

UPDATING SUPPLEMENT

15 MAR 1974

MANUAL IDENTIFICATION

Manual Serial No. Prefix: 1314

Manual Printed: JUL 1973

Manual Part No.: 02100-90164

Microfiche Part No.: 02100-90165

SUPPLEMENT DESCRIPTION

The purpose of this supplement is to adapt the manual to equipment containing production improvements made subsequent to the printing of the manual and to correct manual errors. Enter the new information (or the Change Number, if more convenient) into the appropriate places in the manual, identified at left. For any given instrument serial number prefix, all change steps noted for prior serial number prefixes must be incorporated in addition to those for the given prefix.

INSTRUMENT CHANGES

Serial No. Prefix	Change
1320	1 and 2
1322	3 and 4
1330	5 and 6
1333	7 and 8
ALL (Errata)	9,10,11 and 13 through 22
1345	12
1402	23, 24, and 25
1410	26 thru 29

ASSEMBLY CHANGES

Ref Des	Description	HP Part No.	Series	Changes
A25	Power Supply	02100-60053	1320	2
A25	Power Supply	02100-60053	1322	4
A25	Power Supply	02100-60053	1330	6
A25	Power Supply	02100-60053	1333	8
A4	Microinstruction Decoder 2 Card	02100-60112	1333	12
A25	Power Supply	02100-60053	1345	12
A4	Microinstruction Decoder 2 Card	02100-60112	1402	24 and 25
A25	Power Supply	02100-60053	1410	2
A101, A104, A109, A112	X-Y Driver/Switch Card	02100-60012	1410	2, 3 and 4

Changes 1 and 2 dated 20 August 1973.

Changes 3 and 4 dated 10 September 1973.

Changes 5 and 6 dated 1 October 1973.

Changes 7 through 11 dated 5 November 1973.

Changes 12 through 16 dated 19 November 1973.

Changes 17 through 25 dated 15 January 1974.

Changes 26 thru 29 dated 15 March 1974

CHANGE**DESCRIPTION**

- | CHANGE | DESCRIPTION |
|--------|---|
| 1 | Title page. Change SERIAL NUMBERS COVERED to include serial numbers prefixed 1320. |
| 2 | Page 1-2, table 1-1. Add "1320" in COMPUTER SERIAL NUMBER PREFIX column. Insert date codes in appropriate columns which are same as for 1314, except insert "1320" in A25 column. |
| 3 | Title page. Change SERIAL NUMBERS COVERED to include serial numbers prefixed 1322. |
| 4 | Page 1-2, table 1-1. Add "1322" in COMPUTER SERIAL NUMBER PREFIX column. Insert date codes in appropriate columns which are same as for 1320, except insert "1322" in A25 column. |
| 5 | Title page. Change SERIAL NUMBERS COVERED to include serial numbers prefixed 1330. |
| 6 | Page 1-2, table 1-1. Add "1330" in COMPUTER SERIAL NUMBER PREFIX column. Insert date codes in appropriate columns which are same as for 1322, except insert "1330" in A25 column. |
| 7 | Title page. Change SERIAL NUMBERS COVERED to include serial numbers prefixed 1333. |
| 8 | Page 1-2, table 1-1. Add "1333" in COMPUTER SERIAL NUMBER PREFIX column. Insert date codes in appropriate columns which are same as for 1330, except insert "1333" in A25 column. |
| 9 | Page 4-133, figure 4-21. Change MSG FF U81B pin 5 to read pin 4. Change pin 4 to read pin 5. |
| 10 | Page 4-137, figure 4-21. Change U45B pin 6 to read pin 12. |
| 11 | Page 4-81, figure 4-11. Change U83B to read U83A. Change U83C to read U83D. Change U86B (CLK2 input) to read U83B. |
| 12 | For computers with serial numbers prefixed 1345, make the following changes: <ul style="list-style-type: none">a. Title page. Change SERIAL NUMBERS COVERED to include serial numbers prefixed 1345.b. Page 1-2, table 1-1. Add "1345" in COMPUTER SERIAL NUMBER PREFIX column. Insert date codes in appropriate columns which are the same as for 1330, except insert "1333" in A4 column and insert "1345" in A25 column.c. Page 4-17, figure 4-1. Change part number of A4 card from 02100-60022 to 02100-60112.d. Pages 4-45/4-46, 4-47, 4-48, and 4-49/4-50. Replace with attached. |
| 13 | Page 1-2, table 1-1. Change date code of A10 card to read 1315. |
| 14 | Page 4-13, table 4-1. Change SIR DESCRIPTION to read Set Interrupt Request. |
| 15 | Page 4-65/4-66, figure 4-9. Change U66B pin 8 to read pin 5. |
| 16 | Page 4-129, table 4-18. Change note 2 to read First used on card rev. 1312. |

CHANGE

DESCRIPTION

- 17 Page 4-81, figure 4-11. Change SB6 signal pin number from 4 to 9.
- 18 Page 4-97, figure 4-14. Delete tie point between U2C pin 3 and U2C pin 4. Connect U2C pin 3 to +4.85V.
- 19 Page 4-87, figure 4-12. Change U125B from an AND gate to a NAND gate.
- 20 Page 4-33, figure 4-5. Delete connection between 102A pin 1 and U105D pin 11. Connect U102A pin 1 to U105 pin 6.
- 21 Page 4-155, table 4-19. Add the following information in reference designation order.
- | | | | | | |
|---------------|-----------|---|-------------------------|-------|--------|
| A26F1(NOTE 1) | 2110-0451 | 1 | FUSE:CARTRIDGE 6A 250V | 75915 | 314006 |
| A26F2(NOTE 1) | 2110-0002 | 1 | FUSE: CARTRIDGE 1A 250V | 75915 | 312001 |
- 22 Page 4-155, table 4-19. Add the following to the bottom of the table; "NOTES: 1. Used for Option 015,"
- 23 Title page. Change SERIAL NUMBERS COVERED to include serial numbers prefixed 1402.
- 24 Page 1-2, table 1-1. Add "1402" to COMPUTER SERIAL NUMBER PREFIX column. Insert date codes in appropriate columns which are the same as for 1345 except insert "1402" in A4 column.
- 25 Page 4-49, figure 4-7. On upper-left corner of schematic, change "(02100-60112, REV. 1333)" to read "(02100-60112, REV. 1333, 1402)". On lower-left corner of schematic, change "DWG REV. B" to read "DWG REV. C". On upper-left corner of component location drawing, change "A-1333-22" to read "A-1402-22". Below the component location drawing, add "NOTE: THIS DIAGRAM ALSO APPLIES TO CARD REV. A-1333-22." On lower-left corner of component location drawing, change "DWG REV. A" to read "DWG REV. B."
- 26 Title page. Change Serial NOs covered to include serial nos prefixed 1410.
- 27 Page 1,2 table 1-1. Add "1410" to computer serial no prefix column. Insert date codes in appropriate columns which are the same as for 1402 except insert "1410" in A101, A104, A109, A112 and A25 columns.
- 28 Pages 4-105,4-117,4-143 and 4-153 ; figures 4-15,4-18,4-23 and 4-26 Change value of R121,R124,R127 and R130 from 1.2K to 825ohms.On lower-left corner of schematic, change "DWG REV B" to read "DWG REV C". On upper-left corner of schematic, change"(02100-60012,REV 1121, 1132, 1152)" to read "(02100-60012,REV 1121, 1132, 1152, 1410)".On lower-left side of component location drawing, change "B-1152-22" to read "B-1410-22". On lower-left corner of component location dwg change "DWG REV D" to read "DWG REV B".
- 29 Page 4-103 table 4-14. Change the quantity of A101R120 from 4 to 8. Delete "4" from quantity column of A101R121. Change part nos of A101R121, R124, R127, and R130 from "0757-0274" to read "0757-0421" and change descriptions from "1.21K OHM" to read "825 OHM".

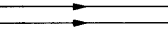
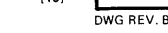
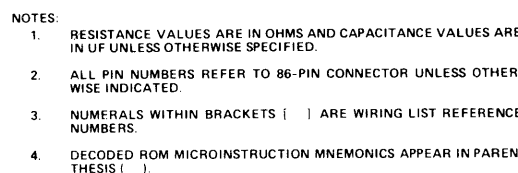
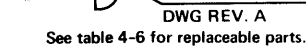
Table 4-6. A4 Microinstruction Decoder 2 Card, Replaceable Parts

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
A4	02100-60112	1	MICRO INSTRUCTION DECODER 2 CARD	28480	02100-60112
A4C1	0180-0197	10	C:FXD ELECT 2.2 UF 10% 20VDCW	56289	150D225X9020A2-DYS
A4C2	0180-0197		C:FXD ELECT 2.2 UF 10% 20VDCW	56289	150D225X9020A2-DYS
A4C3	0160-2055	20	C:FXD CER 0.01 UF +80-20% 100VDCW	56289	C023F101F103ZS22-CDH
A4C4	0180-0197		C:FXD ELECT 2.2 UF 10% 20VDCW	56289	150D225X9020A2-DYS
A4C5	0180-0197		C:FXD ELECT 2.2 UF 10% 20VDCW	56289	150D225X9020A2-DYS
A4C6	0160-2055		C:FXD CER 0.01 UF +80-20% 100VDCW	56289	C023F101F103ZS22-CDH
A4C7	0160-2055		C:FXD CER 0.01 UF +80-20% 100VDCW	56289	C023F101F103ZS22-CDH
A4C8	0160-2055		C:FXD CER 0.01 UF +80-20% 100VDCW	56289	C023F101F103ZS22-CDH
A4C9	0160-2055		C:FXD CER 0.01 UF +80-20% 100VDCW	56289	C023F101F103ZS22-CDH
A4C10	0160-2055		C:FXD CER 0.01 UF +80-20% 100VDCW	56289	C023F101F103ZS22-CDH
A4C11	0160-2055		C:FXD CER 0.01 UF +80-20% 100VDCW	56289	C023F101F103ZS22-CDH
A4C12	0160-2055		C:FXD CER 0.01 UF +80-20% 100VDCW	56289	C023F101F103ZS22-CDH
A4C13	0160-2055		C:FXD CER 0.01 UF +80-20% 100VDCW	56289	C023F101F103ZS22-CDH
A4C14	0160-2055		C:FXD CER 0.01 UF +80-20% 100VDCW	56289	C023F101F103ZS22-CDH
A4C15	0180-0197		C:FXD ELECT 2.2 UF 10% 20VDCW	56289	150D225X9020A2-DYS
A4C16	0180-0197		C:FXD ELECT 2.2 UF 10% 20VDCW	56289	150D225X9020A2-DYS
A4C17	0160-2055		C:FXD CER 0.01 UF +80-20% 100VDCW	56289	C023F101F103ZS22-CDH
A4C18	0160-2055		C:FXD CER 0.01 UF +80-20% 100VDCW	56289	C023F101F103ZS22-CDH
A4C19	0160-2055		C:FXD CER 0.01 UF +80-20% 100VDCW	56289	C023F101F103ZS22-CDH
A4C20	0160-2055		C:FXD CER 0.01 UF +80-20% 100VDCW	56289	C023F101F103ZS22-CDH
A4C21	0160-2055		C:FXD CER 0.01 UF +80-20% 100VDCW	56289	C023F101F103ZS22-CDH
A4C22	0160-2055		C:FXD CER 0.01 UF +80-20% 100VDCW	56289	C023F101F103ZS22-CDH
A4C23	0160-2055		C:FXD CER 0.01 UF +80-20% 100VDCW	56289	C023F101F103ZS22-CDH
A4C24	0160-2055		C:FXD CER 0.01 UF +80-20% 100VDCW	56289	C023F101F103ZS22-CDH
A4C25	0160-2055		C:FXD CER 0.01 UF +80-20% 100VDCW	56289	C023F101F103ZS22-CDH
A4C26	0180-0197		C:FXD ELECT 2.2 UF 10% 20VDCW	56289	150D225X9020A2-DYS
A4C27	0180-0197		C:FXD ELECT 2.2 UF 10% 20VDCW	56289	150D225X9020A2-DYS
A4C28	0160-2055		C:FXD CER 0.01 UF +80-20% 100VDCW	56289	C023F101F103ZS22-CDH
A4C29	0180-0197		C:FXD ELECT 2.2 UF 10% 20VDCW	56289	150D225X9020A2-DYS
A4C30	0180-0197		C:FXD ELECT 2.2 UF 10% 20VDCW	56289	150D225X9020A2-DYS
A4E1	0360-0294	3	TERMINAL:SOLDER POINT	28480	0360-0294
A4E2	0360-0294		TERMINAL:SOLDER POINT	28480	0360-0294
A4E3	0360-0294		TERMINAL:SOLDER POINT	28480	0360-0294
A4R1	0757-0427	9	R:FXD MET FLM 1.5K OHM 1% 1/8W	28480	0757-0427
A4R2	0757-0280	5	R:FXD MET FLM 1K OHM 1% 1/8W	28480	0757-0280
A4R3	0757-0280		R:FXD MET FLM 1K OHM 1% 1/8W	28480	0757-0280
A4R4	0757-0416	6	R:FXD MET FLM 511 OHM 1% 1/8W	28480	0757-0416
A4R5	0757-0416		R:FXD MET FLM 511 OHM 1% 1/8W	28480	0757-0416
A4R6	0757-0274	1	R:FXD MET FLM 1.21K OHM 1% 1/8W	28480	0757-0274
A4R7	0698-3443	2	R:FXD MET FLM 287 OHM 1% 1/8W	28480	0698-3443
A4R8	0757-0416		R:FXD MET FLM 511 OHM 1% 1/8W	28480	0757-0416
A4R9	0757-0284	2	R:FXD MET FLM 150 OHM 1% 1/8W	28480	0757-0284
A4R10	0757-0284		R:FXD MET FLM 150 OHM 1% 1/8W	28480	0757-0284
A4R11	0757-0399	1	R:FXD MET FLM 82.5 OHM 1% 1/8W	28480	0757-0399
A4R12	0757-0416		R:FXD MET FLM 511 OHM 1% 1/8W	28480	0757-0416
A4R13	0757-0280		R:FXD MET FLM 1K OHM 1% 1/8W	28480	0757-0280
A4R14	0757-0427		R:FXD MET FLM 1.5K OHM 1% 1/8W	28480	0757-0427
A4R15	0757-0420	1	R:FXD MET FLM 750 OHM 1% 1/8W	28480	0757-0420
A4R16	0757-0416		R:FXD MET FLM 511 OHM 1% 1/8W	28480	0757-0416
A4R17	0757-0280		R:FXD MET FLM 1K OHM 1% 1/8W	28480	0757-0280
A4R18	0757-0416		R:FXD MET FLM 511 OHM 1% 1/8W	28480	0757-0416
A4R20	0698-3443		R:FXD MET FLM 287 OHM 1% 1/8W	28480	0698-3443
A4R21	0757-0280		R:FXD MET FLM 1K OHM 1% 1/8W	28480	0757-0280
A4R22	0757-0427	1	R:FXD MET FLM 1.5K OHM 1% 1/8W	28480	0757-0427
A4R23	0698-3445		R:FXD MET FLM 348 OHM 1% 1/8W	28480	0698-3445
A4R24	0757-0427		R:FXD MET FLM 1.5K OHM 1% 1/8W	28480	0757-0427
A4R25	0757-0427		R:FXD MET FLM 1.5K OHM 1% 1/8W	28480	0757-0427
A4R26	0757-0427		R:FXD MET FLM 1.5K OHM 1% 1/8W	28480	0757-0427
A4R27	0757-0427		R:FXD MET FLM 1.5K OHM 1% 1/8W	28480	0757-0427
A4R28	0757-0427		R:FXD MET FLM 1.5K OHM 1% 1/8W	28480	0757-0427
A4R29	0757-0427		R:FXD MET FLM 1.5K OHM 1% 1/8W	28480	0757-0427
A4U11	1820-0379	7	IC:HTL HS 4W 2-2-2-3 INPT AND/OR GATE	01295	SN74H52N
A4U12	1820-0424	4	IC:TTL HS HEX INVERTER	04713	SN74H04N
A4U13	1820-0605	1	IC:TTL HS QUAD 2-INPT NAND GATE	01295	SN74H01N
A4U14	1820-0512	5	IC:TTL DUAL D F/F	01295	SN74H174N
A4U15	1820-0379		IC:TTL HS 4W 2-2-2-3 INPT AND/OR GATE	01295	SN74H52N
A4U16	1820-0966	2	IC:CTL DUAL 2-INPT AND 2W AND/OR GATE	07263	U6A986679X
A4U21	1820-0186	6	IC:CTL DUAL 2-INPT AND GATE	07263	U6A985649X
A4U23	1820-0370	6	IC:TTL HS QUAD 2-INPT NAND GATE	01295	SN74H00N
A4U24	1820-0187	1	IC:CTL DUAL 2-INPT NOR GATE	07263	U6A985249X

Table 4-6. A4 Microinstruction Decoder 2 Card, Replaceable Parts (Continued)

Reference Designation	HP Part Number	Qty	Description	Mfr Code	Mfr Part Number
A4U25	1820-0370	1	IC:TTL HS QUAD 2-INPT NAND GATE	01295	SN74H00N
A4U26	1820-0953		IC:CTL TRIPLE 2-2-3 INPT AND GATE	07263	U6A995379X
A4U27	1820-0186		IC:CTL DUAL 2-INPT AND GATE	07263	U6A985649X
A4U31	1820-0379		IC:TTL HS 4W 2-2-2-3 INPT AND/OR GATE	01295	SN74H52N
A4U33	1820-0375	2	IC:TTL HS 8-INPT NAND GATE	01295	SN74H30N
A4U34	1820-0695	1	IC:TTL SHS DUAL J-K F/F W/PRESET	01295	SN74S113N
A4U35	1820-0186		IC:CTL DUAL 2-INPT AND GATE	07263	U6A985649X
A4U36	1820-0954		IC:CTL DUAL 4-INPT AND GATE	07263	U6A995479X
A4U37	1820-0186		IC:CTL DUAL 2-INPT AND GATE	07263	U6A985649X
A4U41	1820-0379	1	IC:TTL HS 4W 2-2-2-3 INPT AND/OR GATE	01295	SN74H52N
A4U43	1820-0372		IC:TTL TRIPLE 3-INPT AND GATE	28480	1820-0372
A4U44	1820-0375		IC:TTL HS 8-INPT NAND GATE	01295	SN74H30N
A4U45	1820-0512		IC:TTL DUAL D F/F	01295	SN74H74N
A4U46	1820-0512	1	IC:TTL DUAL D F/F	01295	SN74H74N
A4U47	1820-0377		IC:TTL HS DUAL 2W 2-INPT AND/OR/INV GATE	01295	SN74H50N
A4U51	1820-0512		IC:TTL DUAL D F/F	01295	SN74H74N
A4U54	1820-0141		IC:TTL QUAD 2-INPT AND GATE	04713	MC3001P
A4U55	1820-0971	1	IC:CTL DUAL 2W 2-INPT AND/OR GATE	07263	U6A997179X
A4U56	1820-0966		IC:CTL DUAL 2W 2-INPT AND/OR GATE	07263	U6A996679X
A4U57	1820-0186		IC:CTL DUAL 2-INPT AND GATE	07263	U6A985649X
A4U61	1820-0379	2	IC:TTL HS 4W 2-2-2-3 INPT AND/OR GATE	01295	SN74H52N
A4U63	1820-0371		IC:TTL HS TRIPLE 3-INPT NAND GATE	01295	SN74H10N
A4U64	1820-0370		IC:TTL HS QUAD 2-INPT NAND GATE	01295	SN74H00N
A4U65	1820-0141		IC:TTL QUAD 2-INPT AND GATE	04713	MC3001P
A4U66	1820-0424	1	IC:TTL HS HEX INVERTER	04713	SN74H04N
A4U67	1820-0370		IC:TTL HS QUAD 2-INPT NAND GATE	01295	SN74H00N
A4U71	1820-0380		IC:TTL HS 4W 2-2-2-3 INPT AND/OR/INV GATE	01295	SN74H53N
A4U73	1820-0608		IC:TTL 1 OF 8 DECODER W/ENABLE	04713	MC4006P
A4U74	1820-0424	1	IC:TTL HS HEX INVERTER	04713	SN74H04N
A4U76	1820-0384		IC:TTL HS TRIPLE 3-INPT EXPANDER	01295	SN74H61N
A4U77	1820-0512	1	IC:TTL DUAL D F/F	01295	SN74H74N
A4U81	1820-0964		IC:CTL TRIPLE 3-3-1 INPT AND GATE	07263	U6A996479X
A4U83	1820-0608		IC:TTL 1 OF 8 DECODER W/ENABLE	04713	MC4006P
A4U84	1820-0141		IC:TTL QUAD 2-INPT AND GATE	04713	MC3001P
A4U85	1820-0379	1	IC:TTL HS 4W 2-2-2-3 INPT AND/OR GATE	01295	SN74H52N
A4U86	1820-0370		IC:TTL HS QUAD 2-INPT NAND GATE	01295	SN74H00N
A4U87	1820-0186		IC:CTL DUAL 2-INPT AND GATE	07263	U6A985649X
A4U91	1820-0839		IC:TTL QUAD D F/F	01295	SN74175N
A4U92	1820-0074	1	IC:CTL 4W 2-INPT AND/OR/INV GATE	04713	SN7454N
A4U93	1820-0608		IC:TTL 1 OF 8 DECODER W/ENABLE	04713	MC4006P
A4U94	1820-0371		IC:TTL HS TRIPLE 3-INPT NAND GATE	01295	SN74H10N
A4U95	1820-0370		IC:TTL HS QUAD 2-INPT NAND GATE	01295	SN74H00N
A4U96	1820-0379	1	IC:TTL HS 4W 2-2-2-3 INPT AND/OR GATE	01295	SN74H52N
A4U97	1820-0141		IC:TTL QUAD 2-INPT AND GATE	04713	MC3001P
A4U101	1820-0424		IC:TTL HS HEX INVERTER	04713	SN74H04N

REF. NO.	BACKPLANE LOCATION			* INDICATES SIGNAL SOURCE		
A4						
3	A3-66*	A4-21				
5	A4-13	A5-58*	A6-79			
6	A4-38	A5-22*				
7	A4-35	A5-21*	A6-77			
8	A4-41*	A5-7	A6-3*			
9	A4-9*	A5-23	A6-17*			
10	A4-36	A5-45*				
11	A4-84*	A6-18				
12	A4-33	A6-25*				
13	A3-43	A4-32	A6-7*			
14	A4-14*	A5-41	A6-84*			
15	A1-60	A4-62*				
18	A4-76	A7-5	A8-51*	A9-24	A10-7 THRU A23-7	
21	A1-84*	A4-69	A6-31	A8-70		
25	A1-76*	A4-61				
26	A3-20*	A4-11				
27	A3-50	A4-56	A5-19*	A6-11		
28	A1-52*	A4-19	A24-43			
34	A3-83	A4-58*				
39	A4-51*	A6-83				
42	A1-46	A2-65*	A4-55			
44	A4-10	A6-82*	A24-22			
47	A1-67	A4-64	A24-21*			
48	A4-23*	A6-80				
51	A4-66*	A5-50				
52	A4-3*	A5-46				
53	A4-4*	A5-56				
54	A4-5*	A5-55				
202	A2-67	A3-3	A4-7*			
237	A2-61	A4-54	A6-63*	A8-65		
239	A1-9	A2-80	A3-71	A4-24	A6-58*	A8-63
252	A1-73	A4-46*				
253	A3-36	A4-49*				
254	A2-69	A4-18*				
257	A4-8*	A5-24	A6-20*			
259	A4-20*	A5-12				
276	A3-59	A4-60*				
292	A4-68*	A6-8	A24-51			
293	A1-81	A4-65*				
302	A3-60	A4-28	A24-38*			
303	A3-72	A4-26	A24-41*			
327	A4-42*	A5-83				
328	A4-74	A5-9*				
329	A4-22	A5-5				
330	A4-15*	A5-64				
331	A4-25*	A5-62				
334	A1-54*	A3-28*	A4-27	A9-31*	A24-77*	A107-72
335	A1-8*	A2-70	A4-30	A6-9	A7-20	A8-75
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336	A4-67*	A6-68				
346	A2-58	A4-82*				
353	A2-37*	A4-78				
354	A2-36*	A4-77				
355	A2-35*	A4-80				
356	A2-34*	A4-79				
357	A2-14*	A4-43				
362	A2-4*	A4-37				
363	A2-5*	A4-34				
364	A2-6*	A4-29				
368	A3-24*	A4-57*	A5-35,36	A24-23*		
369	A1-71	A2-41	A4-17*			
411	A1-14	A2-11	A4-75	A5-4*	A6-41	A8-33*
	A9-84*	A107-52				
412	A4-71	A7-49*	A8-74	A24-8		
432	A3-30*	A4-59*	A9-41*	A107-74		
433	A4-70	A7-17	A8-52*	A10-5 THRU A23-5		
435	A4-72	A7-24	A8-59*	A10-25 THRU A23-25		
437	A3-78	A4-83*				
440	A1-17	A4-16*	A7-21*	A10-12* THRU A23-12*		
441	A2-77	A3-84	A4-81	A6-6*		
442	A3-65	A4-6	A6-71*			



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