mod F1

2-226. SUBPROGRAM P76 (WRITE). WRITE writes the output of the missile simulation system. The FORTRAN II reference statement is CALL WRITE (K).

a. Inputs. The input is K, an integer dependent upon the phase and cutoff point of simulation requested and the following registers:

COMMON TAG	DIMENSION	ITEM	UNITS
FRTØD	2	Conversion constant: Radians to degrees ($180\pi = 57.295780$)	deg/rad
GMILE	2	Conversion factor: Degrees to nautical miles (=60.042499)	mi/deg
FEZRØ	2	E_o as obtained from radar coordinates GAZEZ after SECO	radians
FAZRØ	2	A_o as obtained from radar coordinates GAZEZ after SECO	radians
SW(82)		If ØN, direct print requested	
GBJSM	2,15	Booster jettison point summary data table	
GVCSM	2,15	Vernier commanded cutoff point summary data table	
GNSSM	2,9	Re-entry vehicle separation point summary data table	
GDPSM	2,15	Final detonation point summary data table	
GRESM	2,9	Re-entry point summary data table	

COMMON TAG	DIMENSION	SYMBOL	UNITS
XDEW(702)	1	$\delta\epsilon_c$	degrees
XDEW(496)	1	T^1_{10}	

b. Outputs. The outputs are as follows:

COMMON TAG	DIMENSION	ITEM	UNITS
TWCLT	2	Current target geocentric latitude	degrees
TWLN	2	Current target longitude west of Greenwich	degrees
TWSCL	2	Current target sine of geocentric latitude	integer
TWCCL	2	Current target cosine of geocentric latitude	integer
GTRNG	2	Inertial range P to target-general	degrees
FEZRØ	2	E_o as obtained from radar coordinates GAZEZ after SECO	radians
FAZRØ	2	A_o as obtained from radar co-ordinates GAZEZ after SECO	radians

The following statements are written and/or printed:

a. DATA AT NOSE CONE SEPARATION

b. POSITION X = _____, Y = _____, Z = _____

c. VELOCITY X = _____, Y = _____, Z = _____

d. TOTAL TIME OF FLIGHT SINCE LIFTOFF = _____

e. ANGLE OF VEL. VECTOR REL. TO EARTH ABOVE LOCAL HORIZON _____

f. MAG. OF VEL. VECTOR REL. TO EARTH = _____

g. GEOCENTRIC LAT = _____, GEOGRAPHIC LAT = _____, LON = _____, ALT = _____

h. BOOSTER JETTISON SUMMARY DATA

i. VERNIER COMMANDED CUTOFF SUMMARY DATA

j. ROLL AXIS X = _____, Y = _____, Z = _____

k. TOTAL MISSILE MASS IN SLUGS = _____

l. ALTITUDE ABOVE ELLIPSOID = _____

m. MASS IN SLUGS OF EMPTY BOOSTER JETTISON = _____

n. DATA AT RE-ENTRY POINT

o. DATA AT DETONATION

p. RE-ENTRY DECELERATION DATA

q. 1ST 25 G PT

r. TIME = _____ ALT = _____ SPEED = _____
TOTAL DECEL. = _____ AXIAL DECEL. = 25.

s. PEAK DECEL. PT.

t. TIME = _____ ALT = _____ SPEED = _____
TOTAL DECEL. = _____ AXIAL DECEL. = _____

u. FUSING DATA

v. TAP ADJUSTMENT X = _____, Y = _____, Z = _____

w. DET. PT. TIME OF FLIGHT ERROR FROM FUSING = _____

x. DET. PT. ALT. ADJUSTMENT FROM FUSING = _____

y. 25G POINT DETECTION TIME ADJUSTMENT = _____

z. FUSING PARAMETER = _____

a'. BEARING ANGLE = _____ DEGREES

b'. RANGE = _____

c'. GUIDANCE DATA

d'. A ZERO = _____

e'. E ZERO = _____

f'. T10 CALCULATED BY GGDSIM = ____

g'. LAUNCH AZIMUTH ADJUSTMENT = ____

c. Program Logic. FD P76

(1) Steps 1-11. A_o and E_o are converted from radians to degrees. Depending upon the value of the input argument K, the action in the following table takes place:

Value of K	Phase of Simulation	Cutoff point of Simulation	Modification	Subprogram Cont at step
1	P75 (SCLØM), P77 (SPERM), or P73 (SØPNM)	Re-entry vehicle separation	Step 33 to continue at step 68	12
2	P75 (SCLØM), P77 (SPERM), or P73 (SØPNM)	Re-entry	Steps 33 and 42 to continue at steps 34 and 68 respectively	12
3	P75 (SCLØM), P77 (SPERM), or P73 (SØPNM)	Impact	Steps 33 and 42 to continue at steps 34 and 43 respectively	12
4	P72 (SBALM)	Re-entry	Step 42 to continue at step 68	34
5	P72 (SBALM)	Impact	Step 42 to continue at step 43	34
>5				43

(2) Steps 12-14. IFLAG is set to identification integer 1676. INTRØG interrogates SW(82). If ØFF, direct print is not requested and the subprogram continues at the next step.

(3) Steps 15-31. At this point statements h, b, c, d, j, k, l, and m are printed. The booster jettison parameters are set up, and the X, Y, Z components are converted to longitude, latitude, and altitude. XYZGEØ, and LCTØLG converts geocentric latitude to geographic latitude. Statements g, i, b, c, d, j, k, and l are printed. The vernier cutoff parameters are set up, and the X, Y, Z components are converted by XYZGEØ, and LCTØLG converts geocentric latitude to geographic latitude. Statements g, a, b, c, d, e, and f are printed. The re-entry vehicle separation parameters are set up and the X, Y, Z components are converted by XYZGEØ, and LCTØLG converts geocentric latitude to geographic latitude. Statements g, c', d', e', f', and g' are printed.

(4) Step 32. Steps 15-31 are repeated to write.

(5) Step 33. If L is zero, control is transferred to step 68. If L is one or two, the subprogram continues at step 34.

(6) Steps 34-35. INTRØG interrogates SW(82). If ØFF, control is transferred to step 41, otherwise direct print is requested and the subprogram continues at the next step.

(7) Steps 36-40. Statements n, b, c, d, e, and f are printed. The re-entry point parameters are set up, and the X, Y, Z components are converted by XYZGEØ, and LCTØLG converts geocentric latitude to geographic latitude. Statement g is printed.

(8) Step 41. Steps 36-40 are repeated to write.

(9) Step 42. If L is zero, control is transferred to step 68; if L is one or two, the subprogram continues at step 43.

(10) Steps 43-45. The fuzing parameters are determined by FUSING. INTRØG interrogates SW(82). If ØFF, the control is transferred to step 53. Otherwise direct print is requested and the subprogram continues at the next step.

(11) Steps 46-52. Statements o, b, c, d, e, and f are printed. The detonation point parameters are set up, and the X, Y, Z components are converted by XYZGEØ, and LCTØLG converts geocentric latitude to geographic latitude. Statements g, p, q, r, s, t, u, w, x, y, and z are printed.

(12) Steps 53-67. Steps 46-52 are repeated to write. If input argument K is not three, the subprogram continues at step 68. Otherwise the geocentric latitude and longitude are stored as the current target geocentric latitude and longitude. The cosine and sine of geocentric latitude are computed by CØSINE and SINE respectively, and the results are stored as the current target cosine and sine of geocentric latitude. The magnitude of detonation point missile position vector is computed by VECMEG, and the inertial range angle and bearing of the target is computed by TRGTRB. The range angle is converted from degrees to nautical miles. INTRØG interrogates SW(82). If ØN, statements a' and b' are printed and written; otherwise these statements are only written. CNSTRN checks for

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exceeded constraints.

(13) Step 68. The subprogram exits to the user subprogram.

2-227. B9 SUBPROGRAMS.

2-228. The subprograms described in this area perform radar ~~launches~~ launcher (R/L) tape generation cr updating.

2-229. Subprogram L09 (BENTRY) enables the loader to establish linkage between the B1 and B9 subprograms. This version of BENTRY will be in core only when the R/L tape area is requested. The return path to the user subprogram is saved by SAVE4 and RLTAPE is called. After generation or updating of the R/L tape, the subprogram exits to DØCNT through RTRN4.

a.	BENTRY	**L09	Establish B9 Control Area
b.	GGCTYP	U26	GGC Data Card Interpretation
c.	RLTAPE	U05	Generate or Update Radar Launcher Tape

** Subprogram description is in the introductory paragraph of this area.

2-230. SUBPROGRAM U26 (GGCTYP). GGCTYP, in conjunction with U40 and U41, converts the ground guidance complex (GGC) data stored in BCD form in the card image area to floating point binary form, and stores it in the Common Area. The FORTRAN II reference statement is CALL GGCTYP.

a. Inputs. The input is a GGC card in BCD form stored in CDIO-CDI7. The types and formats of the cards are illustrated in figure 2-5. The table in paragraph 2-209 illustrates the bit configuration of these columns.

b. Outputs. The outputs are as follows:

(1) SW(72) is set ØN and SW(73) is set ØFF if input is a LAT, MC, or PVC card; or SW(73) is set ØN and SW(72) is set ØFF if input is a LON card.

(2) If an error occurred in U41, SENSE light 4 is set ON and remains ON.

(3) If an error occurs in GGCTYP, U40, or U41, SW(70) is set ØN, and the columns in error are indicated by setting to one the corresponding bits in CLEL or CLER.

(4) The GGC data in floating binary form will be stored in the following registers:

COMMON TAG	ITEM	UNITS
PRWLT	Geographic latitude of radar	degrees

COMMON TAG	ITEM	UNITS
PLWLT	Geographic latitude of launcher	degrees
PRWLN	Longitude of radar west of Greenwich	degrees
PLWLN	Longitude of launcher west of Greenwich	degrees
PRWGS	Geoidal separation of radar	feet
PLWGS	Geoidal separation at launcher	feet
PRWAL	Altitude of radar above geoid	feet
PLWAL	Altitude of launcher above geoid	feet
PRWAN	Meridian component of gravitational anomaly	degrees
PRWAW	Prime vertical component of gravitational anomaly	degrees
PLWR	Reference azimuth bearing of launcher	degrees
PRWMZ	Radar reference monolith azimuth, radar A	degrees
PRWMZ-2	Radar reference monolith azimuth, radar B	degrees
PRMCW	Radar reference azimuth angle for radar A	degrees
PRMCW-2	Radar reference azimuth angle for radar B	degrees
PRRCN	Range calibration number for radar A	
PRRCN-2	Range calibration number for radar B	
PREFF-PREFF(7)	Radar effective data; reference azimuth, calibration number A and B	

COMMON TAG	ITEM	UNITS
PLEFF-PLEFF(3)	Launcher effective date	

c. Program Logic. FD U26

(1) Steps 1-4. The contents of index registers 1, 2, and 4 are saved and IFLAG is set to identification integer 2126. The PLWLN and PLWLT blocks are cleared. The GGC card types are compared with the program-stored card types. The following list describes the steps at which the particular card type is interpreted:

GGC TYPE	STEP
LAT	9
LON	10
GSP	22
ALT	22
MC	32
PVC	32
RAZ	35
MON	40
MCW	48
RCN	51
IDT	54
RNG	58
HND	59

(2) Step 5. If none of the above card types are established, the columns are indicated in CLEL.

(3) Steps 6-7. ITYER is set to four to indicate a card error, and SW(70) is set ØN.

(4) Step 8. The contents of index registers 1, 2, and 4 are restored and the subprogram returns to the user subprogram.

(5) Step 9. SW(72) is set ØN and SW(73) is set ØFF. The subprogram continues at step 11.

(6) Step 10. SW(72) is set ØFF and SW(73) is set ØN.

(7) Steps 11-21. U40 converts the geographic latitude or longitude data to floating binary form, and if a column error has been detected, control is transferred to step 6. Otherwise, the card is interpreted to determine if it contains launch pad or radar data. If neither launch pad nor radar data is established, control is transferred to step 5. For radar data, the converted radar latitude or longitude data is stored in the PRWLT or PRWLN block, respectively. For launch pad data, the converted launch pad latitude or longitude data is stored in the PRWLT or PRWLN block, respectively. If the previous card was the same type, ITYER is set to five, SW(70) is set ØN, and control is transferred to step 8. If the card is interpreted successfully, the data from the LAT or LON card is stored in UGCIT and control is transferred to step 8.

(8) Steps 22-24. Geoidal separation GSP or altitude ALT data is converted to floating point binary form by U41.

The card is interpreted to determine if it contains radar or launch pad data. If neither radar nor launch pad data is established, control is transferred to step 5. For radar data, an area in core is initialized to store input data from the radar GSP or ALT card in the PLWGS or PLWAL block, respectively. For launch pad data, an area in core is initialized to store input data from the launch pad GSP or ALT card in the PLWGS or PLWAL block, respectively.

(9) Steps 25-31. If the previous card was the same type, ITYER is set to five, SW(70) is set ØN, and the subprogram continues at step 8. If there was an error in U41, SENSE light 4 is set ØN and control is transferred to step 5. If there was an error in U40, control is transferred to step 5. If a column error was detected, control is transferred to step 5. If the card is interpreted successfully, the data from the GGC card is stored in UGCIT and control is transferred to step 8.

(10) Steps 32-34. SW(72) is set ØN and SW(73) is set ØFF. The meridian component MC or prime vertical component PVC of local gravitation anomaly is converted to floating binary form by U40. An area in core is initialized to store input data from a radar MC or PVC card in the PRWAN or PRWAW block, respectively. Control is transferred to step 25.

(11) Steps 35-39. SW(199) is set ØN. Launch pad reference azimuth RAZ data is converted to floating binary form by U40. If launcher reference azimuth is negative, the sub-

program continues at step 5; otherwise, SW(199) is set ØFF and an area in core is initialized to store data from a RAZ card in the PLWR block. Control is transferred to step 25.

(12) Steps 40-44. SW(199) is set ØN. U40 converts radar reference monolith azimuth data MØN to floating binary form and SW(199) is set ØFF. If this radar is either A or B data, an area in core is initialized to store input data from a MØN card for radar A or B in the PRWMZ block. Control is transferred to step 25. If radar is neither A nor B data, the subprogram continues at the next step.

(13) Steps 45-47. If the input is a LAT or LON card and is mean radar data, an area in core is initialized to store input data from a MØN, MCW, or RCN card for mean radar and control is transferred to step 25; otherwise, the subprogram continues at step 5.

(14) Steps 48-53. Radar azimuth code wheel MCW or radar range calibration number RCN data is converted from octal BCD to binary form and stored in UDGCN. If radar is neither A nor B data, the subprogram continues at step 45. Otherwise, an area in core is initialized to store input data from a MCW or RCN card for radar A or B in the PRRCN block. Control is transferred to step 25.

(15) Steps 54-57. If data is neither radar nor launcher type, the subprogram continues at step 5; otherwise, the validity of the squadron designation or complex identi-

There are 2 versions of page 2-645/2-646 fication IDT data is tested. If IDT data is not valid or there are columns in error, control is transferred to step 5; otherwise, radar or launcher data is stored in the PREFF or PLEFF block, respectively. Control is transferred to step 8.

(16) Step 58. The subroutine used to store converted range data RNG in PLWLN is initialized.

(17) Step 59. The subroutine used to store converted altitude data HDN in PLWLT is initialized.

(18) Steps 60-65. U41 converts handover data to floating binary form. If neither an A, B, nor C appears in card column three, the subprogram continues at step 5. If previous data was stored for this type, ITYER is set to five, SW(70) is set ØN, and control is transferred to step 8. If an error was detected in U41, SENSE light 4 is set ØN and the subprogram continues at step 5. If the converted data is interpreted successfully, it is stored in the PLWLN or PLWLT block and control is transferred to step 8.

(16) Steps 79-82. The radar azimuth code wheel reading is converted from octal BCD to floating binary and stored in UDGCN. If radar A or B data is indicated control is transferred to step 45.01 to log the MCW card in PRMCW for radar A or PRMCW-2 for radar B. If neither is indicated, control is transferred to step 75.

(17) Steps 83-86. The radar range calibration number is converted from octal BCD to binary and stored in UDGCN. For radar A or B data, control is transferred to step 45.01 to log the RCN card in PRRCN for radar A or PRRCN-2 for radar B. If neither is indicated, control is transferred to step 75.

(18) Steps 87-94. The squadron designation and complex identification are tested for legality for both radar and launch pad data. If the IDT data is not legal, if a column is in error, or if neither launch pad nor radar data is indicated, the columns are indicated in CLEL and control is transferred to step 15. For radar data the IDT information is stored in PREFF-PREFF(7). For launch pad data the IDT information is stored in PLEFF-PLEFF(3). In both cases control is transferred to step 17.

Pages 2-647 through 2-650 are missing

2-231. SUBPROGRAM U05 (RLTAPE). RLTAPE produces or updates the Radar-Launcher input tape. The FORTRAN II reference statement is CALL RLTAPE.

a. Inputs. The inputs are radar and launcher GGC data cards in BCD format and an old R/L tape on unit A5 if an R/L tape is to be updated.

b. Outputs. The outputs are a generated or updated binary tape B8 containing radar and launcher files. The following computed values are printed:

COMMON TAG	ITEM	UNIT
RMMC	Mean value of meridian component of gravitational anomaly	degrees
RMPVC	Mean value of prime vertical component of gravitational anomaly	degrees
LMRAZ	Reference azimuth bearing of launch pad	degrees

The following printed statements are also outputs:

a. TEN RTCS ENCOUNTERED WHILE ATTEMPTING TO READ A RECORD FROM TAPE UNIT A5. RERUN, USING A NEW TAPE UNIT

b. TEN RTCS ENCOUNTERED WHILE ATTEMPTING TO WRITE A RECORD ON TAPE UNIT B8. RERUN, USING A NEW TAPE AND/OR TAPE UNIT

c. INPUT CARD TO RLTAPE NOT RECOGNIZED

c. Program Logic. FD U05

(1) Steps 1-12. The contents of the index registers

are saved and binary output tape B8 is rewound. Work areas are cleared and the printer is set to a new page. IFLAG is set to identification integer 2105. If the old R/L tape requires updating, this tape is rewound. Steps 73 and 92 are modified to continue at step 74 and steps 16 and 30 are modified to continue at step 95. A BCD card is read and printed (step 10). If tape updating is not required, then just the BCD card reading and printing are done. If no error occurred in the reading or printing, control is transferred to step 20; otherwise the subprogram continues.

(2) Steps 13-19. ITYER is tested. If not equal to 9, statement c and the contents of the present card are printed and written. The subprogram halts for manual intervention. If ITYER is 9 and if the tape requires updating (step 16) control is transferred to step 95 to read a record. If updating is not required an end-of-file is written on tape B8 and this tape is rewound (step 17). A new page is set up, the contents of the index registers are restored, and control is returned to the user subprogram..

(3) Steps 20-32 CDTYPE checks the card type. If an error occurred during this check or if the card is not GGC, TRA, or END, the subprogram exits to ERRPRT for an error statement. If no error occurred and if the card is GGC, control is transferred to step 33 If the card is TRA or END, the requirement for tape updating is checked. If updating is not required, this step is modified so that at the

next pass control is returned to step 16. If updating is required, control is returned directly to step 16. The number of input cards is stored. Step 58 is modified to indicate launcher card. If tape updating is required, control is transferred to step 95 to read a record. If updating is not required (step 31) a new page is set up. An end-of-file is written on the new R/L tape. The number of card sets read is set to zero and step 55 is modified to process five sets of launcher data. Control is returned to step 10.

(4) Steps 33-41. GGCTYP interprets the card. If an error occurred, the subprogram exits to ERRPRT for an error statement. If there is no error and if the card is neither MC or PVC, control is transferred to step 42. If card is either MC or PVC, the count of MC or PVC cards processed is increased by one and the current MC or PVC value is added to the total floating point MC or PVC value. If two MC or PVC cards were processed, the card count is set to zero, and the total MC or PVC value is divided by two. Zero or the average value is stored in Common. If two cards were not processed, zero or the average value is stored in Common directly. Control is transferred to step 54.

(5) Steps 42-53. If card is not RAZ the subprogram continues at step 54; otherwise the count of RAZ cards processed is increased by one. If the reference azimuth bearing of the launch pad is greater than 180 degrees it is decreased by 360 and added to the total floating point RAZ

value; otherwise it is just added to the total floating point RAZ value. If three RAZ cards were processed, the total is divided by three and the result, if negative, is increased by 360. Zero or the average value is stored in Common. If three RAZ cards were not processed, then zero or the average value is stored directly in Common.

(6) Steps 54-77. If a full set of cards was not read control is returned to step 10. If three full sets were read (step 55), a new page is set up and the counter for the number of sets read is set to zero before the subprogram continues. If three full sets were not read, the subprogram continues by checking the card image type required. For a launcher card image (step 58), control is transferred to step 85. For a radar card image, SENSE light 1 is turned ON and CDCHK checks that all cards were read correctly. If an error occurred in reading, the subprogram exits to ERRPRT; otherwise the handover ranges and altitudes are moved to the proper tables. The PVC and MC components of gravitational anomaly at radar are converted to BCD in degrees, minutes, seconds, and hundredths of seconds. A line is skipped for a new card set, and the median values of the north and west components are printed. The checksum is computed and stored. If tape updating is not required, control is transferred to step 78; otherwise the 40-word record of PRRCN data is stored (step 74). The input card counters, AZ, MC, and PVC totals, redundancy counters, and the R/L data area are reset to zero. Control is returned

to step 10.

(7) Steps 78-84. Transfer flag IR4 is set to step 75. A record is written on output tape B8 (step 79). If a redundancy occurred after ten attempts to write the record, statement b is printed and written, and the subprogram exits for manual intervention. Otherwise, depending on the value of transfer flag IR4, the subprogram continues at step 75, 94, or 106.

(8) Steps 85-93. SENSE light 1 is turned OFF and CDCHK checks that all cards were read correctly. If an error occurred in CDCHK, the subprogram exits to ERRPRT. If there was no error, the launch pad reference azimuth is converted to degrees, minutes, seconds, and hundredths of seconds in BCD. A line is skipped and the median value of RAZ is printed. The checksum is computed and stored. If the tape requires updating, control is returned to step 74; otherwise transfer flag IR4 is set to step 75 and control is returned to step 79.

(9) Steps 94-103. After a successful write, the redundancy counters are reset to zero. A record is read from the old R/L tape A5 (step 95). If a redundancy occurs after ten attempts to read the record, statement a is printed and written. The subprogram exits for manual intervention. If there was no redundancy and if an end-of-file was read, control is transferred to step 109. If no end-of-file was read and the IDT word matches any value in storage, control is

transferred to step 104. If there is no match, the transfer flag IR4 (step 81) is modified to continue at step 94. Control is returned to step 79 to write the record on output tape B8.

(10) Steps 104-105. The write tape routine is modified to write the record just read from new card data. Transfer flag IR4 (step 81) is set to step 106. Control is returned to step 79 to write the new record on tape B8.

(11) Steps 106-108. After a successful write, the IDT word of the old record in storage and the redundancy counters are set to zero. If editing is to be continued, control is returned to step 95; otherwise the subprogram continues at step 111.

(12) Step 109. Step 108 is modified to indicate no editing. If the value of the current identity word in storage is not zero, control is returned to step 104. If the value is zero, the subprogram determines if all identity words from card data in storage were checked (step 111). Each identity word in storage is checked for zero until all the words are checked. Then step 108 is modified to indicate editing is required for launcher data. If this is the first pass, the storage block is cleared and control is returned to step 31. If this is not the first pass, control is returned to step 17.

2-232. B10 SUBPROGRAMS.

2-233. The subprograms described in this area generate the binary input tape to the TTP.

2-234. Subprogram L10 (BENTRY) enables the loader th establish linkage between the B1 and B10 subprograms. This version of BENTRY will be in core only when the binary input tape area is requested. The return path of the user subprogram is saved by SAVE4 and INPTNT is called. After the binary input tape has been generated, the subprogram exits to DØCNT through RTRN4.

a.	BENTRY	**L10	Establish B10 Control Area
b.	INPTNT	U14	Control Binary Input Tape Generation
c.	INPUT	U15	Assemble Target Data
d.	MTDATA	U54	Extract Missile Trajectory Data for Requested Complexes
e.	RLDATA	U06	Extract Radar Launcher Data for Requested Complexes
f.	TAMSID	U44	

** Subprogram description is in the introductory paragraph of this area.

2-235. SUBPROGRAM U14 (INPTNT). INPTNT controls the production of the Common input data tape (A4). The FORTRAN II reference statement is CALL INPTNT.

a. Inputs. The inputs are as follows:

COMMON TAG	ITEM (switch in ØN state)
SW(77)	DOC-TAA control card read in
SW(79)	DOC-SIM control card read in

b. Outputs. No outputs are defined.

c. Program Logic. FD U14

(1) Steps 1-4. RLDATA extracts data requested by input cards from the radar-launcher tape. Tape B8 is rewound and INTRØG interrogates SW(70) to determine if an error has occurred in extracting data. If ØN, the subprogram continues at step 5. If ØFF, control is transferred to step 6.

(2) Step 5. ERRPRT prints a notification of the error encountered.

(3) Steps 6-13. MTDATA extracts requested data from the missile-trajectory tape. Tape B7 is rewound and INTRØG interrogates SW(70) to determine if an error occurred in extracting data. If ØN, the subprogram continues at step 5. If ØFF, INTRØG interrogates SW(77) to determine if a DOC-TAA

control card was read (SW(77) = ØN). If ØN, control is transferred to step 14. If ØFF, INTRØG interrogates SW(79) to determine if a DOC-SIM control card was read (SW(79) = ØN). If ØN, the subprogram continues at step 14. If ØFF, control is transferred to step 18.

(4) Steps 14-16. TAMSID writes the identification data for the TAA and SIM control cards, and INTRØG interrogates SW(70) to determine if an error occurred in writing the TAA and SIM identification information. If ØN, control is transferred to step 5. If ØFF, the subprogram continues at step 17.

(5) Step 17. The subprogram returns to the user subprogram.

(6) Steps 18-23. The radar-launcher and missile-trajectory identification information is set up and tape A5 is rewound. INPUT assembles the data for each real target from tape A5 and stores the information on tape A4. Tapes A4 and A5 are rewound and INTRØG interrogates SW(70) to determine if an error occurred in data assembly. If ØN, control is transf to step 5. If ØFF, control is transferred to step 17.

2-236. SUBPROGRAM U15 (INPUT). INPUT generates the binary input tape A4 by assembling the R/L and M/T data files from tape A5 into one record for each target on tape A4.

a. Inputs. The input is binary tape A5, containing radar-launcher and missile-trajectory data as separate files for radar, launcher, missile, azimuth, M constants, and delta matrix data.

b. Outputs. The output is binary tape A4 for input to the TTP. The structure and format of the tape are shown in figures 2-5A and 2-5B. The following printed and written statements are also outputs:

a. UNABLE TO READ CORRECTLY ON TAPE A5

b. UNABLE TO FIND DESIRED RECORD ON A5

c. UNABLE TO WRITE RECORD CORRECTLY ON TAPE A4

c. Program Logic. FD U15

(1) Steps 1-5. The contents of the index registers are saved, switch 70 is turned OFF, and IRECR and IFILE are initialized. ID and radar data storage areas in core are cleared and the redundancy and end-of-file indicators are turned off.

(2) Steps 6-14. This paragraph describes the processing of radar data on the first pass and launcher, azimuth, M constants, and delta matrix data, respectively, on each succeeding pass. The first seven words of the current data record are read from tape A5. If an end-of-file was reached,

the subprogram continues at step 41; otherwise, the rest of the current data record is read from tape A5. If the data on tape does not agree with data in core, the tape redundancy indicator is tested. If ØFF and launcher data is being processed, the subprogram continues at step 6; otherwise, the subprogram continues at step 41. If the data on tape agrees with the data in core and the record was not successfully read from tape, or if the tape redundancy indicator was ØN, tape A5 is backspaced one record. If 10 attempts were made to read the current record from tape, the subprogram continues at step 40; otherwise, the subprogram continues at step 6 for another attempt. If the data on tape agrees with the data in core and the current record was read successfully, a checksum of data in core is computed.

(3) Steps 15-16. If the computed checksum does not agree with the checksum on tape, one record on tape A5 is backspaced and if 10 attempts have been made to read the record, control is transferred to step 40; otherwise, the subprogram continues at step 6 for another attempt. If the checksum on tape agrees with the computed checksum, the current data is stored in an assigned area. If radar data is being processed, the subprogram continues at step 18. If launcher data is being processed, the subprogram continues at step 21. If azimuth, M constants, or delta matrix data is being processed, the subprogram continues at step 17.

(4) Step 17. Tape A5 is read until an end-of-file

mark is reached. If azimuth, M constants, or delta matrix data is being processed, the subprogram continues at step 6; otherwise, the subprogram continues at step 34.

(5) Steps 18-20. Launcher, azimuth. M constants, delta matrix, and missile data areas in core are cleared. Tape A5 is read until an end-of-file mark is reached. If the current target is a dummy target, the subprogram continues at step 34; otherwise, the subprogram continues at step 6.

(6) Steps 21-33. Tape A5 is read until an end-of-file mark is reached. The first seven words of the missile record on tape A5 are read. If an end-of-file is reached, the subprogram continues at step 41; otherwise, the rest of the record is read. Missile data is transmitted from tape to assigned areas in core. If the tape redundancy indicator is ØN, tape A5 is backspaced one record. If 10 attempts were made to read the current record, the program continues at step 40; otherwise, another attempt is made to read the record on tape A5 (step 22). If the tape redundancy indicator is ØFF and the missile data on tape does not agree with the missile data in core, another missile record is read (step 22). If the missile data on tape agrees with the missile data in core, a checksum of missile data in core is computed. If the checksum on tape does not agree with the computed checksum, tape A5 is backspaced one record. If 10 attempts were made to read this record, the subprogram continues at step 40; otherwise, control is transferred to step 22 for

another attempt. If the checksums agree, missile data is stored in assigned areas and the subprogram continues at step 17.

(7) Steps 34-39. The storage counter is updated for the next target data assembly, and the current target number is stored. If this target is a dummy target, the subprogram continues at step 44; otherwise, the record for the current target is written on output tape A4. If there were no errors in writing the record, the subprogram continues at step 44; otherwise, statement c is printed and written by U08 and control is transferred to step 42.

(8) Step 40. U08 prints and writes statement a and the subprogram continues at step 42.

(9) Step 41. U08 prints and writes statement b and the subprogram continues at step 42.

(10) Steps 42-43. The error indicator is turned on and the subprogram halts for manual intervention.

(11) Steps 44-47. If a record has been written on tape A4 for each target, tape A5 is rewound and the subprogram continues at step 18. Otherwise, an end-of-file mark is written on tape A4. The contents of the index registers are restored and the subprogram exits to the user subprogram.

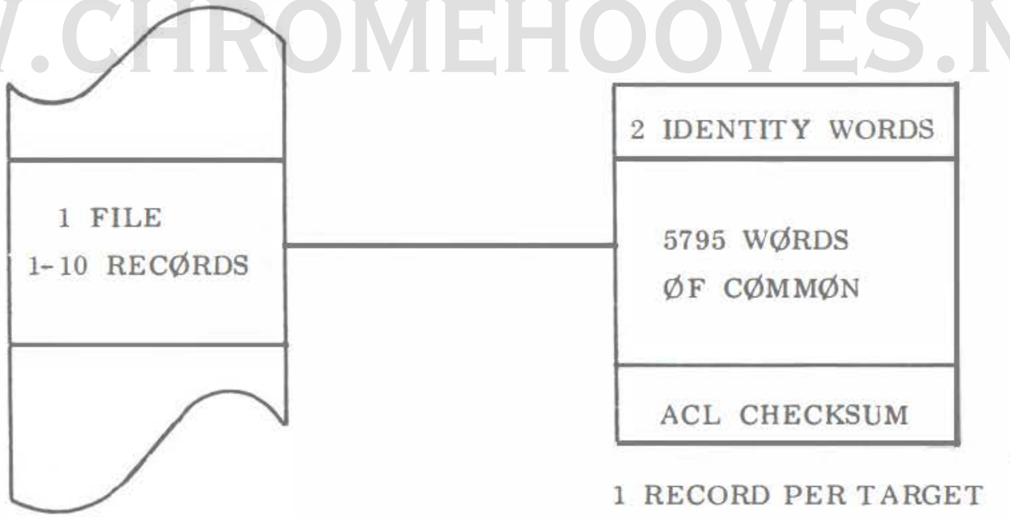

Figure 2-5A. Binary Input Tape Structure

	Word No.	Contents				Type of Data
		Prefix	Address	Tag	Decrement	
Identity Words	1	1	Address of check-sum word	0	Record No.	Fixed Binary
	2	1	0	0	No. of data words	
Data	3-5797	Contents of COMMON locations GTAUC-21 through FKLMD				Floating Binary
Checksum	5798	ACL Checksum				Fixed Binary

Figure 2-5B. Binary Input Tape Record Format