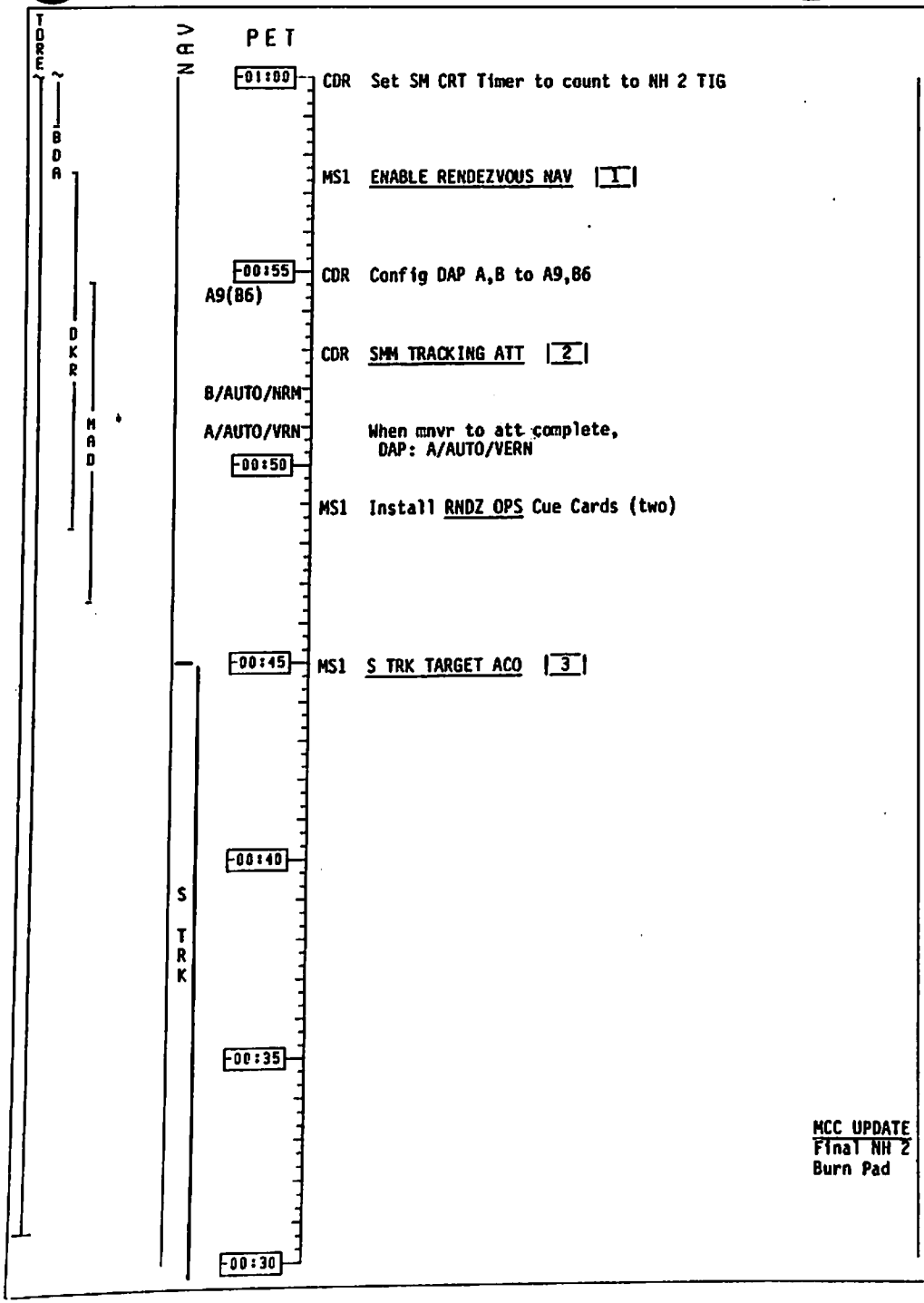
OPERATIONS TIMELINE



MCC UPDATE
Final NH 2
Burn Pad

ENABLE RENDEZVOUS NAV | 1 |

```
        |GNC 33 REL NAV|
CRT     RNDZ NAV ENA    - ITEM 1 EXEC (*)
       ✓SV SEL, ITEM 4 - PROP
       ✓INH RNG,     ITEM 18 - (*)
          ✓R,        ITEM 21 - (*)
          ✓Angles,   ITEM 24 - (*)
       ✓S TRK,       ITEM 12 - (*)
```

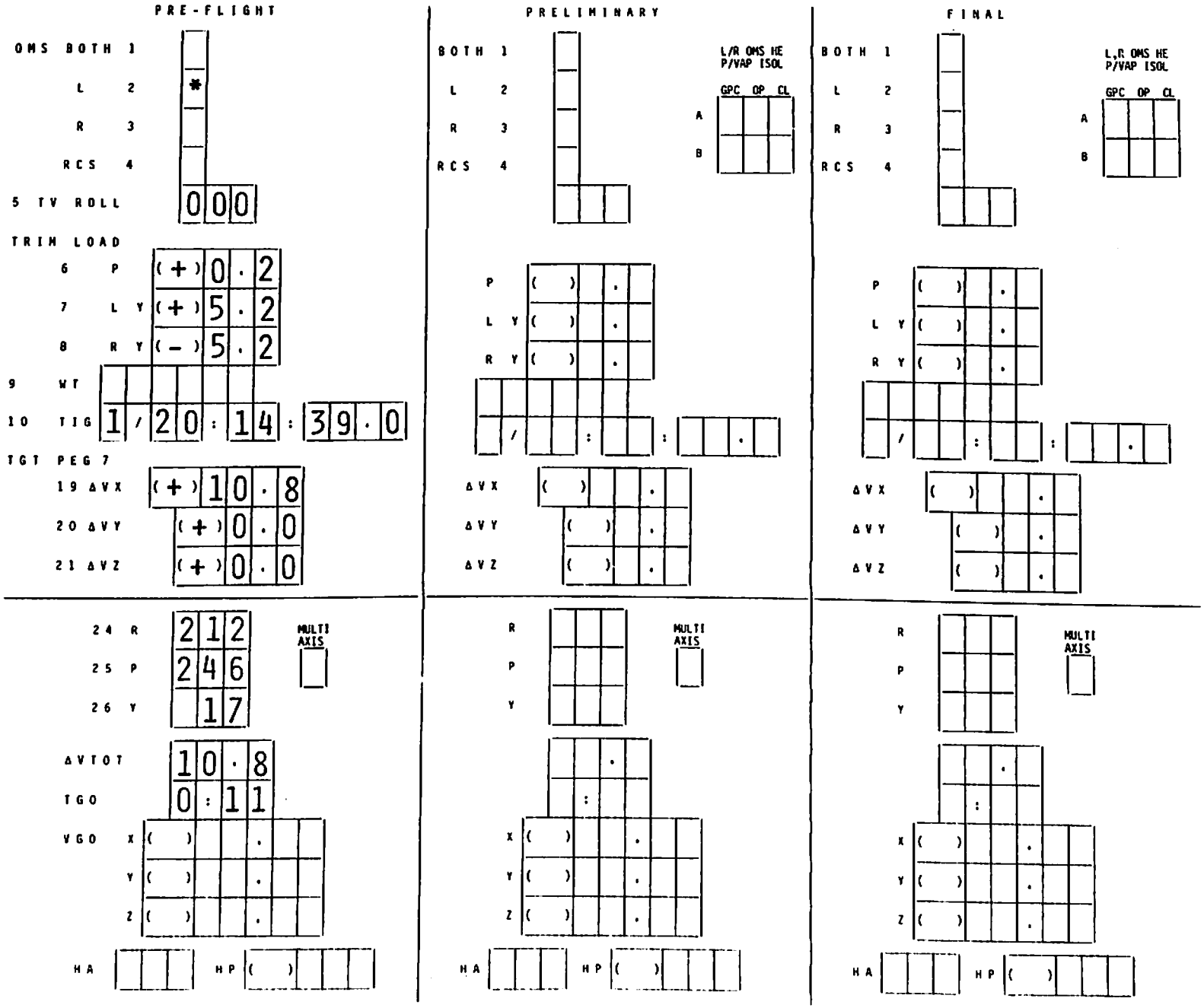
SMM TRACKING ATT | 2 |

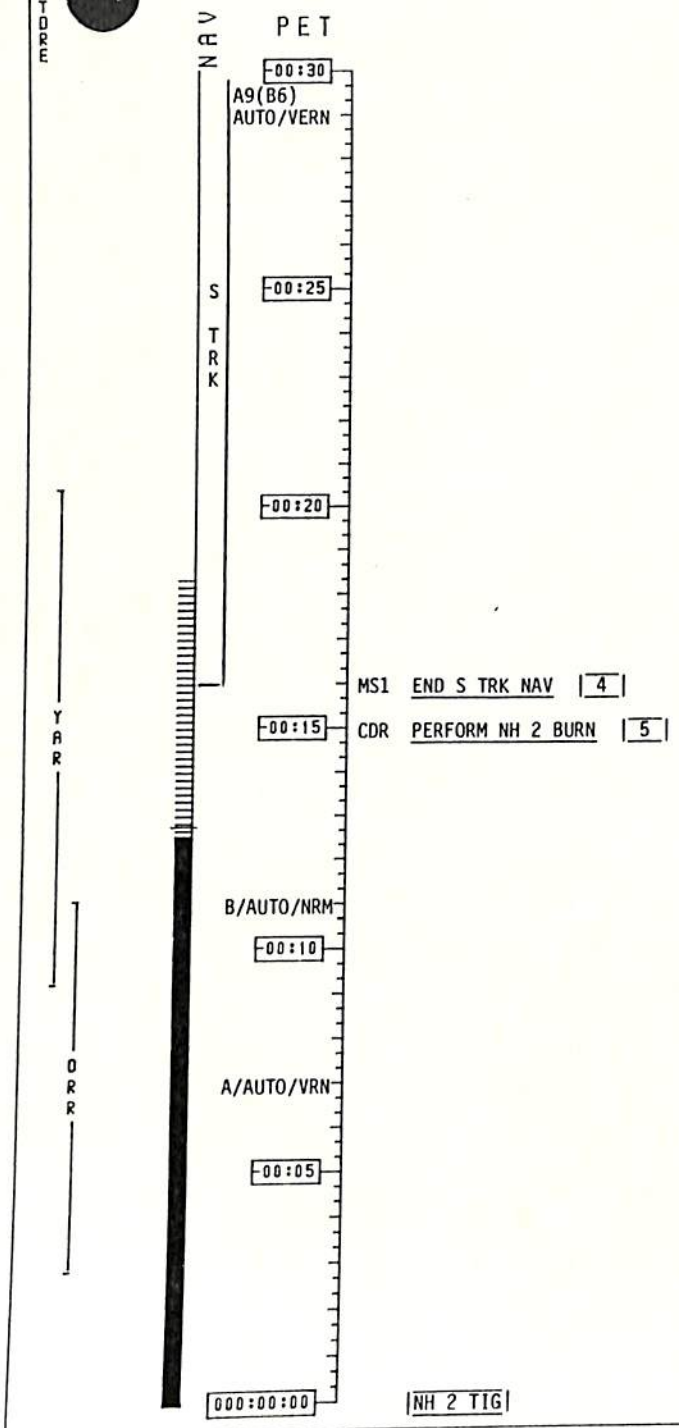
```
        |GNC UNIV PTG|
CRT     TGT ID    +1
        BODY VECT +3 (-Z)
        OM        +0

      ....IF -Y S TRK.....
      .                  .
      . BODY VECT +5     .
      . P         +0     .
      . Y         +280.6 .
      . OM        +90    .
      ....................

C3      DAP: B/AUTO/NORM
        TRK - ITEM 19 EXEC (CUR - *)
```

S TRK TARGET ACQ | 3 |

```
        |GNC 22 S TRK/COAS CNTL|
        -Z(-Y) TGT TRK - ITEM 6(5) EXEC (*)
              ✓STATUS  - blank
              ✓SHUTTER - OP
              ✓S PRES  - *

        If SHUTTER - CL,
         MAN OP - ITEM 16(15) EXEC (*)

        |GNC 33 REL NAV|
        ✓INH Angles, ITEM 24 - (*)
        ✓S TRK, ITEM 12 - (*)
        ✓SV SEL, ITEM 4 - PROP

        Monitor RESID V and H each Nav cycle

        If RESID V and H change < .05 for
        | four consecutive Nav cycles,
        |   If RATIO < 1.0,
        |   |  AUTO Angles - ITEM 23 EXEC (*)
        |   If RATIO > 1.0,
        |      FOR 3 Angle Marks
        |
        If RESID V or H changes by > .05,
           |GNC 22 S TRK/COAS CNTL|
           -Z(-Y) BREAK TRK - ITEM 8(7) EXEC

        When SV UPDATE POS < 1.0
         and MARK ACPT Angles > 9,
         SV SEL - ITEM 4 EXEC (FLTR)
```

NH BURN PAD


PRE-FLIGHT
OMS BOTH 1
L 2
R 3
RCS 4
5 TV ROLL
TRIM LOAD
6 P
7 L Y
8 R Y
9 WT
10 TIG
TGT PEG 7
19 ΔVX
20 ΔVY
21 ΔVZ
PRELIMINARY
BOTH 1
L 2
R 3
RCS 4
L/R OMS HE P/VAP ISOL
GPC OP CL
A
B
P
L Y
R Y
ΔVX
ΔVY
ΔVZ
FINAL
BOTH 1
L 2
R 3
RCS 4
L,R OMS HE P/VAP ISOL
GPC OP CL
A
B
P
L Y
R Y
ΔVX
ΔVY
ΔVZ
24 R
25 P
26 Y
MULTI AXIS
ΔVTOT
TGO
VGO X
Y
Z
HA
HP
R
P
Y
MULTI AXIS
X
Y
Z
HA
HP
R
P
Y
MULTI AXIS
X
Y
Z
HA
HP



END S TRK NAV | 4 |

| GNC 33 REL NAV |
INH Angles - ITEM 24 EXEC (*)

| GNC 22 S TRK/COAS CNTL |
✓SHUTTER MAN OP, ITEM 15,16 - (no *)
-Z(-Y) TERM/IDLE - ITEM 10(9) EXEC (*)

PERFORM NH 2 BURN | 5 |

Install OMS 2/ORBIT OMS BURNS
Cue Cards (two) and OMS BURN MONITOR
Cue Cards (two) (F7,F8)

CRT OPS 202 PRO
| GNC ORBIT MNVR EXEC |
| GNC SYS SUMM 2 |

Load TGT data per burn pad
LOAD - ITEM 22 EXEC
TIMER - ITEM 23 EXEC
✓Burn data per burn pad
C3 DAP: B/AUTO/NORM
DAP TRANS: as reqd
ROT: DISC/DISC/DISC
CRT MNVR - ITEM 27 EXEC (*)
When mnvr to att complete,
DAP: A/AUTO/VERN

CRT Perform SEC L,R then PRI L,R GMBL CK

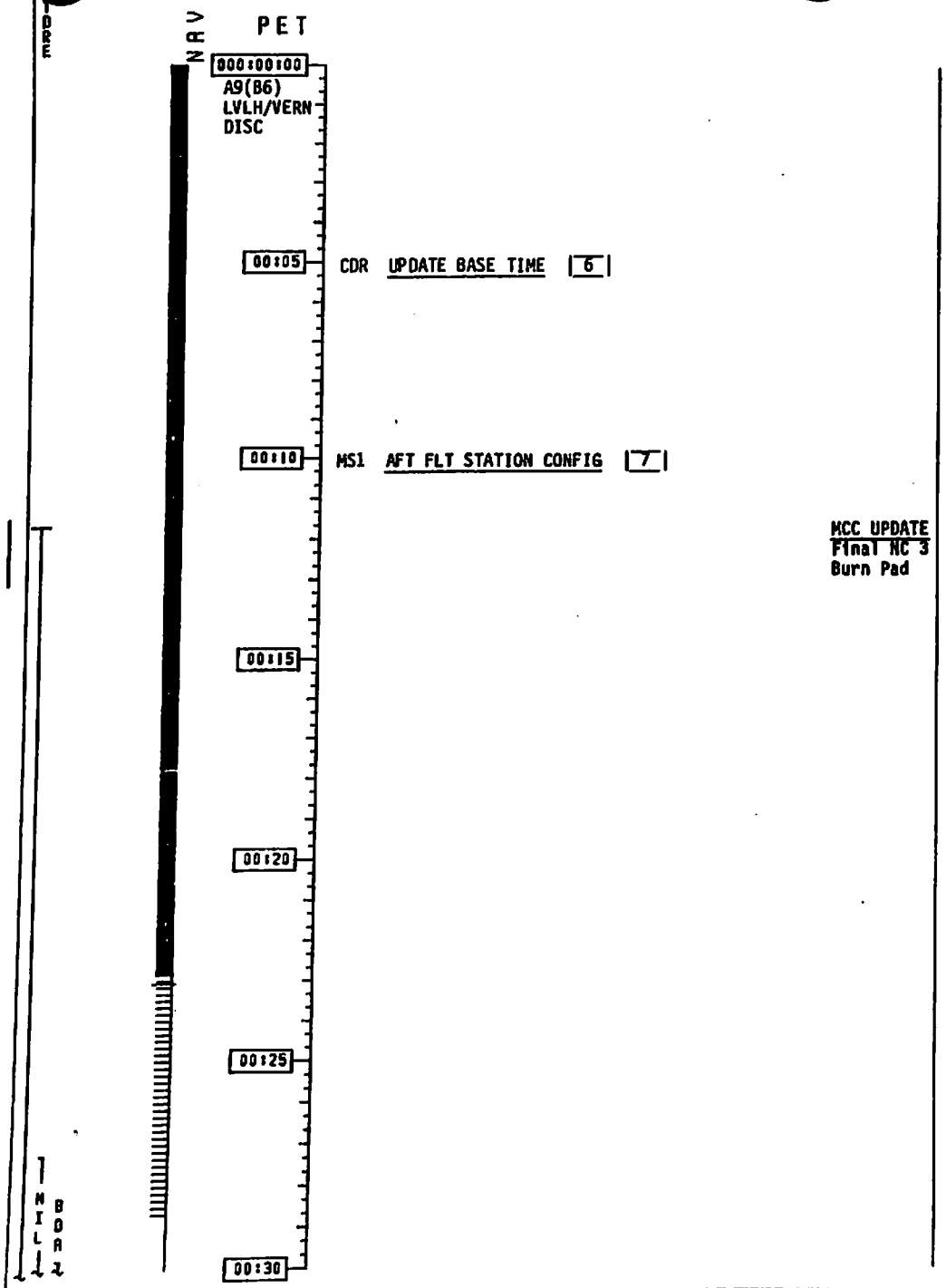
* If down arrow(s) or M(s), *
* Select good GMBL *

O8 ✓L,R OMS TK ISOL (four) - OP (tb-OP)
✓XFEED (four) - CL (tb-CL)
F7/F8 FLT CNTLR PWR (two) - ON

TIG -2:00 ··
Perform OMS 2/ORBIT OMS BURNS
Cue Card, then ··

THC - Trim residuals < .2 fps
F7/F8 FLT CNTLR PWR (two) - OFF
O8 L,R OMS He PRESS/VAP ISOL (four) - CL
C3 DAP: A/LVLH/VERN

CRT OPS 201 PRO



UPDATE BASE TIME | 6 |

CRT |GNC 34 ORBIT TGT|
TGT NO - ITEM 1 +1 EXEC
BASE TIME (TI TIG, TI Burn pad, 2-14)
LOAD - ITEM 26 EXEC

AFT FLT STATION CONFIG | 7 |

A6U ADI ATT - LVLH
ERR - MED
RATE - LO
SENSE - -Z
R13 ✓KU ANT - GND
A1U ✓PWR - ON
A2 ✓DIGI-DIS SEL - EL/AZ
A1U KU MODE - RDR PASSIVE
RADAR OUTPUT - HI
- MAN SLEW
CNTL - PNL
SIG STRENGTH sel - KU
SLEW RATE - as reqd
Slew Antenna to Eley 0, Az 0, then:
A2 DIGI-DIS SEL - R/R
X-PNTR SCALE - X1

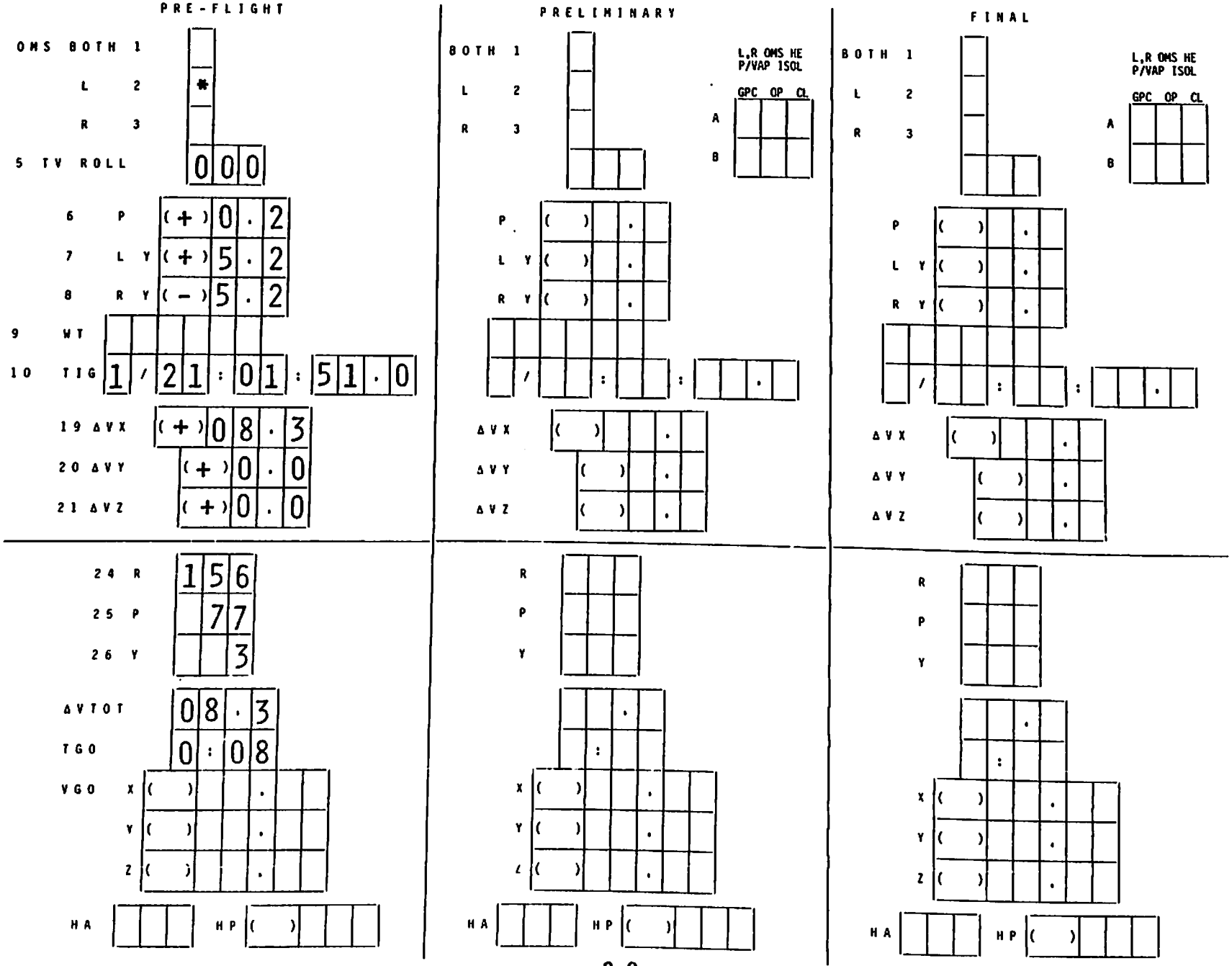
CRT |SM ANTENNA|
SELF TEST - ITEM 7 EXEC (*)

NOTE
SELF TEST runs about 3 min

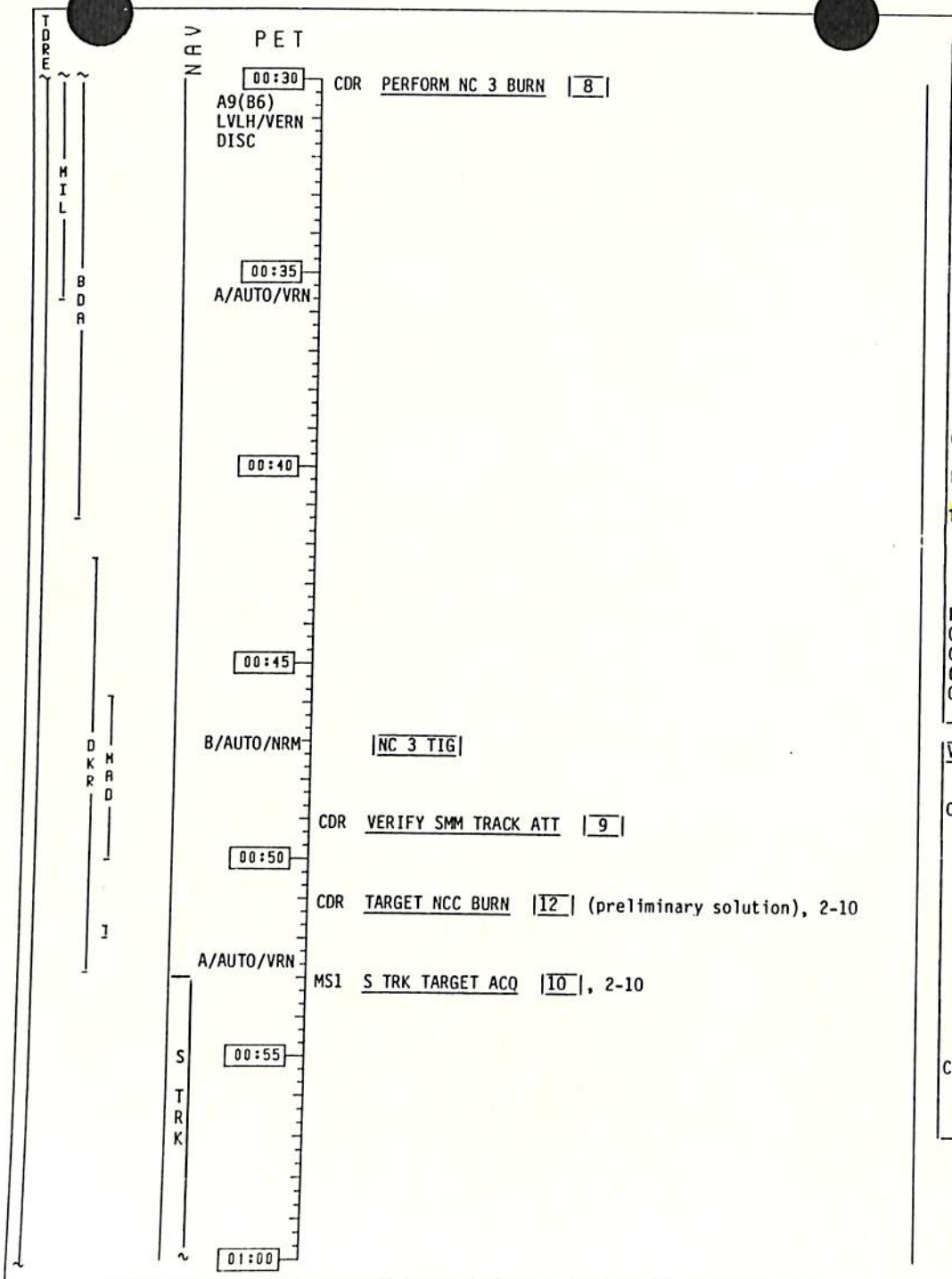
A1U ✓KU SCAN WARN tb - gray
✓TRACK tb - gray
✓SEARCH tb - gray
A2 ✓RANGE - 888.8
CRT SELF TEST - ITEM 7 EXEC (no *)
A2 DIGI-DIS SEL - EL/AZ
A1U KU MODE - COMM
KU - GPC
KU CNTL - CMD

Install -Z COAS

NC BURN PAD



41-C/FIN



PERFORM NC 3 BURN |8|

```
CRT    OPS 202 PRO
         |GNC ORBIT MNVR EXEC|
         |GNC SYS SUMM 2     |

       Load TGT data per burn pad
       LOAD  - ITEM 22 EXEC
       TIMER - ITEM 23 EXEC
      ✓Burn data per burn pad
C3     DAP TRANS: as reqd
           ROT: DISC/DISC/DISC
CRT    MNVR - ITEM 27 EXEC (*)
C3     DAP: A/AUTO/VERN

CRT    Perform SEC L,R then PRI L,R GMBL CK

         * If down arrow(s) or M(s), *
         *   Select good GMBL        *

O8    ✓L,R OMS TK ISOL (four) - OP (tb-OP)
           ✓XFEED (four)    - CL (tb-CL)
F7/F8  FLT CNTLR PWR (two)   - ON

TIG -2:00 ··
       Perform OMS 2/ORBIT OMS BURNS
        Cue Card, then ··

       THC - Trim residuals < .2 fps
F7/F8  FLT CNTLR PWR (two) - OFF
O8     L,R OMS He PRESS/VAP ISOL (four) - CL
CRT    RCS SEL - ITEM 4 EXEC (*)
C3     DAP: B/AUTO/NORM
CRT    OPS 201 PRO
```

VERIFY SMM TRACK ATT |9|

```
         |GNC UNIV PTG|
CRT    ✓TGT ID     +1
       ✓BODY VECT +3 (-Z)
       ✓OM         +0

     .....IF -Y S TRK.....
     .                    .
     . ✓BODY VECT +5      .
     . ✓P         +0      .
     . ✓Y         +280.6  .
     . ✓OM        +90     .
     ......................

       ✓TRK - ITEM 19 EXEC (CUR - *)
C3     ✓DAP: B/AUTO/NORM
        When mnvr to att complete:
          DAP: A/AUTO/VERN
```

S TRK TARGET ACQ | 10 |

|GNC 22 S TRK/COAS CNTL|
CRT -Z(-Y) TGT TRK - ITEM 6(5) EXEC (*)
✓STATUS - blank
✓SHUTTER - OP
✓S PRES - *

If SHUTTER - CL,
MAN OP - ITEM 16(15) EXEC (*)

|GNC 33 REL NAV|
✓INH Angles, ITEM 24 - (*)
✓S TRK, ITEM 12 - (*)

Monitor RESID V and H each Nav cycle

If V and H RESID change < .05 for four consecutive Nav cycles,
- If RATIO < 1.0,
  - FLTR TO PROP - ITEM 8 EXEC
  - AUTO Angles - ITEM 23 EXEC (*)
- If RATIO > 1.0,
  - 1) COVAR REINIT - ITEM 16 EXEC
  - 2) FOR 3 Angle Marks
  - 3) PROP TO FLTR - ITEM 9 EXEC

If V or H RESID changes > .05,
|GNC 22 S TRK/COAS CNTL|
-Z(-Y) BREAK TRK - ITEM 8(7) EXEC

END S TRK NAV | 11 |

|GNC 33 REL NAV|
CRT INH Angles - ITEM 24 EXEC (*)

|GNC 22 S TRK/COAS CNTL|
✓SHUTTER MAN OP, ITEM 15,16 - (no *)
-Z(-Y) TERM/IDLE - ITEM 10(9) EXEC (*)

TARGET NCC BURN | 12 |

CRT ✓SV SEL correct
|GNC 34 ORBIT TGT|
TGT NO - ITEM 1 +2 EXEC
✓TGT Set data:
T1 TIG +(BASE TIME -0/0:59:06)
EL +0
ΔT +59.1
ΔX -48.61
ΔY +0
ΔZ -1.20
COMPUTE T1 - ITEM 27 EXEC

Note solution

If FLTR converged (> 40 marks in current sensor pass & SV UPDATE POS < .5),
- Burn FLTR solution

If FLTR within ground solution limits,
- Burn FLTR solution

If PROP within ground solution limits,
- Burn PROP solution

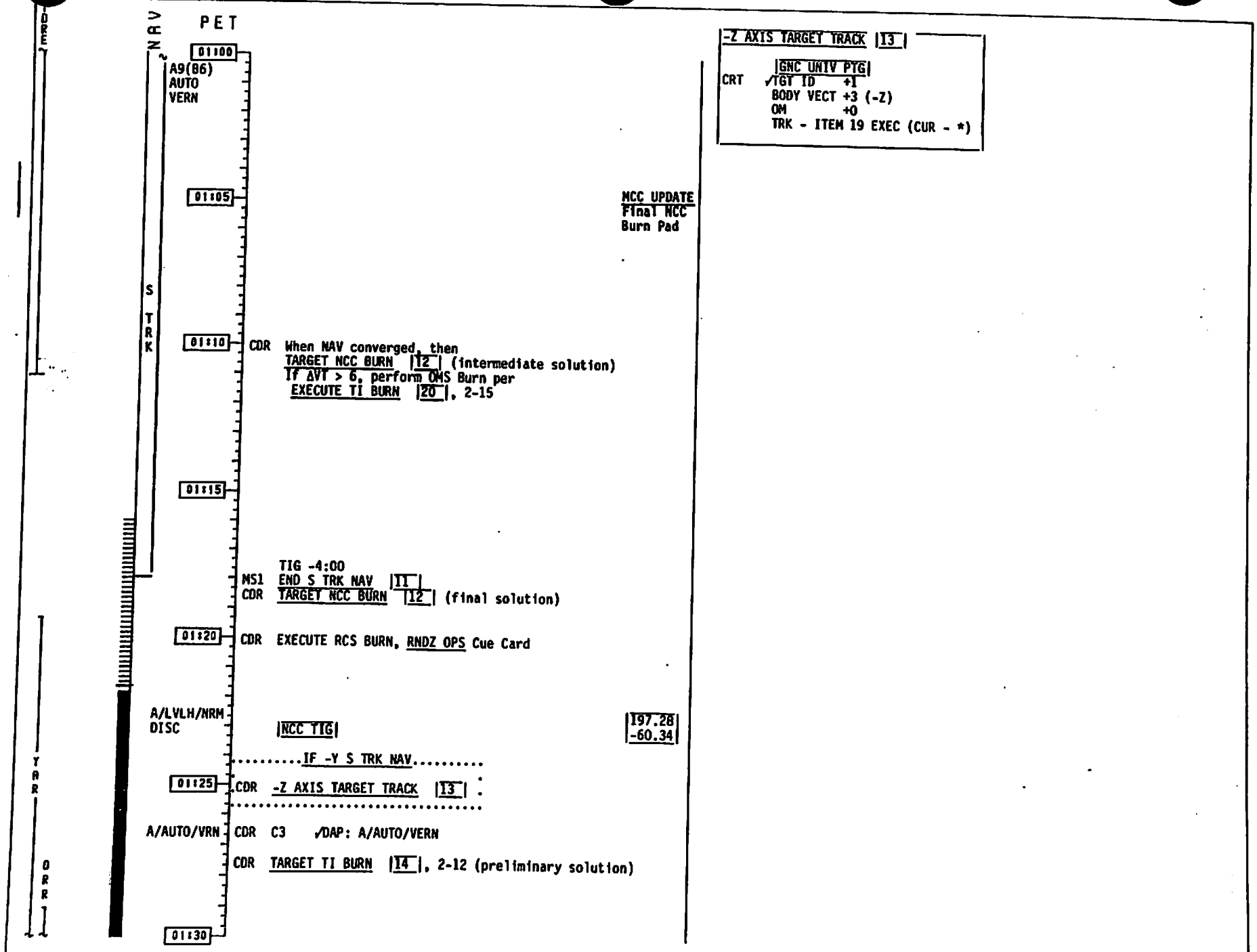
If none of the above,
Burn ground solution EXT ΔVs

NCC BURN SOLUTION

TIG | 0 | 0 | 1 | / | 2 | 1 | : | 3 | 7 | : | 1 | 4 |

	PRELIMINARY	INTERMEDIATE
ΔVX	( ) .	( ) .
ΔVY	( ) .	( ) .
ΔVZ	( ) .	( ) .
ΔVT	.	.

	FINAL	GROUND	Limits
ΔVX	( ) .	( ) .	(0 . 7)
ΔVY	( ) .	( ) .	(2 . 7)
ΔVZ	( ) .	( ) .	(2 . 1)
ΔVT	.	.	


PET
NAV
DRF
STRK
TAR
ORR
01:00
A9(86)
AUTO
VERN
01:05
01:10
01:15
01:20
01:25
01:30
A/LVLH/NRM
DISC
A/AUTO/VRN
CDR When NAV converged, then
TARGET NCC BURN |12| (intermediate solution)
If ΔVT > 6, perform OMS Burn per
EXECUTE TI BURN |20|, 2-15
TIG -4:00
MS1 END S TRK NAV |11|
CDR TARGET NCC BURN |12| (final solution)
CDR EXECUTE RCS BURN, RNDZ OPS Cue Card
|NCC TIG|
.....IF -Y S TRK NAV.....
CDR -Z AXIS TARGET TRACK |13|
CDR C3 ✓DAP: A/AUTO/VERN
CDR TARGET TI BURN |14|, 2-12 (preliminary solution)
NCC UPDATE
Final NCC
Burn Pad
|197.28
-60.34|
-Z AXIS TARGET TRACK |13|
|GNC UNIV PTG|
CRT ✓TGT ID +1
BODY VECT +3 (-Z)
OM +0
TRK - ITEM 19 EXEC (CUR - *)

TARGET TI BURN |I4|

CRT ✓SV SEL correct
|GNC 34 ORBIT TGT|
TGT NO - ITEM 1 +3 EXEC
✓TGT Set data:
TI TIG +(BASE TIME)
EL +0
ΔT +84.1
ΔX +0
ΔY +0
ΔZ +0
COMPUTE TI - ITEM 27 EXEC

Note solution in pad, 2-14

CONFIGURE FOR RR TARGET ACQ |I5|

A1U KU MODE - RDR PASSIVE
✓KU - GPC
✓KU RADAR OUTPUT - HI
KU CNTL - PNL
|GNC 33 REL NAV|
CRT KU ANT ENA - ITEM 2 EXEC (*)
GNC, I/O RESET EXEC
A2 DIGI-DIS SEL - R/R

CONFIGURE FOR SMM COMM |I6|

A1L ✓S-BD PL CNTL - CMD

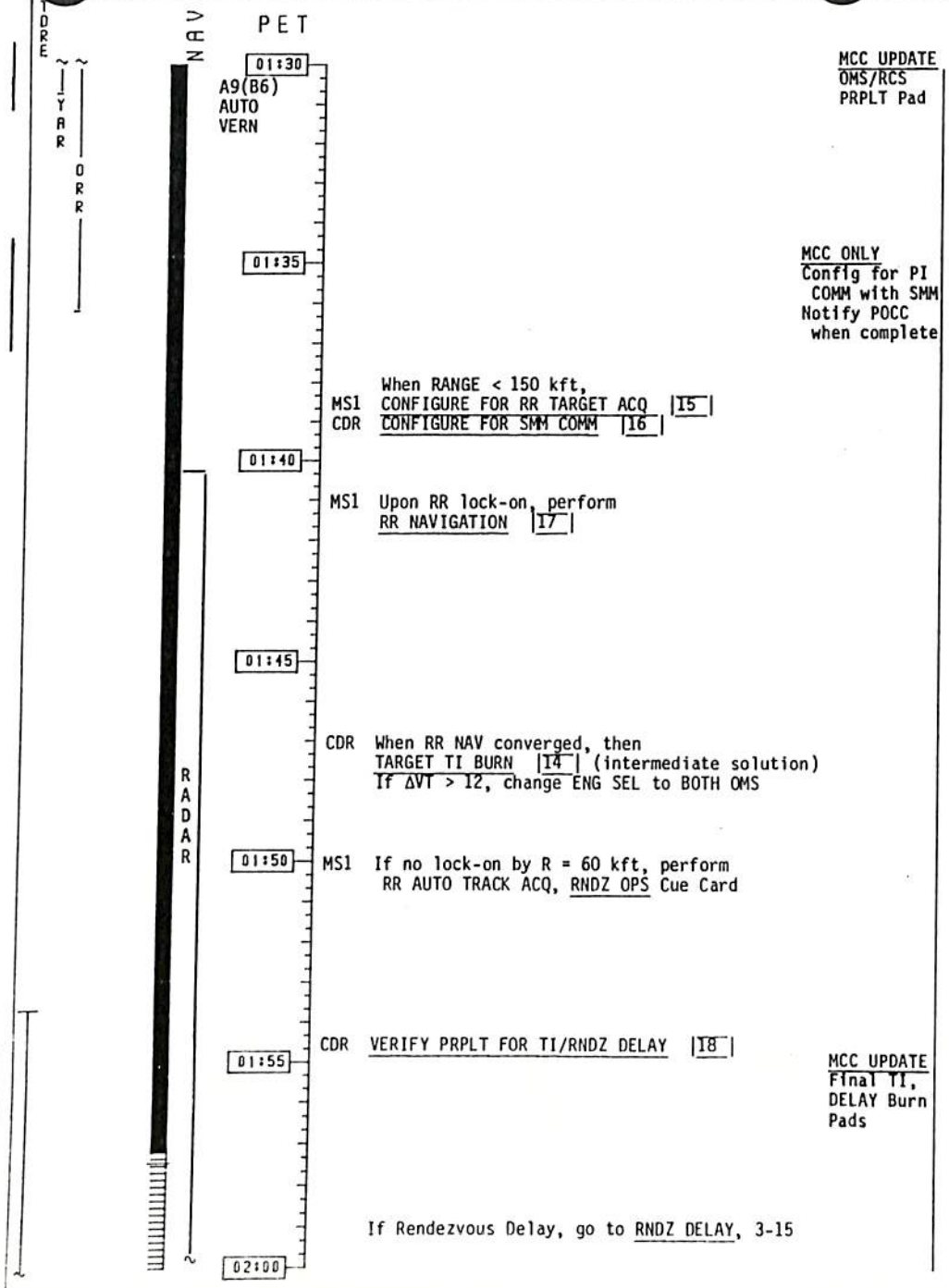
LOAD PCMMU FORMAT

C3 OI PCMMU FORMAT - GPC

|SM 62 PCMMU/PL COMM|
CRT FORMAT:
FXD - ITEM 1 EXEC (*)
SEL ID - ITEM 3 +1 9 2 EXEC
LOAD - ITEM 4 EXEC
-✓RUN,CPLT

SEL ID - ITEM 3 +1 0 0 EXEC
LOAD - ITEM 4 EXEC
-✓RUN,CPLT

PGM - ITEM 2 EXEC (*)



RR NAVIGATION |I7|

|GNC 33 REL NAV|
CRT RR - ITEM 13 EXEC (*)
✓Elev, Az approx 0

If RATIO < 1.0 for four NAV cycles,
- FLTR TO PROP - ITEM 8 EXEC
- AUTO RNG - ITEM 17 EXEC (*)
- Ṙ - ITEM 20 EXEC (*)
- Angles - ITEM 23 EXEC (*)

.....IF SV SEL = PROP.....
. .
. When SV UPDATE POS < 0.3 .
. and MARK ACPT > 9, .
. SV SEL - ITEM 4 EXEC (FLTR) .
.....

If RATIO > 1.0 with previous S TRK,
1) COVAR REINIT - ITEM 16 EXEC
2) If NCC burned on FLTR vector,
   FLTR TO PROP - ITEM 8 EXEC
   FOR 3 Marks
3) PROP TO FLTR - ITEM 9 EXEC

If RATIO > 1.0 and no previous S TRK,
FOR 3 Marks

VERIFY PRPLT FOR TI/RNDZ DELAY |I8|

The following deltas to the RENDEZVOUS OMS/RCS PRPLT PAD Cue Card apply:

To perform TI:

subtract from OMS/RCS QTY 1% _____ (1% per 6 fps)

or add to AFT RCS QTY 6% _____ (1% per fps)

To perform RNDZ DELAY:

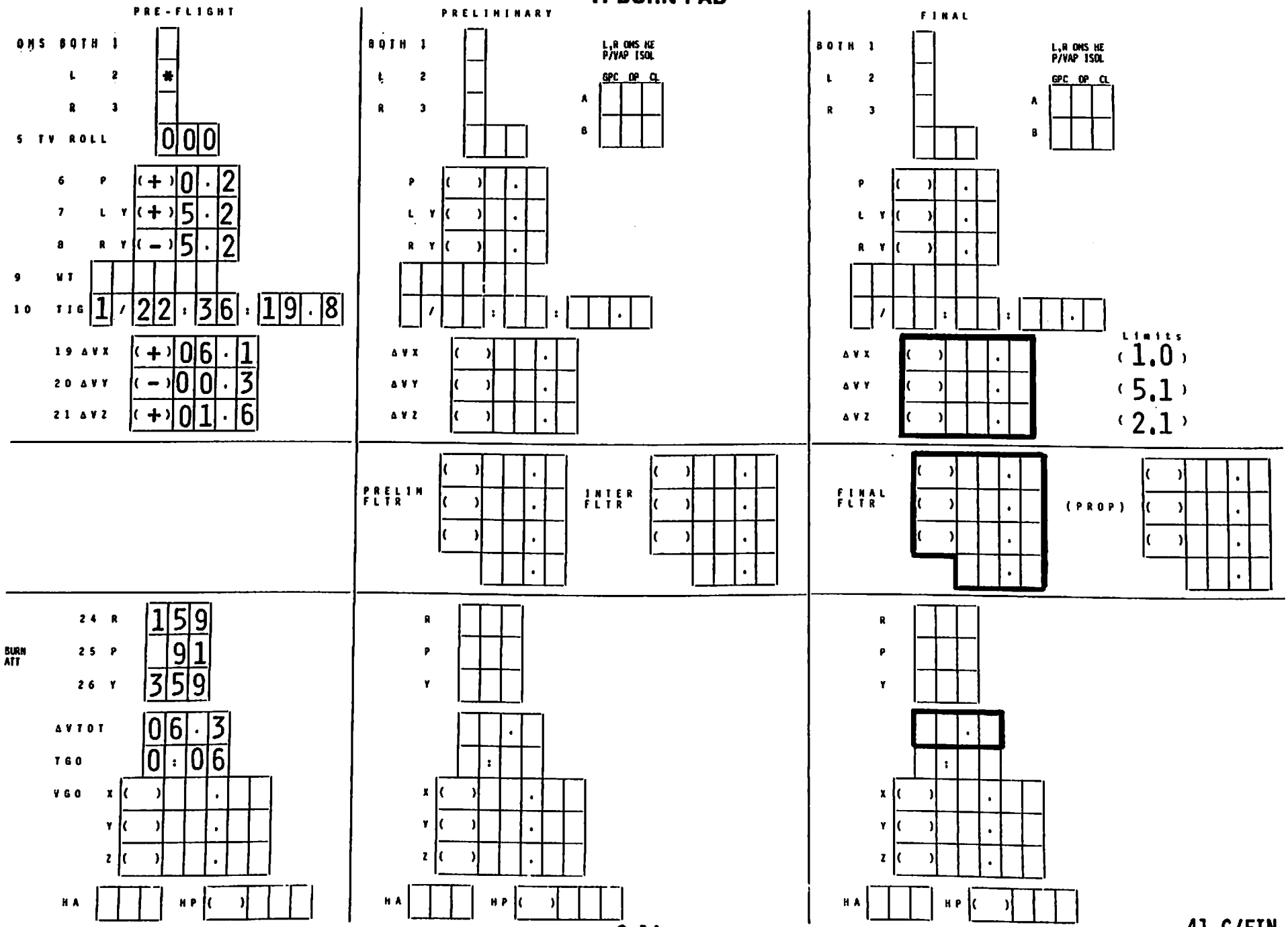
subtract from OMS/RCS QTY % _____

or add to AFT RCS QTY % _____,

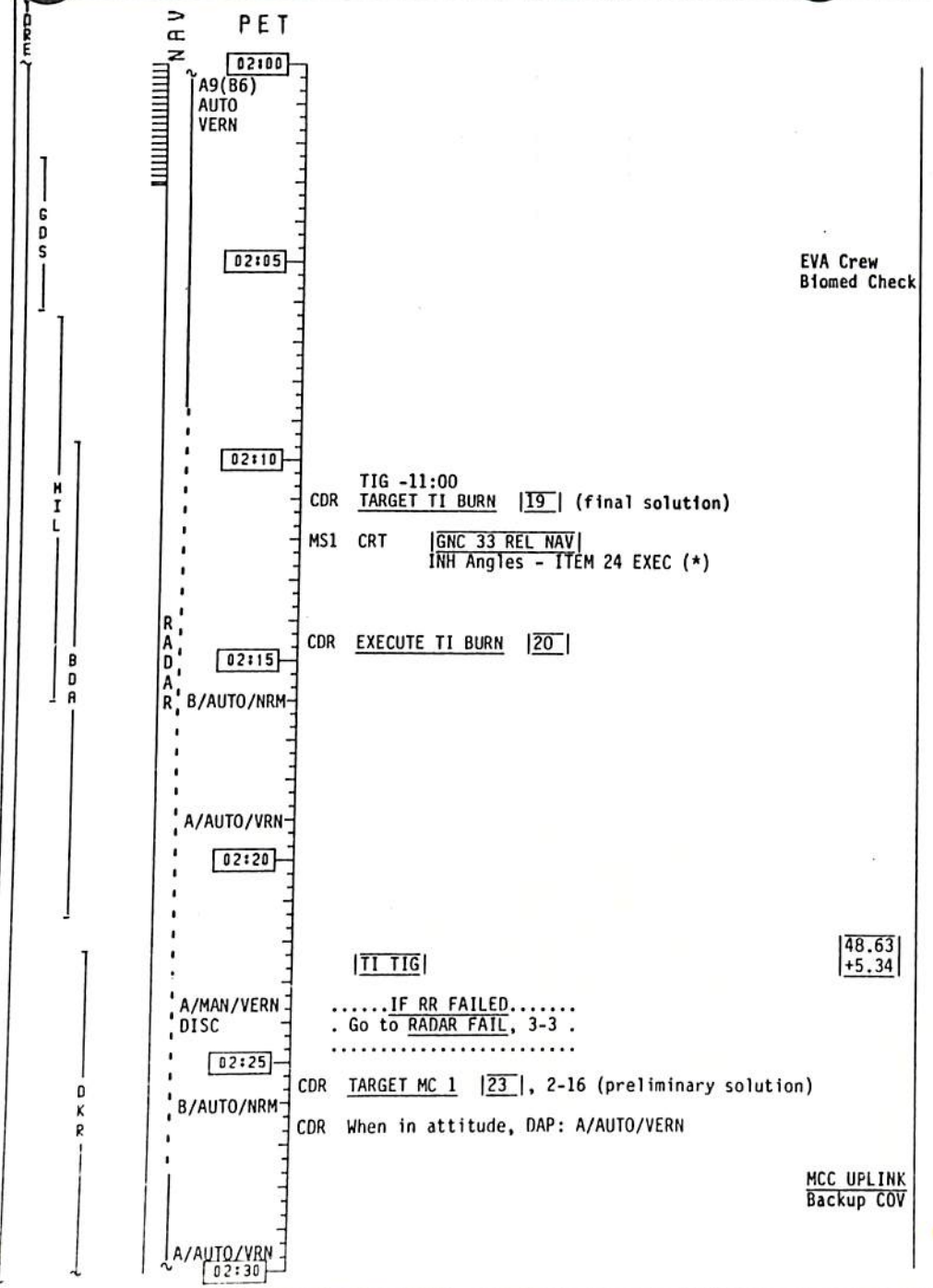
and

add to FWD RCS QTY % _____

TI BURN PAD



41-C/FIN



EVA Crew
Biomed Check

TIG -11:00
CDR TARGET TI BURN |19| (final solution)

MS1 CRT |GNC 33 REL NAV|
INH Angles - ITEM 24 EXEC (*)

CDR EXECUTE TI BURN |20|

|TI TIG|

|48.63|
|+5.34|

.....IF RR FAILED.....
. Go to RADAR FAIL, 3-3 .
.....

CDR TARGET MC 1 |23|, 2-16 (preliminary solution)

CDR When in attitude, DAP: A/AUTO/VERN

MCC UPLINK
Backup COV

TARGET TI BURN |19|

CRT OPS 202 PRO
|GNC ORBIT MNVR EXEC|
Load Eng Sel, WT and Trims for TI per pad
LOAD - ITEM 22 EXEC
✓SV SEL correct
|GNC 34 ORBIT TGT|
TGT NO - ITEM 1 +3 EXEC
✓TGT Set data:
T1 TIG +(BASE TIME)
EL +0
ΔT +84.1
ΔX +0
ΔY +0
ΔZ +0
COMPUTE T1 - ITEM 27 EXEC
Note solution

If FLTR converged (> 40 marks in current sensor pass & SV UPDATE POS < .5),
Burn FLTR solution

If FLTR within ground solution limits,
Burn FLTR solution

If PROP within ground solution limits,
Burn PROP solution

If none of the above,
Burn ground solution EXT ΔVs

EXECUTE TI BURN |20|

CRT |GNC ORBIT MNVR EXEC|
|GNC SYS SUMM 2|
LOAD - ITEM 22 EXEC
TIMER - ITEM 23 EXEC
C3 DAP: B/AUTO/NORM
DAP TRANS: as reqd
ROT: DISC/DISC/DISC
CRT MNVR - ITEM 27 EXEC (*)
Perform SEC L,R then PRI L,R GMBL CK

* If down arrow(s) or M(s), *
* Select good GMBL *

When mnvr to att complete,
C3 DAP: A/AUTO/VERN
08 ✓L,R OMS TK ISOL (four) - OP (tb-OP)
✓XFEED (four) - CL (tb-CL)
F7/F8 FLT CNTLR PWR (two) - ON

TIG -2:00 ··
Perform OMS 2/ORBIT OMS BURNS
Cue Card, then ··

THC - Trim residuals < .2 fps
F7/F8 FLT CNTLR PWR (two) - OFF
08 L,R OMS He PRESS/VAP ISOL (four) - CL
CRT RCS SEL - ITEM 4 EXEC (*)
OPS 201 PRO
C3 DAP: B/AUTO/NORM

VERIFY RR TARGET TRACK |21|

✓Attitude mnvr complete
|GNC 33 REL NAV|
If KU TRACK tb - gray,
CRT | AUTO ANGLES - ITEM 23 EXEC (*)
| If -Z S TRK avail,
| Go to S TRK TARGET ACQ |22|

If KU TRACK tb - bp,
Perform RR AUTO TRACK ACQ, RNDZ OPS Cue Card
If -Z S TRK avail,
| Go to S TRK TARGET ACQ |22|
If -Z S TRK failed,
Go to COAS NAVIGATION, RNDZ OPS Cue Card

S TRK TARGET ACQ |22|

|GNC 22 S TRK/COAS CNTL|
CRT -Z TGT TRK - ITEM 6 (*)
✓STATUS - blank
✓SHUTTER - OP

If SHUTTER - CL,
MAN OP - ITEM 16 EXEC (*)

When S PRES - *
|GNC 33 REL NAV|
INH RNG, ITEM 18 - (*)
Ṙ, ITEM 21 - (*)
Angles, ITEM 24 - (*)
ST - ITEM 12 EXEC (*)

Monitor RESID V and H each NAV cycle
Use COAS to monitor acquisition

If RESID V and H change < .05 for four
| consecutive Nav cycles and COAS
| verifies tgt lock-on,
|
| If RATIO < 1.0,
| | FLTR TO PROP - ITEM 8 EXEC
| | AUTO Angles - ITEM 23 EXEC (*)
| | If KU TRACK tb - gray,
| | AUTO RNG - ITEM 17 EXEC (*)
| | Ṙ - ITEM 20 EXEC (*)
| |
| If RATIO > 1.0,
| 1) COVAR REINIT - ITEM 16 EXEC
| 2) FOR 3 Angle Marks

If RESID V or H changes > .05 or COAS
verifies tgt not acquired,
|GNC 22 S TRK/COAS CNTL|
-Z BREAK TRK - ITEM 8 EXEC

.....NO S TRK ACQ AFTER 5 MIN.....
.
. If KU TRACK tb - gray,
. | RR - ITEM 13 EXEC (*)
. | AUTO RNG - ITEM 17 EXEC (*)
. | Ṙ - ITEM 20 EXEC (*)
. | Angles - ITEM 23 EXEC (*)
.
. If KU TRACK tb - bp,
. Perform COAS NAVIGATION, RNDZ OPS
. Cue Card
.....

TARGET MC 1 |23|

CRT ✓SV SEL correct
|GNC 34 ORBIT TGT|
TGT NO - ITEM 1 +4 EXEC
✓TGT Set data:
T1 TIG +(BASE TIME +0/00:26:06)
EL +0
ΔT +58.0
ΔX +0
ΔY +0
ΔZ +0
COMPUTE T1 - ITEM 27 EXEC

Note solution

MC 1 BURN SOLUTION

TIG | 0 | 0 | 1 | / | 2 | 3 | : | 0 | 2 | : | 2 | 6 |

PRELIMINARY

ΔVX	( )			.	
ΔVY	( )			.	
ΔVZ	( )			.	
ΔVT				.	

INTERMEDIATE

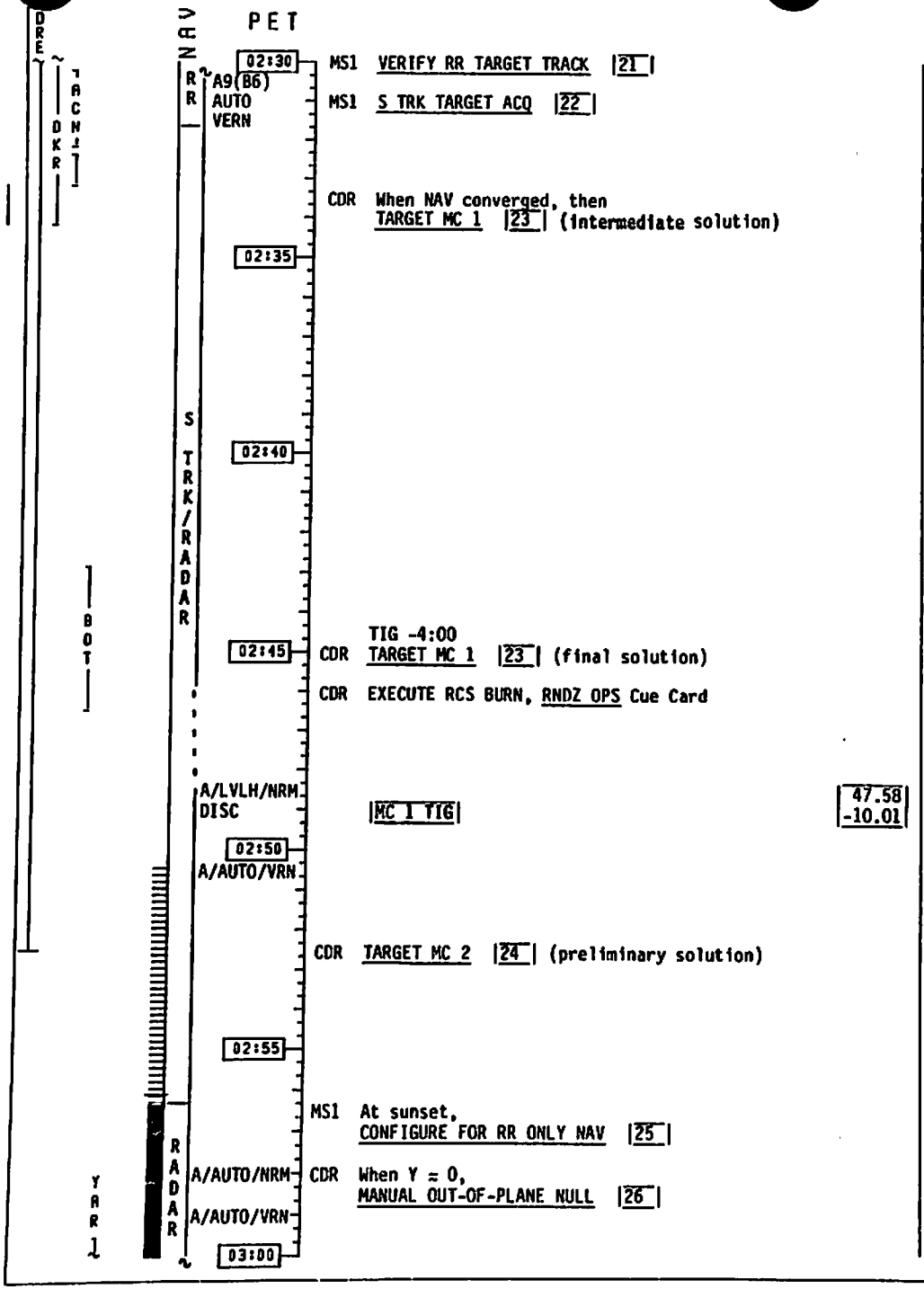
	( )			.	
	( )			.	
	( )			.	
				.	

FINAL

ΔVX	( )			.	
ΔVY	( )			.	
ΔVZ	( )			.	
ΔVT				.	

3σ Variation

(0 . 2)
(0 . 5)
(0 . 5)
(0 . 5)



TARGET MC 2 |24|

CRT ✓SV SEL correct
|GNC 34 ORBIT TGT|
TGT NO - ITEM 1 +5 EXEC
✓TGT Set data:
T1 TIG +(BASE TIME +0/00:51:00)
EL +28.4
ΔT +33.1
ΔX +0
ΔY +0
ΔZ +0

Note Nominal T1 TIG in pad, 2-18

COMPUTE T1 - ITEM 27 EXEC

Note preliminary solution in pad, 2-18

CONFIGURE FOR RR ONLY NAV |25|

|GNC 33 REL NAV|
CRT RR - ITEM 13 EXEC (*)
|GNC 22 S TRK/COAS CNTL|
✓-Y,-Z SHUTTER MAN OP, ITEM 15,16 - (no *)
-Z(-Y) TERM/IDLE - ITEM 10(9) EXEC (*)

MANUAL OUT-OF-PLANE NULL |26|

|GNC 33 REL NAV|
CRT When Y ≈ 0,
A6U FLT CNTLR PWR - ON
C3 DAP: A/AUTO/NORM
✓DAP TRANS: as read
THC - NULL Ẏ (+Ẏ = FWD THC left)
AFT THC right)
DAP: A/AUTO/VERN
F7 FLT CNTLR PWR - OFF

TARGET MC 2 | 27 | (intermediate solution)

CRT
GNC 34 ORBIT TGT
TGT NO - ITEM 1 +5 EXEC
COMPUTE T1 - ITEM 27 EXEC

Note solution

TARGET MC 2 | 28 | (final solution)

CRT
✓SV SEL correct
GNC 34 ORBIT TGT
TGT NO - ITEM 1 +5 EXEC
COMPUTE T1 - ITEM 27 EXEC
✓TIG change < 5 min

.....IF TIG CHANGE > 5 MIN.....
. .
. TGT NO - ITEM 1 +5 EXEC .
. T1 TIG +(Nominal ±5 min as .
. appropriate) .
. EL +0 .
. BASE TIME +(same as T1 TIG) .
. LOAD - ITEM 26 EXEC .
. COMPUTE T1 - ITEM 27 EXEC .
.....

Set EVENT TIMER counting to MC 2 TIG

Note solution

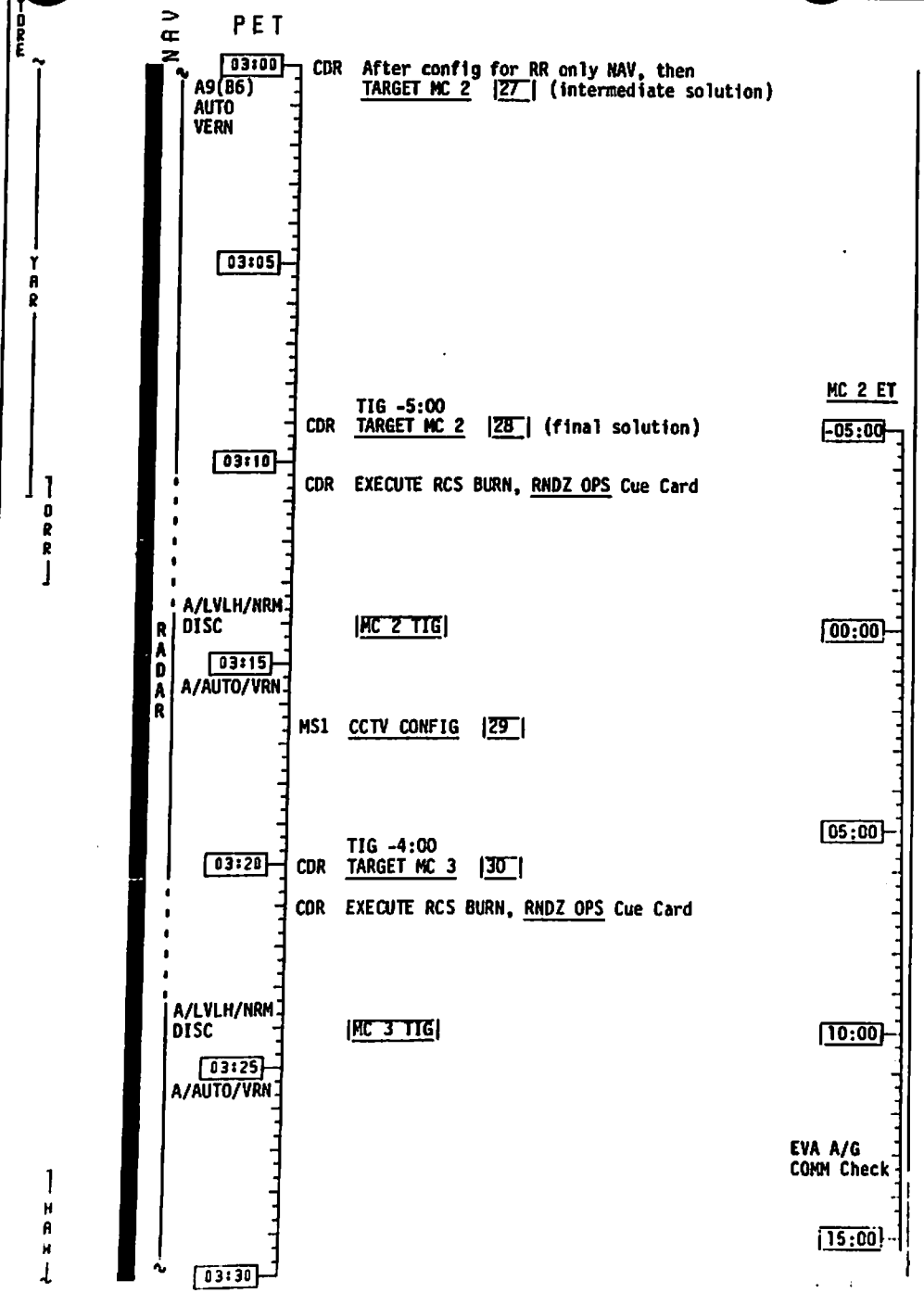
MC 2 BURN SOLUTION

TIG 0 0 1 / 2 3 : 2 7 : 2 0

	PRELIMINARY	INTERMEDIATE
ΔVX	( ) .	( ) .
ΔVY	( ) .	( ) .
ΔVZ	( ) .	( ) .
ΔVT	.	.

	FINAL	3σ Variation
ΔVX	( ) .	(0 . 3)
ΔVY	( ) .	(0 . 2)
ΔVZ	( ) .	(1 . 1)
ΔVT	.	(1 . 1)

		TIG SLIP (COMPUTED-NOM)
PREL	/ : :	__ __ : __ __
INTER	/ : :	__ __ : __ __
FINAL	/ : :	__ __ : __ __
NOMINAL	/ : :	



CCTV CONFIG |29|

If reqd, pwr up CCTV, VTR per TV/VTR Cue Card

A3 MON 1,2 SCAN to UNDERSCAN
A7U MON 1 - Camr A
MON 2 - Camr B
Aim A at B and B at A
PAN/TILT - RESET for both; aim both at (or near) Elev 0°, Az 0
Repeat for Camr C & D
Use A & B for data recording
Put new tapes in VTRs
Activate laser rangers
(Camr B & C: TILT - DN, PAN - L, simo)

TARGET MC 3 |30|

CRT ✓SV SEL correct
|GNC 34 ORBIT TGT|
TGT NO - ITEM 1 +6 EXEC
✓TGT Set data:
T1 TIG +(BASE TIME +0/00:10:00)
EL +0
ΔT +23.1
ΔX +0
ΔY +0
ΔZ +0
COMPUTE T1 - ITEM 27 EXEC

Note solution

MC 3 BURN SOLUTION

TIG 0 0 1 / 2 3 : 3 7 : 2 0

	PRELIMINARY	FINAL	3σ Variation
ΔVX	( ) .	( ) .	(0 . 4)
ΔVY	( ) .	( ) .	(0 . 2)
ΔVZ	( ) .	( ) .	(1 . 0)
ΔVT	.	.	(1 . 0)

TARGET MC 4 | 31 |

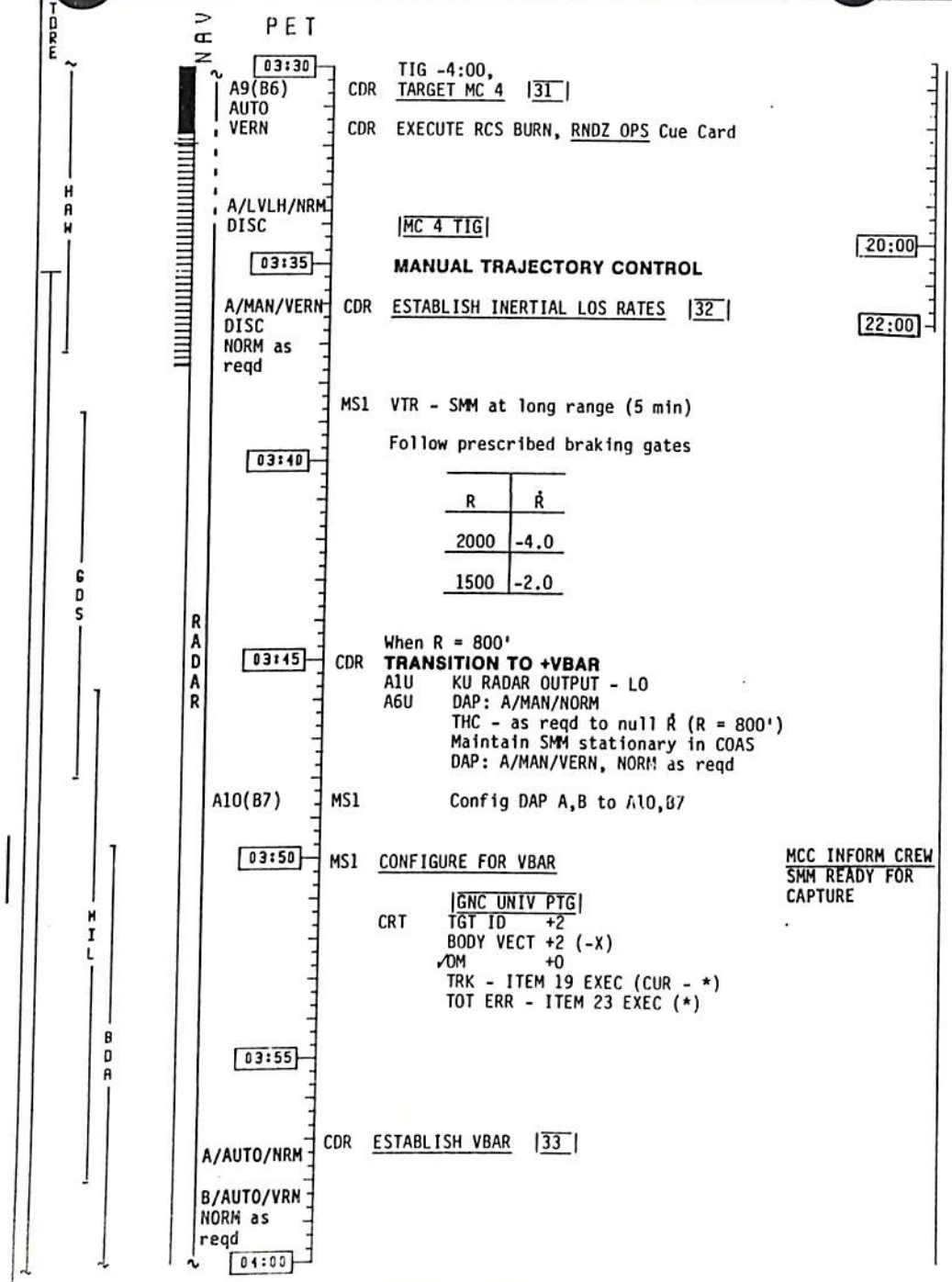
CRT ✓SV SEL correct
GNC 34 ORBIT TGT
TGT NO - ITEM 1 +7 EXEC
✓TGT Set data:
T1 TIG +(BASE TIME +0/0:20:0)
EL +0
ΔT +13.1
ΔX +0
ΔY +0
ΔZ +0
COMPUTE T1 - ITEM 27 EXEC

Note solution

MC 4 BURN SOLUTION

TIG | 0 | 0 | 1 | / | 2 | 3 | : | 4 | 7 | : | 2 | 0 |

	PRELIMINARY	FINAL	3σ Variation
ΔVX	( ) .	( ) .	(0 . 5)
ΔVY	( ) .	( ) .	(0 . 4)
ΔVZ	( ) .	( ) .	(1 . 4)
ΔVT	.	.	(1 . 4)



ESTABLISH INERTIAL LOS RATES |32|

A6U ✓DAP ROT: DISC/DISC/DISC
TRANS: PULSE/PULSE/PULSE
✓SENSE - -Z
FLT CNTLR PWR - ON

MC2 +22:00 ··
DAP: A/MAN/NORM
THC - ±X as reqd until
EL LOS rate = 0 mrad/sec
(SMM stationary in COAS)

✓ADI ATT - LVLH
RHC as reqd until Yaw = 0
DAP: A/MAN/VERN, NORM as reqd

|GNC UNIV PTG|
CRT DAP ERR - ITEM 24 EXEC (*)

ESTABLISH VBAR |33|

A6U When ADI PITCH = 180° (LVLH REF), then
CRT ✓UNIV PTG TOT ERR - small
A6U DAP: A/AUTO/NORM
THC - -X (down) as reqd until
EL LOS rate = 1.1 mrad/sec
(~15 DAP A pulses, ~.9 fps)
THC - -Z (in) as reqd to null +Ṙ
Maintain SMM in lower half of COAS,
Ṙ ≤ 0
DAP: B/AUTO/VERN, NORM as reqd

INITIATE CLOSING RATE |34|

A6U DAP: A/AUTO/NORM
THC - -Z (in) until $\dot{R}$ = -.8
THC - +X (up) as reqd to maintain SMM in lower half of COAS
DAP: B/AUTO/VERN, NORM as reqd

ESTABLISH 200 FT STATIONKEEPING |35|

A6U DAP: B/AUTO/NORM
THC - +Z (out) until $\dot{R}$ ~ -0.2 fps
DAP TRANS: PULSE/PULSE/PULSE, LOW Z
THC - NULL $\dot{R}$

A6U DAP: B/AUTO/VERN, NORM as reqd
Maintain R = 200'

RMS POWERUP |36|
(Assumes RMS in TEMP MONTR)

PLB LTS

A7 PL BAY FLOOD - as reqd

✓Physical integrity of arm, EE, blankets

RMS SEL (IDLE MODE)

✓BRAKES - ON (tb-ON)
✓RMS SEL - OFF
✓PWR - PRI

CRT |SM 94 PDRS CONTROL|
✓I/O ON, ITEM 5 - (*)
✓ENA, ITEM 9,11 - (*)

RMS SEL - PORT (if cradled, MA, C/W RCH LIM lt-on (SP,EP), SINGULAR lt-on (EP))

✓SAFING tb - gray

DEPLOY/RELEASE ARM

R13L PL BAY MECH PWR SYS (two) - ON
PORT RMS - DPY (tb-DPY) (34 sec max), then
- OFF
PORT RMS RETEN LAT - REL (tb-REL) (8 sec max), then
- OFF
PL BAY MECH PWR SYS (two) - OFF

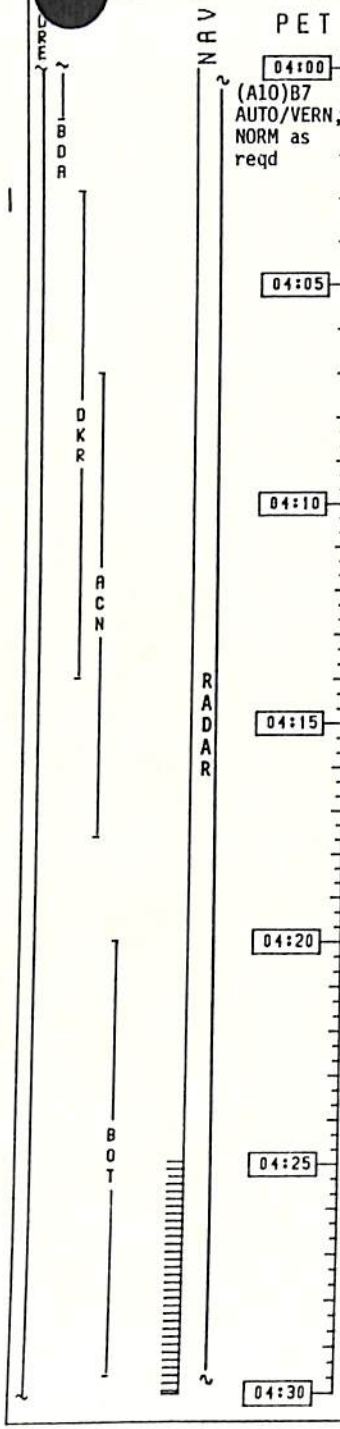
ARM UNCRADLE

PARAM sel - JOINT ANGLE
BRAKES - OFF (tb-OFF)
Until clear of MPMs:
RATE sw - VERN (RATE MIN tb-ON)
MODE - SINGLE, ENTER

SINGLE DR to approx:

	SY	SP	EP	WP	WY	WR
1	0	0	0	+5	0	0
2			+1			
3		+25				
4			-25			

BRAKES - ON (tb-ON)



(A10)B7
AUTO/VERN,
NORM as
reqd

When rates stabilized,
VBAR APPROACH

CDR INITIATE CLOSING RATE |34|

MS1 VTR - Vbar approach, EVA ops

Follow prescribed braking gates

R	$\dot{R}$
500	-.5
400	-.4
300	-.3

CDR When R = 200',
ESTABLISH 200 FT STATIONKEEPING |35|

MS1 RMS POWERUP |36|

MS1 RMS TO POISE FOR CAPTURE |37|

CDR A7U PL BAY FLOOD DOCKING - BRT

EVA PET = 0:00 ··

RMS TO POISE FOR CAPTURE |37|

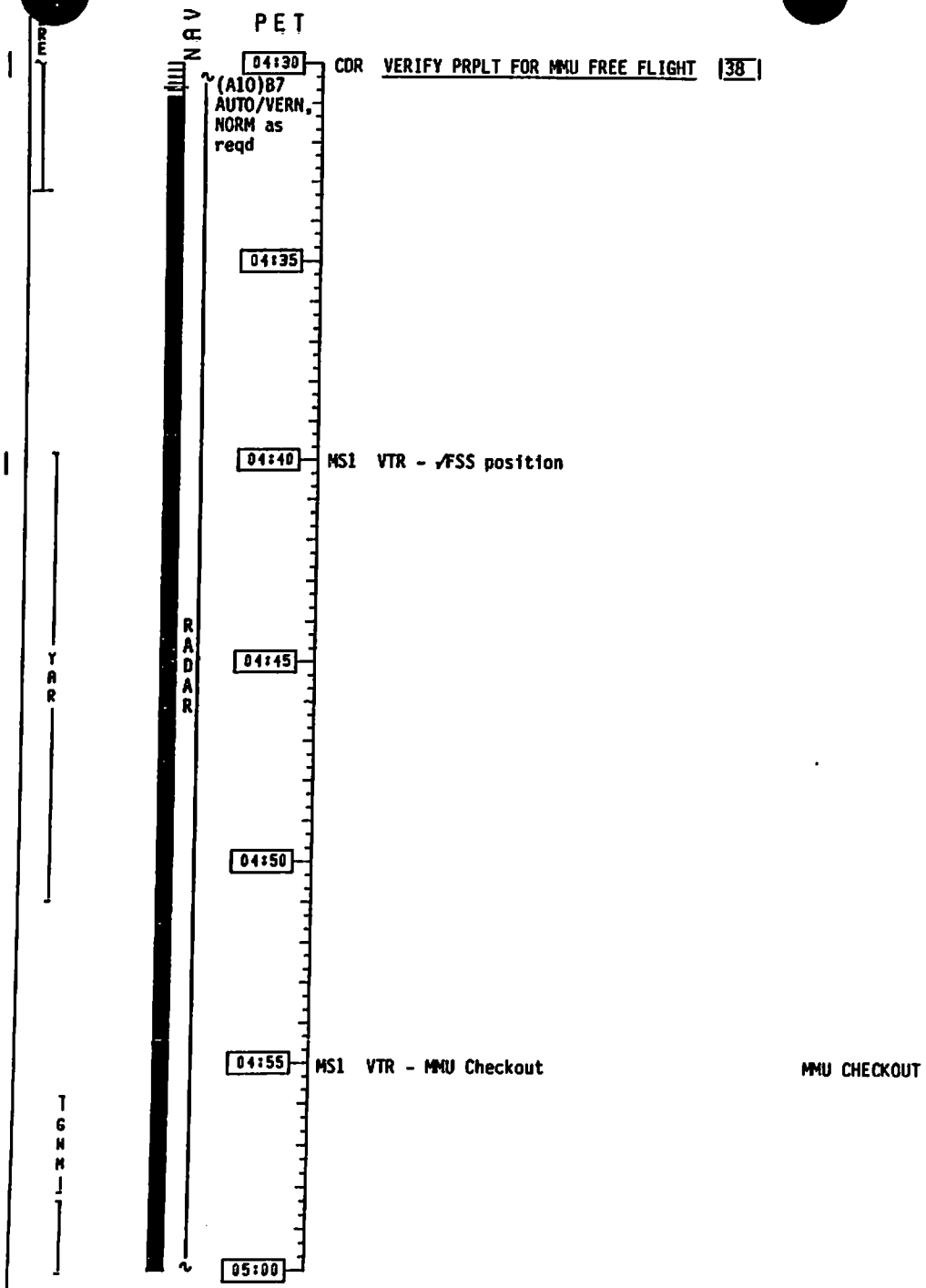
CRT |SM 94 PDRS CONTROL|
PL ID - ITEM 3 +3 EXEC
PL INIT ID - ITEM 24 +3 EXEC

OPR CMD to Poise for Capture

-950, -65, -850, 40, 344, 0

SY	SP	EP	WP	WY	WR
-20.7	80.0	-40.8	-84.2	-61.9	118.6

BRAKES - ON (tb-ON)



VERIFY PRPLT FOR MMU FREE FLIGHT | 38 |

The following deltas to the RENDEZVOUS OMS/RCS PRPLT PAD Cue Card apply:

To perform MMU free flight:

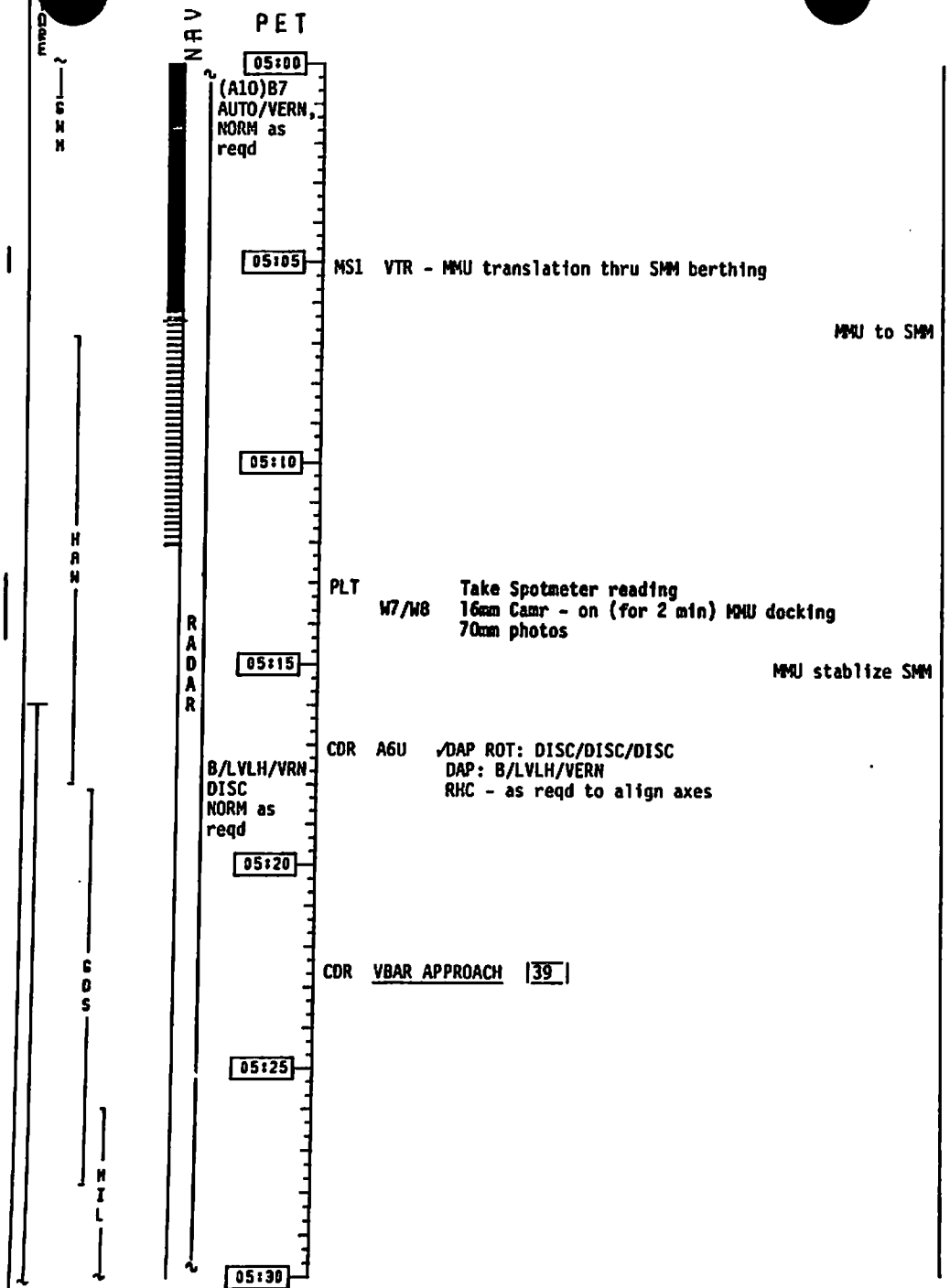
subtract from OMS/RCS QTY 3% _____

or add to AFT RCS QTY 18% _____,

and

add to FWD RCS QTY 11% _____

If no go for MMU free flight, perform ROTATING SMM CAPTURE, 3-21



VBAR APPROACH 39

A6U ✓DAP TRANS: PULSE/PULSE/PULSE, LOW Z
DAP: A/LVLH/NORM
THC - -Z (in) -3 DAP A pulses until $\dot{R}$ = -.2

PET

05:30 (A10)B7 LVLH VERN, NORM as reqd

05:35

05:49 MS1 IMAX Rcdr - ON

CDR When SMM in EE Camr, then
THC - +Z (out) to null rates

05:45 PLT C360 - 03 Ops (5 min), C360 OPS Cue Card

B/LVLH/VRN PULSE
MS1 SMM CAPTURE |40|

MS1 Take Spotmeter reading
IMAX - ON (~1000')
MMU from SMM

05:50

MS1 Go to EVA, TBD
CDR DISABLE RENDEZVOUS NAV |41|

CDR Go to CAP, 4-12

05:55

06:00

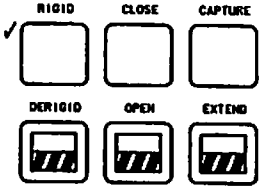
DRE ~ HIL ~ BDA ~ NAV ~ RADAR ~ DKR ~ ACN ~ BOT

SMM CAPTURE |40|

BRAKES - OFF (tb-OFF)
MODE - END EFF, ENTER
EE MODE - AUTO

When grapple fixture in view,
DAP ROT: PULSE/PULSE/PULSE
✓DAP: B/LVLH/VERN

Mnvr to grapple envelope
EE CAPTURE sw - depress (mom)



(23 sec max)

EE MODE - OFF
BRAKES - ON (tb-ON)

DISABLE RENDEZVOUS NAV |41|

A6U FLT CNTLR PWR - OFF

CRT |GNC 22 S TRK/COAS CNTL|
-Y,-Z STAR TRK - ITEM 3,4 EXEC (*)
|GNC 33 REL NAV|
KU ANT ENA - ITEM 2 EXEC (no *)
RNDZ NAV ENA - ITEM 1 EXEC (no *)