

ASTP (USSR) MISSION SR16/1  
Time: 19:33 CDT, 12:13 GET  
7/15/75

KIO This is Moscow MCC. Moscow time is 3:37 a.m. The Soyuz spacecraft 19 is carrying out this orbit around the Earth. The spacecraft is now above the African continent in the shaded period of the Earth - shaded portion of the Earth. Recently we had a communication between the spacecraft and the Moscow Control Center. The communication segment was carried out fully. During the communication the Moscow MCC transmitted to the spacecraft a series of work radiograms, containing information concerning the different orbits and different functions to be carried out during orbits. The radiograms contained parameters and information concerning the fuel supplies and various other necessary information. The condition of the crew - crew's health is normal and there are no comments. The next communication with - between the spacecraft and MCC will take place within 1 hour and 14 minutes. At the present time the crew is preparing for their rest period. This is Moscow MCC. Out.)

KIO (This is Moscow MCC. Moscow time 4 hours and 15 minutes. Soon the 9th orbit around the Earth will come to an end, an orbit made by the Soyuz spacecraft. At the present time the spacecraft is in the AOS of the Orroral ground station. Based upon the telemetric data received from the Yuri Gagarin tracking ship, the air pressure in the descent vehicle is 544 and the orbital module is 550.3 millimeters of mercury. The air temperature in the descent vehicle is 19 and 1/2 degrees Celsius. And orbital module is 20.4. At the present time the cosmonauts are sleeping. The next regular communication within the telemetric range will be carried out in 36 minutes, again by using the Yuri Gagarin tracking ship. This is Moscow MCC. Out.)

KIO (This is Moscow Control Center. Moscow time is 4 hours 30 minutes. The 9th orbit has begun, the orbit being performed by the Soyuz 19th. The flight time is 13 hours 9 minutes. And this way the first working day of Soyuz 19 has finished. During this day the cosmonauts have checked all of the working and functioning of the systems on the spacecraft. The communication links have been checked downlink. Also the pressure has been dumped - 869 to 530 millimeters of mercury. The health of the crew is fine and certain experiments have been begun. During the 3rd and 4th orbits the assembly orbit is - has been started. The parameters of the orbit in the 10th orbit are the following: Maximal apogee is 226.36 kilometers; the perigee is 191 and 37 hundredths kilometers; 88 and 6/10 is the period; the angle from the equator is 51 and 78 hundredths degrees. Based on telemetric data received from the spacecraft all systems are go. The air pressure in the descent vehicle and the orbital vehicle are as they have been projected: 21 degrees Celsius in the descent, 22 in the orbital module. At the present time the crew is asleep. The status of the crew is normal. At the present time the spacecraft is above the sunlit surface of the Earth - over the water body called the Pacific Ocean. In 20 minutes the spacecraft will AOS with the Yuri Gagarin tracking ship, and will link up and carry out a communications mode with the Yuri Gagarin. This is Moscow MCC. Out.)

END OF TAPE

ASTP (USSR) MISSION SR17/1  
Time: 13:26 CDT, 20:46 GET  
7/15/75

(Garble)

KIO (This is Moscow MCC. Moscow time is 5 hours and 7 minutes. The tenth orbit is now in progress - the orbit of the Soyuz 19 spacecraft. The spacecraft is now above the Atlantic Ocean. The cosmonauts are continuing their sleep. The cosmonauts are going to be doing a series of pelagic studies, both by the Soyuz crew and the Apollo crew. A series of experiments will be carried out jointly with both sides participating, and some of the experiments will be carried out by the - each side individually. They'll be studying the effects of space flight, of weightlessness, and various other things such as the rates - changes in the rates of speeds, the different life support systems, and various other issues which we will discuss in detail in the continuation of the flight. We will be discussing both the joint experiments, carried out by both crews, as well as experiments carried out by crews individually. At present time, here we have some information concerning the flight. First of all, the experiment of the development of ... this - At the present time we will be discussing the fish experiment. The life cycle of the young fish, which this experiment will be touching upon, will be discussed and analyzed. Preliminary results received during the flight, the flight of Soyuz 16, have shown that the vestibular apparatus which is found in the young of fish can be very interestingly studied from space. Prior to Soyuz 19's flight, additional studies were made in order that this experiment might be continued. Aquarium studies were also carried out on Earth. There is a part of this experiment - contains certain specimens taken into space half-filled with water and the distribution and growth of caviar and fish eggs under reduced temperatures to reduce the metabolism rates during this flight. At the end of the flight, the cosmonauts will be taking the ampoule which they have with them and will be breaking it. The small specimens of fish will be returned back to Earth and to see the effects that they have experienced during the flight. This will give us certain answers to the questions of the different metabolic rates experienced by these animals and fish as they are taken up into space. This has been Moscow MCC. Out.)

KIO This is the Soviet Mission Control Center. Moscow time is 5:47. The 10th Soyuz orbit around the Earth is being completed. According to the telemetry data obtained during the AOS (in this revolution) through the Yuri Gagarin tracking ship, the DV pressure is 550 mmHg; the OM pressure is 559 mmHg; the DV and OM temperature is 21° C. The cosmonauts' rest period is continuing. At this time the Mission Control Center is calculating the coverage zones of tracking stations on the basis of specified data on orbital parameters. The spacecraft is located over Australia, over the lighted part of the Earth's surface. Mission Control Center, Moscow.

KIO (This is Moscow MCC. In Moscow it is six o'clock in the morning. The eleventh orbit for the Soyuz spacecraft has begun. In this eleventh orbit, no communication is planned at this time. The planned parameters for the eleventh orbit are the following:

Maxim. apogee - 226.11 kilometers  
The perigee - 191.20 kilometers  
The period of revolution is 88.6 minutes  
The equatorial angle - 51.78 ang - degrees

The maximum distance between Apollo and Soyuz is 5149 kilometers. Based

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on the information given for the minimal distance, at five o'clock, will  
be 4990 kilometers. This is Moscow MCC. Out.)

END OF TAPE

ASTP (USSR) MISSION SR18/1  
Time: 15:20 CDT, 22:40 GET  
7/15/75

KIO                    This is the Soviet Mission Control Center. It is 06:40 Moscow time. The Soyuz spacecraft is continuing its 11th orbit around the Earth. The spacecraft is now close to the equator over the Atlantic Ocean in the Earth's shadow. The spacecraft is in the solar attitude mode with the angular velocity of 3 degrees per second. The spacecraft crew is asleep and communication sessions are not scheduled for the present, eleventh, orbit. (This is Moscow MCC. We don't have a communication with the spacecraft at the present time. We're monitoring the experiments which are now going on in the Apollo. One of the unilateral biological experiments in the Soyuz is the "growth of micro-organisms." This experiment being carried out by the aid of the growth equipment which measures growth of micro-organisms in a weightless condition. What happens is the micro-organisms are seeded into an area that contains food and the thermostat is controlled - to control their temperature. And, in an environ - food environment, the crew measures the growth of the micro-organisms that have been implanted therein. Also, the crew puts in an indicator which monitors the coloration. By measuring the coloration distribution, one can measure the growth, the metabolic growth, of the micro-organisms in this food environment. These cosmonauts, twice a day, must carry out the experiment monitoring and write it into the journal. At the Institute of Molecular Biology and Genetics, the experiment will be continued, and the number of cells of micro-organisms will be counted and the conditions of growth in space will be written up. Basically, this will also give some kind of a theory - a foundation for a theory of growth of micro-organisms in an environment of outer space. This is the Moscow Control Center. Over.)

KIO                    (This is Moscow Control Center. Moscow time is 7 o'clock 10 minutes. The eleventh orbit is coming to an end - the orbit of the Soyuz 19 spacecraft. As we have already mentioned, on this eleventh orbit the communication between air and ground is absent. At the present time the spacecraft is located over the Indian Ocean and approaching the Australian continent. Communication with the spacecraft will be carried out during the twelfth orbit in 46-1/2 minutes through the tracking vessel Academician Sergei Korolev. The communications will be carried out through the telemetric - with telemetric mode. This is the Moscow Control Center. Out.)

SPEAKER                ... it was up. (English)

KIO                    (This is Moscow Center. This is 07:45 Moscow time. This is five - twelfth revolution of Soyuz 19. GET - 16:19. The craft is over the ocean. The cosmonauts are still asleep. They will wake up at 10:30 Moscow time. These are the parameters of the Soyuz craft:

Maximum height - 125

Minimal height - 121

The period of rotation - 88 minutes

The inclination is 50 - 51.78.

The distance between Soyuz and Apollo - 1225 kilometers

On the twelfth revolution we will have another scheduled comm session, in fifteen minutes, through the ship - tracking ship Korolev. All the telemetry data will be reported regarding the systems aboard the craft. This was Moscow Center.)

END OF TAPE

ACTP (USSR) MISSION SR19/1  
Time: 00:21 CDT, 17:00 GET  
7/16/75

KIO This is the Soviet Mission Control Center. Moscow time is 8:20. The orbital flight of Soyuz 19 is continuing. (Soyuz 19 is in normal program. In about 2 hours the cosmonauts will rise and will begin program of the day. In a couple of minutes we will obtain some telemetric data through the ship Sergei Korolev. This is data of the 12th orbit. On the 13th orbit we will have another comm session. This session will be in forty minutes. This was Moscow Center.)

KIO (This is Moscow Center of Control. Moscow time 8:55. 13th orbit has been begun. During the comm session of the 12th orbit, comm session was held through tracking ship Korolev. Descent vehicle is 855 and orbital 569. Temperature: Descent vehicle 19 Celsius, in orbital module 19. Parameters of the orbit are: these are the approximate - maximum 225; minimum height 120 period 88.59. The inclination is 51.78. Distance between Soyuz and Apollo is 5045 kilometers. Next comm session will be held in 5 minutes in a Soviet station Ussurisk. This was Moscow Mission Control.)

KIO (This is Moscow Mission Control Center. Soyuz 19 is in comm session with Petropavlovsk-Kamchatsky.)

SALYUT The crew of Salyut 4 congratulates you with the first international flight and wish you the best in performing everything as planned.)

USSR (Roger. We understand you.)

SALYUT (We wish you the best in everything.)

USSR (Roger. Thank you.)

SALYUT (How is everything with Apollo? How is Apollo flying?)

USSR (It's flying normally.)

SALYUT (Are they also going to sleep an hour and a half later?)

USSR (Yes, they have. Before going to sleep they had some difficulty with the probe. Do you understand it? Right now they are asleep, and the Center now is working this problem.)

SALYUT (Roger.)

USSR (But everything else is nominal. They are performing all other maneuvers nominally.)

SALYUT (We are getting ready for some TV transmission.)

USSR (O.K. You will follow this transmission following the problem - following the program.)

SALYUT (Okay. We do understand you. You have the program, so we do not have to give you any additional information. But we would like to wish you everything the best. O.K. now we won't transmit any of this information to you, we have some time during the next orbit. At that time we will pass it on to you.)

MCC-M (Soyuz this is Moscow. How do you read me?)

USSR (We read well.)

MCC-M (We will have a comm check at 19:00. Okay?)

USSR (Roger.)

MCC-M (10 - 5 - 12:00.)

USSR (Roger.)

MCC-M (How's the clock working?)

USSR (Okay. Everything in nominal. Roger.)

USSR (GET is - It will be following Moscow time.)

MCC-M (Okay. Roger. Okay. If we have to deviate from the program at a given time, next we'll give you that during the next comm session.)

USSR (Roger. I understand you.)

MCC-M (Okay. We have 20 more seconds, but we don't have anything so we'll talk to you during the next comm session. So long.)

END OF TAPE

ASTP (USSR) MISSION SR20/1  
Time: 01:20 CDT, 18:00 GMT  
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KIO (Moscow Mission Control. Time, 9:20 Moscow time. The 13th orbit of Soyuz 19 is going on. A couple of minutes ago the Soyuz 19 left Petropavlovsk-Kamchatsky. The crew commented that everything is going well. They are resting comfortably. At this time there was a time check. Telemetry data was sent down. The health of the cosmonauts is good. The distance between the two ships - 4090 kilometers. This was the beginning of the second working day of Soyuz 19. We will have more comm sessions. At the present time the cosmonauts will check all the systems of the craft and after the testing of the systems, they will have another comm session in 8 minutes through the tracking ship, Academician Korolev. This was Moscow Center.)

KIO (This is Soviet Mission Control. Time 9:45 Moscow time. Spacecraft Soyuz 19 is in 13th orbit around the Earth. At the present time it is going through the dark section over the South America. The program of orbit 13 was - completed everything. The health of the cosmonauts is normal; the systems are all going nominal. Program for orbit 14th is also nominal. At the present time the cosmonauts are going through checks, checking all the systems of the spacecraft. Then they will perform a morning toilet and will prepare for a comm session with Moscow Mission Control. This session will be through the station Ussurisk in about 46 minutes. This session will also continue through Petropavlovsk-Kamchatsky. This was Soviet Mission Control.)

KIO (Soviet Mission Control Center for Soyuz flight. Moscow time, 10:05. In 15 minutes, the spacecraft Soyuz 19 will complete the 13th orbit around the Earth. According to the program of the flight, the cosmonauts are completing this check of the systems and pump out the - and complete the morning toilet. At the beginning of the 14th orbit we will be preparing for the scheduled comm session through tracking stations Ussurisk and Petropavlovsk-Kamchatski. We have 26 minutes to this comm session. The spacecraft is right now over the Atlantic Ocean. The speed rate of the spacecraft is 3 degrees per second. This was Soviet Mission Control.)

MCC-H Engineers and flight controllers continue to review a problem reported briefly by Vance Brand before the crew - - (English)

KIO - - (Soviet Mission Control. Moscow time, 10:20.)

KIO (This is Soviet Mission Control. In a minute Soyuz 19 will have comm session through the tracking station Ussurisk.)

CC-M (How do you read me? Soyuz, this is Moscow. How do you read me? Why don't you reply?)

CC-M (Soyuz, this is Moscow. How do you read me?)

USSR (Moscow, this is Soyuz. I read you.)

CC-M (This is Moscow. How do you read me? Please reply.)

USSR (Everything is going well.)

CC-M (Please repeat. I can hear you very badly. Soyuz, Soyuz, this is Moscow. How do you read me?)

USSR (I hear you well. How do you read me?)

CC-M (Soyuz, this is Moscow. How do you read me?)

USSR (Moscow, this is Soyuz. I hear you well. I hear you well.)

CC-M (Alexey, how are you feeling?)

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SCDR (Normally, well. Everything is going well. Everything onboard the spacecraft - all systems are good. We feel good. We completed the program for this hour.)

CC-M (Okay, we have quite a few things to work over - talk over with you. Get ready pad 14 and 20-23. Okay, we'll begin with 23; that's good. Are you ready? Okay, telemetry read up.)

CC-M Orbit 15, beginning, 114906; Moscow 1902, 1917; shadow, 1918, 1954; 16th, 131741; Moscow, 1927, 1948; shadow, 1947, 1422; 17th, 144616; Moscow, 1455, 1518; shadow 1515, 1551; 18th, 161451; Moscow, 1626, 1649; shadow 1644, 1720.

CC-M (If you received everything, you don't have to give me any confirmation.)

SCDR (We did receive you well.)

CC-M (Pad 14. Are you ready?)

SCDR (Just one second; we're not quite ready.)

CC-M (Look in the red book, Valeriy.)

SCDR (Okay, I'm ready. Read it up.)

CC-M (Okay, pad number 16 figures.)

CC-M Orbit 16, burn, 071 for all orbits; launch time, 13:19:52.

SCDR Repeat the burn.

CC-M 071. Launch time, 13:19:52. ACPS operation 157 seconds for all orbits. Angle, 094. 16th: 14:41:33, 090. 17th: 16:13:19, 092. How did you receive? You don't have to read back if everything's okay.

SCDR Okay, on the 16th, 13:19:52?

CC-M Exactly. On the first.

SCDR And on the 17th, 16:17:19.

CC-M Carry on, please.

SCDR On the 16th, 071; time, 13:19:52. Operation time, 157,094. On the 16th: 14:41:33. 17th, 16:19: - - 17th, 16:17:19, 092.

CC-M Launch time for the 17th orbit: 16:13:19.

SCDR 16:12:19.

CC-M 16:13:19.

SCDR Roger. 16:13:19.

INTERPRETER Difficulty in receiving this pad figures from Mission Control, Moscow, by Alexey Leonov. (English)

CC-M Pad of radiograph (garble) (comm obliterated by interpreter's voice over commentary.)

SCDR Ready.

CC-M Take pressure readings from the absolute pressure gauge at the beginning of the 15th, 16th, and 20th orbits. Report the amount of pressure and time of measurement when you enter a coverage zone.

SCDR (Check pressure using AG, 15th, 16th, 17th orbits.)

CC-M (Repeating, 15th, 16th, and 20th orbit, using AG.)

SCDR (Roger. Okay. Confirming, using AG, we'll check pressure 15th, 16th, and 20.)

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CC-M (Okay now let's go to pad 19. Be careful taking down the figures. It's very important. Okay? And by the way, let's hurry up. We don't have that much time.)

SCDR (Okay, read it up.)

CC-M (Number 19. One. Connect cables 549.10, 392.10, - -)

SCDR (392 - -)

CC-M (392.10)

SCDR (Roger.)

CC-M (In the third row of the connectors.)

CC-M (Likewise, 540, the last one in the same row. Come on, be a little more energetic. Secondly, connect these cables fast - -)

SCDR (I can't understand you.)

CC-M (Make sure that the cables - -)

END OF TAPE



ASTP (USSR) MISSION SR21/1  
Time: 02:42 CDT, 19:22 GET  
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USSR (I cannot understand you.)  
MCC-M (Make sure that these cables are flush with the walls and the connectors. This is absolutely necessary. Use either velcro or some other straps. This is necessary to have an electrical power between both capsules. To facilitate at working with these cables and these connectors use.... If you disconnect them - if you disconnect them, you have to connect them to the original source or to get them out of your way.)  
USSR (Okay. I don't think it will be essential.)  
MCC-M (We received you.)  
USSR (First, we have to disconnect them, and then to connect them to the original source or to take them I don't know where, isolate them.)  
MCC-M (Do this in the 19th orbit after you do give us telemetry data. We would like you to fulfill these recommendations before the next comm session.)  
USSR (Okay. We'll first have our breakfast and then get to work fulfilling your recommendations.)  
USSR (Moscow, this is Soyuz.)  
MCC-M (I can hear you well, Alexey.)  
USSR (We will do everything you recommended.)  
MCC-M (That's good. Keep trying.)  
USSR (Give our regards to Salyut 4, please from us.)  
MCC-M (Okay.)  
USSR (On the next communication session tell us, please, how is everything going aboard Apollo.)  
MCC-M (Everything is going normal.)  
MCC-M (Okay. You have 4 more seconds. What do you have?)

END OF TAPE

ASTP (USSR) MISSION SR22/1  
Time: 03:01 CDT, 19:41 GET  
7/16/75

KIO This is the Soviet Mission Control Center. Moscow time is 11:01. (Moscow's Control Center. A few minutes ago we had a regular scheduled comm with Soyuz 19 with Mission Control Moscow. The data provided by the cosmonauts and a telemetry - the following data: Orbital module 569; temperature in descent vehicle, 19 centigrade; and orbital module, 19.7. There are no comments regarding the health of the cosmonauts. The program with this orbit is nominal. Moscow Mission Control gave number of radiograms regarding the program of orbit 14 - pads 23 and 19. The next comm session with the Mission Control will be in one hour through the station Ulan-Ude. At the present time the crew of Soyuz is - - The craft is over the Pacific Ocean. This was Soviet Mission Control Center, Moscow.)

KIO (This is the Soviet Mission Control. In 47 seconds we will have AOS through Ulan-Ude.)

MCC-M Soyuz, Soyuz. This is Moscow. How do you read me?

MCC-M Soyuz, Soyuz. This is Moscow. How do you read me?

MCC-M Soyuz, Soyuz. This is Moscow. How do you read me?

MCC-M Soyuz, Soyuz. This is Moscow. How do you read me?

MCC-M Soyuz, Soyuz. This is Moscow. How do you read me?

SFE Moscow. This is Soyuz 2. How do you read me? Over.

MCC-M I read you excellently.

SFE I read you well, too. We have been in OM now.

MCC-M Report about our recommendations.

SFE (We took those two cables apart. We did connect them and number 1 and then put the cable back - I mean we want to put the whole block back into it.)

MCC-M (O.K.)

SFE (Well. We also took your recommendation and changed the two cables.)

MCC-M Please, Soyuz, I don't read you well.

SFE (Tell me, please, the work that you recommend us to carry out - Was this final or this is just an experiment - trying to get at the base of the trouble.)

MCC-M (We are both experimenting but we hope this is final. At this time let's go to the program, to the scheduled program.)

MCC-M (Valeriy, did you disconnect the whole cable?)

MCC-M (My question regards - regards this. We are concerned that in taking apart the cable, did you by any chance touch or disconnect anything else? Okay. Now give me some AG readings.)

MCC-M (Please hurry up because we have quite a bit of data for you.)

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SFE (AG pressure, 567.)  
MCC-M (Thank you, Soyuz 2. If you are ready then I will give you my  
data. O.K. now. I'll give you pad 3 now.)

SFE Ready.  
MCC-M (OK. I'm ready.)  
SFE Orbit 12.8 Time 10; Time 10:00  
MCC-M (Come on Valeriy, a little quicker, a little more energy into  
it.)

USSR (The following are pad readings - pad data.)

1st	10	16	20
2nd	200	17	8
3rd	5	18	8
4	240	19	20
5		20	20
6	30	21	11
7	17-1/2	22	580
8	290	23	580, 568
9	3-1/2	24	925
10	3-1/2	25	300
11	240	26	310
12	240	27	170
13	4-1/2	28	220
14	4-1/2	29	228
15	32	Over.	

MCC-M Roger. Thank you. (Get pad 14, 23 and 2. Get those  
ready.)

USSR (Roger.)

USSR (O.K. I'm ready for 23.)

MCC-M Okay. Pad 23.

USSR Orbit 19. 23

19th, 17:43:26; Moscow, 17:58 - 18:15; Shadow, 18:12 - 18:48.  
20th, 19:12:00; Moscow, 19:31 - 19:45; Shadow, 19:41 - 20:17.  
21st, 20:40:34; Gagarin, 20:50 - 20:53; Moscow, 21:03 - 21:14; Shadow,  
21:10 - 21:46. 22nd, 22:09:08; Gagarin, 22:20 - 22:27; Korolev, 22:10 -  
22:18; Moscow, 22:35 - 22:44; Shadow, 22:38 - 23:14. 23rd, 23:37:42;  
Gagarin, 23:52 - 23:59; Shadow, 00:07 - 00:43. 24th, 01:06:15; Gagarin,  
01:25 - 01:31; Shadow, 01:35 - 02:12. How did you receive me?

MCC-M I read you well.

USSR Then I don't need to read again. (Okay. Since you  
received it well, no confirmation necessary. Pad number 14.)

USSR Which note did you take in previous session?

MCC-M 14 - 17th orbit.

END OF TAPE

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Time: 04:12 CDT, 20:51 GET  
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MCC-M (Pad number 14)  
MCC-M What burn did you note in the last communication session?  
SCDR According to the 14th, right? 17th orbit - - 17th.  
MCC-M Yes.  
SCDR How do you read me? We noted the 17th orbit.  
MCC-M Burn, Burn. What burn did you note?  
SCDR Oh, Burn 070.1.  
MCC-M Thank you.  
MCC-M (The burn was 270.1.)  
MCC-M Form 14. Radiogram 16. Orbit 19. Burn 070.1 for five orbits. Engine firing 17:45:11. Operation 157 seconds for five orbits angle, 093. 20th - - 19:13:32, 093. 21st - - 20:43:59, 094. (Please give me confirmation.)  
INTERPRETER Confirmation being provided now. (English)  
SCDR 19th - - Burn at 070.1. Time - - 17:45:11. 157 - - Operation. 093 - Angle. 20th - - 19:13:32. 21st - - 20:43:59, Angle 94.  
MCC-M What angle on the 20th?  
SCDR 094.  
MCC-M On the 20th, the angle is 093. On the 21st it is 094.  
SCDR Yes, yes. That's right. On the 20th we received 094.  
MCC-M The 17th is confirmed. (Get pad two ready please.)  
SCDR Pad 2 ready. Ready.  
MCC-M 20th - - Longitude 212. Period 88.58. Orbit 014.4. Time of insertion 12:26:59. Please confirm.  
SCDR Repeat the period, please.  
MCC-M 88.58.  
SCDR Longitude 212. Period 88.58. Orbit 014.4. Time of insertion 12:26:59.  
MCC-M Confirmed. Form 21.  
SCDR Give it.  
MCC-M Details for the 15th orbit. Do not install TV camera three. How do you read?  
SCDR (Don't put TK 3 in operation.)  
MCC-M (Confirmed. One question. What is VHF/AM? Is it on or off? Please check it.)  
SCDR (It's off. I am certain it's off.)  
MCC-M (Do it once again more carefully.)  
SCDR (I'm looking at the panel right now. VHF/AM is off.)  
MCC-M (Thank you.) (Okay. You have a reserve comm section - session with us through Hawaii. Time of this comm session will be 21 - 12:21 through 12:28.)  
SCDR (Confirmed.)  
MCC-M (Okay. 13:21:47 you have a comm session through Moscow. 14:05:09 through Vanguard.)

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SCDR (Thank you for this reminder.)  
MCC-M (Okay. We've completed everything. We have 40 seconds  
left.)  
SCDR (How's everything down there?)  
MCC-M (Everything is good down here, Alexey.)  
MCC-M (20 seconds. We wish you best of luck in your work.  
Until the next scheduled comm session.)  
SCDR (Thank you.)

END OF TAPE

ASTP (USSR) MISSION SR24/1  
Time: 04:33 CDT, 21:13 GET  
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KIO (Mission Control. Moscow time - 12:33. Soyuz is in flight for 21 hours 13 minutes. It's performing 15th orbit of the flight. Comm session is scheduled - No. The comm sessions held in the 15th orbit - The comm sessions for 15th orbit were completed. There are no comments regarding the health of the cosmonauts. The onboard systems are working nominally. 16th orbit the crew will perform program as scheduled. The parameters of the flight are as follows for Soyuz: Descent vehicle is 50 - What? - 553; temperature - 19.6; pressure in the orbital module - 569; temperature of orbital module - 20.8 Centigrade. In the instrument module the pressure is - temperature 11.6 Centigrade. This is Soviet Mission Control for the Soyuz flight.)

KIO (This is Soviet Mission Control. In one minute the spacecraft Soyuz will come into the zone of coverage of Ascension Island. This is Moscow Mission Control Center.)

USSR (This is Soyuz, I read you excellently. How do you read me?)

MCC-M (Excellently. Over.)

USSR (The engine worked - fired for 21 seconds. We monitored all the systems completely. Everything onboard is in order.)

MCC-M (Thank you very much.)

USSR (Thank you. Over.)

USSR (Moscow, (this is Soyuz. How did you read?)

MCC-M (Understood you excellently. Thank you for a good report. Over.)

SFE (Moscow, this is Soyuz 2. If you want the report on our operations we can give it to you.)

MCC-M (We will receive - we will take this report over our territory. How did you read me? Over.)

USSR (Read you all right. Wait a minute. The data on these tables we will receive later on our territory. How did you read? Over.)

MCC-M (We hear you intermittently. Say again, please.)

USSR (Moscow, this is Soyuz. Say again, please. Over.)

USSR (Moscow, this is Soyuz. Say again, please. Over.)

MCC-M (Soyuz, Soyuz. This is Moscow. The data on these tables we will receive over our territory. How did you read? Over.)  
USSR (Very poorly. Intermittent with echo. In 10 minutes we will be in our zone of coverage. Then we will talk in greater detail. Over.)

SFE (Moscow, this is Soyuz 2. We have completed the monitoring of our onboard systems. Now, according to our program we have lunch.)

MCC-M (Have a good meal. This is Moscow.)

ASTP (USSR) MISSION SR24/2  
Time: 04:33 CDT, 21:13 GET  
7/16/75

KIO (This is Soviet Mission Control Center. Moscow time is 16 hours 17 minutes. The Soviet - The spacecraft Soyuz has been in flight for 24 hours and 58 minutes. It is now completing its 18th orbit. The communication session has ended between the Soyuz spacecraft) and Ascension Island tracking station. (The crew of the spacecraft has reported that they have completed the second maneuver of achieving the assembly orbit. The engine burn was 21 seconds long. It operated normally, and all systems of the spacecraft are operating properly. According to the program - flight program, the cosmonauts are having their) second (lunch and they feel normally. During the last session with the Mission Control Center over the territory of the - over the Soviet - vehicle they said that they are passing over the Sinai peninsula, that they feel well, that they have a very good view and that they saw the Nile River. The next communication session will begin at 16 hours 27 minutes Moscow time, and 6 minutes and 50 seconds remain before the beginning of the next communication session. This is Moscow Mission Control Center.)

END OF TAPE

ASTP (USSR) MISSION SR25/1  
Time: 08:28 CDT, 25:07 GET  
7/16/75

MCC-M (Soyuz, this is Moscow. How do you read me?)  
MCC-M (This is Moscow. How do you read me?)  
MCC-M Soyuz ...  
MCC-M (Soyuz, this is Moscow. How do you read me?)  
MCC-M (Soyuz, Soyuz, this is Moscow. How do you read me?)  
MCC-M (Soyuz, Soyuz, this is Moscow. How do you read?)  
MCC-M (Soyuz, Soyuz, this is Moscow. How do you read?)  
MCC-M (Soyuz, Soyuz, this is Moscow. How do you read?)  
MCC-M (Soyuz, Soyuz, this is Moscow. How do you read?)  
USSR (Moscow, this is Soyuz, for comm.)  
MCC-M We had to interrupt your lunch. We will take the report on the  
conduction of the - of the maneuver.)  
USSR (We read you.)  
MCC-M (Please, forgive us.)  
SFE (Moscow, this is Soyuz 2. The maneuver proceeded without any  
comment. The engine we fired for 21 minutes until the integrator turned it off. The  
exact orientation during firing of the engine was normal, and if you want some data  
on form 3, I can give them to you.)  
MCC-M (Let's have them.)  
SCDR ... God damn cow.  
MCC-M (I heard you, Alexey.)  
SCDR (Excuse.)  
SCDR (Moscow, the board engineer, the Flight Engineer will give you  
something.)  
MCC-M (We have a longer comm session, they do not have to hurry.)  
SFE (We had to go to the orbital module to get the onboard journal.  
We are ready.)  
SFE (Orbit 16; time - 16.05; second - 10; third - 7-1/2; 4 - 235;  
5 - 15.5; 6th - 300; 8th - 290; 9th - 3.5; 10th - 3.5; 11 - 10; 12 - 10; 13 - 4-1/2;  
14 - 4-1/2; 15 - 301; 16 - 20; 17 - 1 - 11; 18th - 9; 19 - 20; 20 - 20; 21st - 7; 22nd -  
575; 23 - 575 on the manovacuumeter. 25th - 30; 26th - 30 - 40; 27th - 170; 28th -  
220; 29th - ... How did you read?)  
MCC-M (I read you well. Get ready for form 7 and take a radiogram with-  
out form. I'll give it to you.)  
USSR (What page is that on, form 7?)  
MCC-M (Page 2-11.)  
USSR (Ready for form 7.)  
MCC-M ((Garble) number 2, radiogram number 24. The test of attitude  
and motion control systems. 17:20:00, beginning of signal of command. How did you  
read?)  
USSR (24. Beginning of command, 17:20:00.)  
MCC-M (Radiogram without form, 25. On completing the test of attitude  
and motion control system number 2, do a solar spin with the angular velocity of 3  
degrees per second on the orientation engine - using the orientation thrusters. How  
did you read?)  
USSR (After testing the attitude and motion control system number 2,  
do a solar spin at 3 degrees per second.)  
MCC-M (Without form, number 26. Communication session with Moscow on the  
19th orbit. Do a VHF/AM and VHF - R - D2 separating the communication channels. How  
did you read?)



ASTP (USSR) MISSION SR25/2  
Time: 08:28 CDT, 25:07 GET  
7/16/75

USSR (Communication channels on VHF on the 17th orbit with Moscow, separate the comm channels on VHF/FM and VRD2.)  
MCC-M (Confirm number 26. I've transmitted all our data for you for this orbit.)  
USSR (R - Copied.)  
MCC-M (Soyuz, this is Moscow. Standing by. Two questions. First question: Did you turn off simplex VHF/AM?)  
USSR (When? Now?)  
MCC-M (After Ascension Island.)  
USSR (Yes, we turned it off. It is now turned off.)  
MCC-M (Roger. Thank you. I'd also like to get the pressure using the pressure vacuum meter. Take a look at it.)  
USSR (We'll give it to you. Right away. Moscow, this is Soyuz. How do you read?)  
MCC-M (Excellently.)  
USSR (Now we'll give you the data.)  
MCC-M (Thank you.)  
MCC-M (Thank you for your ...)  
USSR (Exactly 560 mm.)  
MCC-M (Roger. 560 mm.)  
USSR (Closing the pressure equalization valve. ... and the stopper.)  
MCC-M (For your information. Your colleagues have gotten up, they slept well, seven hours each, Slayton only six hours. They have had breakfast. They have no problems really with the hatch, the - they ...)

END OF TAPE

ATSP (USSR) MISSION SR26/1  
Time: 08:38 CDT, 25:18 GET  
7/16/75

MCC-M (For your information, your colleagues have gotten up. They slept well, seven hours each, Slayton only six hours. They have had breakfast. They have no problems, really, with the hatch. They know what to do and how to do it, so everything's in order.)

USSR (Roger, thank you.)

MCC-M (Soyuz, this is Moscow.)

USSR (Standing by.)

MCC-M (We have nine minutes. Then if I will not be disturbing your testing of attitude and motion control system number 2, I'd like to give you a radiogram on further TV work, since we seem to have time for this right now.)

USSR (We're now having lunch, so we can't really do this right now.)

MCC-M (Roger. So have a good appetite.)

SCDR (Valeriy hasn't eaten anything yet, so let me take it.)

MCC-M (This is a continuation of radiogram number 19.)

SCDR (Wait one.)

(Let's have it now.)

MCC-M (Central communication cables, 392.10 and 549.10 should be connected with a connector, with wire of a length of 30 to 40 millimeters, in such a way that it wouldn't touch the housings of the connectors. For this purpose the connecting wire has to be insulated. Did you write it down?) (The wire should be taken off the nuts at the upper part of the storage cabinet. Using ~~spaces through the~~ ~~through the command~~ signaling device access hatch. Further, the housing and the connecting - the jumper wire of these connectors should be insulated with either rubber or with adhesive tape, insulated with that and then taken - they should be placed behind the outer panel of the container. Did you get that?)

SCDR (Yes.)

MCC-M (If you have uninsulated connectors from the other board, they have to be insulated.)

SCDR (All right.)

MCC-M (But don't think - don't worry about this for the time being because you have a test number two for the attitude and motion control system.)

SCDR (Very good.)

MCC-M (All right, continue your lunch. Thank you.)

MCC-M (We have 1-1/2 minutes left.)

USSR (Thank you. Everything onboard in normal. We are finishing our lunch and are going into the descent vehicle.)

MCC-M (Roger.) I'll be back in a little bit more than one hour.  
(English)

USSR All right. (English)

MCC-M This is Moscow.

END OF TAPE

ASTP (USSR) MISSION SR27/1  
Time: 08:59 CDT, 25:39 GET  
7/16/75

CC-H This Air/Ground. (English)  
CC-H Yeah. (English)  
CC-H I'm not. (English)  
CC-H I just tried the other channels, and I'm not getting it.

(English)

MCC-M (Today, at 6 o'clock Moscow time, the cosmonauts will be given a command and - and they will begin to repair that amplifier.)

KIO (This is Soviet Mission Control Center. Moscow time is 17:05. The Soyuz spacecraft has been in flight for 25 hours and 45 minutes. It is now completing its 18th orbit. The - on regularly scheduled communi comm session for between Moscow MCC and the Soyuz spacecraft was conducted over USSR tracking stations. The Soviet - Soyuz crew has had lunch and during its comm session reported the results of carrying out the assembly orbit maneuver. The maneuver was performed normally. All onboard systems of the spacecraft are operating well. After lunch the cosmonauts will transfer to the descent vehicle and begin preparations for testing the attitude and motion control system. After this they will - they will perform the solar spin with an angular velocity of 3 degrees per second. The next comm session of the Soyuz spacecraft with the Mission Control Center will be at 17:59 Moscow time. This is Moscow Mission Control Center.)

KIO (This is Soviet Mission Control Center. Moscow time is 17:37. The Soyuz spacecraft has been in flight for 26 hours and 16 minutes. It is now completing its 18th orbit. According to the results of the maneuver which has been taken place in achieving the assembly orbit, the following parameters of the orbit have been achieved - have been received:

Maximum altitude	224 - 224.8 kilometers
Minimum altitude	221.9 kilometers
Period	88.9 minutes
Orbital inclination in the equatorial plane	51.78 degrees

The determination of the orbit was done at - in accordance with the results of the communication session over Eupatoria, Kolpashevo, Ulan-Ude and Ussurisk ground tracking stations. For the 19th orbit of the flight the following program of operations is mapped out. The continuation of test of the attitude motion control system after which the solar spin will be accomplished, with an angular velocity of 3 degrees per second. After this, the crew will hold a comm session with the Mission Control Center. After the comm session, Valeriy will be engaged in monitoring the onboard systems, the condensate will be pumped off, and the cosmonauts will perform a test of their TV system. The next comm session with the Mission Control Center will begin at 17 hours 59 minutes Moscow time. This is Moscow Mission Control.)

END OF TAPE

ASTP (USSR) MISSION SR28/1  
Time: 09:59 CDT, 26:39 GET  
7/16/75

KIO (This is Soviet Mission Control. In thirty-eight seconds the Soyuz spacecraft will enter the zone of coverage of Soviet ground stations Tbilisi.)

SFE (Moscow, this is Soyuz 2. I read you well. How do you read?)

MCC-M (Soyuz, I read you excellently.)

SFE (Separating the comm channels.)

MCC-M (Roger.) (Please report on the attitude and motion control system test number 2.)

SFE (Did you hear Soyuz 1? Someone is talking to Soyuz 1.)

MCC-M (You've got a FM, too, and I can't handle it.)

SFE (I've ... The results - the results of the attitude and motion control system test number two. The maneuvers around the alpha Y-A-, Y-, and Z-axes have - were performed without any deviations. The maneuver around the X-axis coincided with the plans within about 1-1/2 degrees. Time of the maneuver around the Y-axis, 198 seconds; around Z, 199 seconds; and around X ...)

MCC-M (Roger, Soyuz 2.) ... capture the roll, please.

SFE (After - well - after the attitude and motion control system check, we did the three degree per second roll, counterclockwise. The chart current after the spin is 20 amperes.)

MCC-M (Now I'll continue to transmit the radiogram number 19 without form, but I would like to have you receive - both of you to receive it, so let us wait until the commander will finish his conversation on the other channel. How did you read?)

SFE (Roger.) (We'll wait so far.)

SPEAKER (For this purpose we'll have to turn off the separated channels.)

MCC-M (Soyuz, this is Moscow. How do you read?)

(Soyuz, this is Moscow. How do you read?)

SFE (Moscow, this is Soyuz. I read you well.)

MCC-M (How is the commander?) (Soyuz 2, just switch off the separation of the channels.)

SFE (I'm doing so. I'm complying.)

SCDR (Moscow, this is Soyuz. How do you read me?)

MCC-M (I read you excellently.)

SCDR (All right. We have just done the test.)

MCC-M (Roger.) (I am continuing transmission of radiogram number 19. We would like you to copy it down carefully. Are you ready?)

SCDR (Ready.)

MCC-M (This connects the cable connectors, J341 of the first TV camera, TK-1. Also the connector J347/10. These connectors are located on the bow - on the wall of box number six. The cable connectors, J347/10 number 1 from TK-1 TV camera, should be connected to the J347/10 connector - cable connector. The free ends of cable J347/10-1 and 347/10 should be insulated off. This - these operations, as - if possible, should be done before the next comm session. After the work with the connector, set up

ASTP (USSR) MISSION SR28/2  
Time: 09:59 CDT, 26:39 GET  
7/16/75

TK-1 camera 1. Repeating: put after - the camera mount on the - the camera mount bracket on - put the TK-1 camera on that bracket, after work accomplished with the connectors. If you finish all this work, then, on the 20th orbit, TK-1 TV camera will be switched on. Please repeat radio-gram.)

USSR (Repeating.)

MCC-M (From the beginning.)

USSR (Disconnect the cable connectors J347/10 number 1 of the TK-1 TV camera and the J347/10 connectors. These connectors ... These connectors are located on the wall of the number six storage box. To now join the connectors of the J347/10 number 1 with the other main cable number J347/10. The two free cable connecting ends of J347/10 number 1 and J347/10 should be insulated off. If possible this work should be accomplished before the next comm session. After the operations with these connectors, set up the ... the - set up the camera bracket on bracket mount for the TK-1 TV camera. If you accomplish all this, then the TV - TEV camera TK-1 will be switched on the twentieth orbit. But we haven't done everything that you have told us on the previous orbit.)

MCC-M (That's exactly what I wanted to te - to ask you next. Is everything I've just given you should be accomplished - everything we've transmitted to you now should be accomplished after you've completed the work given to you on the previous orbit.)

SFE (We haven't begun it yet. We're just now ... it is just now that we are - it is possible for us to begin it.)

MCC-M (You have to try.)

SCDR (We will try. Valeriy. Do you have anything else for us?)

MCC-M (No. We have seven more minutes. I will be standing by and you can begin this work. If you have any questions that arise, I will be listening. I'll be waiting.)

SFE (Can we use as - can we use Band-Aids from our medical - medical kit for insulating material, to insulate off the ends of the cable?)

MCC-M (Yes, Valeriy. You can do it.)

SFE (All right.)

END OF TAPE

ASTP (USSR) MISSION SR29/1  
Time: 10:16 CDT, 26:55 GET  
7/16/75

MCC-M ( ... One minute left.)

USSR (Roger. One minute. We've gotten the wire. Good show.)

MCC-M (So, we wish you success in this work.)

USSR (Thank you. We even have a spare wire.)

MCC-M (So, until we meet on the next orbit.)

USSR (Roger.)

MCC-M (17 seconds, Moscow; 18:5 - Okay. 19:31 to 19:41 next comm Moscow time.)

KIO (This is the Soviet Mission Control Center. Moscow time is 18:25. The Soyuz spacecraft has been in flight for 27 hours and 5 minutes. The comm session between the spacecraft and Moscow Mission Control has been done over Soviet ground station. The crew has reported on accomplishing the solar spin, and at the present time is engaged in testing out the television systems. The program for comm session has been completed and, as a result of processing telemetry data, the Soyuz spacecraft has the following atmospheric parameters:

Air pressure in the descent vehicle 520.9 mm  
Air temperature in the descent vehicle 19.59 degrees Centigrade  
Air temperature in the orbital module is 19.76 degrees Centigrade. The gas pressure in the instrument module 861.8 mmHg;  
Temperature is 12.11 degrees Centigrade.

The Soviet - Soyuz space flight is completing its 19th orbit. The next comm session between the spacecraft and Mission Control Center will take place at 19 hours 32 minutes Moscow time. This is Moscow Mission Control.)

END OF TAPE

ASTP (USSR) MISSION SR30/1  
Time: 10:34 CDT, 27:14 GET  
7/16/75

KIO (This is the Soviet Mission Control Center. Moscow time is 18:45. The Soyuz spacecraft has been in flight for 27 hours 25 minutes and is now completing its 19th orbit. For the 20th orbit the following orbital parameters are predicted:

Crossing of the equator at 19:12 Moscow time  
Maximum altitude 224.9 km  
Minimum altitude orbit 222.5 km  
Period of rotation 88.9 minutes  
Orbital inclination in the equatorial plane  
51.78 degrees

The Soyuz spacecraft will enter the shadow at 19:42 Moscow time and will leave at 20:18 Moscow time. The next comm session with the Moscow Mission Control Center will be held at 19:32 Moscow time. 45 minutes before AOS. This is Moscow Mission Control.)

KIO (This is Soviet Mission Control Center. Moscow time 18:58. The Soyuz spacecraft is completing its 19th orbit around the Earth. At 19 hours 12 minutes the spacecraft will cross the equator. The 20th orbit, the following operations for the crews plan: Globe correction. Dinner. Correcting pressure dump from the orbital module and descent vehicle down to 500 mmHg. Also there will be pressure integrity check of both modules. This is Moscow Mission Control Center.)

KIO (This is Soviet Mission Control Center. Now Moscow time is 19:22. The Soyuz spacecraft is completing the 20th orbit around the Earth. At the present time the Soyuz spacecraft is in a spin mode with orientatal of - towards the Sun. At 19:32 the next comm session will begin from Eupatoria, Tbilisi and Djusaly Soviet ground tracking stations. According to the program the ground stations will receive telemetric information, trajectory measurements, a radio tal - conversations with the crew. Until the next - 9 minutes remaining until the next comm session. This is Moscow Mission Control Center.)

END OF TAPE

ASTP (USSR) MISSION SR31/1  
Time: 11:32 CDT, 28:12 GET  
7/16/75

MCC-M (Soyuz, this is Moscow.)  
USSR Excellent.  
MCC-M (Soyuz, this is Moscow. How we hear you - excellent.)  
(Alexey, how are things going? Have you done everything, according to our recommendations?)  
SCDR (Yes, we are trying.)  
USSR (Roger.)  
MCC-M (Soyuz,) please switch on ...  
SCDR (Yes. Roger. I'm transferring from the descent vehicle to the orbital module. Roger.)  
MCC-M (Alexey, I can see you.)  
SCDR (How can you see me?)  
MCC-M (I can see you, Valeriy.)  
SFE (You can't see me either.)  
USSR (Which TV camera is turned on?)  
MCC-M (I was right. It is Alexey.)  
USSR (Can you see him now?)  
MCC-M (Yes, I can.)  
USSR (But we haven't - we are not transmitting anything. Ah, you will be.)  
SFE (What am I sitting here for and waiting?)  
MCC-M (Why didn't you join Alexey?)  
SFE (You have a mi - you have a picture?)  
MCC-M (Yes, we have a very good picture.)  
SFE (Okay. I am going over there.)  
MCC-M (Soyuz, Soyuz, this is Moscow.)  
MCC-M (Soyuz, this is Moscow.)  
MCC-M (Almost in the head, Alexey.)  
MCC-M (Soyuz, this is Moscow.)  
USSR (Soyuz here.)  
MCC-M (A little lower and a little left. Tell the TV viewers about the performance of the 2nd maneuver after attaining assembly orbit.)  
SCDR (Dear friends, ... How do you see me?)  
MCC-M (A little lower and right. All right. This is good, Alexey.)  
SCDR (Dear friends, and coun - fellow country men. This is our first TV broadcast from onboard the Soyuz spacecraft. Over 24 hours now we have been flying in orbit as an artificial satellite of the Earth, and we have managed to do a great deal. In general, we can say we have completed two maneuvers in forming the assembly orbit. Now we are already on the nominal assembly orbit. We are waiting for the next day in order to meet Apollo on this orbit. We have a lot of operations involving monitoring our systems, testing these systems and monitoring them. But the most important thing for us as residents of this artificial satellite spacecraft is we've gotten accustomed to it. Right now its our home, to which we are used. But to feel - but it's very difficult to feel this way of being used. Everything is flying around, swimming here as you see. One has to really get used to it in order not to bump to anything or not to have anything fly into you. So we have to always tie everything down or Valeriy is trying to tie things down. You see - you see Valeriy Kubasov



ASTP (USSR) MISSION SR31/2  
Time: 11:32 CDT, 28:12 GET  
7/16/75

is swimming around, floating sideways. So this is how we live in the orbit of the artificial satellite of the Earth. For 24 hours and - for 28 hours. But as we told you yesterday about the obtaining of the orbit, when we had done the first maneuver, at the 17th orbit, we performed our second maneuver for attaining assembly orbit, and this orbit has now become such on which we'll now await of - the Apollo. The Apollo has been inserted into its orbit 7-1/2 hours after our spacecraft. Therefore it will also attain assembly orbit later than we will. Only tomorrow will it - able to approach a distance to us which will be close enough so as - that we could be able to obtain radio communications, and then we will get into the last phase of the two spacecraft coming together. As you see, dear space viewers, today Valeriy and I are already wearing our shirtsleeve garments which are light clothes which make it easier to move around. And our spacesuits are right here, next to us - they're behind us. We haven't stowed them away yet. We'll need some time to get ready our - our orbital module in order to receive our guests in it. But everything is going along, following the program.)

MCC-M (Thank you for a good TV coverage.)  
USSR (Georgy, how it looks for contrast?)  
MCC-M (Excellent, Alexey. Excellent. Good image.)  
MCC-M (We are happy for the work you have done.)  
USSR Thank you.  
USSR Now, only we have to get - make sure what the field vision is. This is just right, the way we need it. But later we will get a - put the spacesuits, the pressure garments, away and then the field of vision will be better. Does it look like Valeriy?)  
MCC-M (Yes.)  
USSR (Laughter) (Like the jack of spades - diamonds.)  
MCC-M We have another radiogram for you. I know that you may not feel like accepting it now, but we'll send it to you.) (Soyuz 2. Give us the manovacuumeter pressure.)  
SFE (I will give it to you in a minutes. Well, right now we will measure it exactly for you. 550 mm at 19 hours 40 minutes. 655 now. It shouldn't be changing much anymore.)  
MCC-M (Radiogram without form. Do a corrective pressure drop - pressure dump to 500 mm.)  
USSR (All right.)  
MCC-M (Roger. Do a corrective pressure dump two 500 mm. Affirmative. Form 2.)  
USSR (Ready.)  
MCC-M (29th - radiogram. Longitude 98, period - 88.91 minutes, orbit - 015.4, time of switching on - 10:51:01.)  
USSR (Form 2. Longitude - 98, period - 88.91, orbit - 15.4, time to turn on - 19:51 and 2. We were checking until not the globe and the globe is exactly ... but we see - we are looking at Africa right now and the globe shows Africa right now at the same time also.)  
MCC-M (Very good. Next. 21:04 to 21:14 is the next comm session.)

ASTP (USSR) MISSION SR31/3  
Time: 11:32 CDT, 28:12 GET  
7/16/75

USSR (Thank you.)  
MCC-M (Now the Apollo will be attempting to establish communications with our center.)  
USSR (All right. Tell them that everything is normal.)  
MCC-M (Alexey, everything is normal with them too. They are there already.)  
USSR (How are things on Salyut?)  
MCC-M (Everything is in order.)  
USSR (So we also would like to send our greetings to them. We listen to them sometimes.)  
MCC-M (Right now we are looking at the American Apollo, they are transferring.)  
USSR (Are you seeing it on television yet?)  
MCC-M (They are sending a TV broadcast right now. They know of course that ...)  
USSR (Did they know that we were broadcasting?)  
MCC-M (Yes, they did. Of course, Alexey.)  
USSR (Very good.) (Are they sending much TV and ...?)  
MCC-M (Yes, a great deal.)  
USSR (Color?)  
MCC-M (Yes, color. You are also in color.)  
USSR (How was this color picture just now?)  
MCC-M (Very good. It was good.) (Don't worry about it, you didn't work for nothing.)  
USSR (So we should place an order for this TV.) (Laughter).  
MCC-M (I have half a second. Until we meet tomorrow. So I am leaving and I'll send your greetings to your children.)  
USSR (Thank you very much.)  
MCC-M (I am being replaced by Johnnie.)  
USSR (Okay.)  
MCC-M (He's sitting right next to me and he can hear you. He can hear you. Well, have a good trip.)  
USSR (Johnnie, Johnnie. How do you read me?)  
MCC-M (Absolutely. Good evening. Very happy to see the work that you have done.)  
USSR (Thank you, thank you.)  
MCC-M (Soyuz, this is Moscow. I hear you excellently.)  
MCC-M And what, Valeriy? ...

END OF TAPE