



0075	*					
0076	*	O\$PH	HSP LIST HEADING	4	4	21
0077	*					
0078	*	O\$GHAP	GENERAL HEADING ASR/HSP			
0079	*	O\$ALHB	ASR LIST HEADING BUFFER			
0080	*	O\$PLHB	HSP LIST HEADING BUFFER			
0081	*	O\$ALPB	ASR LIST PAGE NUMBER BUFFER			
0082	*	O\$PLPB	HSP LIST PAGE NUMBER BUFFER			
0083	*	O\$ALPN	ASR LIST PAGE NUMBER			
0084	*	O\$PLPN	HSP LIST PAGE NUMBER			
0085	*	O\$ALLC	ASR LIST LINE COUNT/PAGE			
0086	*	O\$PLLC	HSP LIST LINE COUNT/PAGE			
0087	*	O\$ALLN	ASR LIST LINE NUMBER			
0088	*	O\$PLLN	HSP LIST LINE NUMBER	70	56	22
0089	*					
0090	*	O\$PE	HSP LIST EJECT PAGE	44	36	24
0091	*					
0092	*	O\$PL	HSP LIST	26	22	26
0093	*					
0094	*	O\$PE	HSP LIST EJECT PAGE *	2	2	28
0095	*					
0096	*	O\$PLHB	HSP LIST HEADING BUFFER *			
0097	*	O\$PDHB	HSP DEFAULT HEADING BUFFER *			
0098	*	O\$PLPB	HSP LIST PAGE NUMBER BUFFER *	44		29
0099	*					
0100	*	O\$PLLC	HSP LIST LINE COUNT/PAGE *			
0101	*	O\$PDLC	HSP DEFAULT LINE COUNT/PAGE *			
0102	*	O\$PLLN	HSP LIST LINE NUMBER *			
0103	*	O\$PDLN	HSP DEFAULT LINE NUMBER *	2		31
0104	*					
0105	*	O\$PLPN	HSP LIST PAGE NUMBER *			
0106	*	O\$PDPN	HSP DEFAULT PAGE NUMBER *	2		32
0107	*					
0108	*	O\$PP	HSP PRINT LINE			
0109	*	O\$PPE	HSP PRINT LINE	12	10	33
0110	*					
0111	*	O\$PLL	HSP LIST LINE	24	20	34

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0112	*					
0113	*	O\$PC	HSP OUTPUT CARRIAGE RETURN	10	8	36
0114	*					
0115	*	O\$PF	HSP OUTPUT LINE FEED	6	6	37
0116	*					
0117	*	I\$PA	HSR INPUT SOURCE RECORD			
0118	*	I\$PAE	HSR INPUT SOURCE RECORD	46	38	28
0119	*					
0120	*	O\$PA	HSP OUTPUT SOURCE RECORD			
0121	*	O\$PAE	HSP OUTPUT SOURCE RECORD	30	24	40
0122	*					
0123	*	O\$PS	HSP OUTPUT END OF TEXT			
0124	*	O\$PSS	HSP OUTPUT SOURCE END OF TEXT			
0125	*	O\$PSE	HSP OUTPUT SOURCE END OF TEXT			
0126	*	F\$D2	FORTTRAN WRITE FILE MARK HSP	14	12	42
0127	*					
0128	*	I\$PB	HSR INPUT OBJECT LINK	14	12	43
0129	*					
0130	*	O\$PB	HSP OUTPUT OBJECT LINK	12	10	44
0131	*					
0132	*	O\$PSO	HSP OUTPUT OBJECT END OF TEXT	14	12	45
0133	*					
0134	*	I\$PO	HSR INPUT OBJECT	72	58	46
0135	*					
0136	*	O\$PO	HSP OUTPUT OBJECT	34	28	49
0137	*					
0138	*	O\$PLDR	HSP PUNCH LEADER	12	10	51
0139	*					
0140	*	O\$PKP	HSP OUTPUT CHARACTER WITH PARITY	6	6	52
0141	*					
0142	*	I\$PK	HSR INPUT CHARACTER	6	6	53
0143	*					
0144	*	O\$PK	HSP OUTPUT CHARACTER	6	6	54
0145	*					
0146	*	O\$POFF	HSP OFF	6	6	56
0147	*					
0148	*					

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```
0149 *
0150 * - DEFAULT MODULE
0151 *
0152 * USE
0153 *
0154 * INTERNAL MODULES
0155 *
0156 * NAME CALLING SEQUENCE CALLS ERRORS
0157 *
0158 * FSR2 CALL FSR2 F$IO EF END OF FILE
0159 * DAC FORMAT DESCRIPTOR LIST
0160 * (RETURN)
0161 * I$PO
0162 * I$PA
0163 * F$ER
0164 *
0165 * FSW2 CALL FSW2 F$IO NONE
0166 * DAC FORMAT DESCRIPTOR LIST
0167 * (RETURN)
0168 * C$SW
0169 * O$PO
0170 * O$PKP
0171 * O$PP
0172 * (LINKED WITH F$PL)
0173 *
0174 * F$PL XAC F$PL NONE
0175 * (LINKED WITH FSW2)
0176 *
0177 * F$B1 CALL F$B1 F$ER ID ILLEGAL DEVICE
0178 * (RETURN)
0179 * (SIMILARLY FOR F$F1)
0180 *
0181 * O$PH CALL O$PH O$GHAP NONE
0182 * DAC HEADING BUFFER
0183 * (RETURN)
0184 * O$PE
0185 *
0186 * O$GHAP LDX RETURN ADDRESS NONE
0187 * CALL O$GHAP
0188 * (LINKED WITH O$ALHB, O$PLHB, O$ALPB, O$PLPB, O$ALPN, O$PLPN,
0189 * O$ALLC, O$PLLC, O$ALLN, O$PLLN)
```

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```
0186 *
0187 * O$PLHB XAC O$PLHB NONE
0188 * (SIMILARLY FOR O$ALHB, O$ALPB, O$PLPB, O$ALPN, O$PLPN,
0189 * O$ALLC, O$PLLC, O$ALLN, O$PLLN)
0190 * (ALL LINKED WITH O$GHAP)
0191 *
0192 * O$PE CALL O$PE O$PKP NONE
0193 * (RETURN)
0194 * C$BB
0195 * O$PLPB
0196 * O$PL
0197 * O$PLHB
0198 * O$PLLN
0199 * O$PLLC
0200 * O$PLPN
0201 *
0202 * O$PL CALL O$PL O$PE NONE
0203 * DAC BUFFER ADDRESS
0204 * (RETURN)
0205 * O$PKP
0206 * O$PL
0207 * O$PLLC
0208 * O$PLLN
0209 *
0210 * O$PE CALL O$PE NONE
0211 * (RETURN)
0212 * (DEFAULT MODULE)
0213 *
0214 * O$PLHB XAC O$PLHB NONE
0215 * (O$PDHB IS IDENTICAL TO O$PLHB)
0216 * (SIMILARLY FOR O$PLPB)
0217 * (BOTH LINKED IN ONE DEFAULT MODULE)
0218 *
0219 * O$PLLC XAC O$PLLC NONE
0220 * (SIMILARLY FOR O$PLLN)
0221 * (O$PDLC AND O$PDLN ARE IDENTICAL TO O$PLLC AND O$PLLN
0222 * RESPECTIVELY)
0223 * (BOTH LINKED IN ONE DEFAULT MODULE)
```

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```
0223 * (DEFAULT MODULE)
0224 *
0225 * O$PP CALL O$PP O$PLL NONE
0226 * DAC BUFFER ADDRESS
0227 * (RETURN)
0228 * (IDENTICAL WITH O$PPE)
0229 *
0230 * O$PLL LDX MINUS NO. OF BUFFER WORDS C$SW NONE
0231 * CALL O$PLL O$PKP
0232 * DAC BUFFER ADDRESS
0233 * (RETURN)
0234 *
0235 * O$PC CALL O$PC O$PKP NONE
0236 * (RETURN)
0237 *
0238 * O$PF CALL O$PF O$PK NONE
0239 * (RETURN)
0240 *
0241 * I$PA CALL I$PA C$II PE PARITY ERROR
0242 * DAC BUFFER ADDRESS I$PK
0243 * (END OF TEXT RETURN) C$IP
0244 * (NORMAL RETURN) C$ER
0245 * C$TF
0246 * C$IF
0247 * C$IT
0248 * (IDENTICAL WITH I$PAE)
0249 *
0250 * O$PA CALL O$PA C$OI NONE
0251 * DAC BUFFER ADDRESS C$OP
0252 * (RETURN) O$PK
0253 * C$OE
0254 * (IDENTICAL WITH O$PAE)
0255 *
0256 * O$PS CALL O$PS C$OP NONE
0257 * (RETURN) O$PK
0258 * (IDENTICAL WITH O$PSS, O$PSE AND F$D2)
0259 *
```

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```
0260 * I$PB CALL I$PB I$PO CK CHECKSUM ERROR
0261 * DAC BUFFER ADDRESS C$ER
0262 * (END OF TEXT RETURN)
0263 * (NORMAL RETURN)
0264 *
0265 * O$PB CALL O$PB O$PO NONE
0266 * DAC BUFFER ADDRESS
0267 * (RETURN)
0268 *
0269 * FIRST WORD OF BUFFER MUST
0270 * CONTAIN NUMBER OF DATA WORDS
0271 * FOLLOWING
0272 *
0273 * O$PSO CALL O$PSO O$PK NONE
0274 * (RETURN)
0275 *
0276 * I$PO LDA BUFFER ADDRESS I$PK BL BLOCK LENGTH
0277 * CALL I$PO C$ER ERROR
0278 * (END OF TEXT RETURN) C$IS
0279 * (NORMAL RETURN)
0280 *
0281 * A-REG. ON RETURN:
0282 * ZERO - CHECKSUM AGREEMENT
0283 * NON-ZERO - CHECKSUM DISCREPANCY
0284 *
0285 * O$PO LDA BUFFER ADDRESS O$PK NONE
0286 * LDX MINUS NO. OF DATA WORDS C$SI
0287 * CALL O$PO
0288 * (RETURN)
0289 *
0290 * O$PLDR CALL O$PLDR O$PK NONE
0291 * (RETURN) O$POFF
0292 *
0293 * O$PKP LDA W O$PK NONE
0294 * CALL O$PKP
0295 * (RETURN)
0296 *
```

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0297 * W IS A WORD WHICH INCLUDES THE
0298 * CHARACTER TO BE PUNCHED IN BITS
0299 * 1-8. ON RETURN, W IS PRESERVED
0300 * EXCEPT FOR BITS 1-8 PARITY
0301 * AMENDMENT.
0302 *
0303 * I\$PK CALL I\$PK NONE
0304 * (RETURN)
0305 * CHARACTER IN A-REG. ON RETURN
0306 *
0307 * O\$PK LDA CHARACTER NONE
0308 * CALL O\$PK
0309 * (RETURN)
0310 *
0311 * O\$POFF CALL O\$POFF NONE
0312 * (RETURN)
0313 *
0314 *
0315 * EXTERNAL MODULES
0316 *
0317 * NAME DEFINITION
0318 *
0319 * C\$BB CONVERT BINARY TO BCI
0320 *
0321 * C\$ER CONTROL ERROR ROUTINE
0322 *
0323 * C\$IF CHARACTER INPUT FILL
0324 *
0325 * C\$II CHARACTER INPUT INITIALISE
0326 *
0327 * C\$IP INPUT PARITY
0328 *
0329 * C\$IS CONVERT FROM INVISIBLE TO 6 BIT CODE
0330 *
0331 * C\$IT CHARACTER INPUT TAB
0332 *
0333 * C\$OE CHARACTER OUTPUT EXTRACT

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0334 *
0335 * C\$OI CHARACTER OUTPUT INITIALISE
0336 *
0337 * C\$OP OUTPUT PARITY
0338 *
0339 * C\$SI CONVERT FROM 6 BIT TO INVISIBLE CODE
0340 *
0341 * C\$SW STRIP TRAILING WORDS
0342 *
0343 * C\$TF TEST FRAME
0344 *
0345 * F\$ER FORTRAN ERROR ROUTINE
0346 *
0347 * F\$IO FORTRAN SCANNER AND CONVERSIONS
0348 *
0349 *
0350 * ERRORS
0351 *
0352 * BL BLOCK LENGTH ERROR
0353 * CK CHECKSUM ERROR
0354 * PE PARITY ERROR
0355 *
0356 * THESE ERRORS ARE REPORTED THROUGH C\$ER (CONTROL ERROR
0357 * ROUTINE).
0358 *
0359 * EF END OF FILE ERROR
0360 * ID ILLEGAL DEVICE
0361 *
0362 * THESE ERRORS ARE REPORTED THROUGH F\$ER (FORTRAN ERROR
0363 * ROUTINE).
0364 *
0365 * IF CONTINUATION IS ATTEMPTED AFTER ERRORS BL, CK, PE OR EF,
0366 * THE NEXT RECORD WILL BE PROCESSED. CONTINUATION AFTER ERROR
0367 * ID CAUSES A RETURN TO THE CALLING PROGRAM.
0368 *
0369 *
0370 * METHOD

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0371 *
 0372 *
 0373 * THE MODULES ARE ORDERED SO THAT HIGHER LEVEL MODULES PRECEDE LOWER
 0374 * LEVEL MODULES. HOWEVER, THE HEADING BUFFER (IN OSGHAP) PRECEDES
 0375 * THE PAGE EJECTION MODULE, AND IF THE USER WISHES TO EJECT PAGES
 0376 * WITHOUT INITIALISING A HEADING, A DEFAULT HEADING BUFFER, SET TO
 0377 * SPACES, WILL BE LOADED. LIKEWISE, THE PAGE EJECTION MODULE
 0378 * PRECEDES THE LISTING MODULE, AND IF THE USER WISHES TO LIST LINES
 0379 * WITHOUT EVER INITIALISING A HEADING OR EJECTING A PAGE, A DUMMY
 0380 * PAGE EJECTION MODULE WILL BE LOADED, AND LISTING WILL APPEAR ON
 0381 * CONSECUTIVE LINES WITH NO PAGINATION.
 0382 *
 0383 * IF LISTINGS ARE TO BE OUTPUT SIMULTANEOUSLY TO ASR AND HSP,
 0384 * THE ROUTINE O\$PH MUST NOT BE CALLED TO INITIALISE THE LISTING,
 0385 * AS THIS WILL CAUSE THE OSGHAP MODULE, COMMON TO BOTH ASR AND
 0386 * PUNCH, TO BE LOADED. INSTEAD, IF PAGINATION AND HEADING ARE
 0387 * REQUIRED, THE USER MUST TRANSFER THE HEADING INTO THE DEFAULT
 0388 * HEADING BUFFER AND SET THE LINE AND PAGE NUMBER TO ZERO BEFORE-
 0389 * HAND. THESE LOCATIONS SHOULD BE ADDRESSED BY THEIR DEFAULT
 0390 * NAMES (O\$PDHB, O\$PDLN, O\$PDPN RESPECTIVELY) TO AVOID LOADING THE
 0391 * OSGHAP ROUTINE. THE USER'S PROGRAM SHOULD CONTAIN A CALL ON
 0392 * O\$PE TO ENSURE THAT THE 'LIVE' PAGE EJECTION ROUTINE IS LOADED.
 0393 *
 0394 * THE LIST LINE COUNT/PAGE IS SET INITIALLY TO 72, BUT MAY BE
 0395 * EXTERNALLY REFERENCED FOR MODIFICATION. 15 OF THESE LINES ARE
 0396 * USED FOR THE HEADING AND INTER-PAGE GAP, SO THE STANDARD NUMBER OF
 0397 * LINES PER PAGE AVAILABLE FOR LISTING IS 57.
 0398 *
 0399 * UNDER FORTRAN CONTROL, PAGE LENGTH IS ALSO 72 LINES, SUBJECT TO
 0400 * MODIFICATION UNDER PROGRAM CONTROL.
 0401 *
 0402 * NO REGISTER PRESERVATION IS ATTEMPTED. IT IS ASSUMED THAT THE
 0403 * MODULES C\$IS, C\$OP, C\$SI, I\$PK, O\$PK AND O\$PKP WILL PRESERVE THE
 0404 * CONTENT OF THE X-REGISTER, AND, IN ADDITION, THAT C\$SI WILL
 0405 * PRESERVE THE CONTENT OF THE B-REGISTER.
 0406 * THE FOLLOWING RECORD FORMATS ARE USED AND ASSUMED:
 0407 *
 * SOURCE (EXCEPT FOR LISTING):

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0408 *
 0409 *
 0410 * LF, TEXT, CR, DC3, DEL
 0411 *
 0412 * DC3 AND DEL ARE ESSENTIAL ONLY FOR SUBSEQUENT ASR INPUT.
 0413 *
 0414 * SOURCE (LISTING):
 0415 *
 0416 * CR, LF (ONE OR MORE), TEXT
 0417 *
 0418 * OBJECT:
 0419 *
 0420 * SOH ('201), DATA WORDS (UP TO 60), DC3, DEL
 0421 *
 0422 * THE DATA WORDS ARE IN INVISIBLE FORMAT.
 0423 *
 0424 * END OF TEXT:
 0425 *
 0426 * ETX ('003 OR '203), DC3, DEL
 0427 *
 0428 * PARITY, AS DETERMINED BY THE APPROPRIATE INPUT (C\$IP) AND OUTPUT
 0429 * (C\$OP) PARITY ROUTINES BEING USED, IS ALWAYS ADDED WHEN PUNCHING
 0430 * SOURCE AND ALWAYS CHECKED WHEN READING SOURCE, EXCEPT THAT LEADER
 0431 * IS ALWAYS PUNCHED AS '000 AND THE CHARACTER '000 (BLANK TAPE) IS
 0432 * ACCEPTED BY THE STANDARD FORCED-EIGHT VERSION OF C\$OP AS LEGAL.
 0433 * PARITY IS NEVER ADDED OR CHECKED WHEN HANDLING OBJECT.
 0434 *
 0435 * THE FOLLOWING CHARACTERS RECEIVE SPECIAL TREATMENT ON SOURCE INPUT:
 0436 *
 0437 * NUL ('000 OR '200), LF ('015 OR '215) AND DEL ('177 OR '377) ARE
 0438 * IGNORED.
 0439 *
 0440 * BACKSLASH ('134 OR '334) IS INTERPRETED AS A TAB CHARACTER, AND
 0441 * CAUSES SPACES ('240) TO BE INSERTED INTO THE INPUT BUFFER FROM
 0442 * THE CURRENT CHARACTER POSITION TO THE NEXT CHARACTER POSITION
 0443 * DETERMINED IN THE TAB TABLE (C\$TT). EXCESS TAB CHARACTERS ARE
 0444 * INSERTED AS SINGLE SPACES.

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0445 * BS ('010 OR '310), I.E. CONTROL 'H' CAUSES THE PREVIOUS CHARACTER
0446 * TO BE DELETED.
0447 *
0448 * LEFT ARROW ('137 OR '337) CAUSES THE CURRENT RECORD TO BE DELETED
0449 * IN ITS ENTIRETY AND THE NEXT RECORD TO BE PROCESSED.
0450 *
0451 * DC3 ('023 OR '223) CAUSES ALL CHARACTERS READ SO FAR TO BE
0452 * DELETED.
0453 *
0454 * ETX ('003 OR '203) CAUSES READING TO BE TERMINATED, THE REMAINDER
0455 * OF THE BUFFER TO BE FILLED WITH SPACES, AND THE END OF TEXT
0456 * RETURN TO BE TAKEN.
0457 *
0458 * CR ('015 OR '215) CAUSES READING TO BE TERMINATED, THE REMAINDER
0459 * OF THE BUFFER TO BE FILLED WITH SPACES, AND THE NORMAL RETURN TO
0460 * BE TAKEN, UNLESS LEFT ARROW HAS BEEN READ, IN WHICH CASE THE NEXT
0461 * RECORD IS READ.
0462 *
0463 * NONE OF THESE CONTROL CHARACTERS IS EVER ITSELF INSERTED INTO THE
0464 * BUFFER.
0465 *
0466 * TRAILING SPACES ARE ALWAYS STRIPPED ON SOURCE OUTPUT, WHEN
0467 * OUTPUTTING STANDARD SOURCE RECORDS USING OSPA, TAB CHARACTERS
0468 * (BACKSLASH, '134 OR '334) ARE SUBSTITUTED FOR STRINGS OF SPACES
0469 * WHEREVER POSSIBLE.
0470 *
0471 * THE FOLLOWING CHARACTERS RECEIVE SPECIAL TREATMENT ON OBJECT INPUT:
0472 *
0473 * SOH ('001 OR '201): ANY CHARACTERS READ BEFORE SOH IS ENCOUNTERED
0474 * ARE DISCARDED, WITH THE EXCEPTION OF ETX.
0475 *
0476 * ETX ('003 OR '203), IF READ BEFORE SOH IS FOUND, CAUSES THE
0477 * BUFFER TO BE CLEARED AND THE END OF TEXT RETURN TO BE TAKEN.
0478 *
0479 * DC3 ('223 ONLY) CAUSES THE REMAINDER OF THE BUFFER TO BE CLEARED
0480 * AND THE NORMAL RETURN TAKEN, IF SOH HAS PREVIOUSLY BEEN READ.
0481 *

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0482 *
0483 *****
0484 EJECT

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```
0485      *
0486      *
0487      SUBR  F$R2          FORTRAN READ FROM HSR
0488      *
0489      *
0490      CF5                H316 AND DDP-516
0491      REL                RELOCATABLE
0492      *
0493      *
0494 00000 -0 000000 F$R2 DAC* **      RETURN PARAMETER
0495 00001  0 10 00000 CALL F$10      FORTRAN SCANNER AND CONVERSIONS
0496 00002  0 000000 RETN DAC **      RETURN ADDRESS
0497 00003  0 02 00000 RSTH LDA F$R2  RETURN PARAMETER
0498 00004 140100     SSP              DELETE FLAG
0499 00005  0 04 00000 STA 0          INDEX
0500 00006  1 02 00000 LDA 0.1        GET FORMAT ADDRESS
0501 00007 100040     SZE              TEST FOR NO FORMAT
0502 00010  0 01 00015 JMP FRED       FORMATTED READ
0503      *
0504      * UNFORMATTED READ
0505 00011 -0 02 00002 LDA* RETN      BUFFER
0506 00012  0 10 00000 CALL I$PO     HSR INPUT OBJECT
0507 00013  0 01 00024 JMP ERR       ERROR - ETX READ
0508 00014  0 01 00022 JMP EXIT      EXIT
0509      *
0510      * FORMATTED READ
0511 00015 -0 02 00002 FRED LDA* RETN  BUFFER ADDRESS
0512 00016  0 04 00020 STA BUFF      STORE INTO CALL SEQUENCE
0513 00017  0 10 00000 CALL I$PA     HSP INPUT SOURCE RECORD
0514 00020  0 000000 BUFF DAC **      BUFFER ADDRESS
0515 00021  0 01 00024 JMP ERR       ERROR - ETX READ
0516      *
0517 00022  0 12 00002 EXIT IRS RETN   TALLY RETURN ADDRESS
0518 00023 -0 01 00002 JMP* RETN      RETURN TO F$10
0519      *
0520      * END OF FILE ERROR
```

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```
0521 00024  0 10 00000 ERR CALL F$ER  FORTRAN ERROR ROUTINE
0522 00025  0 000027   DAC MESS       ERROR MESSAGE ADDRESS
0523 00026  0 01 00003   JMP RSTR      RESTART
0524      *
0525      *
0526      * ERROR MNEMONIC
0527      *
0528 00027 142706   MESS BCI 1,EF      END OF FILE MESSAGE
0529      *
0530      *
0531      * END
NO ERRORS IN ABOVE ASSEMBLY.          END OF F$R2 07.MAY.70 G.S.LITTLE
$DA 41285326-002-02
```

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```
0001 *
0002 *
0003 SUBR F$W2 FORTRAN OUTPUT ON HSP
0004 SUBR F$PL FORTRAN HSP LINES/PAGE
0005 *
0006 *
0007 CF5 H316 AND DDP-516
0008 REL RELOCATABLE
0009 *
0010 *
0011 * FORTRAN OUTPUT ON HSP
0012 *
0013 00000 0 000000 F$W2 DAC ** RETURN PARAMETER
0014 00001 0 10 00000 CALL F$IO FORTRAN SCANNER AND CONVERSIONS
0015 00002 0 000000 RETN DAC ** RETURN FROM F$IO
0016 00003 -0 02 00002 LDA* RETN GET BUFFER ADDRESS
0017 00004 0 04 00047 STA BUFF STORE IN CALLING SEQUENCE FOR O$PP
0018 00005 0 04 00014 STA UNBF STORE IN CALLING SEQUENCE FOR C$SW
0019 00006 -0 02 00000 LDA* F$W2 GET FORMAT ADDRESS
0020 00007 100040 SZE TEST FOR NO FORMAT
0021 00010 0 01 00020 JMP FWRT NON-ZERO - FORMATTED WRITE
0022 *
0023 * UNFORMATTED WRITE
0024 00011 0 35 00072 LDX ==-60 NUMBER OF WORDS
0025 00012 140040 CRA ZERO WORDS TO BE STRIPPED
0026 00013 0 10 00000 CALL C$SW STRIP TRAILING WORDS
0027 00014 0 000000 UNBF DAC ** BUFFER ADDRESS
0028 00015 0 02 00014 LDA UNBF BUFFER ADDRESS
0029 00016 0 10 00000 CALL O$PO HSP OUTPUT OBJECT
0030 00017 0 01 00050 JMP EXIT EXIT
0031 *
0032 * FORMATTED WRITE
0033 00020 0 02 00066 FWRT LDA CRDL CR/DEL
0034 00021 0 10 00000 CALL O$PKP HSP OUTPUT CHARACTER WITH PARITY
0035 00022 141340 ICA GET DEL
0036 00023 0 10 00000 CALL O$PKP HSP OUTPUT CHARACTER WITH PARITY
```

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```
0037 00024 -0 02 00002 LDA* RETN BUFFER ADDRESS
0038 00025 0 04 00047 STA BUFF STORE IN CALLING SEQUENCE
0039 00026 -0 02 00047 LDA* BUFF GET FIRST WORD OF BUFFER
0040 00027 141050 CAL
0041 00030 0 06 00071 ADD ='120000 CHANGE FIRST CHARACTER TO SPACE
0042 00031 -0 13 00047 IMA* BUFF EXCHANGE
0043 00032 141340 ICA
0044 00033 100100 SLZ TEST FIRST CHARACTER
0045 00034 0 01 00052 JMP PLON PLUS OR ONE
0046 *
0047 00035 0 35 00070 LDX ==-2 ZERO OR SPACE - LINE FEEDS REQUIRED
0048 00036 0404 74 LGR 4
0049 00037 101100 SLN TEST FOR ZERO
0050 00040 0 12 00000 IRS 0 SPACE - ONLY ONE LINE FEED
0051 *
0052 00041 0 02 00067 FEED LDA LF LINE FEED
0053 00042 0 10 00000 CALL O$PKP HSP OUTPUT CHARACTER WITH PARITY
0054 00043 0 12 00065 IRS LCNT TALLY LINE COUNT
0055 00044 0 12 00000 IRS 0 TEST LINES FED
0056 00045 0 01 00041 JMP FEED REPEAT
0057 *
0058 00046 0 10 00000 PREC CALL O$PP HSP PRINT LINE
0059 00047 0 000000 BUFF DAC ** BUFFER ADDRESS
0060 *
0061 00050 0 12 00002 EXIT IRS RETN TALLY RETURN ADDRESS
0062 00051 -0 01 00002 JMP* RETN RETURN TO F$IO
0063 *
0064 00052 0404 77 PLON LGR 1
0065 00053 100100 SLZ TEST FOR ONE
0066 00054 0 01 00046 JMP PREC PLUS - NO LINE FEED - PUNCH RECORD
0067 *
0068 00055 0 02 00065 LDA LCNT LINE COUNT
0069 00056 0 04 00065 LOOP STA LCNT
0070 00057 0 07 00064 SUB F$PL COMPUTE NUMBER OF LINES TO NEXT TOP OF FORM
0071 00060 101400 SMI
0072 00061 0 01 00056 JMP LOOP
0073 00062 0 04 00000 STA 0 STORE COUNT IN INDEX
```

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```
0074 00063 0 01 00041 JMP FEED GO FEED LINES
0075 *
0076 *
0077 * CONSTANTS AND VARIABLES
0078 *
0079 00064 000110 FSPL DEC 72 FORTRAN HSP LINES/PAGE
0080 *
0081 *
0082 00065 000000 LCNT BSZ 1 LINE COUNT
0083 00066 106777 CRDL OCT 106777 CR/DEL
0084 00067 105000 LF OCT 105000 LINE FEED
0085 00070 177776 FIN LITERALS
      00071 120000
      00072 177704

0086 *
0087 *
0088 * END
NO ERRORS IN ABOVE ASSEMBLY. END OF F$W2 06.MAY.70 G.S.LITTLE
$DA 41285326-002-02
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

PAGE 20

```
0001 *
0002 *
0003 SUBR F$B2 FORTRAN REWIND HSR/HSP
0004 SUBR F$F2,F$B2 FORTRAN BACKSPACE HSR/HSP
0005 *
0006 *
0007 CF5 H316 AND DDP-516
0008 REL RELOCATABLE
0009 *
0010 *
0011 00000 0 000000 F$B2 DAC ** FORTRAN REWIND/BACKSPACE HSR/HSP
0012 00001 0 10 00000 CALL F$ER FORTRAN ERROR ROUTINE
0013 00002 0 000004 DAC =AID ILLEGAL DEVICE ERROR MESSAGE
0014 00003 -0 01 00000 JMP* F$B2 RETURN
0015 *
0016 *
0017 * LITERALS
0018 *
0019 00004 144704 FIN LITERALS

0020 *
0021 *
0022 * END
NO ERRORS IN ABOVE ASSEMBLY. END OF F$B2 23.MAY.70 G.S.LITTLE
$DA 41285326-002-02
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

PAGE 21

```
0001      *
0002      *
0003      SUBR  O$PH          HSP LIST HEADING
0004      *
0005      *
0006      CF5
0007      REL                H316 AND DDP-516
0008                        RELOCATABLE
0009      *
0010 00000 0 000000 O$PH DAC **      HSP LIST HEADING
0011 00001 0 35 00000 LDX O$PH      RETURN ADDRESS TO INDEX
0012 00002 0 10 00000 CALL O$GHAP   GENERAL HEADING ASR/HSP
0013      *
0014      * HSP LIST EJECT PAGE
0015 00003 0 000000 XAC O$PE        TO ENSURE NON-DEFAULT O$PE IS LOADED
0016      *
0017      *
0018      EVD                    END OF O$PH 10.JUN.70 G.S.LITTLE
NO ERRORS IN ABOVE ASSEMBLY.
$DA 41285326-002-02
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

PAGE 22

```
0001      *
0002      *
0003      SUBR  O$GHAP,O$PH      GENERAL HEADING ASR/HSP
0004      SUBR  O$ALHB,HEAD      ASR LIST HEADING BUFFER
0005      SUBR  O$PLHB,HEAD      HSP LIST HEADING BUFFER
0006      SUBR  O$ALPB,PBUF      ASR LIST PAGE NUMBER BUFFER
0007      SUBR  O$PLPB,PBUF      HSP LIST PAGE NUMBER BUFFER
0008      SUBR  O$ALPN,PAGE      ASR LIST PAGE NUMBER
0009      SUBR  O$PLPN,PAGE      HSP LIST PAGE NUMBER
0010      SUBR  O$ALLC,LCNT      ASR LIST LINE COUNT/PAGE
0011      SUBR  O$PLLC,LCNT      HSP LIST LINE COUNT/PAGE
0012      SUBR  O$ALLN,LINE      ASR LIST LINE NUMBER
0013      SUBR  O$PLLN,LINE      HSP LIST LINE NUMBER
0014      *
0015      *
0016      CF5
0017      REL                H316 AND DDP-516
0018                        RELOCATABLE
0019      *
0020      * LIST HEADING
0021      *
0022 00000 0 000000 O$PH DAC **      RETURN ADDRESS
0023 00001 0 15 00000 STX O$PH      STORE RETURN ADDRESS
0024 00002 -0 02 00000 LDA* O$PH    GET HEADING ADDRESS
0025 00003 0 12 00000 IRS O$PH      TALLY RETURN ADDRESS
0026 00004 0 04 00063 STA PAGE      LIST PAGE NUMBER
0027 00005 0 35 00066 LDX =-28      SET INDEX
0028 00006 -0 02 00063 LOOP LDA* PAGE
0029 00007 1 04 00053 STA HEAD+28,1  PAGE
0030 00010 0 12 00063 IRS PAGE      LIST HEADING BUFFER
0031 00011 0 12 00000 IRS 0          LIST PAGE NUMBER
0032 00012 0 01 00006 JMP LOOP     INDEX
0033 00013 0 15 00063 STX PAGE      LOOP
0034 00014 0 02 00064 LDA LCNT       PAGE
0035 00015 0 04 00065 STA LINE      LIST LINE COUNT/PAGE
0036 00016 -0 01 00000 JMP* O$PH   LIST LINE NUMBER
                                RETURN
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

PAGE 23

```
0037 *
0038 *
0039 * CONSTANTS AND VARIABLES
0040 *
0041 * LIST HEADING BUFFER
0042 00017 HEAD BSS 28 LIST HEADING BUFFER
0043 00053 120320 BCI 5, PAGE
      00054 140707
      00055 142640
      00056 120240
      00057 120240
0044 *
0045 * LIST PAGE NUMBER BUFFER
0046 00060 120240 PBUF BCI 3, LIST PAGE NUMBER BUFFER
      00061 120240
      00062 120240
0047 *
0048 * LIST PAGE NUMBER
0049 00063 000000 PAGE BSZ 1 LIST PAGE NUMBER
0050 *
0051 * LIST LINE COUNT/PAGE
0052 00064 000110 LCNT DEC 72 LIST LINE COUNT/PAGE
0053 *
0054 * LIST LINE NUMBER
0055 00065 000000 LINE BSZ 1 LIST LINE NUMBER
0056 *
0057 * LITERALS
0058 00066 177744 FIN LITERALS
0059 *
0060 *
0061 * END
NO ERRORS IN ABOVE ASSEMBLY. END OF O$GHAP 24.JUN.70 G.S.LITTLE
$DA 41285326-002-02
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

PAGE 24

```
0001 *
0002 *
0003 * SJBR O$PE HSP LIST EJECT PAGE
0004 *
0005 *
0006 * CF5 H316 AND DDP-516
0007 * REL RELOCATABLE
0008 *
0009 *
0010 00000 0 000000 O$PE DAC ** RETURN ADDRESS
0011 00001 -0 02 00035 LDA* LLN LINE NUMBER
0012 00002 0 07 00036 L1 SUB* LLC LINE COUNT/PAGE
0013 00003 100040 SZE
0014 00004 100400 SPL
0015 00005 100000 SKP
0016 00006 0 01 00002 JMP L1
0017 00007 0 07 00043 SUB =13
0018 00010 0 04 00000 STA 0
0019 00011 0 02 00042 LDA =15
0020 00012 -0 04 00035 STA* LLN
0021 00013 0 02 00040 LDA LFCR
0022 00014 141340 ICA
0023 00015 0 10 00000 CALL O$PKP
0024 00016 141340 ICA
0025 00017 0 10 00000 PULF CALL O$PKP
0026 00020 0 12 00000 IRS 0
0027 00021 0 01 00017 JMP PULF
0028 00022 -0 12 00037 IRS* LPN
0029 00023 -0 02 00037 LDA* LPN
0030 00024 0 10 00000 CALL C$BB
0031 00025 0 000000 XAC O$PLPB
0032 00026 0 35 00041 LDH =-36
0033 00027 0 10 00000 CALL O$PLL
0034 00030 0 000000 XAC O$PLHB
0035 00031 0 02 00040 LDA LFCR
0036 00032 0 10 00000 CALL O$PKP

FIND NO. OF LINES TO NEXT HEAD OF FORM
NO. OF BLANK LINES BETWEEN PAGES
INDEX
RESET LIST LINE NUMBER
LF/CR
GET CR
HSP OUTPUT CHARACTER WITH PARITY
GET LF
HSP OUTPUT CHARACTER WITH PARITY
TALLY AND TEST INDEX REGISTER
REPEAT
TALLY PAGE NUMBER
CONVERT PAGE NUMBER TO BCI
IN PAGE NUMBER BUFFER
HEADING BUFFER IS 36 WORDS
HSP LIST LINE
IN HEADING BUFFER
LF/CR
HSP OUTPUT CHARACTER WITH PARITY
```

Form 4536



```
0037 00033 0 10 00000 CALL 0$PKP AND ANOTHER
0038 00034 -0 01 00000 JMP* 0$PE RETURN
0039 *
0040 *
0041 * CONSTANTS AND VARIABLES
0042 *
0043 00035 0 000000 LLN XAC 0$PLLN HSP LIST LINE NUMBER
0044 00036 0 000000 LLC XAC 0$PLLC HSP LIST LINE COUNT/PAGE
0045 00037 0 000000 LPN XAC 0$PLPN HSP LIST PAGE NUMBER
0046 *
0047 00040 105215 LFCR OCT 105215 LF/CR
0048 *
0049 * LITERALS
0050 00041 177734 FIN LITERALS
      00042 000017
      00043 000015

0051 *
0052 *
0053 * END
NO ERRORS IN ABOVE ASSEMBLY. END OF 0$PE 20.MAY.70 G.S.LITTLE
$DA 41285326-002-02
```

Form 4536



```
0001 *
0002 *
0003 * SUBR 0$PL HSP LIST
0004 *
0005 *
0006 * CF5 H316 AND DDP-516
0007 * REL RELOCATABLE
0008 *
0009 *
0010 00000 0 000000 0$PL DAC ** RETURN ADDRESS
0011 00001 -0 02 00023 LDA* LLN COMPARE LINE NUMBER
0012 00002 -0 11 00022 CAS* LLC WITH LINE COUNT/PAGE
0013 00003 101000 NOP
0014 00004 0 10 00000 CALL 0$PE HSP LIST EJECT PAGE
0015 00005 -0 12 00023 IRS* LLN TALLY LINE NUMBER
0016 00006 0 02 00021 LDA CRLF CR/LF
0017 00007 0 10 00000 CALL 0$PKP HSP OUTPUT CHARACTER WITH PARITY
0018 00010 141340 ICA GET LF
0019 00011 0 10 00000 CALL 0$PKP HSP OUTPUT CHARACTER WITH PARITY
0020 00012 -0 02 00000 LDA* 0$PL GET BUFFER ADDRESS
0021 00013 0 12 00000 IRS 0$PL TALLY RETURN ADDRESS
0022 00014 0 04 00017 STA BUFF STORE IN CALLING SEQUENCE
0023 00015 0 35 00024 LDX =-36 BUFFER LENGTH
0024 00016 0 10 00000 CALL 0$PLL HSP LIST LINE
0025 00017 0 000000 BUFF DAC ** BUFFER ADDRESS
0026 00020 -0 01 00000 JMP* 0$PL RETURN
0027 *
0028 *
0029 * CONSTANTS AND VARIABLES
0030 *
0031 00021 106612 CRLF OCT 106612 CR/LF
0032 *
0033 * LINE COUNT/PAGE
0034 00022 0 000000 LLC XAC 0$PLLC HSP LIST LINE COUNT/PAGE
0035 *
0036 * LINE NUMBER
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

PAGE 27

```
0037 00023 0 000000 LLN XAC 0$PLLN HSP LIST LINE NUMBER
0038 *
0039 * LITERALS
0040 00024 177734 FIN LITERALS
0041 *
0042 *
0043 END END OF 0$PL 21.MAY.70 G.S.LITTLE
NO ERRORS IN ABOVE ASSEMBLY.
$DA 41285326-002-02
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

PAGE 28

```
0001 *
0002 *
0003 SUBR 0$PE HSP LIST EJECT PAGE
0004 *
0005 *
0006 CF5 H316 AND DDP-516
0007 REL RELOCATABLE
0008 *
0009 *
0010 00000 0 000000 0$PE DAC ** HSP LIST EJECT PAGE
0011 00001 -0 01 00000 JMP* 0$PE RETURN
0012 *
0013 *
0014 END END OF 0$PE 21.MAY.70 G.S.LITTLE
NO ERRORS IN ABOVE ASSEMBLY.
$DA 41285326-002-02
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

PAGE 29

```
0001
0002
0003
0004
0005
0006
0007
0008
0009
0010
0011
0012
0013
0014 00000 120240
      00001 120240
      00002 120240
      00003 120240
      00004 120240
      00005 120240
      00006 120240
      00007 120240
      00010 120240
      00011 120240
      00012 120240
      00013 120240
      00014 120240
      00015 120240
      00016 120240
      00017 120240
      00020 120240
      00021 120240
      00022 120240
      00023 120240
      00024 120240
      00025 120240
      00026 120240

      *
      *
      SUBR 0$PLHB,HEAD      HSP LIST HEADING BUFFER
      SUBR 0$PDHB,HEAD      HSP DEFAULT HEADING BUFFER
      SUBR 0$PLPB,PAGE      HSP LIST PAGE NUMBER BUFFER
      *
      *
      CF5
      REL
      H316 AND DDP-516
      RELOCATABLE
      *
      * HSP LIST HEADING BUFFER
      *
      HEAD BCI 28,
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

PAGE 30

```
00027 120240
00030 120240
00031 120240
00032 120240
00033 120240
0015 00034 150301      BCI 5,PAGE
      00035 143705
      00036 120240
      00037 120240
      00040 120240

0016
0017
0018
0019
0020 00041 120240
      00042 120240
      00043 120240

0021
0022
0023
      *
      *
      * HSP LIST PAGE NUMBER BUFFER
      *
      PAGE BCI 3,

      *
      *
      END
      END OF 0$PLHB 10.JUN.70 G.S.LITTLE
NO ERRORS IN ABOVE ASSEMBLY.
$DA 41285326-002-02
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

PAGE 31

```
0001      *
0002      *
0003      SJBR 0$PLLC,LLC      HSP LIST LINE COUNT/PAGE
0004      SUBR 0$PDLC,LLC      HSP DEFAULT LINE COUNT/PAGE
0005      SJBR 0$PLLN,LLN      HSP LIST LINE NUMBER
0006      SUBR 0$PDLN,LLN      HSP DEFAULT LINE NUMBER
0007      *
0008      *
0009      CF5                  H316 AND DDP-516
0010      REL                  RELOCATABLE
0011      *
0012      *
0013      * HSP LIST LINE COUNT/PAGE
0014      *
0015 00000 000110  LLC DEC 72      HSP LIST LINE COUNT/PAGE
0016      *
0017      *
0018      * HSP LIST LINE NUMBER
0019      *
0020 00001 000110  LLN DEC 72      HSP LIST LINE NUMBER
0021      *
0022      *
0023      END                  END OF 0$PLLC 21.MAY.70 G.S.LITTLE
NO ERRORS IN ABOVE ASSEMBLY.
$DA 41285326-002-02
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

PAGE 32

```
0001      *
0002      *
0003      SJBR 0$PLPN,PGNO      HSP LIST PAGE NUMBER
0004      SUBR 0$PDPN,PGNO      HSP DEFAULT PAGE NUMBER
0005      *
0006      *
0007      CF5                  H316 AND DDP-516
0008      REL                  RELOCATABLE
0009      *
0010      *
0011 00000 000000  PGNO BSZ 1      HSP LIST PAGE NUMBER
0012      *
0013      *
0014      END                  END OF 0$PLPN 10.JUN.70 G.S.LITTLE
NO ERRORS IN ABOVE ASSEMBLY.
$DA 41285326-002-02
```

Form 4536



```
0001      *
0002      *
0003      SUBR  O$PP      HSP PRINT LINE
0004      SUBR  O$PPE     HSP PRINT LINE
0005      *
0006      *
0007      CF5           H316 AND DDP-516
0008      REL           RELOCATABLE
0009      *
0010      *
0011 00000  0 000000  O$PP DAC  **      HSP PRINT LINE
0012 00001 -0 02 00000 LDA* O$PP      GET BUFFER ADDRESS
0013 00002  0 12 00000 IRS  O$PP      TALLY RETURN ADDRESS
0014 00003  0 04 00006 STA  BUFF      STORE IN CALLING SEQUENCE FOR O$PLL
0015 00004  0 35 00010 LDX  =-60      BUFFER LENGTH
0016 00005  0 10 00000 CALL O$PLL     HSP LIST LINE
0017 00006  0 000000  BUFF DAC  **      BUFFER ADDRESS
0018 00007 -0 01 00000 JMP* O$PP      RETURN
0019      *
0020      *
0021      * LITERALS
0022      *
0023 00010  177704      FIN           LITERALS

0024      *
0025      *
0026      END
NO ERRORS IN ABOVE ASSEMBLY.
$DA 41285326-002-02
```

Form 4536



```
0001      *
0002      *
0003      SUBR  O$PLL,PLL HSP LIST LINE
0004      *
0005      *
0006      CF5           H316 AND DDP-516
0007      REL           RELOCATABLE
0008      *
0009      *
0010 00000  0 000000  PLL  DAC  **      HSP LIST LINE
0011 00001 -0 02 00000 LDA* PLL      GET BUFFER ADDRESS
0012 00002  0 12 00000 IRS  PLL      TALLY RETURN ADDRESS
0013 00003  0 04 00006 STA  BUFF      STORE IN CALLING SEQUENCE FOR C$SW
0014 00004  0 02 00022 LDA  =A      SPACES
0015 00005  0 10 00000 CALL C$SW     STRIP TRAILING WORDS
0016 00006  0 000000  BUFF DAC  **      BUFFER ADDRESS
0017 00007  0 02 00000 LDA  0      INDEX
0018 00010  101040     SNZ           SKIP UNLESS LINE EMPTY
0019 00011 -0 01 00000 JMP* PLL     RETURN
0020      *
0021 00012 -0 02 00006 OUTP LDA* BUFF  GET NEXT WORD
0022 00013  0 12 00006 IRS  BUFF      TALLY POINTER
0023 00014  0 10 00000 CALL O$PKP    HSP OUTPUT CHARACTER WITH PARITY
0024 00015  141340     ICA           HSP OUTPUT CHARACTER WITH PARITY
0025 00016  0 10 00000 CALL O$PKP    TALLY AND TEST INDEX REGISTER
0026 00017  0 12 00000 IRS  0      REPEAT
0027 00020  0 01 00012 JMP  OUTP
0028 00021 -0 01 00000 JMP* PLL  RETURN
0029      *
0030      *
0031      * LITERALS
0032      *
0033 00022  120240      FIN           LITERALS

0034      *
0035      *
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

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0036
NO ERRORS IN ABOVE ASSEMBLY.
\$DA 41285326-002-02

END OF OSPLL 21.MAY.70 G.S.LITTLE

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

PAGE 36

```

0001          *
0002          *
0003          SUBR  0$PC          HSP OUTPUT CARRIAGE RETURN
0004          *
0005          *
0006          CF5                H316 AND DDP-516
0007          REL                RELOCATABLE
0008          *
0009          *
0010 00000  0 000000 0$PC DAC   **          RETURN ADDRESS
0011 00001  0 02 00006 LDA   CRDL          CR/DEL
0012 00002  0 10 00000 CALL  0$PKP        HSP OUTPUT CHARACTER WITH PARITY
0013 00003  141340  ICA                GET DEL
0014 00004  0 10 00000 CALL  0$PKP        HSP OUTPUT CHARACTER WITH PARITY
0015 00005  -0 01 00000 JMP*  0$PC        RETURN
0016          *
0017          *
0018          *  CONSTANTS
0019          *
0020 00006  106777  CRDL  OCT   106777    CR/DEL
0021          *
0022          *
0023          *  END
NO ERRORS IN ABOVE ASSEMBLY.          END OF 0$PC 06.MAY.70 G.S.LITTLE
$DA 41285326-002-02

```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

PAGE 37

```
0001      *
0002      *
0003      SUBR  O$PF          HSP OUTPUT LINE FEED
0004      *
0005      *
0006      CF5                H316 AND DDP-516
0007      REL                RELOCATABLE
0008      *
0009      *
0010 00000 0 000000 O$PF DAC **      RETURN ADDRESS
0011 00001 0 02 00005 LDA LF        LINE FEED
0012 00002 0 10 00000 CALL C$OP     OUTPUT PARITY
0013 00003 0 10 00000 CALL O$PK     HSP OUTPUT CHARACTER
0014 00004 -0 01 00000 JMP* O$PF    RETURN
0015      *
0016      * LINE FEED
0017 00005 000212 LF OCT 212
0018      *
0019      *
0020      EVD                END OF O$PF 06.MAY.70 G.S.LITTLE
NO ERRORS IN ABOVE ASSEMBLY.
$DA 41285326-002-02
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

PAGE 38

```
0001      *
0002      *
0003      SUBR  I$PA          HSR INPUT SOURCE RECORD
0004      SUBR  I$PAE         HSR INPUT SOURCE RECORD
0005      *
0006      *
0007      CF5                H316 AND DDP-516
0008      REL                RELOCATABLE
0009      *
0010      *
0011 00000 0 000000 I$PA DAC **      HSR INPUT SOURCE RECORD
0012 00001 -0 02 00000 RSTR LDA* I$PA BUFFER ADDRESS
0013 00002 0 10 00000 CALL C$II     CHARACTER INPUT INITIALISE
0014 00003 0 10 00000 NEXT CALL I$PK HSR INPUT CHARACTER
0015 00004 0 10 00000 CALL C$IP     INPUT PARITY
0016 00005 0 01 00011 JMP CONT     CONTINUE
0017 00006 0 10 00000 PERR CALL C$ER CONTROL ERROR ROUTINE
0018 00007 150305 BCI 1,PE         PARITY ERROR
0019 00010 0 01 00001 JMP RSTR     RESTART
0020      *
0021 00011 0 10 00000 CONT CALL C$TF TEST FRAME
0022 00012 0 01 00003 JMP NEXT     NUL - IGNORE
0023 00013 0 01 00023 JMP FILL     SOH
0024 00014 0 01 00037 JMP END      ETX - END OF RECORD
0025 00015 0 01 00003 JMP NEXT     LF - IGNORE
0026 00016 0 01 00036 JMP EREC     CR - END OF RECORD
0027 00017 0 01 00001 JMP RSTR     DC3 - RESTART
0028 00020 0 01 00034 JMP TAB      TAB
0029 00021 0 01 00026 JMP DELT     LEFT ARROW - DELETE LINE
0030 00022 0 01 00003 JMP NEXT     DEL - IGNORE
0031 00023      BSS 0             OTHER CHARS
0032      *
0033 00023 0 10 00000 FILL CALL C$IF CHARACTER INPUT FILL
0034 00024 101000 NOP
0035 00025 0 01 00003 JMP NEXT     READ NEXT CHAR
0036      *
```

Form 4536



* 0071-001-H001 (HSPR-10L) DRAWING NO. 41286165-001-01

PAGE 39

```
0037 00026 0 10 00000 DELT CALL I$PK      HSR INPUT CHARACTER
0038 00027 0414 67      LGL 9             DISCARD PARITY BIT
0039 00030 0 11 00045    CAS ='15000      TEST FOR CR
0040 00031 100000      SKP
0041 00032 0 01 00001    JMP RSTR         RESTART
0042 00033 0 01 00026    JMP DELT
0043
0044 00034 0 10 00000 TAB CALL C$IT       CHARACTER INPUT TAB
0045 00035 0 01 00003    JMP NEXT        READ NEXT CHAR
0046
0047 00036 0 12 00000 EREC IRS I$PA      TALLY RETURN ADDRESS
0048
0049 00037 0 12 00000 END IRS I$PA      TALLY RETURN ADDRESS
0050 00040 0 02 00044 COUT LDA ='240     SPACE
0051 00041 0 10 00000    CALL C$IF      CHARACTER INPUT FILL
0052 00042 0 01 00040    JMP COUT       CLOSEOUT BUFFER
0053 00043 -0 01 00000    JMP* I$PA     RETURN
0054
0055
0056      * LITERALS
0057
0058 00044 000240      FIN
00045 015000          LITERALS

0059
0060
0061      * END
NO ERRORS IN ABOVE ASSEMBLY.      END OF I$PA 09.JUN.70 G.S.LITTLE
$DA 41285326-002-02
```

Form 4536



* 0071-001-H001 (HSPR-10L) DRAWING NO. 41286165-001-01

PAGE 40

```
0001
0002
0003      * SUBR O$PA      HSP OUTPUT SOURCE RECORD
0004      SUBR O$PAE      HSP OUTPUT SOURCE RECORD
0005
0006      *
0007      CF5            H316 AND DDP-516
0008      REL            RELOCATABLE
0009
0010      *
0011 00000 0 000000 O$PA DAC **          HSP OUTPUT SOURCE RECORD
0012 00001 -0 02 00000 LDA* O$PA      GET BUFFER ADDRESS
0013 00002 0 12 00000 IRS O$PA      TALLY RETURN ADDRESS
0014 00003 0414 77      LGL 1
0015 00004 0 04 00012 STA BUFF        STORE IN CALLING SEQUENCE FOR C$OE
0016 00005 0 10 00000 CALL C$OI      CHARACTER OUTPUT INITIALISE
0017 00006 0 02 00027 LDA ='212      LF
0018 00007 0 10 00000 NEXT CALL C$OP  OUTPUT PARITY
0019 00010 0 10 00000 CALL O$PK      HSP OUTPUT CHARACTER
0020 00011 0 10 00000 CALL C$OE      CHARACTER OUTPUT EXTRACT
0021 00012 0 000000 BUFF DAC **        BUFFER ADDRESS
0022 00013 0 01 00007 JMP NEXT       NEXT CHARACTER
0023 00014 0 35 00026 LDX =-3         END CHARACTER COUNT
0024 00015 1 02 00026 LOOP LDA ECHR+3,1 END CHARACTERS
0025 00016 0 10 00000 CALL C$OP      OUTPUT PARITY
0026 00017 0 10 00000 CALL O$PK      HSP OUTPUT CHARACTER
0027 00020 0 12 00000 IRS 0          TALLY AND TEST INDEX REGISTER
0028 00021 0 01 00015 JMP LOOP       REPEAT
0029 00022 -0 01 00000 JMP* O$PA    RETURN
0030
0031
0032      *
0033      * CONSTANTS AND VARIABLES
0034 00023 000215 ECHR OCT 215          END CHARACTERS - CR
0035 00024 000223 OCT 223            DC3
0036 00025 000377 OCT 377            DEL
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

PAGE 41

```
0037
0038 00026 177775 * FIN
00027 000212 LITERALS

0039
0040 *
0041 * END
NO ERRORS IN ABOVE ASSEMBLY. END OF O$PA 09.JUN.70 G.S.LITTLE
$DA 41285326-002-02
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

PAGE 42

```
0001
0002 *
0003 *
0004 SUBR O$PS HSP OUTPUT END OF TEXT
0005 SUBR O$PSS HSP OUTPUT SOURCE END OF TEXT
0006 SUBR O$PSE HSP OUTPUT SOURCE END OF TEXT
0007 SUBR F$D2,O$PS FORTRAN WRITE FILE MARK HSP
0008 *
0009 *
0010 CF5 H316 AND DDP-516
0011 REL RELOCATABLE
0012 *
0013 00000 0 000000 O$PS DAC ** RETURN ADDRESS
0014 00001 0 35 00013 LDX =-3 COUNT
0015 00002 1 02 00013 LOOP LDA ECHR+3,1 END CHARACTERS
0016 00003 0 10 00000 CALL C$OP OUTPUT PARITY
0017 00004 0 10 00000 CALL O$PK HSP OUTPUT CHARACTER
0018 00005 0 12 00000 IRS 0 TEST
0019 00006 0 01 00002 JMP LOOP GO OUTPUT NEXT CHARACTER
0020 00007 -0 01 00000 JMP* O$PS RETURN
0021 *
0022 *
0023 * CONSTANTS AND VARIABLES
0024 *
0025 00010 000203 ECHR OCT 203 END CHARACTERS (ETX)
0026 00011 000223 OCT 223 (DC3)
0027 00012 000377 OCT 377 (DEL)
0028 *
0029 00013 177775 * FIN LITERALS

0030
0031 *
0032 * END
NO ERRORS IN ABOVE ASSEMBLY. END OF O$PS 05.MAY.70 G.S.LITTLE
$DA 41285326-002-02
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

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```
0001      *
0002      *
0003      SUBR  ISP8      HSR INPUT OBJECT LINK
0004      *
0005      *
0006      CF5
0007      REL      H316 AND DDP-516
0008      RELOCATABLE
0009      *
0010 00000 0 000000 ISP8 DAC **
0011 00001 -0 02 00000 RSTR LDA* ISP8      RETURN ADDRESS
0012 00002 0 10 00000 CALL ISP0      BUFFER ADDRESS
0013 00003 0 01 00007 JMP FILE      HSR INPUT OBJECT
0014 00004 100040      SZE      FILE
0015 00005 0 01 00011 JMP CERR      TEST CHECKSUM
0016 00006 0 12 00000 IRS ISP8      CHECKSUM ERROR
0017 00007 0 12 00000 FILE IRS ISP8      RETURN ADDRESS
0018 00010 -0 01 00000 JMP* ISP8      RETURN ADDRESS
0019      *
0020 00011 0 10 00000 CERR CALL C$ER      CONTROL ERROR ROUTINE
0021 00012 141713      BCI 1,CK      CHECKSUM ERROR MNEMONIC
0022 00013 0 01 00001 JMP RSTR      RESTART
0023      *
0024      *
0025      END
NO ERRORS IN ABOVE ASSEMBLY.      END OF ISP8 01.APR.70 P.G.WHONE
$DA 41285326-002-02
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

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```
0001      *
0002      *
0003      SUBR  O$PB      HSP OUTPUT OBJECT LINK
0004      *
0005      *
0006      CF5
0007      REL      H316 AND DDP-516
0008      RELOCATABLE
0009      *
0010 00000 0 000000 O$PB DAC **
0011 00001 -0 35 00000 LDX* O$PB      RETURN ADDRESS
0012 00002 1 02 00000 LDA 0,1      BUFFER ADDRESS
0013 00003 140407      TCA      GET NO. OF WORDS
0014 00004 0 13 00000 IMA 0      NEGATE AND
0015 00005 141206      AOA      PUT IN INDEX
0016 00006 0 10 00000 CALL O$P0      BUMP BUFFER ADDRESS
0017 00007 0 12 00000 IRS O$PB      HSP OUTPUT OBJECT
0018 00010 -0 01 00000 JMP* O$PB      RETURN ADDRESS
0019      *
0020      *
0021      END
NO ERRORS IN ABOVE ASSEMBLY.      END OF O$PB 01.APR.70 P.G.WHONE
$DA 41285326-002-02
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

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```
0001      *
0002      *
0003      SUBR  O$PSO,O$PS      HSP OUTPUT OBJECT END OF TEXT
0004      *
0005      *
0006      CF5
0007      REL      H316 AND DDP-516
0008                      RELOCATABLE
0009      *
0010 00000 0 000000 O$PS DAC **      RETURN ADDRESS
0011 00001 0 35 00012 LDX  =-3      INDEX
0012 00002 1 02 00012 LOOP LDA ECHR+3,1      END CHARACTERS
0013 00003 0 10 00000 CALL O$PK      HSP OUTPUT CHARACTER
0014 00004 0 12 00000 IRS 0      INDEX
0015 00005 0 01 00002 JMP LOOP      LOOP
0016 00006 -0 01 00000 JMP* O$PS      RETURN
0017      *
0018      *
0019      * CONSTANTS AND VARIABLES
0020      *
0021 00007 000203 ECHR OCT 203      END CHARACTERS (END OF TEXT)
0022 00010 000223 OCT 223      (DC3)
0023 00011 000377 OCT 377      (DEL)
0024      *
0025 00012 177775 FIN      LITERALS
0026      *
0027      *
0028      * END
NO ERRORS IN ABOVE ASSEMBLY.      END OF O$PSO 6.JUN.70 P.J.VYSE
$DA 41285326-002-02
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

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```
0001      *
0002      *
0003      SUBR  I$PO      HSR INPUT OBJECT
0004      *
0005      *
0006      CF5
0007      REL      H316 AND DDP-516
0008                      RELOCATABLE
0009      *
0010 00000 0 000000 I$PO DAC **      RETURN ADDRESS
0011 00001 0 04 00065 STA KEEP      KEEP
0012 00002 0 02 00065 RSTR LDA KEEP      KEEP
0013 00003 0 04 00062 STA BUFF      BUFFER
0014      *
0015 00004 140040 CRA      CHECKSUM
0016 00005 0 04 00063 STA CKSM      SET INDEX
0017 00006 0 35 00071 LDX  =-61
0018      *
0019 00007 0 10 00000 NEXT CALL I$PK      HSR INPUT CHARACTER
0020      *
0021 00010 0414 67 LGL 9      DISREGARD PARITY
0022 00011 0 11 00070 CAS  ='1000      TEST FOR SOH
0023 00012 100000 SKP
0024 00013 0 01 00020 JMP OBLK      OBJECT BLOCK
0025 00014 0 11 00067 CAS  ='3000      TEST FOR ETX
0026 00015 100000 SKP
0027 00016 0 01 00041 JMP END      END
0028 00017 0 01 00007 JMP NEXT      NEXT
0029      *
0030 00020 0 10 00045 OBLK JST FRME      INPUT TEST AND PACK FRAME
0031 00021 0 10 00045 JST FRME      FRAME
0032 00022 0 10 00045 JST FRME      FRAME
0033 00023 0 12 00000 IRS 0      INDEX
0034 00024 100000 SKP
0035 00025 0 01 00033 JMP BLER      BLOCK LENGTH ERROR
0036 00026 -0 04 00062 STA* BUFF      BUFFER
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

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```
0037 00027 0 12 00062 IRS BUFF
0038 00030 0 05 00063 ERA CKSM
0039 00031 0 04 00063 STA CKSM
0040 00032 0 01 00020 JMP OBLK
0041
0042 00033 0 10 00000 BLER CALL C$ER
0043 00034 141314 BCI 1,8L
0044 00035 0 01 00002 JMP RSTR
0045
0046 00036 140040 ZERO CRA
0047 00037 -0 04 00062 STA* BUFF
0048 00040 0 12 00062 IRS BUFF
0049
0050 00041 0 12 00000 END IRS 0
0051 00042 0 01 00036 JMP ZERO
0052
0053 00043 0 02 00063 LDA CKSM
0054 00044 -0 01 00000 JMP* ISPO
0055
0056 * FRAME
0057 00045 0 000000 FRME DAC **
0058 00046 0 10 00000 CALL ISPK
0059 00047 0 11 00066 CAS ='223
0060 00050 100000 SKP
0061 00051 0 01 00060 JMP EXIT
0062 00052 0 10 00000 CALL C$IS
0063 00053 0 13 00064 IMA FLAG
0064 00054 0414 72 LGL 6
0065 00055 0 06 00064 ADD FLAG
0066 00056 0 04 00064 STA FLAG
0067 00057 -0 01 00045 JMP* FRME
0068
0069 00060 0 12 00000 EXIT IRS ISPO
0070 00061 0 01 00041 JMP END
0071
0072
0073 * CONSTANTS AND VARIABLES
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

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```
0074
0075 00062 000000 BUFF BSZ 1
0076 00063 000000 CKSM BSZ 1
0077 00064 000000 FLAG BSZ 1
0078 00065 000000 KEEP BSZ 1
0079
0080 00066 000223 FIN
00067 003000
00070 001000
00071 177703

0081
0082
0083 *
NO ERRORS IN ABOVE ASSEMBLY. END OF ISPO 6.JUN.70 P.J.VYSE
$DA 41285326-002-02
```

Form 4536



```
0001      *
0002      *
0003      SJBR  O$PO      HSP OUTPUT OBJECT
0004      *
0005      *
0006      CF5      H316 AND DDP-516
0007      REL      RELOCATABLE
0008      *
0009      *
0010 00000 0 000000 O$PO DAC **      RETURN ADDRESS
0011 00001 0 04 00031 STA WORK      WORK
0012 00002 0 02 00033 LDA ='201
0013 00003 0 10 00000 CALL O$PK      HSP OUTPUT CHARACTER
0014 00004 0 02 00000 LDA 0      INDEX
0015 00005 101040 SVZ
0016 00006 0 01 00017 JMP EXIT      EXIT
0017      *
0018 00007 -0 02 00031 LOOP LDA* WORK      WORK
0019 00010 0400 64 LRL 12
0020 00011 0 10 00024 JST FRME      FRAME
0021 00012 0 10 00024 JST FRME      FRAME
0022 00013 0 10 00024 JST FRME      FRAME
0023 00014 0 12 00031 IRS WORK      WORK
0024 00015 0 12 00000 IRS 0      INDEX
0025 00016 0 01 00007 JMP LOOP      LOOP
0026      *
0027 00017 0 02 00032 EXIT LDA ='177623      DEL/DC3
0028 00020 0 10 00000 CALL O$PK      HSP OUTPUT CHARACTER
0029 00021 141340 ICA
0030 00022 0 10 00000 CALL O$PK      HSP OUTPUT CHARACTER
0031 00023 -0 01 00000 JMP* O$PO      RETURN
0032      *
0033      * FRAME
0034 00024 0 000000 FRME DAC **      RETURN ADDRESS
0035 00025 0 10 00000 CALL C$SI      CONVERT FROM 6 BIT TO INVISIBLE CODE
0036 00026 0 10 00000 CALL O$PK      HSP OUTPUT CHARACTER
```

Form 4536



```
0037 00027 0410 72 LLL 6
0038 00030 -0 01 00024 JMP* FRME      RETURN
0039      *
0040      *
0041      * CONSTANTS AND VARIABLES
0042      *
0043 00031 000000 WORK BSZ 1      WORK
0044      *
0045      *
0046 00032 177623 FIN      LITERALS
0047 00033 000201
0047      *
0048      END      END OF O$PO 01.APR.70 P.G.WHONE
NO ERRORS IN ABOVE ASSEMBLY.
$DA 41285326-002-02
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

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```
0001      *
0002      *
0003      SUBR  O$PLDR      HSP PUNCH LEADER
0004      *
0005      *
0006      CF5              H316 AND DDP-516
0007      REL              RELOCATABLE
0008      *
0009      *
0010 00000 0 000000 O$PL DAC **      RETURN ADDRESS
0011 00001 0 35 00010 LDX  =-150    FIFTEEN INCHES
0012 00002 140040   CRA              TWO BLANKS
0013 00003 0 10 00000 LOOP CALL O$PK HSP OUTPUT CHARACTER
0014 00004 0 12 00000 IRS  0        INDEX
0015 00005 0 01 00003 JMP  LOOP      LOOP
0016 00006 0 10 00000 CALL O$POFF    HSP OFF
0017 00007 -0 01 00000 JMP* O$PL    RETURN
0018      *
0019      *
0020      * CONSTANTS AND VARIABLES
0021      *
0022 00010 177552      FIN          LITERALS

0023      *
0024      *
0025      *      END
NO ERRORS IN ABOVE ASSEMBLY.      END OF O$PLDR 09.APR.70 P.G.WHONE
$DA 41285326-002-02
```

Form



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

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```
0001      *
0002      *
0003      SUBR  O$PKP,OPKP      HSP OUTPUT CHARACTER WITH PARITY
0004      *
0005      *
0006      CF5              H316 AND DDP-516
0007      REL              RELOCATABLE
0008      *
0009      *
0010 00000 0 000000 O$PKP DAC **      HSP OUTPUT CHARACTER WITH PARITY
0011 00001 0400 70   LRL  8          SAVE RH CHAR
0012 00002 0 10 00000 CALL  C$OP      OUTPUT PARITY
0013 00003 0 10 00000 CALL  O$PK      HSP OUTPUT CHARACTER
0014 00004 0410 70   LLL  8          RESTORE WORD
0015 00005 -0 01 00000 JMP* O$PKP    RETURN
0016      *
0017      *
0018      *      END
NO ERRORS IN ABOVE ASSEMBLY.      END OF O$PKP 11.JUN.70 G.S.LITTLE
$DA 41285326-002-02
```



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

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```
0001      *
0002      *
0003      SJBR  I$PK          HSR INPUT CHARACTER
0004      *
0005      *
0006      CF5
0007      REL          H316 AND DDP-516
0008                      RELOCATABLE
0009      *
0010      * HSR DEVICE CODES
0011      *
0012      * HSR DEVICE ADDRESS
0013      000001  HSRA EQU  '1          HSR ADDRESS
0014      *
0015      * OCP
0016      000001  HSRN EQU  HSRA
0017      000101  HSRF EQU  HSRA+*100    START HSR
0018                      STOP HSR
0019      * INA
0020      001001  HSRI EQU  HSRA+*1000    HSR CLEAR A AND INPUT CHARACTER IF READY
0021                      *
0022      * HSR INPUT CHARACTER
0023      *
0024      *
0025  00000  0 000000  I$PK DAC  **          RETURN ADDRESS
0026  00001  14 0001   OCP  HSRN          START HSR
0027  00002  54 1001   IVA  HSRI          HSR CLEAR A AND INPUT CHARACTER IF READY
0028  00003  0 01 00002  JMP  *-1          WAIT UNTIL READY
0029  00004  14 0101   OCP  HSRF          STOP HSR
0030  00005  -0 01 00000  JMP* I$PK        RETURN
0031      *
0032      *
0033      END          END OF I$PK 14.MAY.70 P.G.WHONE
NO ERRORS IN ABOVE ASSEMBLY.
$DA 41285326-002-02
```

Form 4536



* 0071-001-H001 (HSRP-IOL) DRAWING NO. 41286165-001-01

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```
0001      *
0002      *
0003      SJBR  O$PK          HSP OUTPUT CHARACTER
0004      *
0005      *
0006      CF5
0007      REL          H316 AND DDP-516
0008                      RELOCATABLE
0009      *
0010      * HSP DEVICE CODES
0011      *
0012      * HSP DEVICE ADDRESS
0013      000002  HSPA EQU  '2          HSP ADDRESS
0014      *
0015      * OCP
0016      000002  HSPN EQU  HSPA          ENABLE HSP
0017      *
0018      * SKS
0019      000102  HSPE EQU  HSPA+*100    SKIP IF HSP IS ENABLED
0020      *
0021      * OTA
0022      000002  HSPD EQU  HSPA          HSP OUTPUT CHARACTER IF READY
0023      *
0024      * HSP OUTPUT CHARACTER
0025      *
0026      *
0027  00000  0 000000  O$PK DAC  **          RETURN ADDRESS
0028  00001  34 0102   SKS  HSPE          SKIP IF HSP IS ENABLED
0029  00002  14 0002   OCP  HSPN          ENABLE HSP
0030  00003  74 0002   OTA  HSPD          HSP OUTPUT CHARACTER IF READY
0031  00004  0 01 00003  JMP  *-1          WAIT UNTIL READY
0032  00005  -0 01 00000  JMP* O$PK        RETURN
0033      *
0034      *
0035      END          END OF O$PK 14.MAY.70 P.G.WHONE
NO ERRORS IN ABOVE ASSEMBLY.
```

Form 4536



SDA 41285326-002-02

Form 4536



```
0001      *
0002      *
0003      SUBR  0$POFF,0$PF      HSP OFF
0004      *
0005      *
0006      CF5
0007      REL      H316 AND DDP-516
0008      *      RELOCATABLE
0009      *
0010      * HSP DEVICE CODES
0011      *
0012      * HSP DEVICE ADDRESS
0013      000002  HSPA EQU  '2      HSP ADDRESS
0014      *
0015      * SKS
0016      000002  HSPR EQU  HSPA      SKIP IF HSP READY
0017      *
0018      * OCP
0019      000102  HSPO EQU  HSPA+'100      HSP POWER OFF
0020      *
0021      *
0022      * HSP OFF
0023      *
0024  00000  0 000000  0$PF DAC  **      RETURN ADDRESS
0025  00001  34 0002   SKS  HSPR      SKIP IF HSP READY
0026  00002  0 01 00001  JMP  *-1      WAIT UNTIL READY
0027  00003  14 0102   OCP  HSPO      HSP POWER OFF
0028  00004  -0 01 00000  JMP* 0$PF      RETURN
0029      *
0030      *
0031      *      END
NO ERRORS IN ABOVE ASSEMBLY.      END OF 0$POFF 14.MAY.70 P.G.WHONE
SDA 41285326-002-02
```

Form 4536