

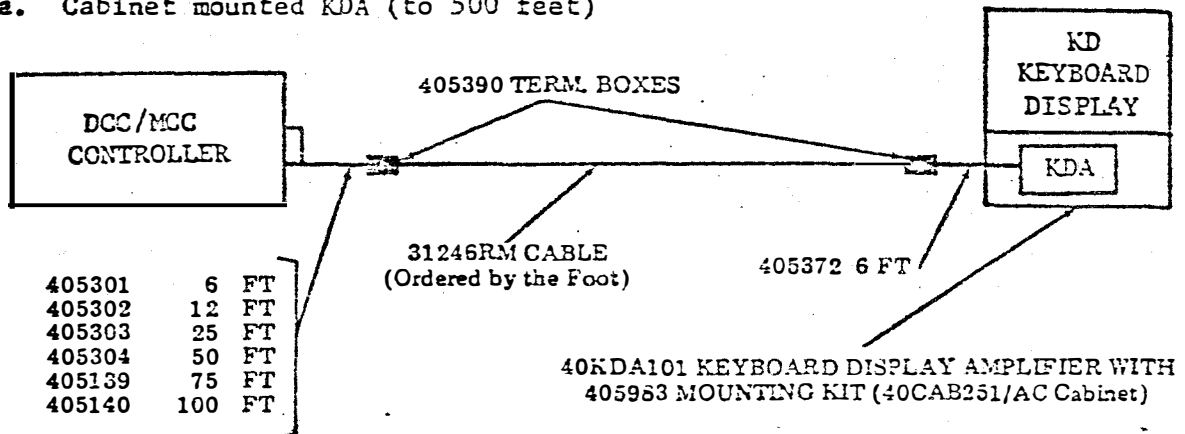
KEYBOARD DISPLAY AMPLIFIER, 405982
INSTALLATION MODIFICATION KIT (IN LINE
MOUNTING) AND 405983 INSTALLATION
MODIFICATION KIT (CABINET MOUNTING)

1. GENERAL

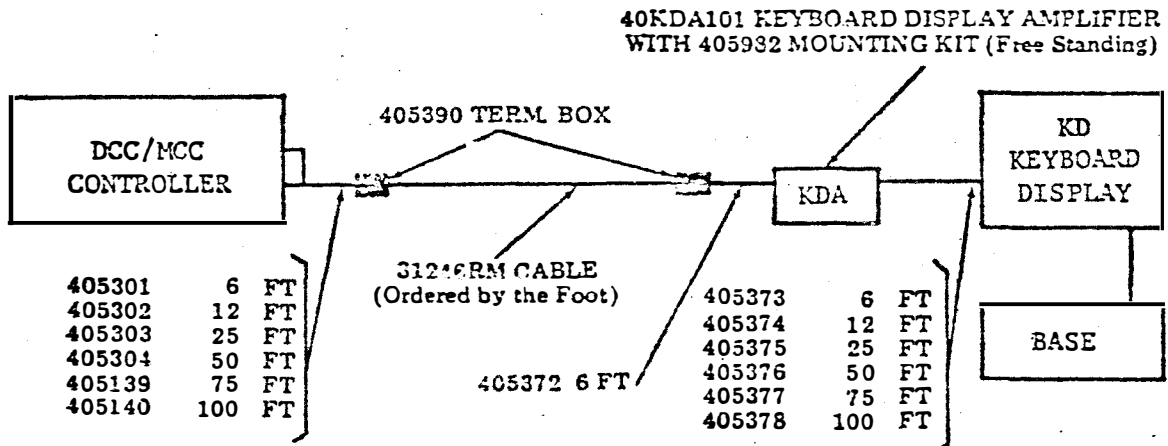
1.01 This specification gives information on the 40KDA101 Keyboard Display Amplifier (ordered with either the 405982 or 405983 mounting kit) as an accessory for Model 40/4 equipment. The KDA is required when a Keyboard Display (KD) is to be located more than 100 feet from a 40C402 (DCC) or 40C403 (MCC) Controller.

1.02 The following cable configurations are examples of the Model 40/4 system components used with the KDA:

a. Cabinet mounted KDA (to 500 feet)

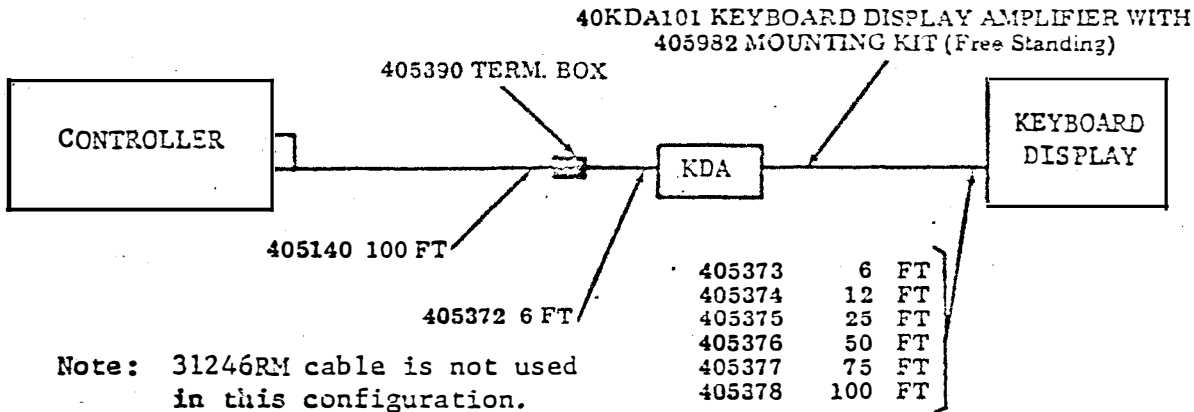


b. In line free standing KDA (200 to 600 feet)



1.02 Cont

c. In line free standing KDA (100 to 200 feet)



1.03 Connection from the 40C400 controller to the 405390 termination box is accomplished using a standard controller to opcon/monitor cable. Customer removal of the opcon and monitor connectors is required. Between termination boxes, a length of 31246RM is used. This RM is ordered by the foot. A maximum of 500 feet is allowed (600 ft where slight display degradation is permissible) between termination boxes providing that the cable between the controller and termination box is 12 feet or less in length. Longer cables may be used, however, their length must be subtracted from the maximum allowable length of 500 feet between termination boxes. Connection from the termination box to the 40KDA101 is made using the 405372 cable stub. This 6 foot cable assembly has a connector at one end and is suitably prepared for insertion (requiring only skinning) into a termination box at the other end.

1.04 Cabling from the 40KDA101 to the opcon/monitor is the 405373 through 405378 cable assemblies (lengths from 6 to 100 feet).. When the 40KDA101 is located inside a 40CAB251/AC cabinet, the 405983 modification kit is used.

2. MODIFICATION KITS PARTS LISTING

2.01 Following are lists of parts for the two KDA mounting kits. Parts information on the 40KDA101 is contained in Part 8.

● 405982 Modification Kit

<u>Part No.</u>	<u>Description</u>	<u>Qty</u>
401628	Strain, relief bushing	1
405967	AC cable assembly	1

2.01 Cont

●405983 Modification Kit

<u>Part No.</u>	<u>Description</u>	<u>Qty</u>
401582	Nut w/lockwasher	2
405961	AC cable assembly	1
405969	Opcon cable assembly (12" long)	1
407418	Bracket w/stud	2
405975	Monitor cable assembly (25" long)	1

3. DESCRIPTION

3.01 The keyboard display amplifier accepts and amplifies 50 millivolt (or greater) video and half intensity signals from the 40C400 type controller. The output of the video and half intensity channels are standard ECL differential signals of 1.6 V. In addition, the horizontal amplifier (5 ma current loop input) and vertical amplifier (20 ma current loop input) provide TTL output signals sufficient to drive a 40MN101 or 40MN102 display monitor. The internal power supply provides +5 V \pm 10 percent for the monitor.

3.02 The keyboard display amplifier also accepts SSI signals and passes them untreated through the unit. The internal power supply provides \pm 12 V \pm 10 percent and ground necessary to power the opcon.

3.03 The unit consists of a cover and a metal base pan on which heat sink, power transformer and circuit card are mounted.

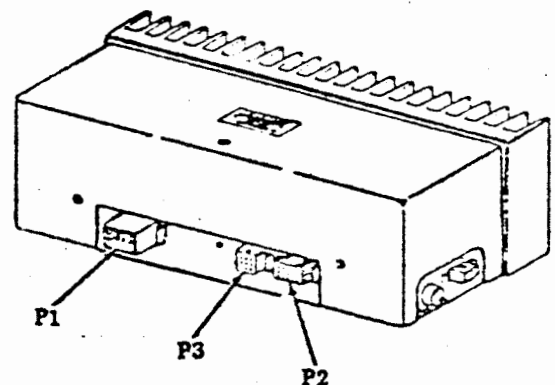
3.04 Operating characteristics are:

Temperature: 40° to 110° F.
 Humidity: 2% to 95% noncondensing.

Input Voltage: 103 to 127 V ac 50/60 Hz. @ 0.4a approx
 Output Voltage: +5 V dc \pm 10% @ 200 ma 35 mV ripple max
 +12 V dc \pm 10% @ 750 ma 35 mV ripple max
 -12 V dc \pm 10% @ 750 ma 35 mV ripple max

3.05 Technical Data

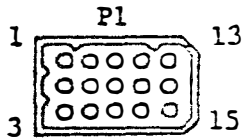
Height.....3-½ inches
 Width.....11-½ inches
 Depth.....5-½ inches
 Weight.....6-½ lbs
 Power Requirement.....103-127 V ac
 50/60 Hz at 0.4 ampere



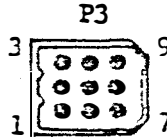
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3.06 Input -- Output Connections

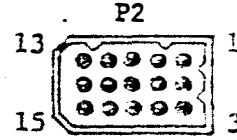
From Controller



To Opcon



To Monitor

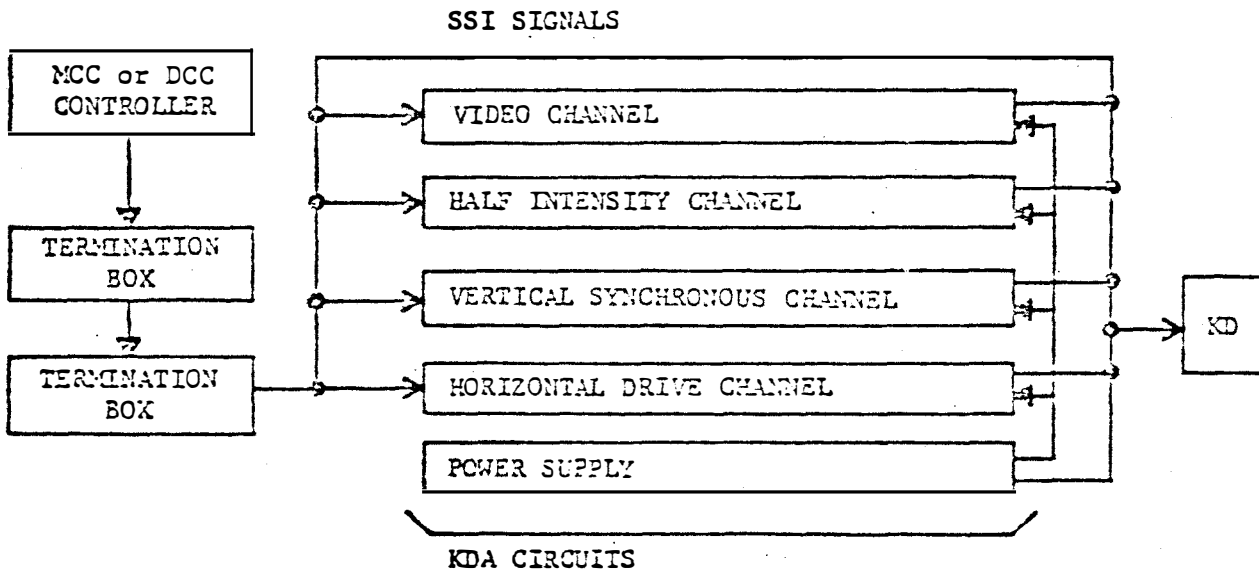


<u>Pin</u>	<u>Function</u>	<u>Pin</u>	<u>Function</u>	<u>Pin</u>	<u>Function</u>
1	Half Inten. RTN	1	ITD (N)	1	Half Inten. RTN
2	Half Inten.	2	ITD (I)	2	Half Inten.
3	Video RTN	3	ITC (N)	3	Video RTN
4	Frm. Grd.	4	Common	4	Frm. Grd.
5	+5 V IN	5	Spare	5	Spare
6	Video	6	ITC (I)	6	Video
7	Spare	7	+12 V OUT	7	Spare
8	Horiz. RTN	8	-12 V OUT	8	Horiz. RTN
9	ITD (I)	9	Frm. Grd.	9	Common
10	Horiz. Drive			10	Horiz. Drive
11	Vert. RTN			11	Vert. RTN
12	ITD (N)			12	+5 V OUT
13	Vert. Drive			13	Vert. Drive
14	ITC (I)			14	+5 V OUT
15	ITC (N)			15	Common

LEGEND ⊙ = FEMALE PIN
○ = MALE PIN

3.07 Refer to 4575SD and 4575CD for detailed description and theory of operation.

3.08 The KDA circuits (except the power supply) amplify inputs from a controller (DCC or MCC) and present outputs to a KD. Observe that SSI signals are passed through the KDA without amplification.



3.09 The power supply provides +5 V dc, +12 V dc and -12 V dc for the operation of the other circuits with KDA. The +12 V dc and -12 V dc voltages are presented as outputs to a KD.

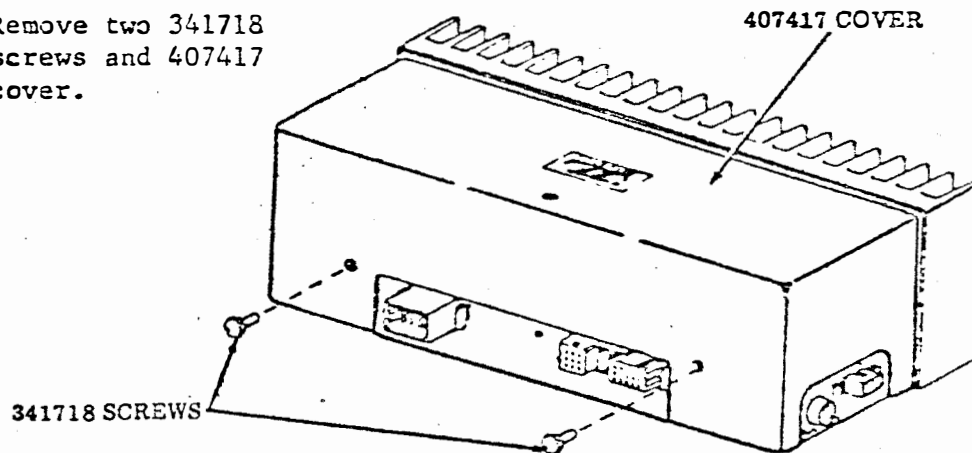
4. INSTALLATION

4.01 The procedures for installing the KDA on an in line run are given as 405982 modification kit installation, see 4.03. Installing a KDA in a 40CAB251/AC cabinet is given as 405983 modification kit installation, see 4.04 through 4.07.

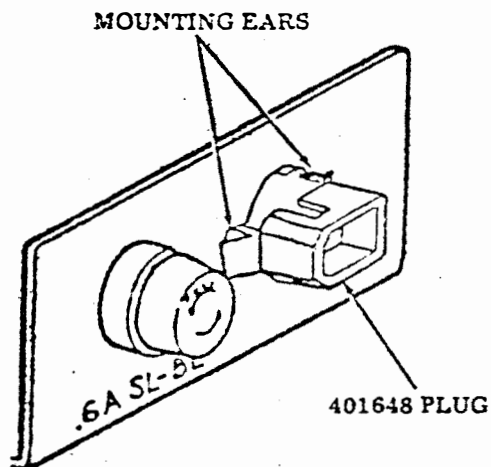
4.02 Before unpacking the carton, observe all caution notes printed on the carton. Retain the carton and packing materials until a complete operational test has been performed, and the unit is found to be satisfactory.

4.03 405982 modification kit installation on the KDA requires the following steps:

- ① Remove two 341718 screws and 407417 cover.

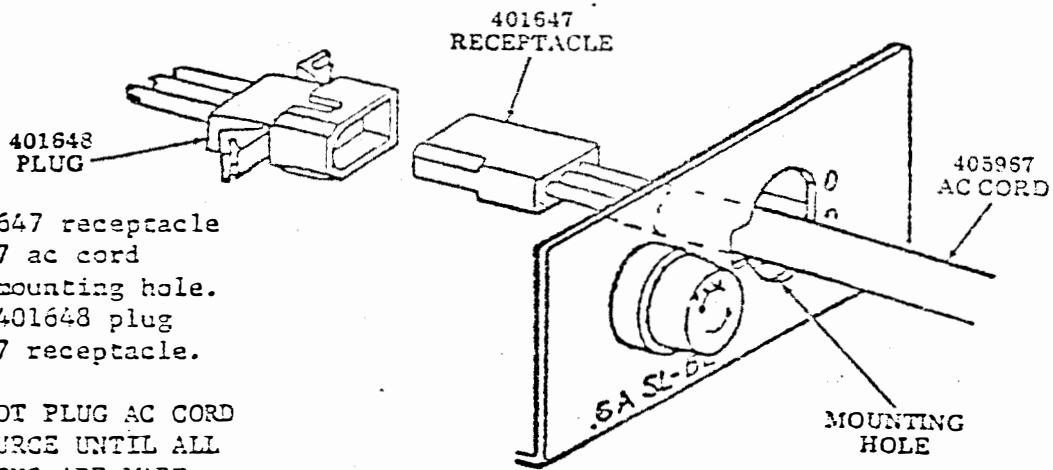


- ② Remove 401648 plug from mounting hole by compressing its mounting ears while pushing it inward.



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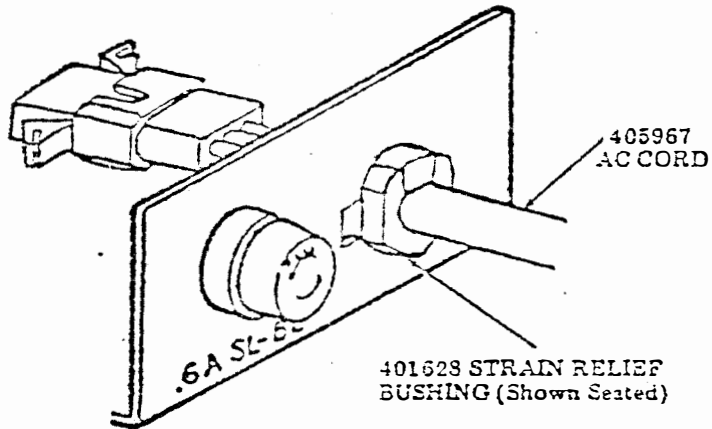
4.03 Cont



- ③ Feed 401647 receptacle of 405967 ac cord through mounting hole. Connect 401648 plug to 401647 receptacle.

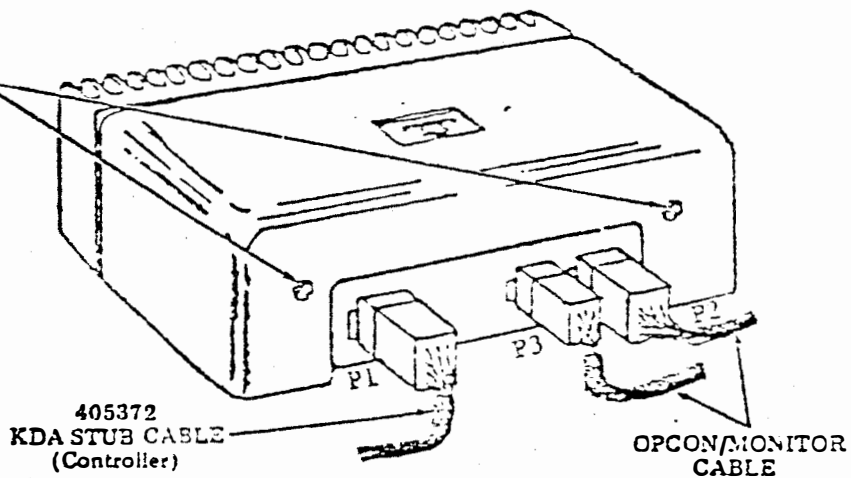
CAUTION: DO NOT PLUG AC CORD TO 115 VOLT SOURCE UNTIL ALL OTHER CONNECTIONS ARE MADE.

- ④ Squeeze 401628 strain relief bushing ground ac cord and push the bushing into mounting hole until bushing is seated.



- ⑤ Remount 407417 cover with 341718 screws.

- ⑥ Plug in cables; video/SSI controller to P1, OPCON to P3, and monitor to P2.

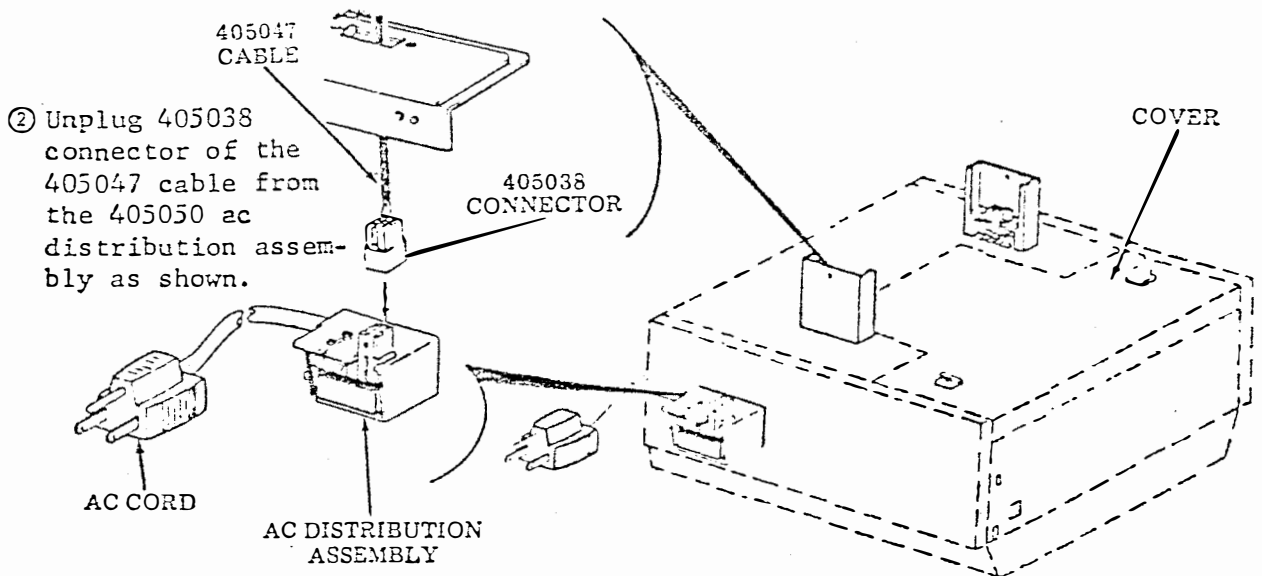


- ⑦ Refer to 4.08, for connections at controller, and 4.09 or 4.10 for monitor/OPCON.

4.04 Installation of the 405961 ac cable assembly of the 405983 modification kit requires the following steps:

- ① Remove the monitor. Unlatch and open the cover of the 40CAB251/AC cabinet.

CAUTION: UNPLUG AC CORD FROM WALL RECEPTACLE.

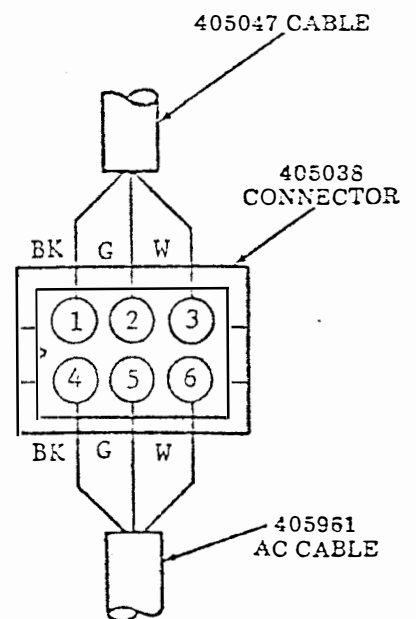


- ③ Needle nosed pliers should be used to insert the three pins of the 405961 ac cable into the 405038 connector of the 405047 cable.

Insert wires as shown;
 Black to 4
 Green to 5
 White to 6

Check that pins are fully seated.

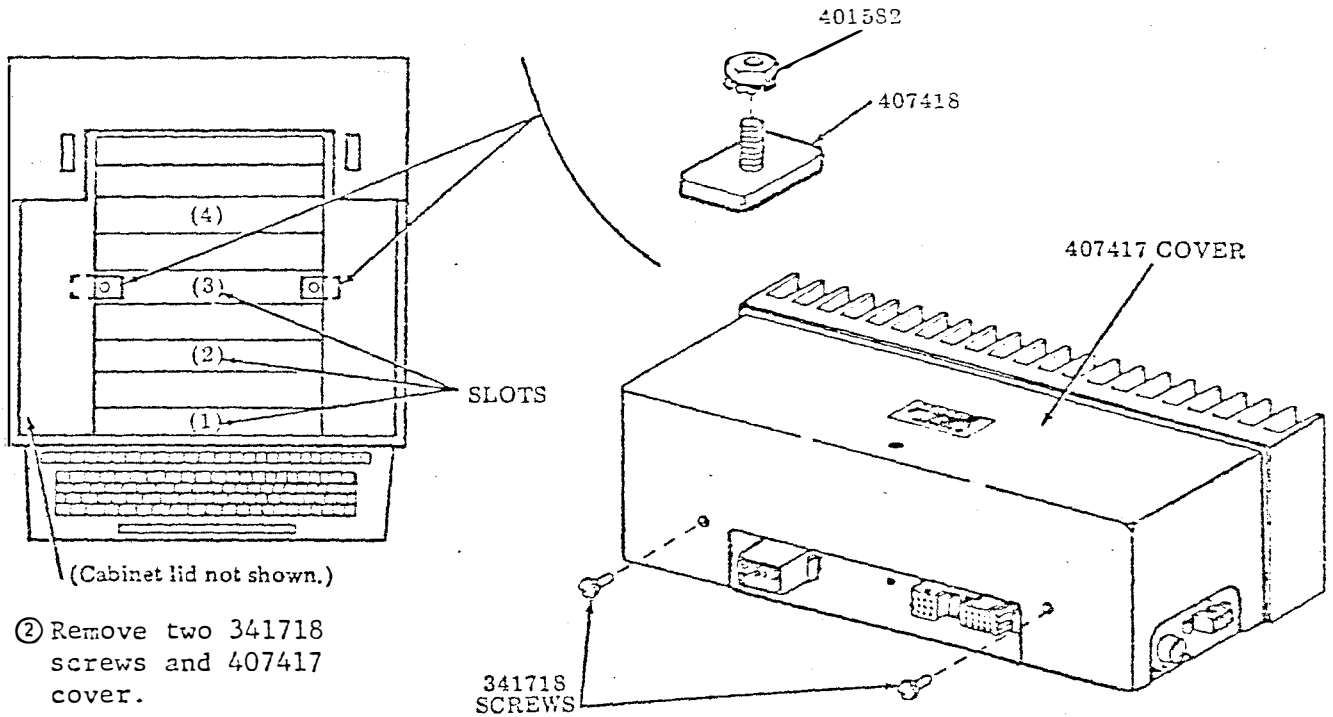
Note: The 6 hole 405038 connector is not numbered, numbers are given as references.



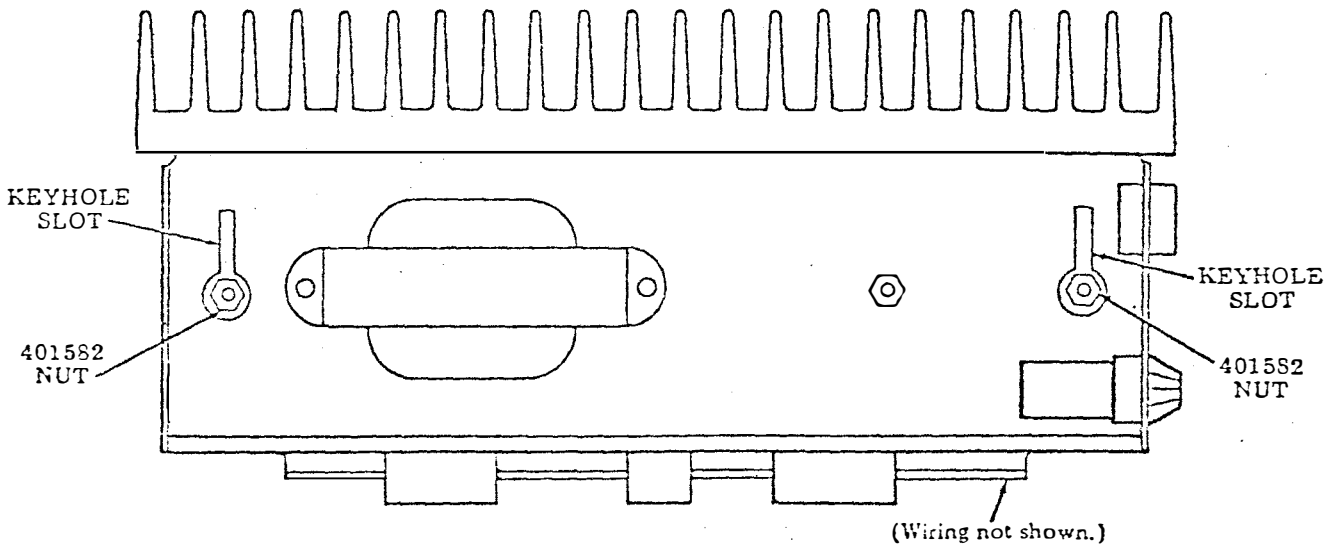
Wire Side of Plug

4.06 Mount the KDA with the 405983 modification kit hardware:

- ① Place two 407418 brackets with the 401582 nuts loosely in place in the third or fourth slot, from the front, in the cabinet floor by sliding the brackets under the skirt.



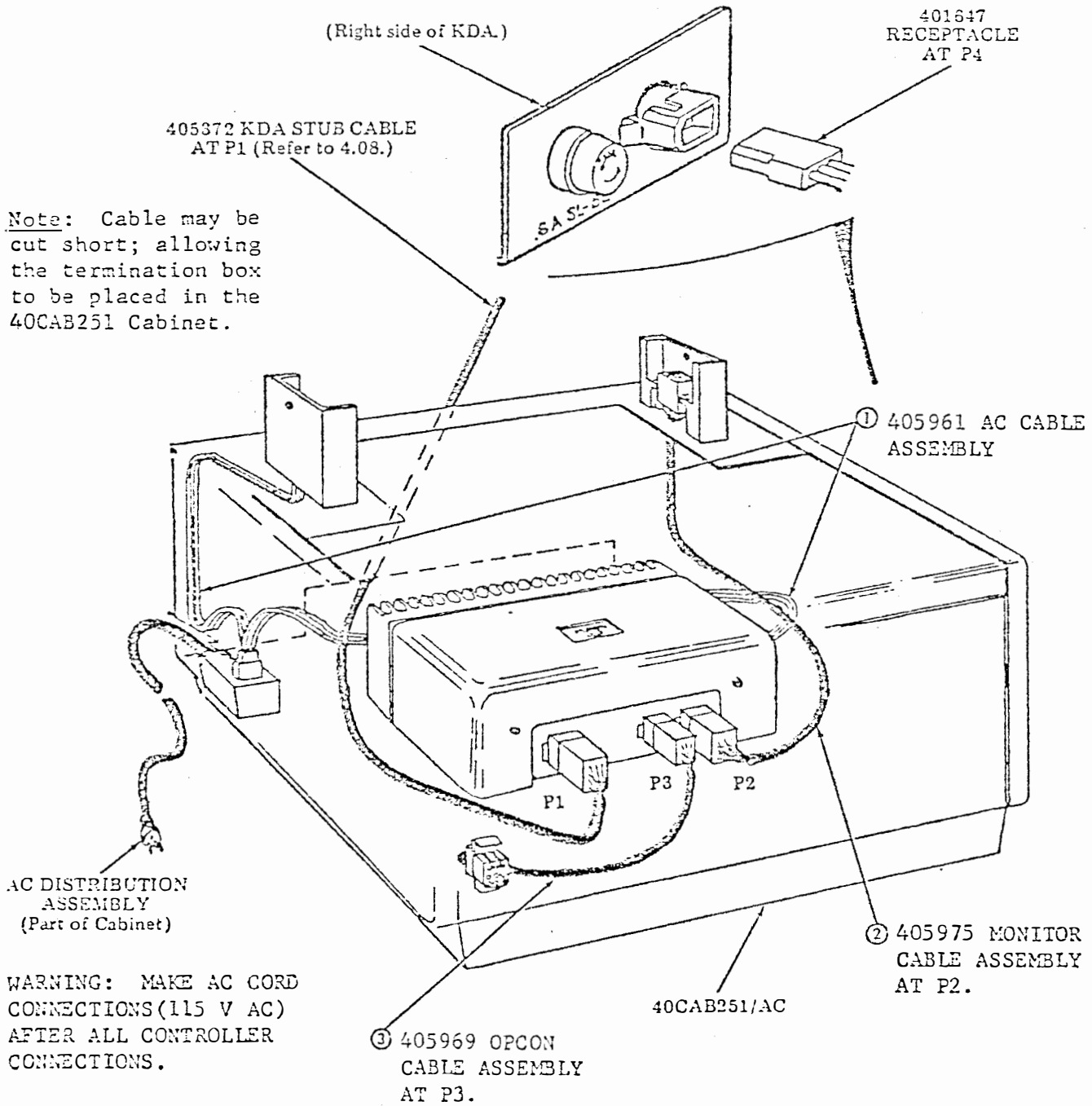
- ③ With the KDA heat sink facing the rear of the cabinet, lower the KDA into cabinet, position bracket studs (with 401582 nuts) either left or right until the 401582 nuts protrude from the keyhole slots. Move KDA forward until studs touch the rear of the slots. Tighten both nuts.



- ④ Remount 407417 cover with 341718 screws.

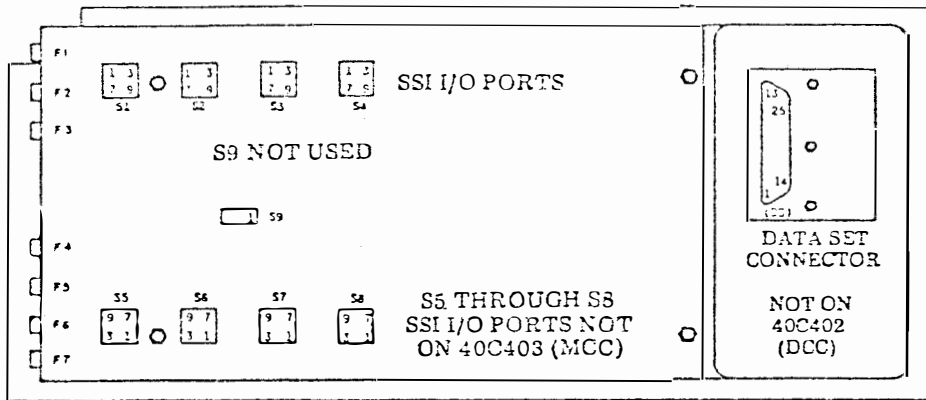
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4.07 The final steps for installing the 405983 modification kit is to plug in all cables, at 40CAB251/AC cabinet:



4.08 Interconnection of 40KDA101 to synchronous MCC or DCC Controller.

INTERCONNECTION MODULE OF DCC OR MCC



For cable connections to MCC or DCC, refer to Section 582-200-201 (TC or BSP).

(Side View)

SSI CONNECTOR TO CONTROLLER

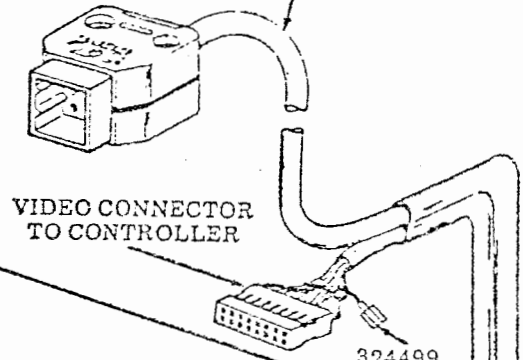
VIDEO CONNECTOR AT 410200 BACK PANEL

V1A	V1B	V2C	V2D
2	26	2	26
1	27	1	27

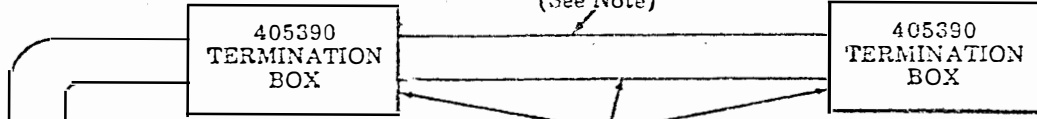
(Rear View)

ALTERED OPCON/MONITOR CABLES:

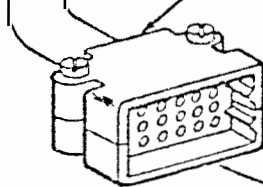
- 405301 6 FT
- 405302 12 FT
- 405303 25 FT
- 405304 50 FT
- 405139 75 FT
- 405140 100 FT



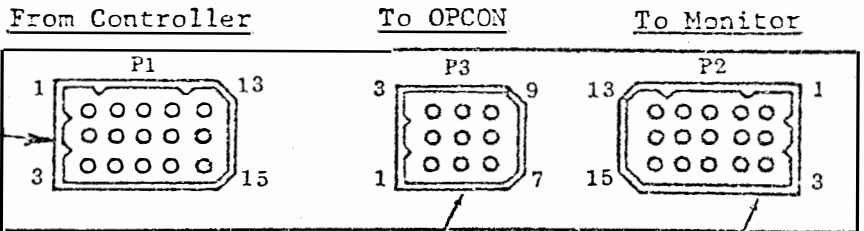
31246 RM CABLE (See Note)



405372 40 KDA STUB CABLE (6 FT)



40KDA101 Input-Output Connections

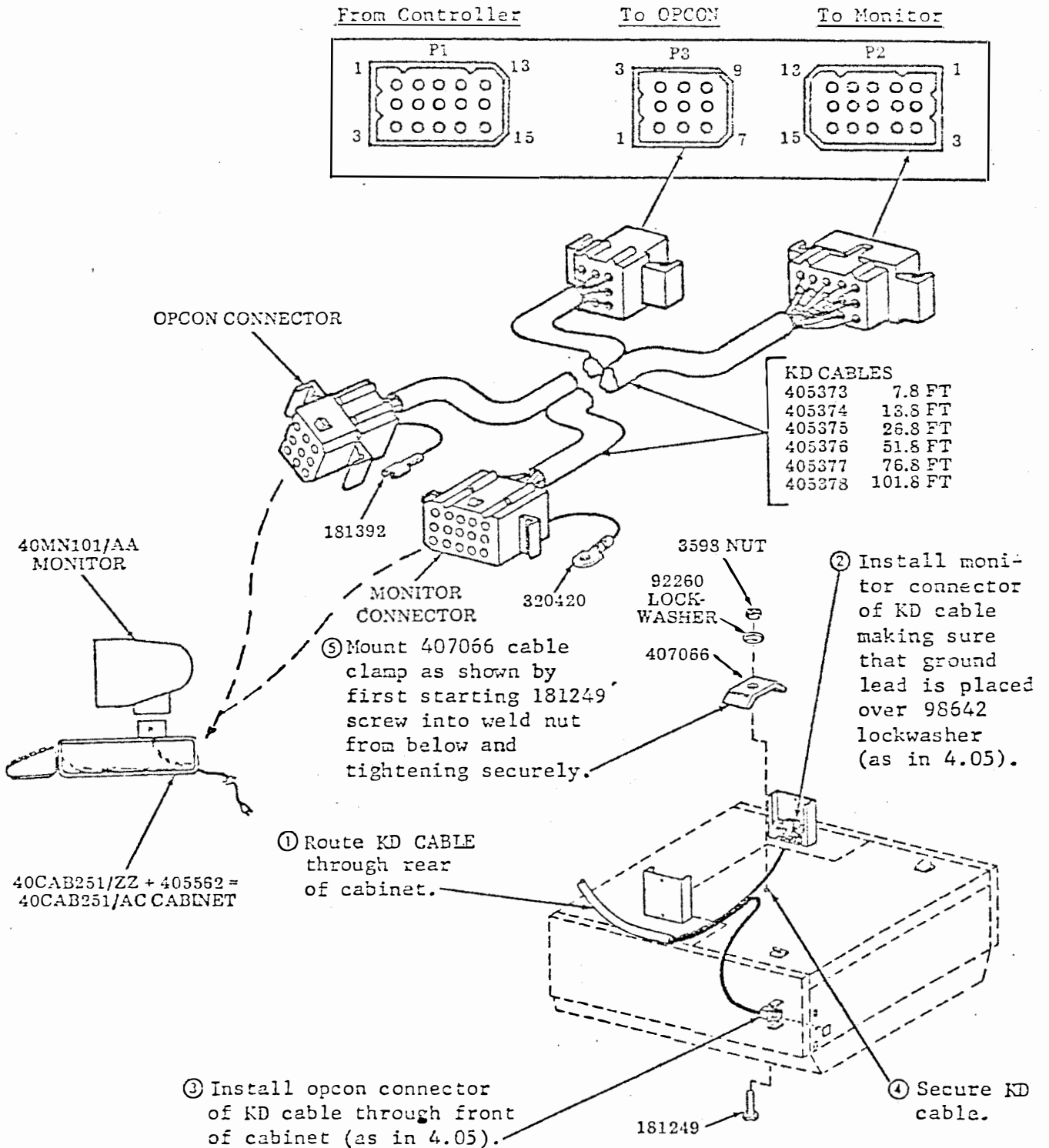


For cable connections, refer to;
 4.07 - KDA in a 40CAB251/AC
 4.09 - KDA to Free Standing KD
 4.10 - KDA to Attached KD

Note: The length of the RM Cable plus the altered OPCON/MONITOR cable and a 40KDA stub cable is not to exceed 500 feet.

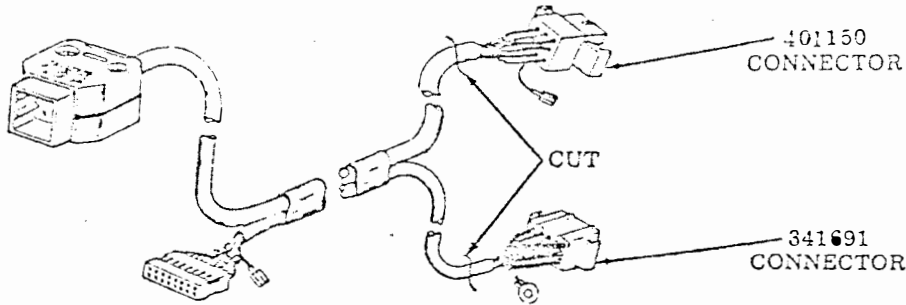
4.10 Interconnection of 40KDA101 to attached KD (for connections 40KDA101 to controller, see 4.08).

40KDA101
Input-Output Connections



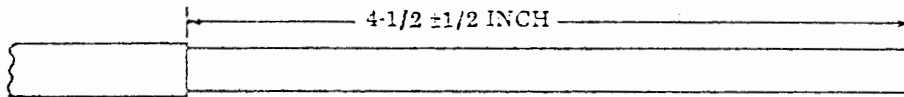
1.11 Installation of the 405390 termination boxes into a 40C400 system requires the following steps:

- ① Cut off the 401150 and 341691 connectors from the dual cable (OPCON/MONITOR).



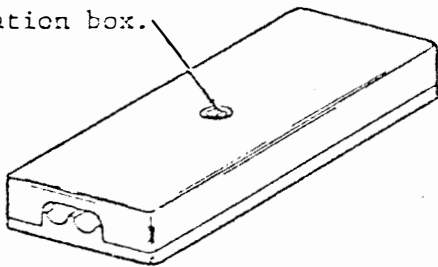
- ② Slit and remove four to five inches of both the outer jacket and shields. Also, remove the two foil shields of the video cable.

CAUTION: CARE MUST BE USED TO PREVENT CUTTING THE OUTER SHIELD DRAIN WIRES.

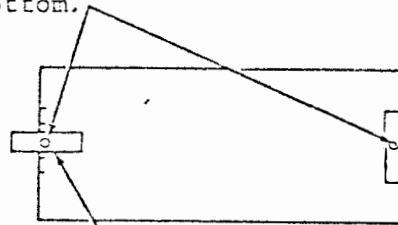


- ③ Prepare one end of the 31246RM cable (up to 500 feet) in the same manner.

- ④ Remove 195272 screw to open the 405390 termination box.

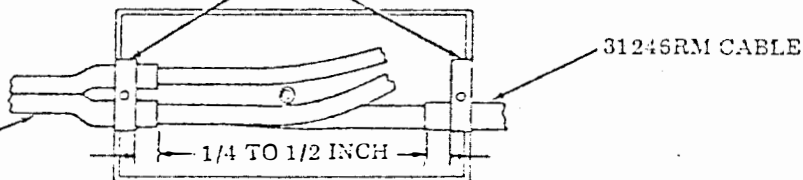


- ⑤ Loosen the two 1291 clamp screws on bottom.



- ⑥ Turn clamps 90°.

- ⑦ Draw clamps tight with 1291 screws.

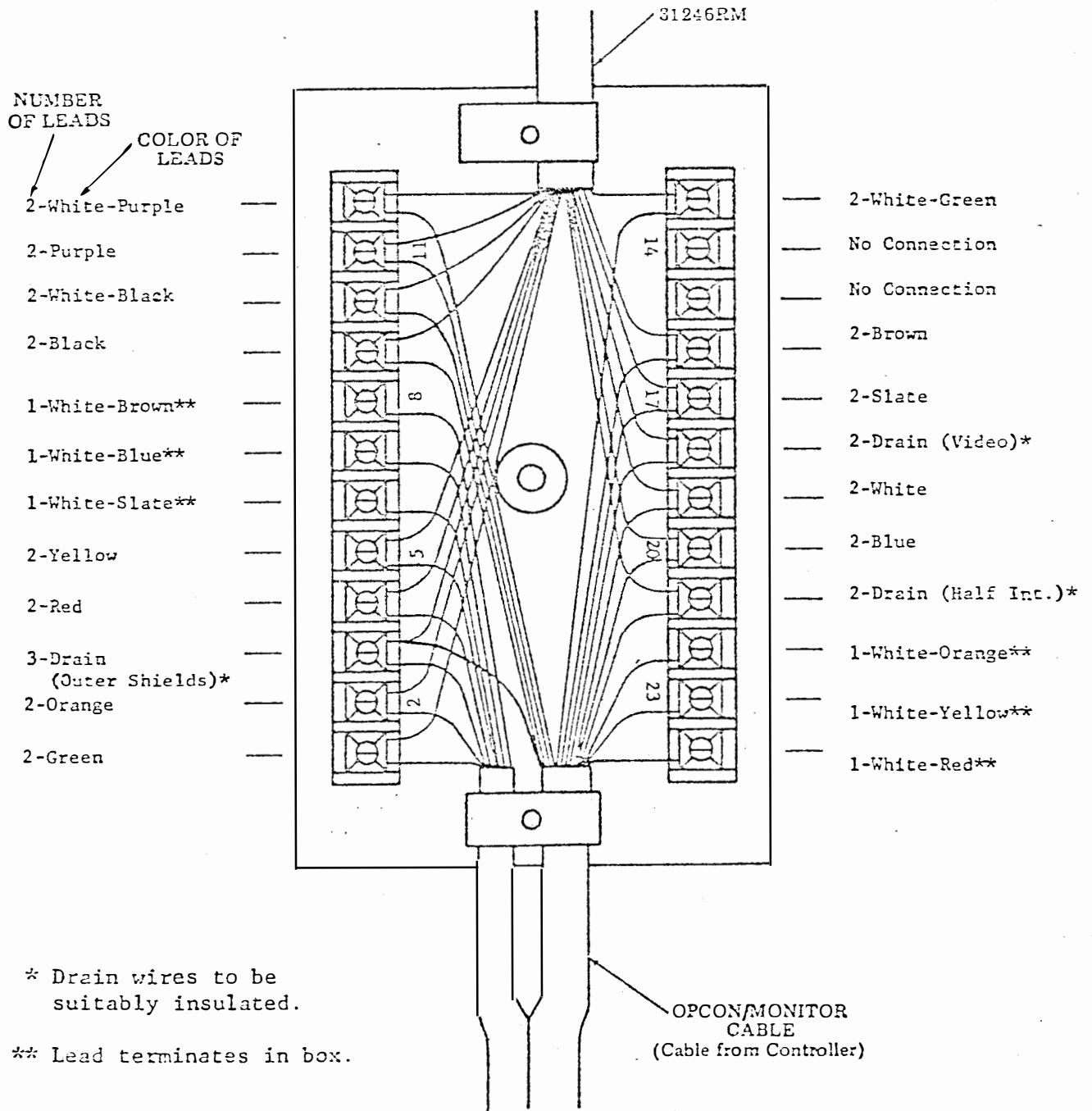


- ⑧ Insert OPCON/Monitor cable and 31246RM Cable; allow $\frac{1}{4}$ to $\frac{1}{2}$ inch of the outer jackets to extend past the clamps.

⑨ Each conductor lead must be cut to length and $\frac{1}{2}$ inch of insulation skinned off.

Note: Conductors must not be solder tinned.

⑩ Loosen all terminal screws (keepers raise with screws). Insert proper lead(s) to terminal and tighten screws.



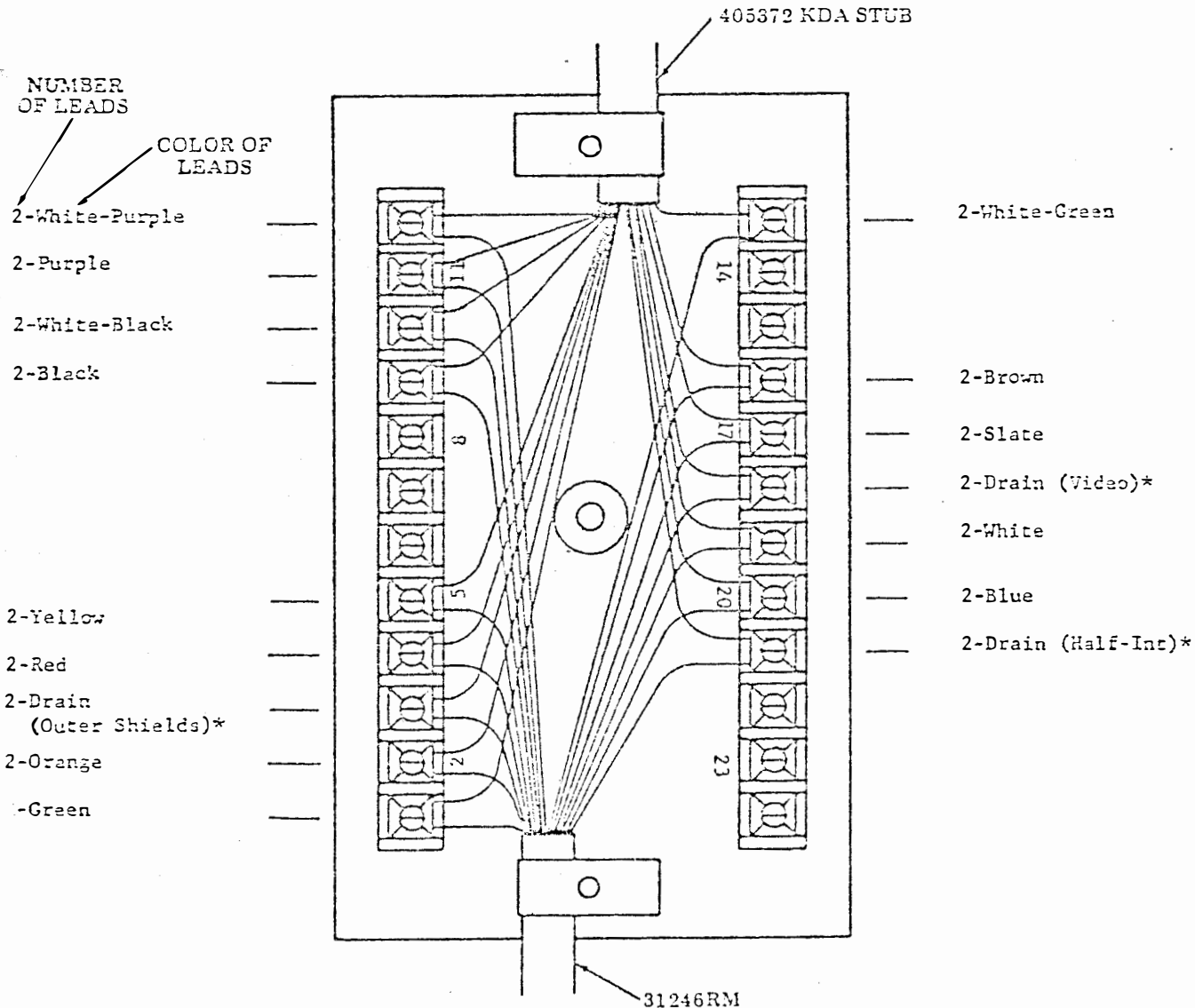
* Drain wires to be suitably insulated.

** Lead terminates in box.

⑪ Remount and fasten cover.

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- ⑫ Install the 31246RM cable (long run). This cable is not intended for rigorous pulling through conduit. Due to inner shielding isolation requirements and the very fragil wire used in the video and half intensity pairs, it is recommended that for conduit runs over 100 feet, not more than 25 percent of the conduit area should be used. In addition, if more than one 90 degree bend is encountered in the conduit run a pull box should be inserted.
- ⑬ The 405372 stub cable and the 31246RM cable are then installed in the second termination box, go back and follow steps ③, ④, ⑤, ⑥, ⑦ as shown below, ⑧, ⑨ and ⑩.



* Drain wires to be suitably insulated.

- ⑭ Remount cover and tighten 195272 screw.

5. TESTING PROCEDURE

5.01 The testing of the 40KDA is as follows:

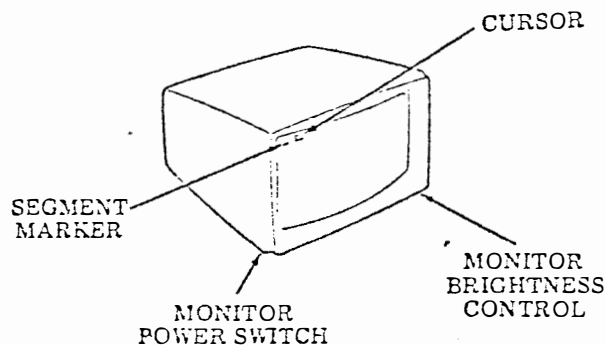
(a) After initial installation of a Model 40/4 Station arrangement, check KDA drive lamp as in 5.03 and then perform the entire 40/4 test procedure of 582-200-501.

(b) After a 40KDA is added to a station or repaired; check drive lamp as in 5.03 and then perform 5.04 testing procedures of the 582-200-501 TEST AND TROUBLESHOOTING.

5.02 Testing of the 40KDA is mainly a check of the KD performance. The testing of Part 5 is referenced to the Trouble Analysis (6.06) by number.

5.03 The power check for the 40KDA is as follows:

- (a) Plug in KDA ac cord at proper receptacle (turn on set power, monitor power and controller power).
- (b) Check that drive lamps (red indicators---top of KDA and inside monitor) are lighted. Trouble #1 and #7 (6.07).
- (c) Adjust monitor brightness control to desired level and check segment marker and cursor. Troubles #2, 3 and 4 (6.07).



5.04 Perform testing, from Section 582-200-502 (2.01);

- (a) CHART 1 -- Controller Self-Test Procedures -- Trouble #5 (6.07).
- (b) CHART 2 -- KD/Controller Local Test Procedures -- Trouble #6 (6.07).
- (c) CHART 4 -- KD Local Test Procedures

6. TROUBLE ISOLATION

6.01 Before attempting to troubleshoot the Keyboard Display Amplifier (KDA), make sure the trouble is not caused by interconnected equipment (monitor, opcon or 40C400 type controller). This can be done by making the self test of the controller or by replacing the monitor or opcon as required. If you have never observed that the system (with the KD) operates correctly (and a cable check is indicated), also check wire colors.

6.02 To isolate a trouble to a specific component in the KDA, start with the testing procedures of Par. 5. If the monitor or opcon does not perform the required responses, read the list of troubles in trouble analysis of Par. 6.07. If any of the trouble conditions match the units symptoms, follow the Trouble Analysis Procedures step-by-step until the trouble condition is eliminated.

CAUTION: DO NOT INSERT, REMOVE, CONNECT, OR DISCONNECT ANY ELECTRONIC COMPONENT WHILE AC POWER IS APPLIED.

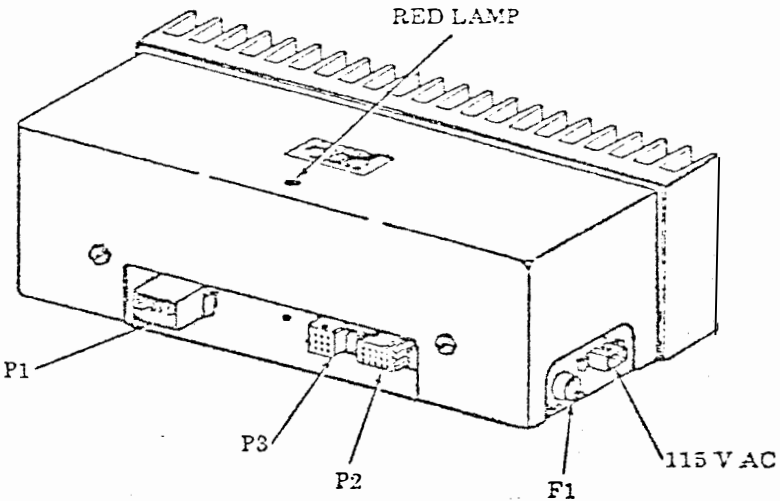
6.03 Repair of the KDA on customer location should be confined to the replacement of cables, fuses or circuit cards. Troubles that are difficult to analyze may require replacement of the entire KDA with a known good unit.

6.04 If a trouble is isolated to the 410575 card of the KDA, the trouble analysis will recommend that the card be replaced.

6.05 There are some volt-ohmmeter checks required in the trouble analysis procedures. A volt-ohmmeter having 20,000 ohms per volt sensitivity is recommended. The volt-ohmmeter must be set to the appropriate scale by the user, before any measurement is attempted. Standard maintenance tools (screwdriver, needle-nose pliers and $\frac{1}{4}$ inch or $\frac{5}{16}$ inch nut drivers, as in Section 570-005-800 TC, are required.

6.06 Maintenance of the KDA is aided by a red indicator lamp at the top of its cover. This lamp is lit when the KDA is in operation (producing a +5 V dc voltage and receiving a horizontal drive signal from the controller).

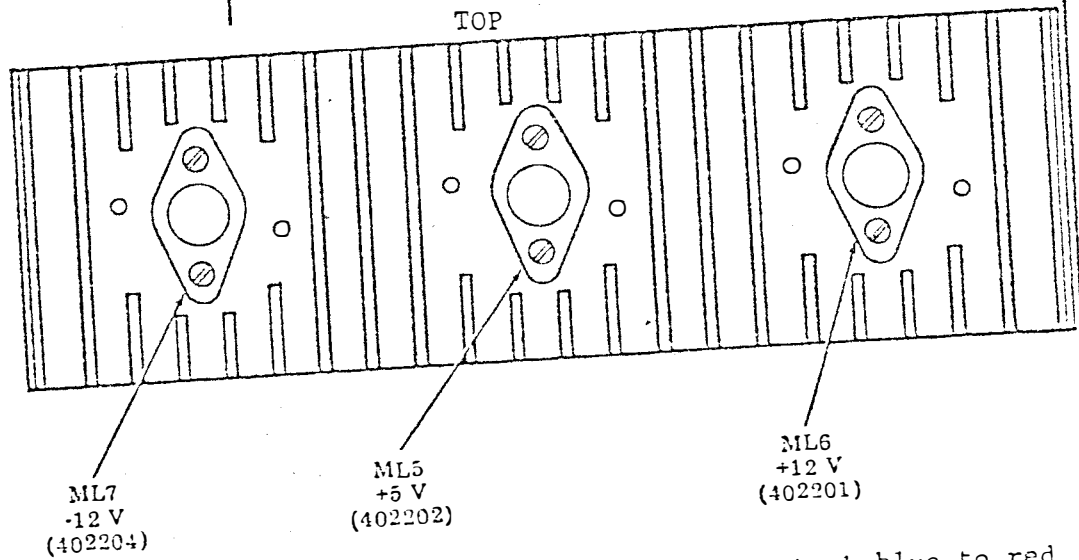
6.07 Trouble Analysis

NO.	TROUBLE	TROUBLE ANALYSIS PROCEDURES
1	Red indicator lamp (L1) is not on, with power applied.	<p>a. Check 143307 fuse (F1) 0.6 amp SL-BL if blown.</p>  <p>Note: If fuse blows again, disconnect J4-P4 connectors. Replace the fuse. If fuse blows again, replace 405977 transformer. If the fuse blows after the power is restored, replace the entire KDA.</p> <p>b. Check ac cord continuity:</p> <ol style="list-style-type: none"> (1) In-line installations (405967 cable), disconnect 401648 plug from 401647 receptacle (inside KDA) and remove the ac plug from the wall receptacle. (2) Cabinet installations (405961 cable), disconnect 401647 receptacle from 401648 plug (side of KDA). Remove the ac plug from the wall receptacle. Check continuity from ac plug to terminals of 401647 receptacle (see 6.03). After checks are complete, re-mount the ac cord. <p>c. Check ac voltage at 401647 connector. Pin 1 (black wire) to Pin 2 (white wire) = 103-127 V ac (power on). If not present, replace ac cord or check ac wall receptacle. Restore 401647 connection.</p>

6.07 Trouble Analysis (Cont)

TROUBLE ANALYSIS PROCEDURES

NO.	TROUBLE	TROUBLE ANALYSIS PROCEDURES
1	(Cont)	<p>d. Check ac voltages at J4 connector (unplug J4 from P4, "No Load Condition Check", with power on); Pin 1 to Pin 2 = 21 V ac (approx), Pin 2 to Pin 3 = 21 V ac (approx), and Pin 1 to Pin 3 = 43 V ac (approx). If any voltage is not present, replace the 405977 transformer assembly.</p> <p>e. Remove monitor cable from P2, connect J4 to P4, refer to 6.08. Check voltage between P2 pin 12 (or 14) and Pin 9 (or 15), if +5 volts is not present; check 402202 regulator (ML5) white lead to red lead (GRD) for +5 volts.</p>



If voltage is not correct, check blue to red leads for a voltage of greater than +5 volts. If the blue lead voltage is not greater than +5 volts, install a new 410575 card. If blue lead voltage is correct but the white lead voltage is not correct, replace the ML5 regulator (402202).

6.07 Trouble Analysis (Cont)

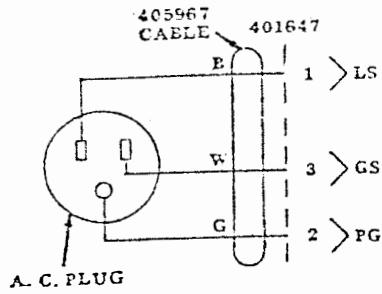
NO.	TROUBLE	TROUBLE ANALYSIS PROCEDURES
2	Dark screen at monitor, no raster present (with monitor brightness turned on full).	<p>a. If red indicator lamp (L1) is not on go to Trouble 1. If KDA passes all checks of Trouble 1, replace 410575 card.</p> <p>b. If red indicator lamp (L1) is lighted, but the drive lamp (L5) of the monitor is not lighted, replace 410575 card.</p> <p>c. Recheck monitor.</p> <p>d. Recheck cables.</p> <p><u>Ref:</u> Horizontal Drive, P2 pins 8 and 10 (6.11).</p>
3	No cursor present and/or, no characters displayed (raster present).	<p>a. Replace 410575 card.</p> <p>b. Recheck monitor.</p> <p>c. Recheck cables.</p> <p><u>Ref:</u> Video Channel, P2 pins 3 and 6 (6.09).</p>
4	Display roll over on screen, continual.	<p>a. Replace 410575 card.</p> <p>b. Recheck monitor.</p> <p>c. Recheck cables.</p> <p><u>Ref:</u> Vertical Sync Channel, P2 pins 11 and 13 (6.11).</p>
5	Half-intensity or protected data is displayed at full intensity, all the time.	<p>a. Replace 410575 card.</p> <p>b. Recheck monitor.</p> <p>c. Recheck cables.</p> <p><u>Ref:</u> Half-intensity Channel, P2 pins 1 and 2 (6.10).</p>

6.07 Trouble Analysis (Cont)

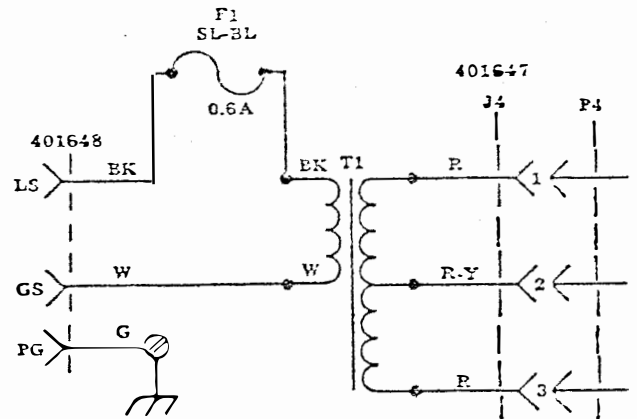
NO.	TROUBLE	TROUBLE ANALYSIS PROCEDURES
6	Any problem related to opcon operation.	<p>a. Replace opcon.</p> <p>b. Remove opcon cable from P3 at KDA. Check for +12 V dc between P3-7 and P3-4 (grd). Check for -12 V dc between P3-8 and P3-4 (grd). If voltages are correct, go to trouble 6 c. If +12 V is bad, replace ML6 regulator (402201) or the 410575 card. If -12 V is bad, replace ML7 regulator (402204) or the 410575 card.</p> <p><u>Note:</u> Before making any continuity checks, observe all cables for proper wiring.</p> <p>c. Check SSI cable continuity between KDA and opcon.</p> <p>d. Check SSI cable continuity between KDA and controller.</p> <p>e. Remove all cables from KDA. Check for continuity between the following pins of the 410575 card:</p> <p style="padding-left: 40px;">Connector P1 to Connector P3 (6.11)</p> <p style="padding-left: 80px;">Pin 12.....Pin 1 Pin 9.....Pin 2 Pin 15.....Pin 3 Pin 14.....Pin 6</p> <p>If no continuity is found, replace 410575 card.</p>
7	Red indicator lamp of KDA is on; but drive lamp of KD monitor is off.	<p>a. Recheck monitor (if convenient, replace monitor).</p> <p>b. See trouble 1 d. and e.</p> <p>c. Recheck cables.</p>

6.08 Power Flow Diagram

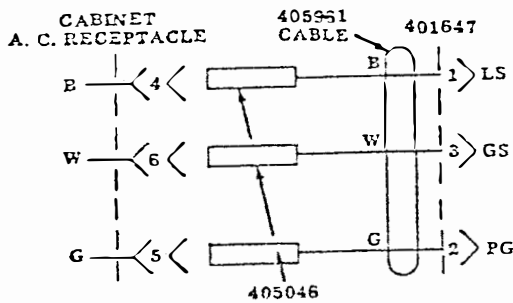
Part of 405982 Modification Kit (In-Line)



405977 Transformer Assembly



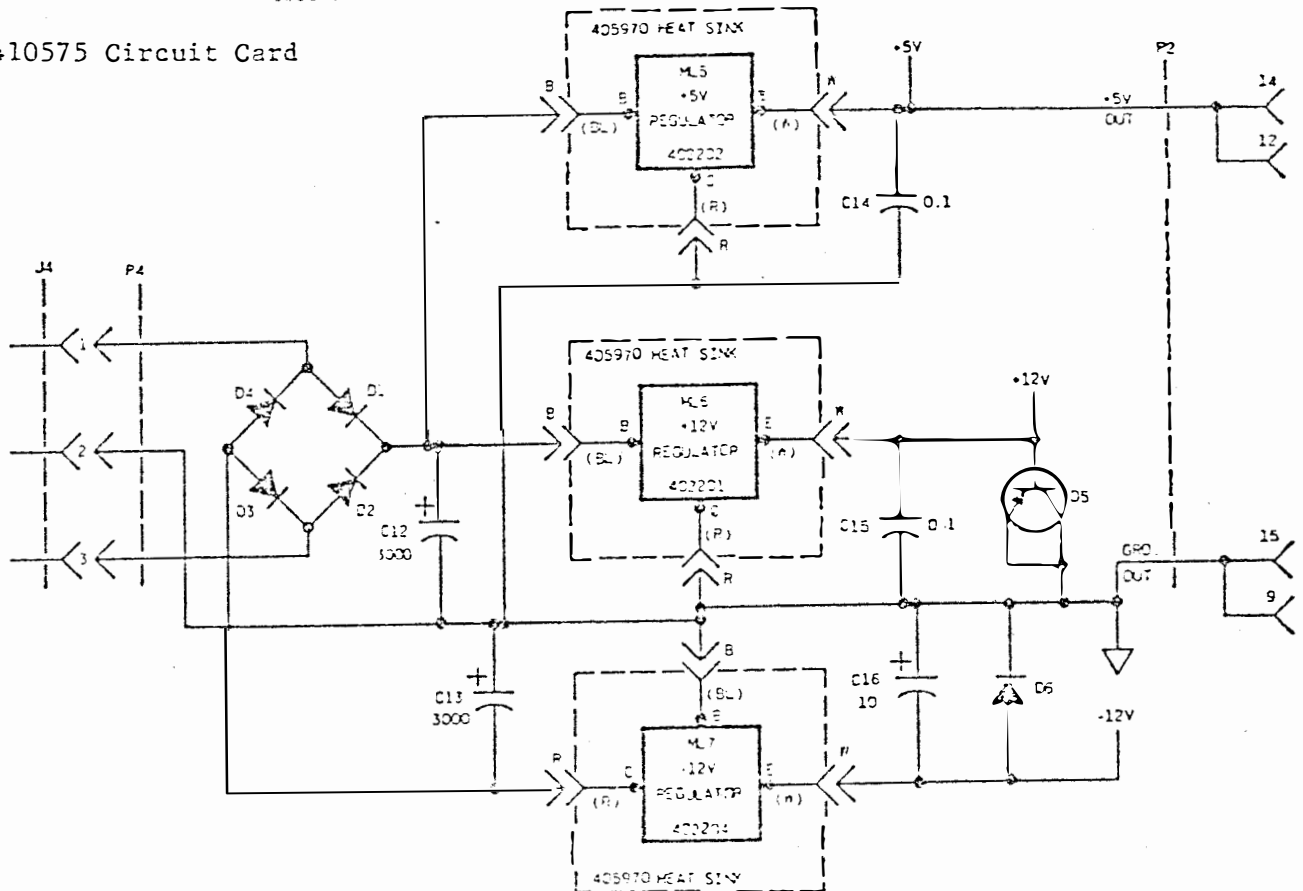
Part of 405983 Modification Kit (Cabinet)



WIRE COLOR CODE

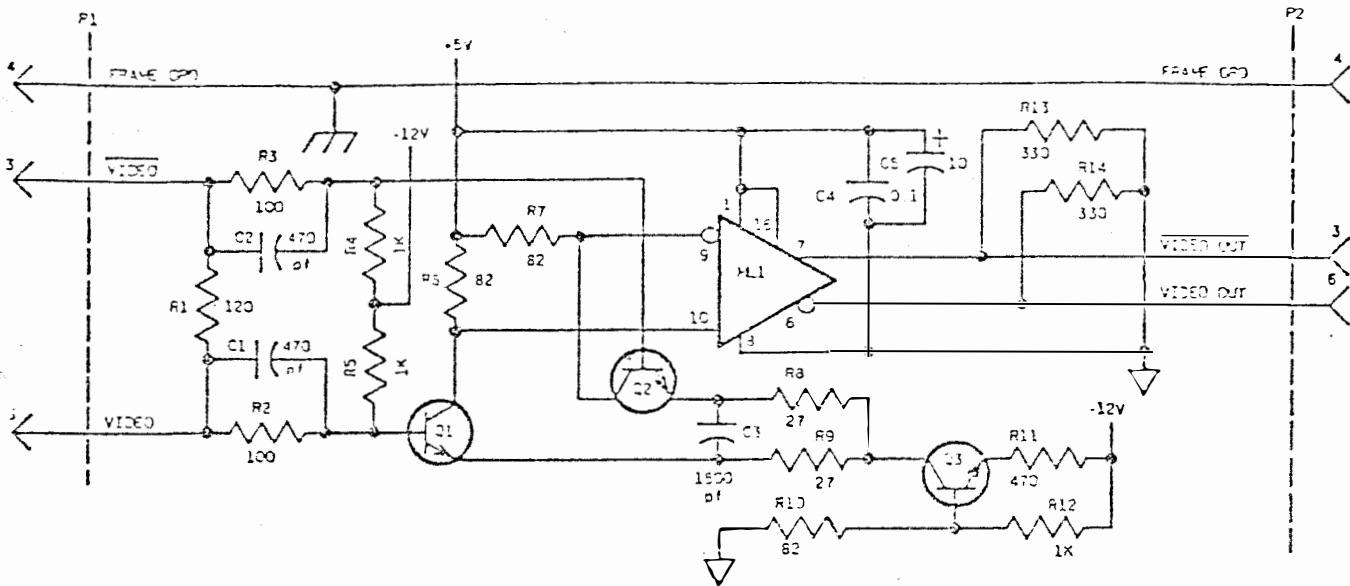
- G - GREEN
- BK - BLACK
- R - RED
- W - WHITE
- Y - YELLOW

410575 Circuit Card

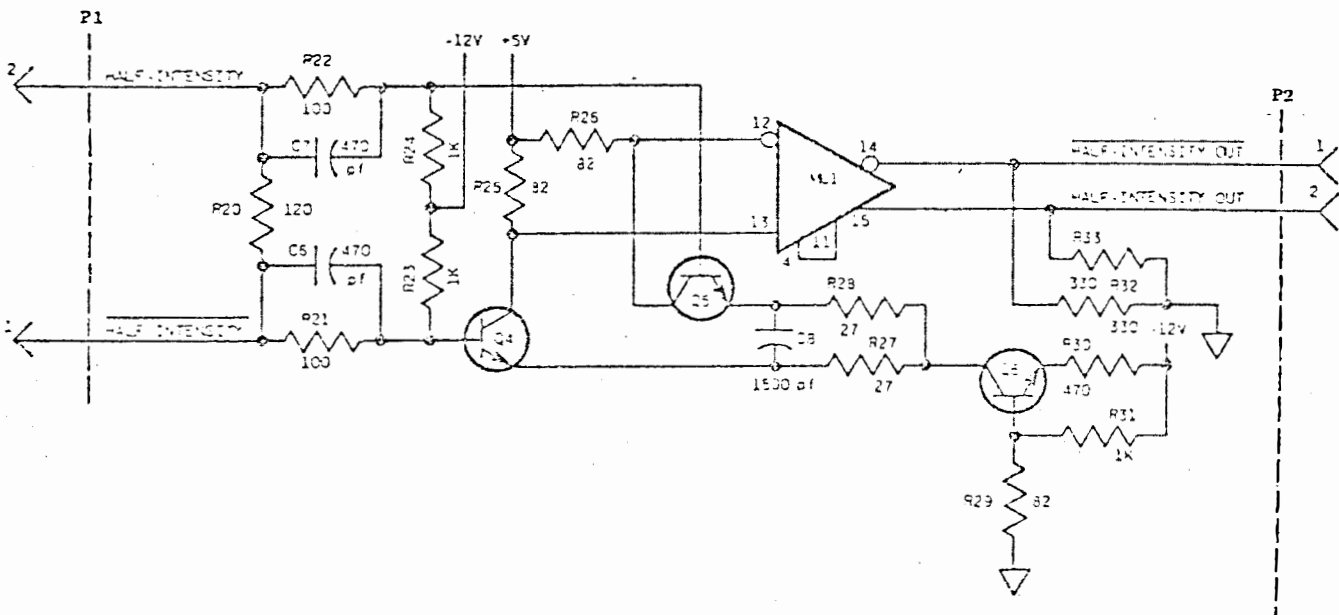


SPECIFICATION 50353S

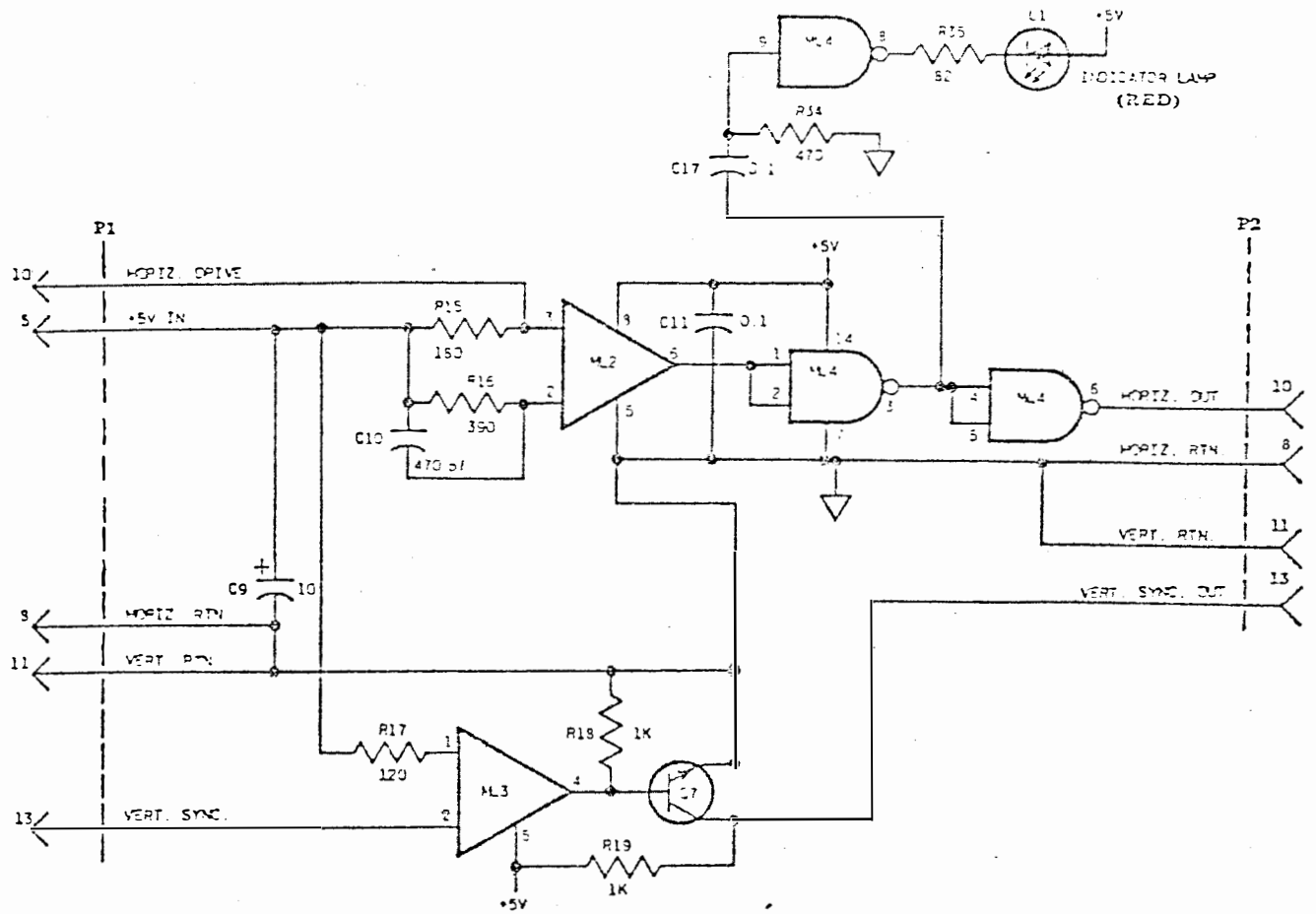
6.09 Video Channel (410575 Card)



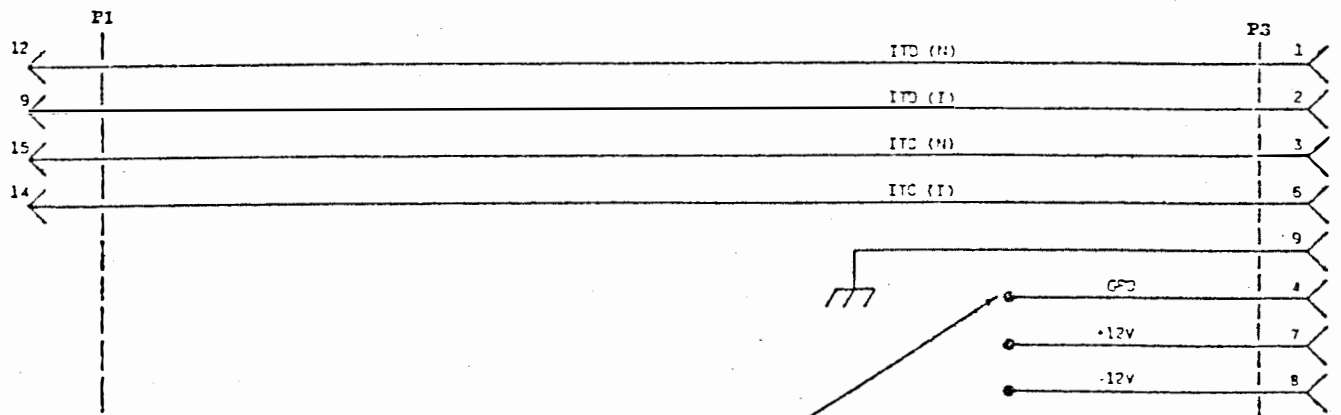
6.10 Half-Intensity Channel (410575 Card)



6.11 Horizontal Drive and Vertical Sync Channels (410575 Card)

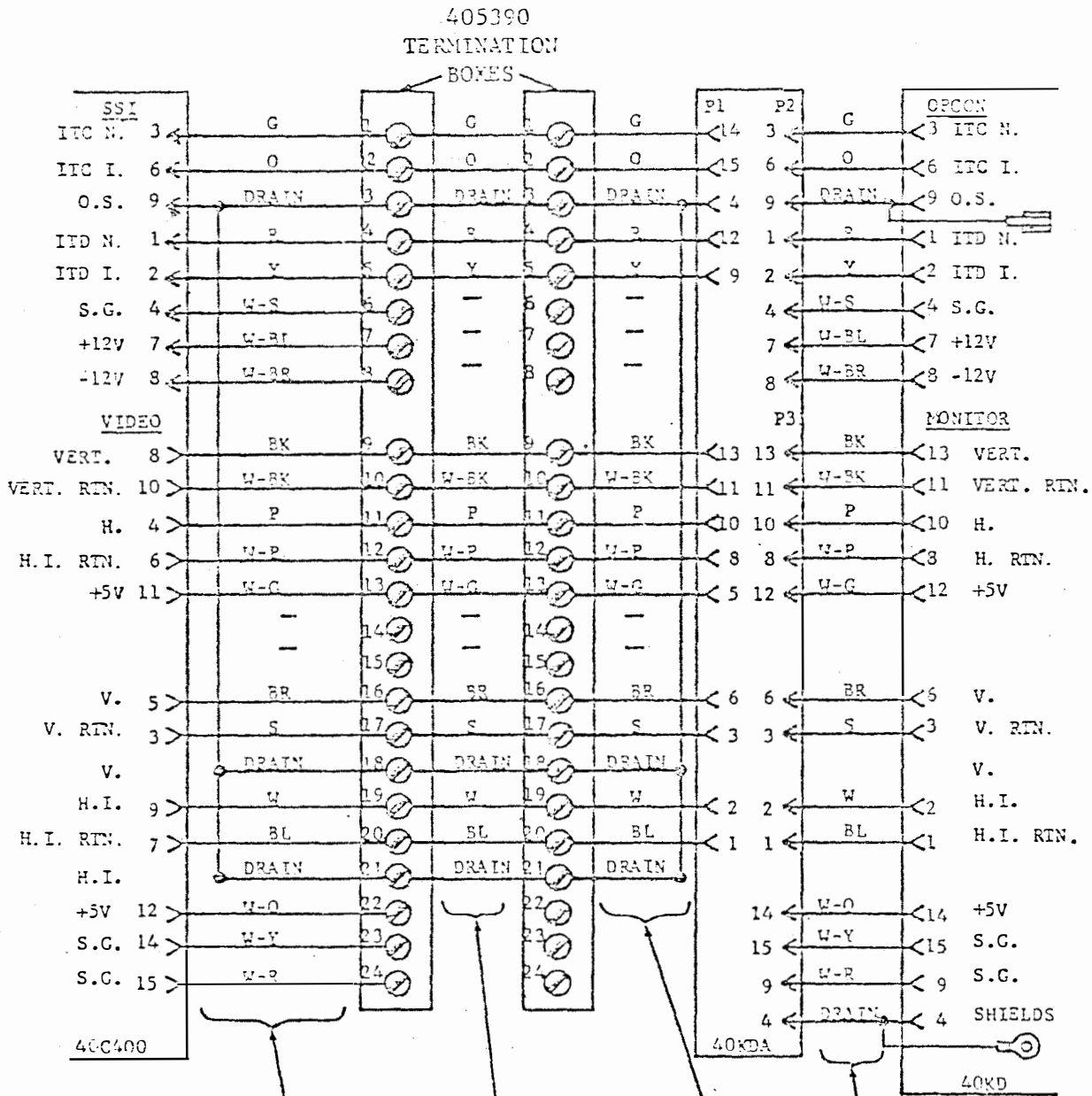


6.12 SSI Channel (410575 Card)



Note: Ground is not used in opcon.

6.12 40C400 Controller to Remote 40KD Cabling



SIGNAL LEGEND:
 S.G. = Signal Ground
 O.S. = Outer Shield
 V.S. = Video Shield
 H.I. = Half-Intensity
 RETN = Return
 V. = Video
 VERT. = Vertical
 H. = Horizontal
 N. = Normal
 I. = Inverted

31246RM (up to 500Ft) 405372 STUB Cable (6Ft)

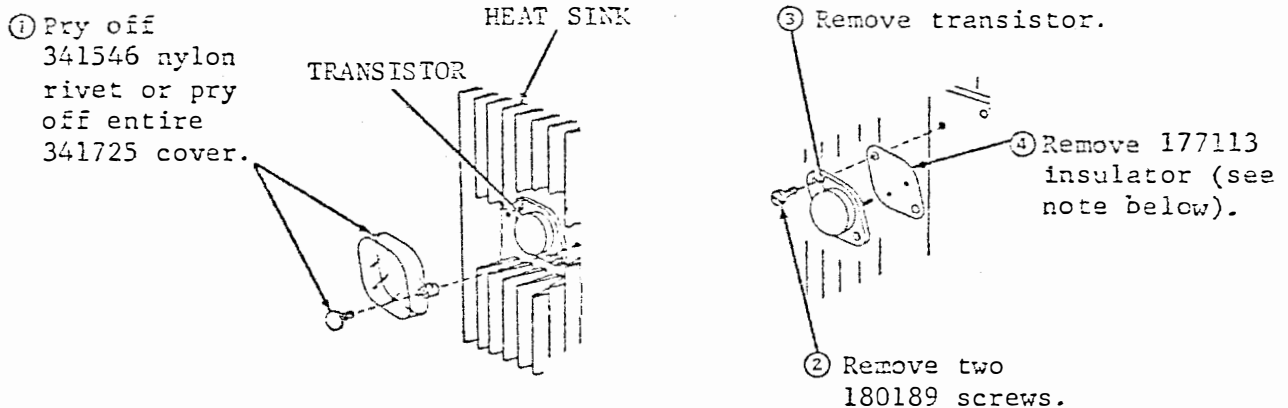
405301 - 6 Ft.	405373 - 6 Ft.
405302 - 12 Ft.	405374 - 12 Ft.
405303 - 25 Ft.	405375 - 25 Ft.
405304 - 50 Ft.	405376 - 50 Ft.
405139 - 75 Ft.	405377 - 75 Ft.
405140 - 100 Ft.	405378 - 100 Ft.

WIRE LEGEND:
 G = Green
 O = Orange
 R = Red
 Y = Yellow
 W = White
 S = Slate
 BK = Blue
 BL = Black
 P = Purple

7. DISASSEMBLY/REASSEMBLY

7.01 The procedures required to disassemble the KDA are very apparent after the 407417 cover assembly has been removed. The use of 8.02, 8.03, and 8.04 is advised as a means of familiarization with the unit.

7.02 The single exception to the very apparent procedures is in the removal of the 177113 transistor insulator, as shown below:



Note: Do not wipe off 402640 heat conducting paste from the 177113 insulator (orange color).

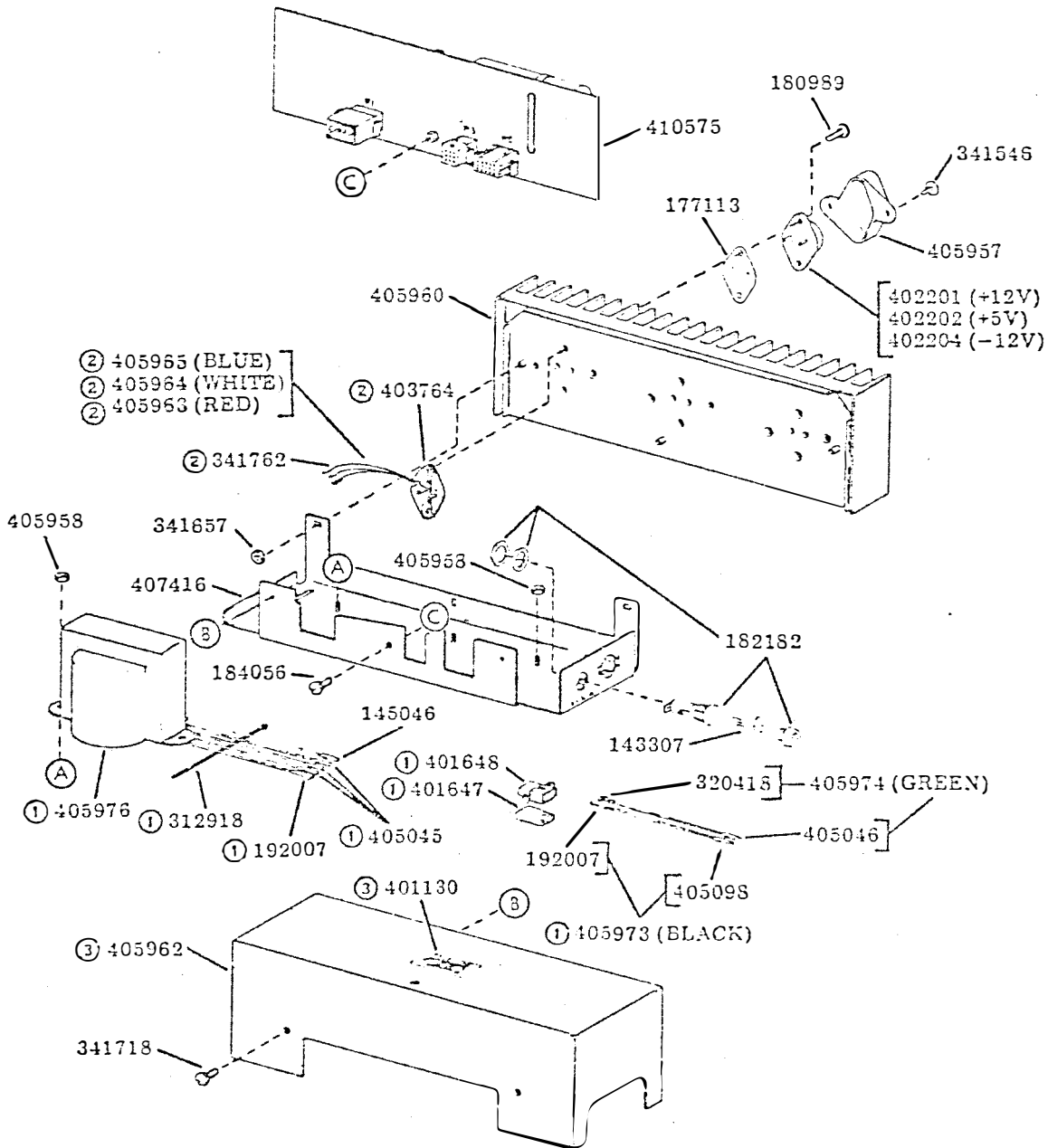
7.03 The reassembly of a Keyboard Display Amplifier is very apparent. The exceptions to this follow:

- (a) Replacement of the 401648 plug (applies to in-line mounting), refer to paragraph 4.03.
- (b) Replacement of the 405960 heat sink; do not overtighten the 341657 self-tapping nuts used to mount the heat sink, refer to 8.02.

8. PARTS

8.01 Parts replacement information for the KDA is given in 8.02, 8.04 and 8.05. Part descriptions are given in 8.06.

02 KDA Parts Information



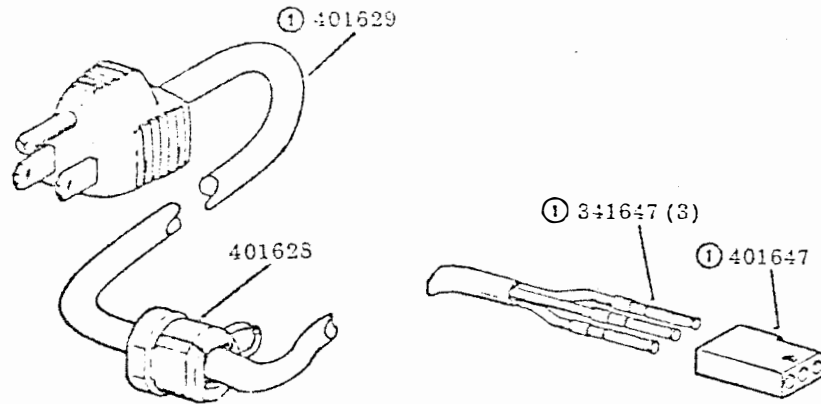
- ② 405965 (BLUE)
- ② 405964 (WHITE)
- ② 405963 (RED)

- 402201 (+12V)
- 402202 (+5V)
- 402204 (-12V)

- ① 405977 TRANSFORMER ASSEMBLY
- ② 405966 SOCKET ASSEMBLY
- ③ 407417 COVER

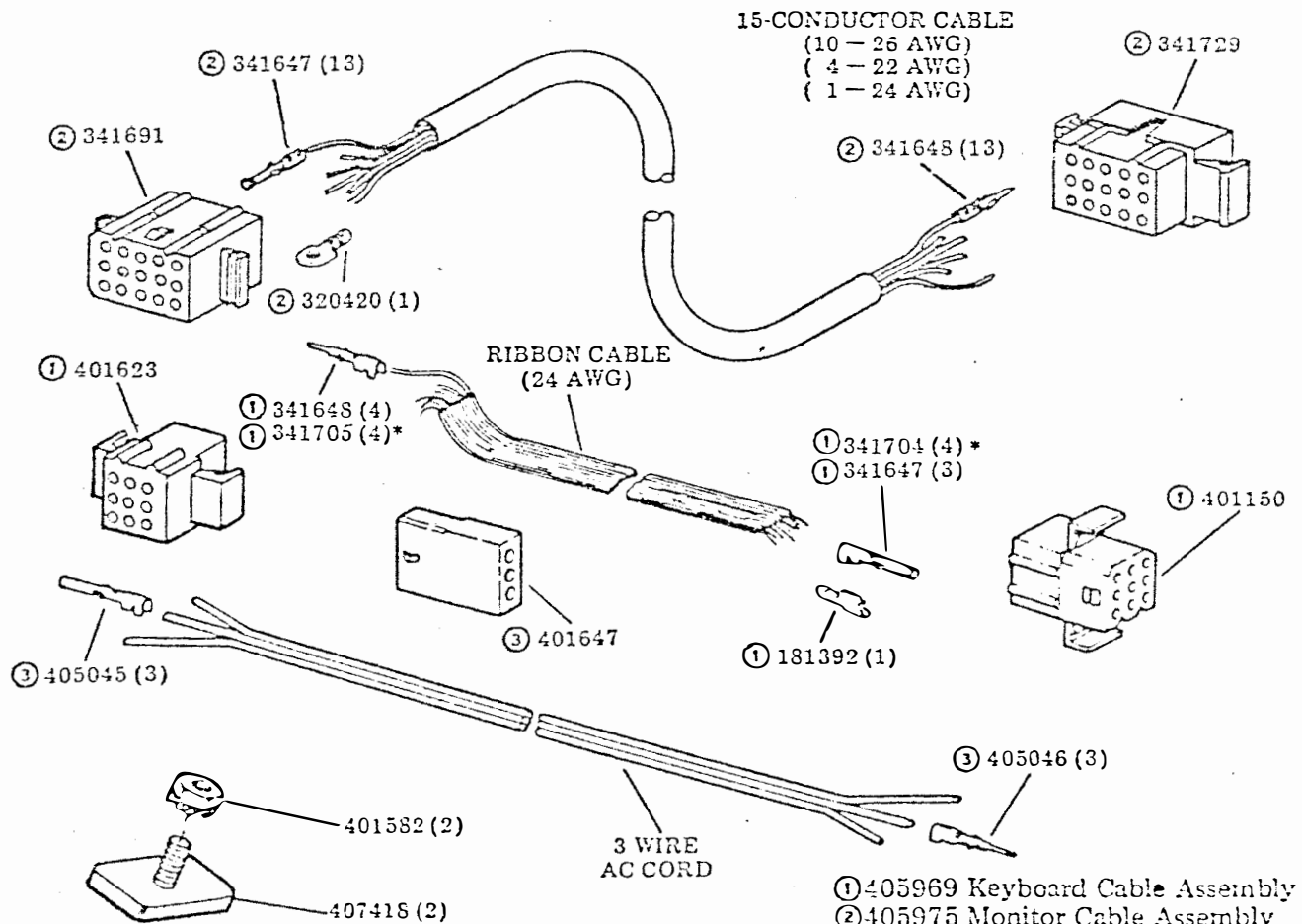
8.03 The two mounting kits used in mounting the 40KDA101 are described in Part 4 Installation and are shown in exploded view in 8.04 and 8.05.

8.04 405982 Modification Kit (In Line Mounting)



① 405967 AC Cord Assembly

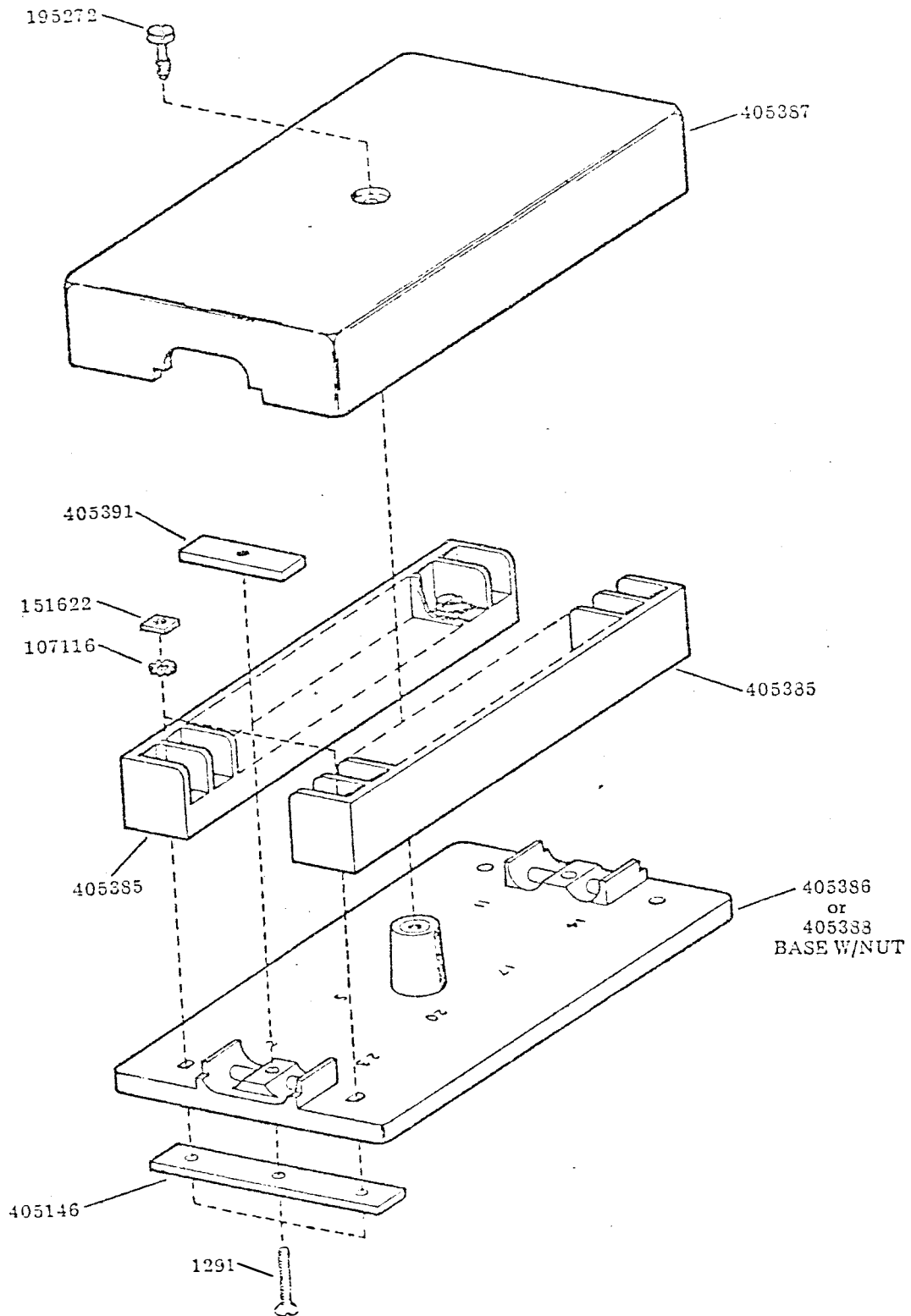
8.05 405983 Modification Kit (Cabinet Mounting)



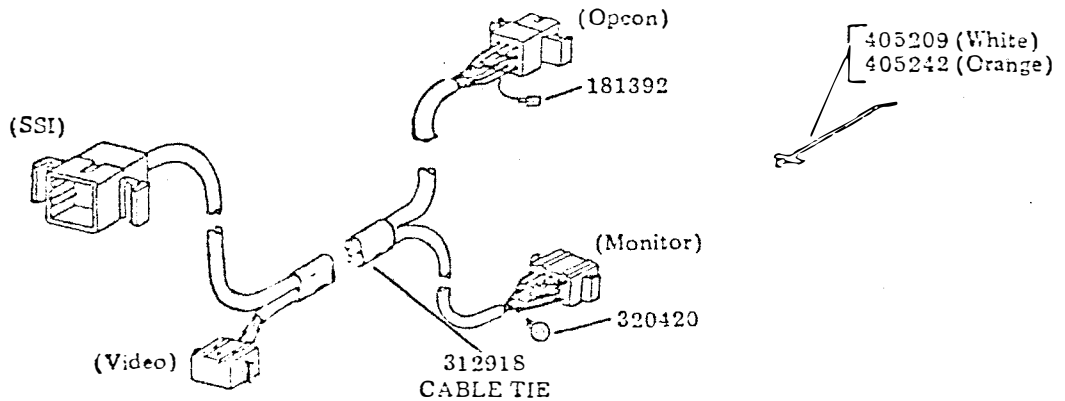
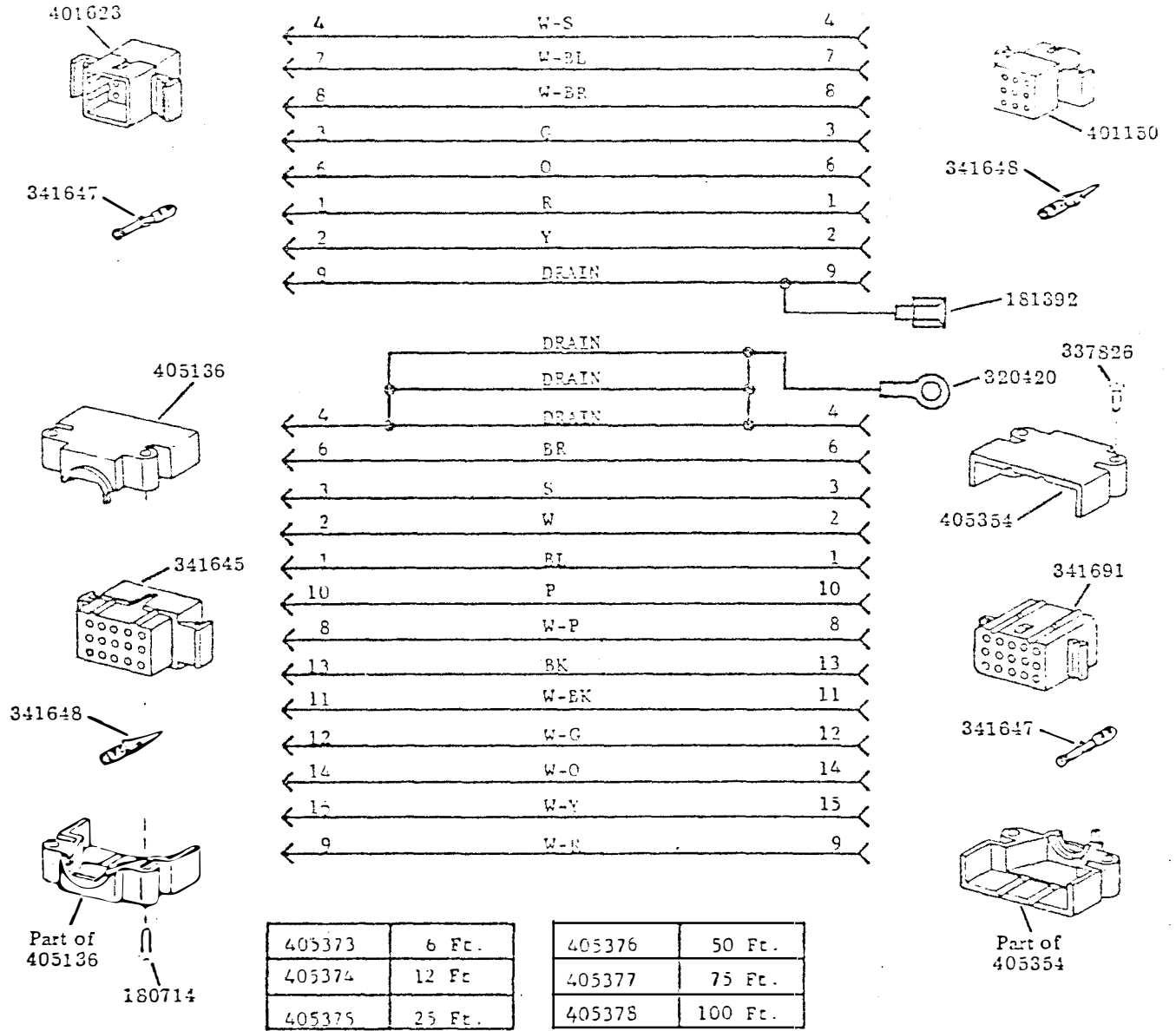
① 405969 Keyboard Cable Assembly
 ② 405975 Monitor Cable Assembly
 ③ 405961 AC Cable Assembly
 *Used on R, Y, G, and O Wires.

SPECIFICATION 50853S

405390 Cable Termination Box (24 Position)

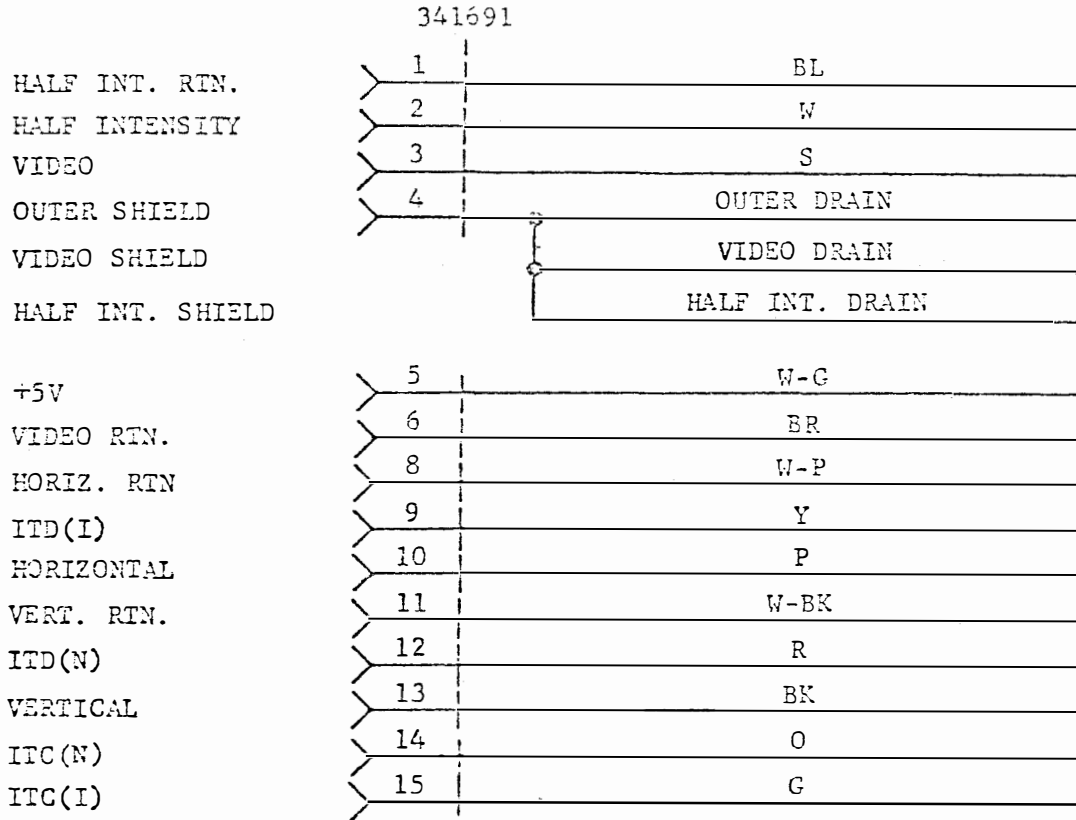


8.07 40KDA to KD Cable Assemblies

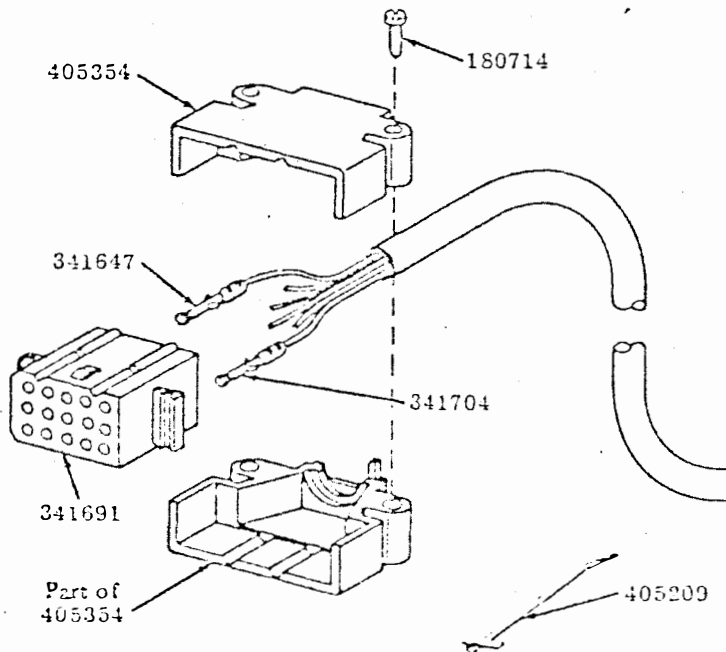


SPECIFICATION 50853S

8.08 405372 40KDA Stub Cable Assembly



ACTUAL WIRING



8.09 Parts Index and Description

<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>PAGE NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>PAGE NO.</u>
143307	Fuse (0.6A, SL-5L)		401628	Bushing, Strain Relief	
145045	Terminal		401629	AC Cord	
177113	Insulator		401647	Connector, 3 pt	
180989	Screw		401648	Connector, 3 pt	
181392	Terminal		402201	+12 V Regulator	
182182	Fuseholder		402202	+5 V Regulator	
184056	Screw		402204	-12 V Regulator	
192007	Terminal		403764	Socket	
312918	Cable Tie		405045	Terminal	
320418	Terminal		405046	Terminal	
320420	Terminal		405098	Terminal	
341546	Rivet, Nylon		405957	Cover, transistor	
341647	Connector, 3 pt		405958	Nut (6-32) w/lockwasher	
341648	Terminal		405960	Heat sink	
341657	Nut, self-tapping		405961	AC Cable assembly	
341691	Connector, 15 pt		405962	Cover	
341704	Terminal		405963	Lead (red)	
341705	Terminal		405964	Lead (white)	
341718	Screw		405965	Lead (blue)	
341729	Terminal 15 pt		405966	Socket assembly	
341762	Terminal		405967	AC Cord assembly	
401130	Label		405969	KYBD Cable assembly	
401150	Connector, 9 pt		405973	Lead w/terminals (black)	
401582	Nut (8-32) w/lockwasher		405974	Lead w/terminals (green)	
401623	Connector, 9 pt		405975	Monitor cable assembly	
			405976	Transformer	
			405977	Transformer assembly	
			407416	Frame w/studs	
			407417	Cover w/trademark	
			407418	Bracket w/stud	
			410575	Circuit card	

Note: When ordering parts from this publication, prefix each number with the letters "Tp".

9. OPERATOR INFORMATION

9.01 Operator action for Model 40/4 Station is not affected by the addition of the 40KDA101 Keyboard Display Amplifier.