06 02 55 50 LMP That if he had it to do over again, he'd take all the pictures that opportunity presented.

06 02 55 55 CDR Where did this - where was this, Dave?

06 02 55 58 CMP In - It could go in A-7.

06 02 56 03 CDR I'm going to try to clean off this vent over here.

06 02 56 14 CDR Yes, my gosh, it's not nearly as dirty as it has been.

06 02 56 16 IMP Yes, I think the spacecraft is cleaning up.

06 02 56 19 CMP We're clean livers.

06 02 56 20 IMP I tell you, I think the breakpoint on that was that EVA. Man, that really helped.

06 02 56 26 CDR Dumping the LM didn't hurt anything either.

06 02 56 29 LMP Yes, well, the LM got cleaned up after that EVA, too. Boy, there was a lot less stuff in it the next day.

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06 02 56 59 CDR Here comes Houston. Where's the update book?

06 03 03 50 CC Apollo 9, Houston; 30 seconds LOS; Guam at 11.

06 03 03 57 CDR Roger.

06 03 04 23 CDR Gee, you don't have very long to go here.

06 03 04 26 CMP ...

06 03 04 29 LMP Well, how long's the SO 65?

06 03 04 31 CDR 20 minutes.

06 03 04 33 LMP Really?

06 03 04 35 CDR Here, let me see. 35 and 30. No, 25 minutes.

06 03 05 24 CMP Sticky, isn't it?

06 03 05 25 LMP Yes, yes.

06 03 05 35 CMP That's the best Velcro on the whole spacecraft.

06 03 05 37 LMP Yes, these suits.

06 03 07 08 CMP A 350-pound cake.

06 03 07 11 CDR (Laughter)

06 03 07 56 SC (Cough)

06 03 09 09 CDR Hey, ...

06 03 09 14 CMP Okay.

06 03 09 21 LMP I ... so that we don't go across ... Islands, unfortunately.

06 03 09 31 LMP Except ... - I mean, you know - instead of -

06 03 10 26 LMP Gobble, gobble.

06 03 10 39 CDR ... we're at Guam, 11. Think I'll try one of these wet wipes ... so bad.

06 03 14 16 SC Whoo! It's yours. You got them.

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06 03 14 28 IMP You know, we ought to take some pictures of us taking some SO 65 pictures - -

06 03 14 33 CDR (Laughter)

06 03 14 36 LMP - - with some of that interior movie stuff.

06 03 14 39 CDR We're going to have ... Dave to wake up. ... couch.

06 03 14 44 LMP Move back, huh?

06 03 14 45 CDR Yes.

06 03 14 47 LMP Anybody want some chewing gum?

06 03 14 48 CDR Yes, ...

06 03 14 56 LMP Dave, you want some chewing gum?

06 03 14 59 CMP Oh, no thanks, Rusty. I think I'll pass.

06 03 15 01 LMP Okay. Kind of tastes good, doesn't it?

06 03 15 06 CDR Yes, that's not bad.

06 03 15 08 IMP At least at first.

06 03 15 22 IMP Hey, you know what else we got that we haven't taken is the - those peanut balls. They would probably be fairly tasty.

06 03 15 30 CDR Hey! Yes, let's try some. ...

06 03 15 48 LMP If my nose were a little more clear, I would be happier.

06 03 15 58 CMP Is your nose a little bit jammed?

06 03 16 00 CDR Yes, it is off and on - -

06 03 16 01 LMP Kind of up in here?

06 03 16 04 CMP All over.

06 03 16 06 LMP All over, huh?

06 03 16 13 LMP Let's see. 147:30. I wonder where we rat-holed the tissues down.

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06 03 16 25 LMP Uch. ... between my legs again. There they are. Over your head. On the upper bunk head there. Right down there. Ahh!

06 03 16 45 CMP That's okay; don't get nervous. You doing alright?

06 03 16 54 LMP Yes, I'm kind of just trying to ...

06 03 17 11 LMP Oh, hell!

06 03 17 26 LMP Oh, shoot!

06 03 18 12 CMP How are we doing on time?

06 03 18 14 CDR You got 12 minutes to go, Dave. Maybe we ought to start the -

06 03 18 18 LMP Yes, we ought to check those numbers. That way - I guess I can check them here to see if they're any different. If I can find where I put them.

06 03 18 34 LMP You got the SO 60 - Oh, yes, you got it over there, Dave. Yes. Dave, the numbers are up there. I don't know if they're any different or not.

06 03 18 42 CMP Okay, ...

06 03 18 43 LMP I thought it was 0.067 last time. That's why I wondered.

06 03 18 52 CMP 0.067?

06 03 18 54 LMP Yes, it was - right here, see, on the rate; but this is 0.068.

06 03 18 59 CMP That was yesterday.

06 03 19 00 LMP Oh, was it yesterday?

06 03 19 01 CMP 16446, 0, 12045.

06 03 19 07 LMP Yes.

06 03 19 08 CMP 54142.

06 03 19 45 CDR I still want to ...

06 03 19 47 CMP Okay, you're going to pulse over there - -

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06 03 19 49 CDR I'm going to go on over there, and then, when we get close, ...

06 03 20 17 LMP Here is the time ..., Dave. Whoo - that stuff is really bright.

06 03 20 52 CDR When we get the SO 65 pictures, so why don't we take off the - why don't you disconnect this thing right away so we don't inadvertently take a bunch of pictures? Let's just take this thing off ... you can look out as you go across the islands.

06 03 21 05 CMP You want me to look at them?

06 03 21 06 CDR Yes, let's look at them. I'm just too good to you.

06 03 21 09 CMP I think it's a pretty good way to be doing this filming.

06 03 21 10 CDR What?

06 03 21 11 CMP ...

06 03 21 16 CDR Oh, yes? That'd be pointing the wrong way.

06 03 21 19 CMP Oh, I don't know how we were going to be pointing, but I'll do it - Oh, I'll do it later. You want to look at the islands, let's look at the islands.

06 03 21 25 CDR I think you will enjoy it if you've never seen it before - -

06 03 21 27 CMP Yes, I'd like to see it, but I was thinking, you know - I'd like to see it, ...

06 03 21 32 CDR I'll just use some fuel up. Get right side up.

06 03 21 40 CDR Okay, I have 147:35:40.

06 03 21 44 CMP Okay.

06 03 21 48 CDR Let's see, you have - -

06 03 21 49 CMP ... A, B - All of them, CFF, and A and B ON. Put all of them ON; the DAP has already ...

06 03 22 03 CDR 147:45:40 (cough), 148:56:04, 12 and 147:37:12 - -

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06 05 16 14 CC Apollo 9, Houston. Your readback is correct; Tananarive at 50.

06 05 16 21 CDR Roger. Tananarive, 50. Yes, Dave? Oh, yes. He did. Getting ready to ...

06 05 16 28 LMP Yes, but I don't think it's really that important in the first place. ... You want to call it off?

06 05 16 35 CMP Sure.

06 05 16 37 LMP 15, 16, 17 ...

06 05 16 41 CDR Is it full?

06 05 16 42 LMP No, it's - it isn't just quite full.

06 05 16 46 CMP There's some pretty good geology down there.

06 05 16 48 CDR ...

06 05 16 55 LMP Absent, huh?

06 05 17 01 CMP I ... that off.

06 05 17 03 LMP Whoo!

06 05 17 14 CDR Where are we right now?

06 05 17 15 CMP Mexico.

06 05 17 18 CDR Yes, I see this puddle of water down there. Hey, get those islands right in the middle of that water, Dave, that's coming up.

06 05 17 24 LMP Yes, there's volcanos in there. Hey, there's one right on the end of that land tip out there, Dave. Oh, you got that one?

06 05 17 35 LMP Yes, it sure is, and here's a couple more of them. This is like the Philippines; they have volcanos like that.

06 05 17 46 LMP Hey, we're going right down Central America, aren't we? We're going to do Panama. Is that where we are in this REV, Dave?

06 05 17 55 CMP Yes, that's where we pitch up.

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06 05 17 57 LMP Yes.

06 05 18 20 LMP Hey, Dave, right down there on the coast, in that little in - sort of an indent there, it looks like there's a couple of - of rills and rifts down there - right out there. You see them right there?

06 05 18 33 CMP I don't know. Ohh, yes!

06 05 18 34 LMP Why are they so damn different? Right over there. You see them?

06 05 18 46 LMP Grabens - That's the word I'm trying to think of. Can't ever think of the words I'm trying to think of.

06 05 18 57 CDR I think the Panama Canal's right out there, but I can't tell from - from the ground.

06 05 19 18 CMP Maybe that's it.

06 05 19 24 LMP No, I think ... is down underneath there.

06 05 19 41 CMP ...

06 05 19 43 LMP Okay, just a minute. Dave might be able to see it down there - the Panama Canal. I think it's under the clouds, though.

06 05 20 24 LMP O₂ FLOW HIGH.

06 05 20 26 CMP Yes, ...

06 05 20 28 CDR Yes, I am.

06 05 20 41 LMP I guess we're coming across the northern end of the Andes here, David.

06 05 20 46 CMP We're going into Colombia. My time here is 149:20:42, right here.

06 05 20 58 CDR Pretty cloudy, isn't it?

06 05 20 59 CMP And it's beautiful cloud...

06 05 21 00 CDR Yes.

06 05 21 09 LMP Can you see the airplane from where you are, Jim?

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06 05 21 12 LMP Pan American.

06 05 21 22 CMP ...

06 05 21 24 LMP Yes.

06 05 21 31 LMP Yes, it really is. Going to be right cloudy.

06 05 21 41 CDR Boy, the oxygen is really ... up to 87.

06 05 21 46 CDR ...

06 05 21 47 LMP Oh, mine was, yes.

06 05 21 57 LMP Mine's ... so it doesn't work.

06 05 22 01 LMP What? What - are you kidding?

06 05 22 05 CDR Shee! What's that? Thanks for nothing.

06 05 22 11 CDR Is that ... that big - that big thundercloud?

06 05 22 22 CDR And then there's tremendous thunderstorms sticking out up here in front of that. Really great!

06 05 22 54 LMP ... flying process here upside down. Look in these windows and see a bunch of eyeballs. Oow ahh!

06 05 23 24 LMP Boy, it's really hazy down there. There's some good stuff coming up over there, David. It'll be there in a few minutes. See it? Kind of bumps in the smooth surface there?

06 05 23 38 LMP Yes. It is, isn't it? Really weird looking.

06 05 23 52 LMP You can see it when we're ... - kind of weird.

06 05 23 57 CDR Those bumpy things down here? I'm going to take two pictures of the big thunderstorm we're going to pass over right now.

06 05 24 06 LMP There's a whole bunch of thunderstorms down there.

06 05 24 09 CDR Yes. Looks like a rose.

06 05 24 13 LMP Yes. There's a whole series of them coming up, too. Alright, you can see them, I guess.

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06 05 24 30 CMP ... 20 ...

06 05 24 32 CDR I took two.

06 05 24 35 LMP I took one - one out there, Dave.

06 05 24 39 CDR They're both of the same thunderstorm. One of them upright and one near vertical.

06 05 24 45 LMP There's another pretty one - right in front of us.

06 05 24 48 CMP Yes, ...

06 05 25 02 LMP Whooh! We must be over South America, huh?
I guess we always pass through the Andes out here.
Hey, do we go out over Rio de Janeiro?

06 05 25 18 CDR Let me tie these back for you. Okay?

06 05 25 25 LMP Is that Rio?

06 05 25 27 CMP Right down here.

06 05 25 51 LMP Yes, it's nice-looking country. That's what we call 'yungle.' Boy, those - that sure is high. You can really see it move with respect to the lower stuff. You can see the long shadows of some of those clouds, too. See them?

06 05 26 33 LMP Okay, that's the summary of where all the film is, and where it - and what the status of it is. The only thing I haven't had time to do is figure out whether - whether I've packed all of it so he can have it.

06 05 26 49 LMP Nice going there, Davey.

06 05 27 17 CDR Hey, Dave? What's that great, big, white, pink spot straight ahead? On the clouds, a little bit to your side?

06 05 27 30 CDR Yes, it might be a pretty one. Maybe we ought to get a little closer and see if - what it is.

06 05 27 42 CMP Yes, I'm going to take a break. Jimmy, ... a little bit.

06 05 27 47 LMP Yes, it sure powered up ... didn't it?

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06 05 27 51 LMP In fact - Hey, look it. Do you see a bump in the orange above it? I mean like that glow in the horizon?

06 05 28 04 CDR No, ... the stops on it somewhere.

06 05 28 29 LMP Man, that could be a pretty picture.

06 05 28 36 CMP Sure is.

06 05 28 57 LMP Man, that's one to stay out of.

06 05 29 20 CDR Look out here to the left. Looks like you're flying along - with an undercast above you - drops down this way. Is it?

06 05 29 30 LMP Yes.

06 05 29 39 LMP There's a star or a satellite - Now, is it moving or not? It's not moving; it's a star - if I can find it. See it, Dave?

06 05 30 13 LMP ... has the optics ...

06 05 32 28 LMP The optics looking at the sky or the ground?

06 05 32 30 CDR It's looking at the sky.

06 05 32 32 LMP Oh, I think ... - -

06 05 32 33 CDR Huh? Last night, just as ... been looking at the sky, we should have got it.

06 05 33 03 LMP Not a thing out there. You ought to be looking at the ground. No, there comes some stuff.

06 05 33 29 LMP I can go to MAN - I can go to MANUAL without the IMU, ON, can't you?

06 05 33 32 CMP Yes. Take it out of zero.

06 05 33 36 LMP Take it out of zero. Okay. Zero, OFF. Do I have to wait?

06 05 33 41 CMP No. As you go OFF, you can just go to MANUAL.

06 05 33 46 CMP I got it.

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06 05 34 26 LMP Oh, that's strange. It doesn't ... at all, does it? That also seems kind of sloppy.

06 05 36 09 CDR Huh? Oh, I have to look up?

06 05 36 23 LMP Oh, then stay, because it ...

06 05 36 34 CDR You mind if I put this thing right here?

06 05 36 36 CMP Here, I'll put it away. ...

06 05 36 37 CDR Okay.

06 05 36 39 LMP Here?

06 05 36 46 CMP Yes. I thought I'd just save you the trouble.

06 05 36 49 LMP Shoot! I wanted to do some groundwork with that thing - eight power. Can I play with it tomorrow?

06 05 36 55 CDR Go ahead - and take it out.

06 05 36 56 LMP Huh?

06 05 36 57 CDR You can take it out. ... where we'll be.

06 05 37 00 LMP You do. You sit right there and look right straight out the window. Get an eight-power telescope. ...

06 05 37 16 CDR You never found my helmet and goggles bag?

06 05 37 26 CMP I don't remember seeing it.

06 05 37 53 CMP See anything?

06 05 37 55 LMP Not much. I wasn't very impressed.

06 05 37 59 CMP Hmm. You're not supposed to be if ..., is that right?

06 05 38 14 CDR Yes.

06 05 38 16 LMP Yes. Whoa! Maybe I can get a picture of an elephant or something. ... like that.

06 05 38 24 CMP You're ... just a small boy.

06 05 38 30 LMP Really an. ...

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06 05 38 35 CDR That's why they call him the "Vanilla Kid."
06 05 38 38 LMP Remember Dick Dowel?
06 05 38 39 CMP Who?
06 05 38 41 LMP He was a movie star once.
06 05 38 42 CMP Was he really?
06 05 38 43 LMP Yes.
06 05 38 50 CMP Wonder when that was?
06 05 38 53 LMP Well, I don't know, it must have been around 19 -
35 or 6.
06 05 39 37 LMP (Yawn)
06 05 39 52 CMP ...
06 05 40 04 CDR You got some tape to shut that off with?
06 05 40 08 CMP No, but I'll get some.
06 05 40 11 LMP Yes, here. You want a piece of tape, Jim?
06 05 40 13 CDR Maybe I'll just take - -
06 05 40 14 IMP Well, somebody just stirred up a bunch of crap over
there. I think he threw it up. Where are you, Jim?
06 05 40 21 CDR Right here; that makes the days a lot shorter.
06 05 40 24 IMP You're right, Jim; it wasn't in the right suit.
Dave ... along with it.
06 05 40 37 CDR Okay.
06 05 40 39 LMP Haa!
06 05 40 40 CMP Let's see here. ... roll.
06 05 40 56 IMP (Yawn)
06 05 41 01 LMP Hey, can I help you there?
06 05 41 02 CDR I want to look at ...

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06 05 41 04 LMP ...

06 05 41 07 CDR Did you get this thermal sample from the IM put away?

06 05 41 10 LMP No. Let's put that away.

06 05 41 11 CDR Why don't we put that away and we'll get out of this ... thing?

06 05 41 16 LMP Stand by; I'll pass it to you.

06 05 41 20 CDR What are these things?

06 05 41 22 LMP Those are the hooks - hooks - Oh, those? Sony recording tapes.

06 05 41 26 CDR Oh, geez!

06 05 41 28 LMP Remember - we were going to record all that stuff?

06 05 41 30 CDR What are these things?

06 05 41 34 LMP I don't know. What are they?

06 05 41 35 CMP The battery pack to the Sony?

06 05 41 37 CDR Yes.

06 05 41 39 LMP We didn't use that Sony much, did we?

06 05 41 41 CDR I don't know. What's this funny-looking thing?

06 05 41 44 LMP That's what the thermal samples were stowed on - were found on.

06 05 41 50 CMP Jim, here's a thermal sample.

06 05 41 53 CDR Well, ... thermal samples.

06 05 41 55 CMP Coming forward.

06 05 41 58 CDR ...

06 05 42 03 LMP Oow! God damn! That ... stuff is hot.

06 05 42 07 CMP You got to be careful.

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06 05 42 08 LMP Oowee! ... Sure is, you know it?

06 05 42 11 CDR Huh?

06 05 42 12 IMP Boy, that's a ... blister right there.

06 05 42 17 LMP That one's about scalded.

06 05 42 20 CMP Few little things keep coming loose. See them?

06 05 42 22 LMP Yes.

06 05 42 25 CDR Okay, I'm going to put the samples - thermal samples - down here with the covers to the DELTA-V indicators

06 05 42 31 CMP Right.

06 05 42 32 IMP Okay. You - -

06 05 42 36 CDR Yes.

06 05 42 37 LMP - - you - you put it in the box, Jim?

06 05 42 38 CDR No, I don't think it goes in the box, does it?

06 05 42 39 IMP Yes.

06 05 42 40 CDR Oh, it does?

06 05 42 41 LMP Yes.

06 05 42 42 CDR Oh, fine. I didn't realize that it did; I thought that box was - wouldn't fit.

06 05 42 46 IMP Yes, it carries three butterflies and two of those. It's supposed to.

06 05 42 50 CDR Hey, I thought they wouldn't fit.

06 05 42 55 LMP What did you do with that cable, by the way?

06 05 42 58 CDR I put it right in here with the thermal samples.

06 05 43 01 LMP Oh.

06 05 43 16 IMP What are they doing? Putting us to bed early tonight?

06 05 43 23 CDR I don't know.

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06 05 43 34 LMP Well. We have an 11-hour rest period tonight.

06 05 43 37 CDR Do we really?

06 05 43 38 LMP Yes.

06 05 43 39 CDR Oh! I took a half wink down there a little while ago.

06 05 43 42 LMP Did you? (Laughter)

06 05 43 47 CMP You fellows have been working awful hard today - indescribable.

06 05 44 03 CMP (Yawn)

06 05 44 11 LMP Hey, we got a - fuel cell O₂ purge and a CO₂ - -

06 05 44 14 CDR Hey, would you believe what I found?

06 05 44 16 LMP What?

06 05 44 17 CDR The helmet bag!

06 05 44 19 CMP Good!

06 05 44 22 IMP How about putting your helmet on?

06 05 44 31 LMP Good. That makes me feel better. So, so far we don't know of anything that we threw away with the LM that we didn't want to throw away.

06 05 45 35 CDR You know I think I found another good place for all the LM data.

06 05 45 40 IMP Where?

06 05 45 42 CDR The A something or other - A-1.

06 05 45 45 LMP ... it's worth a ...

06 05 46 10 LMP What's in there now? PPK's, isn't there?

06 05 46 14 CDR No. Toolkits - some underwear -

06 05 46 19 IMP Oh, is that the one right next to A-7?

06 05 46 21 CDR Yes.

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06 05 46 22 IMP Just above A-7?

06 05 46 23 CDR No, this one, I think, is A-8 ... ought to be in one thing.

06 05 46 44 CDR Well, what are we going to do with that suit?

06 05 46 53 LMP What's the matter with stowing the two FP's in - in the L-shaped bag and one under my couch, Jim?

06 05 46 49 CDR Well, the thing of it all is, if the couch slips down, it's going to be terrible. It looks like if you could put one of them horizontal across the - LEB here. Hide the LiOH canister. That would get one of those big things out of the way. ... put the ... canister - LiOH canister someplace and the ... someplace. Put the canister in the suit and tie it down.

06 05 47 54 LMP Are you still going to do some of the optics, Dave?

06 05 47 57 CMP Yes. ...

06 05 48 01 LMP No, I was going to exercise.

06 05 48 02 CMP ... - -

06 05 48 03 LMP But I don't want to do it right here, so ...

06 05 48 05 CMP No ...

06 05 48 07 IMP Why don't you go ahead and do it, and I'll just take - trade places and I'll sit there and exercise.

06 05 48 11 CMP Okay.

06 05 48 34 CDR You know we also ought to think about some other way of protecting our heads, and this kind of thing. I'm not that enthralled with our headrests.

06 05 48 46 CMP Me neither; and you notice there is no support for the back of your neck either - not here.

06 05 48 50 CDR I was thinking maybe we could take some of these trash bags; maybe take one of these food bags, fill it up with trash, and lay it across in here.

06 05 48 58 LMP Yes.

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06 05 49 00 CMP Boy, there just doesn't seem to be any support there at all.

06 05 49 02 LMP Take what food bags, Jim?

06 05 49 03 CDR One of these - I said take one, and fill it up, and lay it across in here.

06 05 49 11 CDR I'd also like to kind of wrap my helmet up ... head up.

06 05 49 17 CDR You go on that - you're going to ... head ..., because it rattles back and forth.

06 05 49 40 CDR We don't even have to have the helmets, if the helmet bags are locked. Maybe you could just put them someplace else that's good. The bag - -

06 05 49 48 LMP Why don't we put the helmets under the seat? I'm just trying to figure out something - just how to keep it all together so they won't rattle around. You can put the helmets and gloves on the suit - -

06 05 49 58 CDR Well, I almost think that if you left one - one suit in the L-shaped bag in the middle, and the other two suits across there with our helmets on it - -

06 05 50 04 LMP You've got - I think you've got a picture onboard of how ... recommended for ... Let me pick it up and we'll see what it looks like.

06 05 50 17 CMP The picture?

06 05 50 19 LMP Oh, it's in there? Okay, I'll look for it.

06 05 50 22 CMP ...

06 05 50 26 LMP No, I think it was - I'm looking for a flight plan.

06 05 50 32 CDR Well, let me see now. I had to get - I had to get ...

06 05 50 41 LMP Yes, it is. ... maybe it is.

06 05 50 46 CDR Yes, another place down there, we're going to be wearing them, and ... and we're going to have to

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have the rope out to tie the suits down. So, we've got all of A - half of A ...

06 05 51 00 LMP Yes.

06 05 51 44 CDR Go right ahead.

06 05 51 46 LMP Thank you there, Colonel.

06 05 51 47 CDR Okay. ...

06 05 51 59 LMP It might be a good idea if we could get - -

06 05 52 03 CC Apollo 9, Houston through Tananarive.

06 05 52 06 CDR Roger, Houston; Apollo 9.

06 05 52 08 CDR Houston, Apollo 9.

06 05 52 13 CC Roger. We got a lot of static here. Do you read me okay?

06 05 52 17 CDR Roger. We're reading you loud and clear.

06 05 52 20 CC Roger. I have some targets of opportunity - about three, and then one flight plan update.

06 05 52 28 CMP Okay, tell him to go ahead.

06 05 52 31 CDR Okay, go ahead.

06 05 52 34 CC Roger. 150:51:27, Galapagos Islands, geologic, eight frames, 6 seconds, on track.

06 05 52 56 CMP Okay.

06 05 52 58 CC At 150:57:07, Peru coastline, eight frames, 8 seconds, on track.

06 05 53 19 CDR Okay.

06 05 53 20 CMP I don't understand what he - -

06 05 53 21 CDR Peru, Peru coastline.

06 05 53 22 CC 9, Houston. Let me correct that one. It's four frames instead of eight frames.

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06 05 53 28 CMP Okay.

06 05 53 29 CDR Roger; four frames.

06 05 53 31 CC Okay. At time 151:47:17, Formosa Strait, oceanography, five frames, 8 seconds, on track.

06 05 53 54 CDR Okay.

06 05 54 02 CMP Okay, we got all those. You want us to read them back to you? Aah! He's gone.

06 05 54 08 CDR Yes.

06 05 54 09 CC Let me give you a correction there, Dave, again. On the second one for the Peru coastline, the time is 150:55:07.

06 05 54 25 CMP Okay. 150:55:07. We got all those. Thank you.

06 05 54 30 CC Okay. Then I've got a waste water dump for you.

06 05 54 34 CMP Go ahead.

06 05 54 35 CC At about 151:50, waste water dump. Listening to the DSE last night, you may want the sunrise time, 151:38; sunset, 152:30. Over.

06 05 55 10 CDR Okay, we have that.

06 05 55 12 CC Okay.

06 05 55 15 LMP Good ears! (Laughter) You ought to see it, Ron.

06 05 55 21 CC It sounded like it was great!

06 05 55 24 LMP What did he say?

06 05 55 25 CMP "It sounded like it was great."

06 05 55 38 CDR Okay.

06 05 55 52 CMP Why don't we get those cameras out? And dump the water at 151 ...?

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06 05 56 11 CDR Sounds like you'd better start readying the 70-millimeter film, the targets of opportunity to get this thing ...

06 05 56 25 CMP ... on that oceanography down there.

06 05 56 34 LMP What's the first one?

06 05 56 41 CMP You mean, eight frames at 60?

06 05 56 44 CDR ...

06 05 56 53 CMP Three frames?

06 05 56 55 CDR Oh, go ahead and take the eight frames - You know, if you get a good pass. If you're looking for some ... movie film, then you can just get - just give them one frame out of each bunch, you don't get any stereo, and you don't get any ...

06 05 57 06 CMP Yes, but - That's true. If you use eight frames in one place, it would be, I think, as good as - -

06 05 57 15 CDR Well - -

06 05 57 16 CMP - - ...

06 05 57 17 CDR - - I'm not sure that it is, because - Gemini slowly took that one stereo set on the west coast all the way into mid-Texas, one - one frame every 6 seconds -

06 05 57 27 CMP Yes.

06 05 57 28 CDR Yes, that would ... one - one pack of film. We took a lot of other packs of film. But they used that on one - one roll, I think more than all the other stuff put together. Just so they could - they can get the stereo stuff out of it they wanted and from a different view. They - they really seemed to use it. Paul Norman nearly went wild over it (laughter). He's written about five or six papers on it, and he published a book on it.

06 05 58 07 CDR It looks like, Dave, that we ought to get this - this one pressure suit out from underneath the middle seat - -

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06 05 58 17 CMP One pressure suit out from under the middle seat.
06 05 58 20 CDR - - for ...
06 05 58 23 CMP Well, you want to take one?
06 05 58 26 CDR This one right where I am, right here. Right there. ... on the optics.
06 05 58 34 CMP Yes, I know; don't worry.
06 05 58 35 CDR Put one here, just like this.
06 05 58 38 CMP Yes.
06 05 58 39 CDR I'm not sure that we couldn't put the other one either right there, or right on top of it. Let's put the IL - LiOH canisters in here, too. It doesn't look like it's going to interfere with you doing the sightings.
06 05 58 50 CMP No, it won't. Now, we will have a level ... across here, so we can ...
06 05 58 56 CDR Yes. You could probably punch that down to - -
06 05 58 59 CMP Lean those -
06 05 59 04 LMP I'm not sure it wouldn't be a bad idea for Scott to ...
06 05 59 11 CDR Well, I thought they were really going to cushion ...
06 05 59 12 CMP Look at my ... (laughter). Just ... flight plan.
06 05 59 20 CDR ... on the windows to see how much ... has gone on.
06 05 59 26 LMP Yes.
06 05 59 35 LMP Take one ... lithium hydroxide canister and put it away.
06 05 59 46 LMP Well.
06 05 59 47 CMP Massaging your beard, Jim?

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06 05 59 48 CDR Huh?

06 05 59 49 CMP Massaging your beard?

06 05 59 50 CDR No, it tickles.

06 05 59 51 CMP Oh.

06 05 59 52 CDR We might ought to put the other one along here, like this.

06 05 59 55 LMP Hey, Jimmy? You done with R - R-13 up here?

06 05 59 59 CDR Yes, I am.

06 06 00 02 CMP Stow this in there.

06 06 00 04 LMP Trying to think of where that picture is, Jim. Let me see if I can find it.

06 06 00 09 CDR Let me look in my ... here. It seems like it might just be - in that part where they show all the - It ought to be here.

06 06 00 32 LMP Got an entry procedures book, Dave?

06 06 00 35 CMP We have an entry procedures book, but I'm 95-percent sure it's not in there, but I'll go look and see ...

06 06 01 14 LMP I'll take my jacket off before I start to sweat; I think it's warm.

06 06 01 23 CMP You want any help, Jim? Or are you just going to rattle around?

06 06 01 26 CDR I'm just going to rattle around.

06 06 01 28 CMP Okay.

06 06 02 04 CDR Boy, I'm telling you, it's a good thing they moved SO 65; we'd have really had a hell of a time ...

06 06 02 09 CMP Boy, that's for sure.

06 06 02 16 CDR God, we haven't ... to sleep down here.

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06 06 02 19 CMP That's right.

06 06 02 22 CMP I notice that the area behind it is absolutely empty.

06 06 02 25 LMP Yes.

06 06 02 39 LMP I think I'll change underwear tonight. Just remembered I got another clean set.

06 06 02 44 CMP Yes.

06 06 03 01 CDR Sure not in the checklist.

06 06 03 08 CMP I knew it wasn't in there. Hey, I know where might be, Jim. Look in the malfunction procedure book, back of the updates.

06 06 03 14 CDR (Laughter) ...

06 06 03 17 CMP It's in R-13, isn't it?

06 06 03 19 LMP No - yes, R-12.

06 06 03 20 CDR R-12. ...

06 06 03 24 CMP No, it wasn't there.

06 06 03 25 LMP Oh.

06 06 03 29 LMP Here's a debriefing form, a debriefing guide.

06 06 03 34 CMP Yes, ...

06 06 03 41 CDR You finally emptied one of those boxes.

06 06 03 56 LMP ...

06 06 03 57 CMP No, that's - no, the only thing in the back of it is the debriefing guide. And up until that point it looks like it's all malfunction.

06 06 04 12 CDR ... Rusty ... exerciser.

06 06 04 18 CMP Well, that picture is somewhere and we have to have put it in.

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06 06 04 27 CDR ... all over your gloves.

06 06 04 32 CMP Yes.

06 06 04 33 CDR Let me get them out of there, okay?

06 06 04 34 CMP Yes. Which one of these boxes ...?

06 06 04 40 LMP Yes.

06 06 05 16 CMP ... pin.

06 06 05 19 CDR Huh?

06 06 05 21 CMP The pin.

06 06 05 22 LMP I'll get out of here.

06 06 06 03 CDR What?

06 06 06 08 CDR I keep forgetting the optics ... is over there.

06 06 06 11 CMP Now, I'm through with it.

06 06 09 54 CMP No, not - It's not the entry stuff either.

06 06 09 55 CDR Oh, I don't think it makes any difference, Dave. I think the one thing we want to do is we want to get that top - -

06 06 10 02 IMP ...

06 06 10 03 CDR - - ... at 11. Well, you can stick them all down here. Yes.

06 06 10 06 CMP Yes.

06 06 10 08 CDR Then you can put all the other JM checks and stuff in that one box over there. We've got plenty of room up here, and we've got a number of boxes down there that are becoming empty. The box that these things were in is empty. That's where we got our dirty underwear ...

06 06 10 23 CDR ...

06 06 10 25 IMP Which way?

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603

06 06 10 27 CDR This way, coming from the lower part of the L-shaped bag. We've got two ... here, inside -

06 06 10 41 CMP Hmm, it's going up here.

06 06 10 43 CDR But I don't - Gee, you're not going to stow this ...

06 06 10 59 CDR Yes, so you just turn them upside down in the tunnel.

06 06 11 00 CMP Yes, yes, ...

06 06 11 20 CDR Take this one box here - and move this stuff -

06 06 11 24 CMP ...

06 06 11 25 LMP Right now.

06 06 11 26 CMP I'll pick them up.

06 06 11 31 LMP I think the clean underwear and stuff should easily go up in there because that's where it already is.

06 06 11 37 CMP ...

06 06 11 39 IMP Hey, Jim?

06 06 11 40 CDR Yes. That's right, we used it up, didn't we?

06 06 11 42 CMP Yes.

06 06 11 43 CDR There's the two ... It's these things?

06 06 11 50 LMP Yes.

06 06 11 53 CDR In A-5, we can put a lot of that stuff that we - -

06 06 11 54 LMP Yes. And there's these three sets of drawers.

06 06 11 58 CMP Hey, we got a - we have a - Kleenex box that we could just leave out.

06 06 12 06 IMP Why not just move the toolkit up to this next one, Dave?

06 06 12 08 CMP Well, let's just put the toolkit down here in A-5 ...

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06 06 12 12 CDR Good. That ... heavy, too.

06 06 12 15 CMP Yes.

06 06 12 17 LMP Does it fit in there?

06 06 12 18 CMP Yes, it does.

06 06 12 23 LMP Okay, I'm going to take and move these other things, these ... and this - We don't need these ... bags anymore, either.

06 06 12 25 CMP No.

06 06 12 26 LMP So, I'll take and put that up here in the top part of the - Now, what we have up here are two - we have McDivitt's and Scott's pair of underwear.

06 06 12 44 CMP No, McDivitt's ...

06 06 12 46 CDR Where's the other set of underwear?

06 06 12 50 CMP It's right up here.

06 06 12 52 CDR Okay.

06 06 13 00 LMP Excuse me!

06 06 13 01 CMP Alright.

06 06 13 17 CMP I'm going to do something else right now, before I forget it. Jim ...

06 06 13 31 CDR (Laughter)

06 06 13 33 CMP Did you put all that ...?

06 06 13 35 LMP Yes, it might - it might be safer.

06 06 13 45 CDR ... cold air in.

06 06 13 50 LMP I could use some cold air, right now.

06 06 14 07 CDR Where'd you put the ISA, Rusty?

06 06 14 09 LMP Back in the - Where you had it, Jim.

06 06 14 10 CDR Already?

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06 06 14 11 LMP Yes. It's just empty, except for the IM data.

06 06 14 17 CMP There. The counterbalance is ... How about that!

06 06 14 35 LMP Hey, how's the pressure in the bottle?

06 06 14 39 CMP Where, in the counterbalance bottle?

06 06 14 40 LMP Yes.

06 06 14 41 CMP Zero.

06 06 14 42 LMP Well, have we vented it?

06 06 14 43 CMP Yes, ... alright, we have to ... But it was already down below the mean ..., anyway.

06 06 14 54 LMP Where do you open it? ... the bottle?

06 06 14 57 CMP I don't know. You can open it if you need ..., when you need it. Why don't we throw it in there?

06 06 15 09 LMP I've seen enough trouble with that doggone thing that ...

06 06 15 30 CDR No, we said we didn't want that one, didn't we, Dave?

06 06 15 32 CMP Yes, we said we didn't want it, then I read in the PPD that says we're going to put it on here anyway.

06 06 15 36 CDR (Laughter)

06 06 15 37 CMP I went out and looked and I never saw it.

06 06 15 42 CDR Then we said we wanted it.

06 06 15 43 CMP No, we never said we wanted it. ...

06 06 15 46 LMP I wonder why they would say that?

06 06 15 48 CDR So it wouldn't be dipping around the spacecraft at the last minute.

06 06 15 51 CMP That's right; it would have been another piece of mechanical junk you would have ... for the first time in flight, you know?

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06 06 15 57 LMP How do you work this thing?

06 06 16 04 CMP The other day when I opened the hatch, I had to stop and think about that silly ... again, you know? Then automatically switch it here now as you're thinking "Which way does this stupid ... go?"

06 06 16 20 LMP Did the hatch close easy?

06 06 16 21 CMP Oh, yes, real easy.

06 06 16 22 IMP Oh, ...

06 06 16 24 CMP ... Nothing to it.

06 06 16 26 CMP And it came ... fine. I held it in one hand, and the ... was well over ... - or over the ... And I tried moving the counterbalance, and it didn't move very easy.

06 06 16 55 CMP No, I just have to put the tool back. Okay.

06 06 17 04 CDR You stowing all that IM data now?

06 06 17 05 CMP Yes.

06 06 17 06 CDR Looks like it's going to fit without any problem.

06 06 17 11 IMP Whoo! I've got one checklist left up here.

06 06 17 14 CDR Yes, is that the one I had hanging over here?

06 06 17 16 LMP No, you've got another one.

06 06 17 20 CDR Oh, no!

06 06 17 21 LMP What?

06 06 17 22 CDR I found another one. ...

06 06 17 34 CDR (Laughter)

06 06 17 35 LMP I don't know why you think it's funny; you told me to.

06 06 17 38 CDR (Laughter)

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06 06 17 42 CMP Where's that ..., Rusty?

06 06 17 43 LMP ...

06 06 17 46 CC Apollo 9, Houston through Guam.

06 06 17 50 CDR Unless you want to keep it out.

06 06 17 51 LMP Hello, Houston through Guam; Apollo 9.

06 06 17 54 CC Roger. Loud and clear. Jim, we need some things here. They may be on the DSE, and if it is on the DSE, just say so and we'll dig it out there, but - What were the results of the optics/sun filter evaluation?

06 06 19 26 CMP Our daily quota.

06 06 19 27 CDR We filled our daily quota of 70-millimeter frames today.

06 06 19 33 CC Say again.

06 06 19 35 CDR Said we filled our daily quota of 70-millimeter frames. I figured we had to take about 200 a day. So we're - we're well up on it.

06 06 19 43 CC Very good, thank you. I guess you still owe us a powerdown consumables onboard readout.

06 06 19 51 CDR We don't have those available for you yet. We'll get them for you in just a minute.

06 06 19 55 CC Okay. No hurry.

06 06 19 57 CDR And in about another - half hour or so, I'll probably have some more data for RETRO and we'll send you that.

06 06 20 04 CC Roger.

06 06 20 07 LMP Tell you what, I'll get that consumables data, if you want a - Let me - let me set the pads first.

06 06 20 10 CDR Did you ever get them down in that book?

06 06 20 11 CMP Yes, you bet.

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06 06 20 13 LMP ... the same ..., Jim, the one that you had.

06 06 20 16 CDR No, I - I just took it out of there. This is my -
Is this another one?

06 06 20 19 LMP Right there.

06 06 20 22 CDR Oh, yes, I have another one over there.

06 06 20 24 IMP Oh, this is a LM unit ...

06 06 20 26 CMP I still think they're ...

06 06 20 28 CDR I wasn't expecting it right this minute.

06 06 20 35 IMP Where the hell is the crew log?

06 06 20 38 CDR I probably have - -

06 06 20 41 IMP Pass it down here. Oh, no.

06 06 20 42 CMP I - I had it a minute ago, Rusty. Here you go.

06 06 21 11 LMP I think what we probably ought to do - -

06 06 21 13 CDR Uh oh.

06 06 21 14 LMP - - is ... through all the containers and give old
RETRO entry stowage area?

06 06 21 20 CDR That's what I'm trying to do.

06 06 21 37 IMP Dave, while you're down there - Let me write up my
form first.

06 06 21 41 CMP Okay. What was it?

06 06 21 44 IMP 5 CD, 680 CD.

06 06 21 46 CMP Oh, yes.

06 06 21 56 CMP Rusty, all of them are off-scale high.

06 06 21 58 IMP Okay.

06 06 22 08 CDR Look at that!

06 06 22 16 CDR Oh.

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06 06 22 18 CMP Sure don't want to be ...

06 06 23 32 LMP Houston, Apollo 9. You still there?

06 06 23 35 CMP What is this thing?

06 06 23 38 IMP That's Jimmy's.

06 06 23 40 CDR What is it, Dave?

06 06 23 42 CMP A souvenir.

06 06 23 44 LMP Oh, no.

06 06 24 43 CMP Did we power down the EMAG's?

06 06 24 44 CDR No, we're not going to do that, Dave.

06 06 24 46 CMP Oh, we're not going to power down, okay. ... a
powerdown.

06 06 24 48 IMP Okay.

06 06 24 58 LMP ..., what time were those targets of opportunity,
Dave?

06 06 25 00 CMP Let's see; 24 minutes, 25 minutes ...

06 06 26 08 LMP You need a cold place to put this thing on after
you get done exercising?

06 06 26 11 CDR Yes, it really gets warm, doesn't it?

06 06 26 12 LMP Yes, it sure does.

06 06 26 56 CDR Okay, Rusty. The PLSS and all the LM gear is in
that box.

06 06 27 04 LMP The stuff for souvenirs?

06 06 27 06 CDR Including them.

06 06 27 10 CDR ...

06 06 27 14 IMP Yes, I do, too.

06 06 27 17 CDR That CCAS is in there.

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06 06 27 19 LMP The flag, I got in this suit pocket.

06 06 27 28 LMP You got my name tag in your suit pocket.

06 06 27 46 CDR Okay, except for that one set of long red underwear.

06 06 27 53 LMP Ooh.

06 06 27 55 CDR What?

06 06 27 57 LMP Whoo! I was really come out the ... on that ...

06 06 28 16 CMP ...

06 06 28 25 LMP Hey, you got - (clearing throat) you got a minute to draw me some water? (Cough)

06 06 28 28 CMP Soon as I get a hand.

06 06 28 30 LMP Okay.

06 06 28 43 LMP Where are - where are you guys' radiation meters?

06 06 28 46 CDR Mine's in my pocket.

06 06 28 48 LMP Why don't you give me a reading on that right now?

06 06 28 50 CMP Mine's in my suit and I'm going to have to get it in a minute.

06 06 28 54 LMP Okay.

06 06 28 58 CDR 3114 ...

06 06 29 04 LMP Hey, mine's going backwards.

06 06 29 08 CDR (Laughter) You and I really have our cords tangled up.

06 06 29 39 CMP You know where those go? ...

06 06 29 41 CDR There's the umbilicals off the LM.

06 06 29 46 CMP ...

06 06 29 47 LMP Stay off of there.

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06 06 29 49 CMP Stay off of there, ...

06 06 29 50 LMP It took me 2 minutes to put it back on - -

06 06 29 52 CDR Oh, come on!

06 06 29 53 LMP - - and then you come and knock it off.

06 06 29 54 CDR I'll put it on for you.

06 06 29 55 CMP Yes.

06 06 30 03 CDR Hold on to your ground.

06 06 30 05 CMP I took them off, because I thought, you know, you were working to the left.

06 06 30 07 LMP Oh, damn it! Did you take the crew logs back, Dave?

06 06 30 11 CMP No.

06 06 30 12 CDR I'm just trying to untangle the cords right now. It's - either that or get all unplugged, Dave. We're - we're tangled up in there, and neither one of us can move.

06 06 30 22 CMP Well, let me get out of your way.

06 06 30 28 CDR Well, let me come out through here, so that I don't tighten that ...

06 06 30 59 LMP Dave, did you take the crew log back again? Oh, no, here it is, here it is. I got it. Okay, Jim, yours is -

06 06 31 08 CDR 3114.

06 06 31 09 LMP 3114.

06 06 31 19 LMP Thanks, Dave.

06 06 44 39 CC Apollo 9, Houston.

06 06 44 42 CDR Go ahead.

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06 06 44 44 CC Roger. What do you want me to put on your steak that I'm going to have for you tonight?

06 06 44 49 CDR Nothing, just eat it - just raw - well, not raw, just medium rare, but don't put anything on it, you'll ruin the taste.

06 06 44 55 CC Okay (laughter).

06 06 44 58 CDR But taste it good for us, will you?

06 06 45 00 CC Will do.

06 06 45 01 CDR You can put your knife and fork on it.

06 06 45 03 CC (Laughter)

06 06 45 09 IMP Listen, you may be having steak, but I've got a larger choice of things right here. I have day 6, meal C; I have day 6, meal C; and I have day 6, meal C. I even have day 6, meal D.

06 06 45 25 CC Hey, that sounds great there. That's a perfect selection.

06 06 45 35 CDR (Laughter)

06 06 45 37 IMP Hey, the sun ought to be getting in a good spot for you, Dave.

06 06 45 38 CMP Well, I was just trying to watch it so hopefully it would.

06 06 45 42 IMP Oh, now, wait a minute, now. Look at the shadow on that window. It's got to be down there.

06 06 45 45 CMP Huh?

06 06 45 46 CDR What you need is a sundial on the ...

06 06 45 54 CMP ... with a sundial.

06 06 45 56 LMP Okay, Galapagos is coming up.

06 06 46 01 CMP Jim, why don't you go up and have fun taking pictures? And I'll ...? I got to take the last picture.

06 06 46 07 CDR I don't mind.

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06 06 46 10 CMP Oh, if there's only one, ... anything much to do anyway, right? Oh, no, there's two of them.

06 06 46 15 CDR ...

06 06 46 16 CMP Well, looks like there's more than that, looks like there's - -

06 06 46 19 CDR Hey, I've got a great idea. Why don't we all go up and sit and watch the - watch the world go by?

06 06 46 22 CMP Okay.

06 06 46 23 CDR Then, we'll go change the pictures - or the canister or whatever needs changed.

06 06 46 27 LMP I've got some more stuff for the big - big feedbag. Unfortunately, they're all the same kind of meals.

06 06 46 35 CMP Whoooo! The camera was on the wrong setting.

06 06 46 38 CDR Hey, yes. Let's always keep it on one - I bet you I done that, too.

06 06 46 43 IMP Hey, where's the big food bag? Oo!

06 06 46 49 CMP I don't see it.

06 06 46 50 CDR Hoo hoo, this one over here is still on a 60th at f:11.

06 06 47 28 IMP What are we having for dinner?

06 06 47 29 CDR I don't ... I've got all the same for meals. B, D, C. C, D -

06 06 47 39 CMP Where did that bag go? Is this it?

06 06 47 42 CDR Where's the land, Rusty?

06 06 47 44 IMP 4 minutes.

06 06 47 50 CMP Where are the scissors, and I'll cut them off?

06 06 48 02 LMP Lots of clouds, huh, Davey?

06 06 48 23 CDR Banana pudding - oh! ... get some banana pudding.

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06 06 48 27 CMP You don't like those?

06 06 48 28 CDR No.

06 06 48 29 CMP Rusty likes pudding.

06 06 48 30 CDR What happened to the chocolate pudding? Vanilla pudding. Shoot, I'd eat anything but banana.

06 06 48 35 LMP Banana?

06 06 48 36 CMP You like banana pudding?

06 06 48 37 LMP Butterscotch, you mean?

06 06 48 38 CDR Oh, banana pudding, huh? I was thinking of butterscotch. Yes, yes, I do like banana pudding; I haven't eaten any banana pudding.

06 06 48 42 LMP I haven't either. I didn't think we have any.

06 06 48 44 CMP Yes, we've got banana pudding.

06 06 48 46 LMP Banana pudding?

06 06 48 48 CMP ... banana pudding.

06 06 48 50 CDR I'm not sure I - -

06 06 48 52 LMP ... chocolate.

06 06 48 53 CDR - - I'm not sure if there's a ...

06 06 48 56 CMP So what?

06 06 48 59 CDR Oh, spaghetti! Banana pudding and spaghetti!

06 06 49 01 LMP I've never had the spaghetti. How's it?

06 06 49 03 CDR It's not bad. I'd recommend it for an upset stomach.

06 06 49 05 LMP (Laughter)

06 06 49 06 CDR No, really!

06 06 49 10 LMP Does it taste like what it says?

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06 06 49 12 CDR Yes. I thought it - I thought it was really not too bad. It's rather palatable, as a matter of fact.

06 06 49 17 CMP I like the spaghetti.

06 06 49 19 CDR Yes, me too.

06 06 49 24 CMP Find anything to take a picture of?

06 06 49 26 LMP Not yet. I am just looking to see what's vertical.

06 06 49 31 CDR Where's it supposed to be? Right up there?

06 06 49 33 LMP Yes, it's supposed to be on track.

06 06 49 36 CDR ... this going to be dry, I bet.

06 06 49 41 LMP I'll call it out and if it really is on track, it looks like Davey's going to have the best view. Or maybe if it's a little north of the track, he will; if it's a little south of track, I guess I will. I mean the other way around, I guess.

06 06 49 50 CMP Yes (laughter).

06 06 49 53 LMP You know, I - -

06 06 49 54 CDR Don't stay on those upside-down deals very long.

06 06 49 58 LMP - - This is the first time I misjudged north and south. I missed that up and down a few times. Nobody's perfect. There you go. An old adage; basic. Okay, we'll give you another minute.

06 06 50 23 CMP Hey, you know, that's pretty clear.

06 06 50 26 LMP In 1 minute, we're supposed to be there. I sure don't see anything that looks like a Galapagos Island.

06 06 50 32 CDR ... ounce and a half.

06 06 50 37 CMP ...

06 06 50 39 LMP Here they are. I see them. They're under the clouds down there. Dave, you should have an excellent shot.

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06 06 50 44 CMP Yes!

06 06 50 45 LMP Perfect. There you go, Davey. Ready to go. Kind of clouded over, the window's fogged up. Oh, yes! Oh, yes! They're all over the place. Looks like under each cloud there's a little island.

06 06 51 00 CMP That's right! There's a cloud over every island. No, there's just one little bitty island there; a couple of little bitty islands don't have clouds - -

06 06 51 06 LMP Two little bitty islands ...

06 06 51 08 CMP - - too small to make clouds.

06 06 51 09 LMP Take several stereos, now. Not that that's going to show much with all those clouds, you're going to get stereo clouds. Yes, that's not too red hot.

06 06 51 19 CMP I'll just take one.

06 06 51 20 LMP Why don't you take three? One here, one right over, and one, and one - -

06 06 51 22 CMP Oh, I'll take one on the other side.

06 06 51 28 LMP Oh, man, that water gets deep in a hurry around there, doesn't it? Oh, look at the volcano down there. Look at the cut right through one end of that little - -

06 06 51 39 CDR Look at that little crescent one out there! See that little crescent one off the end? There's a couple of little crescent ones. Looks like the top of a cone.

06 06 51 45 LMP Yes, the top of a cone. Look at how the end is cut off that island there?

06 06 51 50 CMP Okay, those are pretty good pictures.

06 06 51 51 CDR Yes, they're not bad at all. You did great, David.

06 06 51 57 CMP Oh, boy! Those are really volcanic though, aren't they?

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617

06 06 52 00 IMP Son of a gun.

06 06 52 07 CMP Note that in the log. Four frames for the Galapa
Where's the log?

06 06 52 20 IMP I don't know; I'm just looking ...

06 06 52 23 CDR I try to avoid getting the logs. That way I can't
get blamed for losing it.

06 06 52 26 IMP Yes, I was going to say, I think that the guy that
takes the picture ought to take the log of it.

06 06 52 30 CMP Okay. Sounds - -

06 06 52 32 IMP Otherwise, it gets very, very confusing.

06 06 52 33 CMP - - like a reasonable idea, sounds like a reasonable
idea.

06 06 52 38 CDR What you're implying is that, when the guy who takes
the picture puts them in the log, it's not confusing.

06 06 52 43 IMP What I'm implying there is that after the flight,
those who haven't logged their pictures ought to
spend their time identifying them.

06 06 52 50 CDR And you're going to be spending - -

06 06 52 52 CMP What were the numbers on those four I took?

06 06 52 56 CDR Who the hell's going to know who took which pic-
tures?

06 06 53 00 IMP Well, I'm logging all of mine. 120 - Let me see,
you took through 127, so it's 124 through 127.

06 06 53 10 CMP Should be 127 through 31. Alright. Look - look
at this, Jim.

06 06 53 19 CDR Did you ... the last one?

06 06 53 28 IMP Sorry about that.

06 06 53 31 CMP Oh, boy! Something's messed up.

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06 06 53 36 LMP I remember there was a spot back there where you didn't think you took as many as you had indicated you took. I don't know - I don't remember anymore where it was, but it was a couple of hours ago.

06 06 53 47 CMP I took four there, so I know that was 120 - 7, 6, 5, 4. Alright, ...

06 06 53 54 LMP Now, our next opportunity is 150:55:07, the Peruvian coastline. And, my gosh, here comes the South American coastline. David, I think you're going to be taking another picture, here.

06 06 54 14 CDR Hurry up, Dave. You're going to miss it.

06 06 54 16 LMP No, no, no, it's no hurry yet, because we're not down to Peru. 55:07.

06 06 54 19 CMP ... so particular.

06 06 54 20 LMP Another minute. Let me show you what you're looking at, Dave. You're looking at right here. We come across the coast at an angle.

06 06 54 32 CMP Oh! ... landmark ... We're already - we're there. Gee!

06 06 54 38 LMP No, we're coming. 155:07.

06 06 54 43 CDR Oh, we missed a good one. Look at those islands down there. Boy, are they jagged and ragged!

06 06 54 47 CMP No, it's too hazy.

06 06 54 50 CDR Yes, ... won't be very good, but ...

06 06 55 07 CER At least, I'm seeing South America in the daylight.

06 06 55 11 CMP Why? Was it in the dark before?

06 06 55 12 CDR ... I never saw it in the daylight before.

06 06 55 27 LMP Yes, we're just kind of right over the Andes Mountains. The Andes Mountains ... and all those other ones.

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06 06 55 55 LMP ...

06 06 56 13 CDR You think it's ... on the success of your ...?

06 06 56 27 CMP They've never been successful. That's evading the issue.

06 06 56 30 LMP Hey, you ought to at sunrise, Dave, because I think we're trimming small-end-forward here.

06 06 56 35 CMP Okay, let's try it.

06 06 56 38 CDR The optics put away before I pull this thing out.

06 06 56 41 LMP Hey, Jim, did you notice our attitude this morning?

06 06 56 58 CDR I think I'll have some of that fruit cocktail. I liked that the other night. That used to really be terrible, but it's ... Just a little stuff.

06 06 57 21 CDR (Yawn)

06 06 57 27 CMP This floating up is really something, isn't it?

06 06 57 35 CDR Gee, what's that? Is that one, right there?

06 06 57 41 LMP Gee, I'll take that standard chow. I like those.

06 06 57 43 CDR Yes, they're not bad, are they?

06 06 57 45 LMP ... salad before dinner.

06 06 57 50 CDR I want a shrimp salad. I'm going to go dig one out of there, if I can't find one in here.

06 06 57 56 CMP They're full - those - both lockers are full, aren't they?

06 06 57 58 CDR Yes.

06 06 58 00 CMP Might as well eat the good stuff.

06 06 58 05 CDR Rusty, where's that procedures book - or the crew log? That was the one that had the menu in it, wasn't it?

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06 06 58 09 LMP No, the procedures book did. And I don't know where it is. David usually has some idea where the procedures book is.

06 06 58 16 CMP The procedures book? (Laughter) Right here.

06 06 58 20 CDR You've got ... procedures. I wonder how you do anything. You've got two clips on it.

06 06 58 25 LMP Jim, it's just obvious that the menu's got to be in the procedures book.

06 06 58 30 CMP No, it's not. It's in that - in the crew log.

06 06 58 36 LMP What?

06 06 58 37 CDR I think it's in the crew log, too.

06 06 58 42 CMP It's in here.

06 06 58 43 CDR I think it is, too.

06 06 58 44 CMP Yes, it's in there.

06 06 58 48 LMP Well, maybe it is - I guess I'm all mixed up again.

06 06 58 54 CDR There we go.

06 06 58 56 LMP ... - Oh, I got the salad, salad - Let's eat a salad. I'm going to eat low cal tonight.

06 06 59 01 CDR (Laughter)

06 06 59 03 LMP I feel like I'm putting on too much weight on this trip. 3 ounces of hot water for a little ...

06 06 59 13 CDR Shrimp cocktail, day 8. Man, in every 4-day menu there's only one shrimp cocktail.

06 06 59 38 LMP Boy, didn't that steak sound good, tonight?

06 06 59 40 CMP What a dirty guy!

06 06 59 41 CDR Oh!

06 06 59 43 CMP Oh ..., think of ... big ..., big steaks -

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Day 7

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06 06 59 47 LMP And you weren't doing nothing, but complaining about it.

06 06 59 50 CDR That's right. I think I ought to go home (laughter) and eat.

06 06 59 51 CMP I wasn't complaining. That wasn't a complaint. That was only a comment.

06 07 00 00 CDR Well, I'm going to go get the day 8, meal C out - even though we're not there. Oh, boy.

06 07 00 17 CDR Day 8, meal C, look out, here I come. Hey, hot dog! I see day 8, meal B right there.

06 07 00 45 LMP Lucked out, huh?

06 07 00 47 CDR Not completely, but - -

06 07 00 49 LMP Follow the little yellow string.

06 07 00 59 CDR - - I may have to do an operation on these things.

06 07 01 03 LMP Hey, have we changed the canister, yet?

06 07 01 05 CDR/CMP No.

06 07 01 07 CMP I'll do that. Go ahead, and get your chow.

06 07 01 09 LMP Oh, boy, I got a shot of gas - out the butt.

06 07 01 26 CDR Day 8, meal C, hot dog! ...

06 07 01 36 LMP Look at that. Would you believe that's 3 ounces -

06 07 01 38 CMP ...

06 07 01 40 CDR That's good for you.

06 07 01 53 LMP Ugh! I wonder - You probably don't get 3 ounces of water in there, either, do you? I wonder if you do?

06 07 02 07 CDR What canister are we supposed to change?

06 07 02 14 LMP I'll tell you in a second, here, Jim.

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06 07 02 19 CDR Here, I'll get it. I'll tell you what. I - I'll get it if you'll put my food someplace where you won't lose it. Here's the loose ... Put this day 8, meal C someplace.

06 07 02 27 LMP 15 to A -

06 07 02 31 CDR Okay.

06 07 02 32 LMP And 13 to A-4.

06 07 02 38 CDR And if you get a piece of tape out and write something on it, I'll do it quickly, and we'll all be done in nothing flat.

06 07 02 46 LMP What do you want written on the tape?

06 07 02 47 CDR Number 13; I want the time, and what the partial pressure for CO₂ is.

06 07 02 53 LMP Okay. 13 and - -

06 07 03 02 CDR Goes to A, did you say?

06 07 03 05 LMP To A.

06 07 03 07 CDR No, I want ... A to B.

06 07 03 10 LMP A.

06 07 03 51 CDR Alright. Got the tape?

06 07 03 55 LMP Yes. Where are you?

06 07 04 02 CDR Thank you.

06 07 04 03 LMP Okay.

06 07 04 39 LMP Boy, just thinking of that spaghetti and meatballs, really - Man! Ooo, how about lasagna? Ooo! ... How about lasagna? That sounds even better.

06 07 04 52 CDR Pizza's better. Ron Evans, if you're listening to the DSE, I think you're a fink.

06 07 05 02 CMP Hey, he is, too. Ron Evans, you're a rat.

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Day 7

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06 07 05 05 CDR Yes, have a bite of steak for me.

06 07 05 15 IMP I think Ron Evans ought to buy us all a spaghetti dinner.

06 07 05 18 CDR Uh oh!

06 07 05 23 IMP What did you lose?

06 07 05 25 CDR I just sent ... really whistling across the spacecraft, there. Man, I don't know where it went. I really threw it ...

06 07 05 44 IMP How about the waste water dump? When was that supposed to be? That's supposed to be right about now, too, isn't it? Yes.

06 07 05 53 CDR Why don't you ...?

06 07 05 54 IMP 151:50. Oh, we've got 40 minutes before that.

06 07 06 01 CDR 40 minutes before the waste dump, huh?

06 07 06 04 IMP Yes.

06 07 06 16 IMP Hey, what time did I have on that tape? Did you notice?

06 07 06 19 CDR No, I didn't notice, Rusty.

06 07 06 21 IMP Well, I'll just put down this time - 151 - yes, 151:03 or something like that.

06 07 06 33 CDR Now, I've got to find that crumby screwdriver. I'll tell you, I don't have any idea in the world where to look.

06 07 06 51 CMP ... lost a screwdriver.

06 07 06 54 CDR Yes, it slipped out of my hand. I went to reach for it and I hit it. Here it is right here. It must have bounced back. The last time I saw it, it was going about 40 miles an hour that way. ... Man, where is that? Okay, what did you do with my food that I entrusted to you, Scott? Okay. Dave, I can't reach it, but - -

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06 07 07 28 LMP How's the gas content in the cold, David? How's the gas content in the cold? Boy, the hot's really bad. Wait a while, ... cool this thing down a little.

06 07 07 44 CDR Is that what happened?

06 07 07 47 IMP The bag is warm.

06 07 07 48 CDR Oh, the bag, yes.

06 07 07 51 LMP I haven't been able to correlate it on the - why it comes out that way sometimes, and not other times.

06 07 08 39 CDR ...

06 07 08 49 LMP Hey, Dave, can we turn off your intercom? You make a big racket when it bangs up against things.

06 07 08 59 LMP Thank you.

06 07 09 20 LMP Hold your ears, Jim (blowing nose).

06 07 09 37 LMP ... Here you go. It's cooled off now, except for that thing. Man, that's a real heat thing - that - that big steel ... there.

06 07 09 57 CMP ...

06 07 10 50 LMP You said what?

06 07 10 55 LMP Huh. Be careful. You ought to push it, Dave, to adjust it, because, when you pull it, it'll unwind all the way.

06 07 11 10 LMP No. No. But it - you stick it - it comes right here the way it's centered. Hey, you ought to get the rope ... Yes, I think you undid ...

06 07 11 23 CDR Hey, you going to ..., Dave?

06 07 12 19 LMP Yes, it really makes you hot. The heat transfer up here is really - you know, it's terrible because of the 5 psi.

06 07 12 55 IMP It really doesn't taste like spaghetti, but it's not bad.

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Day 7.

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06 07 14 36 LMP I think it's varying the pitch rate.

06 07 14 50 LMP No.

06 07 14 52 CMP ...

06 07 14 59 LMP Hey, that's a question we ought to ask them so they can get us an answer, Jim.

06 07 15 05 LMP Yes, well - Excuse me.

06 07 16 06 LMP You don't get much work done, but your heart rate goes up.

06 07 16 10 CMP Ooh. ...

06 07 17 19 LMP Yes, that's just really hot. That - as I said, we ought to find some coldplate or something to lay it on, because, if it touched the wrong thing, it could very well singe it.

06 07 17 36 LMP Really will.

06 07 17 39 CMP Ooh.

06 07 18 04 CDR Hey, don't get it on the glass, Dave.

06 07 18 45 LMP Hey, Dave, maybe what we need to do is put a piece of tape on the hatch and - and lay the tape over it.

06 07 18 54 LMP Why not? Oh. Well, we could put it over the cord on each end, though.

06 07 19 20 LMP Yes. I haven't been too bad about that, but one - about 2 days ago, I dropped some of - I let go of something inadvertently, and I grabbed for it real fast before it hit the deck.

06 07 20 03 LMP The new one you put out. ..., Scott. Your skin eats that stuff. Maybe the other way around.

06 07 20 14 CMP What?

06 07 20 15 LMP I said, "Your skin eats that stuff, or maybe it's the other way around."

06 07 20 28 LMP Did they already pass up the block data tonight?

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06 07 20 39 CMP ... Ooh!

06 07 22 42 CDR Great.

06 07 22 48 LMP Almost as good as a steak, huh?

06 07 22 50 CDR Not quite that good. Not quite that good. I'd like a steak just about the time we ... I'd like a steak just about like the kind we had for ... a couple of ... of it.

06 07 23 16 LMP I'd like some of that fresh fruit, too, you know. I made it the lamp to post.

06 07 24 24 CC Apollo 9, Houston.

06 07 24 25 LMP Uhh! Go ahead.

06 07 24 29 CDR Go ahead, Houston; Apollo 9.

06 07 24 30 CC Roger, Apollo 9. Just want to let you know that you can rest easy, tonight; the National Guard is on the duty.

06 07 24 35 CDR Oh, very good. I'm glad to hear that.

06 07 24 40 CC Hey, Jim, we'd like you to check to make sure you've deactivated the DAP.

06 07 24 48 CDR Okay, we haven't put the computer to bed yet.

06 07 24 51 CC Alright.

06 07 26 52 CDR Is this your pineapple-grapefruit drink, Dave? Well, I keep finding it over here. It looked like it was stuck in something over there. I thought I - Maybe - Well, sure. ... trade your beef bites? Huh? Bacon squares? Bacon squares? Trade you bacon squares for it.

06 07 27 27 CDR (Laughter) Thought you said you're going to trade.

06 07 27 39 IMP Would you trade for a grape? I figured you would, but I don't have one (laughter). I think - I think that's the favorite drink.

06 07 27 50 CDR It's the prettiest one, really.

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06 07 27 51 LMP Yes, it really is good.

06 07 27 54 CDR It's got class; it's got a lot of color to it.

06 07 27 57 LMP Yes, it does. Actually, I like - I think the other one I like next best is just the straight orange.

06 07 28 10 CDR I tell you, I'm going to really make a sacrifice; I'm going to try to eat some of these bite-size things. Looks like it just about up to ...

06 07 28 27 LMP We promised you that we weren't going to bitch about our food.

06 07 28 41 LMP You know what I wonder if they couldn't do would get packaged Lipton soup, just plain old, crapping, Lipton soup, and put it in a bag, and you mix that hot water with it. Man, that would taste so good. Uh!

06 07 28 57 CMP You know what I think? ...

06 07 29 00 IMP There's a lot of other kinds. That really would taste an awful lot better than any of this stuff. Wonder why they can't do that?

06 07 34 02 CDR (Laughter)

06 07 34 14 CDR I see, I'd better get us down near the Guadacanal or you guys are rally going to be disappointed.

06 07 34 23 LMP For more reasons than the 350-pound cake (laughter). I don't want to have a Dave Scott. And a Neil Armstrong.

06 07 34 37 LMP Yes, I'm going to learn from your experience, Dave. I believe it.

06 07 36 08 LMP Boy, this stuff's really got the old banana oil taste to it, doesn't it?

06 07 38 32 CMP Where's the sun?

06 07 38 34 CDR Obviously, in the wrong place again, David.

06 07 38 47 CMP ... Shines in the optics when you try to take a star check.

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06 07 38 52 LMP ... okay. ... Scott's law.

06 07 39 02 LMP H. Scott Parkinson.

06 07 39 08 CMP ... that's not a Parkinson's law. That's more like a - what's that other guy?

06 07 39 17 LMP Murphy.

06 07 39 29 LMP Oh, where are we in the world? Ooh, we're upside down; that's where we are.

06 07 39 42 LMP And, we get the Taiwan Straits at 151:47; and we're 7 minutes ahead of that. So that means 1, 2, 3, 4, 5, 6, 7. Hey, alright, so we're coming up on - on Thailand and Vietnam with the Hainan Island.

06 07 40 27 CMP Well, we're still over the ocean now, aren't we?

06 07 40 56 CMP ...

06 07 41 21 CDR There's Mother Earth.

06 07 41 28 LMP Yes, here comes Thailand.

06 07 42 06 LMP Boy, is it hazy down there! Whoeee!

06 07 42 24 LMP I don't know; you guys started it before and -

06 07 42 41 LMP Hey, okay. I'll - let me get a picture of that ...

06 07 42 52 LMP Crease in the cloud. Real interesting like.

06 07 43 11 LMP Weird.

06 07 43 21 CDR You might be able to put the ...

06 07 43 49 CDR 151, is it?

06 07 43 59 LMP 152:30.

06 07 44 05 CMP Oh, they give us the sunset time, too. They gave us one right here - sunset.

06 07 44 15 LMP Where's the photo log now?

06 07 44 18 CMP Jim's got it. No, by the window, Jim.

06 07 44 23 CDR What are you hunting?

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06 07 44 24 LMP The photo log.

06 07 45 27 LMP Oh, no, we're never going to get that target of opportunity. Dave, in 2 minutes we're supposed to get a picture of the Formosan Straits. Doesn't look like we're going to make that, does it?

06 07 45 45 LMP (Laughter)

06 07 48 30 LMP Look, Dave. I think it's too ... You might just be able to see it. The - the ...

06 07 49 12 LMP Boy, that's a lot of footage; you know it?

06 07 49 13 CDR Sure is (laughter) ...

06 07 49 17 LMP Yes, it sure is.

06 07 49 26 CMP I don't think I want another banana for a while.

06 07 49 56 LMP Bing. The fuel cells are all done.

06 07 50 11 LMP At 151:48, ...

06 07 52 03 LMP What's the filter for, the sextant or the telescope?

06 07 52 28 LMP Yes, you really need to do that with the optics up so you can use AUTO optics. You put that filter on, I bet you're never even going to be able to find it again.

06 07 53 35 LMP Man, that's really a deck of clouds.

06 07 53 50 LMP Owl

06 07 54 53 CMP I can no longer say that.

06 07 55 30 LMP How are we doing on that?

06 07 55 32 CDR We're below the line on hydrogen. ..., we look like we're holding steady ...

06 07 56 08 CDR Oxygen is MAX.

06 07 56 40 CMP Oh, shoot, ... again.

06 07 56 57 CMP 58, 52, 55. ...

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06 07 57 27 CMP ... again. Oh, hell!

06 07 57 56 LMP Okay. Cryo cycles.

06 07 59 46 CMP What did you guys do with my sun?

06 07 59 48 LMP He's over here shining in my eyes.

06 07 59 51 CDR How's fuel cell 2?

06 07 59 54 LMP The T_{ce} is okay, but the ... is ...

06 08 00 01 CDR Go back to ...

06 08 00 20 LMP It may only - it's been doing every night after you purge, it comes down in the T_{ce} , but the performance is real low. Now, after we hydrogen, the performance will come back up for a while. And then it's going to go off the top again.

06 07 00 46 LMP We're probably going to have to purge hydrogen through again to get it down - -

06 07 00 48 CDR I was just looking to see what you ought to purge. I think we ought to purge just a little bit out of it anyway - maybe ... number 2 tank ... down.

06 08 01 01 LMP ... high pressure. Then I put the number 1 tank ...

06 08 01 06 CDR Take a little out. Put some more on number 2 ... maybe number 2 ... and ...

06 08 01 22 LMP How does all that stuff look?

06 08 01 24 CMP Same as it has.

06 08 01 28 CDR Maybe it's hydrogen -

06 08 01 30 LMP You know we didn't get a full load. See, it's not on the curve.

06 08 01 33 CMP Yes.

06 08 01 34 CDR It's a steady - steady curve there.

06 08 01 36 CMP Yes.

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06 08 01 37 CDR ... up to about 15 - 14, 15 percent. I think what we ought to do is purge the fuel cells - just fuel cell number 2, just a little bit - like 3 or 4 psi and bring it down to maybe 105 or 106 - or 205 or 206 and then stop the purge. And then I'm going to put the H₂ fan on in number 1 tank anyway. You know that tank'll gradually rise. ...

06 08 02 03 CMP I sure wouldn't purge very much. I wouldn't give up much of that ...

06 08 02 06 CDR Huh?

06 08 02 07 CMP I wouldn't want to give up much of that hydrogen.

06 08 02 09 CDR No, I would purge a little bit.

06 08 02 10 CMP ... pressures and fuel cells and all.

06 08 02 19 CDR I still think you ..., Rusty.

06 08 02 22 LMP ... sleep, that's all.

06 08 02 25 CDR ... 2 or 3 percent and then to sleep.

06 08 02 30 LMP Unless you decide to keep us up here the whole time.

06 08 02 34 CDR Huh?

06 08 02 35 LMP Or else don't blow it.

06 08 02 36 CDR Aren't you glad I did now?

06 08 02 38 LMP I didn't say that - I just said, "let's don't blow it."

06 08 02 41 CDR I know you didn't say that. I asked you a question.

06 08 02 44 LMP Yes, that's a pretty good question.

06 08 02 59 LMP Lot more restful than it's going to be on the ground.

06 08 03 10 LMP No, listen. By the time we get back, they'll be on the way to the moon.

06 08 03 14 CMP What are you talking about?

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06 08 03 20 LMP Skip - we're going to skip the next two flights and just make the lunar return.

06 08 03 23 CDR (Laughter)

06 08 03 27 LMP Won't even have to bother going.

06 08 03 29 CDR That's right. We've already proved we can do it.

06 08 03 31 LMP Yes, just come back. On with the Mars mission!

06 08 15 19 CC Yes, sir, just looking out for you. We're going to have LOS here pretty soon, and I guess we'll be talking to you in the morning.

06 08 15 23 CDR Okay, say "Hello" to my lovely family for me, will you?

06 08 15 25 CC I'll do that.

06 08 15 32 CDR (Singing)

06 08 15 41 CMP Having a good time up there?

06 08 15 43 LMP Sounds like a bird to me.

06 08 16 51 LMP You want to put that H₂ fan number 1 on now?

06 08 16 54 CDR Just a second. Let's see what time ... Everybody ready to go to sleep?

06 08 17 01 LMP We're in our rest period.

06 08 17 03 CMP Are we really?

06 08 17 05 IMP Yes, I think so (laughter). 10-1/2, I think, tonight.

06 08 17 12 CMP Good, see if we can get up early, do a little of exercise, have a nice leisurely breakfast, and figure out how to do what we're supposed to do tomorrow.

06 08 17 19 CDR Well, we're not rested yet. Well, I'll tell you what, we ought to have a ...

06 08 17 28 CMP ... wide angle, huh ... or wide angle?

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06 08 17 30 CDR Wide angle, I think. Gee, I have to take a leak.

06 08 17 37 CMP I'm going to need one before I retire, but I'm not sure if I'm ready yet.

06 08 17 55 CMP If you use the wide angle, it's got to be hand held.

06 08 17 59 CDR Yes, - I'll hand hold it ...

06 08 18 01 CMP ... let's see, I'm afraid we'll have to guess.

06 08 18 07 CDR Right after we do this, why don't we do the waste water dump, Dave?

06 08 18 11 CMP Yes.

06 08 18 17 IMP I wonder why they haven't called us on doing those waste water dumps at those specific sites? Don Ring was all hopped up about that, man.

06 08 18 27 CMP Don Ring may have got voted down.

06 08 18 31 IMP Maybe, although you know, dumping waste water is kind of like - ... do that at will.

06 08 18 36 CMP Right and also you got to plan it like that.

06 08 18 38 CDR That's right ... - not sure. It's one thing to say "now" - Yes, sure, but what difference does it make if that's when we dump the waste water? ... plan everything out and you get committed to something like that, and the whole world is up there waiting for you to dump your waste water out.

06 08 19 01 IMP No, he wasn't talking about a preflight commitment. He was talking about in real time ... within the last 3 or 4 days.. Hey, is that a C-IN or a C-EX?

06 08 19 17 CDR I don't know - -

06 08 19 18 CMP A C-IN, I guess. What time is sunset?

06 08 19 23 CDR Dave ... We actually can have - we actually can use the C-IN pack. C-IN ...

06 08 19 29 CMP We could probably get better, though, if we would - Oh, I see, you want to save it.

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06 08 19 37 CDR Yes.

06 08 19 38 CMP ... We've got 11 minutes.

06 08 19 54 LMP ... kind of leaving wide open for that thing.

06 08 20 00 CMP What in the world is that doing?

06 08 20 03 LMP Floating around, that's what it's doing.

06 08 20 05 CDR I guess 24 frames per second is what we want to do here.

06 08 20 10 CMP Boy, the way that comes out -

06 08 20 30 CMP Where's the grab bag? I need some dessert.

06 08 20 33 LMP Hey, you get ready to take a leak, none of this eating stuff! (Laughter) You know you're a critical element in this thing.

06 08 20 44 CDR Without you, we have no pictures (laughter). Boy, that camera really got beat up going in and out of that LM.

06 08 20 50 LMP Did it really?

06 08 20 52 CMP That's more than ...

06 08 20 57 CDR When it came back in, the film feed was on 500 000; the ... was bent over here; the port cord here was about knocked off - ... a-bom-pi-ti-bom-pi-ti-bump-bump.

06 08 21 17 CMP I know what I'll do; coming up next is the opportunity - Oh, we got 11 minutes yet.

06 08 21 29 CDR Guess there just wasn't any better way of transferring the camera back and forth ...

06 08 22 12 LMP Ever try to figure out how many panes we've got in these windows ...?

06 08 22 21 LMP Three, I guess.

06 08 22 22 CMP Yes. There's supposed to be three ...

06 08 22 38 CDR Boy, that's all that stands between you and death.

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06 08 22 44 CMP That's lot more than an ILTC.

06 08 22 47 LMP Yes, I was just ... got a lot less than that, I think.

06 08 22 53 CDR LM is just one pane, and it isn't as thick as any of those three put together - any one of those th
There was a washer in the window ... docking. It kept getting lined up - (laughing) right undernea the COAS yesterday.

06 08 23 14 CDR Hey, that means there were two panes in that wind
How about that?

06 08 23 18 LMP Yes, yes, I was just going to say, there's more t
one pane, I think..

06 08 23 20 CDR There's an outer ... says double pressure pane an
I think they mean double ...

06 08 23 38 CDR Got it all worked out up there, Dave?

06 08 23 39 CMP Yes.

06 08 23 41 CDR Don't let me down, then; it's a critical burn. I
critical wet.

06 08 23 47 CMP I'm not going to let you down.

06 08 24 14 LMP There are a couple little nicks in that. Oh, tha
a bubble.

06 08 24 20 CDR What happened to the big nick that we had in the
window last night - that ... going away, huh?

06 08 24 25 LMP Burned off by all those heaters.

06 08 24 27 CDR Yes.

06 08 24 58 LMP I may be able to contribute to this next picture
here.

06 08 25 00 CMP Now wait a minute. You want to do it or you want
me to?

06 08 25 01 CDR Everybody wants to get into the act. ...

06 08 25 04 LMP Go ahead.

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06 08 25 05 CMP Well, we can't both get down here and do all this, can we?

06 08 25 08 LMP Sure; why not? I'm not going to use you ...

06 08 25 11 LMP Go ahead, I don't use that.

06 08 25 43 CDR ... down, Scott.

06 08 25 48 CMP How are we doing on time?

06 08 25 52 CDR I don't know how the time is; but it's starting to get dark out. I give you about another minute.

06 08 25 56 CMP In a minute, I'll be all ready - maybe.

06 08 25 59 CDR This is your big moment to be on live television.

06 08 26 56 CMP What? That'll look pretty good.

06 08 27 02 CDR We'll also have a scene with your dump ...

06 08 27 05 CMP ... sequel ... to McDivitt.

06 08 27 08 CDR You're the producer; I'm the photographer (laughter) I'm the director; you're the producer (laughter).

06 08 28 02 CMP Don't jiggle the camera now.

06 08 28 05 LMP 24 frames per second is going to be pretty tough.

06 08 28 08 CDR Pretty tough to do what?

06 08 28 11 LMP Hold.

06 08 28 12 CDR 24 frames a second? ... one frame a second.

06 08 28 21 CDR I'd make it as easy on myself as I can. Okay, the big moment has just about arrived.

06 08 28 38 CMP Okay. Oh, this is really going to be superb ... window.

06 08 28 40 CDR ... lights out.

06 08 28 47 CDR Rusty, can you ... your lights a little? Don't turn them all the way down, just get them a little dimmer.

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06 08 29 00 CMP Oh, this is going to be great!

06 08 29 01 CDR Just a little more.

06 08 29 07 LMP Spin it; see how it works.

06 08 29 09 CDR Okay, why don't you start it going now?

06 08 29 11 CMP Stop, Rusty.

06 08 29 15 CDR Hey, wait a second. The camera's not working.

06 08 29 18 LMP Good God, man!

06 08 29 22 CMP ...

06 08 29 27 LMP You're really a great photographer. Turn the switch on.

06 08 29 36 CDR I have. Okay, there it goes.

06 08 29 40 CMP Okay, now it's working.

06 08 29 41 LMP ... up.

06 08 29 43 CMP Stop, Rusty. Oh, look at that.

06 08 29 56 CDR Oh, shoot, we're going to overexpose it. Stop the ...

06 08 30 02 LMP Hold it, hold it, Dave (laughter). Come on, Dave. Oh, hey. Listen, you're lousing - Oh, look, there's a big one. Hey, Dave, you're lousing up the whole picture; you're overexposing it (laughter).

06 08 30 18 LMP Yes. Whoeee!

06 08 30 21 LMP Hey, not too much, Dave. Really, we've got too many out here. Hold off.

06 08 30 26 CMP You want me ...?

06 08 30 28 CDR You know, we're not getting any of those big balls out now; there's too much spray. Just let her run now. ... the earth ...

06 08 30 43 CMP Just start ...?

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06 08 30 45 CDR Yes. Oh, now they're going by - orange - and it was iridescent! ...

06 08 31 14 CMP ... here the ...

06 08 31 16 CDR Okay.

06 08 31 24 LMP Oh, look at that one.

06 08 31 45 CDR Hey, go.

06 08 31 46 CMP We're going. No. Any light left?

06 08 31 51 CDR Yes, there's still some light, but I don't see any coming out.

06 08 31 54 CMP Yes, it's coming out.

06 08 31 59 CDR I guess there's not enough light left.

06 08 32 04 LMP Well, there's really only one star in any movie.

06 08 32 06 CDR Shoot.

06 08 32 10 CMP ...

06 08 32 11 CDR Hey, it was really funny. They actually changed to orange color, they - you know - look like they were radioactive - they were shining so. It didn't look like reflected light. It looked like they were actually producing their own light.

06 08 32 22 LMP Woo, weird! (Laughter)

06 08 32 35 CDR You were great, Dave. ... there isn't much time for that. And at that critical moment - you were sort of facing - -

06 08 32 45 LMP Running late - -

06 08 32 46 CDR - - you were facing the wrong way, too. The other day we were facing down sun; today, we were facing across sun, so that the earth was still lighted behind you, and I had to wait until the terminator went by. Then, you know, it was just a matter of seconds after that.

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06 08 33 04 CDR The big production! Shoot! APS burn to depletion. Urine dump. When you going to do your seat check?

06 08 33 26 CMP I don't know. I've got to take the L-shaped bags down and all that - -

06 08 33 30 CDR Oh, yes.

06 08 33 31 CMP Why don't we do it when we get ready to stow?

06 08 33 33 CDR I'll tell you what - -

06 08 33 34 CMP ... check the seats ... then anyway.

06 08 33 38 CDR I'm going to - I want to check the seat now, too.

06 08 33 39 CMP Oh.

06 08 33 40 CDR Let's see, are you going to do it now or are we just going - I'll tell you what. ... stuck it in my pocket.

06 08 33 56 CDR Alright, let me see, get this back off again ...

06 08 34 03 CMP You want to check the seats now for what?

06 08 34 06 CDR I want to see what is wrong with that Y-Y strut.

06 08 34 09 CMP Let me see -

06 08 34 26 CDR Where was this stowed?

06 08 34 29 CMP What?

06 08 34 30 CDR Where was this stowed?

06 08 34 31 CMP Right behind you. The whole biz.

06 08 34 35 CDR Oh, gosh. In D-3, right? The big one?

06 08 34 38 CMP The big one.

06 08 35 13 CDR Yes, Dave, I'll predict you'll produce at least 50 barrels a day.

06 08 35 15 CMP A ... be a real winner of an oil well.

06 08 35 17 LMP Yes. Why not?

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06 08 37 45 CDR I guess if - Rusty's strut's unlocked now, huh?

06 08 37 50 LMP Okay.

06 08 37 52 CDR When you get time, would you lock it up?

06 08 37 54 LMP What?

06 08 37 56 CDR When you get time, would you lock it up?

06 08 37 58 LMP Lock what up?

06 08 38 00 CDR Your strut - -

06 08 38 01 CMP Your Y-Y strut.

06 08 38 16 CMP We're going to have to unlock the ... control panel, too.

06 08 38 20 CDR Yes, boy.

06 08 38 37 CDR Okay, it locked right up.

06 08 38 42 LMP Huh? Wonder why it wouldn't lock the other day? Maybe we were in it - -

06 08 38 46 CDR And all that extra weight (laughter).

06 08 38 49 LMP All the extra weight!

06 08 39 06 CDR Fits fine.

06 08 39 12 CMP Another thing we have to do before I take the couch down is to get that suit out of there and put it somewhere. ... L-shaped bag ...

06 08 39 30 CMP I don't think those pictures were very significant, to tell you the truth.

06 08 39 34 CDR Neither do I.

06 08 39 36 CMP If it doesn't, it won't look any different here than it does in one g, as far as the appearance. You got to hold yourself down to get out, you know, and ... the propellant stuff is ...

06 08 39 54 CDR ... that.

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06 08 39 59 CMP Well, Rusty ... the picture - -

06 08 40 00 CDR I mean, too bad we didn't have a chance to produce it

06 08 40 02 CMP Oh, yes, to really do it. Yes.

06 08 40 03 CDR Okay, now take the probe out and go around at different camera angles and things like that.

06 08 40 13 CMP Well, you took this out of the whole ... angle stuff, didn't you?

06 08 40 20 CDR Well, that may be better (laughter).

06 08 40 23 CMP That's right. That shows what's really going on. If the hoses weren't there, it wouldn't be a challenge at all. The hose has to be - ... here.

06 08 40 44 CMP Do we do the whole powerdown set first? ...

06 08 40 52 CDR Yes, across the water.

06 08 40 55 LMP Yes.

06 08 40 57 CDR Yes, I need my ... on.

06 08 41 00 CMP That's day 5 ...

06 08 41 01 CDR Day 5.

06 08 41 52 LMP Ouch!

06 08 43 21 CDR Yes, I bet, if you live in zero g for a long time, your legs would just shrivel away.

06 08 43 29 LMP Huh?

06 08 43 30 CDR I bet if you lived in zero g for a long time, too many generations, that your legs would just go away. You really have no need for them.

06 08 43 39 CMP That's right.

06 08 43 40 CDR Either that or you'd develop toes - I mean fingers for them, so you could hang onto things with them.

06 08 43 46 LMP You might even grow a tail.

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06 08 43 47 CDR Right.

06 08 43 49 LMP Who knows what you could do? (Laughter)

06 08 43 55 CDR Is ... outside, David?

06 08 44 02 CMP I can't tell, Jim.

06 08 44 16 CMP Must be something if it's water ... going down.

06 08 46 07 CMP Does it work?

06 08 46 12 CDR That's a garbage bag.

06 08 46 14 LMP No, that's a food bag. I thought - Here's the other one over here.

06 08 48 48 CMP ...

06 08 49 02 CDR What's the quantity remaining?

06 08 49 08 CDR Okay.

06 08 49 13 CDR Okay.

06 08 50 25 LMP O₂ FLOW HIGH!

06 08 51 51 CDR How much do we have now?

06 08 51 59 CDR Alright.

06 08 53 14 CDR How much now, Rusty?

06 08 53 16 LMP It's alright.

06 08 53 17 CDR Okay.

06 08 53 20 CMP ...

06 08 53 24 LMP In the ...?

06 08 53 27 CMP The rest of it looks that way, though; no, just down there.

06 08 53 45 CMP Sort of does.

06 08 53 52 CDR Okay, thank you.

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06 08 53 55 CMP Hmm.

06 08 54 47 CMP It's not ...

06 08 55 00 CDR What's the matter, Dave?

06 08 55 02 CMP I've just discovered something very interesting.

06 08 55 04 CDR What?

06 08 55 06 CMP I'll show you. Pictures are worth a thousand words.
... point down here.

06 08 55 41 CMP Soon as you get through. It's nothing urgent.
Looks like history.

06 08 55 51 CMP Ought to be interesting to find out the origination
of the history.

06 08 56 08 CDR Oh, gracious.

06 08 56 10 CMP How about that?

06 08 56 11 CDR Where was it?

06 08 56 13 CMP Up here in R-3.

06 08 56 18 CDR Been there all the time? Was it hot when you pulled
it out?

06 08 56 21 CMP No, it wasn't. ...

06 08 56 27 CDR ...

06 08 56 33 LMP It's not hot, Jim.

06 08 56 37 CMP Looks like the ring got hot.

06 08 56 58 CDR Where was it now?

06 08 56 59 CMP Right here in R-3.

06 08 57 01 CDR Look in the rest of the stuff.

06 08 57 02 CMP I did. Nothing in there to do it.

06 08 57 09 CDR You got anything else in there that's burned?

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06 08 57 10 CMP No.

06 08 57 19 CDR No. When I ... put my hand on it, it wasn't very hot.

06 08 57 23 CMP How hot did that get in there?

06 08 57 41 CMP That's what I'm thinking; somebody set it down somewhere where it was not - on a lamp or something like that, getting ready to stow it.

06 08 57 51 CDR Huh!

06 08 58 07 CMP They say it is interesting to find the originatio of history.

06 08 58 10 CDR Yes, wouldn't it?

06 08 58 12 CMP It's something we ought to show somebody when we get back.

06 08 58 15 LMP I wonder if these ... are confidential. ...
(Laughter)

06 08 58 35 CMP Did you get it out in time?

06 08 58 37 LMP Oh, too bad.

06 08 58 40 CMP Oh, well. Listen, everytime I went over there, I smelled something different. Everytime I opened the hunnel - the tunnel up - -

06 08 58 47 CDR The hunnel up - -

06 08 58 49 CMP The hunnel up.

06 08 58 50 CDR ... of the tunnel.

06 08 58 51 CMP Everytime I - Oh, I guess ...

06 08 58 57 CDR ... It wasn't the heater.

06 09 00 10 LMP I'm sleepy.

06 09 00 11 CMP Yes. I am, too.

06 09 00 21 CDR (Singing)

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06 09 00 31 LMP Hey, listen, we didn't - We turned the fan 1 on. No, it wasn't any fuel purge.

06 09 00 42 CMP Hey, it might have bounced it. It might have flipped it. That's all. The light wasn't on then.

06 09 01 03 CMP I'm going to bed early.

06 09 01 09 CMP ... go ahead.

06 09 01 13 CDR Go ahead; go ahead. You look tired; go ahead.

06 09 01 21 CMP Tired feet.

06 09 01 23 LMP Why don't you take a rest? Why don't you take a trip? Why don't you go somewhere you've never been? Why don't you take a trip around the world?

06 09 01 36 CMP Tomorrow, we get into that big ...

06 09 01 47 CMP Everybody ... 500 miles you just about ...

06 09 02 08 CMP That's what I say. We ought to take some of those pictures before we get up there 200 miles. Almost twice as high.

06 09 02 32 LMP The stickyback bag?

06 09 02 33 CMP You got to be kidding.

06 09 02 50 LMP Ooh, what a nice guy! He says the neatest things. Why do you say things like that, McDivitt? What do you want to get - somebody's going to slug you one of those days; they're not going to slug you one of these days; they're not going to take it right. He really is. You know that hurts people's feelings? You like to hurt people's feelings, Jim? You ever think about that? Huh? Have you ever talked to your psychiatrist about that?

06 09 03 40 LMP What? Well, read it out.

06 09 04 10 CDR Get it started ...

06 09 05 21 LMP No, Jim.

06 09 06 29 LMP Yes. The sun came up again. There goes the ...

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06 09 09 31 CMP Yes, Jim, the cabin temperature is 75.

06 20 17 05 CDR Roger; Mercury in 5.

06 20 17 12 CDR Why don't I get up?

06 20 17 13 LMP Huh?

06 20 17 15 CDR ... it right there.

06 20 17 42 LMP You know one thing that - I'd never gotten the EVA with all that ... for depressant and repressant and opening and closing that damn ... those gloves are right over here.

06 20 32 30 CDR (Yawn) Oh, boy.

06 20 32 39 CMP Good. Everybody gets one and somebody gets two.

06 20 33 24 LMP Well, I got one, thank you. How about you?

06 20 33 29 CDR No, thanks, Rusty.

06 20 34 11 CMP These boxes are really something. Hmm, there's not - nothing in it.

06 20 34 52 LMP Got the other ... in that box.

06 20 35 23 LMP Hey, Jim, remember when we were talking about that ... in the EVA thing?

06 20 35 29 CDR Yes.

06 20 35 31 LMP Do you know what time I said that would be? ... we talked about that.

06 20 36 04 CMP I was a little surprised you were that early, to tell you the truth. I sort of ...

06 20 36 59 CC Apollo 9, Houston. We have you through Mercury, about 7 minutes.

06 20 43 55 CMP - - 28, minus 1609, 173:56:15, 3831. And the pitch and yaw trim for REV's 105 through 108: pitch, minus 0.88; yaw, minus 1.09. For REV's 109 and 110: pitch, minus 0.88; yaw, minus 1.40.

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06 20 44 18 CC Roger. Houston confirms update. We'll see you at Texas around 58. We'd like to remind you of the O₂ purge and the CO₂ filter change.

06 20 44 28 CMP Okay. O₂ purge and CO₂ filter change, at 58 through Texas.

06 20 45 45 CMP Oh, yes. Supposed to do ...

06 20 46 08 CMP You know what - what really bugs me is that you usually spend so much time ... every one we did ...

06 20 46 24 CMP New window shades? ... that?

06 20 46 43 IMP There used to be little things that would latch over the sides, sort of -

06 20 46 48 CMP Yes, they really are.

06 20 49 59 CMP Where is it?

06 20 50 18 CDR Hey, did you log in the exercises? You ought to try to log it in ...

06 20 50 45 CDR ... find the numbers. Those numbers ... Well, why don't we just go back to giving the - ... put down the days ...?

06 20 51 13 CMP No way. I don't want my water out of the bag.

06 20 52 37 CMP 16 to B; 14 to A-4. So, the one you took out was 11. Want a piece of tape?

06 20 52 51 CMP Yes.

06 20 53 47 CMP The one you just used is 14. Take one out of A-4 and put it B.

06 20 54 03 CDR Hey, how's the CO₂ for a change? Isn't it 2.2?

06 21 21 02 CMP That's very characteristic of ... stuff.

06 21 21 05 CDR Yes, sure is.

06 21 21 11 IMP Look at those dunes.

06 21 21 37 CC Apollo 9, Houston; 30 seconds LOS. We'll see you at Carnarvon at 51.

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06 21 21 44 CMP Roger; Carnarvon, 51.

06 21 21 47 CMP Does that one look like it's going to be any good, Rusty?

06 21 21 50 LMP This one looks like it's alright. Going to be an oblique.

06 21 21 54 CMP Well, they want it 30 degrees south of the nadir. You got a south look there? Yes, you do, don't you?

06 21 22 00 LMP Yes.

06 21 22 03 CMP Man, look at that geology there.

06 21 22 04 LMP Yes, isn't that something? Whoo! How would you like to be on a camel down there?

06 21 22 08 CMP No thanks.

06 21 22 09 LMP (Laughter)

06 21 22 17 LMP Boy, it's funny how that desert changes, from that red-beauty stuff to this white nothing.

06 21 22 26 LMP Yes.

06 21 22 41 LMP You know, I'm not sure we're going to get it.

06 21 22 44 CMP Really?

06 21 23 01 CMP See out backwards pretty good?

06 21 23 02 LMP Yes, but I can't see back up towards the horizon enough, I don't think. It depends on how far north of it we go. Can I turn down my S-band volume a little, Dave?

06 21 23 13 CMP Yes.

06 21 23 18 LMP That's good. How's the time?

06 21 23 23 CMP ... minutes.

06 21 23 38 CMP Okay. Not yet from here. ...

06 21 23 43 LMP I think just about. Here, let me have the camera. We're getting some pretty interesting things.

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06 21 23 58 CMP Oh, yes, ...

06 21 23 59 LMP Yes, there's a lot - Look at that - that's a big cinder cone field. Okay, now.

06 21 24 11 LMP Oh, okay. Are we on?

06 21 24 19 LMP I'll tell you what; how is the time coming?

06 21 24 24 CMP Okay, 24:22 and they want 10 frames at 6-second intervals. At 25:33. ... do that?

06 21 24 32 LMP Yes, why - why don't you just give me a hack?

06 21 24 34 CMP Yes, I will. And they want 30 degrees south of the nadir.

06 21 24 39 LMP Okay.

06 21 24 41 CMP I'll give you a mark. It'll be about a minute.

06 21 24 43 LMP Okay.

06 21 24 45 CDR ..., wasn't it?

06 21 24 47 LMP Yes, it may not - it may not be too bad.

06 21 24 53 CMP 30 degrees. ... It looks like we're rolling a little left, there.

06 21 24 59 LMP Yes.

06 21 25 28 CMP Okay, here we go. Ready?

06 21 25 30 LMP Okay, all set.

06 21 25 31 CMP Number 1 coming up.

06 21 25 33 CMP MARK.

06 21 25 34 LMP Nothing but a cloud, but -

06 21 25 36 CMP Okay, number 2 coming up.

06 21 25 39 CMP MARK.

06 21 25 43 CMP Number 3 coming up.

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06 21 25 45 CMP MARK.

06 21 25 48 CMP Number 4 coming up.

06 21 25 51 CMP MARK.

06 21 25 53 LMP That's not going to do it, Dave. There's nothing down there. Not a damn thing.

06 21 25 56 CDR Oh, really?

06 21 25 57 LMP No, just - just peaks of sand, and there's absolutely nothing on them. It's not even - they don't even have a mark on them.

06 21 26 03 CMP You think they missed their time, Rusty?

06 21 26 04 LMP Yes, I think they might have. I think we're looking north of the problem.

06 21 26 16 CMP Too bad about that.

06 21 26 25 LMP Yes, we're looking north.

06 21 26 26 CMP I thought we were looking - You were almost looking - -

06 21 26 29 LMP No, I can see the horizon up there, see?

06 21 26 32 CMP Too bad.

06 21 26 33 LMP Yes.

06 21 26 36 CMP Maybe we ... roll ... here.

06 21 26 41 LMP Okay, Dave, that was - I guess I took four pictures total. Oh, no, five total.

06 21 26 53 LMP That's six total, and that was through 134, so it must have been 128 - 9 - 30 - 1 - 2 - 3 - 4. 129 through 134.

06 21 27 59 CMP All you saw was dunes?

06 21 28 01 LMP Not even dunes, just flat white sand. No, it was obviously nothing.

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06 21 28 07 CMP Yes.

06 21 28 08 LMP I took a couple while the clouds were there; you know, there were holes in the clouds; thinking there might be something under them, but, hell, when the clouds dropped, it was obvious there wasn't anything there.

06 21 28 45 LMP We are posigrade again this morning. I think we've been posigrade every morning.

06 21 28 54 CMP Yes. I think so. ...

06 21 29 52 LMP Have to do that one, too. ... once in a while ... I kept waking up last night thinking "My God, ..."

06 21 30 07 CMP You did?

06 21 30 08 LMP Yes.

06 21 30 29 LMP No, it's the one on the right, David.

06 21 30 32 CMP Hey, our clock's jammed.

06 21 30 42 LMP Hey, you got to go out past 1 before it'll ding, Dave.

06 21 30 50 LMP No, it won't.

06 21 31 00 LMP Right!

06 21 31 04 CMP No, I don't want to ...

06 21 31 21 CMP Hey, listen, if he sees any ...

06 21 31 40 LMP Yes, I'm sure.

06 21 32 48 LMP What else you want?

06 21 32 56 LMP It doesn't appear to be up on this end.

06 21 33 01 CMP I saw it floating past ...

06 21 33 14 LMP I tell you what, let me get my hose to the right side of - of the strut.

06 21 34 21 CMP 166:10. We've got another 45 minutes. How about, let's see, ... out the window?

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06 21 35 20 LMP Well.

06 21 35 22 CMP You got one - Jim, they're both right there in front of you. There's one there.

06 21 36 09 LMP Huh?

06 21 36 24 CMP Which one do you want? Did you get them? Oh, huh?

06 21 36 36 CMP Rusty, you're putting them in there too fast.

06 21 36 38 LMP Oh, I - I thought that was - "

06 21 26 40 CMP No, no, this is ... Here you are. Even got a red spot on it.

06 21 36 53 LMP By ...

06 21 36 56 CMP Under your head.

06 21 37 49 LMP For the first few minutes, then after a while - Yes. Yes, the first few minutes of it were really good. Boy, I - It tasted great.

06 21 38 21 CMP Recommended highly.

06 21 38 28 LMP Dave, I think I'd trade you a hot cocoa for a grape punch.

06 21 38 32 CMP ... you've got a deal.

06 21 38 34 LMP If you got one.

06 21 38 36 CMP I'm not sure I have. I eat the same breakfast you do.

06 21 38 39 CDR Yes, there is a grape punch in there.

06 21 38 41 CMP There is?

06 21 38 42 LMP No, there's not. In fact - in fact, I think I might try the hot cocoa here again. Yes, I like it now. I found that my taste changes day to day.

06 21 39 29 CDR I don't know.

06 21 39 33 CMP Yes, you did.

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06 21 39 34 LMP Yes, you did. Which way is it?

06 21 39 37 CMP Down ...

06 21 39 39 LMP Down and ...

06 21 39 54 LMP Wonder why it's so ... after I turn it off like t

06 21 40 04 LMP It may - may be - It must ... build up -

06 21 40 12 CDR Yes.

06 21 40 40 LMP Purple eye.

06 21 41 04 CMP It's really good.

06 21 48 56 CDR Hello, there. Do you hear?

06 21 48 58 CMP Yes, sir.

06 21 48 59 CDR Good.

06 21 49 05 LMP Guess what, David. When your face feels better, breathe less skin. Besides that, we like you to look good.

06 21 49 16 CMP Right. You got to be handsome.

06 21 49 18 LMP Right. None of this recovering looking like that. We got to stay up here 2 more days just so that we can look good when we eat that 350-pound cake. Right after that, three 8-foot-tall redheads.

06 21 49 49 LMP You know, I think we've probably logged more sleep time than the other flights all put together. That's the one thing that we've got more of - -

06 21 49 57 CMP Yes, it's worked out very well. It really has.

06 21 50 05 LMP Anytime you guys want me to take the watch, let me know. Geez, I kind of feel like - like I'm cheating going under there in luxury class.

06 21 50 14 CDR I think ... works fine. What do you think, Dave?

06 21 50 19 LMP Well, hell, you keep getting waked up though, don't you?

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06 21 50 22 CDR No, not that often.

06 21 50 24 LMP No?

06 21 50 27 CMP No, I just, whenever I wake up, I glance around the gages and just see what they look like.

06 21 50 35 CDR I see you doing it - I see you doing it, too. I just look around, and I just go back to sleep, and I hear click-clock over there, and I look - (laughter) turning on all those lights.

06 22 05 23 CDR You still there, Stu?

06 22 05 25 LMP By-by.

06 22 05 35 CMP And that, dear sir, was the end of Mr. Stuart. Mr. Stuart ...

06 22 05 43 CMP How are your ears, Jim?

06 22 05 45 CDR Okay.

06 22 05 53 CMP Yes. Did you take an Actifed last night?

06 22 05 55 CDR No, I took one yesterday afternoon.

06 22 05 56 CMP Yes - I - -

06 22 05 57 CDR Dave, you're looking a lot better. You're looking much better.

06 22 06 13 CMP ... my pill.

06 22 06 14 CDR Oh, yes.

06 22 06 16 CMP ... vitamin pill.

06 22 06 18 CDR Your vitamin pills, too. Get out the vitamin pills!

06 22 07 20 CDR I think I only have one and one, Dave. What did I ... the day before? Let's look there. Thank you.

06 22 07 58 CDR Yes, we even got into the redundant vitamin pills, huh?

06 22 09 18 CDR I've been having some cinnamon-toasted bread cubes.

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06 22 09 24 CDR (Laughter) Yes, why don't you do that? I figure there must be some food value in there that's not in those other ones.

06 22 10 21 LMP Man, that's a lot of chocolate. I said, "That's a lot of chocolate."

06 22 10 26 CDR ... hot chocolate?

06 22 10 29 LMP Yes. Too much for me.

06 22 10 38 LMP Grape punch.

06 22 10 55 LMP That's what they call me - Honest Rusty. Hard bargain for a good deal. ... picking up - -

05 22 16 03 CDR Just a second, I can't hear you. What? Go ahead. S-band just cut off.

06 22 16 09 CMP I said I was just getting ready to get the camera, and I got out your ... figuring out how I could rig that camera, so when we go over the States, you know, ... take pictures out the back.

06 22 16 24 CMP Think we ought to ... up our ORB rate for that pass over Africa?

06 22 16 28 CDR Well, we're not going to be ready, Dave. We're not going to have the platform up and aligned.

06 22 16 36 CMP I think it would be worth a couple of squirts of fuel, though, don't you?

06 22 16 40 CDR So do I.

06 22 16 41 CMP Yes.

06 22 16 43 CDR Good.

06 22 16 45 LMP Yes, I think it would be, too. That ought to be a great picture.

06 22 16 47 CMP Yes, sure should.

06 22 16 49 CDR ... We ought to start through that powerup checklist now, so we can get these things going.

06 22 16 57 CMP Okay. I'll - I'll read it to you. You ready?

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06 22 16 58 CDR Yes, let's go.

06 22 17 00 CMP On the - powerup. CB panel 8. All normally CLOSED normally CLOSED. I guess that implies all normally OPEN, normally OPEN.

06 22 17 12 CDR Would you believe we still have the SPS PITCH and YAW ... CLOSED?

06 22 17 16 CMP Yes, let's just leave those CLOSED.

06 22 17 20 LMP What SPS PITCH and YAW? We were supposed to, Jim, weren't we?

06 22 17 23 CMP Yes.

06 22 17 24 CDR Did they say to close them again?

06 22 17 25 CMP Yes.

06 22 17 26 LMP Sure.

06 22 17 28 CDR Well, the last time we asked them about that, they said, no, they'd like to - continue to leave them open after this burn.

06 22 17 33 LMP The SPS PITCH and YAW ...

06 22 17 34 CDR Remember when we were fooling around with the ... before?

06 22 17 36 LMP ... no ...

06 22 17 37 CMP Jim, I think that was just while they were shooting that - remember that - -

06 22 17 42 CDR And then they got through, and I said - Remember they - We're going to do a burn - and we went back with the thing, and I said, "Do you want these thin left off, or do you want to put them in now?" And they said, "Well, we would like to have them off." Unless they called and specifically told you to close them after that.

06 22 17 45 CMP I thought they did, but I could be wrong.

06 22 17 56 LMP I don't know why you'd want them - why you'd want them now.

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06 22 17 58 CMP Neither do I.

06 22 17 59 CMP SPACECRAFT CONTROL, CMC.

06 22 18 02 CDR CMC.

06 22 18 03 CMP DELTA-V_{cg}, as required.

06 22 18 04 CDR ...

06 22 18 06 CMP LOGIC 2/3, ON, up.

06 22 18 10 CDR 2/3, ON, up.

06 22 18 11 CMP SIGNAL CONDITIONER/DRIVER BIAS POWER, two, to AC 1.

06 22 18 15 CDR AC 1, AC 2. What did I put that in?

06 22 18 26 CMP SCS ELECTRONIC POWER, GDC/ECA.

06 22 18 30 CDR Okay. SCS ELECTRONIC POWER to GDC/ECA.

06 22 18 37 CMP BMAG TEMP LIGHT, two, OUT; verify. FDAI POWER, OFF.
BMAG POWER, two, ON.

06 22 18 44 CDR Okay.

06 22 18 45 CMP FDAI POWER to BOTH.

06 22 18 46 CDR Okay.

06 22 18 49 CMP AUTO RCS SELECT, 16, to wherever you want them.

06 22 18 51 CDR Okay. OFF.

06 22 18 56 CMP Did you get the -- You weren't on the horn when they gave us the plan the other day, were you?

06 22 19 02 CDR I think they said B and C today, with B and D as ullage?

06 22 19 06 CMP ... B and C. Use B, D for ullage ... B, D roll, - B, D roll, B, D ullage, and B, C.

06 22 19 21 CDR Okay?

06 22 19 22 CMP Just a second, let me write that down. B, C - let's see, B, C roll? B, D ul -

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06 22 19 36 CMP Okay?

06 22 19 37 CDR Okay.

06 22 19 38 CMP ROTATIONAL CONTROL POWER NORMAL, two, AC/DC.

06 22 19 40 CDR Okay.

06 22 19 44 CMP CMC is running, huh?

06 22 19 47 CDR Is running, right. We got to bring up the DAP.

06 22 19 54 CMP Okay, we're in POO, huh?

06 22 19 56 CDR Right.

06 22 20 02 CMP IMU.

06 22 20 04 CDR Okay.

06 22 20 05 CMP LOGIC POWER 2/3, ON.

06 22 20 07 CDR LOGIC POWER 2/3 is ON.

06 22 20 09 CMP Verify, FDAI POWER to BOTH. FDAI SELECT to 1/2.

06 22 20 13 CDR 1/2.

06 22 20 16 CMP CMC MODE to FREE.

06 22 20 17 CDR FREE.

06 22 20 19 CMP G&N IMU POWER, ON.

06 22 20 22 CDR ... go back to nursemaiding that thing (laughter).
Did you get that, Dave?

06 22 20 30 CMP Are you ready?

06 22 20 31 CDR Yes.

06 22 20 34 CMP Okay, IMU POWER coming ON now. Hey, and I got ...

06 22 20 39 CDR That mother really gets over there. God!

06 22 20 41 CMP RESET. Okay, we don't need that. Wait 20 seconds -
Okay, ... POO. Okay. Systems check, CMC self-check.
you want to run one of those?

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06 22 20 52 CDR No, I don't think so.

06 22 20 55 CMP DSKY lamps check. Do you want to run one of those?

06 22 20 58 CDR No.

06 22 20 59 CMP DAP activation. You want to run one of those?

06 22 21 01 CDR Yes.

06 22 21 06 CMP Hey, we gave them an erasable dump last night, didn't we?

06 22 21 09 CDR Yes.

06 22 21 16 LMP Did you purge the fuel cells this morning, Dave?

06 22 21 19 CMP Yes, I didn't write it down, of course. Yes, I purged them.

06 22 21 29 LMP How about the cryo fans, Dave? Did you do them?

06 22 21 31 CMP No, I haven't done them, Rusty.

06 22 21 33 LMP Okay, I'll get them.

06 22 21 38 CDR We don't have much nighttime left, Dave. As a matter of fact, we have about 2 minutes.

06 22 21 42 CMP You don't think I can do a P51 in 2 minutes?

06 22 21 44 CDR No, as a matter of fact, I don't. I don't even think you can figure out how to make the shaft go around in 2 minutes.

06 22 21 50 CMP Gee, I sure like your confidence.

06 22 21 52 CDR (Laughter)

06 22 21 54 CMP You're a nice guy.

06 22 21 56 CDR You know what ...?

06 22 22 03 CMP ... on what?

06 22 22 08 CDR Hey, ... able to work up to a great big - -

06 22 22 11 CMP Yes, I was thinking the same thing.

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06 22 22 12 CDR (Laughter) I've been trying to count how many I had before. I think I only had two.

06 22 22 18 CMP I was thinking ...

06 22 22 20 CDR What, that you had two, or that you ... up to one? (Laughter) You had one; I had two.

06 22 22 29 LMP Did you mark yours?

06 22 22 30 CMP ...

06 22 22 34 LMP I may set a record. I wonder what the record is for not crapping?

06 22 22 39 CMP I don't know.

06 22 22 40 CDR I don't hold it (laughter). Hey, who - I wonder where this stuff came from.

06 22 22 51 CMP ...

06 22 22 54 LMP Yes, you can recall two, I guess, if you want to.

06 22 22 56 CDR ...

06 22 22 59 CMP Oh, yes, let's activate the DAP. ... the DAP.

06 22 23 02 CDR ...

06 22 23 06 CMP It just says, "activate DAP."

06 22 23 07 CDR Oh, okay. VERB 48, ENTER ...

06 22 23 12 CMP VERB ... 1 ...

06 22 54 29 LMP Is that a body of water down there?

06 22 54 31 CDR I was wondering the same thing; it sure looks like it - -

06 22 54 32 LMP I think it is. I'll take a picture of that. That's really something; I've never noticed anything like that before.

06 22 54 40 CC Apollo 9, Houston; 30 seconds LOS Canaries; see you at Tananarive 08.

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06 22 54 46 CDR Okay, Stu, and the weather's real nice across Africa here, and we're getting that 16-millimeter strip.

06 22 54 51 CC Oh, real fine, Jim; thank you.

06 22 54 55 CDR You know, by gosh, that's a - What is that?

06 22 55 01 LMP Did you get it, Jim, or do you want me to - -

06 22 55 02 CDR No, I'll get it. Wonder what it is?

06 22 55 08 LMP Looks like an arrowhead.

06 22 55 09 CDR Yes, but I wonder if it's manmade or nature-made.

06 22 55 11 LMP Oh, hell, I don't think that could be manmade. I think it's pretty big. Africa's own Lake Arrowhead.

06 22 55 32 CDR There appears to be water in that river down there.

06 22 55 35 LMP Yes. Yes, there sure is.

06 22 55 41 CMP A few fires down here to the south, along that river.

06 22 55 50 CDR Africa is really an interesting continent. Hey, look it. There's some ... Maybe the geologist would like that.

06 22 56 03 LMP Wonder what this river is we're going right along?

06 22 56 05 CDR I don't know. I didn't look on the map to see where we came across there.

06 22 56 16 LMP Yes, I did, but - -

06 22 56 17 CDR ... show me the map.

06 22 56 18 LMP No, it's behind Dave, and I don't want to disturb him.

06 22 56 20 CDR Okay. ...

06 22 56 32 LMP Dave, it looks like maybe the clouds are ...

06 22 57 21 CDR Good boy, David. That was a pretty trip, wasn't it?

06 22 57 25 CMP Yes, that's really something ... - -

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06 22 57 30 CDR ... I think it - What, what you think of f:ll at 1/250? That'd be good.

06 22 57 34 CMP 75-millimeter lens, you can't tell; boy, that's really - -

06 22 57 38 CDR Yes.

06 22 57 40 CMP Oh, well, it's worth a try.

06 22 57 41 CDR ...

06 22 57 42 CMP About a quarter of a MAG.

06 22 57 50 LMP Isn't it, though?

06 22 57 51 CMP I didn't see that ... shot until we'd almost gone by it. I was trying to keep it from going straight pass.

06 22 57 56 CDR Yes.

06 22 57 57 CMP ...

06 22 58 10 CDR There's something ...

06 22 58 12 CMP ... Hey, could that top piece have turned with respect to the lens?

06 22 58 16 CMP You know, I wondered about that ...

06 22 58 23 LMP I checked the bottom part to see if the bayonet down by the bottom might have turned, and I can't seem to see anything loose there.

06 22 58 32 CDR May I have the film log, Rusty, please?

06 22 58 37 LMP Yes, if I can remember where I put that one. That one - -

06 22 58 39 CDR Right here.

06 22 58 49 CDR Oh, hey, we're coming - Well.

06 22 59 11 CDR Hey, Dave, I have an extra pen down in my - -

06 22 59 13 CMP I have one, too.

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06 22 59 14 CDR Oh, do you? Okay.

06 22 59 15 CMP ...

06 22 59 20 CDR Where did the world go?

06 22 59 23 LMP Down low.

06 22 59 24 CDR Yes. I'll tell you, I never have been very successful in ... Africa.

06 22 59 28 LMP Well, I'm looking at it, but I'll tell you, it's not terribly - -

06 22 59 32 CDR There's not very much down there, is there?

06 22 59 34 LMP Just a lot of clouds. Lot of thunderstorms.

06 22 59 41 CDR Yes, it looks like from here on out, it's all socked in.

06 22 59 54 CMP You want to play with that camera, Rusty? You don't want to play with it?

06 22 59 57 LMP I don't know. I've kind of played with most of the things I've thought of to play with.

06 23 00 02 CMP I tell you, I just know I had that thing ... took it off and put it back on, and took it off and put it back on again. It could have been that.

06 23 00 15 CDR Here's the log again, Rusty.

06 23 00 22 CMP ... test it out ...

06 23 00 25 CDR I - I don't - Let me look at it - Because I know I've had this thing on here screwed up like this, and it seems to me that, by moving the bits and pieces around, you ended up with it going in the right direction. I tell you what really fakes me out is that - the fact that's a four-sided thing that goes in here and a three-sided one that goes in like that. You've got to have it.

06 23 01 08 CMP ... the 18-millimeter ...

06 23 01 39 CDR Let me have one lens.

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06 23 01 41 CMP One 75?

06 23 01 52 CDR ... the pin, the screw ...

06 23 02 15 CMP It's got to work. Brackets don't work?

06 23 02 18 CDR Yes, ...

06 23 02 23 CMP Thank you.

06 23 02 36 CDR There just isn't any way that thing's ever going to get straight. If you turn it a quarter -

06 23 03 13 LMP Where's the MAG you had on this camera, Dave?

06 23 03 58 CDR Well! I'm going to go down there and try to do my duties. I don't know. David, would you keep it out of gimbal lock for a while?

06 23 04 18 LMP You want to stow a camera while you're doing your duty?

06 23 04 20 CDR Sure.

06 23 04 46 CMP Did you bring both of these back with you?

06 23 04 48 CDR Yes.

06 23 04 49 CMP ...

06 23 04 51 CDR They are; they're dandy. Yes, sometime tonight, when I get through with today, I want to ...

06 23 05 02 CMP Good idea.

06 23 05 16 CMP You want to get in this box over here, I believe.

06 23 05 20 CDR Yes, I do; yes, I do; yes, I do; indeed, I do. (Singing)

06 23 05 28 CMP McDivitt, you don't have to pull that box out of there; you just open it up ...

06 23 05 31 CDR Oh, yes. (Singing)

06 23 06 09 LMP More ...? More ...?

06 23 06 15 CMP More ...

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06 23 06 16 LMP Yes, take pictures out there with that. Be real good.

06 23 06 51 LMP Well, we just passed south of Dar es Salaam.

06 23 06 54 CMP We didn't!

06 23 06 55 LMP Yes.

06 23 06 57 CMP I just won't believe it.

06 23 07 02 LMP That's a neat-sounding place though, isn't it?

06 23 07 05 CMP Yes.

06 23 07 24 CDR Oh, no. Don't tell me. All the Kleenex has been sneezed away again.

06 23 07 29 LMP Here you go. Boy, there are only four boxes out.

06 23 07 37 CDR Yes, and I don't understand where they keep going. There was a full one right up against here a little while ago.

06 23 07 53 CMP I think the other one's ...

06 23 07 57 LMP Ahh, it's in Jim's pocketbook.

06 23 08 03 CDR Look over there in the - A-8, Dave.

06 23 08 14 LMP You know, Jim, that's a very ... - -

06 23 08 16 CC Apollo 9, Houston through Tananarive. Standing by.

06 23 08 18 CDR That's a very suggestive what?

06 23 08 20 LMP Move you're making.

06 23 08 23 CMP Roger. We hear you 5 by.

06 23 08 32 CMP If you're going down there, Rusty, how about pulling it back ...?

06 23 08 38 LMP Houston, Apollo 9.

06 23 08 50 LMP Houston, Apollo 9.

06 23 09 06 CMP You know, that ... really ...

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06 23 09 08 CDR Isn't it?

06 23 09 11 LMP Houston, Apollo 9.

06 23 09 21 CC Apollo 9, Houston through Tananarive. Standing by.

06 23 09 25 LMP Roger, Houston. How do you read Apollo 9 now?

06 23 09 38 LMP Try the right antenna again. Houston, how do you read Apollo 9 now?

06 23 09 51 LMP Houston, Apollo 9.

06 23 09 55 CDR ... found some more chocolate. ... chocolate, I guess.

06 23 10 27 LMP Houston, Apollo 9. How do you read now? ... Pick it up somewhere else.

06 23 10 36 CC Apollo 9, Houston. How do you read?

06 23 10 39 LMP Houston, we're reading you - Why don't you go ahead - You're a little intermittent, but why don't you go ahead and try that procedure on the PUGS?

06 23 10 48 CC Okay, Rusty, I'm reading you now. Step 1: SPS GAGING to AC 1. Step 2: SPS HEATERS/GAGING, MAIN A/MAIN B, CLOSED; PUGS mode, PRIMARY. Now go to test 2 until oxidizer reads 10.8 percent. Record the fuel readings before ignition. Do not switch PUGS mode during the burn. We would like to emphasize that we do feel you will get at least one caution and warning, maybe more.

06 23 11 46 LMP Stu, just before I go to test 2, I missed that step.

06 23 11 52 CC Okay, you do test 2 until oxidizer reads 10.8 percent.

06 23 11 59 LMP No, just before that; you want me in PUGS mode, PRIMARY?

06 23 12 05 CC That's affirmative. The third step is PUGS mode, PRIMARY.

06 23 12 09 LMP Okay, understand. I'll try to read back the whole thing here: SPS GAGING to AC 1 - -

06 23 12 14 CMP Oh, shoot!

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06 23 12 15 LMP - - SPS HEATERS/GAGING circuit breakers MAIN A/
MAIN B, CLOSED; PUGS mode to PRIMARY. Test 2 until
oxidizer reads 10.8 percent - -

06 23 12 24 CMP Yes, ...

06 23 12 25 LMP - - record the fuel, and expect the MASTER ALARM.

06 23 12 27 CDR There's a full box around here someplace.

06 23 12 36 LMP Here, Jim, there's a whole bunch of them on the
wall ...

06 23 12 37 CC Okay, Apollo 9. If you read, we are not getting
you. I believe you were attempting a readback.
We'll be here for about 2-1/2 minutes, if you want
to try again in about 30 seconds. If not, we'll
see you at Carnarvon at 25 and confirm it there.

06 23 12 50 CMP Let's have one here, too.

06 23 12 51 LMP Okay, how are you reading now, Stu?

06 23 12 55 CC And just to clarify one other point: we do feel
you'll get this caution and warning when the PUGS
comes in about 5 seconds after ignition.

06 23 13 28 LMP Dave, you want to close the SPS - the HEATERS/
GAGING MAIN A/MAIN B breakers?

06 23 13 41 LMP Dave, you've got to do a P51 here, too. I'll try
to hurry, if I can help you.

06 23 13 48 CMP No, that's alright.

06 23 13 52 LMP Okay, now we're going to get a MASTER ALARM here.
I'm going to be slewing the PUGS mode down.

06 23 13 59 CDR Are we in NORMAL?

06 23 14 06 LMP Okay, oxidizer to 10.8.

06 23 14 45 CC Apollo 9, Houston; 30 seconds LOS Tananarive;
Carnarvon, 25.

06 23 14 51 LMP Roger.

06 23 17 10 CDR How you doing?

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06 23 17 12 LMP Doing pretty good. How about taking an inlet hose over there?

06 23 17 17 CDR You want to get it right in your mouth, huh? Yes, I'm about done.

06 23 17 33 LMP ... come on down here. I'm just about through.

06 23 19 13 CDR Okay, I'll be right up there, Dave.

06 23 19 18 LMP You want to roll, Dave?

06 23 19 23 CMP Let me see which way.

06 23 19 27 LMP I saw some stars out to the left there.

06 23 19 30 CMP Yes, roll - probably left would be best.

06 23 19 34 LMP Okay. Are the roll jets activated?

06 23 19 37 CDR I believe so. What I think I can do is flip on the hand controller. Yes.

06 23 19 42 LMP Okay.

06 23 19 51 LMP Now, let me see if I can tell you which one, Dave. Okay, could you turn the lights off over there?

06 23 20 02 LMP Okay. Oh, shoot. We're pointed almost straight down.

06 23 20 12 CMP I know it. That's the problem.

06 23 20 14 LMP No, I mean the nose - not - not - You should be picking up the horizon behind us a little in a minute here.

06 23 20 21 CMP I got the horizon ...

06 23 20 24 LMP Oh, okay. Okay, Alphard - What else is below Leo? There's Jupiter.

06 23 20 44 CMP Another thing I want to do is keep the lights off ...

06 23 20 47 CDR You can turn them out, Dave.

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06 23 20 48 LMP You're going to be looking at the southern sky, Dave. You're going to be Vega and Spica and - whatever is below Leo.

06 23 21 11 CMP Alphard's below Leo?

06 23 21 12 LMP Yes, but - No, farther than that below him.

06 23 21 18 CMP I've got the moon. That's a big help.

06 23 21 27 LMP Now we're just torquing; we're just orbit rating around it.

06 23 21 29 CMP Okay.

06 23 21 30 CDR Here, I'll get it.

06 23 21 31 CMP How about - See, we're pitched up.

06 23 21 33 LMP No, pitch - yes, we want to pitch down.

06 23 21 51 LMP Which way are we rolling, Jim?

06 23 21 54 CDR We're rolling left.

06 23 22 05 LMP Let's see, what else is below Leo?

06 23 22 08 CMP Well, I think we get down into Antares and Scorpio and all that.

06 23 22 13 LMP You - you got Spica down there, Dave, and - -

06 23 22 17 CMP I - I - If we're in the southern sky, I'll be okay, as soon as get something at all - with Spica and all those guys down there.

06 23 22 23 LMP Yes.

06 23 22 24 CMP That's a good bunch of stars, but I just ...

06 23 22 26 CDR In fact, we should be coming up on something now pretty soon, Dave.

06 23 22 29 CMP Oh, yes, okay, and I see it now.

06 23 22 30 CDR We're rolling - -

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06 23 22 31 LMP We're rolling left slightly, and we're pitching down and - a combination ...

06 23 22 37 CMP I've got the moon and some stars.

06 23 22 41 LMP Yes, you ought to be picking up Spica, that's right. Spica ought to be the lower right, or maybe the far right.

06 23 22 58 CMP Got to go faster, Jim.

06 23 23 05 LMP It looks like over on my side that we're going pretty well, because all I can see out my left window now is ground.

06 23 23 19 CMP I've got the moon about in the center - -

06 23 23 20 IMP Okay, another one you might have out there now - We're kind of in the north sky again now, Dave, and you're going to see - Alphecca.

06 23 23 34 CDR Gee, I see absolutely no stars out the corner of the left side. I can see some out the top hatch. I think that a little more left roll will help you out.

06 23 23 51 CMP Yes, I think it would. Yes. Now, we're getting some stars.

06 23 24 02 CDR Yes, I think a left roll would be easier.

06 23 24 06 LMP Yes, you should pick up Arcturus and Spica. Arcturus in the upper right, Spica in the lower right.

06 23 24 22 CDR Is that alright, Dave, the way we're going?

06 23 24 24 CMP Yes, that's alright.

06 23 24 39 CC Apollo 9, this is Houston through Carnarvon.

06 23 24 43 CMP Go, Houston; Apollo 9.

06 23 24 46 CC Okay, and situation normal. I couldn't read you very well over Tananarive. I just wanted to verify that Rusty got those steps.

06 23 24 55 LMP Okay, you ready to copy, Stu?

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06 23 24 58 CC Roger. Go ahead.

06 23 24 59 LMP Okay, let me read you back what I got. That was SPS GAGING to AC 1. The MAIN A and B breakers CLOSED on the GAGING and HEATERS. And - -

06 23 25 12 CMP Okay, that's good, Jim.

06 23 25 13 LMP - - PUGS mode to PRIMARY. Slew in test 2 until the oxidizer reads 10.8, and record the fuel, and expect the caution and warning during the burn. And the fuel after slewing was 15.4, 154, and the OXIDIZER UNBALANCE is full-scale decreasing.

06 23 25 37 CC Roger. Very good, Rusty. We copy, and we would like to make two other notes. Do not switch the mode during the burn; go ahead and let it stay in PRIMARY. And we want to emphasize that we do feel you will get caution - at least a caution and warning - -

06 23 36 01 LMP ... here, Jim.

06 23 36 03 CDR Pardon?

06 23 36 04 LMP Do we need it down here?

06 23 36 05 CDR Yes, that's fine.

06 23 36 06 LMP Okay.

06 23 36 26 CMP Gee, that's the - the best alignment we've ever had.

06 23 36 31 CDR Why?

06 23 36 32 CMP Because it's got the - On the first star check, it shows a star almost dead center in the sextant.

06 23 36 38 CDR Oh, oh.

06 23 36 40 CMP I mean, I've never seen one come exactly in the middle before.

06 23 36 50 CMP ... align and I'll give you your pen back to you ...

06 23 36 53 CDR Okay, let me get down here and finish my duty here.

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06 23 37 03 CDR Why don't you pick up the optics, too?

06 23 37 04 CMP Yes, that's a good idea.

06 23 37 33 CDR Hey, would you believe I lost my pen? (Laughter)

06 23 38 02 CDR Would you turn the dump on over there, when you're over there, Dave, please?

06 23 38 05 CMP Okay, dump's ON. Where did you say you put that bracket? Which one is that, now? The LM utility bracket.

06 23 38 12 LMP It's in Jim's pocketbook.

06 23 38 13 CDR It's in A-8 - -

06 23 38 14 CMP Oh.

06 23 38 16 CDR - - A-8 on the far right-hand side. Open that thing up; open the door up there. The one closes to you - the big one. Okay, now, you see that big bag?

06 23 38 24 CMP Yes.

06 23 38 25 CDR It's in there.

06 23 38 26 CMP Okay.

06 23 38 27 CDR Careful. That's holding down a lot of other equipment.

06 23 38 30 CMP Yes. I got it.

06 23 38 33 CDR Okay?

06 23 41 59 LMP Hey, when you count your water, are you supposed to count what you use to reconstitute food, too?

06 23 42 04 CDR I do, yes. I think that's - -

06 23 42 09 LMP Oh. Oh!

06 23 42 15 CMP Hey, amigo, ...

06 23 42 20 CDR You got it? Hey, that's good. Great!

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06 23 42 28 CMP How about that. A new camera bracket. ...

06 23 42 38 LMP Yes, this thing needs to pitch up a little bit more to be perpendicular to the window, Dave, ...

06 23 42 47 CDR I think we better leave the pitch optional depending on which way we get ... with the spacecraft (laughter). Although we could use - -

06 23 42 51 CMP ...

06 23 42 53 LMP Boy, it's a great week for orbit rate torquing.

06 23 42 55 CDR Yes.

06 23 42 56 CMP I could - -

06 23 42 57 LMP There you go.

06 23 42 58 CDR I could pitch it alright.

06 23 42 59 LMP Yes, with that many joints in those brackets, you could use it just like a universal ...

06 23 43 05 CDR Yes, they really are. The lights that go on them are pretty good, too.

06 23 43 12 CMP It's a shame we can't have some of those on the command module, it would sure make operations a lot better.

06 23 43 18 LMP 0 and 2.

06 23 43 19 CDR (Laughter) Hey, that was pretty subtle, Mr. Scott.

06 23 43 23 CMP Well, I just wanted to make a subtle comment for the record.

06 23 43 26 CDR Let's get it for the record.

06 23 43 27 LMP Did you have your mouth close to the mike?

06 23 43 28 CMP Yes, it was very close.

06 23 43 30 CDR ... statement for the record.

06 23 43 36 CMP Particularly when you're trying to - -

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06 23 43 37 LMP What were you talking about?

06 23 43 38 CMP I was talking about the LM brackets and LM lights.

06 23 43 41 LMP The LM utility lights!

06 23 43 44 CMP The LM utility lights.

06 23 43 45 LMP Ohh, is that what you're talking about?

06 23 43 46 CMP That's right.

06 23 43 47 LMP Oh, okay.

06 23 43 48 CMP It's very difficult under the couches to see anything unless you have a flashlight somewhere.

06 23 43 53 CDR But if we had LM utility lights under the couch, we could just use them, and leave them there, couldn't we, David!

06 23 43 57 CMP That's right, then you could just turn the switch on, and you could go find those coolant valves if you're in a hurry and you have an emergency without trying to fumble and find a flashlight somewhere (laughter). If you wanted to, you could even use the brackets for other things. You could use it for camera mounts to take very important pictures, and just - you could even mount extra crewmembers in the LEB with them.

06 23 44 19 CDR (Laughter)

06 23 44 20 CMP That's right. ...

06 23 44 21 CDR So, as a matter of fact, would you please - would you please type this in boldface type? (Laughter)

06 23 44 29 LMP The time is 167:44.

06 23 44 30 CDR/CMP (Laughter)

06 23 44 34 CMP ... 167 hours and 44 minutes of experience.

06 23 44 36 LMP Right. Times three for man-hours. Times three.

06 23 44 41 CDR Shoot, we eat again.

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06 23 44 42 LMP Yea!

06 23 44 43 CMP Time to eat? What the heck do we eat? At 168 hours, it's time to eat.

06 23 44 51 LMP Yes, but we were supposed to wake up a few hours earlier.

06 23 44 53 CDR Oh.

06 23 44 55 CMP But, I mean, if you want to eat, go ahead.

06 23 44 56 CDR So, we woke up 2 hours earlier. We were supposed to wake up 2 hours earlier, but we didn't, so we'll eat 2 hours earlier to catch up.

06 23 45 03 LMP I'm not hungry.

06 23 45 04 CDR I'm not either.

06 23 45 05 CMP Baloney.

06 23 45 07 CDR Why are you eating it, then? (Laughter) The reason you're not hungry is because you've been eating continually since 8 o'clock.

06 23 45 14 LMP Hey, here's the way you do your water count. Let's see, on day 3, I had -

06 23 45 17 CDR/CMP (Laughter)

06 23 45 18 LMP Ohh, 80 waters (laughter).

06 23 45 49 CMP What's the next thing we have?

06 23 45 52 CDR Lunch.

06 23 45 53 CMP No, I mean -

06 23 45 54 CDR We have to load the DAP (laughter). We do a P52 realign ... We get the update here.

06 23 46 05 CMP We're not too far away.

06 23 46 06 CDR We are about 2 hours and 15 minutes before.

06 23 46 09 CMP Listen, we've got to get these things tied down.

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06 23 46 11 CDR Right.

06 23 46 12 CMP See all that loose gear?

06 23 46 13 CDR Right. Do you want to start now?

06 23 46 20 CMP Yes, I'd sort of - I don't know, sometime; but I'd sure like to get -

06 23 46 24 CDR Well, let's go down and give it a little whirl, right now.

06 23 46 28 CMP Do it now; when we get daylight, we can maybe take some pictures.

06 23 46 39 CDR Let's see, if 6 seconds will give you 174 feet per second, 25 will give you 600 feet per second.

06 23 46 46 CMP Whoeee. Here we go again. Yum!

06 23 46 57 CDR I think I'm even going to put my suit pan up and strap in for this one. ... just to see how it works.

06 23 47 12 CMP Oh, tell you what I think I'll start doing: start rearranging the - We've done everything on that page we should do. ... these checklists down in here. ...

06 23 47 55 CMP Hey, Jim.

06 23 47 56 CDR Yes.

06 23 47 57 CMP Since I'm going to be ..., let me try that wide-deadband hold in the DAP.

06 23 48 01 CDR Okay, go ahead. This would be a good time to do it.

06 23 48 43 CMP ... find it - here somewhere.

06 23 48 53 LMP Uh oh.

06 23 48 55 CDR Uh oh, wha - Uh oh, it's starting to get light.

06 23 49 04 LMP Uh oh, we've logged one more day's worth of sleep than we've been up here.

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06 23 49 06 CDR (Laughter)

06 23 49 08 CMP What! (Laughter)

06 23 49 13 CDR Now we should have 6 days left to sleep.

06 23 49 15 CMP No, we should have 7.

06 23 49 18 CDR Oh, yesterday was the seventh. Sure, I logged all my food for the seventh. I thought we were still up there - Hey, that's better. We don't have so far to go, do we? Tuesday, how about that?

06 23 49 28 LMP So, we've already logged 8 nights of sleep.

06 23 49 32 CDR Yes. ...

06 23 49 42 LMP You know, I've got the urge again. I may just break my record.

06 23 49 49 CMP O₂ FLOW HIGH.

06 23 49 51 CDR Must be venting.

06 23 49 53 CMP Okay, you want to kill the vent?

06 23 49 55 CDR Yes, I guess you can.

06 23 49 57 CMP Okay.

06 23 49 58 CDR I don't know what I started down here to do, but I guess I -

06 23 50 04 LMP Now - Let's see, where are all those peaches?

06 23 50 08 CDR Leave it on for just a - just a hair here.

06 23 50 11 CMP Okay, coming back on.

06 23 50 19 CDR Okay, whoops. If you turn it off in about a minute from right now, you're all set. We've got to get rid of these - That's a full one, too. We've got to get rid of these empty boxes of tissue. Where do they go now?. That's a full one.

06 23 50 50 CDR Here. Dave Scott, what did you do with my pen?

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06 23 51 05 CMP

You took mine; I took yours.

06 23 51 07 CDR

You're really a bad apple. Do you have mine? That's what I was afraid of. I was hoping you would say yes.

06 23 51 38 CMP

Okay, you can kill the dump, Rusty, if you haven't already.

06 23 51 49 CDR

...

06 23 51 52 CMP

Okay, ... O₂ FLOW HIGH.

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DAY 8

07 00 21 24 CMP Hey, we have to do a P52. We might as well just load this ...

07 00 21 34 CDR Tell you what I think I'm going to do. I'm going to take these down right now, just in case.

07 00 21 41 CMP ... all the way around the cockpit?

07 00 21 42 CDR ... Yes, indeed. I think it would be a good idea ...

07 00 21 55 LMP 169:38:59, POO. Oh, did we load the DAP?

07 00 22 02 CMP No, ... do that.

07 00 22 05 CDR Yes.

07 00 22 10 CMP ... DAP ... (Laughter)

07 00 22 12 CDR No! We didn't do all that. Call that up again.

07 00 22 15 LMP ... quad selection.

07 00 22 17 CDR Yes, but I - I'd like to get that in there. We're not going to be using any. I want to put the quad selection in right now.

07 00 22 23 CMP Alright. Go ahead.

07 00 22 31 LMP ... 141, 00 ...

07 00 22 52 CDR Let's put that in.

07 00 22 54 CMP Yes, let's put that in. ...

07 00 22 56 LMP ... really had in mind.

07 00 22 57 CDR 6772. ...

07 00 23 14 CDR You got that one. ... Alright?

07 00 23 25 CMP Yes.

07 00 23 29 LMP Okay?

07 00 23 31 CMP Let me check it. That's right.

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07 00 23 36 CDR Okay?

07 00 23 38 CMP Naturally.

07 00 23 39 LMP Naturally, ...

07 00 23 43 CMP Yes. ... Okay? 23 ... 000, plus ...

07 00 24 00 LMP I think you wrote that down, too.

07 00 24 02 CMP Unh-uh.

07 00 24 03 CDR Unh-uh?

07 00 24 04 CMP No.

07 00 24 05 CDR You don't like to do it, do you?

07 00 24 06 CMP No, I really didn't. I really had my ...

07 00 24 07 CDR Huh?

07 00 24 08 CMP I ... every once in a while. Oh, shoot! I just -

07 00 24 14 LMP Yes.

07 00 24 18 CMP ... picture?

07 00 24 20 CDR Yes.

07 00 24 21 CMP Oh. What are we coming up on? Oh, look down here, Jim. Get that island down there. It's beautiful!

07 00 24 26 CDR Look - where, Dave?

07 00 24 27 CMP Right in your window.

07 00 24 29 CDR Yes.

07 00 24 30 CMP Try the window.

07 00 24 31 CDR That's what I just took a picture of here were some of these islands.

07 00 24 33 LMP Oh, isn't that pretty!

07 00 24 35 CDR I don't know; it'd probably be Canaries.

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07 00 24 41 CMP Hey, we're going to be rolling just right - -

07 00 24 43 CDR - - for the intertropical-conversion zone. South 40 degrees?

07 00 24 51 LMP No, we're not. It's at 4 minutes, and we're not going to see it.

07 00 24 55 CDR What?

07 00 24 56 LMP The intertropical-conversion zone.

07 00 24 57 CMP Yes, from the right-hand window, we will.

07 00 24 59 CDR No, we're left - we're left-hand window down here.

07 00 25 02 CMP Huh?

07 00 25 03 CDR We're left-hand window down.

07 00 25 06 CMP Yes, I know; we're left-hand window down. ... out the right-hand window.

07 00 25 10 CDR Intertropical conversion - What time is that supposed to be?

07 00 25 13 CMP 2 minutes.

07 00 25 16 CDR Yes. Shoot, I guess we could roll over. Why don't we roll under?

07 00 25 25 CDR Why don't you log - -

07 00 25 26 CMP ... can't even see it.

07 00 25 28 CDR Yes, you log the - yes - okay. Finish doing what you're doing; I'll go ... here and roll ... Watch your leg on this. Okay.

07 00 25 38 LMP ... get it done.

07 00 25 40 CMP ... in the middle.

07 00 25 48 CDR Gee, look at that.

07 00 25 51 IMP Oh, you ... a point ...

07 00 25 54 CDR Yes. Beautiful.

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07 00 25 59 CMP Get it, Jim?

07 00 26 07 CDR I don't know. Water complex down here is something too, isn't it? Looks like good oceanography. Hey, that looks like tremendous motion. I'll take a couple feet across there. Okay?

07 00 26 22 CMP Okay.

07 00 26 25 CDR Oh, hey! That's really neat, you can see the bottom - -

07 00 26 28 CMP Yes, you really can.

07 00 26 31 CDR You can see how those ships have come across there.

07 00 26 35 CMP 1001, 1002, 1003 - -

07 00 26 36 CDR Hey, look, I can ... Go ahead.

07 00 26 39 CMP - - 1004.

07 00 26 58 CDR ...

07 00 27 03 CMP Okay, we got about 1 minute until we get to that intertropical-zone weather.

07 00 27 08 CDR Do you really?

07 00 27 15 CMP ... see it. I can see it over here.

07 00 27 18 CDR Do you see it over there? Can you see it out - Which way?

07 00 27 20 CMP ... right.

07 00 27 21 CDR You want me to stop rolling, or start rolling?

07 00 27 23 CMP Keep going the way you're going.

07 00 27 24 CDR I'm going left, slightly. Here, you want this camera?

07 00 27 28 CMP Yes.

07 00 27 37 LMP South of south?

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07 00 27 38 CMP No, I can't see south out here. Too bad. You can see it better than I can, if you roll left.

07 00 27 43 CDR Actually, Dave, there's nothing down south of track.

07 00 27 45 CMP No. There's a bunch of stuff here, though. ...

07 00 27 48 CDR Yes, but you know, the intertropical-conversion zone is a bunch of - a great, big, long line of choppy weather.

07 00 27 55 CMP I know, but it's down there.

07 00 27 57 CDR It is?

07 00 27 58 CMP Yes, but it doesn't look that significant to me.

07 00 28 00 CDR Oh, I see it, way down there, huh?

07 00 28 02 CMP Yes.

07 00 28 03 CDR Ah!

07 00 28 04 LMP Dave! Dave?

07 00 28 06 CMP Yes.

07 00 28 07 LMP Just a second. ... There's a kind of pretty picture there - Ooh! Sunlint on the water. Oh, that's great.

07 00 28 28 CMP You getting sunlint on the water?

07 00 28 30 CDR I got some sunlint on the - Oh, here's a whole string of sunlint on the water. Oh, here, hey, give me the cam - give me the - Yes, give me the movie camera. That's what we want, is the sunlint on the water with the movie.

07 00 28 40 CMP Yes.

07 00 28 41 CDR Right along here. What is it - the 75-millimeter? Shoot. Hold that. Six frames a second?

07 00 28 52 LMP ... it's on one.

07 00 28 53 CDR Oh, excuse me. It's on one?

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07 00 28 55 LMP ... on six.

07 00 28 56 CDR Okay, thank you. Oh, this is really great! Let me -

07 00 29 01 LMP Hold it still!

07 00 29 05 CDR It's right along the coast here, and the sunglint is really great. Make sure we don't get into gimbal lock, Dave.

07 00 29 13 CMP I will.

07 00 29 15 CDR How much did they want, Rusty? ... This will make a - Not only will it be a great sunglint picture - picture, it'll be great from the standpoint of looking at the coast.

07 00 29 30 CMP ..., Rusty.

07 00 29 38 CMP Watch your angle, Jim - -

07 00 29 40 CDR What's the matter - Is it - You getting over there

07 00 29 41 CMP - - off the window.

07 00 29 43 CDR Oh, hey, look at that sunglint! That's fantastic!

07 00 29 51 CMP Need to roll left.

07 00 29 53 CDR Yes. No, I don't know what I need to do, really. It looks like the sunglint - it looks like we're aiming right at the sunglint, Dave. Yes, do whatever you think you need to do to make it get where it ought to go. Oh, we're coming across some clouds here.

07 00 30 31 CMP Don't take too much of the window, Jim.

07 00 30 33 CDR No. I think that's all I can take. Well - yes. It looked like I was clear of the window, Dave. Because the sunglint was - was back there. There wasn't any way I could get around that. Get ... the log.

07 00 30 53 CMP Did you log ... the tape?

07 00 30 56 CDR Yes.

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07 00 31 05 CMP ...

07 00 31 10 CDR What? (Laughter) You're going to get me on weight rather than on numerical ones, huh?

07 00 31 29 CMP ... be - Oh.

07 00 31 32 CDR Oh.

07 00 31 39 CDR Oh, hell, that - that's - Get the 70 millimeter. Let me get the 70 millimeter ...

07 00 31 45 CMP Log your 70.

07 00 31 48 CDR That's what I'm trying to do.

07 00 32 07 CDR What number was that one, David? Zero?

07 00 32 11 CMP Yes, that's zero.

07 00 32 18 CDR It was 150, 168, ...

07 00 32 23 CMP What?

07 00 33 13 CDR 168 ...

07 00 33 29 CMP ...

07 00 33 30 CDR I did. Oh! (Laughter)

07 00 33 49 CDR How many did I take? 2 minutes or something like that?

07 00 33 51 CMP Yes.

07 00 34 00 CDR Oh, those were really beautiful sunglint-on-water pictures. Right along the coast, and you could not only - and the sunglint was in such a place that you - also in the frame, I'm sure, we were getting some of the coast of Africa. So you're sort of getting a map of the coast of Africa and the sunglint.

07 00 34 22 CMP ... (Laughter)

07 00 34 33 CDR That's the thing about Schweickart; he never does anything in a small way. Everything is big and

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spectacular. Here's your boot over here, Rusty. I don't see exactly ... Here's your boot. Here comes the coast of Africa again.

07 00 34 58 LMP

Here comes the what?

07 00 35 00 CDR

Here comes the coast of Africa again.

07 00 35 03 LMP

...

07 00 35 14 CDR

I wish you'd give me back my pen, Dave. Oh, there's my pen, up there.

07 00 35 21 CMP

I wonder where mine is?

07 00 35 23 CDR

I don't know. This may be yours. You know what your ... is over there?

07 00 35 26 CMP

Mine's got a little white tab on it.

07 00 35 28 CDR

Has it? I know how I can tell mine - -

07 00 35 34 CMP

...

07 00 35 42 CMP

I think it's time to get ready for the burn.

07 00 35 45 CDR

I think it is, too.

07 00 35 48 CMP

If Rusty ever gets finished.

07 00 35 50 CDR

(Laughter)

07 00 35 51 CMP

Hey, did you log a time on that, Rusty? How long? Seems like you've been down there an hour and 30 minutes.

07 00 36 01 LMP

...

07 00 36 03 CDR

(Laughter)

07 00 36 04 LMP

Boy, from out of the couch to back on the couch, Jim. That's what it takes.

07 00 36 15 CDR

... your feet started to do that because of TPI and TPF?

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07 00 36 31 CMP Hey, it looks like - Oh, my goodness, we're really rolling. Rolling left, which is the wrong way. We go into darkness at 40 -

07 00 37 18 CDR Are these your cinnamon toasted bread cubes, Dave?

07 00 37 20 CMP Help yourself.

07 00 37 22 CDR No, I just wondered if they were yours.

07 00 37 23 CMP Yes.

07 00 37 24 CDR Okay.

07 00 37 35 CDR Tell you what, it looks like we're going to come out in the - we're going to be in the dark here soon. Maybe we ought to put these cameras away, to

07 00 37 41 CMP That's what I'm doing right now.

07 00 37 43 CDR Good boy.

07 00 37 44 CMP That's what I said, I think we ought to get ready for the burn now.

07 00 39 28 CMP Hey, hand me the Hasselblad camera, and I'll put it away.

07 00 39 33 CDR Okay, just a second. Oh.

07 00 39 45 CMP Oh, shoot, ...

07 00 39 47 CDR Yes, it's sort of disorienting when you're upside down, isn't it?

07 00 39 49 CMP Yes.

07 00 40 06 CDR Starting to get into darkness in here.

07 00 40 39 CDR Dave, where did you get this one camera bracket?

07 00 40 42 CMP One goes in U-3 up above your head. The other goes in R-10, over in the right by Rusty.

07 00 40 48 CDR Yes. Do you know where you got this one?

07 00 40 49 CMP No.

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07 00 40 50 CDR Okay.

07 00 40 51 CMP I think that - that came out of U-3. I'm pretty sure, Jim.

07 00 40 54 CDR Yes.

07 00 40 55 CMP The LM - the LM bracket that goes - that started out in U-3.

07 00 41 42 CDR I think I'm going to take these used Kleenex boxes and start putting them back in A-1. I'm not sure how many we even have left. Full, that is.

07 00 42 05 CMP ...

07 00 42 07 CDR Here's one. Now, that's a full one there, isn't it?

07 00 42 11 CMP Yes.

07 00 42 17 CDR The full ones, Dave, we ought to leave someplace else.

07 00 42 21 CMP Let's put everything in A ...

07 00 42 28 CDR Okay, give us something to do afterwards; we can unstow it all again.

07 00 42 38 CDR Oh, there's my friend, Orion. There's my even better friend, Sirius. ...

07 00 43 26 CDR Hey, Dave, we have an extra helmet bag here, too, that we ought to -

07 00 43 30 CMP No room left in that damn compartment.

07 00 43 34 CDR In A-1?

07 00 43 35 CMP Yes, it's all full of that other stuff.

07 00 43 39 CDR Yes, ... lithium hydroxide canisters we didn't have in there before. Can't you stuff the empty ones in there, even?

07 00 43 46 CMP I'm trying to find a better place, that has more room.

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07 00 43 51 CDR U-3 up there has some room in it. It doesn't have anything in it at all, as a matter of fact.

07 00 43 58 CC Apollo 9, Houston. Standing by, Tananarive.

07 00 44 02 CDR Roger, Houston; Apollo 9. Okay, Davey, it's Buzz. You want to start - -

07 00 44 07 CMP Is it really?

07 00 44 08 CDR Yes.

07 00 44 09 CMP Okay, let me put this away.

07 00 44 17 CMP Back on the line.

07 00 44 22 CDR Matter of fact, I might even have your telescope pointing at some stars this time. I'm not so screwed up.

07 00 44 25 CMP Amazing.

07 00 44 28 CDR Rusty, you might want to really glue that helmet down over there.

07 00 44 33 LMP Yes, it's glued with two snaps.

07 00 44 37 CDR Here, you want another strap?

07 00 44 38 LMP No - I - I've got one here. I'll put that on, okay ... Put this in my pocket. You - you want to stic these in the waste bag over there?

07 00 45 36 CDR You see the loose food bag?

07 00 45 39 CMP Yes, but -

07 00 45 40 CC Houston; standing by, Tananarive.

07 00 45 43 CDR Roger, Houston; Apollo 9. We're reading you loud and clear.

07 00 45 48 CC Roger. Same here.

07 00 46 50 CMP Alright. We could do a preferred. How about that? How does that look like on your ball, Jim?

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07 00 46 56 CDR Roll, pitch, and yaw - Looks alright. Go.

07 00 47 03 CMP Okay.

07 00 47 06 LMP Dave, you're going to have Atria out there, and Acrux.

07 00 47 12 CMP Oh my goodness! I sure use them a lot. Okay, Rusty. I'll PICAPAR. Ooh!

07 00 47 25 CDR Yes, and it ought to pick something.

07 00 47 27 CMP Yes, Achernar.

07 00 47 28 LMP There's a little variety.

07 00 47 52 CMP ...

07 00 47 54 CDR Yes.

07 00 47 56 LMP Right out the old front window, we ought to have a longhorn steer there. Hello there, longhorn steer.

07 00 48 00 CMP How - how's your drift rate, Jim?

07 00 48 02 CDR Pretty high. You ready to stop or do you want to keep going?

07 00 48 05 CMP Yes.

07 00 48 11 LMP We had the longhorn steer just a little bit to the left.

07 00 48 15 CDR Just a little bit what?

07 00 48 17 LMP To the left and out the front and down a little bit.

07 00 48 26 CDR Okay, Dave, that's pretty good. Out the front? He must have gone.

07 00 48 32 CMP Yes, you got to get kind of high up to see him, but he's there.

07 00 48 39 CDR Oh, yes, there he is!

07 00 48 58 CMP Here comes the little old moon up.

07 00 49 18 CMP You've still got some pretty good drift, don't you?

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07 00 49 20 CDR No, as a matter of fact, I don't. I have a little bit - a very little bit in pitch. ... in pulse.

07 00 49 24 CMP Oh, man, it's really moving! There you go.

07 00 49 37 CDR There's about 0.001 in roll. (Laughter)

07 00 50 21 CDR You been in and out of P40 and all the way over here already. You've been rolling!

07 00 50 39 CDR Did we do a P30 already?

07 00 50 41 CMP Yes. We did P30 earlier. Okay, that's some ... stuff, isn't it? I got some ... back there. I'm going to get mine in a minute. I only see just one more thing to do.

07 00 51 15 CDR As soon as you finish this, I'm going to pulse on over there to 0, 0, 0, Dave.

07 00 51 19 CMP Okay. Let me run through the star check here.

07 00 51 23 CDR Yes.

07 00 51 26 CMP What time is the burn?

07 00 51 29 CDR Oh, it's about 20 or 30 minutes into daylight. We've got about ... hour.

07 00 52 19 LMP Do you still have your scissors out, Jim?

07 00 52 20 CDR What?

07 00 52 22 LMP Do you still have your scissors out?

07 00 52 23 CDR Do I have my scissors out? Yes, I have them packed away in my pocket.

07 00 52 26 LMP No, okay. I've got mine there. I just thought I'd ask.

07 00 52 45 CMP Okay. Right on old Canopus. How about that?

07 00 52 55 CMP Okay, Jimmy, all yours.

07 00 52 56 CDR Okay. Let's - let's start moving over there. Optics, zero; CMC.

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07 00 53 09 CMP That is a pretty sky out there, isn't it?

07 00 53 16 CDR Why don't we clean up some more of this stuff here while I'm trying to get the right attitude? Then you can do a star check on Diphda. Okay?

07 00 53 21 CMP Yes. That's a good idea.

07 00 53 22 CDR Here's a couple of pieces that could go in the loose food bag, but I don't see the loose food bag anyplace.

07 00 53 31 CDR Here it is, here. No, that's not the loose food bag. That's just an empty bag.

07 00 53 45 CMP Here, Rusty, see if you can ... the exerciser. Wherever that is.

07 00 53 52 LMP Last I saw it, it was floating under the couch there - -

07 00 53 53 CMP Yes.

07 00 53 54 LMP - - Jim left it hanging down there!

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07 00 53 55 CDR It was stowed down here, and I think when I was taking a crap, I knocked it loose. And it went under here - I want to find that; I don't want to get hit with that thing. There it is.

07 00 55 02 LMP Here's a box of Kleenex.

07 00 55 09 CDR Is that an empty?

07 00 55 10 LMP No, that's a full. Almost full.

07 00 55 23 LMP Davey.

07 00 56 25 CDR My goodness, it isn't very long after we come into daylight - ... certainly moved it up here about 10 - about 10 minutes; 169:38.

07 00 56 35 CMP 40 minutes away.

07 00 56 52 CMP Did you find the bits-and-pieces bag?

07 00 56 55 LMP No, I can't find the bits-and-pieces bag. Must be down underneath there, again.

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07 00 57 01 CMP No. How about the tape? Did that already get put away, somewhere?

07 00 57 09 LMP Tape?

07 00 57 11 CMP Should be somewhere; should be small. I think there's something here. Is that garbage?

07 00 57 19 LMP Yes.

07 00 57 20 CMP I can keep pushing it down.

07 00 57 21 LMP Okay.

07 00 57 27 CC Apollo 9, Houston.

07 00 57 30 CDR Go ahead, Houston; Apollo 9.

07 00 57 33 CC Roger. In preparation for a possible fuel cell 2 H₂ purge, request H₂ PURGE LINE HEATER, ON.

07 00 57 43 CDR Roger. They're ON.

07 00 57 48 CC Roger.

07 00 57 56 CC Roger. Request an H₂ purge on fuel cell 2 for 5 minutes at 169 plus 17, and this is to bring the exhaust temperature down.

07 00 58 10 LMP Did you get that time?

07 00 58 12 CDR Roger. Fuel cell purge for 5 minutes at 169:17.

07 00 58 21 CC Thank you. Roger. ...

07 00 58 23 CDR Okay.

07 01 04 43 CMP Okay, Jimmy, there's - a mark on Regulus and a shaft of 318.3.

07 01 04 54 CDR Say again.

07 01 04 55 CMP You're not reading me?

07 01 04 56 CDR I am now. Just then cutting you out.

07 01 05 00 CMP I say the shaft should be 318.3 - plus 318.42.

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07 01 05 07 CDR Okay.

07 01 05 08 CMP Trunnion should be 28.4 at 27.02.

07 01 05 11 CDR Good.

07 01 05 12 CMP 1.4 degrees ...

07 01 05 13 CDR Okay. Okay, back to stowing things.

07 01 05 59 CMP I guess we ought to take everything off the ...,

07 01 06 02 CDR I was thinking about these helmets up here; they probably be alright.

07 01 06 09 LMP If you put forced air through them, Jim, it will them down.

07 01 06 12 CDR Yes.

07 01 06 13 CMP I'm going to take all the tools and all that stu ...

07 01 06 16 CDR Oh yes, yes, yes. I was thinking about the helm They are relatively light and well supported.

07 01 06 25 LMP Need to put a camera somewhere, too.

07 01 06 38 LMP We've got one extra camera here that came over f the LM. Doesn't really have a spot. Maybe I ca jam it in here.

07 01 06 54 CMP ...

07 01 07 00 LMP I don't know if it will fit or not. Will it? N not quite.

07 01 07 05 CMP Hey, how about checklist, Jim?

07 01 07 09 CDR Well, I guess I don't need my big one. Could yo stow it up there on the - -

07 01 07 11 CMP Yes, ... That'll be fine.

07 01 07 15 CDR I want the pad out - -

07 01 07 18 LMP Procedures book - where's the procedures book?

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07 01 07 19 CDR Right here.

07 01 07 23 LMP You can take these, Dave.

07 01 07 28 CMP Okay.

07 01 07 34 CMP How about the flight plan? You want that out?

07 01 07 38 CDR I guess we don't need it out right now. Yes, we can ... it away.

07 01 07 45 CMP These tissue boxes?

07 01 07 47 CDR Yes, I'm going to have to go down and do an inventory of tissue boxes when we finish this burn, and figure out a place to put them all.

07 01 07 55 LMP ..., Dave?

07 01 07 57 CMP No, ... tissue boxes. Ahh! U-2, Rusty - -

07 01 08 19 LMP Hey, there you go.

07 01 08 21 CMP - - stick tissue boxes in there, too, to pad it.

07 01 08 26 CDR Yes. Is there anything else in there now?

07 01 08 31 LMP U-2 or U-3?

07 01 08 32 CDR U whatever it is, U-4.

07 01 08 35 CMP Rusty, I can get it down here.

07 01 08 36 CDR Yes, but there wasn't anything in there last night, Rusty.

07 01 08 38 LMP Hey, Dave, I'll put it right in here. I don't know if the camera's going to fit though, come to think of it. Let me look.

07 01 08 43 CMP I've got a place for the cameras I want, in front of other things.

07 01 08 46 LMP Okay. Stand by. [Thud]

07 01 09 00 LMP No, it's a little too thick for that.

07 01 09 08 CDR Okay, you ready, Dave?

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07 01 09 09 CMP No. Not now. ... Store all this stuff in here.

07 01 09 20 CMP Parts catalogue.

07 01 09 21 CDR My God! That's a smaller compartment than it looks like - that U-3, or 4, or 5, or 6, or 7 - Kind of useless - God, it holds just one tissue box.

07 01 09 33 CDR Here's a bag here. Oh, shoot! That has some tissue boxes - Hey, you know what we could do? We could put these tissue boxes in this bag here and tie this bag down. It's an extra bag. I already threw one empty tissue box in there. Is that an empty one?

07 01 09 49 CMP No. That's a full one.

07 01 09 50 CDR Okay. Well, let's just throw them all in here.

07 01 09 52 LMP Well, I've got one stowed up here - -

07 01 09 53 CDR Dave, would that be easy to stow - just to stow this big bag someplace?

07 01 09 57 CMP What kind - yes.

07 01 10 01 CDR Okay. We've also got a set of long underwear running around loose up here.

07 01 10 04 LMP Yes. That LCG?

07 01 10 05 CDR Yes.

07 01 10 07 CMP Let me stick that in the ...

07 01 10 10 LMP The LCG's?

07 01 10 15 CMP Yes.

07 01 10 21 CDR Shoot, I haven't ...

07 01 10 23 CMP Rusty, the flight plan you can put in R-10, can't you? Or R-12?

07 01 10 27 LMP Yes, yes, I can.

07 01 10 28 CMP Stick it over there. I'd like to have more room here.

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Day 8

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07 01 10 32 CDR I wonder what we're going to do with that R-12 when we get around to reentry?

07 01 10 35 CMP Put it back where it started from.

07 01 10 38 CDR We're going to have to have a fire drill the day before to practice stowing.

07 01 10 43 LMP We could just stow the whole damn thing the night before.

07 01 10 46 CDR Yes.

07 01 10 48 LMP Except for sleeping places and that kind of stuff.

07 01 11 10 CDR Look, I'm going to have to put my feet up.

07 01 11 14 LMP Okay. You got a place there?

07 01 11 16 CMP Yes.

07 01 11 18 LMP Here.

07 01 11 27 CMP Matter of fact, give me - you got another tissue bag up there? I found a place to put that.

07 01 11 31 LMP Well, I got it stowed.

07 01 11 33 CMP Okay, what's in that bag?

07 01 11 52 CDR There's the tape. Oh, I'm glad we had that little burn first. ... after this one.

07 01 12 18 LMP Dave, you might want to put this in there, after you do the stars.

07 01 12 23 CMP Yes.

07 01 12 40 LMP God damn! Boy, your hair will get caught in that - whiskers get caught in this thing. Open out a little bit, and they really pull.

07 01 13 23 LMP Oh, hell, I'm going to have to reroute all my hoses ... do that.

07 01 13 28 CDR Oh, hey, speaking of hoses, pull those hoses down out of the tunnel.

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Day 8

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07 01 13 35 LMP I don't think I'll do that.

07 01 14 16 LMP Okay. Let me see. Anything else floating around up there?

07 01 14 24 CMP Rusty, you had better put your feet all the way up. Your legs are going to get whacked, when we go.

07 01 14 29 LMP Okay. Thank you.

07 01 14 34 CDR Throw that towel up; I'll just stick it up here.

07 01 14 44 LMP Damn these hoses.

07 01 15 16 LMP I think we can probably leave this one where it is.

07 01 15 19 CMP Well, I want to strap them down.

07 01 15 22 LMP Well, I can strap it right here.

07 01 15 26 CMP How long we have, Jim?

07 01 15 27 CDR Just 23 minutes.

07 01 15 29 CMP Whoo!

07 01 15 47 CDR Okay, I'm going to AUTO maneuver us over there now.

07 01 16 32 CMP Lots of things hanging loose.

07 01 16 35 CDR Yes. I think the stuff in there will be okay.

07 01 17 14 LMP Okay. Purge on fuel cell 2.

07 01 17 18 CDR Okay.

07 01 17 24 CDR I had difficulty ...

07 01 17 26 LMP Well, they want it 5 minutes, right?

07 01 17 28 CDR ... boost on it, would you?

07 01 17 31 CMP Rusty, what do you want to do with this?

07 01 17 33 LMP I'm going to use it. Got to read it.

07 01 17 40 CDR Looks pretty good, Dave.

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Day 8

699

07 01 18 30 CMP Put everything away?

07 01 18 33 LMP Yes. The only thing we have here is just one piece of food, which I'm going to throw away if you don't want. Just one bar here, but that looks like it's pretty strong. It's pinned up there. You want to put it back? Oh, it fits over in the left-hand side there, doesn't it?

07 01 18 59 CMP Yes. Thank you.

07 01 19 50 LMP You want this, Dave?

07 01 19 54 CMP Yes. I don't think there is any shortage of cinnamon toasted bread.

07 01 20 16 CMP What's the time of the burn, Jim? (Cough)

07 01 20 17 CDR Burn time is -

07 01 20 20 CMP Let me give you the pad. I'd like to copy down my standard rule - -

07 01 20 25 CDR Sure.

07 01 20 26 CMP - - copy - -

07 01 20 27 CDR Why don't you pass it back? I want to get a couple of things.

07 01 20 28 CMP Yes.

07 01 20 53 CDR ... you're going to get a bunch of MASTER ALARMS on the PU SENSORS, just tell me; don't sweat it, if that's what it is.

07 01 21 00 CMP Okay.

07 01 21 01 CDR I think one of these ...

07 01 21 26 LMP Say, Jim?

07 01 21 27 CDR Just a minute.

07 01 38 47 LMP 13.

07 01 38 50 LMP 10, 9, 8, 7, 6, 5, proceed, 3, 2, 1 -

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Day 8

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07 01 39 00 LMP IGNITION. Wheel! Got them?
07 01 39 03 CDR Got two of them.
07 01 39 04 LMP That's good.
07 01 39 06 CDR Okay. No sweat, good. Everything's just fine.
07 01 39 10 LMP 15 seconds.
07 01 39 14 CMP DSKY's good.
07 01 39 15 LMP 10.
07 01 39 16 CMP DSKY looks good.
07 01 39 17 LMP 9, 8, 7, 6, 5, 4, 3, 2, 1 -
07 01 39 26 LMP SHUTDOWN. Okay. DELTA-V THRUST, NORMAL, OFF.
07 01 39 29 CDR DELTA-V THRUST, NORMAL, OFF.
07 01 39 31 LMP Okay - GIMBAL MOTORS, four, to OFF.
07 01 39 34 CDR Okay, PITCH 1, PITCH 2, YAW 1, YAW 2.
07 01 39 42 LMP All verified; TVC SERVO POWER, 1 and 2, OFF.
07 01 52 10 CDR Hey, Mr. Evans, I have a little bit of news for you.
07 01 52 13 CC Roger; go.
07 01 52 15 CDR Do you realize that that was the 17th propulsive maneuver that we've performed on this flight, not counting the S-IC, the S-II, the three S-IVB's, and the APS burn to depletion?
07 01 52 27 CC That's right, by golly.
07 01 52 32 CDR Pete, don't we have a lot of useless data up here?
07 01 52 34 CC (Laughter)
07 01 52 45 CC Antigua at - Ascension at 58.
07 01 52 48 CDR Okay.
07 01 52 53 CDR Hey, Ron, are you still there?

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Day 8

701

07 01 52 57 LMP Dropped ...

07 01 52 58 CDR Yes. Sounded like we dropped just as we ...

07 01 53 02 CMP You know what I'm going to do with that? I'm going to take a picture of that.

07 01 53 09 CDR Going to have to let it settle for a while.

07 01 53 11 CMP Hey, let's spin it, see if we can - Okay, there you go.

07 01 53 15 CDR (Laughter) You better take a picture when it's spinning because it's - (laughter).

07 01 53 18 CMP Well, no, it's okay. It still ... in the middle.

07 01 53 22 CDR Let it settle for a while and get into a recognizable bubble.

07 01 53 26 LMP Yes.

07 01 53 29 CMP It's pretty recognizable. Here's your camera back, Rusty. You got a handle, too?

07 01 53 40 LMP Yes.

07 01 53 41 CMP Better take it off and stow it.

07 01 53 43 LMP Huh?

07 01 53 55 CDR You know, I thought we were going to go over Africa again.

07 01 54 19 LMP You better start taking that perigee torque down ... 98.

07 01 54 27 CDR Listen, we've been getting something where we were.

07 01 54 57 LMP Oh, boy, goody, goody, gumdrops.

07 01 55 01 CDR Hey, Rusty. Want me to hold it for you?

07 01 55 29 LMP Actually, that puts it against a brighter background - Well, it might be -

07 01 55 51 CDR Okay, you want me to hold it while you take a picture? Okay.

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DATE *2/13/72*
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July 1976

702 Day 8

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07 01 56 02 LMP How far away am I going to be now? I'm not even 3 feet away - Let me scoot down a little. Okay -

07 01 56 18 CMP You got enough light? Need some light?

07 01 56 21 LMP A little bit, yes. That about 3 feet?

07 01 56 24 CMP Yes, just about.

07 01 56 29 LMP Okay, now that was number 150.

07 01 56 33 CMP You ought to save it (laughter).

07 01 56 34 CDR (Laughter) Hey, zero-g again. ...

07 01 56 44 LMP We're out of film on MAG A.

07 01 56 47 CMP Are you really?

07 01 57 01 CDR Tell you what, we're heading down. I think I shall just stop our roll in order to view the world go by.

07 01 57 14 LMP Hey, you don't get food for your friends, huh?

07 01 57 16 CMP I tossed a whole bag up there.

07 01 57 17 LMP Did you? What did you say?

07 01 57 20 CMP I tossed a whole bag. Don't need any smart remarks. Look around first. Two bags - didn't I throw you two bags?

07 01 57 27 CDR I don't know.

07 01 57 31 CMP Two full bags of food - for my friends.

07 01 57 36 CDR I have a feeling that a lot of the food in that bag over there isn't going to get eaten.

07 01 57 40 LMP You do?

07 01 57 42 CMP The grab bag?

07 01 57 43 CDR Yes. Oh, this is spaghetti; ... some of that.

07 01 57 50 CMP Did you want a grab bag, Russell?

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Day 8

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07 01 57 52 LMP I don't know; is this the grab bag? Yes, it's th
grab bag.

07 01 57 54 CMP Would you like to pull ... grab bag.

07 01 57 58 LMP Let me see what we got on the menu.

07 01 58 08 CMP Jim, that wasn't very good. Now, you're going to
in gimbal lock.

07 01 58 22 CDR It sure takes a long time to get across the Atlan
(laughter) - takes an even 10 minutes.

07 01 58 33 CMP That grab bag keeps getting grabbier.

07 01 58 36 CDR Grubbier or grabbier?

07 01 58 38 CMP Grubbier, yes.

07 01 58 47 CDR Oh, my lips are really getting dry.

07 01 58 50 CMP ...

07 01 58 53 CDR (Laughter) My lips or yours?

07 01 59 04 CMP Okay, you got water.

07 02 06 35 CDR - - before we get there. It also looks like it's
going to be undertasked.

07 02 06 49 LMP ... 2, 3 ...

07 02 06 51 CDR "Unstow and install the SO 65 CWEA."

07 02 07 08 LMP Well, I'll go down - down and get ...

07 02 07 33 CDR Getting my foot all wet in this water (laughter).

07 02 08 20 LMP Ahh! I'll tell you what, David - -

07 02 08 21 CDR ...

07 02 08 22 LMP - - why don't you let me do the alignment? Unless
you can get over there.

07 02 08 27 CMP No, I can get it. No problem.

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Day 8

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07 02 08 52 CDR Okay, Rusty. Why don't you get it out, and throw it up here, and I'll - -

07 02 09 00 LMP Ooh!

07 02 09 05 CMP Ooh! Don't drop it.

07 02 09 07 LMP Ooh! Ay! Yi-yi! ...

07 02 09 48 LMP Tell you what, Dave. Let me sneak underneath, and I'll be out of your way completely. Boing. Okay, I'll go up to my ... spot.

07 02 10 06 CMP ...?

07 02 10 16 CMP As a matter of fact, you know what? We ought to get some pictures of me doing an alignment this time and I'll do one upside down!

07 02 10 22 LMP (Laughter) I bet that will be fun!

07 02 10 24 CMP How about that! Think that would go over? They want pictures of crew activity.

07 02 10 35 LMP David, your great big bubble ... is floating all over the place.

07 02 10 46 CMP Throw it back here. I'll get it, or try and get it.

07 02 10 53 LMP Here's a red food bag. Did you get that out, Jim?

07 02 10 58 CDR I only had one over there.

07 02 11 00 LMP Wonder where that - -

07 02 11 01 CMP Oh, the door is open.

07 02 11 09 CDR Dave, you ... that thing straight up and down?

07 02 11 22 CMP No, it's not. It has to be - Rotate clockwise - -

07 02 11 28 CDR I don't know which way that is. Is that that way - -

07 02 11 31 CMP - - to you. That's right. They want it clockwise, relative to you. There you go. Now a tad counter-clockwise. A little bit more. Line it up with that ... bar. There you go; you're alright.

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Day 8

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07 02 11 59 LMP Whoop! I lost my footing over there.

07 02 12 08 CDR I think that's pretty good now.

07 02 12 09 LMP Okay.

07 02 12 12 CDR Try standing - stand back and see what it looks like

07 02 12 22 LMP ... What's that for?

07 02 12 23 CDR Gimbal lock. We're out of it. Dave, take a look at that and see if it looks okay.

07 02 12 32 LMP You really can tell better from up here on that, Jim. You can't see all that - -

07 02 12 34 CMP You can't see what? You want me to line it up again? Does it look pretty much aligned?

07 02 12 44 CMP Yes. It looks pretty good.

07 02 12 45 CDR Okay!

07 02 12 47 CMP I don't even think it makes that much difference. If it goes in the hole, push it!

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07 02 12 55 CMP ... experiment. ...

07 02 13 01 LMP The bubble experiment? Here it is.

07 02 13 04 CMP The bubble experiment.

07 02 13 06 CDR I need the exerciser. I want to exercise.

07 02 13 08 CMP You going to exercise now?

07 02 13 11 CDR Why not? Where did you put it?

07 02 13 17 CMP In A-5.

07 02 13 21 CDR Okay. I'll get it.

07 02 13 23 CMP I'm going to do my alignment before you do your exercise.

07 02 13 25 CDR No, no. I'm not going to exercise right this second. I just want to know what it is, because I'm going to get ready to exercise.

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Day 8

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07 02 13 29 CMP I put it in A-5. There's room in there, and that's a heavy thing, sort of.

07 02 13 34 CDR Okay. Is it time to eat again?

07 02 13 41 LMP I need to eat lunch. Did you eat lunch?

07 02 13 43 CDR I don't remember. I've just been sort of eating continually.

07 02 13 47 LMP Well, I'm not very hungry, even.

07 02 13 57 CDR Oh, good! Banana pudding! Oh. Spaghetti and meatballs, banana pudding - -

07 02 14 13 CMP Do you want to watch these, Jim?

07 02 14 16 CDR Do I have a what?

07 02 14 17 CMP Would you watch these with me, please?

07 02 14 19 CDR Okay. Yes. Actually, I can see these two.

07 02 14 26 CMP Yes. All GO.

07 02 14 37 CDR Think I'd better get our update?

07 02 14 49 CMP Panels on? Shoot, I've already had this one three times. These flights ...

07 02 15 44 CDR What's the matter?

07 02 15 49 LMP ... on it when we started out, but it's - That's a funny-looking number, isn't it?

07 02 15 53 CMP What do the rest of them say?

07 02 15 54 LMP I don't know.

07 02 15 56 CDR What's the number?

07 02 15 57 LMP 70.

07 02 16 04 CMP This one's 70, also.

07 02 16 08 LMP This says 70, also.

07 02 16 11 CDR Yes, it means we've taken 70 pictures.

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Day 8

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07 02 16 13 CMP Hey, we - -

07 02 16 16 CDR We have a 25, you know. What's that? Oh, good. Are you looking for the T-align time, Dave?

07 02 16 30 CDR/LMP 170:48.

07 02 16 33 CDR 170:48.

07 02 16 34 LMP That's right.

07 02 16 55 LMP Going to take a star sight right now?

07 02 16 57 CDR Yes, we might as well.

07 02 16 59 CMP I think it's safer.

07 02 17 03 CDR I think so, too.

07 02 17 04 CMP (Laughter) I think so, too! And it's all ready to go; I'll run down and take a look to make sure, but ...

07 02 17 13 CDR ... I wonder if we're really wasting - aren't just wasting that thing.

07 02 17 16 CMP That test shot?

07 02 17 17 CDR Yes.

07 02 17 18 CMP Yes.

07 02 17 19 CDR We don't have any spare batteries for it; if it doesn't work, there's nothing we can do about it anyway.

07 02 17 26 CMP I think so, too.

07 02 17 30 CDR Everything's plugged in. That's really a nice rig.

07 02 17 32 CMP Jim, how does that look on your ball?

07 02 17 34 CDR Roll, pitch, and yaw. That's actual - that's really superb. I yawed over here close enough to gimbal lock, and it put me right back on the bellyband.

07 02 17 40 CMP Okay. Ready? Go!

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07 02 17 47 CDR Gee, that's really more like it. About 180 degrees in pitch, about 60 degrees in yaw, and about nothing in roll.

07 02 17 56 CMP Really?

07 02 17 58 CDR Yes. We went about as far on that one as we could go. That was just to test our ingenuity, I think.

07 02 18 41 CMP (Sneeze) Ahh! Almost hurts to sneeze.

07 02 19 10 LMP Where's that full food bag? Is it in here?

07 02 19 13 CDR Yes. That's where it was.

07 02 19 15 CMP Is that it?

07 02 19 17 LMP Yes. Do we have all of today's meals in here?

07 02 19 21 CDR No, I just grabbed a bunch out. Want a couple more?

07 02 19 24 LMP No - Wait a minute - -

07 02 19 25 CDR ...

07 02 19 39 CDR Man, would I like some clam chowder right now? Whoeee! Some good soup would really hit the spot, and I don't understand why they can't make it - -

07 02 19 45 LMP Boy, it really would. You'd think that's the simplest thing in the world to make, wouldn't you?

07 02 19 50 CDR Yes, and with so many dried soups on the market, now, you know, you don't have to go out there and make a technological breakthrough. Might be a financial one. A 50-cent soup bag instead of a 200-dollar one. (Singing) How many balls you get that time?

07 02 20 33 CMP You know, I've made - Those were two of the best marks I've made, and I got four, ... one. ... when you got rates in there, there's no way to get less than ...

07 02 20 43 CDR Do I have rates in it?

07 02 20 45 CMP Yes. Oh, yes, yes -

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Day 8

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07 02 20 47 CDR Yes, as a matter of fact, I had - I had - -
07 02 20 50 CMP Boy, I had both those really nailed.
07 02 20 52 CDR - - I had pitch and yaw both in there.
07 02 20 54 CMP Blame it on the CDU's. Go ahead.
07 02 20 56 CDR Roll and pitch in there. I didn't know you were
that kind of guy, David. Blaming it on everybody
else all the time.
07 02 21 07 CMP Only way I could get out of it.
07 02 21 16 LMP Just because it's legitimate doesn't mean it's
honorable.
07 02 21 20 CDR (Laughter) The only way David could think to make
that program stop was to hit that mark button a
couple of times. (Singing)
07 02 22 17 LMP What we need up here is some music!
07 02 22 20 CDR Did you really lose your tape?
07 02 22 22 LMP Yes, I think so. I can't find it.
07 02 22 25 CDR Where did you have it?
07 02 22 27 LMP I had it in my ... white room, put it in my lower
pocket on my suit; and I've looked and it's not
there. Of course, the other thing I didn't do is
take my EVA PPK kit over with me that day.
07 02 22 52 CDR Oh, didn't you? (Laughter) Oh, well. Can't have
everything.
07 02 22 58 LMP Yes. The important thing got done, I guess.
07 02 23 09 LMP Third star check works.
07 02 23 11 CDR Good. Yes, yes, yes.
07 02 23 18 CMP I'll tell you, one thing I'm learning on this trip
is the southern stars.
07 02 23 21 CDR Yes. We always use that, don't we?

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Day 8

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07 02 23 23 CMP Yes, we've had them every time. Enif, Menkent, Acrux, Atria, and all these guys.

07 02 23 30 CDR Yes, I know. Wonder why that is?

07 02 23 38 LMP It does seem - it does seem much more than random.

07 02 23 43 CMP I'm glad we spent all that time in the planetarium. You know?

07 02 23 48 LMP Really helped. Wonder if it's the time of the year or something?

07 02 23 56 CMP Yes! You know, where the earth is relative to the sun, and on its axis and all that fancy astrology stuff.

07 02 24 03 LMP/CDR (Laughter)

07 02 24 05 CMP Who your friends are and all that.

07 02 24 09 LMP What group are you associated with? Oh, boy, I opened this whole thing up, and there's nothing in here but a ... butterscotch pudding? Phew!

07 02 24 22 CDR Shoot, just throw it in the other bag.

07 02 24 24 LMP What do you got for it?

07 02 24 28 CMP ...

07 02 24 30 LMP You got my grape punch yet?

07 02 24 34 CMP I'm going to try the cream of chicken soup. How that?

07 02 24 38 CDR I had some the other night. It wasn't too bad, it wasn't nearly as good as it could have been.

07 02 24 43 CMP It wasn't as good as it sounded, huh?

07 02 24 44 CDR No.

07 02 24 48 CMP I'm going to try it, and see what happens. See if it all comes out.

07 02 25 04 CMP You know, I thought every meal had chewing gum in it, but it doesn't.

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Day 8

711

07 02 25 07 CDR It doesn't?

07 02 25 08 CMP No.

07 02 25 19 LMP You say you wanted a grapefruit drink, Jim?

07 02 25 21 CDR No.

07 02 25 26 LMP I'm almost getting to the point where I prefer water to some of the juices now.

07 02 25 30 CDR Well, if you don't want it, I'll take it.

07 02 25 31 LMP Well, that's what I mean.

07 02 25 32 CDR Yes! Thank you. I guess I'll have to trade you something. How about a - a grape drink? (Laughter) How about some banana pudding?

07 02 25 51 LMP No, thanks. I had my fill of bananas for the flight last night. Man, that stuff is really overdone.

07 02 26 01 CDR I tell you. It's a lot better if you mix it with a lot of water, and make it more like a drink than a pudding.

07 02 26 07 LMP That would make it last even longer.

07 02 26 09 CDR Yes, but it's a lot thinner, and you don't even have to chew it. More like a banana milkshake than a banana. (Singing)

07 02 26 37 CMP Okay. Where is our update book? Can we get that out?

07 02 26 41 CDR Yes. We're going to need the update book, Dave.

07 02 26 43 CMP Sure.

07 02 26 45 CDR Yes.

07 02 26 47 LMP (Singing) Oh, here we go, again.

07 02 27 04 LMP Here's a ... gunk on it for you, Dave? (Singing) I want to do one of those SO 65's in the ...

07 02 27 45 CDR Yes, me too. But I'll lay you odds; you don't do any that way.

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Day 8

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07 02 28 05 CDR Well, I'm ready for bed.

07 02 28 16 LMP Ready for bed? You've been up 6 hours and 15 minutes.

07 02 28 20 CDR Well, I'm ready for bed.

07 02 28 23 LMP Boy. ...

07 02 28 38 CDR How's the old sick fuel cell 2?

07 02 28 41 LMP Old sick cell - fuel cell 2, T_{ce} is going back up and the performance is staying pretty good today. It is dragging its share of the load.

07 02 28 58 CDR Was that fuel cell light on before, when they - they did the purge?

07 02 29 01 LMP No, it was just not quite on. I think they thought it was going to come on, so -

07 02 29 08 CDR We only got one MASTER ALARM during the burn there, didn't we?

07 02 29 11 LMP Yes.

07 02 29 13 CDR It came on, and went out again, didn't it? Not the MASTER ALARM, but the warning light. It looked to me like it came on and then went out, and then stayed out.

07 02 29 23 LMP Well, it shouldn't have. Frankly, I don't know whether the warning light went on or not.

07 02 29 33 CMP Beef bites, blaugh!

07 02 29 35 LMP Davey, are you doing something useful, or can you get me some hot water?

07 02 29 37 CDR Hey, I'm going down and get some - -

07 02 29 41 LMP Okay. ... the opposite one ...

07 02 29 46 CDR 5 ounces. You want it by the menu?

07 02 29 50 LMP Huh? Yes. Yes, 5 is good.

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Day 8

713

07 02 29 57 CDR Davey whipping up his camera setup again? What are you going to use as a sun filter?

07 02 30 05 CMP ...

07 02 30 12 LMP Hey, Dave, you ought to take a picture of the sun.

07 02 30 14 CMP ...

07 02 30 16 LMP Hey! Good idea. You'll need AUTO optics?

07 02 30 19 CMP ...

07 02 30 25 CC Apollo 9, Houston through Carnarvon.

07 02 30 29 LMP Roger, Houston. Read you 5 square.

07 02 30 32 CC Roger. I have an SO 65 update.

07 02 30 35 LMP Okay. Go ahead. We're ready to copy.

07 02 30 39 CC Roger. Inertial angles: 180.00, 181.20, all zips; GET is 171:24:00; your T-align was 170:48:00; earth ORB rate, and the rate is 0.066 degrees per second; your ORB rate ball angles; 180, 327.5, and zero. The site is the Amazon River mouth, 171:29:26, 20, and - -

07 02 40 37 CDR (Singing) ... How many are you taking from there, David?

07 02 40 47 CMP Okay. It's all yours.

07 02 40 56 CDR It didn't take long to get the things all back out again, did it?

07 02 41 00 CMP Huh?

07 02 41 01 CDR It didn't take long to get things all back out again, did it?

07 02 41 08 CMP I like getting things out. Yes, we've got to get one more thing out and that's the crew log.

07 02 41 11 LMP Crew log? Get all that junk out.

07 02 41 20 LMP Grapefruit drink! More grapefruit drink!

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Day 8

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07 02 41 23 CDR Maybe that's mine. As a matter of fact, I had two over here a minute ago, and now I only have one. I also had a banana pudding ... unknown juice.

07 02 41 44 LMP Jimmy, it looks like you're going to be taking pictures - Whoops! I ... my count again.

07 02 41 56 LMP 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18. That's where you're supposed to start, at 18?

07 02 42 08 CDR Yes.

07 02 42 10 LMP Okay, you're going to be taking pictures - We're going to come right across the north tip of the Gulf of California and take some pictures up towards Los Angeles -

07 02 42 20 CDR Do we have the high orbit there, or the second high orbit?

07 02 42 23 LMP Second. I don't know - I wonder what their big deal is? We've only got 10 million pictures of that area.

07 02 42 32 CDR Which area is it?

07 02 42 34 LMP It's from - it's the sweep across the southern U.S.

07 02 42 37 CDR Oh, really? We'll see all those interesting places.

07 02 42 42 LMP Yes. It's a good - it's a damned good sweep, because we also just missed Cuba. We come across the southern tip of Cuba.

07 02 42 49 CDR We'd better find a better place to put that - We really need that camera mounted in one of these side windows here. Okay, I wonder if it'll fit over there. Yes, it will.

07 02 42 57 LMP That one?

07 02 42 58 CDR Sure.

07 02 42 59 LMP The 75-millimeter camera?

07 02 43 00 CDR Yes, the 75-millimeter camera. It won't fit on this side; it's pointing in the wrong direction.

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Day 8

715

07 02 43 07 CMP What's the right direction?

07 02 43 08 CDR Well, I just can't get the 75-millimeter lens mounted on the camera so we can mount it in there.

07 02 43 13 CMP But, Jim, either way ...

07 02 43 15 CDR I know it, I'm trying to figure out some way of getting the God-blessed camera up there! I don't want - -

07 02 43 19 LMP That's not a good way!

07 02 43 20 CMP Where would you like to have the camera?

07 02 43 21 CDR I'd like to have the camera pointing out one of these two windows.

07 02 43 24 CMP I bet we could probably figure that out.

07 02 43 26 CDR Good! Hurry up, though!

07 02 43 27 CMP Want me to figure that out for you?

07 02 43 28 CDR Yes, okay.

07 02 43 29 LMP Why don't you just pass it up while you eat? And we'll figure that out.

07 02 43 31 CDR Turn off those ... - -

07 02 43 32 CMP ... you'll never be able to get it.

07 02 43 36 CDR Those things have to fit together.

07 02 43 40 CMP Okay? All you have to do is flip over, head first, downwards, and take a ... But I'll get it for you. Just a minute.

07 02 43 47 CDR Where are they? Which - -

07 02 43 48 CMP I'll get them.

07 02 43 49 CDR I can get them.

07 02 43 50 CMP No, you're fine. You don't know where they are. Okay, here, get up there, and I'll pass you the whole box.

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716

Day 8

~~CONFIDENTIAL~~

07 02 44 09 CDR Maybe we'll make a technological breakthrough here today.

07 02 44 16 LMP Which way - They want them north (singing) - We're going to be upside down, and f:4 - -

07 02 44 25 CMP ... for you, Jim. Matter of fact, I -

07 02 44 29 LMP They want sequence camera pictures, pointing north.

07 02 44 31 CMP Yes.

07 02 44 32 CDR Looks like the easiest way to do that, is just mount it down the X-axis and point the spacecraft over there.

07 02 44 36 CMP No, I think there's an easier way to do it. Mount it in the side window, Jim.

07 02 44 39 CDR Yes, what - -

07 02 44 40 LMP Hey, Jim, the easy way is to - We've only got a few minutes to set up that orbit rate, so why don't we just go over that part of state in orbit rate also, and then take out the side window? Because this side window looks north. Then we're all set up for the SO 65.

07 02 44 58 CDR I don't like that idea - -

07 02 44 59 LMP Okay.

07 02 45 00 CDR - - I didn't think of it. I'll think of another one

07 02 45 07 LMP ...

07 02 45 11 CDR You're as bad as David. Hey, this is a real challenge. I don't understand what the hell's wrong with this. I know that this thing fits in that window.

07 02 45 25 CMP No, that's an untruth, Jim. You know that it's supposed to fit.

07 02 46 16 CDR I just don't understand that. I just don't understand it.

07 02 46 20 CMP Hey, that's ...

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Day 8-

717

07 02 46 40 CDR There must be some way we can make that mother work.
07 02 46 45 CMP ...
07 02 46 52 CMP ... exactly the way I had it the other day ...
07 02 46 59 CDR ... It's going to go on now! It's going to fit!
Turn it over there. Isn't it?
07 02 47 04 LMP No, ...
07 02 47 19 CDR David is fixing the 75-millimeter lens for it.
07 02 47 27 CMP And, the 75-millimeter lens is fixed, gang.
07 02 47 30 LMP Odd-job did it again!
07 02 47 31 CDR (Laughter)
07 02 51 16 CMP Do we get a pin for the 10 000 Club?
07 02 51 18 CC Hey, that's right. How about that?
07 02 51 24 LMP I'm afraid that Borman and those guys got us beat.
07 02 51 30 CMP That doesn't mean we can't get in the club.
07 02 51 33 LMP Hey, Dave, as a matter of fact, you know, if they
gave us vectors, unit vectors, you could look at
them through the sextant with AUTO optics.
07 02 51 43 CDR Yes.
07 02 51 44 LMP That'd be a better way to do it.
07 02 51 45 CMP Sure would be.
07 02 51 47 LMP Because, you know, the chance of seeing them with
your eyeball is like nothing.
07 02 51 50 CMP It's like nothing. And I agree.
07 02 51 54 LMP Do you want to try that for a funsies?
07 02 51 56 CMP Sure; actually - -
07 02 51 57 LMP Let me ask them at Hawaii.

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718 Day 8

~~CONFIDENTIAL~~

07 02 51 58 CMP Okay. Maybe he's still there. Is he still there?

07 02 52 02 LMP No. No.

07 02 52 03 CDR ...

07 02 52 04 CMP Let's see. What the hell is a ...? That's Capricornus. ...

07 02 52 19 CMP Listen, Jim. Let me do something for you here.

07 02 52 22 CDR Go ahead.

07 02 52 23 CMP Where did you put that bracket for the camera?

07 02 52 25 CDR I ain't put it anyplace.

07 02 52 27 CMP Where'd I put the bracket, then, Jim?

07 02 52 29 CDR I'll look.

07 02 52 49 CMP Why don't I hold the camera while you're looking?

07 02 52 51 CDR Mmm.

07 02 52 52 CMP Gee, Jim, you forgot the power tool. But you did pretty good. We'll get you learned how to unstow things yet.

07 02 52 58 CDR I need more practice at it. You guys never let me play with it.

07 02 53 00 CMP Oh, no - No, well, that's what I was thinking.

07 02 53 15 CDR (Singing)

07 02 53 23 CMP How much fuel you think you'll blow on this, Commander?

07 02 53 25 CDR How much fuel are we going to use?

07 02 53 29 CMP Oh, let's see.

07 02 53 32 CDR We're not going to use very much.

07 02 53 35 CMP That's a very reasonable sum! Whatever that is.

07 02 53 39 CDR (Singing)

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Day 8

719

07 02 53 49 CMP

Now, where did I put that thing? Didn't I give it to you to put - -

07 02 53 52 LMP

R - -

07 02 53 53 CDR

You gave it to me to put in the U-4 - I mean 3, but we already had one in U-3, and I think Rusty took it and put it - took it, and I think he went back and gave it to you - or put it in A-7 himself.

07 02 54 04 CMP

Okay.

07 02 54 06 LMP

Hold it, now. Which bracket?

07 02 54 07 CDR

The window bracket.

07 02 54 09 LMP

Oh, oh, oh, I thought you were talking about that LM bracket.

07 02 54 11 CMP

No, the LM bracket, I know where that is.

07 02 54 16 LMP

I know where the other one is.

07 02 54 18 CMP

Between us, we know where both brackets are.

07 02 54 36 CDR

(Singing)

07 02 54 58 CDR

You know, I think the only way we're going to be able to do it is out the side window. I had an extra 5 minutes in there that we weren't - that we don't have.

07 02 55 08 LMP

Okay. Well, look, Jim, I don't want the bracket.

07 02 55 10 CMP

No.

07 02 55 11 CDR

I'm going to get the bracket out and put it up here though.

07 02 55 12 CMP

Just mount it in the side window, Jim.

07 02 55 13 CDR

What?

07 02 55 14 LMP

Just mount the camera in the side window. Hand held, it won't - -

07 02 55 16 CMP

Here you go. Here's your bracket. Now I need the LM bracket.

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720 Day 8

~~CONFIDENTIAL~~

07 02 55 29 CMP Oh, I can feel it. We went up and came down again with my ears. You feel that?

07 02 55 33 CDR (Laughter)

07 02 56 05 CDR What happened there?

07 02 56 17 CMP What happened?

07 02 56 19 CDR ... I had my hand right on the stick, like this, so I know you didn't hit it, but -

07 02 56 26 CMP I didn't hit it or anything.

07 02 56 28 LMP Okay, you're going to get the orbit-rate attitude, here, Jim?

07 02 56 33 CDR Yes, I'm going - I'm going to go around and - and put it in the orbit-rate attitude, and orbit rate in the attitude that we would be in, in PULSE, so that we're only going to be just a few degrees away from it when we start going. Here - here's what we're going to have to do, Dave. You're going to have to take and - -

07 02 56 47 CMP It's going to be right - -

07 02 56 48 CDR - - load up the whole thing, and get ready to do it. We'll have about 5 minutes from the time we take - from when we stop taking those frigging pictures, until - -

07 02 57 00 CMP Until what?

07 02 57 02 CDR - - we have to start that ORB rate torquing, and I'll be ready, at about the right attitude, there.

07 02 57 08 CMP Okay.

07 02 57 09 LMP You don't think it's worth setting it up first, huh?

07 02 57 11 CDR No, I don't think - -

07 02 57 12 CMP Hey, it's a good attitude we've got right here, Jim.

07 02 57 15 CDR You don't have any real good luck setting it up first.

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~~CONFIDENTIAL~~ Day 8

721

07 02 57 18 LMP Oh, I see.

07 02 57 21 CMP Well, what'd he give you? 27.5 and zero?

07 02 57 22 CDR Right.

07 02 57 23 CMP 183, 27.5, and zero.

07 02 57 25 CDR That's the local vertical one.

07 02 57 26 CMP Yes, right. That's where I'm going to fly the thing.

07 02 57 33 CDR There you go.

07 02 57 34 CMP Okay.

07 02 57 35 LMP What was the frame rate and all that, Jim?

07 02 57 38 CDR It was 6 frames per second.

07 02 57 42 LMP Okay.

07 02 57 46 CDR You have some way of mounting it over there?

07 02 57 47 LMP Yes.

07 02 57 48 CMP Yes.

07 02 57 50 CDR Make sure that it doesn't shoot too far out to the side, though.

07 02 57 54 LMP I'll do my best.

07 02 57 56 CDR Pan about 30 degrees or so, and, if it's not enough, just give me a holler and I'll roll the spacecraft. We have roughly 13 minutes until we start.

07 02 58 04 CMP Okay; ... time?

07 02 58 06 CDR Start timing - -

07 03 28 03 LMP Hey, we're not going to be over the ...; we're going to be over the water.

07 03 28 11 CMP 29 what?

07 03 28 13 CDR ... We're not going to be over the Amazon.

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722

Day 8

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07 03 28 18 LMP Yes, there's the mouth of the Amazon over here on the left. Over there.

07 03 28 22 CDR Yes. Get your Hasselblad going.

07 03 28 24 LMP Yes.

07 03 28 25 CMP Over there?

07 03 28 26 CDR Go ahead and take some pictures.

07 03 28 51 LMP Okay, I'll take some pictures.

07 03 29 46 CDR Some pictures of water.

07 03 29 48 LMP Water.

07 03 29 53 LMP ... clouds ... in water ...

07 03 29 55 CDR (Laughter)

07 03 30 02 CMP You know what? We should have rolled right there.

07 03 30 06 LMP Okay.

07 03 30 10 CMP No, it's not so good over here, either. It's too cloudy. Just too cloudy.

07 03 30 24 LMP Okay, well, it was a very ... That's too bad. What's our next event?

07 03 30 40 CDR SO 65. Get out the pad for it.

07 03 30 58 CDR Mexico. Mexico and Brazil on SO 65. Yes. And let me go over here to ...

07 03 31 16 CDR Get the C roll off? B roll, B pitch, B yaw.

07 03 31 29 CDR Hey, that's too bad.

07 03 32 27 CDR May I have the flight log, please?

07 03 32 33 LMP Crew log?

07 03 32 34 CDR Crew log, yes.

07 03 32 53 CDR I'm kind of warm in here.

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Day 8

723

07 03 33 05 LMP Begin rest period. Only 4 hours - 3-1/2 hours until a rest period.

07 03 33 12 CMP Hot dog.

07 03 33 13 LMP ... (Laughter)

07 03 33 16 CDR Hey, that a boy, Schweickart, little ...

07 03 33 25 CMP We didn't get any landmark tracking in today.

07 03 34 05 CDR Rusty, do you want this back?

07 03 34 08 LMP What time is it ... at the Cape?

07 03 34 14 CDR It's 2:30 at the Cape. You mean we go to bed at 6:30 tonight?

07 03 34 18 LMP Could be.

07 03 34 19 CDR Well, they're jockeying - -

07 03 34 20 CMP ...

07 03 34 21 CDR Yes, they're jockeying for RETRO, today.

07 03 34 24 CMP Yes.

07 03 34 25 CDR We're going to probably get up at 1:00 in the morning that day.

07 03 34 31 CMP We ought to wait until the weather gets better.

07 03 34 33 CDR That's what I was thinking. We have enough food. We have enough hydrogen, enough oxygen, certainly enough water, enough RCS, maybe we ought to just go another day. No, ... LiOH: enough of that, too.

07 03 34 50 CMP Well, let's go get the cake; I want the cake.

07 03 34 53 CDR (Laughter)

07 03 35 01 CDR Shoot, I know what we could do. We could take the LiOH canister and pick up the PLSS and breathe through it, at least for an hour.

07 03 35 20 CDR What did we ever do with that exerciser that ...?

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724 Day 8

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07 03 35 23 CMP A-5.

07 03 35 46 CDR You know, I think I liked that old rubber ... one better. Didn't get so hot. Yes, this is really almost - -

07 03 42 39 CMP Don't hurt yourself.

07 03 42 44 CDR ... (Laughter)

07 03 42 51 CDR Every time I exercise it hurts me.

07 03 43 10 CMP Yes, one thing I'm going to do from now on is get m exercise at handball. Tired of running around the block every ...

07 03 43 18 CDR/LMP (Laughter) ...

07 03 43 26 CMP ... going to do this anymore.

07 03 43 31 LMP ... going to say, "Boy, you know that Dave Scott, h was just like Bill Anders before the flight but, boy, hasn't he changed."

07 03 43 36 CMP Boy, that's right, I'll tell you. Running around the block is agony. Think I'll even take an hour out for lunch.

07 03 43 54 LMP I'm trying to think where I want to go on vacation.

07 03 44 00 CMP Where or whether?

07 03 44 03 LMP Where. Shoot, man, I - I don't want to even - Been giving up vacations for 3 years.

07 03 45 41 CDR Goodness gracious. What's that thing stuck on that red vent hose over by the right-hand couch strut there?

07 03 45 52 LMP Here?

07 03 45 57 CDR No, over there, right next to David.

07 03 46 02 LMP Oh.

07 03 46 03 CDR Great big hunk of - Gee, it looks like it got cut off a big strap or something.

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Day 8

725

07 03 46 10 CMP Oh, yes. It did get cut off a big - a piece of strap. It was getting in the way of the door, and I couldn't ...

07 03 46 19 CDR (Laughter) One thing about you, Dave, you are really subtle.

07 03 46 22 CMP Well, no, I just stuck it - They put those straps, and they get caught in the door, and I just cut them off.

07 03 46 28 CDR A direct approach.

07 03 46 30 CMP Effective.

07 03 46 31 LMP However, why was it floating around?

07 03 46 37 CMP I don't know; I stuck it away in that little box. It was floating around. It must have escaped ... to go back. Oh, I've got to do an alignment here. Hoo hoo.

07 03 47 00 LMP Jimmy, are you under the couch?

07 03 47 01 CDR Yes.

07 03 47 02 LMP Are you working?

07 03 47 03 CDR Yes. What - -

07 03 47 04 LMP Okay.

07 03 47 05 CDR - - do you need?

07 03 47 06 LMP I was going to stow some film, but -

07 03 47 08 CDR I'll be through here in a minute.

07 03 47 23 CDR I'm not tired, but I think that's about as hot as I dare get it.

07 03 47 34 LMP Hey, it really makes you steady, too.

07 03 47 37 CDR Yes, I noticed.

07 03 47 42 LMP We noticed.

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726 Day 8

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0 07 04 54 51 LMP Okay, 59 - 57, 00 ... Let's see - We've got 2 minutes to go. Oh, it's going to be clear - not clear, but at least tolerable.

07 04 55 11 CMP Is it ever! Look at the volcanos in that bay.

07 04 55 16 CDR I was looking at them - I wonder if they are.

07 04 55 18 CMP Oh, yes. We want a shot of that. ...

07 04 55 42 LMP How much time we got?

07 04 55 43 CMP 1 more minute.

07 04 55 48 CDR Okay, as soon as we get through with that, take that thing off.

07 04 55 50 CMP Let's see if I hold it.

07 04 55 52 LMP There's a volcano in the middle of the lake down there, see that?

07 04 55 54 CMP I saw that - with the water in it?

07 04 55 56 LMP Yes. And a cloud over it.

07 04 56 17 LMP Doesn't look like the time is going to be right, does it?

07 04 56 20 CDR No, we're sure going to be over the water.

07 04 56 31 LMP Maybe not, 30 seconds. It could be out on that peninsula.

07 04 56 40 LMP Where's it supposed to be?

07 04 56 42 CMP An active volcano.

07 04 56 44 LMP Colombia?

07 04 56 45 CMP No, no, Costa Rica.

07 04 56 46 LMP Oh.

07 04 56 57 LMP Go ahead and take the pictures. I don't think I'm going to see it.

07 04 57 04 CMP I don't know where - -

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Day 8

72'

0 07 04 57 05 LMP Maybe it's off to the side.

07 04 57 06 CMP Yes, ...

07 04 57 12 LMP I don't either ... little island.

07 04 57 21 LMP Well.

07 04 57 37 LMP There it is ... right now.

07 04 57 42 CMP I'll be damned if I see any active volcano down t

07 04 57 45 CDR I don't either - Yes, there's some smoke down the
out to the left.

07 04 57 56 CMP Can't see that.

07 04 57 58 CDR Yes, I do. I can see the flowing lava.

07 04 58 01 LMP Oh, yes, there it is. Get it, Dave.

07 04 58 04 CMP What? Oh, yes, there it is. Shoot, boy, it's wa
over.

07 04 58 10 CDR Yes, we missed the darn thing. That's a shame.
Okay, Dave, your next one is at 59:40.

07 04 58 18 CMP This thing sure ...

07 04 58 20 LMP Yes.

07 04 58 25 CDR The problem is to make sure ...

07 04 58 28 CMP Yes, it is; I've been watching it.

07 04 58 29 CDR Okay, get that thing right straight up through th
middle there.

07 04 58 34 LMP 157 - 59:40 and it's 1 minute away, and it's the
west coast of Colombia, 10 frames, 10-second inte
vals, and I can call it out to you.

07 04 58 46 CMP Okay.

07 04 58 47 CDR I think that one's supposed to be weather, isn't
it?

~~CONFIDENTIAL~~

728

Day 8

~~CONFIDENTIAL~~

07 04 58 50 CMP It's - No, I think we're taking geology. The first one and the second one are - are - geology and weather - Could be the third one - Okay, 30 seconds to go.

07 04 59 16 CMP Oh, it might be weather, I don't know.

07 04 59 18 CDR I thought you said it was weather.

07 04 59 19 LMP It's a thunderstorm - -

07 04 59 21 CDR There's a beautiful thunderstorm down there. Yes. Why don't we just take it?

07 04 59 26 LMP ...

07 04 59 28 CDR Yes, they really are.

07 04 59 30 CMP ...

07 04 59 35 CDR I don't know. I tell you what, I would - I would take a picture of the thunderstorm ... probably be great.

07 04 59 43 CMP Yes, I think so, too.

07 04 59 45 LMP Well, after a thunderstorm, it starts clearing up.

07 04 59 52 CMP Okay, what do they want? 10 at 10-second intervals?

07 04 59 53 LMP Yes. Okay, Dave? Mark?

07 05 00 00 CDR Why don't you give ...?

07 05 00 05 LMP Okay, I'll give you the 10-second mark and you take whichever you want.

07 05 00 09 LMP MARK.

07 05 00 14 CMP I don't know what - what they say on the plan.

07 05 00 18 LMP It says the west coast of Colombia.

07 05 00 20 CDR Why don't we start down through here?

07 05 00 22 CMP ... that's what they want pictures of ...

07 05 00 28 LMP MARK, 30.

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Day 8

729

07 05 00 31 CMP You were calling 40. When was it supposed to start?

07 05 00 37 LMP Quite a while ago.

07 05 00 50 CMP Now what? Tell you - why - -

07 05 00 52 LMP No, go ahead. Just as fast as you can go. 10 seconds - you could have plenty of them.

07 05 01 01 CDR Why don't we call it a day and ...?

07 05 01 17 LMP I was going to say I could wind one, too, but you can't ...

07 05 01 29 CMP Where's the other Hasselblad?

07 05 01 46 LMP I don't know what else to do here ...

07 05 01 48 CDR Put it away.

07 05 01 54 LMP ... either way.

07 05 01 57 CMP Put it away, what are you going to do with it?

07 05 02 19 LMP I think there's one in there, maybe more. What do you want to do, put them away or try something different?

07 05 02 26 CMP Let's just forget about this stuff. What's the next ...?

07 05 02 29 LMP ... 54, there's supposed to be one up here. Where's that other Hasselblad?

07 05 02 35 CMP ...

07 05 02 37 LMP No, it's still stowed. Where is it?

07 05 02 51 LMP Oh, no, it's not, Dave.

07 05 02 53 CDR Okay, let's forget these ...

07 05 02 55 LMP A-7 has superwide angle; that's all it's got. No other camera in there, Dave. Oh, shoot, I put it back in B-3, yes.

07 05 03 21 LMP It's not all the way around, Dave. This thing is - yes, but this thing is sprung.

~~CONFIDENTIAL~~

730

Day 8

~~CONFIDENTIAL~~

07 05 04 28 LMP The only other possibility is it was still in the magazine, and then, by forcing it, it just goofed up the camera, too.

07 05 04 45 CDR Let's put the SO 65 away - Why don't you put this back in there? ... SO 65 away.

07 05 05 23 LMP You want me to get that 16-millimeter bracket out, Dave?

07 05 05 25 CMP Not particularly, Rusty. That's not much of a good idea, but ...

07 05 09 30 CMP Okay - Got that out yet?

07 05 09 55 LMP I think they want it here.

07 05 10 09 LMP Oh!

07 05 10 35 CMP ... should be turned back and stowed in the - turned back and stowed in the wide angle - -

07 05 10 41 LMP Yes, it is; that's got a dark spot ... I think.

07 05 12 15 LMP Different MAG, huh?

07 05 12 16 CMP Yes.

07 05 12 21 LMP Unfortunate, unfortunate.

07 05 12 28 CDR Looks like we're going to have to break out that other roll of film.

07 05 13 16 LMP What magazine is that, Jim?

07 05 15 44 LMP ... one-sixth of that, Dave. Did you click it after you took it off?

07 05 16 06 LMP The slot on the ...

07 05 17 58 CDR Okay, I put that extra ... in B-3.

07 05 19 15 LMP Maybe that'll hold.

07 05 21 20 CMP How much ... to that SO 65 ...? I guess we don't know.

07 05 21 24 LMP Yes, it's sitting right here.

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Day 8

731

O

07 05 21 26 CMP I mean when we get through taking SO 65 pictures, we could use those, huh?

07 05 21 30 LMP ... about used all up; we're already up what, about 85 or 90 on them, aren't we?

07 05 21 37 CMP One of them only has 100 and ...

07 05 21 44 CDR One of them has nearly 200 - -

07 05 21 48 LMP Where is the procedures book? It's in there. See if I can -

07 05 21 53 CDR Yes.

07 05 21 54 CMP You all quit taking SO 65 pictures, and we wouldn't have to load it so much.

07 05 21 58 LMP No, we won't, ... something.

07 05 22 01 CDR (Laughter) It's a good idea, though.

07 05 22 13 LMP ... of the photo - photo ... plan ... or is that in there?

07 05 22 21 CMP Yes, it's in there.

07 05 22 35 LMP One has 140, one has 170, one has 100, and 170. Gees.

07 05 22 44 CMP You want me to take another 100 SO 65?

07 05 22 46 LMP We better, Dave; we're not going to have anything to do.

07 05 22 47 CDR (Laughter)

07 05 22 56 LMP We have roughly 225 pictures; we ought to save -

07 05 22 59 CMP Yes.

07 05 23 01 LMP 2 full days of ... No, 1 full day of ...

07 05 23 14 LMP ... every other day, wouldn't it?

07 05 23 30 CDR We're up to 184 ... it's there right now, isn't it?

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732 - Day 8

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07 05 23 39 LMP

We ought to ask them what time we are supposed to ... , because things are obviously getting screwed up on time.

07 05 23 47 CDR

...

07 05 23 49 LMP

Well, it would be nice to know when they're not going to let us sleep through, so that we could get to bed early that night.

07 05 23 56 CDR

... and want to sleep late, too (laughter). There's nothing to do when we get up.

07 05 24 03 LMP

Really?

07 05 24 04 CDR

Get up at 184:20 - The first thing we do is align the IMU; at 188 ... then we unstow ... SO 65, eat, take colored pictures, go to drifting flight, and go back to bed.

07 05 24 24 CDR

Okay, we go to bed at 198 - and get up at ... 2 more workdays ...

07 05 24 35 CMP

2 more workdays?

07 05 24 39 LMP

They're not really workdays.

07 05 25 25 CDR

Another 25 minutes, we better limit ourselves ... 25 pictures we got to take ...

07 05 26 18 CDR

While that ... is out, Dave, let's see if ... the damn thing.

07 05 26 23 CMP

... the right way.

07 05 26 36 CDR

How does that differ from what we've been doing?

07 05 27 08 CMP

... Oh, well! One step of progress ... 10 years from now ... can get out.

07 05 27 38 LMP

Hey, Jim?

07 05 27 39 CDR

Yes?

07 05 27 40 LMP

You got the DAP running?

07 05 27 42 CDR

Yes.

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Day 8

733

07 05 27 44 LMP How about ...?

07 05 27 53 LMP Yes, as a matter of fact, let's try some.

07 05 27 54 CDR What?

07 05 27 55 LMP You got the DAP on?

07 05 27 56 CDR No.

07 05 27 57 LMP Oh, the DAP's turned off?

07 05 28 05 CDR ... What do you want?

07 05 28 06 LMP Let's just try the MINIMUM IMPULSE down here and see if it works.

07 05 28 24 LMP It worked!

07 05 28 26 CDR Yes, as a matter of fact, that's right, that one ... B-3.

07 05 28 33 LMP Hey, that works good.

07 05 28 37 CMP That may not be the MAG you stow in it.

07 05 28 39 LMP Yes, I was going to say, maybe we ought to stow one of the MAG's, and stow ... those others ..., that will leave more room over there for the ...

07 05 28 49 LMP Boy, I - I made a drastic mistake this morning - when I brushed my teeth and put my bag away, and now I don't have anything to drink water in.

07 05 28 55 CMP The water is not - really isn't bad today.

07 05 28 57 CDR It isn't?

07 05 28 59 LMP No, it's not bad at all; it's the best I've ever tasted ..., which isn't saying anything. I had a couple big drinks and it's not too gassy and it's ... chlorine ... doesn't have any gas at all.

07 05 29 44 LMP No, just bubbles ... gassy.

07 05 29 49 CMP Now, I'll try it.

07 05 29 54 CDR Hey, did you kick that?

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734 Day 8

~~CONFIDENTIAL~~

07 05 30 41 CC Apollo 9, Houston through Tananarive.

07 05 30 43 CDR Go, Houston; Apollo 9.

07 05 30 53 CDR Go, Houston. This is Apollo 9.

07 05 30 58 LMP Try them one more time. Sounds like - -

07 05 31 00 CC Roger, Apollo 9. I've got some - four more target updates here, but I can't hear you at all yet.

07 05 31 09 CDR Okay, Houston, we're reading you reasonably well. How do you read us now?

07 05 31 14 CC Roger. I can't read you now. Are you reading us enough to receive the update?

07 05 31 23 CDR Yes, we do.

07 05 31 26 LMP Do you? Here's the log ...

07 05 31 42 CDR Go ahead, Houston, with the update.

07 05 31 46 CC Okay, Apollo 9, this is Houston. Here we go. Bonin Islands: weather, 174 plus 01 plus 14, four frames, 10 seconds, on track; Galapagos Islands: weather, 174 plus 32 plus 38, four frames, 8 seconds, on track; Lima, Peru: weather, oceanography, 174:37:03, 18 frames, 12-second intervals, on track. The next one is in your rest period and not required unless you can get it. Japan: volcanos, geology, meteorology, 175:36:07, seven frames, 30-second intervals; it's north 32 degrees. Over.

07 05 33 54 CDR Roger, Houston. Now do you read?

07 05 33 57 CC Roger; got you now.

07 05 34 01 CDR Okay, 174:01:14, weather, four frames, 10 seconds, on track; 174:32:38, Galapagos, weather, four frames, 8 seconds, on track; 174:37:03, Lima, weather and oceanography, 18 frames, 12 seconds, on track; 175:36:07, Japan, volcanos, weather, seven frames, 30 seconds, north 32 degrees.

07 05 34 46 CC Apollo 9, Houston. Your readback's correct.

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07 05 34 50 CDR Okay, Houston, be advised that on that last pass down across South America, they had a camera failure, on the 70-millimeter Hasselblad, and we've lost about 50 frames of film in a jammed pack.

07 05 35 05 CC Roger. One pack is jammed, 50 frames are lost.

07 05 35 41 CDR You hear that, Rusty? Japan.

07 05 35 46 LMP Huh?

07 05 35 49 CDR 33 frames yet. The last target was Japan.

07 05 38 04 CDR How low does that thing get?

07 05 40 04 LMP How about that? We got that at 0, 1, 3, 4.

07 05 40 10 CMP What?

07 05 40 23 LMP We go across -

07 05 40 24 CMP ...

07 05 40 26 LMP No, right over Manila - Let me get my ...

07 05 40 48 CDR ... (Laughter)

07 05 40 55 LMP Oh, yes. I didn't think we'd been far enough north to get to Singapore, have we?

07 05 41 02 CMP Not really.

07 05 41 20 CDR ... it's 2 hours ...

07 05 41 39 LMP Better write them all down here for tomorrow. 172 ...

07 05 44 34 LMP No - I'm sorry, no, no, no, no. ... great big ... I think of a ... somewhere in that ballpark - I think it's right in the middle. Big ...

07 05 45 07 LMP Some of those pictures we took of the Cairo Airport and those other - the Houston Airport ...

07 05 45 38 LMP ... possibly with a 75-millimeter lens, I could ...

07 05 46 01 LMP I hear you, but - I hear you talking, but I doubt - I don't want to put too much faith in the camera.

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You know, if you get that to work, that means that you got to get the background out - that means that you come out at the right spot at the right time.

07 05 46 14 CDR ...

07 05 46 15 LMP Three or four things recorded on the recorder, so I don't think ...

07 05 46 59 LMP Whoo, that's terrible. Whoeee.

07 05 47 04 CDR What's coming up now?

07 05 47 05 CMP We're going right across Sumatra, and we'll go right across the Philippines.

07 05 47 11 LMP Is it light out?

07 05 47 12 CMP No, but it should be shortly.

07 05 47 24 CDR Okay, there are only three unused film packs in A-7, right now.

07 05 47 29 LMP Where are the rest of them, or is that all we have?

07 05 47 31 CDR That's it. Two C-IN's and one C-EX.

07 05 47 36 LMP Is that the stuff for the 70 millimeter or the 16 millimeter?

07 05 47 38 CMP Yes, but we got a bunch of partially used 16 millimeter. There's a lot of that left.

07 05 47 48 LMP Where are they?

07 05 47 49 CMP It's strewn all over. We got a bunch of that, too. Look at ... B-3.

07 05 48 02 LMP But one we want to save for entry.

07 05 48 05 CMP Yes, we want to save one full film package.

07 05 48 16 CDR What are you doing, Davey?

07 05 48 18 CMP Well, I'm fixing to ...

07 05 48 32 LMP Are we going to do the daylight ...?

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Day 8

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07 05 48 44 CDR ... that 70-millimeter camera and take couple more pictures of you.

07 05 48 50 CMP You're - you're the only guy who had your picture taken.

07 05 48 52 CDR Hey, that's right ...

07 05 48 54 LMP Whew, is that a pretty, pretty picture. That's really pretty - Whoeee. Beautiful. Isn't it beautiful? The sunrise ... Gee!

07 05 49 25 LMP You got a malfunction procedure ... camera, Dave?

07 05 49 28 CMP No, not ...

07 05 49 31 LMP Oh, you ought to see ... really something.

07 05 50 17 CDR Whoeee, that's pretty.

07 05 50 21 LMP We've got - we've got three in here. We've got one here that hasn't had any taken out of it yet.

07 05 50 25 CDR Excuse me, I didn't - I had my helmet on. You said you had one up there that - that what?

07 05 50 32 LMP We have two of these, completely full. And then we have some partials in the C-EX.

07 05 50 38 CMP ... chance to use the ... filter. Ha!

07 05 50 40 CDR Hey, how about that?

07 05 50 47 LMP Anybody explained to you how to use it, yet?

07 05 50 49 CMP No, ...

07 05 50 54 LMP Will you guys please give me a description on how all the pieces for the optics work?

07 05 50 58 CMP Oh, sure, we'd be glad to do that.

07 05 51 35 LMP Now, watch your eye, we can't afford to lose our navigator at this point.

07 05 51 39 CDR Yes (laughter).

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07 05 51 40 LMP No, I - I've got the filter on. Okay, I don't know very much about it, but I can find the stars.

07 05 51 45 CMP Can you see those ... platform.

07 05 51 56 CDR Don't burn a hole in the side of ...

07 05 52 03 LMP One of his eyeball lens. Here.

07 05 52 07 CMP No, you don't need an eyeball.

07 05 52 12 LMP There's an ... with the eyeball.

07 05 52 27 CMP I don't know what the vectors are for this thing.

07 05 52 29 LMP Well, you don't need the - vectors; just throw it in the computer, Dave.

07 05 52 31 CMP You do?

07 05 52 32 LMP Yes, number -

07 05 52 36 CMP Yes, it sure is, Rusty. You're right. Here, I've got it; you're right. Here it is, 48, 49. Whew! That's a big yellow ball!

07 05 53 54 CMP Yes, but I can see the spots on it.

07 05 54 07 CMP Yes, I can see sunspots. How about that.

07 05 54 53 CMP Ooh, out of the field of view. ...

07 05 55 03 LMP Where did it go?

07 05 55 05 CMP It's going to my right, which means we're rolling left - and ... stays right, we need to roll left. That's it, that's it.

07 05 55 21 CDR That means you're not going to get your picture in Manila, Dave.

07 05 55 25 CMP Oh, ...

07 05 55 26 LMP Hey, listen, where are we over right now, because I can see land down there. Could this be Australia, by chance?

07 05 55 31 CMP I don't know.

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07 05 55 36 LMP Where were those - what were those update times?

07 05 55 40 CDR I missed them; is that the one ...?

07 05 55 41 LMP Yes. No, that's the one I'm talking about, the next opportunity.

07 05 55 49 CMP Boy, they're really off.

07 05 55 59 LMP Oh, my God, we already passed it.

07 05 56 02 CDR Hey, Rusty, that must be Manila down there.

07 05 56 04 LMP Where? ...?

07 05 56 06 CDR Yes, ...

07 05 56 10 LMP Yes, I see the Philippines.

07 05 56 13 CMP Damn, I wish I had seen that. That's my old home.

07 05 56 17 CDR I think we'll see it tomorrow. Old ... is a Filipino.

07 05 56 54 CMP These really are volcano islands at 142. Which is going to be 173 and 57.

07 05 57 22 CC ...

07 05 57 24 CMP We're just viewing a volcano island?

07 05 57 26 LMP ...?

07 05 57 28 CMP No, I don't see any down there, Rusty.

07 05 57 31 LMP Maybe the camera just ...

07 05 57 35 CMP I don't know, you had the only good camera that works. Oh, it's right here ... LEB ...

07 05 57 44 CDR Okay, ...

07 05 57 48 CMP Hey, ..., I can report that I used my ...

07 05 57 51 LMP Oh, no, it's coming up in another minute, Jim.

07 06 00 46 CC Apollo 9, Houston.

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07 06 00 48 CMP Go ahead.

07 06 00 49 CC Roger. We would like to have a readout on your battery manifold pressure, systems test 4 Alfa. And have you been venting it periodically or not?

07 06 01 03 CDR No, we haven't been venting it periodically.

07 06 01 06 CC Roger.

07 06 01 07 LMP 8.2 volts.

07 06 01 08 CC Don't vent it; just give us a readout then.

07 06 01 11 LMP Okay. 1.2 volts.

07 06 01 14 CC Roger; copy.

07 06 01 24 LMP And we don't come across another thing.

07 06 01 30 CDR Nothing at all.

07 06 01 32 LMP I don't know, there's a biggest slice of Pacific -

07 06 01 37 CC Apollo 9, Houston. When I called you about the FDAI SELECT and ORB rate, was the ATTITUDE SET switch in GDC or IMU?

07 06 01 54 CDR Oh, I'm not sure. We've reconfigured a few times. Right now the ATTITUDE SET - SET switch is in IMU.

07 06 02 04 CC Okay. Understand it's in IMU now, and it more than likely was at that time.

07 06 02 09 CDR Well, that's probably right, yes.

07 06 02 25 CC And, 9; Houston. We'll have another ARIA check at 06.

07 06 02 30 CDR Okay. We'll have a COMM check ... with ARIA. ... 06.

07 06 02 55 LMP ... so you can tell they're yours. If you mark them, you can.

07 06 03 02 CDR Oh, yes. What does it look like through your sextant.

07 06 03 05 CMP Hey, come here and look, Jim.

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07 06 03 06 CDR Are they still there?

07 06 03 07 CMP Yes, they're still there.

07 06 03 09 LMP Yes, I'd like to see them, too.

07 06 03 27 CMP ..., oh boy, these ... are really getting to me.

07 06 03 39 CMP This thing is fairly loose. It doesn't fit on very good.

07 06 03 46 CDR That's the whole sun, Rusty?

07 06 03 53 LMP See the sunspot?

07 06 04 17 CDR That's looking really smooth, huh?

07 06 04 18 LMP Look down at the bottom; you can see the ... at the bottom.

07 06 04 24 CDR Sure are smooth.

07 06 04 35 CDR ... over to the left at the bottom.

07 06 04 38 CMP Yes.

07 06 04 41 CDR ... at it before I lose it. Why don't you drive the boat for a while?

07 06 05 17 LMP ... approaching something, Dave?

07 06 05 20 CMP Yes, it should be approaching - No, there is some ... There is on the other one ... all the way in, all the way out yesterday and I ...

07 06 06 07 LMP It's a little difficult to mark these actually in the middle of the orbit.

07 06 06 11 CMP Yes. It's almost the same - Well, Jupiter is ..., but Jupiter is difficult to figure out exactly where the center of it is. Because it spills into that little ... part of the reticle.

07 06 06 24 CC ARIA 2, Houston CAP COMM. REMOTE, VHF UP.

07 06 06 32 LMP That's really neat, isn't it?

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07 06 06 34 CDR Yes, it is. I'd like to see the moon through that. What do you have -

07 06 06 37 CMP I - I'll tune it in for you when you get back; the moon's pretty. What does it do to it; it not really ... - I mean, it looks just like it does - -

07 06 06 44 CC Apollo 9, Houston through ARIA 2. VHF.

07 06 06 48 CMP Roger, Houston; Apollo 9. How do you read?

07 06 06 52 CC Hey, that's beautiful this time. How me?

07 06 06 56 CMP You're about the same; it sounds like a little bit of motorboating. You're clear, though.

07 06 07 05 CC Okay, very good. While we have you here, I have a consumables update if you'd like to copy that.

07 06 07 13 CMP Okay, stand by 1.

07 06 07 15 CC ...

07 06 07 17 CMP That field of view, Jim, is getting out of the ...

07 06 07 28 CDR Okay, go ahead.

07 06 07 31 CC Okay, that's 173:43:10, 43, 12, 47, 13, 44, 13, 305, 22, 32, 28, 39. And I've got some notes here for you.

07 06 08 08 CMP Okay. You're evidently cutting in and out, because I ended up with one button left and no buttonholes.

07 06 08 16 CC Okay, we're just about ready to switch to S-band. We'll try S-band now; so S-BAND VOLUME, up. S-BAND VOLUME, up, and ARIA 2, REMOTE S-BAND.

07 06 08 44 LMP Houston, you're very weak on S-band. How do you read us?

07 06 08 57 LMP Okay, ... - We just ...

07 06 09 29 CDR See that little ... hole out there? It's off to my left. That little spot of green water out there. See that hole in the clouds over there ...?

07 06 09 44 LMP Yes, oh yes.

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07 06 09 52 CMP That's a little better, Houston. No, you're breaking up pretty bad, Houston.

07 06 10 28 CMP Houston, if you read us, you're coming through very, very garbled. We're unable to read you.

07 06 11 54 CDR That thing is really out in the middle of nowhere, wasn't it? There's another little bitty hunk of green water out underneath one cloud there. I couldn't see if there was any land there or not.

07 06 12 10 LMP ... figure where that ARIA was?

07 06 12 12 CDR Yes, out there all by itself (laughter).

07 07 59 25 CC - - let me check. It's getting a little confused.

07 07 59 29 CDR Good for you, Rusty. I'd like to know also. Boy, oh boy.

07 07 59 34 CC And it looks like it will be 184 plus 20.

07 07 59 36 LMP Okay, thank you.

07 07 59 41 CDR How does that compare with the flight plan?

07 07 59 46 LMP Just about right.

07 08 00 11 LMP Let's see, we're on revolution about 111.

07 08 00 18 CDR Ooh! (Laughter)

07 08 00 25 LMP God! We've got 150-some odd to go.

07 08 00 32 CDR No.

07 08 00 34 LMP I mean total.

07 08 00 35 CMP Oh, boy, round and around and around and around. Hey, I tell you, I'm all for shooting up the film tomorrow and then going into deorbit.

07 08 00 45 LMP I'm with you.

07 08 00 46 CDR You've been ready for that since we got up here.

07 08 00 48 CMP No, I changed my mind in the middle.

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Day 8

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07 08 00 49 LMP I'm ready for that 350-pound cake.

07 08 00 55 CDR We're going to go around until it's time to come down.

07 08 00 58 LMP Yes, you're right. Be stern, Jim.

07 08 01 03 CDR What?

07 08 01 04 LMP We've got to give you some opposition, so you can exercise your authority.

07 08 01 15 LMP I've got to start practicing P37.

07 08 01 24 CDR If all goes well, you won't even have to touch P37.

07 08 01 27 LMP I know it, but I like to practice it anyway.

07 08 01 36 CDR Whoopseday!

07 08 01 51 LMP It looks like they gave us about 20 minutes for initial entry PREP and stowage.

07 08 01 56 CDR (Laughter) Listen, we better have a lot of that done the night before.

07 08 02 00 LMP Oh, yes. Well, the day before, we got nothing -

07 08 02 04 CDR What, what's -

07 08 02 10 CMP We've got only 8 hours until they wake us up, Jim.

07 08 02 14 CDR So - go to sleep.

07 08 02 20 CDR Why don't you start purging some of that hydrogen in?

07 08 02 24 LMP I was hoping you'd say that. Going to start this thing.

07 08 02 33 CDR You can tell Schweickart, he is always in favor of purges.

07 08 02 36 LMP I got to do something operational.

07 08 02 38 CDR The big twister.

07 08 02 41 LMP Hey, we've done a lot of things, you know it?

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Day 8

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O 07 08 02 44 CMP You can tell by reading the flight plan?

07 08 02 46 LMP Yes. Look at all that jazz. All those little black squares. We don't have very many little black squares to fill.

07 08 02 56 CDR What little black squares?

07 08 02 57 LMP Those things to get done.

07 08 02 59 CDR Let's see. Oh, oh, I see what you mean.

07 08 03 01 LMP ... flight plan.

07 08 03 03 CDR Yes.

07 08 03 08 LMP I wish we could get a couple more of those.

07 08 03 09 CDR Couple more days?

07 08 03 11 LMP No, these!

07 08 03 15 CMP ...

07 08 03 16 LMP That'd be a good one to frame, you know it.

O 07 08 03 24 CMP ...

07 08 03 26 LMP It'd be a good one to frame.

07 08 03 44 LMP Last of the earth-orbital flights.

07 08 03 47 CDR Well, I doubt that.

07 08 03 49 LMP Or, the first AAP flight.

07 08 03 52 CMP (Laughter)

07 08 03 54 LMP That's what it is.

07 08 03 57 CMP The last?

07 08 03 58 LMP Yes.

07 08 04 09 LMP One fuel cell!

07 08 04 58 LMP 'hoo! What the hell is that?

07 08 05 01 CMP What you got?

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07 08 05 03 LMP It's a circular formation in the cloud. It's a low cloud, not like a thunderstorm. See it over there? No, no, it's over here, Dave. Let me - It may be - be too high for you to see.

07 08 05 19 CMP Oh, yes ... what do we see?

07 08 05 23 LMP Kind of weird.

07 08 05 24 CMP ...

07 08 05 25 LMP Hey, I think that's worth a weather picture right there.

07 08 05 28 CMP I do too.

07 08 05 29 CDR Yes, I agree.

07 08 05 32 LMP Could you see it, Jim?

07 08 05 33 CDR Yes.

07 08 05 36 CMP That's worth a picture.

07 08 05 37 LMP I think so, too.

07 08 05 41 CMP There you are, a perfect spot. You get a pretty perspective if you just look at it. I can't really tell what the -

07 08 06 03 LMP Yes, it is hard, isn't it - to tell?

07 08 06 12 CMP Yes. ...

07 08 06 18 LMP It's the only one around, too, like it.

07 08 06 41 CMP You get my ...? The LEB, okay.

07 08 06 50 LMP Let's see. We got the water dumped, canister changed; we got - We don't have to chlorinate tonight, do we?

07 08 06 55 CDR Yes, we do.

07 08 06 56 CMP Yes, we do have to.

07 08 06 57 LMP We doing that every night now?

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07 08 06 58 CDR Yes.

07 08 06 59 LMP I'll be. Getting close to running out, I guess we got to ...

07 08 07 58 LMP Late afternoon clouds (coughing). You can pick up a lot of those, can't you? Really weird.

07 08 08 08 CMP ... you know it feels like ... right here.

07 08 08 11 LMP Oh, really - it never has quit hurting?

07 08 08 13 CMP You know, it's very funny. It's a very calm, steady feeling, you know. It really hurt. It's just like it's going, you know, like when I get down, it's really going to be stiff or something.

07 08 08 54 LMP We're not going to get to South America - before it's dark.

07 08 09 10 LMP You got it all hot again?

07 08 09 11 CDR Yes.

07 08 09 12 LMP Let's put it up on the hatches. It cools off a little faster.

07 08 09 15 CDR You got ... to blow on it?

07 08 09 16 LMP Dave.

07 08 09 17 CMP Huh?

07 08 09 18 CDR Watch it, it's hot - -

07 08 09 19 LMP ... spot.

07 08 09 22 CMP How'd you like to exercise before sleeping?

07 08 10 39 LMP 8 days.

07 08 11 01 CMP You know, if we ever really get a space station like in "2001" up here, it'd be a real good ...

07 08 11 07 CDR Yes.

07 08 11 13 LMP Wonder how long that'll be?

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Day 8

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07 08 11 15 CMP A long, long time. They could probably keep me out.

07 08 11 52 LMP Jim, can I move some direction to help you?

07 08 11 54 CDR No, I'm just cleaning off the hoses, Rusty.

07 08 12 02 LMP Why don't we - What's that?

07 08 12 13 CMP He just moved a hose.

07 08 12 14 LMP I guess we got used to listening to all that noise all day. How about some dinner? Anybody for some chow?

07 08 12 21 CDR Yes, I'll have some dinner. What are you cooking?

07 08 12 23 LMP Oh, I'll cook you up some chop suey. Open a can and all that stuff again. How about that?

07 08 12 28 CDR I'd sure like to have some chop suey, I'll tell you.

07 08 12 32 CMP ... 350-pound - -

07 08 12 33 CDR Oh, my goodness, I got a big screw out of something that time. Check the windows. Sure enough.

07 08 12 43 LMP Oh, are they?

07 08 12 44 CDR There's a hole right there, what's that? Oh, that's not where it goes, nothing goes there anyway.

07 08 13 02 LMP They're all on, Jim.

07 08 13 03 CDR Good. It probably came off of some critical spot then.

07 08 13 08 CMP Yes, like the ECS or - -

07 08 13 10 LMP Maybe that came out of the telescope.

07 08 13 13 CDR Hey, there you go.

07 08 13 17 LMP Hey, you want some more variety up there?

07 08 13 19 CMP I don't care. Incidentally, we didn't have a glitch today in the telescope.

07 08 13 25 CDR Not a single one, huh?

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Day 8

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07 08 13 26 CMP Not one, it - -

07 08 13 27 CDR Hey, Dave.

07 08 13 28 CMP - - behaved very well. What? Is that a new game?

07 08 13 36 CDR I tell you, though, Dave; I looked over the reentry-day timeline and we get up and we're up for a while and then we're cleaning up and then one night pass goes by and then the next night pass, you do P51. When you get out of bed, you jump up and you do a P51.

07 08 13 54 CMP Alright. You don't even have to tell me to do that.

07 08 13 56 CDR I know it (laughter), but I want to make sure there's no doubt in either one of our minds.

07 08 13 59 CMP Yes, you're right. As a matter of fact, I might do one the night before.

07 08 14 01 CDR Hey, Dave (laughter) - -

07 08 14 03 LMP Hey, why don't you do a nominal P52, too - while you're at it?

07 08 14 07 CMP Hey, you know, I might do that.

07 08 14 09 LMP Yes, sure. That'd make it a lot easier. Don't have to - do a nominal P52 for - We don't have a RETRO, yes, we'll have a RETRO.

07 08 14 21 CMP Yes, if we clean up, take that last day to get all stowed, everything done, go to bed, hop up, eat, do the P51.

07 08 14 32 CDR No, you got that wrong - hop up - -

08 08 14 34 CDR/LMP You do the P51 and you eat (laughter).

07 08 14 36 CMP You guys eat while I do the P51.

07 08 14 38 CDR Right and we'll stow while you eat. You can eat and keep us out of gimbal lock.

07 08 14 42 CMP Okay.

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Day 8

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07 08 14 43 CDR Yes, I'd like to get that mother all fixed and then get into gimbal lock and then have the shaft hang up.

07 08 14 49 CMP Hey, you know what I'd like to do, the day before? I'd like to do a GDC align - ... if you have enough fuel. If you have enough fuel left over where we're - -

07 08 15 04 CDR ... it doesn't take any fuel.

07 08 15 05 CMP It doesn't? I'd really like to see a couple of those.

07 08 15 08 CDR See if it works, huh?

07 08 15 09 CMP See if it works and also ...

07 08 15 12 CDR Right. How about some more food here? We have lots of food left.

07 08 15 17 LMP Let me be selective, since you're offering.

07 08 15 20 CDR Yes, what do you want?

07 08 15 22 CMP ..., you know another thing we ought to do?

07 08 15 24 CDR Get out the menu and pick what you want for dinner.

07 08 15 28 CMP ... do an alignment ... - -

07 08 15 33 LMP Oh, Jimmy, you're still doing it.

07 08 15 35 CDR Gee, I'm sorry about that, sports fans, but that smells just like pure hydrogen to me. I wonder how much hydrogen you need in here before it reaches explosive combustion.

07 08 15 48 CDR Okay, Davey, I'll try not.

07 08 15 53 CDR You know I wouldn't be a bit surprised if that isn't it.

07 08 15 56 LMP Jimmy, what days have we got over there?

07 08 15 58 CDR We've got everything from 7 on up, Rusty.

07 08 16 00 LMP On up to how far?

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Day 8

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07 08 16 01 CDR Oh, let me see what the last one is - 10, 11.

07 08 16 10 LMP Okay.

07 08 16 17 CMP As a matter of fact, tomorrow we don't have a burn.

07 08 16 21 CDR Tomorrow, we don't have a what?

07 08 16 22 CMP A burn.

07 08 16 23 CDR Yes?

07 08 16 24 CMP How about letting me do the P51 with the COAS tomorrow morning?

07 08 16 26 CDR Okay.

07 08 16 27 CMP Okay? Would you let me do that?

07 08 16 28 CDR Yes, provided we don't have to do any landmark tracking. If we have to do landmark tracking, you've got to do a good one.

07 08 16 33 CMP Right, right.

07 08 16 34 CDR We just do SO 65, you don't have to do it over.

07 08 16 35 CMP Oh, no; you -

07 08 16 37 CDR You can do a good P52 - -

07 08 16 39 CMP Let me do a P51, P52 with the COAS; and then a P52 with the optics. Okay? Would you let me do that?

07 08 16 42 CDR Yes. Sounds like a good experiment. What do you want, Rusty? Which meal?

07 08 16 49 LMP I'm looking.

07 08 16 50 CDR Oh. Hey! I see one that has grape punch in it.

07 08 16 59 LMP Oh, we're running out of those things.

07 08 17 02 CMP Which things - -

07 08 17 03 LMP Yes, that's the terrible thing.

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07 08 17 04 CMP -- which days are you looking at?

07 08 17 05 CDR We have - This right here is - day 7 through 11.

07 08 17 15 CMP Oh, you got all that in there?

07 08 17 16 CDR Yes. I think I'm going to get that out before I have it all out here on the deck with me. As a matter of fact, I'm almost tempted to go through here and take you - take out all the drinks.

07 08 17 42 CMP Hey, I'd like a day 8, meal B.

07 08 17 45 CDR Day 8, meal B. Coming up. Hey, that's the first one on the end of the string. There you are. How about that for service?

07 08 17 53 LMP That's pretty good. What's that green stuff in it?

07 08 17 56 CMP Some kind of soup.

07 08 17 57 CDR Pea soup.

07 08 17 58 LMP Huh?

07 08 18 00 CMP Pea soup.

07 08 18 01 CMP I don't like that.

07 08 18 03 CDR Well, why did you stick it in there?

07 08 18 05 CMP Huh? What?

07 08 18 07 CDR Why did you stick it in there? (Laughter) Hey, that was pretty tricky.

07 08 18 11 CMP The hand is quicker than the eye!

07 08 18 12 CDR Let me see that (laughter).

07 08 18 14 CMP That's grape.

07 08 18 16 CMP You ought to see my kids when I do my coin trick. They think that's great.

07 08 18 21 LMP Boy, I tell you. There's nothing on here that looks good as this breakfast.

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Day 8

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07 08 18 23 CDR Well, how about a breakfast? What do you want?

07 08 18 27 LMP Well, hell, I don't want to eat you guys' breakfast.

07 08 18 29 CDR Oh, hell, I don't care what I have for breakfast.

07 08 18 31 CMP I don't either. Just as long as I have my hot chocolate, you can have all the rest of it.

07 08 18 35 LMP Well, okay. I'll give you your hot chocolate out of the breakfast. How about a - a day - Hey, you got a day 7, huh? Day 7, meal A? I had that this morning, but I'll take it again now.

07 08 18 57 CDR Okay. It may not be a day 7, meal A, because we may have eaten all those this morning. Let me see. Meal B, meal C. No, the earliest I have is one day 7, meal B. There's a day 8, meal A. 9, 10, 11.

07 08 19 17 LMP I'll tell you what. I'll take a day 8, meal A.

07 08 19 21 CDR Day 8, meal A coming up.

07 08 19 29 CDR Where are the ...? Let me have the ...

07 08 19 34 LMP Here, I can get them.

07 08 19 36 CMP You get them?

07 08 19 37 CDR Here, Dave and Rusty. Got grape juice in it, even.

07 08 19 44 CMP Yes. Got hot chocolate in it, too.

07 08 19 46 LMP Yes, I'm going to give you that.

07 08 19 47 CMP Oh, you are a good fellow!

07 08 19 52 CDR Let me look at the menu. Let's see what I want.

07 08 19 54 CMP Okay.

07 08 19 55 CDR I don't think there's anything on the whole menu I want. Just take whatever is least - least undesirable.

07 08 20 02 CMP That's the way I feel, but it's got to go. Oh! That 350-pound cake! I wonder if it's chocolate?

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07 08 20 08 LMP I tell you. I don't like cake very much, but that still sounds good. ... a 350-pound pie would interest me more.

07 08 20 18 CMP But chocolate cake with ice cream? Ahh! I could eat and eat and eat.

07 08 20 26 LMP Boy, I tell you. Jimmy's suggestion of pizza and beer sounds best tonight. Although lasagna and beer sounds pretty good, too. Chop suey doesn't sound quite as good as lasagna.

07 08 20 54 LMP Let's see what else sounds good. How about some some lobster?

07 08 21 03 CMP Ooh! Yes. Doesn't that sound good to you?

07 08 21 08 LMP Yes. That sounds good.

07 08 21 28 LMP Hey, I think I might try this sausage. You say t sausage is good, huh?

07 08 21 32 CMP Yes, I think it's pretty good, Rusty. It's mild and it's crumbly. You know, it's got a firm kind of taste to it, and it feels good.

07 08 21 44 LMP Highly recommended. Duncan and Hines.

07 08 22 02 LMP Can't find it.

07 08 22 03 CMP Huh?

07 08 22 04 CDR In front of you. Here it is.

07 08 22 11 LMP Mike boom. Your mike boom-boomed.

07 08 22 38 CMP Jim must have ...

07 08 22 41 CDR You mean - Oh, shit. I forget which day I was go to get. You have a different figure than I do.

07 08 24 17 CDR Okay, here you are.

07 08 24 40 LMP We have two more.

07 08 24 42 CMP I'll just need one of them.

07 08 24 43 CDR What?

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Day 8

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07 08 24 45 CMP While Rusty's sitting there waiting, let me get one of these.

07 08 24 49 LMP Waiting in line at the watering hole. Hey, you know, Jim? I drank a bunch of water out of that gun today. And I got a lot of gas.

07 08 24 58 CDR Did you?

07 08 24 59 LMP Yes, as soon as I drank, as a matter of fact, I could feel it rumbling around down there. And I haven't been using that gun; I did it today because - -

07 08 25 08 CDR I haven't used it either, because - but I used it today, because it tasted so good.

07 08 25 11 LMP Yes, it's pretty good, but you know today, we haven't had as many drinks ...

07 08 25 15 CDR Yes.

07 08 25 16 LMP You know?

07 08 25 17 CDR I'm tempted to go through here and open these thing up and take all the drinks out and put them in another bag.

07 08 25 21 LMP I think that would be a good idea.

07 08 25 22 CDR Alright, let's do that, then. I'll open up all the food - well, not all of it - but I'll open up this whole box, and take all the drinks out and put them in this third bag.

07 08 25 29 LMP Okay.

07 08 25 32 CDR ... without a drink.

07 08 25 33 CMP That's fine, Jim.

07 08 25 41 CMP About 10 bags - soup, salad, beef, vegetable, drink, cookies -

07 08 25 54 LMP Oh, boy, I'll bet - I'll bet I've lost - When I get down from this flight, I bet I've lost - 12 pounds, or more.

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Day 8

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07 08 26 05 CMP I wouldn't be surprised. At all.

07 08 26 07 LMP And I bet I gain ... about 3 minutes ... flight.

07 08 26 12 CMP Hey, you got a long time ...

07 08 26 14 CDR Yes, ... I don't know. ...

07 08 26 28 CMP This is good.

07 08 26 29 CDR Yes.

07 08 26 30 LMP ...

07 08 26 38 CMP Anybody ever try ...?

07 08 26 39 LMP Yes, I did on the ground.

07 08 26 45 CMP ... when I put the water in ...

07 08 26 59 CDR Gosh, that's hot water. It's really good.

07 08 27 13 CMP Whoo! That stuff's good. ...

07 08 27 19 LMP Okay, ...

07 08 27 42 CMP No, I don't believe I've heard that one ...

07 08 27 45 CDR You - you need your sunglasses in here, Dave?
(Laughter) It's dark outside?

07 08 27 51 CMP ...

07 08 27 54 LMP Hey, that's downtown.

07 08 27 59 CDR That's down somewhere!

07 08 28 01 LMP Yes. Las Vegas.

07 08 28 02 CMP Yes.

07 08 28 03 CDR I know what I'll do. Go up to Las Vegas for a couple of days.

07 08 28 05 LMP Hey, that does sound like a good idea. Let's go to Las Vegas.

07 08 28 10 CDR Do you want to?

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Day 8

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07 08 28 12 LMP ...

07 08 28 13 CDR That's probably all you're going to get off is a weekend.

07 08 28 14 LMP Oh, boy. Hell, I could spend a year out there.

07 08 28 18 CMP I could go lie on a beach for weeks.

07 08 28 20 LMP Yes, me too.

07 08 28 21 CMP And go skiing for a week.

07 08 28 23 CDR Week, hell! I'm going to take a month.

07 08 28 25 CMP Yes.

07 08 28 26 CDR I'm going to take off, and then I'm going to retire.

07 08 28 28 CMP I thought you weren't going to retire.

07 08 28 29 CDR I changed my mind.

07 08 28 30 CMP (Laughter)

07 08 28 31 CDR I picked a lousy crew. I just can't put up with you.

07 08 28 34 CMP Oh. I was going to volunteer to retire, Jim, so you can stay.

07 08 28 38 CDR Oh, no!

07 08 28 39 LMP So was I.

07 08 28 40 CDR/CMP (Laughter)

07 08 28 41 CMP 10 days, man; I've done my share.

07 08 28 45 CDR (Laughter) That's how I feel like. I've contributed to the cause of the space program.

07 08 28 48 LMP Yes, I kind of feel the same way, I - I tell you ... wonder; it takes you so long to adapt.

07 08 28 56 CDR Yes, that's really - I think ...

07 08 29 01 CDR Yes, ... I'd gather - I gather from the remarks that you're making - No, I really feel ... right now,

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because I ... this morning. No. It never - it never even dawned on me. You know, we talked about this the other day, and I noticed - I thought you were eating pretty good the last couple of days. So I sort of forgot about it.

07 08 29 21 CDR Well, I - I know ...

07 08 29 25 CMP That's true.

07 08 29 26 CDR Yes, I think you're right. ...

07 08 29 29 CMP Like what?

07 08 29 31 CDR ... like yesterday. Is that ... you've been eating?

07 08 29 34 CMP No.

07 08 29 35 LMP Hey, you know what? I - I 'll tell you. What I really think we ought to have is some soup in here.

07 08 29 39 CMP Yes, I think so, too.

07 08 29 40 CDR Terrible! Say, you couldn't get out and buy Lipton's soup - -

07 08 29 46 LMP That's right! Because I normally - -

07 08 29 48 CDR What you really need is some way of - the basis of having some container that you could put the stuff into mixed with water - de-aerated (laughter) - -

07 08 29 50 LMP Yes, that ought to fix it, de-aerate it.

07 08 29 59 CMP They could do that.

07 08 30 00 CDR I wish that - They could do that? ... thing with a bleed on it?

07 08 30 05 CMP What's that?

07 08 30 09 CDR They'd have to ... Hey, you could have a piston on it or something. Put a paper ...

07 08 30 22 CMP ...

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07 08 30 25 CDR Oh, yes, they had a system like that. Designed it ... I wonder if you couldn't have a mechanical de-aerator in here, though?

07 08 30 34 CMP You mean a ...?

07 08 30 37 CDR No, I mean - I mean - If you let it set, to get the big bubbles in it, use centrifugal force with a piston - a heavy piston, ... to somehow or other - allow the stuff at the top to bleed through. All the air's going to be on the top, you could get a ... on it; put a stopper valve on it?

07 08 31 00 CMP ... if you stop it. ... pure water ...

07 08 31 13 CDR Like this ... a little centrifugal force thing.

07 08 31 18 CMP Yes, I wasn't trying to ...

07 08 31 24 CDR That's really how to do it, now.

07 08 31 25 CMP ...

07 08 31 28 CDR Yes, I mean, ... increases the reliability of your - the water supply of anything.

07 08 31 38 CMP ... get all the air out ...?

07 08 31 41 CDR Yes, but Dave, ours was nothing at all like this. We didn't have fuel cells; we just had a regular old water.

07 08 31 46 CMP We had fuel cells in our ...

07 08 31 56 CDR ... stuff coming out of ... hydrogen.

07 08 32 08 LMP I'm going to try these sausages.

07 08 32 11 CMP I think you'll like them. I'm afraid you'll like them.

07 08 32 16 LMP (Laughter)

07 08 32 21 CMP Oh, I was just kidding.

07 08 32 22 LMP Probability's with you, Dave.

07 08 32 24 CMP No, I was just kidding.

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07 08 32 27 LMP I noticed that.

07 08 32 29 CDR Well, I can get any of it down. There's nothing here that bothers me one way or the other. Hey, guess what I found up here?

07 08 32 37 CMP What?

07 08 32 38 CDR Hot chocolate!

07 08 32 39 CMP ...

07 08 32 40 CDR Oh, good. They're what?

07 08 32 41 CMP ...

07 08 32 42 CDR Yes, I put it there.

07 08 32 50 LMP ... We took it out ...

07 08 35 02 CDR I would've guessed, you ...

07 08 35 11 CMP What?

07 08 35 46 CMP No, they're pretty good. They're pretty good.

07 08 35 52 LMP No?

07 08 36 00 CMP Makes it look like a screen.

07 08 36 36 LMP Whoohool

07 08 36 51 CMP You know, the only bite-size food I like is these cheese sandwiches. I really like those.

07 08 37 06 CMP Matter of fact, the beef's going downhill. I don't like ... anymore.

07 08 39 23 CDR (Singing)

07 08 44 23 LMP ... Man, I'll never live that one down. Singing a song. Heck, every time I start to sing in church, three rows ahead turn around and look at me.

07 08 47 23 LMP ... chasing rabbits? (Laughter) God damn, I thought ... (laughter). Boing!

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07 08 48 02 LMP Save some of this stuff for the last day, so it'll be all -

07 08 48 52 CMP Why don't we give Rusty a bag?

07 08 49 35 LMP Water. Water.

07 08 49 51 CMP ... feel any better, Rusty?

07 08 50 09 LMP Hey, Dave, you want ...

07 08 50 24 LMP Drink water. A - I - I'm so thirsty, I just - I just want to gulp down some water.

07 08 50 35 CDR Hey, ... drink ... exercise.

07 08 50 50 CDR Baby, I got it.

07 08 51 38 LMP Well, we tried, Jim ... (Laughter)

07 08 53 48 CMP Acapulco. I think I'll go to Acapulco for about a week. Las Vegas for a couple of days. Colorado for a week.

07 08 54 00 CMP What? No, Acapulco doesn't cost you ... You ever been there, Jim? Sure, but when ... reservations.

07 08 56 04 LMP This is good.

07 08 56 41 CMP I thought you might like that. I was afraid you might like that.

07 08 56 46 CDR It tastes like sausage ... Tastes a little bit like ...

07 08 56 59 LMP I don't like that anymore.

07 08 57 28 LMP You know what the difference was? Especially when I'm through ... There's a lot more to it.

07 08 58 27 CDR Boy, I'll tell you, ... You got the survival, say you got the survival ... It's about 4 or 5 days, I guess. ... A couple of survival rations and that's all; and a rab - a live rabbit and you ... and cook him - About 30 miles altogether, something like that, you have to go through ... and all that. It'd be nice if you got back - We did it all year round, but I - I ...

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Day 8

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07 09 00 40 LMP ... I'd come in sort of quiet now. Then loud ...
"Oh, God damn it, I'm all around here ..."

07 09 01 26 LMP You got 4 years in there. ... Hell, no, man, if
you can do that all the time.

07 09 02 39 CDR God damn it, we're way up here, this time. Oh,
we're going by ...

07 09 03 06 CDR Say, we are going to come out right over Zanzibar.

07 09 03 09 CMP Are we really?

07 09 03 10 CDR Yes, ...

07 09 03 24 CMP Look at ...

07 09 03 37 CDR Oh, golly! Say! This is fabulous!

07 09 03 41 CMP Where?

07 09 03 43 LMP Oh, boy! Man!

07 09 03 44 CMP Lord!

07 09 04 01 CDR Beautiful! Spectacular! Golly!

07 09 04 12 LMP ...

07 09 04 18 CMP You do?

07 09 04 19 CDR Yes, ...

07 09 04 34 CMP That's just fabulous!

07 09 04 44 CDR I know it. That's what I had you ... for.

07 09 05 00 CMP So ..., you're doing it for nothing.

07 09 05 10 LMP Yes, that's ... I'll bet that's one of the prettiest
pictures in the whole ..., you know it, Jim.

07 09 05 27 CDR I'm surprised.

07 09 06 13 LMP Boy, that was worth waiting up for.

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Day 8

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07 09 06 39 CMP If these pictures come out, I'm not going to have enough walls in my house to hang them all up on. What is it, Jim? ... coming over the Himalayas ...

07 09 07 48 CDR I can - I can see the ground pretty good. Huh!

07 09 07 54 CMP I can't see anything I recognize.

07 09 08 37 LMP Boy, you sure ..., Jim.

07 09 09 36 CDR I flew right by it in a B-17.

07 09 09 46 CDR I flew right by it in a B-17.

07 09 09 48 CMP You did? ... fly the Hump in World War II.

07 09 09 53 LMP I didn't think there was a ...

07 09 09 58 CDR Anything we could fly with.

07 09 10 09 LMP Maybe just a little bitty ...

07 09 14 13 CMP Okay, we're about 450, I think, Jim.

07 09 21 56 LMP What's going on, Jim? Gees.

07 09 36 39 CMP Hey, were you saving this in the corner up here, Rusty?

07 09 36 46 LMP I like to sort of clean up at the end of the day ... quick clean.

07 09 42 21 LMP No, there's a couple more in the other one here ... pound a day ...

07 09 44 35 LMP About 50 feet?

07 09 56 10 LMP Ooh! ... get too hot for the throat.

07 17 37 06 CC -- Pitch and yaw trim: minus 0.64, minus 0.94. We've got about 60 seconds. Read them back as fast as you can.

07 17 37 24 CMP Roger; I missed the second batch. We broke - You broke up.

07 17 37 27 CC The second block, you say?

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07 17 37 31 CMP That's affirm.

07 17 37 32 CC Okay, reading second block: 120 1 Bravo, plus 318, minus 0680, 188:42:36, 3106. And we'd better take your readback over Antigua at 57, and we'd like to turn off the fan on H₂ tank 2 and turn off inverter 3.

07 17 38 07 CMP Okay, we'll clean up the switches, and what was the longitude on the first area?

07 17 38 14 CC Okay, longitude is minus 0640.

07 17 38 21 LMP Okay, see you at 57.

07 17 38 24 CC Roger.

07 17 38 39 CMP Yes. You do pretty good.

07 17 38 45 CDR Houston ... Yes.

07 17 38 49 CMP ... use all that hydrogen, did we?

07 17 38 51 LMP Huh?

07 17 38 52 CMP I said ... didn't use all that hydrogen.

07 17 38 56 LMP Oh, no, it can still go up another 20 psi. That's worth about, you know, 3 or 4 pounds of hydrogen.

07 17 39 06 CDR 1, 2, 3, 4, 5.

07 17 39 13 LMP I could feel it.

07 17 39 18 CDR 1, 2, 3, 4, 5; 1, 2, 3, 4, 5. 1 - Hello, hello, hello.

07 17 39 25 LMP Hello.

07 17 39 28 CMP Shoot, I'd been awake an hour and a half.

07 17 39 30 CDR Have you really?

07 17 39 32 CMP Yes. No use turning around ... After that last pass ... that guy was giving us.

07 17 40 03 CMP Now you're talking.

07 17 40 05 CDR 1, 2, 3, 4, 5; 1, 2, 3, 4, 5.

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Day 8

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07 17 40 07 LMP You're loud and clear.

07 17 40 11 CDR 1, 2, 3, 4, 5. I woke up at 184 hours and 20 minutes ... back to sleep.

07 17 40 35 LMP Oh, really?

07 17 40 36 CMP Yes?

07 17 40 37 LMP How come you didn't want them to call you?

07 17 40 39 CDR ... still sleeping.

07 17 42 56 CMP There, I can have my morning gas. One thing I like for breakfast is hydrogen and cocoa.

07 17 43 16 CDR Hot what?

07 17 43 17 CMP Hydrogen and cocoa.

07 17 43 18 CDR Oh, hydrogen and cocoa. Yes, that is good.

07 17 43 20 CMP Do you know what time it is?

07 17 45 31 CDR Yes, it's really nice in our house, isn't it?

07 17 46 17 CMP ... they're all open.

07 17 46 25 CDR We had ... in the window last night.

07 17 46 46 CMP Whoo, it's dark out.

07 17 46 48 LMP Yes.

07 17 47 24 LMP Where'd you find it? Really?

07 17 47 44 CMP Oh, bang. Right in there. ... we got - got 20-20 ... Okay.

07 17 48,33 LMP Oh, there's the problem.

07 17 48 38 CDR You mean that one?

07 17 48 40 CMP The one we're going on?

07 17 48 50 CDR What?

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07 17 48 54 CMP Good idea.

07 17 49 07 CDR Well, it's plus 20 and minus 40, minus 50. ...
30, plus 30 ...

07 17 49 39 CDR I'll recycle it again.

07 17 49 55 CMP I think ... difference ...

07 17 49 59 LMP 32 for hydrogen ...

07 17 50 27 CDR ... Right there. Oops, it's out to ... Hey, this
would be a very ...

07 17 50 36 LMP Let's do the SCS powerup.

07 17 50 39 CMP Going over Casablanca?

07 17 50 49 CMP ... checklist out ...

07 17 50 50 LMP Okay.

07 17 50 55 CDR Well, do the DAP - DAP ...

07 17 51 03 CMP We'll do the DAP -

07 17 51 08 CDR DAP activation.

07 17 51 12 LMP SCS. Ready?

07 17 51 13 CMP Ready.

07 17 51 18 LMP CB panel 8, closing.

07 17 51 26 CMP CLOSED.

07 17 51 27 LMP SPACECRAFT CONTROL, CMC.

07 17 51 31 CDR CMC.

07 17 51 32 LMP DELTA-V_{cg} ...

07 17 51 33 CDR DELTA-V_{cg} ...

07 17 51 37 LMP LOGIC POWER 2/3, ON, up.

07 17 51 41 CDR ON, up.

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Day 8

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0
07 17 51 42 LMP SIGNAL CONDITIONER/DRIVER BIAS POWER, two, AC 1/AC 2.
07 17 51 45 CDR AC 1/AC 2.
07 17 51 47 LMP Okay, SCS ELECTRONIC POWER, GDC/ECA.
07 17 51 51 CDR ... GDC ...
07 17 51 53 LMP EMAG TEMP light, OUT; verify.
07 17 51 54 CDR OUT.
07 17 51 55 LMP FDAI POWER, OFF; EMAG POWER, two, ON.
07 17 51 59 CDR ON.
07 17 52 00 LMP FDAI POWER, BOTH.
07 17 52 01 CDR BOTH.
07 17 52 03 LMP AUTO -
07 17 52 05 CMP - is ON. Okay.
07 17 52 06 LMP CMC going ON.
07 17 52 10 CDR Deactivate the DAP like ...
07 17 52 47 CDR ... go back and load the DAP, ...
07 17 52 51 CMP To what? VERB 65, that's where I usually take dead-
band.
07 17 52 59 LMP Unless you could ... automatically ...
07 17 53 07 CDR Yes, let's go back and load it - -
07 17 53 08 LMP Try it on the ground ... wide deadband. (Laughter)
You better check it before you do anything anyway.
07 17 53 21 CMP Yes.
07 17 54 23 CDR Okay, when we come up over the horizon, I'll try
to make us right side up. Where is the - status
quad?
07 17 54 41 LMP ... C.

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Day 8

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07 17 55 05 CMP Wonder why we never use A ...

07 17 55 11 CDR No, we're going to try it.

07 17 55 13 CMP I don't think ...

07 17 55 25 CDR Actually, B is the low quad.

07 17 55 28 CMP Sure.

07 17 55 44 CDR You ignite ... pad on B. ... on B and C, ... percent on D, and ... percent on A.

07 17 56 07 LMP That's pretty good.

07 17 56 11 CMP ... at 43 ... 42 in A, 42 in B, 44 in C, and 42 in D.

07 17 56 28 CDR According to these, you ought to be using quads A and D.

07 17 56 41 CMP ... used a little ...

07 17 56 52 LMP ... only used 5 percent out of B.

07 17 57 05 CDR 4 percent out of D - 4 percent out of D. That was on the ullage.

07 17 57 10 CC Apollo 9, Houston. Do you read?

07 17 57 19 CMP Roger. We're reading you.

07 17 57 26 CDR Houston, Apollo 9. We're reading you.

07 17 57 27 LMP No lock.

07 17 57 51 CC Apollo 9, Houston. How do you read?

07 17 57 55 CMP Roger; 5 by.

07 17 57 56 CC I'm reading you real good.

07 17 58 07 LMP What?

07 17 58 08 CDR Rusty, I guess you can see pretty good over there now, can't you?

07 17 58 10 LMP I'm trying to see the ground, but the window ...

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Day 8

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07 17 58 13 CDR Yes.

07 18 19 26 CDR It's over Mediterranean like, isn't it?

07 18 19 33 CMP Now, we're flying down pretty low.

07 18 19 40 CDR I thought I saw a ...

07 18 19 58 LMP This stereo won't fit.

07 18 20 00 CDR It's not that big. ... Gibraltar ...

07 18 20 06 CMP It's not that big.

07 18 20 07 LMP It's big.

07 18 20 14 CMP Great!

07 18 20 26 LMP Look in here, Dave (laughter).

07 18 20 36 LMP Always learn a little -

07 18 20 37 CDR Hey, would you get settled down and take four of them?

07 18 21 03 LMP Oh, there's the moon on the horizon. Want a picture of that?

07 18 21 06 CDR No, we don't want any.

07 18 21 26 LMP Hey, we're really moving you know it?

07 18 21 51 LMP Looks like a ... in the middle of the desert.

07 18 21 59 CMP Hey, do we get to see Tobruk or El Alamein - -

07 18 22 02 LMP No, that's along here, but I'm not sure that we can really see it.

07 18 22 07 CMP Oh, boy.

07 18 22 12 LMP Okay, there's - Here comes Cairo, you see the Nile delta right there.

07 18 22 23 CDR I can't see any water ...

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07 18 22 25 LMP See that - Look out that center hatch there. You ought to be able to see it coming. There's two ... big black V.

07 18 22 32 CMP I don't know ...

07 18 22 50 LMP I could have a vertical over here.

07 18 23 07 CMP ... cultivated area.

07 18 23 12 CDR ... I was ready for a V down there.

07 18 23 23 CDR We're bound to have a vertical at Cairo ...

07 18 23 30 CMP Get - get Cairo right here. What is it?

07 18 23 35 LMP Cairo's over there?

07 18 23 37 CMP Cairo's right below me.

07 18 23 42 CMP Huh?

07 18 23 44 LMP ... Yes, and all over it ...

07 18 24 05 CDR I don't know, but ...

07 18 24 13 CMP Boy, that's really, really pretty.

07 18 24 20 CDR Well, where was it, right at the tip of the V there Dave?

07 18 24 23 CMP Yes, right at the tip of the V. That's Cairo.

07 18 24 29 LMP ... Yes, that's Cairo.

07 18 24 44 CMP Alexandria is out on the coast; it sticks out on a little piece of land.

07 18 25 09 LMP Hey, Dave.

07 18 25 14 CDR Whooe!

07 18 25 27 LMP ... Hey, we need a roll, Jim.

07 18 25 30 CDR That's what I'm doing.

07 18 25 33 CMP Man, look at the rate. 0.6 of a degree per second.

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Day 8

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07 18 26 09 LMP That was pretty neat, wasn't it?

07 18 26 11 CMP Yes, it - that really was. You could see ...

07 18 26 15 CDR There ... too many clouds out today; I'm really surprised.

07 18 26 18 CMP ... too plentiful at Cairo.

07 18 26 25 CDR Huh?

07 18 26 26 CMP Did you go over Cairo before? Hey, we did?

07 18 26 27 CDR Yes, that ...

07 18 26 38 CDR What?

07 18 26 39 LMP We went right over it.

07 18 26 44 CMP Hey, next time we're going to be way off to the side of it, looks like.

07 18 26 53 LMP That was pretty.

07 18 27 14 LMP Boy, we're really pitching.

07 18 27 17 CDR Yes, we really are. I put a little of that in it, but then it put the rest of it in by itself.

07 18 27 36 CMP Time to go take a look at the optics.

07 18 27 39 CDR ... where we are.

07 18 27 41 CMP ... see if I can ... Hey, I haven't done anything yet, really, Rusty, purging-wise.

07 18 27 54 CDR We're not supposed to purge the H₂ tanks.

07 18 27 58 LMP Yes, we did that last night.

07 18 28 03 CDR Yes, boy. Here.

07 18 28 29 LMP I wonder why it's so different? One day you get a lot, and the next day you don't get hardly any.

07 18 28 36 CMP There is more land out to the left and the right.

07 18 28 58 LMP It's hot in here ...

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Day 8

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07 18 29 00 CMP Yes; it sort of is.

07 18 29 31 CDR Yes.

07 18 29 47 CMP I can't see a thing.

07 18 32 03 CMP The water.

07 18 32 05 LMP ... going back.

07 18 34 22 CDR I hate to spend all that fuel to stop those things. They're really ripping around there. There's some more land. India.

07 18 34 46 CDR Pretty, isn't it?

07 18 35 18 CMP Rusty, I still have your COMM. ... your COMM.

07 18 35 25 CDR Right. Oh, there's not much there - We've - A lot of pictures have been taken of it. I guess we - we ought to probably take an Indian picture, too. Why don't we take one?

07 18 35 43 CDR Those cotton-picking rates are building instead of damping.

07 18 35 47 LMP What?

07 18 35 48 CDR They're building again!

07 18 36 28 CMP Why don't you take one of Ceylon?

07 18 36 31 LMP I don't even think I can see it right now.

07 18 36 38 CDR Okay.

07 18 36 49 CMP Ready to do P51?

07 18 36 51 LMP Yes.

07 18 37 00 CMP How we want to bring it up?

07 18 37 01 CDR Huh?

07 18 37 02 CMP How do I - -

07 18 37 03 CDR What?

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07 18 37 04 CMP -- how do you want to do the P51?

07 18 37 05 CDR You're going to do a P51 COAS alignment, aren't you?

07 18 37 06 CMP Yes.

07 18 37 07 CDR Why don't you just do it then?

07 18 37 08 CMP Okay. Ready for the IMU?

07 18 37 11 CDR No, wait a second; I'm not. Let me get it.

07 18 37 31 CMP ... right up here.

07 18 37 56 CDR Yes, shoot, Dave, ... every time you turn it on.

07 18 38 02 CMP Coming on. Waiting for a NO ATTITUDE light, I think.

07 18 38 30 CDR Looks like you're going to just have to hit that yaw with a pulse.

07 18 38 38 CMP Well, listen, why not - Let's try to keep going, until it gets us to an attitude where ...

07 18 39 06 CMP Be careful of the gimbal lock .

07 18 39 16 CDR Yes. One's right over here? ... here.

07 18 39 21 CMP I don't see it.

07 18 39 43 CMP No way. It doesn't look like the rates are building.

07 18 39 49 CDR No, they're staying pretty much the same now. I think we can take it out.

07 18 39 55 CMP Okay.

07 18 40 08 CDR Okay, ... over here?

07 18 40 10 CMP Let me unplug ...

07 18 42 10 CMP You're probably going to put that around - Here it is, right up here. Have I got a what?

07 18 42 35 CMP Now we'll get to see how good a COAS calibration is after 5 days.

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07 18 43 01 CDR I know what I'll do; I'll ...

07 18 43 02 LMP No! ... do that.

07 18 43 04 CMP What?

07 18 43 06 LMP Do ...

07 18 43 07 CMP (Laughter) Don't do that.

07 18 43 26 CDR Did you find the flight plan anyway?

07 18 43 29 CMP I never ... looking.

07 18 43 32 LMP Me neither.

07 18 43 40 CMP Here, Rusty. There, that's for you.

07 18 43 46 LMP Does it belong over here?

07 18 43 47 CMP No, ...

07 18 43 48 LMP By the way, we're coming off the end over here.

07 18 43 58 LMP That's where that belongs, Dave, is under one of those window things.

07 18 44 03 CMP Is it really? Oh, shoot! - -

07 18 44 04 LMP So, one's got to be loose.

07 18 44 05 CMP - - One of those window things is loose. This or right here.

07 18 44 09 CDR Will it go on?

07 18 44 15 LMP Well, there's a bolt; I - I put a bolt - -

07 18 44 20 CMP No. That was the wrong bolt.

07 18 44 21 LMP Well, are you sure, Dave? I'm not sure I found the same bolt.

07 18 44 24 CMP I found it. It's all here.

07 18 44 27 LMP Okay, except for this -

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07 18 44 28 CMP Except for what you got there. Who! It's a good thing you recognized what that was.

07 18 44 39 LMP Yes, I put one together the other day.

07 18 44 46 CMP Are those tight over there?

07 18 44 47 LMP Yes, I just tightened them. They weren't.

07 18 45 04 LMP No, still daylight.

07 18 45 53 CDR ... through logging, I want you to start on the SO 65.

07 19 14 38 CC Apollo 9, Houston; 40 seconds LOS Mercury; see you Texas, 30.

07 19 14 45 CMP Okay. Let's get rid of that thing.

07 19 14 54 LMP Jimmy, why don't you -

07 19 14 56 CDR ... I come through the middle to ... Huh?

07 19 15 05 LMP What are you doing, Jim?

07 19 15 18 CDR Using the ... They're really neat!

07 19 15 55 LMP There's you a wake-up card.

07 19 16 30 CMP ... Regor.

07 19 16 51 CMP Looks like that ... alignment.

07 19 16 56 LMP AUTO optics has got an error.

07 19 16 58 CDR Yes.

07 19 17 05 LMP Flashing 51.

07 19 17 13 LMP Do you do that when you go to MANUAL?

07 19 17 18 CMP Yes.

07 19 17 30 CMP 34, Atria. Okay.

07 19 18 03 LMP Flashing 51.

07 19 18 19 CMP Sloppy, sloppy! Oh!

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07 19 18 24 LMP That's not too bad.

07 19 18 25 CMP Yes, that's a pretty good alignment - -

07 19 18 26 CDR Not bad.

07 19 18 27 CMP - - with the COAS, you know it?

07 19 18 28 LMP Yes.

07 19 18 29 CMP Don't sweat the telescope.

07 19 18 33 LMP Within 0.1 of a degree.

07 19 19 03 CMP Let's see what the sextant readability is.

07 19 20 24 LMP Old hydrogen really came out balanced after last night, you know it?

07 19 20 27 CDR Yes, man, right on the money.

07 19 20 29 LMP It's about a percent different now.

07 19 20 35 CDR ... I've still got to get the logging done.

07 19 20 43 LMP You got to get what?

07 19 20 45 CDR I still want to log this ...

07 19 21 11 LMP Oh, hell! Old water bag got wiped off.

07 19 21 15 CDR Oh, I saw it floating around down there underneath the seat a little while ago.

07 19 21 46 LMP Yes, we're getting down to the section now, where we're going to have to start adding heat to that hydrogen tank.

07 19 23 36 LMP Whee! That's pretty good. You're just going to reject those, huh?

07 19 23 43 CMP ... all these ...

07 19 23 46 LMP Yes, but I mean - you're not going to torque it, are you? Because it was with the telescope, instead of the sextant.

07 19 23 53 CMP No, no, it's the sextant.

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07 19 23 54 LMP Oh, that was the sextant. Oh, I thought you were doing the telescope to compare it.

07 19 24 01 CMP No, why don't I?

07 19 24 03 LMP Well, what was the one you just did before that?

07 19 24 09 CMP Sextant.

07 19 24 15 LMP So you just can't have a repeatable sextant - -

07 19 24 18 CMP Why don't I do one with the telescope then? I think that would be a fine idea. ... all the way around ...

07 19 24 28 LMP - - and just reject the ones with the telescope?

07 19 24 29 CMP ...

07 19 24 33 LMP Yes. The earth is getting there.

07 19 24 37 CMP Yes, reject the ones with the telescope - -

07 19 24 39 CDR Okay, I'm going to roll for you, Davey.

07 19 24 41 CMP Okay.

07 19 24 55 LMP Ohoo! We're looking backward. Boy, that was confusing. I was looking out the window trying to figure out "What am I seeing there?"

07 19 25 38 CMP That's funny, because I think I can see something out there. I can see Acrux. Oh, the earth, that's right. It's between the earth and the spacecraft. Oh, boy.

07 19 26 07 CDR That's ... pretty soon.

07 19 26 10 CMP Yes. I can see them - I don't know why it looks - I got Acrux down there. Hmm, the sun is showing up, too. I didn't quite get Atria. It's coming in, though. Okay. I guess we ought to have it, now. Come on, computer; I can see Atria. Don't give me that. ... your sextants ...? How about that, smart ... Smart telescope. Telescope, you see it, and sextants ...?

07 19 27 08 CMP Jim, I tell you what - Yes, if you pitch down -

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07 19 27 29 LMP What's our first event?
07 19 27 33 CMP Okay, Jim, I got one.
07 19 27 34 CDR You've got one?
07 19 27 35 CMP Yes.
07 19 27 47 LMP Are you looking at that rate ...?
07 19 27 49 CDR Yes.
07 19 27 50 CMP Everything's ...
07 19 28 00 CMP Oh, I - I can't handle it, Jim. I'm going to stop
and ...
07 19 28 25 LMP Oh, goody, another one. I wonder where that one's
from? We're coming apart at the seams, here.
07 19 28 44 CMP ... What a star! For daytime! Oh, boy!
07 19 28 49 LMP Really put you to the test.
07 19 28 52 CMP Yes. Now we got all those little things floating
out, too.
07 19 28 55 CDR (Laughter) ...
07 19 28 57 CMP Yes, you're right, it is.
07 19 29 15 CMP How - how are your rates, Jim?
07 19 29 17 CDR Zero.
07 19 29 18 CMP Are they really?
07 19 29 21 CDR Must be tracking along pretty nice.
07 19 29 23 CMP Yes.
07 19 29 30 CDR I'd like to give you a one-roll shot, but I think
I'll just go overboard. I'll give you one roll.
07 19 29 36 CMP Okay.
07 19 29 46 LMP How's your schnoz?

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07 19 29 48 CDR Really stopped up right now.

07 19 29 55 CMP Oh, look at that! Worse in the telescope than the COAS! That's something. Well, I can't see - -

07 19 30 07 CT Texas, voice net-2. No, we don't. Texas, voice net-2.

07 19 30 18 CDR Get off the air, net-2.

07 19 30 28 CMP Look at that.

07 19 30 32 LMP ...

07 19 30 34 CDR Well, ... still better in the COAS.

07 19 30 40 LMP I won't torque these.

07 19 52 26 CMP Rusty broke it.

07 19 52 35 CMP Oh, I'm beginning to get some, Jim. Yes, keep rolling - you're rolling left, huh? Oh, that - You'll be in good shape.

07 19 52 43 CDR Yes, but we won't be looking north - Well, maybe if we ...

07 19 52 50 LMP If you roll left - You're pointed clear right to the ground, see?

07 19 52 57 CMP Yes, but you're pitching the wrong way - It almost looks like -

07 19 53 02 CDR ... yaw, too.

07 19 53 22 LMP ... get to Galveston ... on me.

07 19 53 26 CMP You got something? We - we're about 4 minutes from the ... Mountains, or whatever it is.

07 19 53 34 LMP No, ...

07 19 53 50 CDR See?

06 19 53 53 CMP Obliquely.

07 19 54 01 CMP Lots of sand dunes.

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07 19 54 03 CDR Yes.

07 19 54 08 CMP Where are we on the map? Did we figure that out?

07 19 54 12 LMP Yes.

07 19 54 13 CMP Oh, right here. Hey, we're going across to the "Lady, Be Good" site.

07 19 54 21 CMP And, that desert right down there -

07 19 54 27 CDR How would you like to have to walk 400 miles across that, huh?

07 19 54 29 CMP You know what the - the crushing thing about the story was?

07 19 54 33 LMP What?

07 19 54 34 CMP They got to a bunch of dunes, that looked exactly like the dunes on the shore of the Mediterranean.

07 19 54 39 CDR Yes.

07 19 54 40 CMP Then, they really sprinted.

07 19 54 41 LMP Oh!

07 19 54 42 CMP You know, they thought, "We're there, we're there," you know. They got up over the dunes, and that's where they started falling off. Klunk, klunk, klunk. And they only then had another 300 ... - -

07 19 54 55 LMP Jim, you're going to be looking south.

07 19 54 56 CDR Yes.

07 19 54 59 LMP Hey, I think I see - -

07 19 55 14 CDR ... geology down there.

07 19 55 21 CDR Hey, this part of Africa's sort of the ... place in the world.

07 19 55 25 CMP Except, maybe the North and South Pole.

07 19 55 39 CMP Oh, look over here. Golly, look at that, Jim. Coming up on it in 55 minutes, Jim.

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07 19 55 51 CDR How you looking over there?

07 19 55 55 LMP I'm not looking ...

07 19 55 57 CMP You're not, huh? Great. I'm going to take one of that, there.

07 19 56 03 LMP How many have we got allocated for today?

07 19 56 06 CDR Let's take some of Africa ...

07 19 56 10 LMP We didn't in other parts of the world.

07 19 56 20 CMP I really missed ...

07 19 56 25 CDR Oh, there's cinder cones down there.

07 19 56 26 CMP Big cinder cones, yes. Golly, that's a beauty. Do you see it, Rusty?

07 19 56 33 LMP Yes.

07 19 56 34 CDR ... straight down here on the - Is that what you're talking about?

07 19 56 36 LMP Yes.

07 19 56 38 CMP Yes, right there. That's a beauty, isn't it?

07 19 56 43 LMP Yes.

07 19 56 51 LMP See anything else?

07 19 56 53 CMP No. But we've got a minute away from the mountains. What time are the mountains?

07 19 56 57 CDR They were on - they were 57 a little bit ago - -

07 19 56 59 CMP 57 something. Look south of the nadir, Jim, 30 degrees. Do you see anything? Did you see anything?

07 19 57 05 LMP I could see pretty good south of the nadir, I think.

07 19 57 08 CDR So could I. I could - I could see real well around to the south, but I don't see anything good enough to take pictures of.

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07 19 57 14 CMP There's another good piece of geology. Rusty's been waiting - waiting to take pictures.

07 19 57 18 LMP Hey, let me - let me take one picture - -

07 19 57 20 CMP Yes.

07 19 57 21 LMP Well! Well, no - -

07 19 57 25 CDR Yes.

07 19 57 36 CDR Boy, that cinder cone is pretty. What - -

07 19 57 39 LMP How's the Red Sea ... up there?

07 19 57 41 CMP The Red Sea is at - 188:03:06.

07 19 57 45 CDR What time is it now?

07 19 57 48 CMP We've got about 5 minutes to go. We're about upside down, alright?

07 19 57 55 LMP Yes, it would be great to stop the roll ...

07 19 58 01 CMP Boy, here's another interesting piece. You - you reckon two shots will give them the stereo that they're looking for?

07 19 58 07 LMP Not - not two shots aimed at the same direction - I-mean, at the same point.

07 19 58 10 CMP Yes.

07 19 58 12 LMP I think most of these things - that - by way out here - are just one shot good, Dave. I think that something around the United States and Mexico, where they can get to and survey and do something with, they need stereo, but this stuff way out here, they just want a picture of it. You can - you can see an impact down there that - -

07 19 58 33 CMP Yes.

07 19 58 34 LMP - - just like the lava on the moon.

07 19 58 37 CMP Oh, we ... was impact or not, though.

07 19 58 41 LMP Oh, of course, all - -

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07 19 58 42 LMP/CMP All circular features are impacts!

07 19 58 52 CMP That's pretty good - pretty good geologist. Maybe he could get the - Australia, if he's a geologist.

07 19 59 04 LMP Oh course. Sure like to get out there and see that nice big crater.

07 19 59 12 CMP That would be interesting. Not too many people get ... - -

07 19 59 15 LMP The Nile River.

07 19 59 17 CMP - - I do believe.

07 19 59 23 CDR What's this?

07 19 59 26 LMP Let's see where we are. We may be right down - that's right, we're going right by Khartoum. That's - We're about at Khartoum right now; and that's where the Nile joins - the White Nile and the Blue Nile - -

07 19 59 36 CDR White Nile and the Blue Nile comes together, there.

07 19 59 37 LMP That's right. That's right where we're going over, isn't it? Oh, what time is it?

07 19 59 42 CMP ...

07 19 59 43 LMP Good, that's - We should be a little bit south of track; so, it ought to be down my side, here. Let's see if I can see it.

07 19 59 52 CMP South? That should be on Jim's side.

07 19 59 54 LMP Oh, south is on Jim's side. That's right. Okay.

07 19 59 58 CMP Look at the striation.

07 19 59 59 LMP Is that a good word?

07 20 00 00 CDR Look at the what?

07 20 00 01 CMP Striation.

07 20 00 02 LMP Is that a good word?

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07 20 00 03 CMP Oh, yes.

07 20 00 04 LMP Good word, yes?

07 20 00 05 CDR Good word. That's not right, but it's a good word.

07 20 00 07 CMP Alstrait (laughter).

07 20 00 10 LMP Jim, do you see Khartoum down there, yet?

07 20 00 13 CDR I think it's up ahead to the left there. Yes.

07 20 00 15 CMP ... morphic granulate down there, too.

07 20 00 20 LMP Now, you've gone too far.

07 20 00 22 CDR Okay, this one is - -

07 20 00 23 LMP Is that it, Jim? Down to the left, there?

07 20 00 27 CDR No, ...

07 20 00 31 CMP I don't see anything at all. Should it be south of track, Rusty?

07 20 00 35 LMP Yes. It should be south of track, it should be right at the junction of the two rivers.

07 20 00 38 CMP Junction. Two rivers. Now this is the Blue Nile under us, I think. Isn't the Blue Nile farther to the east?

07 20 00 49 CDR Hey, give me - Let me take a picture - -

07 20 00 50 LMP To the what?

07 20 00 51 CMP To the east?

07 20 00 52 CDR - - take a picture of the junction of the two rivers.

07 20 01 01 CDR That blue's pretty.

07 20 01 02 LMP Yes. I think that's the Blue Nile.

07 20 01 08 CMP There we go. Look at the cultivation on the river there?

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07 20 01 11 LMP Yes. And there's some right up ahead here, too, almost on track.

07 20 01 15 CMP Hey, we're going to be pretty good at this - -

07 20 01 17 LMP The greenest looking fields I've seen.

07 20 01 20 CMP Seven frames at 10 seconds, ... We're going to be in good shape to do that.

07 20 01 23 CDR Hey, I'm not sure we want to take those. Oh, of what?

07 20 01 26 CMP Not the - the Red Sea.

07 20 01 28 CDR The Red Sea. Oh, yes, let's take the Red Sea. Look at this cultivation down there - -

07 20 01 30 LMP Yes, that's what I was going to say. That's the - those are the best looking fields I've seen. That looks like home, doesn't it? A lot of them. Wonder what those other things are that aren't green, but look like they're - -

07 20 01 43 CMP Oh, they're brown fields.

07 20 01 44 LMP No, but they look different; you know, like it's a special kind of crop or something. Oh, we're getting into some - rocky stuff, now.

07 20 01 57 CMP Say, why don't you call when 10 seconds comes up, Rusty?

07 20 02 00 LMP Yes, okay.

07 20 02 01 CMP 03:06 is the beginning.

07 20 02 03 LMP Okay, and you're going to take them straight out.

07 20 02 04 CMP Yes, I'll take them straight down.

07 20 02 09 LMP Okay. 03:06. You got about 1 minute.

07 20 02 10 CMP Alright.

07 20 02 17 LMP And I'll just give you a mark every 10 seconds, and we want seven up; right?

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07 20 02 21 CMP Yes. ...

07 20 02 30 LMP Oh, the're going to go away, though. Looks - They're not too bad.

07 20 02 34 CDR Yes, and as soon as we get over this one ..., your lights come back on in. It gets good again.

07 20 02 39 CMP Yes. ...

07 20 02 44 LMP Okay, stand by. It's about 15 seconds - -

07 20 02 48 CDR Yes. You ought to start counting, Dave, if you see that lake down there.

07 20 02 51 CMP Okay. Oh, that little lake?

07 20 02 55 CDR Yes.

07 20 02 56 CMP Rusty, start the count.

07 20 02 59 LMP Okay. You just take one.

07 20 03 00 CMP Yes, I took - over that lake.

07 20 03 01 LMP Okay. I'll just give you another mark in 10 seconds, here.

07 20 03 04 CMP Okay.

07 20 03 06 LMP 3, 2, 1 -

07 20 03 09 LMP MARK.

07 20 03 10 CMP Geepers, just ... - -

07 20 03 12 LMP Works pretty good, though.

07 20 03 13 CMP - - ... down there.

07 20 03 14 LMP Oh, this is going to be great. 3, 2, 1 -

07 20 03 18 LMP MARK.

07 20 03 19 CMP Number 3.

07 20 03 20 CDR Look at those big craters, down there.

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07 20 03 21 CMP Yes.

07 20 03 25 LMP 3, 2, 1 -

07 20 03 29 LMP MARK.

07 20 03 30 LMP Number 4.

07 20 03 31 CDR Keep taking them straight down, because you don't get a hair as much ... reflected, nearly as much.

07 20 03 36 LMP 3, 2, 1 -

07 20 03 38 CMP Great!

07 20 03 39 LMP MARK.

07 20 03 42 CDR Man, that is great!

07 20 03 47 LMP 3, 2, 1 -

07 20 03 49 LMP MARK.

07 20 03 53 LMP Okay, have I got one more here?

07 20 03 54 CMP Yes.

07 20 03 56 LMP 3, 2, 1 -

07 20 03 59 LMP MARK.

07 20 04 00 LMP Okay, that's one more than they asked for.

07 20 04 01 CMP Is it really?

07 20 04 02 LMP Yes.

07 20 04 03 CMP That looks pretty good.

07 20 04 04 LMP No, I'm sorry. It wasn't. Hey, take one more here.

07 20 04 06 LMP 3, 2, 1 -

07 20 04 09 CDR Take a picture over there, Dave - -

07 20 04 11 CMP Okay.

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07 20 04 12 CDR Whoooo - Oh, yes - Hey, take a picture over the right, Rusty. That's the part that I was telling you about.

07 20 04 22 LMP Yes. Alright.

07 20 04 33 CDR I think that was a pretty good strip.

07 20 04 34 LMP Yes. Except you were pulling up a little bit, instead of steering out the window. You're - And that window is almost perpendicular to the - -

07 20 04 43 CDR You're drive - -

07 20 04 45 LMP - - your angle to the window.

07 20 04 46 CDR - - try to angle straight to the ground.

07 20 04 48 LMP Yes. Yes, I know. You can tell out the side window. It's almost - We were almost in the SO 65 attitude. That's okay. They can't tell the difference - 10 degrees.

07 20 05 09 LMP Okay, okay. Now we're coming back across the - -

07 20 05 12 CMP How far - -

07 20 05 13 LMP - - ... peninsula.

07 20 05 15 CMP - - How far off of the times were we, Rusty?

07 20 05 17 LMP No, we were right on it.

07 20 05 19 CMP Oh, okay.

07 20 05 20 LMP Okay, we're coming across Somaliland.

07 20 05 23 CDR Somaliland - How about stopping and get a tamale?

07 20 05 27 LMP Boy, wouldn't that be good?

07 20 05 29 CMP Sure would.

07 20 05 30 CDR Anything with some seasoning right now would really taste good.

07 20 05 32 LMP What's that island out there? Oh. ... Oh, yes, I remember that one.

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07 20 05 41 CMP That's it right there. I never even heard of it before.

07 20 05 44 LMP Oh, you haven't heard of that, ...?

07 20 05 50 CDR Oh, Rusty, Rusty. Oh, that's right.

07 20 05 54 CDR Hey, you ... have Andes on time. Did you?

07 20 06 00 CMP Yes, isn't that something to give the time - to be out the old timeline? Poor Australia, we never get to see it in the daytime.

07 20 06 21 CDR Well, that wasn't a bad strip either, was it?

07 20 06 26 LMP I'll be damned.

07 20 06 27 CMP What do we have ahead of us now, Rusty? ... out in the water somewhere.

07 20 06 30 LMP Yes, we're out in the middle of the Indian Ocean right now. The only thing out there is - the Chagos Archipelago out - almost on our track, which is - I guess, a bunch of reefs out in the middle of the Indian Ocean.

07 20 06 46 CDR Hey, we checked right out that time. Zero roll, VERB 55.

07 20 06 50 CMP Great!

07 20 06 54 CDR Now, listen, you knew that ... (laughter).

07 20 07 18 CMP Yes.

07 20 07 19 LMP And on your left - -

07 20 07 20 CDR (Laughter)

07 20 07 22 LMP - - to your left is the Chagos Archipelago. To the right, the island of ...

07 20 07 41 CDR What?

07 20 07 51 CMP What number was that?

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07 20 07 54 CDR ... Grape - Hey, grape and hot chocolate in the same package. Man, I am going to have that for breakfast. Boy, Rusty ... that breakfast.

07 20 08 06 LMP No, I gave Dave my hot chocolate.

07 20 08 10 CMP Golly, why didn't you drink ...? Rusty, ... take a few in North Africa.

07 20 08 26 CDR This is sausage. How was that sausage yesterday?

07 20 08 28 CMP Pretty good. And if I say it's pretty good - -

07 20 08 34 LMP It must be pretty good!

07 20 08 36 CDR Hey, here's - here's cocoa - Hey, here's really a meal. Cocoa, grape, sausage, peaches, and bacon. Want that?

07 20 08 45 CMP No, I'm going to have that tomorrow.

07 20 08 48 LMP We already got it all dug out here.

07 20 08 50 CMP Yes, I know. Well, with our luck, we may not be here tomorrow.

07 20 08 54 LMP I think we will be, unless for some reason, - That's day 8, meal C, right? Day 8, meal A, I mean.

07 20 09 02 CMP ... I see you changed the paper bag already.

07 20 09 08 CDR When there aren't any more meals like that, ... you know we don't have enough meals for ... What else do you have over there stashed away?

07 20 09 17 LMP Huh?

07 20 09 19 CMP What else do you have over there stashed away?

07 20 09 20 LMP Here. ...

07 20 09 23 CDR No - Eat it. No, no, I was only kidding. I was just opening this to put in the bag.

07 20 09 42 CDR Which one - which one - Is this the one we're putting in? ... the old grab bag.

07 20 10 08 CDR Is it up there in the tunnel, maybe?

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07 20 10 13 LMP Oh, here it is. Here you go.

07 20 10 52 LMP Oh, yes, we got to get ... open, too.

07 20 10 59 CDR Oh, shit, oh dear ... part of the ...

07 20 11 00 LMP Great.

07 20 11 03 CDR How you doing there, sport?

07 20 11 36 LMP Okay, well, I guess I'll go continue to dump some water.

07 20 11 40 CDR Good idea.

07 20 11 41 LMP Hey, what's that?

07 20 11 42 CDR That's land.

07 20 11 43 LMP Is that land?

07 20 11 45 CMP Where?

07 20 11 46 LMP Up ahead of us there, to the north part of it.

07 20 11 52 CMP Or, are those low brown clouds?

07 20 11 58 LMP Yes.

07 20 12 01 CDR Maybe we ought to take a second look at them when we get up there. It might be ... cloud.

07 20 12 04 LMP If it's land, it's called - Australia.

07 20 12 08 CMP Oh, yes.

07 20 12 15 CDR Hey!

07 20 12 17 LMP It's got to be dark there.

07 20 12 24 CMP ... daylight, I really do. Are we going over Australia this pass?

07 20 12 28 LMP Yes. Sure are.

07 20 12 33 CMP ... looks like ...

07 20 12 36 CDR Australia is really pretty.

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792

Day 8

~~CONFIDENTIAL~~

07 20 12 43 CMP ...

07 20 12 53 LMP ... over on our last pass, too, though.

07 20 13 33 CMP We sure don't have two grapefruits ...

07 20 13 36 CDR Probably don't. I ... yesterday.

07 20 13 39 LMP ... breakfast yesterday.

07 20 13 41 CMP Oh, really?

07 20 13 42 CDR Yes.

07 20 13 46 LMP Let me see. It's 1 hour past the update ... should be there; give you some idea of whether - it should be - 188:05. Oh, no. We've got 11 minutes to go until we get to Australia. Our pass is going to be black.

07 20 14 12 CDR ... already.

07 20 14 20 LMP Let's see; I guess - you want me to continue to dump some water?

07 20 14 26 CDR Yes.

07 20 14 43 LMP I didn't use much of your gas on that alignment.

07 20 14 45 CDR Good.

07 20 14 55 LMP This is more than using the optics, though.

07 20 14 58 CMP Oh, yes.

07 20 15 03 LMP It's difficult to articulate the COAS.

07 20 15 06 CMP Yes, it is. It's awfully difficult to articulate the optics.

07 20 15 07 CDR ...

07 20 15 10 CMP True, if you don't remove the damn thing.

07 20 15 13 CDR It's a ... job to articulate - -

07 20 15 15 LMP Oh, you're just ...

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Day 8

793

07 20 15 17 CMP I wasn't through with it. I got to get an alignment this pass, Rusty. Okay?

07 20 15 19 LMP Whatever you say.

07 20 15 24 CMP Oh, I really hate to do this.

07 20 15 25 CDR ... southeast of ... is suppose to do ... put it in your pocket.

07 20 15 42 LMP Well, where was that water bag? There should be an empty bag up here, Dave, that I was fixing to dump that water. See it up there?

07 20 15 50 CMP No, I sure don't.

07 20 16 00 CMP Here you are. Let's get the ...

07 20 16 07 LMP Well, doggone it.

07 20 16 16 LMP Hey, here's a meal that came floating over here.

07 20 16 19 CDR Good.

07 20 16 20 LMP Day 4, meal C. There it is, Dave. How about grabbing it for me, will you?

07 20 16 25 CMP Where?

07 20 16 26 LMP That bag, right there.

07 20 16 27 CDR Day 4, meal C? How could - how come we still happen to have that around?

07 20 16 31 LMP Probably got a glue on it.

07 20 16 32 CDR Yes. As a matter of fact -

07 20 16 43 CMP Have you tasted the water to see if it has still got the chlorine in it?

07 20 16 46 LMP No, you want to taste it?

07 20 16 48 CMP Yes. I'll be glad to. I'll fix me something to drink.

07 20 16 50 LMP Alright.

~~CONFIDENTIAL~~

794

Day 8

~~CONFIDENTIAL~~

07 20 16 54 CMP I'm thirsty and I'm hungry.

07 20 16 59 LMP I tell you, all you got to do is take a tissue or a rag, if you've got a clean tissue, and put some water in it and smell it.

07 20 17 07 CDR ... smell a pipe.

07 20 17 11 CMP Look at that. We got two big bags. Whew!

07 20 17 15 CDR Looks like - it looks like ... we don't want - -

07 20 17 20 LMP Give me a drink, David, and I'll - -

07 20 17 23 CMP Okay.

07 20 17 24 CDR I think we also ought to get out the other ...

07 20 17 28 LMP Why don't you - Let's put that one down in the food box.

07 20 17 41 CMP Let me find one that is palatable. Oh, hey, here's another one.

07 20 17 59 CMP How about an orange juice? There's more orange drink than anything else.

07 20 18 13 LMP Good.

07 20 18 17 CMP I wish there was more grapefruit drink. I hate this other ...

07 20 18 21 CDR ... is screwed up.

07 20 18 22 LMP Really?

07 20 18 23 CMP ... grape drink or grape ...

07 20 18 31 CMP I think they're a little better now. But I ate the orange ... and they're a pretty close second.

07 20 18 48 CDR That's right ... right of rockers if you call this - -

07 20 18 50 LMP You know what would be a better idea?

07 20 18 52 CDR What?

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Day 8

795

07 20 18 53 LMP Take all the spaghetti's ... oranges ... throw it in into the food locker and ...

07 20 51 03 CMP Anybody want part of a bacon?

07 20 51 06 LMP Okay, good, I'll split it with you, Dave. I'm not going to want all of it, but I need a little snack.

07 20 51 10 CMP Okay.

07 20 51 13 CMP Hey, we could take that and stuff it in ... food box? Yes, we could have an empty ... Never open the food box again.

07 20 51 29 CDR ... someplace to put our scraps.

07 20 53 23 CMP 189:10:23.

07 20 55 10 CMP ... reading the bubble.

07 20 55 18 LMP Okay, ... stopped.

07 20 55 21 CMP Huh?

07 20 55 23 LMP Okay, the ...

07 20 55 25 CMP Yes, I see it over here in the clear area.

07 20 55 33 LMP Okay, that's got it wrong one. Now, we take this end and we go -

07 20 55 47 CMP We do it for a minute.

07 20 56 03 CDR There we go.

07 20 56 11 CMP Not too bad. Delays it a little anyway.

07 20 56 17 LMP ... it does it all in one spot and not on to the other unit.

07 20 56 20 LMP If you can get rid of it that way - toward the end I can - if there isn't too much water with it, if it all comes out as gas. The capillary action kind of makes it - or something makes it stick to your mouth and the gas kind of goes in the middle.

07 20 57 20 CMP What actually the ...?

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796 Day 8

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07 20 57 25 CDR ...

07 21 28 41 CMP A rather interesting picture out this side.

07 21 28 46 LMP What's out there?

07 21 28 52 LMP It might be worth a shot. 20 - Desert with lava flow.

07 21 29 50 CMP How are we doing angle-wise?

07 21 31 33 CDR Boy, there's some real sand dunes down there - whev

07 21 31 38 LMP You know something? We look like we've been in it.

07 21 31 42 CDR (Laughter)

07 21 31 52 CDR Now we're pitching back down ...

07 21 31 59 LMP No, I guess if we rolled left -

07 21 32 02 CDR ... down at 0.4 degree per second.

07 21 32 05 LMP Yes. Hey, I think I can see it coming, if that's Mount Kilimanjaro. You think that's the mountain up there, Jim? Out the front window? Or you think that's just a - Oh, I guess that's just a - -

07 21 32 17 CDR The one I'm looking at, that's just a cloud.

07 21 32 18 LMP - - just a cloud.

07 21 32 25 LMP No, well, I'm not sure yet. Let me see.

07 21 32 39 LMP This must be the South Sahara. When the world gets overpopulated, they can all come here.

07 21 32 53 LMP Hey, Jim, you're looking down on clouds.

07 21 32 56 CDR Really? ...

07 21 32 58 CMP ...

07 21 33 03 LMP Can you see it through them?

07 21 33 04 CDR Yes -

07 21 33 05 LMP ... in this side.

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Day 8

797

07 21 33 10 CDR Real light brown -

07 21 33 15 LMP Cloudy as can be, and there's nothing that even resembles vegetation. It looks like lunar soil doesn't it?

07 21 33 22 CDR Yes. ...

07 21 33 26 LMP What?

07 21 33 32 CMP There it is, Kilimanjaro out there. I see it, I see it!

07 21 33 39 LMP Yes.

07 21 33 40 CMP Over to the left, there. Is that where you were looking?

07 21 33 45 LMP What time is it? Oh, yes - -

07 21 33 46 CMP 6 minutes.

07 21 33 47 CDR It's ... time, yes.

07 21 33 49 LMP I thought I saw a big brown thing with snow, and there's supposed to be snow on that mountain. I read about it.

07 21 33 55 CMP Oh, yes.

07 21 34 15 CDR This actually is supposed to be where we start tracking. Right under us.

07 21 34 24 LMP Let me get the map there, Dave.

07 21 34 29 CMP Here, let me roll right and ...

07 21 34 32 CDR He can ... out here.

07 21 34 39 LMP A little bit south of track.

07 21 34 48 CMP It's pitching around ...

07 21 34 51 LMP Yes, this window is - this one is - moving around - pitch rate up to about 0.3 degree per second - 0.4-degree-per-second pitchup, and 0.4 - degree per-second pitchdown.

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798 Day 8

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07 21 35 16 CDR We're climbing, aren't we?

07 21 35 21 LMP Yes.

07 21 35 28 LMP Well, actually - actually, that's not a bad attitude just the way it is, Jim.

07 21 35 34 CDR Okay. Just let it go then.

07 21 35 38 LMP Let's see, we've got another 5 minutes - 4 - little over 4 minutes.

07 21 35 47 LMP I see a town. I see a waterhole there.

07 21 35 54 CDR See the old waterhole?

07 21 35 57 LMP Over on your side is an old waterhole.

07 21 36 01 CDR Oh, yes. Ye old waterhole.

07 21 36 21 CDR It looks pretty cloudy.

07 21 36 24 LMP It sure does. See, if they were just low clouds, old Kilimanjaro would stick right out of the top of them.

07 21 36 40 LMP Pitch rate's dropping off - it's down about 0.25.

07 21 36 46 CDR That's good.

07 21 36 59 LMP How many more minutes?

07 21 37 00 CDR 3.

07 21 37 03 LMP ... might be hole up there.

07 21 38 13 CMP Need any ... up there?

07 21 38 16 LMP No, about a minute and a half.

07 21 38 25 CMP Really doesn't look that bad.

07 21 38 30 CDR There's water down underneath.

07 21 38 32 LMP Yes - -

07 21 38 33 CMP Yes, we go over by Lake Victoria - lake right beside it.

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Day 8

799

07 21 38 41 CDR Yes, there's another one right down underneath us -
right now.

07 21 38 45 LMP Yes.

07 21 38 56 LMP Oh, boy - it's getting kind of steep.

07 21 39 04 LMP We must be rolling to the right, too, aren't we?

07 21 39 09 CDR Got that?

07 21 39 10 LMP Yes - I can't - no longer see along the track.

07 21 39 21 LMP Do you see a mountain coming up?

07 21 39 25 CDR I don't see anything at all that resembles a
mountain.

07 21 39 27 CMP I don't either.

07 21 39 36 CDR There's the shoreline of Africa.

07 21 39 38 LMP Yes. I think I see the mountain out in front of
us there, but it's under that cloud. Is that it,
Dave? Yes, there it is. Yes, you can see the
volcano. Yes.

07 21 39 47 CDR Whereabouts?

07 21 39 48 CMP Right straight out here.

07 21 39 49 LMP Yes. Can you get it, Dave? Well, get the mountain
and put it in the top of the field.

07 21 40 04 LMP You get it?

07 21 40 05 CMP Yes - Let me get one more here.

07 21 40 12 LMP You can get one when we go over it.

07 21 40 17 CMP I got to find the damn thing again, though. You
know, I'm not sure that that's it.

07 21 40 21 LMP Yes, it is.

07 21 40 22 CMP Yes, that's it. Oh, yes - it's got the crater in
the top, too.

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800 Day 8

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07 21 40 30 CDR Maybe I'm looking at the wrong thing. Where is it, Dave?

07 21 40 32 CMP It's way down here.

07 21 40 33 LMP It's back out to the right now, Jim. It's got a lot of clouds around it, but the clouds are heavy on the - the east slope of it.

07 21 40 43 CDR Slope? Yes, that's what I was looking at. You think that's it, huh?

07 21 40 48 LMP Yes. It's the only mountain around, Jim.

07 21 40 53 CDR It doesn't look like a mountain to me.

07 21 40 54 LMP Oh, yes. With snow on the top of it? You don't see much now on the ground; or didn't you think it was snow.

07 21 41 01 CDR No, as a matter of fact, I thought it was a cloud.

07 21 41 04 CMP Let's tell everybody it is Kilimanjaro.

07 21 41 05 CDR (Laughter)

07 21 41 06 LMP Oh, hell, yes, it was. That was - if it was a cloud, it had rocks sticking out the top of it. In which case it was Kilimanjaro anyway. Okay.

07 21 41 27 LMP How would you read that number now, Dave?

07 21 41 36 LMP It's right between two - You can't even tell what the hell it says.

07 21 41 42 CMP You were getting ready to check 78 and 79, but I - -

07 21 41 44 LMP Yes.

07 21 42 26 LMP Remind me. Is that yours?

07 21 42 42 LMP And on into the Pacific!

07 21 42 50 LMP There's a loose, near-empty, grapefruit bag floating around. I guess - It's not in front of me any longer

07 21 42 58 CMP When you said that one, I thought you ...

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Day 8

801

07 21 43 25 LMP Whoa, baby.

07 21 43 39 LMP Look at that gas bubble!

07 21 44 10 CMP ...

07 21 44 12 CDR Yes, sure can.

07 21 44 29 LMP Oh, those are pretty islands. Oh, shoot! This -

07 21 44 37 CMP Oh, yes!

07 21 44 39 CDR To the right?

07 21 44 40 LMP Over here.

07 21 44 43 CDR Well - I don't think we can still get them.

07 21 44 47 LMP Yes.

07 21 44 48 CDR Way back there?

07 21 44 49 LMP Yes. These ... too hard to get.

07 21 44 57 CMP ... an easier place.

07 21 44 59 LMP Trying to figure out where that was. That was in the next frame - ... is the setting now, Dave?

07 21 46 47 CMP We're doing ... on the SO 65, aren't we?

07 21 46 48 LMP Yes, you're supposed to do another alignment - to 190, 30, 00.

07 21 47 05 CMP I already did one to 190, 30, 00.

07 21 47 06 LMP Oh, you did? Okay.

07 21 47 20 LMP You did your align to 190? 30, 00?

07 21 47 31 LMP You did it more than one REV ahead, huh?

07 21 47 34 CMP Yes.

07 21 47 35 CDR I'm sure he did.

07 21 47 37 LMP ... he did.

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802

Day 8

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07 21 49 55 LMP Here, here's your ...

07 21 50 07 CMP I was really looking forward to this. I thought you had a surprise.

07 21 50 26 LMP Yes, I think I will. Hey, those were the - Corigodoes - Caragos [?] shoals.

07 21 50 36 CMP Oh, yes. ...

07 21 50 48 LMP Hey, we could play interceptor with these Cepacols and vitamin pills. Cepacols could be the bombers and the vitamin pills, the fighters.

07 21 53 29 LMP Want to try to see some cities at night here? We're going right over Perth - -

07 21 53 34 CMP Oh, really?

07 21 53 35 LMP - - and right over Brisbane.

07 21 53 56 LMP Oh, boy, coming up are a whole bunch of really nice islands in the South Pacific.

07 21 54 00 CDR Where are we going?

07 21 54 01 LMP Right up past New Caledonia and then the Loyalty Islands, the Fiji Islands, Western Samoa, Danger Island, right past Christmas Island - Boy, we got the whole batch of them.

07 21 54 27 LMP Boy, we go right over Fiji.

07 21 54 40 LMP When does it say to unstow, Jim?

07 21 54 45 CDR I just ... the flight plan, Rusty. It says that after we terminate our SO 65 ... 2-1/2 hours to unstow the spacecraft, and hour to eat, an hour to do chores, and then have our rest period.

07 21 55 05 CMP Jim, you want ... these?

07 21 55 13 CMP It took us 30 minutes to get ready for that burn yesterday?

07 21 55 33 CDR Yes.

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Day 8

803

07 21 55 49 CMP What time do we do SO 65? Is that the next thing we have?

07 21 55 54 CDR Yes.

07 21 55 56 LMP They want to take those off, even though the weather's broken.

07 21 55 58 CMP 190, 42 - ... 45 more.

07 21 56 04 LMP Ready to unstow? I'll get them out.

07 22 25 26 LMP Here's a little bag, Davey.

07 22 26 22 CDR Do we have any 70-millimeter stuff to take yet?

07 22 26 25 LMP Yes. Shots north of track.

07 22 27 53 CDR Feeling any better?

07 22 28 11 CDR Well, did you time yourself? Get all that way out?

07 22 28 16 LMP Yes, I'm feeling - Boy, that's a lot better. Somewhere - in here, another 5 minutes ...

07 22 29 39 CDR Dave, check that pyro there - It's ...

07 22 29 43 LMP 29:37, okay. Coming up across Baja California - -

07 23 01 26 CDR ... night pass.

07 23 01 31 CMP Okay.

07 23 01 32 LMP Yes, we're going across.... Why don't you disable ...? We've already got it scheduled.

07 23 01 41 CMP Yes. Step number 1 after the last pictures ...

07 23 01 45 CDR Right.

07 23 01 49 LMP There's the ... Crater, again.

07 23 01 51 CMP Oh, really? ...

07 23 01 53 LMP Yes, let me read it off - No, you can't see it out there, Dave. Get under me and look up there. No, under me - under me, look outside.

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804

Day 8

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07 23 01 59 CMP Oh, yes. Oh, that's really - real active, isn't it?

07 23 02 04 LMP Yes.

07 23 02 26 CDR It's still not time?

07 23 02 45 CC Apollo 9, Houston. About 1 minute LOS. I'd like to verify the ATTITUDE SET switch is in GDC.

07 23 02 54 CDR I think the new ATTITUDE SET is in IMU.

07 23 02 57 CMP ... and it goes to GDC. I knew there was a reason for it - -

07 23 03 01 CC Roger. Request GDC unless you have a real reason to put it in IMU.

07 23 03 07 CDR No, that's just where it ended up the last time I did the GDC test.

07 23 03 13 CC Roger.

07 23 03 16 CMP I knew there was a reason!

07 23 03 17 LMP Are they going to read something if you do it - leave it in GDC?

07 23 03 21 CDR I don't know. When I ask them about that the other day, they said they were having trouble - -

07 23 03 25 CC 9, Houston. In the preparation to your powering up the S-band, like to do the LMP checklist, page 214. The first six - the first six steps of the TELECOMM systems powerup.

07 23 03 45 LMP Okay, understand. The first six steps on 214, LMP checklist.

07 23 03 50 CC Roger.

07 23 03 55 CMP You got her going? That's not bad!

07 23 04 02 LMP No, it's not really. ...

07 23 04 39 CDR Last night ... trying to vent the batteries down.

07 23 04 43 CMP Yes, that doesn't look like ...

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Day 8

805

07 23 04 53 LMP ... all hazy up there?
07 23 05 10 CMP That's the last roll of film.
07 23 05 25 CDR I know.
07 23 05 43 CMP ... reconfiguring.
07 23 06 04 LMP What time do we have that high gain antenna thing?
07 23 06 15 CMP 232:08 or so.
07 23 06 20 LMP Oh.
07 23 06 47 CMP ... following steps.
07 23 06 56 CMP It's a ..., Jimmy.
07 23 06 58 CDR Yes.
07 23 06 59 LMP Yes, we - we go out over and then back into.
07 23 07 08 CMP 14 minutes ...
07 23 07 13 LMP Wool! Oh, there are a lot of big clouds.
07 23 07 19 CMP The water.
07 23 07 22 CDR Another interesting thing, huh?
07 23 07 24 CMP Oh, yes.
07 23 07 26 LMP The ... either, you know it?
07 23 08 37 LMP Lot's of water - pretty sight.
07 23 08 42 CMP Sure we didn't want to point it out the other side?
07 23 08 47 LMP No, right there in the middle.
07 23 08 51 CDR No, right down the middle would probably be better.
07 23 09 01 CMP ... pink, brown, blue - I've just seen a whole bunch
of keen-looking clouds.
07 23 09 05 CDR Keen-looking what?
07 23 09 06 CMP Clouds.

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806

Day 8

~~CONFIDENTIAL~~

07 23 09 08 LMP Great.

07 23 09 11 CMP Carry all the folks at home one apiece.

07 23 09 17 LMP True.

07 23 09 19 CDR Anything out there, but ...?

07 23 09 20 LMP Yes.

07 23 09 21 CDR Really?

07 23 09 25 LMP Really a big ...

07 23 09 28 CDR Oh, maybe they want the weather.

07 23 10 18 LMP Got to go over that wild desert.

07 23 10 33 CMP 7 more minutes to go.

07 23 11 34 CDR The clouds look like they're just 30 degrees south of track.

07 23 11 39 LMP ... I'm never going to get this done over one station.

07 23 11 47 CMP Repeat - repeat ...

07 23 12 03 CMP ...

07 23 12 07 LMP ...

07 23 12 23 CMP Wonder if they know that?

07 23 12 26 CDR ... part of Africa for 50 years.

07 23 12 32 LMP I don't know - Stanley met Livingston.

07 23 13 51 LMP Man, just think of all those lions and elephants and rhinoceri - -

07 23 13 57 CMP I don't see a one.

07 23 13 58 CDR Sure is jungly down there, isn't it?

07 23 14 01 LMP Boy, there's a - it really is jungly. Man, oh man!

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Day 8

807

07 23 14 24 LMP We should be coming up over Lake Nyasa here some-
time soon. A great big lake.

07 23 15 23 CMP I don't really like ...

07 23 15 42 CDR Lake Nyasa goes for miles.

07 23 15 43 LMP Do you ...?

07 23 15 45 CDR Yes, ... Lake Nyasa.

07 23 15 46 LMP Whoo ...

07 23 16 12 CMP There's some geology down there. I guess there's
just not ever been very many people in there, huh?

07 23 16 18 CDR The ones that are in there don't come out.

07 23 16 21 LMP The ones that go in don't come out?

07 23 16 26 CMP You have about a minute more.

07 23 16 33 LMP Supposed to go to Madagascar now, right?

07 23 16 36 CDR Yes.

07 23 16 39 LMP You better hurry up.

07 23 16 44 CDR Sun's kind of peeping out down there, too.

07 23 16 46 LMP Yes, it sure is. The shadows are really getting
long. There's your update form. They block the
view.

07 23 17 06 CMP Is Madagascar in the view on the horizon?

07 23 17 08 CDR I see the shoreline there on the horizon. Can you
tell what time to turn it off?

07 23 17 15 LMP 50 something - 40 something.

07 23 17 35 CMP ... the shadows.

07 23 17 45 CMP Okay, Jimmy - you want to turn it off on time or
let it go?

07 23 17 50 CDR ... Madagascar.

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808 Day 8

~~CONFIDENTIAL~~

07 23 17 53 CMP Now is the time. 14 minutes should get it. I don't see Madagascar out either.

07 23 18 07 LMP It's going to be too dark now anyway.

07 23 18 09 CDR ... went out at the same time I started to hit it off.

07 23 18 18 CMP These darn Cameroons - whabobbedo. What's under these clouds? Huh?

07 23 18 25 LMP The weather - the weathermen will really think we're neat.

07 23 18 28 CMP They will?

07 23 18 30 LMP I hope.

07 23 19 12 LMP Well.

07 23 19 37 CMP ...

07 23 19 57 LMP I wonder if they want that thing on now to warm up.

07 23 20 00 CMP Ron didn't really say when they wanted to do that.

07 23 20 06 LMP I think we got 2 hours.

07 23 20 08 CMP No. I don't know if they wanted to look at it or what. You know, beforehand, he said to do the first six steps in the checklist, but he didn't really say when.

07 23 20 17 LMP Yes, ...

07 23 20 24 CDR When do we turn it on? When do we do the steps?

07 23 20 32 CMP 193:08. In a couple of hours.

07 23 20 40 CDR Why don't we turn it on about ...?

07 23 21 16 LMP How come we're on secondary transponder?

07 23 21 19 CMP Maybe it's because the primary didn't work very good. We've been for about 4 days.

07 23 21 24 LMP Yes, I just never looked at the console. I just wanted to know when did we do it?

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Day 8

809

07 23 21 28 CMP One day, I don't remember which one.

07 23 21 41 CDR I am going to get me something to eat; I'm getting hungry.

07 23 21 44 CMP I haven't even finished my breakfast yet.

07 23 21 50 CDR Getting sleepy. So I have to have something to keep me awake.

07 23 21 54 LMP The hours we keep are ridiculous.

07 23 22 04 LMP 191:25, P52 time ...

07 23 22 34 CMP Hey, Jim.

07 23 22 35 CDR Yes.

07 23 22 36 CMP Through with the ORB rate?

07 23 22 37 CDR Yes.

07 23 22 38 CMP Okay, I'm going to VERB 46 it. Okay?

07 23 22 41 CDR No, I clocked it ...

07 23 22 46 CMP Here.

07 23 22 47 LMP Huh? ...

07 23 22 48 CDR I clocked it ...

07 23 22 50 CMP Did you clock it the other way?

07 23 22 51 CDR Yes, ...

07 23 22 52 CMP Okay, I clocked it this way.

07 23 23 13 CMP How did your ball work?

07 23 23 15 CDR ...

07 23 24 01 LMP I think I'm going to go hunt one more time for my tape.

07 23 24 10 CDR ...

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810

Day 8

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07 23 24 13 LMP I think I can do that without disturbing ... aligner. (Singing) Boy, my old suit's really jammed over there now, isn't it? Goll!

07 23 24 39 LMP It's definitely not in that pocket. It's not in that pocket. Let's see, it might be in this pocket: ..., an American flag, goofballs, some earplugs, another goofball, some ... lanyards, a neckband; and nothing else. Nothing at all.

07 23 26 17 LMP In this pocket, we have - nothing - and in this pocket, we have - nothing. I have a sneaky feeling my tape is either in orbit by itself or it went by-by with the LM.

07 23 26 59 CMP Maybe you ... and put it in it.

07 23 27 01 LMP Yes, I may very well have.

07 23 27 04 CDR ... in the suit.

07 23 27 06 LMP No, I don't think so. I think, Jim, I would've put it in that pocket, Jim, and - -

07 23 27 11 CDR You mean ... hidden in here - -

07 23 27 16 LMP Yes, but most of the things that have hidden themselves have magically unhidden themselves. Doesn't say it isn't.

07 23 27 31 LMP Oh, well, another meal without music!

07 23 27 59 CMP ... your platform.

07 23 28 14 CMP Oh, oh!

07 23 29 23 CMP What's today? What's today? Do you know?

07 23 29 27 LMP Tuesday.

07 23 29 28 CMP ...

07 23 29 34 CDR It is Tuesday?

07 23 29 35 LMP Tuesday.

07 23 29 36 CDR Nice day, isn't it?

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Day 8

811

07 23 29 39 LMP Let's see. We launched on the third. It's the 12th, isn't it?

07 23 29 53 CMP I'd say you're right.

07 23 29 59 CDR I think that's right.

07 23 30 01 LMP I think that's right; somebody told me we come back on Thursday.

07 23 30 05 CDR ...

07 23 30 16 LMP Well, the only other place it could be is in the L-shaped bag, I don't have the courage to challenge that. Hey, look what I found, a whole bunch of stop-trots. You want some stop-trots?

07 23 30 57 CMP Just what we need. Well, let's see what we're doing.

07 23 31 36 LMP ...

07 23 31 41 LMP What were you after?

07 23 31 44 CMP Oh, I was trying to find - Saturn.

07 23 31 47 LMP Did you find it?

07 23 31 48 CMP No, it's not in the field of view.

07 23 31 54 LMP The rings are almost edge on, man. I don't think it's going to be very spectacular.

07 23 31 57 CMP Oh, are they really?

07 23 31 58 LMP Yes. I think it takes another 6, 7, or 8 years before they get to the point where they come up with a good angle again.

07 23 32 28 CMP 09.

07 23 32 30 CDR Okay. Understand Hawaii LOS at 44:07, instead of 09.

07 23 32 33 CMP Hey, that's great. I was hoping you'd get a chance to try that.

07 23 32 41 CDR Oh, good.

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812

Day 8

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07 23 32 43 LMP Well, good.

07 23 47 47 CMP Okay, we'll keep her over and, if we have any questions, give you a buzz back.

07 23 47 50 CC Okay, ... after the antenna stops slewing.

07 23 47 58 CDR Man, am I sleepy!

07 23 47 59 CMP Okay, I copy that after the antenna stops slewing.

07 23 48 05 CDR Why don't you drive the boat and let me take a little nap?

07 23 48 11 CMP Okay.

07 23 48 13 LMP I think, Dave, we're going to do just about everything we had - that we brought up here with us.

07 23 48 18 CDR ... didn't even know you had with you.

07 23 48 20 CMP Well, I didn't think we'd be able to get this thing in here in time. We - we wrote it up, but I didn't think we'd get it in here.

07 23 48 27 CDR What time is it?

07 23 48 28 CMP 192:48 ...

07 23 48 36 LMP We're at 191:48 now, Jim.

07 23 48 39 CMP Oh, I'm sorry. Oh, let me see.

07 23 48 46 CDR Let's see. We're supposed to do - -

07 23 48 48 LMP An SO 65 we've got to do.

07 23 48 51 CDR ...

07 23 48 54 LMP Gosh, we've only got a few minutes to get to bed, Jim.

07 23 48 57 CDR Hand me that thing again, Rusty.

07 23 48 59 LMP The SO 65 pad here?

07 23 49 02 CDR Yes. SO 65.

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Day 8

813

07 23 49 10 LMP I can't find the damn thing; oh, here it is. Oh, wait a minute. The data is not here, is it?

07 23 49 16 CDR I put it right after that.

07 23 49 18 LMP Oh, yes, in the gimbal angle; okay.

07 23 52 56 LMP ... frames in 8 seconds - Whooeel! - -

07 23 53 06 CDR - - 8-second intervals.

07 23 53 07 LMP Ohh!

07 23 53 45 CMP Damn, damn, that's a ...

07 23 53 50 CDR ... catch up ...

07 23 53 51 CMP When we catch up, we're safe.

07 23 53 53 LMP What do we have to do tomorrow?

07 23 53 55 CDR ...

07 23 54 05 CMP Get ready for that 350-pound cake. Oh boy, oh boy. I hope they have some ice cream with that.

07 23 54 16 LMP Have a 340-pound ice cream sandwich!

07 23 54 20 CMP Yes, yes! Okay, 10 frames at 8 seconds starting at 32. 21, 49, 57 - Yes, alright. DSKY 21, 49 ...

07 23 55 08 CDR Your time is 190:09 - 192:00:00. Key align.

07 23 55 11 CMP Oh, key align, I already did that. It's lunch time, now, isn't it?

07 23 55 21 LMP Yes, from the time we got up, it is.

07 23 55 30 CMP Almost bedtime for McDivitt.

07 23 55 35 CDR I'm really sleepy.

07 23 55 51 CMP Okay, about the time we get sleepy, he'll wake up again and go charging off on some campaign.

07 23 55 55 LMP Naturally.

07 23 55 58 CMP Look out.

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Day 8

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07 23 55 59 CDR That's right (laughter). I know it.

07 23 56 04 CMP Oh, oh, you - Where's your bag full of - Oh, here it is. Hard food. ... the light ...

07 23 56 30 CMP Those are peaches in there.

07 23 56 32 LMP Peaches? I just remembered ...

07 23 57 22 CMP Fuel cell 2 seems to have cured itself completely.

07 23 57 25 LMP Yes, it looks pretty good, doesn't it? ...

07 23 57 26 CMP Went charging along all night, huh?

07 23 57 29 LMP Hey, Dave, you know what did it - -

07 23 57 30 CMP No - -

07 23 57 31 LMP - - the hydrogen purging - -

07 23 57 32 CDR (Laughter)

07 23 57 33 CMP - - no.

07 23 57 34 LMP Sure it did - -

07 23 57 37 CDR With all that contamination?

07 23 57 38 LMP - - until it finally blew it out.

07 23 57 40 CMP It was close to the redline.

07 23 57 45 LMP ... does that.

07 23 57 48 CMP No kidding.

07 23 57 54 CDR A red - orange and blue sunrise.

07 23 58 03 LMP ... get a 120 something times ...

07 23 58 08 CDR We've ... had a couple, haven't we?

07 23 58 11 LMP I was talking to my ... right before launch, and ... going over the flight plan, and he said, "You're going to start coming down on the hundred and whatever it was revolution." And I thought, "Oh God! Don't say it that way."

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Day 8

815

07 23 58 23 CDR (Laughter)

07 23 58 28 LMP It really sounded like an awfully long time when he said it in revolutions.

07 23 58 47 CDR Ho hum, I could just about take a 10-minute nap here, if Dave got us to the right spot at the right time.

07 23 58 52 CMP We're almost there, aren't we? ... Yes, we're there.

07 23 58 58 CDR Oh, they got 10 more degrees.

07 23 59 01 CMP Okay, ... Let me get my ... nap.

07 23 59 08 CDR ... I'll get us there. I'll do my fair share.

07 23 59 15 CMP Better look out.

07 23 59 16 CDR Wait until we get the S-band test. There's nothing I have to do there, I don't believe, besides turn the S-band off to nap.

07 23 59 27 CMP Listen, we'll let you nap, if you'll promise not to get on a campaign tonight when it's bed - time for bed.

07 23 59 34 CDR Okay, I promise. Tomorrow, look out; today, you're safe.

07 23 59 38 CMP Tomorrow, I wish you'd do a lot of campaigning.

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DAY 9

08 00 00 05 LMP Why don't we get the coordinates of the carrier and surprise them and land tonight?

08 00 00 10 CDR (Laughter) They had a little trouble ... If we -

08 00 00 12 LMP Drop in on them.

08 00 00 14 CDR - - land on the carrier tonight it will really surprise everybody, because we're not going home until ... Wouldn't that be something - See that spot - and all of a sudden you see it go - (Laughter)

08 00 00 23 LMP Wheel! Klunk!

08 00 00 26 CDR No, if we could do a 90-degree left-hand turn and fly about 4000 miles north and land.

08 00 00 46 CDR Seems like it's getting stuffy in here!

08 00 00 49 CMP I was noticing that, too, I'm wondering if -

08 00 00 55 CDR Yes, why don't you take ...? It's all here; I got it.

08 00 01 03 CMP Where did you have it?

08 00 01 38 LMP Hey, guess we ought to do away with the cam - -

08 00 01 40 CMP Now we'll get to see how good a COAS calibration is after 5 days.

08 00 44 38 CDR I'm not sure that you would either.

08 00 44 39 LMP Gee, that must be a satellite! Whew! Whew!

08 00 44 43 CC Apollo 9, Houston. About 30 seconds LOS; Tananarive at 53.

08 00 44 48 CDR Roger, Houston. We saw Pegasus going by. We mounted the diastimeter and positioned the spacecraft in the proper attitude, and right at the moment that you said it'd be there, why, she went

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Day 9

817

through. It appeared as two bright, white spots, separated by about - -

08 00 45 01 CMP No, wait; that's the diastimeter split, Jim.

08 00 45 04 CDR Oh. Okay. We saw her go through as a bright spot. He was going very fast; probably took him about 20 seconds or so to get across the field of view of the diastimeter from right to left. Yes. That's right, I forgot about that.

08 00 45 19 CC Roger.

08 00 45 22 CMP You can't focus on it at infinity - -

08 00 45 23 CDR Yes.

08 00 45 24 CMP - - ... stopped at 4 miles. Well! That was exciting.

08 00 45 32 CDR Yes, it was. Sort of broke up the day, didn't it? (Laughter)

08 00 45 34 CMP Sure did.

08 00 45 34 CMP Okay. Let's see - We're not doing anything else ...

08 00 45 37 CDR ... dump urine, that's all ...

08 00 45 44 CDR (Laughter) You never found - Well, let's see, if you had the COAS pointed in the wrong direction, you never would see it, would you?

08 00 45 52 IMP No, I finally saw it, Jim.

08 00 45 53 CDR Did you? Oh, good.

08 00 45 54 IMP But I wasn't sure what it was, at all. But when you yawed back over you got him just about on the axis at one point there. ...

08 00 46 02 CDR Yes, I came back over and - -

08 00 46 05 IMP Yes.

08 00 46 06 CDR - - and then he came right back in, and then he drifted out to the top.

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818 Day 9

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08 00 46 08 LMP He was really moving!

08 00 46 09 CDR Yes, wasn't he, though? (Laughter)

08 00 46 10 LMP Whoo! Did you ..., Dave?

08 00 46 12 CMP Yes. It took me a minute to find out - what - what sort of ... my eyes in.

08 00 46 20 CDR Yes. Okay.

08 00 46 30 CMP ...

08 00 46 35 CDR Yes.

08 00 46 36 CMP I want to look at the ground ...

08 00 46 40 CDR I was looking at the ground as he came across and I think it - plus, maybe you're pointing straight down here, and it just doesn't hack it. Here. I'll get it.

08 00 46 50 LMP No, it's - -

08 00 46 51 CDR Yes, I know how - I know how it has to go in.

08 00 47 00 CDR I've got a half of an orange.

08 00 47 03 CMP You what?

08 00 47 05 CDR Did anybody lose half of an orange?

08 00 47 06 LMP Yes. It's probably mine. Yes.

08 00 47 08 CMP Jim, I'm going to do an alignment, again - -

08 00 47 09 CDR Yes, you've got to do an alignment, and we have to do an S-band antenna thing.

08 00 47 14 CMP Yes, that'll be ... day.

08 00 47 15 CDR Yes, what's the - ... past the ... control plane here; we're supposed to point out - to point out of plane which way?

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Day 9

819

08 00 47 24 CMP North. You've got the - you've got the angles - you should have angles. Rusty wrote them down in that - in the - -

08 00 47 29 CDR Okay, you got to do the platform alignment first; that's the main thing. Matter of fact, if we have to point out of plane north - Well, we're already doing that - -

08 00 47 37 CMP Why don't you do it right there?

08 00 47 39 CDR Yes; I was going to say we're already doing that, so we should be able to get by here without getting into gimbal lock.

08 00 47 45 CMP You know, I was really hoping they'd try a P32 - -

08 00 47 49 CDR Yes.

08 00 47 50 CMP - - because with that much rate stuff, boy, I'd ... we don't go to sleep.

08 00 47 52 CDR Yes.

08 00 47 53 CMP ... we just let her roll.

08 00 47 55 CDR I think they are going to have to do that - I frankly can't see how you're going to go to the moon, unless you sleep on the way.

08 00 48 01 CMP Boy, I don't either.

08 00 48 02 CDR If they can't expect us to be able to do anything when we get there.

08 00 48 05 CMP You could spend 1 day learning how to housekeep and 2 days resting.

08 00 48 18 CMP Man, I've got to get that down there. Ohh! The garbage bag is really loading up. Umph!

08 00 48 50 CMP Okay, P52 preferred. Oh, ho.

08 00 49 01 CDR It doesn't ... come up with a 2, does it?

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820

Day 9

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08 00 49 03 CMP You're supposed to come up with a 1 in it if they load it preferred; and ... desired REFSMMAT, you supposed to set the flag.

08 00 49 10 CDR It is, huh?

08 00 49 12 LMP I thought you did away with the flag.

08 00 49 14 CMP Well, the flag's still there but it's really - really - There's no constraint on the flag. But they used to set it when they uplinked the desired REFSMMAT, so you'd get the one here that says the ... are loaded. But that's the last thing that sent up on the uplink, so it's got to be there. If it's not there, we get a garbage alignment.

08 00 49 32 CDR Great!

08 00 49 33 CMP How's that look, Jim?

08 00 49 37 CDR That looks - that doesn't look like it's going to get us out of plane, Dave. That's only going to yaw us over about 20 degrees.

08 00 49 51 CMP Yes, but you're already yawed over here already.

08 00 49 54 CDR Yes, but that would yaw us back toward the middle wouldn't it?

08 00 49 56 CMP Well, I don't - They didn't necessarily say - they said it's aligned out of plane to the north they didn't really say it's like - -

08 00 50 00 CDR Okay. Alright. Try it.

08 00 50 02 CMP ... this doesn't get her out of plane.

08 00 50 03 CDR Yes. Yes, but not that much, usually.

08 00 50 05 CMP Well, we can talk to them over Carnarvon, and if that's wrong, they'll - We can do it some other time.

08 00 50 14 LMP You're not going to try in daytime, I hope.

08 00 50 19 CMP No.

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Day 9

821

08 00 50 20 CDR We're getting on towards dark here; I'll wait.

08 00 50 23 CMP We'll wait until Rusty gets through obliterating the sky.

08 00 50 25 CDR (Laughter)

08 00 50 27 CMP Who has the - -

08 00 50 30 LMP Go ahead and try it. See what happens.

08 00 50 31 CDR Who has the tourniquet tied around my right leg?

08 00 50 34 LMP I guess that's me. My hose. Try it, Dave; see what happens.

08 00 50 42 CMP No, I'll wait. I don't want to press my luck.

08 00 50 46 CDR You know, as a matter of fact, the way my COMM cable is routed now, I'm a little more mobile than I usually am. Goes around the bottom and comes back in.

08 00 51 13 LMP Well, let's see. There's got to be a tissue dispenser or either ... around somewhere.

08 00 51 18 CDR Okay, the tissue dispenser - -

08 00 51 19 CMP There's one on top of my head. Here's one.

08 00 51 21 LMP Okay. Thank you, David.

08 00 51 26 CDR You'd think that, with as many of these as we have, you wouldn't have any trouble finding one.

08 00 51 29 LMP We need to keep one permanently stowed in the bathroom down here.

08 00 51 32 CDR Well, I try to keep one over on this side, because this is where I go to the can, but I - I'm never over there.

08 00 51 37 LMP That's the trouble; we've got three different bathrooms.

08 00 51 39 CDR (Laughter)

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822 Day 9

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08 00 51 40 LMP I go on my side; David goes in the middle; and you go on your side.

08 00 52 13 CMP ... MASTER ALARM? My caution and warning light lit up. Oh, my goodness, there's only one CRYO PRESS, right?

08 00 52 31 CDR That P CO₂ runs about 1.9, no matter what. I think the gage is stuck.

08 00 52 35 LMP No, it goes down to 1.5 after changing ... and ... 1.8 to 2.

08 00 52 41 CMP Yes.

08 00 52 43 LMP It always goes back down to - -

08 00 52 44 CDR Did it go down a little bit?

08 00 52 45 LMP I think it - -

08 00 52 46 CMP Yes.

08 00 52 47 CDR Every time I look at it, it looks like it's always about in the same spot.

08 00 52 52 CMP How's fuel cell 2, today?

08 00 52 53 LMP Great. Behaving like a normal fuel cell.

08 00 53 25 CDR Are these the ...?

08 00 53 46 CMP ... dirty. Ugh! ... pretty grubby, although actually it's not as grubby as if we were in the woods somewhere.

08 00 53 57 LMP Say, it's not as grubby as I thought it was going to be.

08 00 53 59 CMP Up here, you can't dig yourself a slit trench. ... clean ... myself clean.

08 00 54 03 CDR (Laughter) ...

08 00 55 34 CMP It's all done, if you want to check it. I thought we were almost through the darkness when we were looking at that - -

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Day 9

823

08 00 55 40 LMP You're right, Dave.

08 00 55 43 CMP - - Pegasus thing.

08 00 55 44 CDR We were almost through the darkness.

08 00 55 45 CMP How come we're not in the darkness?

08 00 55 46 CDR I don't know. I don't have the slightest. I don't have the flight plan.

08 00 55 49 CMP You don't figure our orbits have speeded up a little, do you?

08 00 55 52 CDR (Laughter) You don't know how to clean windows. You're going to do it the rest of the flight.

08 00 56 04 CMP ... star check. ...

08 00 56 12 CDR Okay.

08 00 56 15 CMP It might not be a bad idea.

08 00 56 16 CDR Yes.

08 00 56 17 CMP ... and check the field of view, due to ... There's - there's quite a few - If you get the navigation star - there's two or three more in there.

08 00 56 34 CDR Stop that.

08 00 56 45 LMP (Singing) Here, you want to put these back, Dave?

08 00 56 52 CMP No, those aren't mine; I don't know where they came from.

08 00 56 54 LMP Oh. Well - they're Dave's ... to Jim.

08 00 56 56 LMP Oh. Hey, before you start, let me throw a piece of trash over in the - in the locker.

08 00 57 06 CDR Oop. I caught something - was getting out there.

08 00 57 10 SC Mmm ...

08 00 57 14 CMP Alright.

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824

Day 9

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08 00 57 35 CMP What's that ... you been using up?
08 00 57 43 CMP What's the station before we go?
08 00 57 45 LMP ... as well.
08 00 57 50 CDR If it does, I hope we don't get a ... (Laughter)
08 00 57 53 CMP It doesn't - You won't even notice the table of food.
08 00 58 01 LMP Huh?
08 00 58 02 CDR ... By the time it touched the ..., it will probably
... the entire - the whole ...
08 00 58 10 LMP He's got all those pieces.
08 00 58 19 CMP Ooh. Throw it out.
08 00 59 26 LMP ... the S-band.
08 00 59 39 CDR I want you guys to know that the chamber pressure
is 5 psi and has been ever since we took off.
08 00 59 43 LMP The what?
08 00 59 48 CDR The SPS chamber pressure.
08 00 59 52 CMP Oh, really?
08 00 59 54 CDR Yes.
08 01 00 00 LMP ... atmospheric pressure.
08 01 00 06 CMP Think so ... vapor pressure in the ...
08 01 00 23 LMP Boy, the deadband is ... really building up there?
08 01 00 37 CDR Yes.
08 01 00 38 LMP Four balls 2.
08 01 00 39 CMP Seems like I'm building up to a bad one.
08 01 00 42 LMP It really is such a ...
08 01 00 44 CMP In fact, I almost prefer to have ...

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Day 9

825

08 01 00 47 CDR (Laughter)

08 01 00 49 CMP So I could get out of the deadband.

08 01 00 50 CDR ... with the ullage.

08 01 00 54 CMP I think, a little. I'll just go across it back and forth.

08 01 01 07 CMP ... the time. God damn, it's ... that's ...

08 01 01 18 LMP Pineapple, fruitcake. You guys like the fruitcake?

08 01 01 21 CMP I just had some ...

08 01 01 24 CDR There is enough fruitcake for you to have one a meal for the rest of the flight and have plenty left over it. Right, Dave?

08 01 01 32 CMP ...

08 01 01 37 CDR I used to like all that stuff.

08 01 01 43 CMP See. See. But I still say that ... deadband.

08 01 01 50 CDR I wasn't going to say a word. I was just going to see if you hollered about that.

08 01 01 53 CMP I still say that ...

08 01 01 54 CDR You haven't had a slice one, ..., Dave.

08 01 01 57 CMP I had another one today. Earlier today, I had one. Where'd the flight plan go? Anybody got the flight plan? Rusty, you got the flight plan?

08 01 02 14 LMP Not me.

08 01 02 15 CDR No, not me. It's on the end of the ...

08 01 02 18 CMP Oh, here it is, right here.

08 01 02 22 CDR That's where I put it, so we wouldn't lose it.

08 01 03 28 LMP Won't work that way.

08 01 03 31 CDR Okay, I'll get it.

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826

Day 9

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08 01 03 39 CDR I think we ... you (laughter).

08 01 03 44 CMP Felt like you ...

08 01 03 46 CDR Didn't hurt.

08 01 03 47 LMP How do you say the ... didn't hurt?

08 01 03 52 CDR Makes you feel like you don't.

08 01 03 54 CMP ... exact ... principle.

08 01 04 08 CDR Hey, Dave, hurry up and do that, because we've got to get over to the ... while we're still in the dark.

08 01 04 13 CMP I'm almost through. I'm just getting the third star check here. Okay.

08 01 04 17 CDR I thought you were going to do ... stars ...

08 01 04 18 CMP No, no, no, no. I'm just getting the third star check.

08 01 04 21 CDR Okay. Rusty, where do we have to go?

08 01 04 31 LMP ... Yes, up we go.

08 01 04 46 CMP 35200.

08 01 04 51 CDR 35200. Right?

08 01 05 21 CMP I'm going to turn on the power on the S-band. There you are. You going to move that hose, Jim?

08 01 05 31 CDR No. ... that ...

08 01 05 56 LMP No, it's not, Dave. Let me just - I'll be right back.

08 01 06 03 CDR What time do we have to be there, Rusty?

08 01 06 10 LMP We're pretty - Whoo! 193:06, we got to start the maneuver, which is right now.

08 01 06 16 CMP 193:06:05 - -

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Day 9

827

08 01 06 17 LMP Maneuver right there, right now.

08 01 06 21 CDR Let's get on with this.

08 01 06 24 CMP Man, I didn't realize we were that late. Maneuver's got to be good.

08 01 06 32 LMP 6 minus 35 - in yaw. S-band is ...

08 01 07 15 CMP There's ... to - set the wide deadband.

08 01 07 20 CDR Okay.

08 01 07 23 CMP To 5 degrees. On, you're maneuvering here.

08 01 07 24 CDR Yes. Why don't you go back and ...

08 01 07 41 LMP ..., 101.

08 01 07 49 CMP That ball you gave me is rocking R.

08 01 08 17 CC Apollo 9, Houston through Carnarvon. Standing by.

08 01 08 23 CDR Roger. This is Apollo 9.

08 01 08 26 CC Roger.

08 01 18 43 CC 1 minute to LOS, and when you come up on Hawaii there, I'll give you the numbers to disable that 121 alarm for the landmark tracking thing.

08 01 18 55 CMP Oh, very good.

08 01 18 56 CDR Alright.

08 01 19 04 CDR Think I'll lay this way for a while. Call me if anything happens, huh? I'm trying to sleep with my foot -

08 01 19 13 LMP Gee, we're never going to get this camera ...

08 01 19 15 CMP Doesn't look like it, does it? ... Yes, we're starting ...

08 01 19 19 LMP ... break lock.

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828

Day 9

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08 01 19 20 CMP But we started to turn ... little late. Okay, now, there it goes.

08 01 19 33 CMP Would you believe "No"? ... I've got ...; Rusty, you broke lock.

08 01 19 40 LMP I know.

08 01 19 42 CMP It's just sitting there.

08 01 19 44 LMP Okay, so now I'm supposed to say, "Log the time and the angles after it stopped slewing." So it stopped slewing - -

08 01 19 53 CDR Yes, it sure did.

08 01 19 54 LMP - - ... around LOS.

08 01 19 56 CMP Yes, it sure did.

08 01 19 58 LMP Well, alright.

08 01 20 05 CMP 1, 2, 3. Okay, let's see.

08 01 20 07 LMP Time was 9 - 193:20 -

08 01 20 28 LMP And the pitch is plus 45 and yaw is 265.

08 01 21 27 CMP Oh, you're kidding.

08 01 21 32 CMP Well, I don't - I don't see wearing those things for a whole trip - even if it didn't bother you. ... some kind of gloves.

08 01 22 10 LMP Here it is! Yes, that's what I thought.

08 01 22 15 CDR Did it come back?

08 01 22 17 CMP When you break lock, it ought to go right back to where you set it originally.

08 01 22 30 LMP Obviously it's working, as far as transmitting and receiving, because you talked ...

08 01 22 35 CMP No, we're talking on VHF.

08 01 22 36 LMP Oh, I thought you were talking on the ...

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Day 9

82

08 01 23 17 LMP Wait a minute. That's not P70 - Shoot!
P40 - P35.

08 01 23 23 CMP See if you can slew the antenna. It's a long way
to P40.

08 01 23 55 CMP I guess I ought to ... these things.

08 01 23 59 LMP Yes, talk about a rat's nest!

08 01 24 01 CMP This is.

08 01 24 02 CDR Hey, Dave.

08 01 24 03 CMP What?

08 01 24 04 CDR ...

08 01 24 05 CMP Okay, drive it, that's what it's for ... to drive
while you rest.

08 01 24 09 CDR You're in charge of driving.

08 01 24 10 CMP Okay, very good.

08 01 24 16 LMP ... give you a rough time - -

08 01 24 17 CMP Hey, are we in - We're in PTC and it's nighttime.
Let's turn out the lights and see how many times
it flashes.

08 01 24 34 CMP Hey, let me get my Hawaii acquisition time - 35:2
okay.

08 01 25 25 LMP How about giving Jim ...? Watch the jets fire.
It's in wide deadband, isn't it?

08 01 25 33 CMP Yes.

08 01 27 14 CC Apollo 9, Houston through Huntsville.

08 01 27 20 CMP Houston, say again.

08 01 27 27 CC Roger. I have one target for passing across the
States.

08 01 27 31 CMP Say again that last one, Ron.

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830

Day 9

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08 01 27 35 CC 9, Houston. I have one Hasselblad target.

08 01 27 39 CMP Okay, stand by.

08 01 27 49 CMP Where in hell's the update book? ...

08 01 27 59 CMP Okay, go ahead.

08 01 28 01 CC Roger; it's Dallas/Fort Worth; geography, 193 plus 53 plus 11, 15 frames, 6-second intervals. That'll be north 20 degrees. Over.

08 01 28 37 CMP Okay, understand Dallas/Fort Worth, geography, 193:53:11, 15 frames, 6-second DELTA-T, north 20 degrees.

08 01 29 05 CDR Did we ever find the map?

08 01 29 06 CMP Yes.

08 01 29 47 LMP Okay, what's my time? 35:22.

08 01 29 56 CMP Go ahead, Houston; Apollo 9.

08 01 30 11 CMP Houston, 9.

08 01 30 47 CMP Gees, the angles they gave me were pretty good.

08 01 30 53 LMP ... to start with?

08 01 30 55 CMP Minus 45 and plus - You mean these angles or those angles?

08 01 30 59 LMP Those - Your angles. How do we do from here?

08 01 31 04 CMP You just track very smoothly up there.

08 01 31 06 LMP Up there?

08 01 31 07 CMP Yes. ... computer thing ...

08 01 31 14 LMP For what now?

08 01 31 16 CMP That's where it ought to be pointing right now - If you want to point it - I'm not sure how ... that thing is - if you want to point it, you'd -

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Day 9

831

08 01 31 25 LMP To where?

08 01 31 28 CMP The station.

08 01 31 29 LMP The center of the earth?

08 01 31 30 CMP Yes.

08 01 31 32 LMP Well, that doesn't help any. If we go around the earth - Keep the angles ... the angles point to the center.

08 01 31 43 CMP That's right. Anytime you go over ... - -

08 01 31 48 CDR If you go right over the station.

08 01 31 52 LMP Yes, as you roll - as you roll, it would be an attitude change, but it's now going to help you around the earth.

08 01 31 57 CMP Even if it - even if you did roll ... - ... just as well be the center of the earth, shouldn't you?

08 01 32 04 LMP Yes, but it doesn't help you on any ... once you're going away from the earth.

08 01 32 13 CDR What's your AOS?

08 01 32 16 LMP 35 - 2.

08 01 34 50 LMP There it goes. Bang! The first single ...

08 01 34 55 CMP Goes right to where you set it.

08 01 34 57 LMP Right to where I set it. No, it's not ... These dials are supposed to follow the actual position of the antenna. They almost look like they - ... 35, 16 ... Think that went to 90 and minus 70.

08 01 40 54 CC Okay. Landmark pad: ID 006; 195:22:1500; NA on the FDAI and the shaft and trunnion; your time of closest approach, 195:25:5300; and you'll be at - The target is 78 miles north.

08 01 41 39 CMP Roger; understand ID 006 is 195:22:1500; closest approach, 195:25:5300; target is 78 miles north.

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08 01 41 53 CC Roger. The next one.

08 01 41 54 CMP Go ahead.

08 01 41 56 CC Landmark 130; 195:35:3100; TCA time, 195:39:0400; and it's 27 miles north.

08 01 42 28 CMP Roger; understand. 130; 195:35:3100; closest approach, 195:39:0400; 27 miles north.

08 01 42 42 CC Okay. I've got some more pointing data now for a little better pass on the Pegasus.

08 01 42 49 CMP Say again the last. You were broken.

08 01 42 56 CC 9, Houston. Delay that; I want to recheck the times on it.

08 01 43 04 CMP Houston, 9. I'm sorry, but there's a lot of static. Can you say again, please?

08 01 43 10 CC Roger. We'll get your pointing data over Antigua, probably. We're not quite sure of the times yet.

08 01 43 19 CMP Okay, fine. Thank you.

08 01 43 27 F CAP COMM, FAO reminds me not to disable the 121 alarm until after they're through with their P52.

08 01 43 35 CMP Roger; do not disable until after completing P52. Understand.

08 01 44 32 LMP I'm waiting for it to lock back on again.

08 01 44 36 CDR Oh, ...

08 01 44 41 LMP ... for it to warm up. Hit it early though.

08 01 45 01 CC Apollo 9, Houston.

08 01 45 04 CMP Houston, 9. Go.

08 01 45 06 CC Roger. For Redstone, be sure S-BAND ANTENNA to OMNI and HIGH GAIN ANTENNA track switch to MANUAL.

08 01 45 16 CDR Roger; S-BAND to OMNI and HIGH GAIN track to MANUAL for Redstone.

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08 01 45 22 LMP Okay, and you want us to do that now, Houston?

08 01 45 27 CC Affirmative, now.

08 01 45 34 CDR Roger; we're there.

08 02 07 21 CDR Tell you what we ought to do; we ought to finish up that other little bitty roll of movie film. Then pick up the rest of the indoors today and we'll just have - won't take any movies tomorrow.

08 02 07 30 CMP I think it's a good idea.

08 02 07 35 ARIA ARIA 5, REMOTE.

08 02 07 39 CC Apollo 9, Houston through ARIA for voice check.

08 02 07 43 CDR Roger. You are a little garbled, but readable. How us?

08 02 07 47 CC Roger. I think you are a little less than readable.

08 02 07 53 CMP Try again.

08 02 07 54 CDR Alright, how do you read me now? 1, 2, 3, 4, 5, 6, 7, 8, 9. Apollo 9, out.

08 02 07 58 CC Roger. It was much better that time, Jim.

08 02 08 00 CMP Okay.

08 02 08 01 CDR Okay, and you're coming through pretty good now, t

08 02 08 05 CMP All you got to do is switch VHF antenna.

08 02 08 07 CDR You know, it looks like we're going to luck out on this part of it.

08 02 08 35 LMP ... why don't you check to see if we got the tight deadband, Davey?

08 02 08 38 CMP Alright.

08 02 09 10 LMP We're going to be 700 miles behind him this time; we're catching up. You hear what they want to do?

08 02 09 16 CDR Yes.

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08 02 09 18 LMP I wonder whose state vector they're going to update

08 02 09 22 CDR I don't know, but that sounds like a great idea.

08 02 09 24 CMP Yes, but I - They must - they must be going to update his state vector. You know, by having another sextant and putting in a state vector they think he has and knowing our state vector and update his state vector.

08 02 09 35 CDR Yes, great, great idea.

08 02 09 36 LMP Yes. I wonder what they are going to pump you for a W-matrix?

08 02 09 42 CDR One.

08 02 09 46 CMP I don't know, but I bet the MIT cats are really ginning (laughter).

08 02 09 49 CDR I bet they are. Say, how come you got a red beard?

08 02 09 54 LMP Do I really? My ... be red, but ... - -

08 02 09 55 CDR ... not much redder than now, does it?

08 02 09 59 CMP No, it's mostly gray. Old, gray man.

08 02 10 13 CMP Whoo! ... in a big hurry.

08 02 10 17 LMP Yes.

08 02 10 22 CDR Better to go home with all ... day early than to go home with them all empty.

08 02 10 26 CMP ... right date. We ... go home with them all empty on the right day.

08 02 10 32 CC Apollo 9, Houston. This is a voice check, S-band.

08 02 10 38 CDR I'm not thinking too well today. Back to bed. Say again, Houston.

08 02 10 42 CC Roger. Just wanted to - ARIA is sending the S-band backup now for a voice check.

08 02 10 50 CDR Okay.

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Day 9

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08 02 10 51 CC Read you loud and clear.

08 02 10 53 CDR Roger. We're reading you pretty well, too.

08 02 10 56 CMP Are they still uplinking on VHF?

08 02 10 59 CC Yes. I think they're working a little better nowadays than they used to be.

08 02 11 03 CDR Oh, yes. I think they're coming in very handy.

08 02 11 09 CMP Hey, Jim, you going - -

08 02 11 10 CC Concur wholeheartedly.

08 02 11 14 CDR Say again.

08 02 11 15 CMP He's going to be in the field of view for 30 seconds.

08 02 11 19 CDR Great.

08 02 11 23 CMP ...

08 02 11 32 CDR ... make a big thing ... Now for a little lunch.

08 02 11 41 CMP Jim, you got any ... There's a great big hunk of hot chocolate down there. Wonder who put that there?

08 02 11 48 CDR Probably me.

08 02 11 50 CMP The hot chocolate kid.

08 02 11 52 CDR Gee, your face really looks a lot better, Dave.

08 02 11 57 CMP It really does? You mean maybe ... won't throw me off the ship for scurvy.

08 02 12 08 LMP Okay, the time is 14:10; we've got 2 minutes to go.

08 02 12 19 CDR Yes, this is one of the busiest days we've had.

08 02 12 22 LMP Yes, I'd like to get really dark adapted to something before I - Oh, hell, what have we got going out there? That must be the thruster stuff.

08 02 12 32 CMP Gee, we never got a picture of the thruster firing ...

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08 02 12 37 LMP I tell you, I think that is a waste of film.

08 02 12 40 CMP Really? It takes all kinds to make horse races. It's pretty.

08 02 12 46 LMP I don't think ..., if you took it, Dave.

08 02 12 49 CMP Huh?

08 02 12 50 LMP I say, I think the point is, I don't think you're going to see it.

08 02 12 52 CMP With a movie camera you will.

08 02 12 54 LMP Maybe you would with C-IN.

08 02 12 55 CDR Yes.

08 02 12 56 LMP Wide open.

08 02 12 59 CMP You could see it just as well as a ...

08 02 13 03 LMP Yes. Which is also a waste of film.

08 02 13 04 CDR Yes, that was. It didn't turn out at all. ... ground to those islands.

08 02 13 15 LMP What's the time, Dave?

08 02 13 17 CMP ... clock.

08 02 13 19 LMP Oh, that doesn't help me any.

08 02 13 20 CMP Well, if you can look at it; I can't see it - -

08 02 13 22 CDR You have 57 seconds.

08 02 13 23 LMP Okay. I'm trying not to look out; I'm trying to get dark adapted, I don't want to look -

08 02 13 36 LMP Are we at the attitude?

08 02 13 39 CMP Yes.

08 02 14 09 LMP How much time now, Jim?

08 02 14 11 CDR We should be there.

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Day 9

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08 02 14 13 LMP I see it; I see it. Okay. It's coming through just below the X-axis.

08 02 14 19 CDR I see it, too.

08 02 14 20 CMP You see it, too? And it's going to go right through the damned X-axis - No, it's just a little below it.

08 02 14 25 CDR Okay, Houston; we've got it. It's going out the left corner there.

08 02 14 29 CMP Yes, he's going to be going out the left side.

08 02 14 31 CDR Is it? Sure is. Okay.

08 02 14 45 LMP Yes. You got to go left. You can still see him, Jim?

08 02 14 48 CDR What?

08 02 14 49 LMP Jim, do you still see him?

08 02 14 50 CDR No.

08 02 14 52 LMP Okay, he's way out to the left.

08 02 14 53 CDR Yes.

08 02 14 54 LMP You're going to get in gimbal lock, Dave. There he is again.

08 02 14 56 CMP Yes, he's quite a ways out. He's dumping a lot of stuff out of his thrusters, too.

08 02 15 01 CDR Gee, he's just standing there doing that.

08 02 15 03 CMP Huh?

08 02 15 04 CDR He came back in and - -

08 02 21 00 CC Apollo 9, Houston; 1 minute LOS, Tananarive at 30, and Carnarvon at 44.

08 02 21 08 CMP Roger.

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08 02 21 10 LMP Yes, old fuel cell 2 is hanging in there like it - like it was always doing nice.

08 02 21 15 CDR (Laughter)

08 02 21 16 LMP It isn't even a fifth different from the other two today.

08 02 21 21 CMP How does that look on your ball, Jim?

08 02 21 25 CDR Great.

08 02 21 26 CMP Okay, here we go.

08 02 21 34 LMP What did you look for, when - when you're making that judgment?

08 02 21 36 CDR Just see if it's going to go into gimbal lock ... By doing one after another, you --

08 02 21 50 LMP If it coarse aligns - it - it can coarse align in gimbal lock without hurting anything.

08 02 21 53 CDR Yes, but it just can't coarse align into gimbal lock.

08 02 21 55 LMP So you can tell that by looking at what's on here?

08 02 21 57 CDR Yes.

08 02 21 58 CMP Yes.

08 02 21 59 LMP Is that all you look at or do you - -

08 02 22 00 CDR Well, just look at that and see about where it's going; make sure it goes over in that general direction.

08 02 22 11 CDR The primary thing is to ... gimbal angle.

08 02 22 14 LMP Yes.

08 02 22 17 CDR Find ... gimbal angle.

08 02 22 19 LMP Yes, but - yes, but Dave could judge that to see if it's in gimbal lock; that's why I'm wondering - that's why I wondered. I never paid attention to what you were doing there, just always hear you.

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Day 9

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08 02 22 28 CMP Give the leader a chance to say something.

08 02 22 30 LMP Yes.

08 02 22 33 CDR Well, (yawn) ... - -

08 02 22 35 LMP You want your COAS back?

08 02 22 37 CMP No.

08 02 22 38 CDR You ought to know that the ball doesn't go around, when ... going around there, too. Yes, you don't go through ... thruster malfunction.

08 02 22 49 LMP Laying on your stomach sleeping.

08 02 22 50 CDR Yes.

08 02 22 56 CMP Hey, we've got something, Jim. We can stop.

08 02 23 02 CDR Okay. There we are, stop.

08 02 23 19 CMP Let me look at our next REV here and see where we're going. Hmm, that time we came down over the -

08 02 23 40 LMP Boy, we're really getting to the South American passes early today.

08 02 23 43 CDR Yes.

08 02 23 46 LMP It's going to be light down there.

08 02 23 51 CDR Yes, every day the terminator moves farther south.

08 02 23 55 LMP Farther where?

08 02 23 56 CDR To the south.

08 02 23 58 LMP Oh.

08 02 23 59 CDR ... south. It's really not the terminator; it's ..

08 02 24 28 LMP Well, it's got to move farther south on one side and farther north on the other side, huh? Or something like that?

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08 02 24 35 CDR When you start out - you start out with the daylight ... eventually you'd have all this ... in darkness ...

08 02 24 51 LMP It doesn't go straight across the map, does it? I mean - I mean does the curve - It's got to go like that?

08 02 24 56 CMP Yes.

08 02 24 58 LMP But we've seen this in daylight, all time.

08 02 24 59 CMP I don't think we have.

08 02 25 04 LMP Sure, early this morning - this was all in daylight. Well, alright, now let me - let me see. Okay, you may be right. We - -

08 02 25 11 CMP ...

08 02 25 13 LMP Yes.

08 02 25 17 CDR That's right ... in Australia - -

08 02 25 19 LMP Well, we saw this in daylight today or - No, we just missed it, didn't we?

08 02 25 23 CMP ... we saw ...

08 02 25 24 LMP Saw this in daylight?

08 02 25 47 CDR I think our problem in Australia ...

08 02 26 30 LMP (Coughing)

08 02 27 19 CMP Hey, that's ridiculous. ... What did we say on that Barbados?

08 02 27 26 LMP Said north of track, didn't we?

08 02 27 39 CMP I think I put it on the top of the next page.

08 02 27 42 LMP Yes.

08 02 27 43 CMP North 30. Look at this. And, that's the way we were looking.

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08 02 27 52 LMP That's the way we were trying, too.

08 02 27 54 CMP Yes, we could have been taking the right one. Aah!

08 02 27 58 LMP We took the wrong one?

08 02 28 00 CMP Yes, I should have looked at the map, but I didn't have time.

08 02 28 04 CDR We took those lovely pictures of nothing, just like you said.

08 02 28 08 LMP Luckily, it was only three.

08 02 28 11 CDR Were there some clouds out there? Dave, - -

08 02 28 14 CMP Yes, there were some clouds.

08 02 28 15 CDR Okay, ... weather change photography.

08 02 28 19 CMP Oh, that's a dirty shame.

08 02 28 25 LMP It always pays to check that map.

08 02 28 32 CMP Whooe! Pretty dim. Whooe!

08 02 28 40 CDR Too light in here?

08 02 28 42 CMP No, I've got Dnoces, and it's right on the edge of the field of view and I - It's just too dim.

08 02 28 51 CDR Probably in the other ... optics - -

08 02 28 54 CMP Yes, ... and it's - it's so dim; I can't really be sure. I'm going to try it once, and if it's ..., I'll go get another one.

08 02 30 14 CMP Hey, Jim, the two Magellanic Clouds are right out the front window.

08 02 30 16 CDR Good.

08 02 30 17 CMP A little high. Let me turn down my - ye old COAS.

08 02 30 34 CMP See them? They are up pretty high and a little to the right. Oh, ho ho! ... I guessed it; I guessed it; I guessed it. I passed my star test today. Golly!

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Day 9

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08 02 31 01 CDR Okay, let's see ...

08 02 31 06 LMP Oh, yes.

08 02 31 07 CMP Yes.

08 02 31 08 LMP Did you really see them?

08 02 31 09 CDR I've never seen them, except at the planetarium.

08 02 31 10 CMP Yes. Here, look in this one.

08 02 31 16 LMP Holy ...

08 02 31 18 CMP Yes.

08 02 31 20 LMP Sure is pretty. They form a triangle.

08 02 31 25 CMP (Laughter)

08 02 31 29 CDR They cute? They could form a triangle with anything.

08 02 31 35 LMP Achernar is the one to ...

08 02 31 40 CDR I never used those as gouges, because they are never really - -

08 02 31 47 LMP Man, that's weird; the moon just came up through the airglow.

08 02 31 51 CMP ...

08 02 31 56 LMP Really a weird shape when it came through.

08 02 31 58 CMP Yes.

08 02 32 09 LMP The larger and smaller Magellanic Clouds -

08 02 32 30 CDR (Coughing) Excuse me.

08 02 32 37 CMP By George, there's ...

08 02 32 49 CMP If you can barely recognize Regor, you can always find ...

08 02 32 56 CDR ...; they're really very significant and easy-to-find stars.

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08 02 33 03 LMP What's significant about them?

08 02 33 05 CDR They're easy to find; that's what's significant.

08 02 33 07 CMP That's right.

08 02 33 09 LMP I can find Regor - -

08 02 33 11 CDR Which one's that - The one with the cross?

08 02 33 15 CMP No, the one from Leo.

08 02 33 17 CDR Oh, hold it; wait a minute.

08 02 33 25 CMP Okay, we got a good platform ... Look out this window, it's better than ... telescope.

08 02 33 34 CDR What are we going to do with that stuff?

08 02 33 35 CMP Do a landing mark.

08 02 33 38 LMP Kind of looks like a - -

08 02 33 39 CDR ... ready yet?

08 02 33 40 CMP Yes.

08 02 33 44 CDR Which way is the landmark?

08 02 33 47 CMP North.

08 02 33 51 LMP Oh, my god! Stars!

08 02 33 54 CMP How about that?

08 02 33 55 LMP How about that?

08 02 33 58 CDR I'm going to have to do a little thrusting, here.

08 02 34 09 LMP ... such a big deal with you, I get lost.

08 02 34 15 CDR (Laughter)

08 02 34 29 CMP Let's see. Let's look and see what kind of move we're going to do.

08 02 34 56 LMP Hey, go to MANUAL and slew your optics, Mr. Scott?

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08 02 34 59 CMP Yes.

08 02 35 01 LMP That doesn't bother it where we are, huh?

08 02 35 04 CMP First, let's turn the CMC, OFF.

08 02 35 05 LMP Yes, to MANUAL, right?

08 02 35 08 CMP Yes, and I'll put - out of zero.

08 02 35 09 LMP First or second?

08 02 35 10 CMP First one. It's easier if you turn the CMC, OFF, and then you won't get a drive until the last stored value. Then turn zero off.

08 02 35 22 LMP Okay.

08 02 35 24 CDR What are you reading?

08 02 35 30 CMP 195 - 2 - there's your closest approach. 78 north ... and then I'm going to take out that - alarm. The alarm, the 121 alarm?

08 02 35 48 LMP We passed that up. Oh, I see what's happening. Oh, that's what it looks like when you give a ... - -

08 02 35 56 CMP Yes.

08 02 35 57 LMP - - the thingamajig. Oh, I see now.

08 02 35 58 CMP It really wipes you out, doesn't it?

08 02 36 01 LMP Yes. Yes, I never appreciated it before.

08 02 36 10 CMP That's where I had Dnoce, right on the edge. If you could get, you know, if ... sometimes, and one if not the other, and all that vice-versa stuff.

08 02 36 22 CDR ... landmarks ...

08 02 36 25 LMP Is that Navi?

08 02 36 26 CMP Hmm, maybe Menkar. Let me check that; see if Menkar -

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Day 9

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08 02 36 36 CMP It looks like we got a good - Oh, doggone it!
First ... I got through was Hawaii. I go back
down to - -

08 02 36 45 LMP How about that, San Diego?

08 02 36 48 CMP No, the first one. I thought it was Hawaii, but
it wasn't. It was San Diego.

08 02 36 56 CMP ... point lower.

08 02 37 12 CDR ...

08 02 37 17 CMP My, they are dim in here. Oh, let me see if I
can get it in the sextant.

08 02 37 34 CMP 130. Hey, querito ver Venezuela.

08 02 37 43 CMP How about that? That ought to be a challenge.

08 02 37 50 LMP It's a damn challenge.

08 02 37 53 CDR That's right, because they... (Laughter)

08 02 37 56 CMP I can find San Diego.

08 02 37 59 LMP By Jove! I've got it.

08 02 38 01 CMP Querito ver Venezuela - south of Caracas.

08 02 38 29 LMP Boy, isn't that a lovely reticle?

08 02 38 32 CMP Yes, isn't that great? Thrilling!

08 02 38 34 LMP If you turn it up bright enough, I guess it's
alright, huh?

08 02 38 44 CMP Well, you can find your star, but it just gets
fuzzier.

08 02 38 46 LMP Yes. So that's what Navi looks like. Okay.
Now what? Back to zero first, then CMC?

08 02 38 57 CMP The other way around. Zero first. To go to CMC,
it takes the last stored value and drive over
there, and then it'll drive back ...

08 02 39 13 LMP Okay.

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08 02 39 28 LMP Well, Dave, ...

08 02 40 14 LMP Where are - where are your targets?

08 02 40 19 CMP Right there. Huh?

08 02 40 30 LMP And it's north?

08 02 40 31 CMP Yes.

08 02 40 43 LMP ...

08 02 40 48 CMP No. (Coughing)

08 02 41 00 CMP Hmm.

08 02 41 14 LMP ... over there, Davey?

08 02 41 18 CMP Huh?

08 02 41 19 LMP ... over there?

08 02 41 21 CMP Hey, where we going?

08 02 41 27 CDR Going over to - Oh, look at that!

08 02 41 31 CMP Oh, yes, let's see where it is.

08 02 41 40 CMP ...

08 02 41 44 CDR You're on what?

08 02 41 46 CMP I'm north of you. 78 north and 27

08 02 41 55 CDR ... north?

08 02 41 56 CMP Yes, you got 10 degrees below, haven't you?

08 02 42 03 CDR ... to the horizon?

08 02 42 07 LMP ... cranked up like - What are you going to do, 30 degrees then, 40 degrees?

08 02 42 11 CMP Yes. ... roll.

08 02 42 16 LMP About 20 or 30 degrees, yes?

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Day 9

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08 02 42 18 CDR Oh, about 50 or so.

08 02 42 24 CMP ... the horizon is parallel to the bottom of the window - and north.

08 02 42 34 LMP Hey, since there's so many of those fruitcakes left, I may just take another fruitcake. That really tasted good.

08 02 42 39 CDR Did it? Man alive, you can have all of mine.

08 02 42 41 LMP Really?

08 02 42 42 CMP Hey, give me a bite of it.

08 02 42 43 LMP That's a deal.

08 02 42 47 CDR Give me a bite out of it; I haven't had one of those things. ... a thousand of them.

08 02 42 52 LMP Fruitcake?

08 02 42 53 CDR Yes.

08 02 42 54 LMP God damn! I'm going to - I'm going to add fruitcake to my diet. Hey, you know, we're getting compatible.

08 02 43 00 CMP I can't believe it.

08 02 43 02 LMP (Laughter) I don't particularly care for the hot chocolate. The only thing is that David likes the grape.

08 02 43 09 CMP I think the grape - I think the grape, and about all of them, I guess. I'm not sure that ..., if the color doesn't have a lot to do with it (laughter).

08 02 43 23 CDR ... the color of some of this meat is peculiar.

08 02 43 26 LMP Yes, oh boy. And they all have that same smell.

08 02 43 31 CDR Don't they, though?

08 02 43 32 LMP Wonder what it is?

08 02 43 33 CDR I don't know. It must be something - -

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08 02 43 35 LMP I wonder if they put something in them - Yes, I was just going to say, I wonder if they put something in them? Whatever it is, it dominates the flavor.

08 02 43 50 LMP Boing! Here you go, my good friend, have an energy pill.

08 02 44 10 LMP Hey, I'm ready for a drink.

08 02 44 14 CMP ... and it takes a little jockeying. ... and you go around this way, if you want to get to the right spot. Why don't you - -

08 02 44 36 CC Apollo 9, Houston. You're on your own; Guam at about 57.

08 02 44 46 CDR Roger. Guam at 57. We'll keep an eye on it.

08 02 44 55 CMP When we come up over Guam, see if we've been into it or not.

08 02 45 33 CMP Could give you an inertial angle, Rusty, because ... stay there, but -

08 02 45 40 LMP Well, knowing the times, you can figure it out.

08 02 45 44 CDR Yes.

08 02 45 49 LMP That - The only reason I'm saying that is then you don't - then you don't have to keep flying it to keep it out of gimbal lock.

08 02 45 55 CMP Yes, you could go to INERTIAL - -

08 02 45 56 LMP Once - once you get it there, then it can take care of itself.

08 02 45 57 CMP Well - that's right.

08 02 45 58 CDR Oh, do you mean, do a P - VERB - -

08 02 46 03 LMP Well, you could do that. You wouldn't even have to do that, Jim, I mean - Just the fact that you could be in ATTITUDE HOLD, and go do something without, you know, without having to worry about it.

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Day 9

849

08 02 55 34 CDR Okay, I'm going down and look at - -

08 02 55 36 LMP Yes, ... I'll be willing to do it.

08 02 55 40 CMP Not bad. You drive.

08 02 55 44 CDR You and I've got ... on the wrong side of the ball ... you got us here.

08 02 55 46 CMP ... Well, I figured now I got you where you are all screwed up, see if you can work yourself out of the hole.

08 02 55 53 CDR Well, that's what happened the other day, you see, when you said - when we did that one thing, and then we quickly did the other thing? Shoot, I ... the other side of the ball, on the wrong side where the red ... - while we're on the ball, go around the dot - (laughing).

08 02 56 10 LMP Where's that bag full of hard ... ?

08 02 56 13 CDR ... copy bag, right here.

08 02 56 15 CMP Not that old grab bag.

08 02 56 17 LMP No, I think - -

08 02 56 18 CMP No, that's a new one.

08 02 56 26 LMP Oh, look at here, would you.

08 02 56 33 CDR ... saw some spaghetti go by. Hey, there you go.

08 02 56 38 CMP What if I ate one of your spaghetti's? Would that make you unhappy?

08 02 56 42 CDR ... spaghetti. Looks like we have 4 more days worth of food in here.

08 02 56 46 LMP Do we really?

08 02 56 47 CDR Yes.

08 02 56 48 CMP Down here?

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Day 9

08 02 56 49 CDR A third of the food is still down in there.

08 02 56 51 CMP Oh, well, let's have at it.

08 02 56 53 LMP Do we really?

08 02 56 54 CDR Yes.

08 02 56 55 LMP In addition to all this?

08 02 56 56 CDR In addition to all that, there's a third of the food left. Look it.

08 02 57 03 CMP We'll never make it.

08 02 57 07 CDR ... doesn't have a single thing out of it yet.

08 02 57 15 CMP People don't steal my ...

08 02 57 33 CDR Boy, I'll tell you one thing that that LM needs is another set of ...

08 02 57 37 CMP Boy, I gathered from the way you talk, you don't even know what's going on.

08 02 57 40 CDR ... I used to watch the radar beacons go back and forth.

08 02 57 45 CMP Good night!

08 02 58 02 CMP I feel lots better about it, if you can ... Let's see, west is ...

08 02 58 26 CDR ... the way with the pretty ... roll right, ... degrees.

08 02 58 32 LMP Got to keep track of all that. Hey, look ...

08 02 59 11 CMP Inertial gimbal angle got screwed up? Worked out pretty well.

08 02 59 15 CDR ... happened so fast that we didn't have time to screw it up.

08 02 59 26 CMP I guess ORDEAL didn't - set right or at least we couldn't set ORDEAL on the way back, huh?

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08 02 59 28 CDR No, I don't understand what was wrong with it. It wasn't working at all. Then, when we got out there, it was working fine.

08 02 59 33 LMP Yes. My guess is that we ...

08 02 59 40 CDR ...

08 02 59 43 CMP ... really not convincing; you set it when you're off to the right there.

08 02 59 52 CDR I know you can't - you can't set it right ..., but I was off like 80 to 90 degrees ... or some big number ...

08 03 07 56 LMP By the way, I'd like to give you back your old COAS.

08 03 08 02 CDR Okay, I'll take it.

08 03 08 05 LMP Just set it up there.

08 03 08 07 CMP Hey, somebody write down what I say; I've got the target and all that stuff.

08 03 08 09 LMP Okay.

08 03 08 16 CMP I'll do that for you, and I'll - I'll tell you - I can identify it, you know, and -

08 03 08 21 CDR Alright. How about write - "Gees, I can't identify it; I can't identify it; I can't identify it." You want those comments, too?

08 03 08 29 CMP Might as well. Part of the game.

08 03 08 32 LMP What the hell is this ... doing down here? What did you write it on 195 hours for?

08 03 08 43 CDR Well, I had - ... give me the time first, and you said "Roger," instead of ... and I had to write it down - (Laughter) ...

08 03 08 52 LMP ... missed it by 4 hours.

08 03 09 05 CMP Hey, 195:10 is when it says landmark track. Is that like right now?

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08 03 09 12 LMP What time do you do it, Dave?
08 03 09 15 CDR About 195:22.
08 03 09 17 CMP Well, okay, 22 is when it comes over the hill.
08 03 09 24 LMP Oh, look at that. We're almost at the right roll angle.
08 03 09 27 CDR We're just about right, aren't we, Dave?
08 03 09 32 CMP You're pitched down a little bit farther than you were the other day, Jim.
08 03 09 33 CDR Right. I'm - I'm getting it ...
08 03 09 34 LMP It's almost like ... about 5 degrees, and roll just about right.
08 03 09 38 CMP Yes, roll is good.
08 03 09 42 CDR What did you say, Dave?
08 03 09 43 CMP Oh, I can't see the horizon.
08 03 09 45 LMP ... Let's see, you got to roll - Well, maybe as we go along here, in this inertial attitude - -
08 03 09 51 CDR Yes, it will come quick enough.
08 03 09 53 LMP Yes.
08 03 09 54 CDR You really like to have me up there a long, long, long ways, I'll tell you.
08 03 10 02 LMP But you're fine, really.
08 03 10 03 CMP Oh, yes, ...
08 03 10 04 LMP I think it'll be just fine. Just fine, Jim, you're doing a wonderful job.
08 03 10 10 CDR ... great, nice guy, doing a grand job.
08 03 10 11 LMP Yes.

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08 03 10 38 LMP Oh, look at that, Jim. There's a line that goes all the way over the horizon to the north, the clouds out there.

08 03 10 49 CDR Oh, yes, wonder what in the world that is?

08 03 10 53 LMP That doesn't look like a contrail.

08 03 10 56 CDR It does in spots, but in other spots, you can tell it's definitely not.

08 03 11 03 LMP Yes.

08 03 11 04 CDR Did you see that big white ... or was that Dave that saw it?

08 03 11 07 LMP No, Dave saw it.

08 03 11 11 CDR Man, you could see that from - must have been 3 miles long. Must have even been longer than that.

08 03 11 15 LMP That would be a great picture. Among all the other great pictures.

08 03 11 21 CDR One thing I don't think we are going to lack are great pictures.

08 03 11 24 LMP If they all turn out.

08 03 11 38 LMP How far north is it? 78 miles?

08 03 11 44 CDR Right, 78 miles north.

08 03 11 47 LMP Yes, you'll be able to see it over the ...

08 03 11 54 CDR When these things get very far off track, ... we're going to get ...

08 03 12 00 CMP Yes.

08 03 12 03 CDR ... technique falls apart ...

08 03 12 21 LMP Okay, you don't dare get any closer to gimbal lock then.

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08 03 12 24 CDR It's a very simple technique to take these two balls ... out the window.

08 03 12 29 CMP Such a pretty little island.

08 03 12 31 LMP Is it really?

08 03 12 32 CMP Yes.

08 03 12 34 CDR Boy, I tell you, I'd sure like to go visit some of those islands. Don't they look beautiful?

08 03 12 38 LMP Right.

08 03 12 49 LMP I think we've yawed! I mean, you know, not 90 degrees. Looks like we've yawed more than 90.

08 03 12 57 CDR According to the balls, we're just about 90. I ... 2 degrees off.

08 03 13 02 LMP Yes, I kind of believe you, but - I mean -

08 03 13 03 CC Apollo 9, Houston through Hawaii.

08 03 13 08 CDR Hello there.

08 03 13 10 CC Roger. We're both right on that Barbados thing. The island is actually south, but we wanted some pictures to the north for oceanography-type things.

08 03 13 34 CDR Ho hum, I think I'll take a 10-minute nap here, if Dave's got us to the right spot at the right time.

08 03 13 39 LMP We're almost there, aren't we? ... yes, we're there.

08 03 13 57 CMP I think we got 10 more degrees.

08 03 13 59 CDR ... no, let me get my ...

08 17 01 08 CDR Next REV, you ought to get a good shot at this.

08 17 05 06 LMP Let's get the ...

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08 17 19 29 LMP Yes, he's doing alright ... That could be part of the ... group. We're going exactly backwards. I can't see what's coming. Yes, we're going past Sumatra, right now.

08 17 21 44 LMP Oh, look where we took those other pictures at. Yes, that's ...

08 17 25 50 CC Apollo 9, Houston; 1 minute LOS. We'll see you over the sunny Caribbean around 10.

08 17 25 58 LMP Okay, we'll be ready.

08 17 26 01 CC Roger.

08 17 40 26 CMP Well, we'll make sure.

08 17 40 28 LMP We wouldn't miss Australia for anything.

08 17 40 35 CMP How about that?

08 17 53 53 CDR Oh, boy! I'm tired, so tired. That muscle that I've developed in my back is just - It keeps grabbing me ... bends me the wrong way.

08 17 54 11 CMP (Laughter)

08 17 54 12 CDR ..., too. Boy, it sure catches.

08 17 55 10 CDR (Singing)

08 17 59 57 LMP Well, I don't know of any that we took ...

08 18 00 11 IMP Hey, I'm just - Jim, ...

08 18 00 15 CDR Yes, I thought of that, too. We ought to call the ground right now and tell them to flag the photo guys on that EVA film ... That's something ... really looking for ... I have this horrible feeling that ... run it through the bath. ... I don't ... - What - what MAG is that? ...

08 18 00 55 CDR E, Echo.

08 19 28 34 CC And, Apollo 9, Houston.

08 19 28 36 CDR Roger. Go.

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Day 9

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08 19 28 38 CC Roger. I guess, just to close the loop on our discussion here, we'll have the ship at 152-1, if and when you come down there. So I just thought it might toss that in, in case you're wanting it.

08 19 28 50 CDR Okay. Will it have the 350-pound cake on it?

08 19 28 54 CC Yes, it will have a 350-pound cake on it; at least that's the word I have.

08 19 28 58 CDR Okay. Great!

08 19 29 01 CC And we'll lose you in 10 seconds and have you through Texas around 41.

08 19 29 05 CDR Roger. Did you say you got the state vector in?

08 19 29 09 CC Oh, negative. I said we're going to uplink the state vector at Texas acquisition - -

08 19 29 16 CDR Okay - -

08 19 29 17 CC - - and I've just given you the NAV check now.

08 19 29 18 CDR Oh, okay. Thank you.

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DAY 10

09 00 10 14 CT Apollo 9, this is Huntsville. Over.

09 00 10 18 CDR Hello, Huntsville. This is Apollo 9. How are you today?

09 00 10 21 CT Just fine, Apollo 9. Our HF link through Houston is out at this time. Could I take any message for relay once we get these links back in?

09 00 10 30 CDR No, I don't believe so. Tell them we're preparing to do an SO 65, and everything else is okay here.

09 00 10 36 CT Roger; will do.

09 00 10 44 CDR Huntsville, how you doing down there?

09 00 10 48 CT Apollo 9, Huntsville. We're doing fine now, other than our COMM at times is pretty bad here on the HF link.

09 00 10 55 CDR Very good. Listen, we appreciate all the help you guys have given us during the flight.

09 00 11 00 CT Roger; thank you.

09 00 11 02 CDR Okay. Get some of that good sun for us, will you?

09 00 11 06 CT Roger. We have down ... pretty close to the equator. It's pretty warm.

09 00 11 10 CDR Yes, I know. I wish we had some of it up here.

09 00 11 15 CT Well, you should be closer to it.

09 00 11 18 CDR (Laughter) Yes, I hadn't thought about it that way.

09 00 13 21 SC Whoop.

09 00 13 40 CC Apollo 9, Houston.

09 00 13 42 CDR Go ahead, Houston; Apollo 9.

09 00 13 44 CC Roger. I'll take your torquing angles now if you want to.

09 00 13 51 CDR Roger. Thank you.

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09 00 43 20 CC Apollo 9, Houston; 1 minute LOS, Ascension at 51.

09 00 43 25 CDR Roger. Okay, Houston, we're busily snapping pictures for you.

09 00 43 29 CC Real good.

09 00 43 31 CDR The States were really clear that time; we ought to really have some nice ones.

09 00 43 35 CC Okay, that's what we like to hear.

09 00 43 39 CDR Trouble is, we're supposed to be taking pictures of weather out here, and the ocean is clear as a bell.

09 00 43 45 CC Well, the oceanographers will be happy, then.

09 00 43 49 CDR Yes, I guess as long as we have the cameras pointed down, we're pleasing somebody.

09 00 43 55 CC Okay.

09 00 44 26 CMP Yes, this is one coming up here on the - to the south of those ...

09 00 45 54 LMP Look at the little white stuff going around you ...

09 00 50 09 LMP Two burns and two turns. ...

09 00 50 16 LMP That's going to be an interesting strip of weather film, though.

09 00 54 30 CC Apollo 9, Houston.

09 00 54 35 CC Roger. It looks like we're going to get a pretty good tracking target on the ascent stage this evening. It's - The closest point of approach will be at 222 hours and about 41 minutes. It's about an hour into your rest period there, but we plan to let you sleep an hour in the morning, and kind of wondering what you thought about this.

09 00 54 59 CDR Sure; we'd like to track it.

09 00 55 00 CC Okay, real good. It looks like we'll go ahead and work it into the flight plan there and update you a couple of state vectors - both the CSM and the LM. The range will be out about 690 miles, and

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we'll give you some gimbal angles to point the optics out of. We'll take a few marks, and then we'll make a vector compare on it.

09 00 55 44 CC Beautiful. The commander's bus went down in about 7 hours, I think.

09 00 56 10 CC By the way, the lighting looks like it's going to be about perfect for this tracking thing, too.

09 00 56 15 CDR Okay.

09 00 58 06 CC Roger. It looks like - When you finish your landmark tracking there, what we plan to do is set you up in a PTC mode, and we'll update the stuff for you here later on. But just keep it in the PTC mode, then you can go ahead and get kind of squared away in there. We'll stay in PTC until we start on the tracking of the LM.

09 00 58 26 CDR Okay. We can also set ourselves up in 30- to 40-degree deadband hold to keep it out of gimbal lock, and that's what you want?

09 00 58 34 CC No. We really want the data on the PTC with the DAP driving it, so we can get an idea on the fuel and the pressure operations and what have you.

09 00 58 43 CDR Okay. What kind of pitch and yaw deadband are you looking for?

09 00 58 50 CC Roger. It'll be 20 degrees.

09 00 58 56 CDR ... that PTC. We have ...

09 00 59 04 CC I think so, but we'll get you over at Tananarive; if not there, Carnarvon.

09 00 59 11 CDR Okay. ...

09 01 32 22 CC Apollo 9, Houston. We'll see you at Guam at 36.

09 01 32 26 CDR Roger; Guam, 36.

09 02 18 56 CC - - 10 degrees. I think you have that procedure on page - about 3-27, your CMP checklist.

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09 02 19 31 CDR Roger; we'll ...

09 02 19 39 CDR Anything else?

09 02 19 41 CC Roger. Just about every REV thereafter, we're going to want to try a different deadband. We'll try to hit 20 degrees and then 25 degrees; and we'll give you a call on those.

09 02 19 48 CDR Okay, understand to perform - The procedure then is to perform CMP 3-17 for plus 0.1 degree per second initial attitude 0, 231.7, 0; do step 7 at 218:35: at 218:40:00, change the DAP deadband to plus or minus 10 degrees.

09 02 20 10 CC Affirmative. Now you will be kind of on your own. From now on, you can do a little housekeeping or things you want to do, and we'll update you for the tracking procedure a little later on.

09 02 20 26 CDR Okay.

09 02 20 29 CDR And I'll tell Russell to stand by for some - new info soon as I figure out where we're going to put all this stuff.

09 02 20 44 CDR Houston, 9. Did you get the P22 data?

09 02 20 52 LMP Well, let's see ...

09 02 32 30 CDR Houston, Apollo 9.

09 02 34 10 CC Apollo 9, Houston. 30 seconds LOS; Tananarive, 44 if not there, Carnarvon, 59.

09 02 34 19 CDR Roger. Tananarive, 44; Carnarvon, 59.

09 04 21 57 CC Apollo 9, Houston through Tananarive.

09 04 22 01 CDR Go ahead, Houston; Apollo 9.

09 04 22 03 CC Roger. Do you read well enough for a flight plan update?

09 04 22 09 CMP Roger. I believe so.

09 04 22 15 CC Roger; when you're ready.

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09 04 22 25 CMP Okay, go ahead, Houston.

09 04 22 31 CC Apollo 9, Houston. When you are ready, I will go with the flight plan update.

09 04 22 36 CMP Roger, Houston. Go ahead with the flight plan update.

09 04 22 42 CC Roger. 220 plus 48, block data; 221 plus 05, update state vectors; 222 plus 25, maneuver to ascent-stage track attitude; 222 plus 50, power down IMU and SCS, terminate BAT A charge, waste water dump to 35 percent. I say again, 35 percent. Begin rest period. Over.

09 04 24 21 CMP Okay, how do you read Apollo 9, Houston?

09 04 24 24 CC Roger. Pretty good now.

09 04 24 26 CMP Okay, we missed what you said at 220:48. Would you say that one again, please?

09 04 24 34 CC I'll send you block data.

09 04 24 42 CMP Okay. 220:48, block data; 221:05, update state vector; 222:25, maneuver to ascent-stage attitude; 222:50, power down IMU and SCS, terminate BAT A charge, waste water dump to 35 percent, begin rest period. Over.

09 04 25 05 CC Roger; your readback correct.

09 04 25 10 CDR Houston, Apollo 9. What's the get-up time in the morning?

09 04 25 15 CC Roger. Your normal time on the flight plan was 232 plus 20, and we are thinking of making it 233 plus 35 or 233 plus 50. That's about 7-1/2 hours prior to RETRO.

09 04 25 41 LMP Roger; understand it will be 233:35.

09 04 25 48 CC Affirmative.

09 05 17 19 CMP Okay. 144 Charlie Charlie, minus 258, minus 1620, 228:51:08, 5825; 145 Alfa Charlie, plus 038, minus 0320, 229:13:07, 5534; 146 Alfa Charlie, plus 198, minus 0301, 230:49:07, 4539; 147 2 Alfa, plus 293, minus 0300, 232:26:14, 3813. Pitch trim, minus 0.64; yaw trim, minus 0.94.

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09 05 17 59 CC Roger. Readback is correct.

09 05 18 04 CC Apollo 9, Houston.

09 05 18 05 CDR Go ahead.

09 05 58 55 CC Apollo 9, Houston through Tananarive.

09 05 59 01 CDR Hello there, Houston. How are you?

09 05 59 04 CC Roger. Mighty fine. The White Team bids you sayonara, and they will see you back at the ranch.

09 05 59 17 CDR Okay. Listen, you guys on the White Team are a wonderful team, and we'd like to thank you all very much.

09 05 59 32 CDR Houston, do you read Apollo 9?

09 05 59 35 CC Apollo 9, Houston. Loud and clear. How me?

09 05 59 40 CDR We're reading you. I'd like to thank - We'd all like to thank the White Team for all their effort.

09 05 59 46 CC Roger. We appreciate it.

09 05 59 50 CDR Tell that flight director that we still have that debriefing we got to get with.

09 06 00 10 CDR Is the big white director there?

09 06 00 14 CC Say again.

09 06 00 17 CDR Is that big white flight director there?

09 06 00 21 CC Affirmative; he's on the loop.

09 06 00 24 CDR Okay. Tell him that we got to have that debriefing

09 06 00 31 CC We concur and we will schedule it accordingly.

09 06 00 36 CDR Right ho.

09 06 00 39 CC Roger.

09 07 20 03 LMP I'm going to go to bed.

09 07 25 31 LMP 5, 51 ...

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09 07 28 50 CMP Somebody turn off dump. Turn off dump.

09 07 37 38 CC Apollo 9, Houston through Tananarive.

09 07 37 43 LMP Roger, Houston; how do you read?

09 07 37 47 CC I read you loud and clear and just wanted to let you know we're standing by at Tananarive, and we expect to talk to you at Hawaii at 224:14.

09 07 38 02 LMP Roger; 224:14, and if you read well enough, we'll give you our powerdown stuff here.

09 07 38 16 CC Okay, Apollo 9, Houston here. We're reading you a little better. We can go ahead and take all your powerdown stuff now, if you want to.

09 07 38 25 LMP Okay, ready to copy, Al?

09 07 38 28 CC Yes, all set, Rusty.

09 07 38 30 LMP Okay, service module A, B, C, D: 51, 54, 40, 48; BAT C, PYRO A and B: 369, 370, 370; injectors: 5.0, 5.0, off scale high, 5.0, 5.0, 4.9; PRD's: 3125, 6127, 8027. Over.

09 07 39 03 CC Roger, Rusty; copy. 51, 54, 40, 48, 369, 370, 370, 50, 50, off-scale high, 50, 49, 3125, 6127, 8027.

09 07 39 29 LMP Roger; you missed one 5.0 on the injector; 4.9 was 6 Delta.

09 07 39 39 CC Roger. We copied that.

09 07 39 40 LMP Okay.

09 07 39 47 CC And while we've got you on the line, did you get a range for LOS on the LM?

09 07 39 57 LMP Roger; I got some numbers for you - times. I didn't get you a good range because we can't run very many ... along with P20; but let me give you the times of the first sightings and last sighting and the beginning and the end of the marks. Okay?

09 07 40 15 CC Okay, we're running out of coverage at Tananarive. I guess we'd better save it for Hawaii. See you there at 14.

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09 07 40 22 LMP Oh, very well.

09 20 25 09 CDR Oh, let's see. I've got to undo that.

09 20 25 55 CMP That's forward. I'll go ahead and ...

09 20 25 57 LMP Okay, what do you think of ... E-5?

09 21 53 43 CMP ... clockwise ...

09 21 55 13 CMP ... just punched the warning light on. I guess power ...

09 21 55 46 CMP ...

09 21 55 50 LMP ... supervise ...

09 21 55 59 CMP Oh, no.

09 22 07 50 CMP Where are we ...?

09 22 08 01 LMP Oh, I know. Alright, go ahead. ...

09 22 08 40 CMP See about where we are.

09 22 08 42 LMP We ought to be over ... coming over United States soon ...

09 22 08 50 CMP No.

09 22 09 10 CMP What kind of azimuth did you have ...

09 22 09 30 CC Apollo, 9, Houston through Tananarive.

09 22 09 32 CDR Hello, Houston; this is Apollo 9.

09 22 09 35 CC Roger. If you turn H₂ tank 2 fan on, that may pump up the pressure in the H₂ tanks, there.

09 22 09 46 CDR Okay. You want the fan on in H₂ tank 1?

09 22 09 52 CC Tank 1 and tank 2.

09 22 09 57 CMP Okay. Thanks 1 and 2 fans, ON.

09 22 10 01 CC Roger.

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09 22 10 14 CMP Roger. You want the heaters on, also - to get the pressure up?

09 22 10 20 CC Apollo 9, Houston. Say again.

09 22 10 22 CMP Roger. Do you want the heaters on, also - to get the pressure up?

09 22 10 30 CC Apollo 9, Houston. Negative.

09 22 10 37 CDR Do you know ... altitude ...

09 22 10 55 LMP Okay. ... weather ... some weather photography ...

09 22 11 37 CMP Turn up! You ... thing. ... go ...

09 22 12 32 LMP There's a satellite! Very bright ... large ...

09 22 14 21 LMP Me too.

09 22 14 44 CDR Right.

09 22 14 48 CMP Here's another one.

09 22 15 33 CDR Houston, Apollo 9.

09 22 17 50 CDR Yes, I want to ...

09 22 18 10 CMP We've got to get back ...

09 22 21 22 CDR Okay. ... go.

09 22 21 23 LMP ... get an idea what our GET says. ...

09 22 21 26 CMP An hour and 11 minutes, we're off about 4 degrees in roll; that's about - oh, about - 2 degrees in pitch; and it's off simply nothing in yaw.

09 22 21 39 CDR Sounds like that is pretty good. ... must have drifted back in again ... (laughter).

09 22 21 44 CMP ... frankly.

09 22 21 45 CDR Sure, it was off more than that in ... like ... more than normal in pitch ...

09 22 22 56 CMP Guess which star we're ... star check?

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09 22 22 57 CMP Which star would you like for your check?

09 22 22 59 LMP Achernar!

09 22 23 00 CDR Sirius!

09 22 23 01 CMP That a boy.

09 22 23 02 CDR Sirius, the good one?

09 22 23 03 CMP That's the good one.

09 22 23 04 CDR That's only when you can still see it. ...

02 22 23 46 CMP ... 16 ...

09 22 23 47 CDR Everybody else is done with this equipment?

09 22 23 48 LMP Yes.

09 22 38 06 CDR Okay, I'll put it away. ...

09 22 38 38 LMP Oh, where's the tape?

09 22 38 41 CDR Probably hanging up there on the - -

09 22 38 43 CMP No, I put it away, Rusty. Do you want some? I've got a few feet left.

09 22 38 46 LMP Yes. I want to - I'd like - Is it too far away?

09 22 38 49 CMP No, you know, it's really - -

09 22 38 51 LMP I'd like to tape up my pocket.

09 22 38 55 CMP Oh, that stuff is the stuff you don't want to get

09 22 38 57 LMP Yes. Well, no, I don't care if it gets - This is nonwet stuff, that's okay. This is the wet stuff, but it's stuff I don't want to fall out. So I'm going to - -

09 22 39 04 CMP Sounds like a good idea, anyway. Tape it. Okay. (Humming) ... Go someplace ...

09 22 39 13 LMP Well, I've got to go down there anyway to stow the PIC's and all.

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Day 10

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09 22 39 18 LMP

Up at the top? In the front?

09 22 39 56 CMP

Those are ... I've seen before. I guess ...

09 22 39 57 LMP

I've never seen that ...

09 22 40 22 LMP

Boy. This thing sure wants to go out of plane, doesn't it?

09 22 40 24 CDR

Yes. It always wants to go someplace where you don't want it to go.

09 22 40 57 CMP

Okay. That's all done.

09 22 41 01 CDR

... transponder out ...

09 22 41 05 CMP

What I like about this program, it sure makes a difference ... for launch degrees ...

09 22 41 16 CDR

Are you cold?

09 22 41 17 CMP

I was just standing down there with this thing blowing on me. Pretty cool.

09 22 41 45 LMP

... above your head, Jim. I'll get it.

09 22 42 03 CDR

Hey, here's by ...

09 22 42 04 CMP

Good.

09 22 42 15 CDR

Yes. ... Boing! Boing!

09 22 42 18 CDR

Oh, that's good news.

09 22 42 21 LMP

Yes, great.

09 22 42 22 CMP

Oh, oh. Say, that's just terrific.

09 22 42 31 LMP

Yes sir, man. Those things just look real good. If they'd stay on, they might be dead weight.

09 22 42 40 LMP

(Laughter)

09 22 42 41 LMP

... landing ... How come ... landing ...

09 22 42 54 CMP

Have we got any film left in the tunnel?

09 22 42 58 LMP

Oh, yes. Checklist is up there.

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09 22 43 02 CMP Did we separate those checklists, Jim?
09 22 43 03 LMP Yes - no. Not the entry checklist.
09 22 43 17 CDR (Yawn) You haven't received the update for it, right?
09 22 43 19 LMP Yes.
09 22 43 20 CDR Okay. I think I will take one of those pieces of tape. Where is the tape, Dave?
09 22 43 28 CMP ... three ...
09 22 44 18 LMP Here's the tape. I'll put it back in ...
09 22 44 25 CDR Well, I guess I'll get in my suit. Dress up. Buckle down. (Singing)
09 22 44 44 LMP I've got to stow the PFC's and all that junk.
09 22 44 46 CDR ... (Singing) ...
09 22 45 13 CMP Okay. ... alright.
09 22 45 25 CMP Yes. ...
09 22 45 37 LMP Okay. (Laughter) I think they just contribute to breaking your ankle right off.
09 22 46 12 CDR Oh, shoot. I've got ... ORDEAL.
09 22 46 17 LMP Yes. That's in the checklist, Jim. We haven't quite got there yet.
09 22 46 46 CMP ... do that.
09 22 46 59 CDR Do you think ...
09 22 47 10 CDR ... that bag ...
09 22 47 20 CMP Will you deposit that someplace down there for me?
09 22 47 24 CMP Thank you.
09 22 47 35 LMP Okay.

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Day 10

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09 22 48 34 CMP Can you tell which is the right bag and which is the left bag? They're all the same to me.

09 22 48 49 CDR I'm going to add a little attitude simulation ...

09 22 48 53 LMP Attitude simulation?

09 22 48 54 CMP Simulation for the real time?

09 22 49 02 LMP Yes, what do you mean by an attitude simulation?

09 22 49 09 CDR If I did, I could see the ... from up through the window.

09 22 49 11 CMP Oh, that's a good idea!

09 22 49 17 CDR We're supposed to RETRO at 240:31:14; the time on the RETRO is - third RETRO at 39:01.

09 23 22 39 GDR ... do it like that.

09 23 22 41 LMP Oh no!

09 23 22 42 CDR What?

09 23 22 43 LMP Got the screwy bastards on upside down.

09 23 22 47 CMP Well, you do, too.

09 23 22 52 CDR Dave, why don't you get the checklist and let me start to do that?

09 23 22 54 CMP Okay.

09 23 23 01 CMP Got to get ...

09 23 23 09 CDR Okay. SUIT RETURN AIR valve, pull. Okay, you haven't cut the AUTO RCS off. Let's do that then.

09 23 23 15 LMP Oh, okay. AUTO RCS CM 1 to MAIN A.

09 23 23 19 CDR CM 1 going to MAIN A. Okay. And A/C ROLL is to MAIN B, is that right?

09 23 23 34 LMP CMC to MAIN A and A/C ROLL to MAIN B.

09 23 23 37 CDR Okay. Okay?

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09 23 23 41 LMP Yes.

09 23 23 43 CDR SUIT RETURN AIR valve, pull, OPEN.

09 23 23 49 LMP Did you pull all valves?

09 23 23 50 CDR Pulled to OPEN.

09 23 23 52 CMP First thing up. EMERGENCY CABIN PRESSURE valve, BOTH.

09 23 24 02 CDR ... CB RCS LOGIC, two, CLOSE...

09 23 24 04 LMP CB RCS LOGIC, two, CLOSE.

09 23 24 09 CDR CM RCS LOGIC, ON.

09 23 24 12 LMP CM RCS LOGIC, ON.

09 23 24 16 CDR CB CM HEATERS, two, CLOSE. No reason to do that. Okay, let's go and keep going. Leave heaters on for 20 minutes or until reading is greater than 4.2, which it is. WASTE H₂O DUMP, OFF.

09 23 24 32 LMP ...

09 23 24 34 CDR The what?

09 23 24 35 CMP ...

09 23 24 36 LMP No.

09 23 24 37 CMP The heater.

09 23 24 38 LMP Oh, the heater! Okay, I'll get it. Yes, I'll be right there. Go ahead.

09 23 24 43 CDR Okay. URINE DUMP HEATER. CB WASTE H₂O/URINE DUMP ... Set RSI and realign GDC.

09 23 24 50 LMP We supposed to leave this thing in here ...?

09 23 24 53 CMP ... set the RSI and realign the GDC.

09 23 24 56 CDR Okay. ... roll coming OFF.

09 23 25 10 LMP Okay. WASTE DUMP HEATER coming OFF; URINE DUMP HEATER's coming OFF.

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09 23 25 16 CDR Okay.

09 23 25 17 LMP ... in the middle for this thing.

09 23 25 20 CDR RSI is set? ...

09 23 25 24 CMP I got to align this GDC.

09 23 26 11 LMP What did you do with your - with your ...?

09 23 26 20 CDR I stuck it through this hole up here - up here with my ... junk ... upside down.

09 23 26 30 LMP Okay.

09 23 27 12 CMP Okay. Okay? The LMP ... check ORB RATE and FDAI 2 and stow ORDEAL. Okay. At minus 45 minutes.

09 23 27 20 CDR Okay.

09 23 27 22 CMP Dump and rewind tape recorder. Okay, that's MCC-H over Carnarvon ... UP TELEMETRY, BLOCK; RCS HEATERS, OFF; you didn't do that. CB PYRO A, SEQUENCE A, CLOSE; verify. You did that, didn't you, Rusty?

09 23 27 37 LMP Right.

09 23 27 40 CMP PYRO B, SEQUENCE B, to CLOSE.

09 23 27 42 LMP Right. That was the other black one.

09 23 27 45 CDR Check PYRO BATTERIES, DC VOLTS, 37.0 to 37.5.

09 23 27 49 LMP Okay. They were both 37.0. Okay, I can - Go ahead and read ...

09 23 28 01 CDR Okay. ...

09 23 28 03 LMP Alright.

09 23 28 13 CDR ... blowing on that ... stick through the handhold there, probably ...

09 23 28 28 CMP Okay, I got the PYRO BATTERIES ... Communicators' BUSES A and B; got that. Okay. If PYRO BAT ... CB MAIN A, BAT C, CLOSE; CB MAIN B, BAT C, CLOSE. Okay. We leave BAT C on the line. That's unusual.

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Where's your update, Rusty? Says BAT C is on the line. Where is the update? Have you got it somewhere?

09 23 29 41 LMP Okay. BAT C, both main buses. Okay. All panel 8 circuit breakers closed except - Ready?

09 23 29 51 CDR Go.

09 23 29 52 LMP POST LANDING VENT, one, and FLOAT BAGS, three, to OPEN.

09 23 29 58 CDR Okay. Go on.

09 23 30 02 LMP COMMAND MODULE HEATERS, two, OPEN.

09 23 30 09 CDR COMMAND MODULE HEATER, EDS, three, OPEN.

09 23 30 12 CC Apollo 9, Houston through Ascension.

09 23 30 15 CDR Go, Houston; Apollo 9.

09 23 30 17 LMP EDS, three, ...

09 23 30 21 CC Roger, Jim; your altimeter DELTA-H is minus 100 feet, and your sea water temperature is 75 degrees, and the air temperature is about 75 degrees. Mighty fine.

09 23 30 36 CDR Great.

09 23 30 37 LMP How about that?

09 23 30 39 CDR We put on two sets of long underwear, too, just expecting it'd be cold.

09 23 30 43 LMP I'm going to open up these EDS circuit breakers ...

09 23 30 47 CC I missed it there.

09 23 30 50 CDR I said we even put two sets of underwear on just so we'd be warm on the water.

09 23 30 56 CC Roger. I don't think it'll be necessary.

09 23 31 01 CDR Okay, Rusty, what else you got?

09 23 31 02 LMP CD DOCKING PROBE, two, OPEN.

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09 23 31 05 CDR DOCKING PROBE, OPEN.

09 23 31 08 LMP Nine - 11 breakers you should have open - -

09 23 31 10 CDR Okay.

09 23 31 11 LMP Plus two more - which - makes 13 now.

09 23 31 14 CDR Check just to make sure ... I got EDS, three; POST LANDING, four; FLOAT BAGS, ...

09 23 32 56 CC Roger. You can go ahead and turn your logic switches on. We've got about 2 minutes.

09 23 33 00 CDR Okay. ELS LOGIC going to OFF - OFF.

09 23 33 03 LMP ELS to AUTO - -

09 23 34 12 CDR ... pressurization on, can you still support?

09 23 34 16 CC Apollo 9, Houston. Negative. We'll catch you at Carnarvon.

09 23 34 22 CDR Okay.

09 23 34 23 LMP PYRO ARM, ON.

09 23 34 25 CDR Okay.

09 23 34 51 CDR You doing alright?

09 23 35 00 LMP Eating all that fruitcake - before the big one. ... fruitcake, do you?

09 23 35 06 CMP No.

09 23 35 08 CDR You don't think it's a 350-pound fruitcake?

09 23 35 10 CMP No.

09 23 35 24 CDR Okay - We're on ...

09 23 36 15 LMP I finally figured it out (laughter), but it sure isn't the way we been doing it.

09 23 36 31 CDR Oh, no! We used them all night again. We used the 90-degree roll and leave this one at zero. This

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one always stays where it is - at 55 degrees. Come down ... just like the others ...

09 23 36 43 LMP

Well, that's what I thought, too. I just looked at the numbers, and I don't think they'd ... at all. But it might ...

09 23 36 56 LMP

It might take their numbers and put them on a 55-degree roll and right there ...

09 23 37 29 CMP

Do we want to turn the logic into ...?

09 23 37 33 LMP

No. ...

09 23 39 42 LMP

... 55, 55, Jim?

09 23 39 44 CDR

50, 60. 50; 60; you said we were starting to roll ...

09 23 40 00 CMP

Oh, I don't have that stuff there. I just got my ..., if I don't get there!

09 23 40 07 CMP

Yes! ...

09 23 40 25 LMP

There goes the EMS; that probably won't work.

09 23 41 34 CDR

Let's hold those things up at the light.

09 23 42 41 CDR

... we checked it out.

09 23 43 57 LMP

Hmmm boy, good to the last ... grape.

09 23 44 26 CDR

Tell you what ... call up a VERB 49.

09 23 44 57 CDR

Okay, I'm going to go CMC, AUTO, here.

09 23 45 03 CMP

Okay. Got with DAP and we'll go to -

09 23 45 35 CDR

... 5 feet getting ...

09 23 45 50 CDR

Running like mad out there.

09 23 45 55 CMP

Oh, yes?

09 23 45 57 LMP

The water boiling.

09 23 45 58 CMP

What? Oh, yes, the water boiling.

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09 23 46 02 LMP Secondary. Scattered somewhat.

09 23 46 15 LMP You cold?

09 23 46 53 CDR When we reconfigure for entry, I'll get a ...

09 23 47 26 LMP ... check it for ... We get the - ... off ... Y-Y
and you've got the ... check out. ... X-thrusters
...

09 23 47 49 LMP You got the S-BAND, ON, Dave?

09 23 47 53 CMP No, we got lock?

09 23 47 54 LMP No.

09 23 47 55 CDR Hey, where's your ...?

09 23 48 00 LMP I just wondered if you had your S-BAND VOLUME, OFF,
because if you do, they're going to miss us.

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10 00 32 12 CDR Okay, Davey, residuals are zero.

10 00 32 14 LMP Ready?

10 00 32 15 CC Roger.

10 00 32 16 LMP EMS to STANDBY. Did you get that, Jim?

10 00 32 18 CDR EMS, STANDBY.

10 00 32 20 LMP Okay. Okay, 61, ENTER, or you got to call the 82 fir:

10 00 32 24 CDR ... 82 - -

10 00 32 26 CC 9, Houston. High-speed tracking shows us it's a good burn. Might fine.

10 00 32 29 CDR Roger; sounds good.

10 00 32 31 LMP THC, LOCK.

10 00 32 33 CDR LOCK.

10 00 32 34 LMP THC POWER, OFF.

10 00 32 35 CDR OFF.

10 00 32 36 LMP SPACECRAFT CONTROL to SCS.

10 00 32 38 CDR SCS.

10 00 32 40 LMP RATE, HIGH.

10 00 32 42 CDR RATE, HIGH.

10 00 32 44 LMP Okay, you want to yaw right 45 degrees for SEP attitude.

10 00 32 47 CDR We want to go to RATE 2 here, too.

10 00 32 53 LMP I got that covered.

10 00 32 55 CDR ...

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10 00 33 00 LMP Did you get the ... Okay, when we get there, we want to go RATE, LOW.

10 00 33 22 CDR RATE, LOW.

10 00 33 23 LMP Okay, RATE, LOW; MANUAL ATTITUDE, three, to MINIMUM IMPULSE.

10 00 33 25 CDR MINIMUM IMPULSE.

10 00 33 26 LMP RCS TRANSFER to COMMAND MODULE.

10 00 33 28 CMP TRANSFER to CM. Now, Jim.

10 00 33 30 CDR Ready.

10 00 33 33 LMP Test - okay?

10 00 33 34 CMP Okay.

10 00 33 35 CDR Okay, Dave, let's go.

10 00 33 37 LMP RCS TRANSFER to SERVICE MODULE.

10 00 33 38 CMP SERVICE MODULE, yes.

10 00 33 40 LMP MANUAL ATTITUDE, three, to RATE COMMAND.

10 00 33 43 CDR RATE COMMAND.

10 00 33 44 LMP PRIMARY GLYCOL to RAD, pull to BYPASS.

10 00 33 45 CDR PRIMARY GLYCOL to RAD, pull to BYPASS. It's pulled.

10 00 33 48 LMP GLYCOL RESERVOIR IN valve, OPEN.

10 00 33 51 CDR RESERVOIR IN valve, OPEN. It's OPEN.

10 00 33 54 LMP Okay, BYPASS valve, CLOSED.

10 00 33 57 CDR BYPASS, CLOSED.

10 00 33 58 LMP OUT valve, OPEN.

10 00 33 59 CDR OUT valve, OPEN.

10 00 34 00 LMP O₂ PLSS valve to PLSS.

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10 00 34 01 CDR O₂ PLSS valve to PLSS.

10 00 34 04 LMP O₂ SERVICE MODULE SUPPLY valve, OFF.

10 00 34 05 CDR OFF.

10 00 34 06 LMP CABIN PRESSURE RELIEF valve, two, - -

10 00 34 07 CC Apollo 9, Houston. I'll give you a time hack at 3 minutes.

10 00 34 08 LMP - - BOOST/ENTRY ...

10 00 34 12 CDR Standing by.

10 00 34 14 CC MARK.

10 00 34 15 CC 3 minutes.

10 00 34 16 CDR Thank you. Okay.

10 00 34 19 LMP Okay, David, you're in P61, right?

10 00 34 22 CMP That's correct.

10 00 34 23 LMP And you're all the way up to us on step 4?

10 00 34 28 CMP No.

10 00 34 29 LMP Okay, we'll press on here.

10 00 34 30 CMP Yes, press on; I'll catch up.

10 00 34 31 LMP S-BAND OMNI going to Charlie. Okay, S-band volume's increased - got my volume going up. SERVICE MODULE RCS PRIME and SECONDARY PROP, four, ON; eight, talkback gray.

10 00 34 48 CDR Okay, four, ON; eight, talkback are gray.

10 00 34 52 LMP Okay. SECONDARY FUEL PRESSURE, four, ON, up.

10 00 34 54 CDR Four's ON, up.

10 00 34 55 LMP ABORT SYSTEM PROPELLANT, RCS COMMAND; verify.

10 00 34 58 CDR RCS COMMAND.

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10 00 34 59 LMP FUEL CELL PUMPS coming ON: 1, 2, 3. HIGH GAIN ANTENNA POWER coming OFF. HIGH GAIN ANTENNA POWER - go to verify single suit compressor operation. That's a verify. S-BAND POWER AMP going to LOW. Circuit breaker ECS RADIATORS - I got them coming; I got the four breakers. POTABLE H₂O HEATER, OFF.

10 00 35 28 CDR Okay, POTABLE H₂O HEATER is OFF.

10 00 35 30 LMP CABIN FANS, two, OFF.

10 00 35 32 CDR Two CABIN FANS are OFF.

10 00 35 33 LMP GLYCOL EVAP TEMP IN, MAN.

10 00 35 36 CDR EVAP TEMP IN is MANUAL.

10 00 35 39 LMP Okay, COMMAND MODULE RCS LOGIC, ON, up.

10 00 35 42 CDR COMMAND MODULE RCS LOGIC is ON, up.

10 00 35 44 LMP SECS PYRO ARM, two, ON, up.

10 00 35 47 CDR 1, 2.

10 00 35 49 LMP ATT DEADBAND, MAX.

10 00 35 51 CDR ATTITUDE DEADBAND, MAX.

10 00 35 52 LMP RATE to HIGH.

10 00 35 53 CDR HIGH.

10 00 35 55 LMP Okay, standing by for CM/SM SEP on your call.

10 00 35 57 CDR Okay, Davey?

10 00 35 58 CMP Ready, Jimmy?

10 00 35 59 CDR Yes.

10 00 36 00 CMP Okay, 3, 2, 1 -

10 00 36 03 CMP MARK.

10 00 36 04 CMP Okay, sounded pretty good to me.

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10 00 36 06 LMP SEP command module. It sounded definite, didn't it?
10 00 36 08 CDR Yes.
10 00 36 10 LMP MANUAL ATTITUDE, three, to MINIMUM IMPULSE.
10 00 36 12 CDR MINIMUM IMPULSE.
10 00 36 14 LMP BMAG MODE, three, to RATE 2.
10 00 36 16 CDR RATE 2.
10 00 36 17 LMP I got the caution and warning. RCS TRANSFER to
COMMAND MODULE.
10 00 36 18 CDR TRANSFER to CM.
10 00 36 23 LMP COMMAND MODULE RCS LOGIC, OFF.
10 00 36 26 CDR COMMAND MODULE RCS LOGIC, OFF.
10 00 36 28 LMP Okay, I'm going to monitor the volts. They are
27.5. Okay. AUTO RCS SELECT, 16, RING 1, to MAIN A.
10 00 36 36 CDR RING 1 is MAIN A.
10 00 36 38 LMP RING 2, OFF.
10 00 36 39 CDR RING 2's OFF.
10 00 36 40 LMP AUTO RCS SELECT, A/C ROLL, four, OFF.
10 00 36 41 CDR Okay, I have it.
10 00 36 42 CMP RCS is good, Jim, and there's your attitude on the
DSKY.
10 00 36 49 CDR Sharp, huh - -
10 00 36 50 LMP Okay, proceed. You got that?
10 00 36 54 CMP And I'm up with you now, Rusty.
10 00 36 56 LMP All this damn dust all of a sudden. Okay, fly here
to gimbal angles at the entry attitude: 0370. Look
what I found. How about a bacon bar? Boy!
10 00 37 19 LMP Okay, you're going to 0370, huh?

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10 00 37 25 CDR ... to see the horizon.

10 00 37 30 CMP Okay, DSKY says you're within 45 degrees of what it wanted, so it's happy.

10 00 37 41 CDR Going upside down, now to get the deflector out. Roger, Houston, we are separated now, and we're ... up at this time.

10 00 37 52 CC Roger.

10 00 37 58 CMP Take a look at your TFF there. 8 minutes and 13 seconds.

10 00 38 07 CDR TFF is 8?

10 00 38 08 CMP Yes, sir.

10 00 38 18 CMP Okay, 8 and 7 ... - -

10 00 38 20 LMP EMS MODE, STANDBY.

10 00 38 21 CDR EMS MODE to STANDBY.

10 00 38 23 LMP EMS FUNCTION, clockwise, to RANGE SET.

10 00 38 25 CDR RANGE SET.

10 00 38 27 LMP Okay, and you want to set the range.

10 00 38 28 CDR Yes, what was it?

10 00 38 30 LMP Okay, the range was 12 something.

10 00 38 31 CMP 12015.

10 00 38 33 LMP 1201.5, right; verified.

10 00 38 59 LMP Okay. EMS FUNCTION, V_0 , SET.

10 00 39 03 CDR Okay. V_0 SET.

10 00 39 05 LMP Align the scroll to the V_0 to display index.

10 00 39 08 CDR Okay.

10 00 39 10 LMP That should be 25999 or so. You want me to check for you?

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10 00 39 14 CMP I've already set - set that, Rusty.

10 00 39 17 LMP Okay, 25996, verify. Align scroll - okay - EMS
FUNCTION to ENTRY.

10 00 39 24 CDR EMS FUNCTION to ENTRY.

10 00 39 25 LMP FDAI SCALE as desired.

10 00 39 28 CDR Okay, we're in 5/1 right now.

10 00 39 29 LMP Okay, we're in P63. 1644 -

10 00 39 36 CDR And I'm shooting for 0370, right?

10 00 39 39 LMP Right. Where are the needles? Needles look good.

10 00 39 42 CDR Okay. The horizon is going to come back up here
in just a minute.

10 00 39 57 LMP That's a fair bang.

10 00 40 00 CDR Looked nice.

10 00 40 02 LMP Yes, very nice. We need just a few more.

10 00 40 18 CMP 6 minutes TFF.

10 00 40 20 CDR Okay.

10 00 40 22 LMP How does that compare with the - -

10 00 40 25 CMP 20 seconds, 0.05g.

10 00 40 28 LMP - - difference? Okay.

10 00 40 29 CDR Okay, we're definitely blunt end forward, and
we're definitely upside down; all I've got to do
is get up to the horizon now and - -

10 00 40 32 LMP Hey, there's the Salton Sea.

10 00 40 34 CMP How about that?

10 00 40 36 LMP Again, huh?

10 00 40 37 CMP Again.

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10 00 40 39 LMP Gee, I don't ... wait. Okay.

10 00 40 51 CDR Okay, we're getting ... - -

10 00 40 52 LMP Start the EMS manually at RET of 0.05g, huh?

10 00 40 57 CDR Okay, we haven't gotten any updates yet, have we?

10 00 41 00 CMP No.

10 00 41 01 LMP No, we got the DET reset to 3 minutes and counting up, right?

10 00 41 05 CDR Right.

10 00 41 06 LMP Okay, set your RET at 0.05g; Jim, got that?

10 00 41 10 CDR RET at 0.05g is 15:27, right.

10 00 41 12 LMP Right.

10 00 41 16 LMP Wish I could see that stupid DET.

10 00 41 19 CMP Yes, it's 10:05 right now.

10 00 41 21 LMP EMS is still saying they're going to get there 20 seconds earlier.

10 00 41 42 CDR There the horizon comes.

10 00 41 44 LMP Okay, everybody got their heels in?

10 00 41 45 CMP Yes.

10 00 41 47 LMP Heels are in.

10 00 42 06 CMP Okay, P6 ... - -

10 00 42 07 CDR Set the horizon up to the 32-degree line.

10 00 42 18 LMP How's that water?

10 00 42 20 CMP It's good; 50 percent.

10 00 42 22 LMP Let me check how that water boiler is doing. The water boiler is doing alright.

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10 00 42 31 CDR There go the needles - that a boy - right where they are supposed to come.

10 00 42 35 LMP Both water boilers are working good.

10 00 42 37 CDR Okay, fine. Okay, the horizon is coming up just like it ought to come. I mean, the bar's coming up just like it ought to come.

10 00 42 52 CDR We'll settle the dust here in a minute.

10 00 42 54 LMP Say again.

10 00 42 55 CDR I said we'll start settling the dust here in just a minute.

10 00 42 58 LMP 3 minutes. 3 minutes. ...

10 00 43 05 CDR Okay, we're - That's off; we're on 2, 2, 2, 2, 2, 2; one is UP; one is UP. How is the PROP doing?

10 00 43 20 CMP Propellant's good. I just checked them both.

10 00 43 22 LMP That is well.

10 00 43 26 CDR ...

10 00 43 27 CC Apollo 9, Houston. I have a postburn update.

10 00 43 32 CDR Roger. Go ahead - -

10 00 43 36 CC Plus 12091; 25996; 15:25; 16:01; minus 03256; roll right, 50/60; 19:00. I'll get the rest a little later.

10 00 44 07 CDR Roger. 15:25 is 0.05g - What's the RETRB?

10 00 44 15 LMP 19 minutes. Did you get the 1209.1 on the EMS now?

10 00 44 19 CDR 1209.1.

10 00 44 20 LMP Right. And V_0 is still the same? Yes.

10 00 44 30 CDR There you go.

10 00 44 31 LMP V_0 is still the same? Dave, did you get the new DF

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10 00 44 35 CMP Got it. Minus 3256.

10 00 44 37 LMP Right. Okay. What's the TFF now?

10 00 44 51 CDR 15:35. Okay, we're going for 15:25.

10 00 44 53 CMP 124 TFF. It's getting closer. Actually, it looks like it's trimming already.

10 00 45 02 CC Apollo 9, Houston. I have a time to begin blackout

10 00 45 05 CDR Go ahead.

10 00 45 06 CC 15:53, 19:28, 23:46, 24:33.

10 00 45 15 CMP Those are good.

10 00 45 19 CDR Okay, I'll read the whole thing back. 1209.1, 25996, 15:25, 16:01, minus 03256; right 50/60, 19:00, 15:53, 19:28, 23:46, 24:33.

10 00 45 39 CC Apollo 9, Houston. Your readback correct.

10 00 45 40 LMP Okay, I'm going to start taking pictures; we're getting - -

10 00 45 41 CDR Yes, turn - turn the camera on.

10 00 45 42 LMP - - red out there. Yes.

10 00 45 43 CMP Yes. Take your pictures.

10 00 45 50 CMP Okay. 0.01g.

10 00 46 55 LMP See, you can see the moon through the red there.

10 00 46 05 CMP 0.02g.

10 00 46 06 CDR Okay.

10 00 46 18 CMP 0.03g.

10 00 46 19 CDR Okay.

10 00 46 22 LMP Okay, and you are ready to start the EMS manually at 0.04g - -

10 00 46 26 CMP At 16 - No.

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10 00 46 27 CDR What!

10 00 46 28 LMP At 15:25.

10 00 46 29 CDR 15:25, right.

10 00 46 30 LMP Right.

10 00 46 39 CMP 0.05g at 23.

10 00 46 40 CDR 15:25. Going to CMC.

10 00 46 49 LMP Okay - 0.05g light ON; MANUAL ATTITUDE, three, to RATE COMMAND; point 0 - You got that, Jim? Okay.

10 00 46 55 CDR Say that again. Go ahead through them again.

10 00 46 57 LMP Okay, CMC; 0.05g light ON.

10 00 47 00 CDR Right.

10 00 47 01 LMP MANUAL ATTITUDE, three, to RATE COMMAND. 0.05g switch, ON, up.

10 00 47 07 CDR 0.05g switch, ON, up.

10 00 47 08 LMP EMS ROLL, ON, up.

10 00 47 10 CDR EMS ROLL is ON, up.

10 00 47 11 LMP Okay, and it was - Stand by for 67. Wow, that's bright out there, isn't it?

10 00 47 20 CDR Isn't it, though?

10 00 47 22 CMP DSKY's GO, Jim.

10 00 47 23 CDR Okay, Dave.

10 00 47 24 CMP Beautiful.

10 00 47 26 CDR What we got here? Our first command?

10 00 47 42 CMP That's really something, isn't it?

10 00 47 44 LMP Isn't that something? God damn, it's really bright.

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10 00 47 48 CMP Spectacular, huh. Ooh, man, those movies will be great!

10 00 47 52 CDR Okay, you guys, we're up to about 0.2g.

10 00 47 55 LMP 0.2! God, it feels like 5; how do people live here?

10 00 48 00 CMP Coming down here to your first bank command, sir.

10 00 48 01 CDR Okay, EMS isn't working. ... lights up 1.

10 00 48 14 CMP Okay, up to about 0.8.

10 00 48 16 LMP Hard to believe.

10 00 48 32 CMP Okay, bank now.

10 00 48 33 CDR Alright, there it goes, almost 30 degrees.

10 00 48 37 CMP That looks good. G&N's GO.

10 00 48 40 CDR Okay, going around to 60 degrees.

10 00 48 45 CDR ... That's pretty smooth, isn't it?

10 00 48 50 CMP Okay, we're up to 1.0g.

10 00 48 51 LMP God.

10 00 48 56 CMP Okay, EMS looks good; they agree.

10 00 48 58 CDR Very fine. Okay, we're over to a 90-degree bank.

10 00 49 10 CMP 1.3g's on the DSKY.

10 00 49 12 CDR Okay. EMS isn't working at all.

10 00 49 14 CMP EMS looks good.

10 00 49 22 CDR Hope that camera is running.

10 00 49 23 LMP It is.

10 00 49 25 CMP Your bank commander is up on the top.

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10 00 49 27 CDR Okay, fine; she's hanging right on it. We're up to about 1.5g's. Feels like the world's on you, doesn't it?

10 00 49 36 LMP Boy, oh boy.

10 00 49 37 CMP Okay, it's steering good.

10 00 49 39 LMP Batteries are doing okay.

10 00 49 40 CDR Okay, fine; it's doing real nice here. Nice and smooth without the RCS.

10 00 49 58 CMP ... is good.

10 00 49 59 CDR ... Yes. That a boy. Okay, she's holding on 45, right in there.

10 00 50 10 CMP That's 2g's.

10 00 50 22 CDR EMS still isn't working.

10 00 50 24 CMP Cabin pressure looks good.

10 00 50 26 CDR Okay, fine.

10 00 50 28 CMP Okay, EMS agrees.

10 00 50 29 CDR Okay, fine.

10 00 50 31 LMP And all the systems look good.

10 00 50 34 CDR Should have a potential of about 400, I say here; yes, we're looking good.

10 00 50 39 CMP Both rings are good.

10 00 50 40 CDR Okay. About 2.2g's now. The rates are going along real nice, about plus or minus 1 degree per second, at 2.2.

10 00 51 03 LMP Okay, still got 16 000 feet per second - What's the RET, Jim?

10 00 51 08 CDR 19:53.

10 00 51 10 LMP Okay, we should be out of blackout here. Try the OMNI switch here.

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10 00 51 14 CDR About 2.5 now.

10 00 51 15 CMP Okay.

10 00 51 19 CDR Crossrange 1.9, and the downrange 7.7; that looks pretty good.

10 00 51 23 CMP Man, you can't beat that, can you? We might see that cake yet, tonight.

10 00 51 33 LMP How many g's have you got?

10 00 51 35 CDR We've got about 2.75.

10 00 51 36 LMP God, feels like 10.

10 00 51 55 CDR It really drops it in there, doesn't it? 3.2g's now.

10 00 52 02 LMP Dave, let me know when -

10 00 52 03 CMP Yes, I sure will, Rusty. Take care of it right now. Got a ways to go.

10 00 52 08 LMP Okay. Oh, we got S-band back.

10 00 52 15 CDR Roger, Houston. This is Apollo 9. We're having a very nice ride down. Okay, everything is going along real nice. 77 and it's steering right in there. Okay, looks like we're coming off the peak g. It looks like it's about 3.2, which is sort of like an old lady's ride. Which is about what I am right now (laughter).

10 00 52 41 LMP Yes.

10 00 52 43 CDR Okay, we got 65 miles to go on the EMS, so we should be getting there.

10 00 52 47 CMP Yes.

10 00 52 50 CDR Okay, I guess I'd better steer the other way. Then we go, up 1. That's it. Stop there, right about there ... Okay.

10 00 53 01 CMP Almost forgot to ...

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10 00 53 02 CDR Just a little bit. ... about 2 seconds per degree
...
10 00 53 09 CMP Start looking, Rusty.
10 00 53 11 LMP Okay. Oh, that sun.
10 00 53 20 CDR Yes. In about a minute and - -
10 00 53 23 CMP Okay, right now, Rusty.
10 00 53 24 LMP Okay, haven't moved yet.
10 00 53 36 LMP Okay, it's going now.
10 00 53 40 CDR The g's are really coming down now; - -
10 00 53 41 LMP That's by my watch.
10 00 53 42 CDR - - down to 2g's. They really came off then.
10 00 53 49 CDR ... RCS.
10 00 53 52 CMP We should have the drogues in about a minute.
10 00 53 54 LMP Roger.
10 00 53 57 CDR Hello, Houston. Everything is looking good up here
10 00 54 02 CMP Okay, Houston; Apollo 9. Plus 23.26, minus 68.01.
10 00 54 11 LMP Okay, 30 seconds, Jim; the altimeter ought to come
off the peg.
10 00 54 15 CDR Okay, Rusty.
10 00 54 16 LMP Now, we got that little thing hanging down, too,
damn it.
10 00 54 22 CDR Okay, here comes the altimeter; we're going to
BOOST/ENTRY.
10 00 54 24 LMP Okay, the altimeter came up.
10 00 54 26 CDR 50.
10 00 54 27 LMP Okay, you got BOOST and ENTRY.

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10 00 54 30 CDR Okay, the PYRO is ARMED. All the circuit breakers are in.

10 00 54 32 LMP Okay. Okay.

10 00 54 34 CDR We go to ELS LOGIC and AUTO at - at - -

10 00 54 35 LMP Okay.

10 00 54 36 CMP Houston, Apollo 9. Do you read?

10 00 54 37 LMP You're 40K.

10 00 54 38 CDR That's 40K.

10 00 54 40 LMP Okay, SECS LOGIC, ON; PYRO ARM; ELS LOGIC in AUTO - -

10 00 54 41 CMP Okay. PUGS, 123.26, minus 68.01; it looks like we are about a mile off - -

10 00 54 42 LMP - - EMS to OFF and STANDBY.

10 00 54 43 CDR I'll get that in a minute.

10 00 54 44 LMP Okay.

10 00 54 45 CDR Okay, AUTO; EMS to STANDBY.

10 00 54 47 LMP And OFF. OFF and STANDBY, Jim.

10 00 55 00 CDR Okay, OFF ... Okay, stand by, we're coming up on 20 - -

10 00 55 07 LMP There it goes.

10 00 55 08 CMP Good drogue.

10 00 55 09 LMP Hey, good drogue.

10 00 55 12 CDR Okay. RCS COMMAND, OFF.

10 00 55 14 LMP RCS COMMAND, OFF. APEX JET COVER, push.

10 00 55 17 CDR CLOSED.

10 00 55 18 LMP Okay. Cabin pressure increasing, and it is.

10 00 55 24 CDR Okay.

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10 00 55 25 LMP And standing by for 10K.
10 00 55 30 CDR Okay, we're coming through 17.
10 00 55 36 LMP What was that miss distance, Davey?
10 00 55 39 CMP Say again.
10 00 55 40 LMP How much did - -
10 00 55 41 CDR 1 mile.
10 00 55 42 LMP 1 mile?
10 00 55 45 CDR MASTER ALARM, what's that - -
10 00 55 46 CMP/LMP O₂ FLOW HIGH.
10 00 55 47 LMP No sweat.
10 00 55 48 CDR Okay. Okay, we're coming up on 12.5, so just
prepare for the drogue to come off.
10 00 55 55 LMP Okay. By-by, drogues.
10 00 56 00 CMP There go the mains.
10 00 56 02 LMP The mains?
10 00 56 03 CMP Two of them anyway, three of them. There they go.
There they go.
10 00 56 05 CDR Yes, there they go.
10 00 56 06 CMP Beautiful! Whee!
10 00 56 07 LMP CABIN PRESSURE RELEASE to CLOSED.
10 00 56 11 CDR Okay, we got three mains.
10 00 56 15 LMP DIRECT O₂, OPEN.
10 00 56 16 CDR DIRECT O₂ is OPEN.
10 00 56 17 LMP COMMAND MODULE RCS LOGIC, ON.
10 00 56 19 CMP COMMAND MODULE RCS LOGIC is ON. I am going to be
going through a deck of clouds, it looks like.

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10 00 56 23 LMP Okay, COMMAND MODULE PROP, DUMP.
10 00 56 24 CDR DUMP.
10 00 56 25 SC Okay, ...
10 00 56 43 CDR Okay, we're going through 7.5.
10 00 57 02 CDR 7000.
10 00 57 28 LMP Ha, no question about that, huh?
10 00 57 29 CDR Okay. No.
10 00 57 30 LMP And PURGE, ON.
10 00 57 31 CDR PURGE. Okay, two, good.
10 00 57 40 AB Apollo 9, Airboss. Over.
10 00 57 42 CDR Hello, Airboss; Apollo 9.
10 00 57 48 CDR Airboss, this is Apollo 9. We're going through 5500.
10 00 57 52 LMP FLOODLIGHTS to POSTLANDING.
10 00 57 53 CMP FLOODLIGHTS to POSTLANDING.
10 00 57 55 LMP Okay, was that the purge, Dave?
10 00 57 57 CMP Almost, Rusty.
10 00 57 59 LMP Okay.
10 00 58 00 AB Apollo 9, Apollo 9, Airboss. Over.
10 00 58 03 LMP Airboss, this is Apollo 9. How do you read?
10 00 58 04 CMP Okay, purge is done now, Rusty.
10 00 58 05 LMP Okay, PROPELLANT, two, OFF.
10 00 58 10 CMP Okay, two CM RCS PROPELLANT, OFF.
10 00 58 12 LMP Okay, CABIN PRESSURE to BOOST/ENTRY.
10 00 58 17 CMP Here comes ...

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10 00 58 18 AB Apollo 9, Apollo 9, this is Airboss. We have you visual. We have you visual.

10 00 58 25 CDR Good show. Hey, go; they got us a visual, great!

10 00 58 28 AB Control, this is Airboss. A visual contact.

10 00 58 32 CDR Alright, standing by for 3000.

10 00 58 33 AB Magnetic bearing 140; time 58:20 - Belay that - 210, 3 miles.

10 00 58 49 CMP ... Hey, which circuit breakers I got to get, Rusty?

10 00 58 56 LMP Oh, stand by. That's alright; wait until we get there.

10 00 58 59 AB Control, do you read Airboss?

10 00 59 00 CT That's affirm.

10 00 59 01 CDR Hey, Airboss. How do you read Apollo 9?

10 00 59 03 AB Reading you loud and clear.

10 00 59 04 CDR Roger. Feeling pretty good, here; we got three chutes and on the way down to see you; you got that cake ready?

10 00 59 09 AB This is Airboss. I have three main chutes. They are disreefed - -

10 00 59 15 LMP Standing by for 3000.

10 00 59 16 AB - - I am approximately 2 miles from the command module - -

10 00 59 17 CDR There. 3000.

10 00 59 18 LMP CABIN PRESSURE RELEASE to DUMP.

10 00 59 19 AB - - and its altitude is 2500 feet, approximately, at this time.

10 00 59 22 LMP ROTATIONAL CONTROL POWER DIRECT, OFF.

10 00 59 25 CDR What's that?

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10 00 59 26 LMP ROTATIONAL CONTROL POWER DIRECT.

10 00 59 27 CDR ROTATIONAL CONTROL POWER DIRECT, two, OFF.

10 00 59 28 LMP Okay, standing by for 1000 feet.

10 00 59 29 CDR Okay.

10 00 59 30 AB Apollo 9, Apollo 9, Airboss. Over.

10 00 59 31 CDR Roger; we'll be with you in a second, Airboss; we're presently coming down to about 2000.

10 00 59 41 LMP Did you get all - -

10 00 59 42 R3 Airboss, Recovery 3.

10 00 59 43 LMP - - Dave, did you get your instructions?

10 00 59 44 CMP Yes, I got them ...

10 00 59 45 AB Go ahead.

10 00 59 46 R3 Roger; I am circling present time; angels 0.15.

10 00 59 47 LMP ... passing 1000 feet?

10 00 59 49 AB Roger; I have you in sight; have received no contact with the - -

10 00 59 50 CMP Roger; ... supposed to do?

10 00 59 51 AB - - command module.

10 00 59 52 LMP CABIN PRESSURE to CLOSED and MAIN BUS TIE; that's all.

10 00 59 55 CDR Hello, Airboss; this is Apollo 9. We're reading you loud and clear. How us?

10 01 00 04 AB Apollo 9, this is Airboss. Reception a little bit broken. Recovery 3 is circling you at this time. You are looking real good. Give me your status, please.

10 01 00 15 CDR We're all fine; we're all good.

10 01 00 18 LMP Okay, 1000 feet, Jim.

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10 01 00 19 CDR

1000 feet.

10 01 00 20 CDR

Okay, CABIN PRESSURE RELIEF, CLOSED.

10 01 00 21 AB

Roger; understand. Crew in good shape, is that Charlie?

10 01 00 22 CMP

Ready for the MAIN BUS TIES.

10 01 00 23 LMP

MAIN BUS TIES, OFF.

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