P51 - IMU ORIENTATION

CMC - on
ISS - on
SCS - operating
BMAG MODE (3) - RATE 2
OPT ZERO - OFF
OPT MODE - MAN
G/N PWR OPTICS - on
OHC - Drive Trun <10°
OPT ZERO - ZERO (15 sec)

1 V37E 51E
F 50 25 00015 MNVR TO ACQ STARS
(Coarse Align IMU To 0,0,0) - ENTR to 2
(BYPASS) PRO to 3

2 41 22 DESIRED GIMBAL ANGLES (0,0,0)
NO ATT lt - on then off, to 1

3 F 51 PLEASE MARK
OPT ZERO - OFF
MARK

4 F 50 25 00016 TERMINATE MARKS
PRO

5 F 01 71 000DE STAR CODE
Load desired code
PRO to 3 after 1st MARK (to 6 if DE=00)
to 7 after 2nd MARK (to 6 if DE=00)

6 F 06 88 CELESTIAL BODY VECTOR
Load desired vector
PRO to 3 after 1st MARK
to 7 after 2nd MARK

7 F 06 05 STAR ANGLE DIFFERENCE (.01°)

N 05 LIMITS

2 stars: SXT $\leq$ + 00003
SCT $\geq$ + 00011

Star/planet: SXT $\leq$ + 00018
SCT $\geq$ + 00021

(RECYCLE) V32E to 1
(ACCEPT) PRO

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8 F 37 52E - bypass ZERO OPTICS
or XXE
OHC - Drive Trun <10°
OPT ZERO - ZERO

P52 IMU REALIGN
CMC - on
ISS - on
SCS - operating
BMAG MODE (3) - RATE 2
OPT ZERO - OFF
OPT MODE - MAN
G/N PWR OPTICS - on
OHC-Drive Trun <10°
OPT ZERO - ZERO (15 sec)
OPT MODE - CMC
Note: MINKEY displays not shown

1 V37E 52E
F 04 06 R1 00001 IMU ALIGN OPTION
R2 00001 PREF PRO to 4
2 NOM PRO to 2
3 REFSMMAT PRO to 7
4 LDG SITE PRO to 2

2 F 06 34 GET ALIGN (0,0,0 initially)
(hrs,min,.01sec)
Load desired GET
TO SPECIFY PRESENT TIME - PRO on (0,0,0)
PRO (NOM go to 4)

3 F 06 89 LAT, LONG/2, ALT (.001°,.001°,.01nm)
Load ldg site coords
PRO

4 F 06 22 NEW ICDU ANGLES OG, IG, MG (.01°)
(IF MG>+70°, MNVR) V32E - to 4
PRO

5 F 50 25 00013 GYRO TORQUE
(COARSE) PRO - NO ATT lt - on then off - to 7
(TORQUE) CMC MODE - FREE
ENTR

6 16 20 ICDU ANGLES (.01°)
When torque complete - go to 17

7 F 50 25 00015 STAR SELECT
(MNVR If Necessary)
(PICAPAR) PRO
*F 05 09 00405 NO PAIR *
(CREW SPECIFY) PRO - to 8
*(PICAPAR) MNVR-V32E to 7 *

(MAN ACQ) ENTR

8 F 01 70 00ODE STAR CODE
Load desired code
OPT MODE - CMC (verify)
OPT ZERO - OFF
PRO to 10 (to 9 if DE=00)
F 05 09 00404 (TA>90°)
*MNVR - PRO to 10 *

9 F 06 88 CELESTIAL BODY VECTOR
Load desired vector
PRO
F 05 09 00404 (TA>90°)
*MNVR - PRO to 10 *

10 06 92 SHAFT, TRUN (.01°,.001°)

(MARK ROUTINE) OPTICS MODE - MAN

11 F 51 PLEASE MARK
MARK

12 F 50 25 00016 TERMINATE MARKS
PRO

13 F 01 71 00ODE STAR CODE
Load code (if necessary)
PRO to 8 after 1st MARK (to 14 if DE=00)
to 15 after 2nd MARK (to 14 if DE=00)

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14 F 06 88 CELESTIAL BODY VECTOR
Verify vector
PRO to 8 after 1st MARK
to 15 after 2nd MARK

15 F 06 05 STAR ANGLE DIFFERENCE (.01°)

N 05 LIMITS

2 stars: SXT $\leq$ + 00003
SCT $\leq$ + 00011

Star/planet: SXT $\leq$ + 00018
SCT $\leq$ + 00021

(REJECT) V32E to 17
(ACCEPT) PRO

16 F 06 93 TORQUING ANGLES OG, IG, MG (.001°)
(TORQUE) CMC MODE - FREE
PRO
(BYPASS) V32E

17 F 50 25 00014 ALIGNMENT CHECK
(RECHECK) PRO to 7
(BYPASS) ENTR

18 F 37 XXE
OHC - Drive Trun <10°
OPT ZERO - ZERO
G/N PWR OPTICS - OFF

P53 - BACKUP IMU ORIENT DETERMINATION
CMC - on
ISS - on
SCS - operating
MAN ATT (3) - MIN IMP
COAS LOS DETERMINATION - complete

1 V37E 53E
F 50 25 00015 MNVR To ACQ STARS
(BYPASS) (Coarse Align IMU to 0,0,0) - ENTER to 2
PRO to 3

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2 41 22 DESIRED GIMBAL ANGLES (0,0,0)
NO ATT lt - on then off, to l

3 F 06 94 ALT LOS OPT ANGS SHAFT, TRUN (.01°,.001°)
Load proper angles
COAS NOM: Shaft +00000
Trun +57470
PRO

4 F 53 PLEASE MARK
Center Target
ENTR

5 F 50 25 00016 TERMINATE MARKS
(REJECT) ENTR to 4
PRO

6 F 01 71 000DE STAR CODE
Load desired code
PRO to 3 after lst MARK (to 7 if DE=00)
to 8 after 2nd MARK (to 7 if DE=00)

7 F 06 88 CELESTIAL BODY VECTOR
Load desired vector
PRO to 3 after lst MARK
to 8 after 2nd MARK

8 F 06 05 STAR ANGLE DIFFERENCE (.01°)
N 05 LIMITS (COAS)

2 stars: ≤ + 00070
Star/planet: ≤ + 00072
(RECYCLE) V32E to l
(ACCEPT) PRO

9 F 37 XXE

P54 - BACKUP IMU REALIGN
CMC - on
ISS - on
SCS - operating
MAN ATT (3) - MIN IMP
COAS LOS DETERMINATION - complete

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1 V37E 54E
F 04 06 R1 00001 IMU ALIGN OPTION
R2 00001 PREF PRO to 4
2 NOM PRO to 2
3 REFSMMAT PRO to 7
4 LDG SITE PRO to 2

2 F 06 34 GET ALIGN (0,0,0 initially)
(hrs,min,.01sec)
Load desired GET
TO SPECIFY PRESENT TIME - PRO on (0,0,0)
PRO (NOM go to 4)

3 F 06 89 LAT, LONG/2, ALT (.001°,.001°,.01nm)
Load ldg site coords
PRO

4 F 06 22 NEW ICDU ANGLES OG, IG, MG (.01°)
(IF MG>+70°, MNVR) V32E to 4
PRO

5 F 50 25 00013 GYRO TORQUE
(COARSE) PRO - NO ATT lt - on
then off - to 7
(TORQUE) CMC MODE - FREE
ENTR

6 16 20 ICDU ANGLES (.01°)
When Torque complete go to 17

7 F 50 25 00015 STAR SELECT
(Mnvr If Necessary)
(PICAPAR) PRO
*F 05 09 00405 NO PAIR *
*(CREW SPECIFY) PRO to 8 *
(PICAPAR) MNVR-V32E to 7

(MAN ACQ) ENTR

8 F 01 70 000DE STAR CODE
Load desired code
PRO to 10 (to 9 if DE=00)

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9 F 06 88 CELESTIAL BODY VECTOR
Load desired vector
PRO

10 F 06 94 ALT LOS OPT ANGS SHAFT, TRUN(.01°,.001°)
Load angles
COAS Nom: Shaft +00000
Trun +57470
PRO

11 F 53 PLEASE MARK
Center Target
ENTR

12 F 50 25 00016 TERMINATE MARKS
(REJECT) ENTR to 11
PRO

13 F 01 71 00DE STAR CODE
Load code (if necessary)
PRO to 8 after 1st MARK (to 14 if DE=00)
to 15 after 2nd MARK (to 14 if DE=00)

14 F 06 88 CELESTIAL BODY VECTOR
Verify vector
PRO to 8 after 1st MARK
to 15 after 2nd MARK

15 F 06 05 STAR ANGLE DIFFERENCE (.01°)
N 05 LIMITS (COAS)
2 stars: ≤ + 00070
Star/planet: ≤ + 00072
(REJECT) V32E to 17
(ACCEPT) PRO

16 F 06 93 TORQUING ANGLES OG, IG, MG (.001°)
(TORQUE) CMC MODE - FREE
PRO
(BYPASS) V32E

17 F 50 25 00014 ALIGNMENT CHECK
(RECHECK) PRO to 7
(BYPASS) ENTR

18 F 37 XXE

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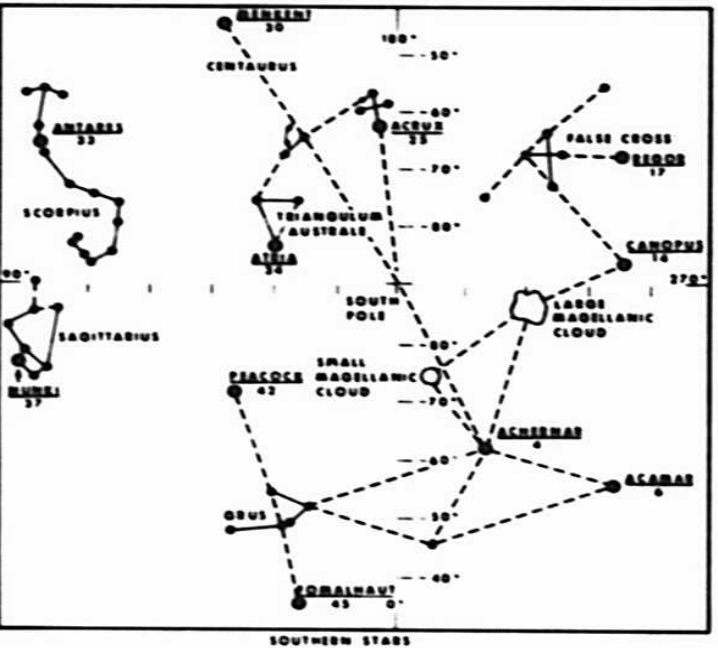

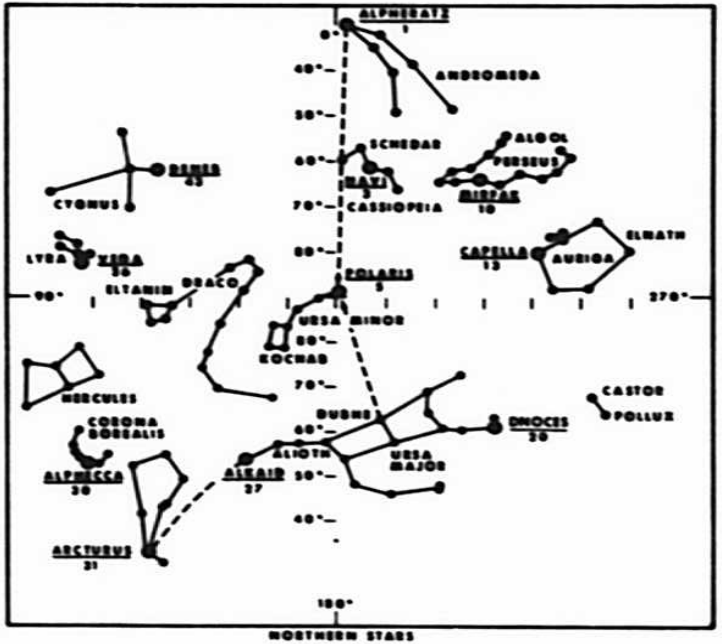

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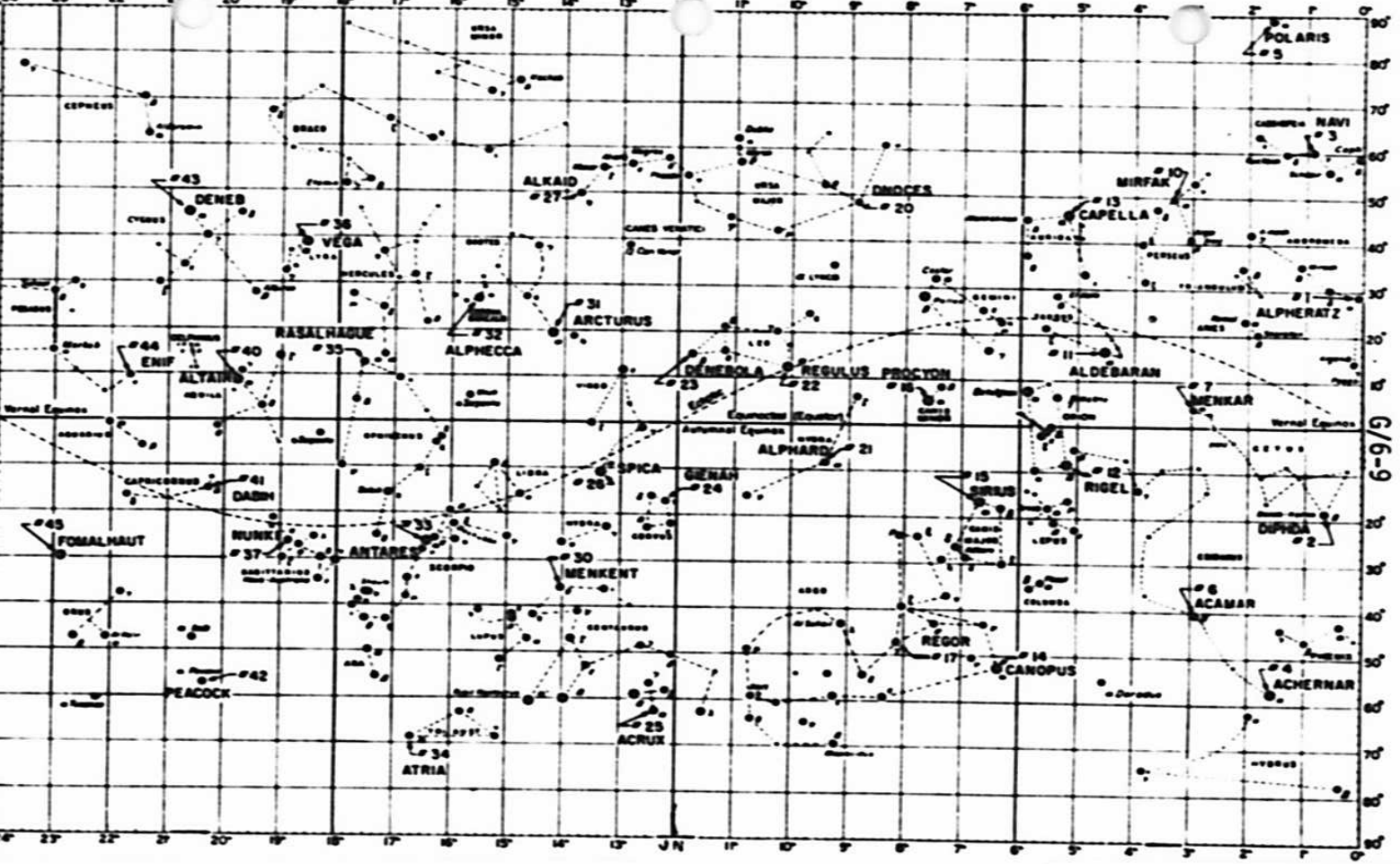
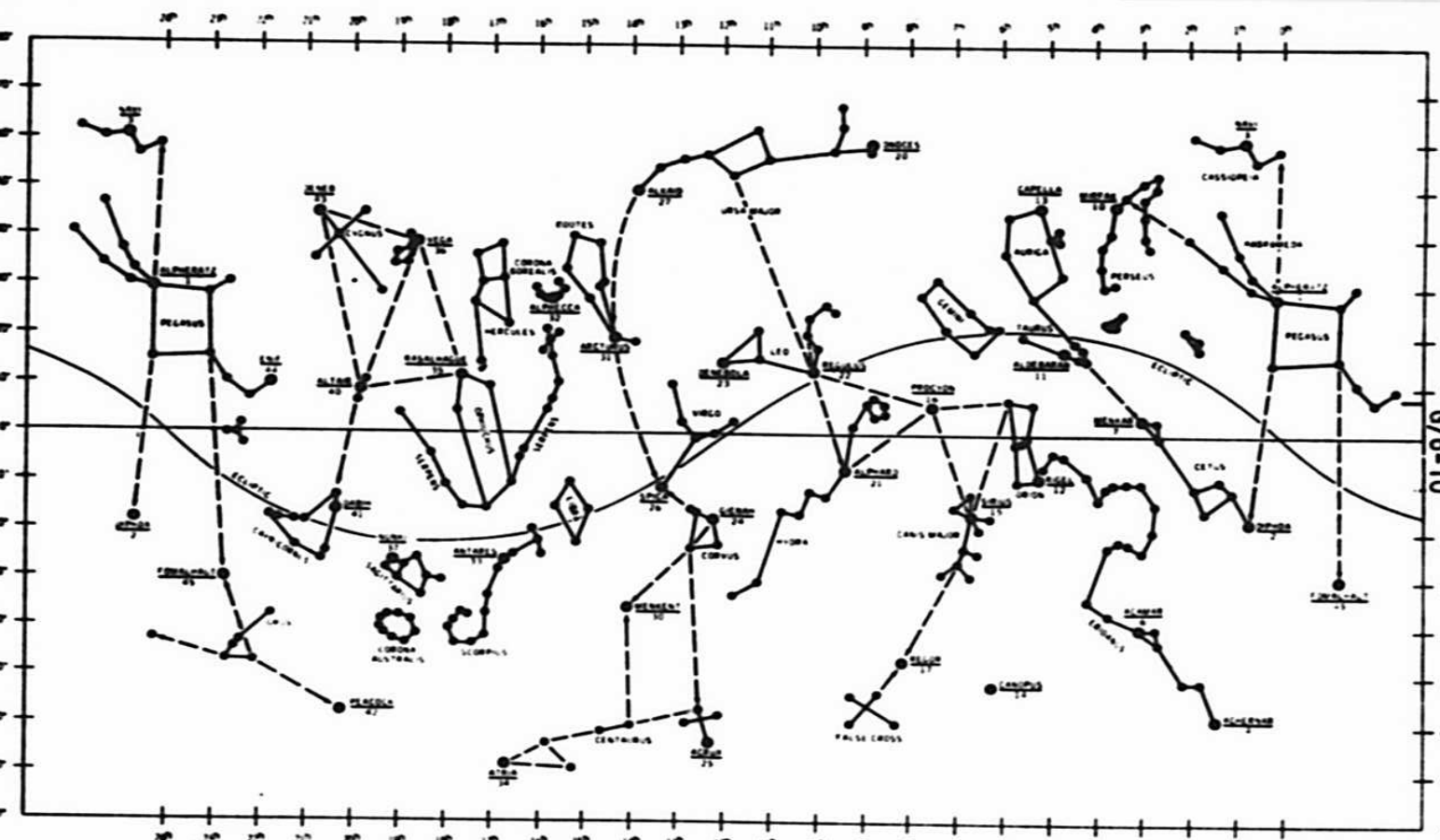


STAR CHARTS

STAR CHARTS



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