Procedure 4-12 Procedure to Install the Customer Defined Input/Output Cables

1	If not already open, open the Customer Interface Compartment. If not already done, remove conduit plug from access hole.
2	Route the Customer Defined Input (CDI) Cable 1–2 through conduit to the underside of the BCU, through the access hole, and up to the connector labeled *CUST. INPUT 1–2*
3	Perform step 2 for CDI Cable 3–4.
4	Route the Customer Defined Output (CDO) Cable 1–4 through conduit to the underside of the BCU, through the access hole, and up to the connector labeled *CUST. OUTPUT 1–4*
5	Perform step 4 for CDO Cables 5–8, 9–12, and 13–16.
6	Ensure a good connection. Close and lock Customer Interface compartment.

Diversity Access Point (DAP) RF Head Assembly Installation

Overview

This section contains the procedures for installing the Diversity Access Point RF Head Assembly which is comprised of the RF Head and antenna radome. Refer to Figure 1-2 for an overall view of the DAP.

DAP RF Head

Refer to Figure 1-4 for the major components of the DAP RF Head.

Electrical Requirements

The RF Head is designed to use 40 to 59 VDC (nominal +54 VDC) supplied through the Base Control Unit (BCU).

Environmental

The operational temperature range for the RF Head is –20 to +55 degrees centigrade.

Dimensions and Weight

- Dimension: 228.6 mm (9 in) **W** x 712 mm (28 in) **H** x 406.4 mm (16 in) **D**
- Weight: 25.4 kg (56 lbs)

The dimension measurements do not include connectors, hinges, handles, or latches.

Conduit Sizes

Refer to Table 4-2 for conduit sizes.

Table 4-2 Conduit Requirements

No.	Designation	Required Size
1	Power	1–1/4 inch
2	Fiber Optic	None

Tools and Materials

- Mounting Bracket Assembly
- U-bolts
- Set of metric sockets (3/8–in or 1/4–in drivers)
- Set of standard sockets (3/8–in or 1/4–in drivers)
- Socket 3/8–in or 1/4–in driver
- Torque Driver
- Cordless Power Driver
- Ground Lug
- Crimp Tool
- T30 Torx Screw Driver
- Adjustable Crescent Wrench
- Tie-wraps of varying lengths

U-Bolt Specifications

The U-bolt is *supplied by the Customer*. Reference Figure 4-17 and to determine the proper U-bolt to use. Pole mounting bracket is designed to use 3/8–inch hardware.

Figure 4-17 U-Bolt Sizing

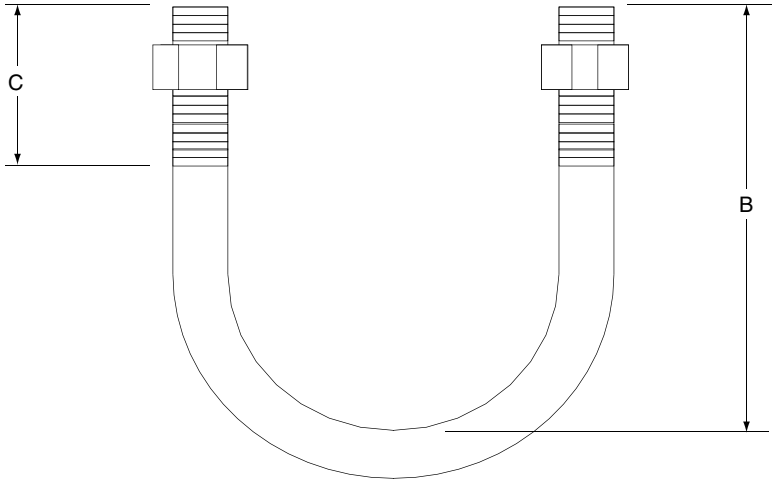

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Table 4-3 DAP U-Bolt Sizing

Nominal Pipe Size	Pipe OD		Minimum Dimension B		Maximum Dimension B		Minimum Dimension C	
(in)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)
2	2.375	60.33	3.886	98.70	4.886	124.10	0.6	15
2.5	2.875	73.03	4.429	112.50	5.429	137.90	0.6	15
3	3.500	88.90	5.098	129.50	6.098	154.90	0.6	15
Dimension B maximum allowable increase is 1 inch (25.4 mm). This will result in a corresponding increase in dimension C in order to maintain proper clamping force								

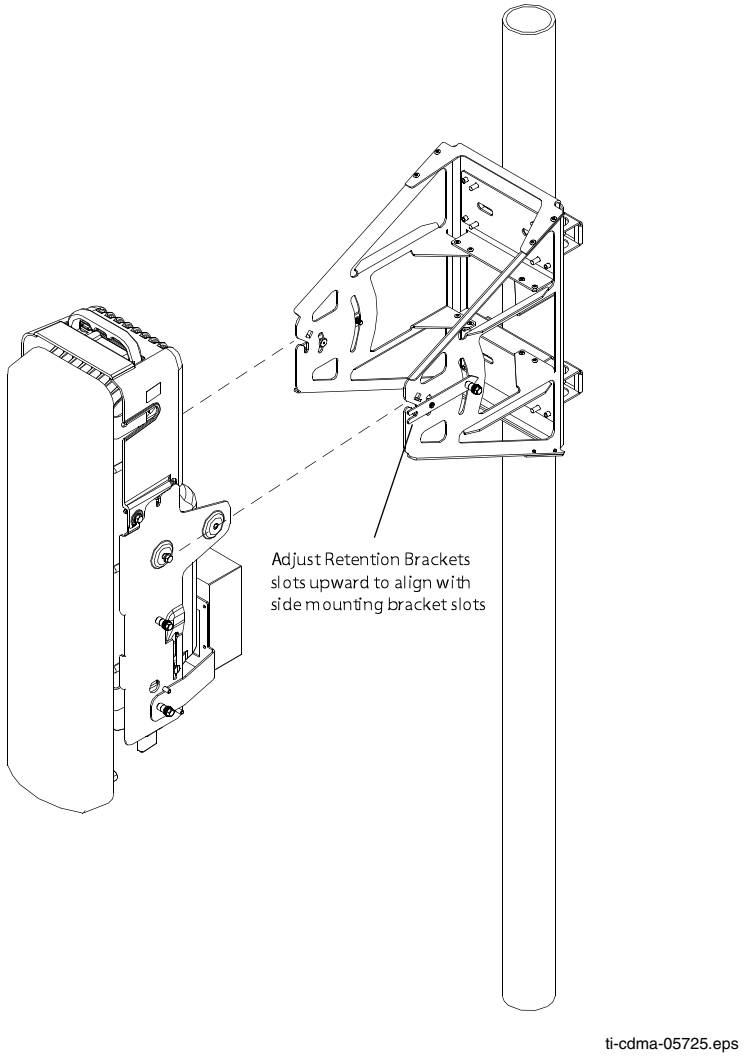
RF Head Assembly Installation Procedure

Follow the steps in Procedure A-1 to install the RF Head Assembly including main Support Bracket Assembly.

NOTE

The following procedure is based on the RF Head arriving already assembled. If the RF head must be assembled at the site then follow the procedure in Appendix A Alternate RF Head Installation Procedure.

Figure 4-18 RF Head Assembly



Procedure 4-13 Procedure to Install RF Head Assembly

Continued

1	From RF Head Main Support Bracket Assembly, remove nuts and washers from both ends of the U-bolts.
2	Set RF Head Main Support Bracket Assembly at the desired location on the pole.
3	Slide first U-bolt around pole and through top slots of RF Head Main Support Bracket Assembly. Slide washers over threaded ends of U-bolt. Thread nuts on U-bolt and hand tighten.
4	Slide second U-bolt around pole and through bottom slots of Main Support Bracket Assembly. Slide washers over threaded ends of U-bolt. Thread nuts on U-bolt and hand tighten.
5	Align Main Support Bracket Assembly on pole to desired direction and tighten nuts using a socket wrench. Torque nuts to 24. ft-lbs (32.5 N-m).
6	 **NOTE** On the inside of the Base Control Unit (BCU) Customer Interface Compartment are color coded stickers and matching tie-wraps. The colors are matched to the RF Head DC power cables. The colors are as follows: • RFU 1 = RED • RFU 2 = BLUE • RFU 3 = YELLOW • RFU 4 = GREEN Remove the appropriate color sticker and apply it to the underside of the RF Head. Use the appropriate tie-wraps to identify the DC power cables and the Fiber Optic cables. For Example: The first RF Head used would have the power connector identified with the RED sticker, and the power and fiber cables would be tagged with the RED tie-wraps.
7	Attach RF cables between Radome and RF Head. Torque nuts to 38 in-lbs (4.3 N-m).
8	Attach solar shield. Insert mushroom head knobs near bottom of shield into keyhole slots on sides of mounting bracket. Slide solar shield into position over handle and into slots on top of mounting bracket. Tighten screws to secure shield to brackets.
9	Prepare the RF Head for hoisting. Attach carabiner to handle of RF Head. Use the block and tackle to carefully hoist (so cables will not be damaged) the RF Head Assembly up to the tower. Proceed to step 10.

Continued

Procedure 4-13 Procedure to Install RF Head Assembly (Continued)

10	Slide the RF Head into the side mounting bracket and retention bracket slots. See Figure A-3
11	Ensure that the RF Head is properly mounted and its movement is not obstructed. To adjust the tilt (up/down angle) loosen two M6 screws on each side of unit using a 10 mm socket or crescent wrench. Range of motion is ±25 degrees from horizontal. The retention bracket serves as an indicator of the tilt in degrees. When RF Head is set at the desired position, tighten captive bolts on retention bracket. Torque bolts to 45 in-lbs (5.0 N-m). Tighten captive screws at pivot on each side of unit to secure RF Head. Torque screws to 45 in-lbs (5.0 N-m).
12	Proceed to Procedure 4-14 for RF Head DC Power Cable connection procedure.

RF Head DC Power Cabling Installation

Objective

This section contains the procedure for installing the RF Head DC power cables.

DC Cable Description

Cable G listed in Table 3-1 is required for installation

Tools Required

The following tools are required to install the DC Power cables.

RF Head DC Power Cable Installation

Follow the steps in Procedure 4-14 to install the RF Head DC Power Cables.

Procedure 4-14 Procedure to Install RF Head DC Power Cables

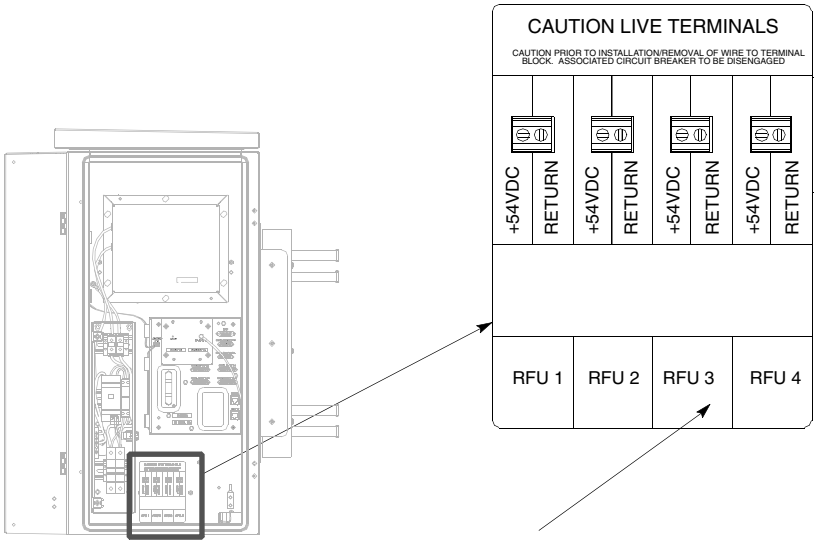
1	If not already open, open the BCU Customer Interface compartment.
2	Before routing DC power cable, verify that it is properly color coded. If more than one RF Head in use, ensure that they are all properly color coded. The colors are as follows: • RFU 1 = RED • RFU 2 = BLUE • RFU 3 = YELLOW • RFU 4 = GREEN  **NOTE** Color coded labels and tie-wraps can be found on the compartment side of the door of the BCU Customer Interface Compartment. Tie-wraps should be attached near the DC Power cable connector.

Continued

Procedure 4-14 Procedure to Install RF Head DC Power Cables (Continued)

3	Route the DC Power cables through conduit up to the tower. Bundle and secure the cables (if RF Head is not present) or connect to the appropriate RF Head. **CAUTION** Connect or disconnect the cable by turning the coupling nut. **Do not** try to connect or disconnect the cable by turning the cable or other attaching components.
4	Proceed to Procedure 4-16 for the Fiber Optic Cable connection procedure.

Figure 4-19 Base Control Unit RF Head DC Power Connection



RFU 1, RFU 2, RFU 3, RFU4

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Antenna Cabling Installation

Objective

This section contains the procedure for installing the antenna cables.

Installing Antenna Cables

The antenna cables between RF Head and radome can be installed before or after the RF Head Assembly is mounted on the pole.

RF Head Ground Cabling Installation

The RF Head comes with a ground lug attached, but no ground wire.

Follow the procedure in

Procedure 4-15 RF Head Ground Cable Installation

1	Use a 10 mm socket wrench to loosen ground lug captive screws on RF Head.
2	Remove ground lug.
3	Slide a 6 AWG wire into the ground lug. Crimp ground lug onto wire. Verify that 6 AWG wire is secure within ground lug.
4	Reattach ground lug onto RF Head. Use a 10 mm socket wrench to tighten captive screws. Torque to 45 in-lbs (5.0 N-m). Secure opposite other end of ground wire to tower ground.

Fiber Optic Cabling Installation

Objective

This section contains the procedure for installing the fiber optic cables.

Cable Description

Cable H as listed in Table 3-1 is required for installation.

NOTE

The minimum bend radius for this cable is 90 mm.

Procedure 4-16 Procedure to Install Fiber Optic Cables

1	Before routing the Fiber Optic cable(s) up the tower, verify that it is properly color coded. Red — RF Head 1 Blue — RF Head 2 Yellow — RF Head 3 Green — RF Head 4  **NOTE** Color coded labels and tie-wraps can be found on the compartment side of the door of the BCU Customer Interface compartment.
2	Connect the Fiber Optic cables to the bulkhead feedthroughs (FIBER) on the underside of the Base Control Unit (BCU). Torque connector nut to 38 in-lbs (4.3 N-m).
	 **CAUTION** Connect or disconnect the cable by turning the coupling nut. **Do not** try to connect or disconnect the cable by turning the cable or other attaching components.
3	Route the cable(s) up the tower(s), bundle and secure to tower (if RF Head is not present) or connect to the

Procedure 4-16 Procedure to Install Fiber Optic Cables (Continued)

	appropriate RF Head. Twist coupling nut until it stops (detent). Use tie-wraps or appropriate clamps to secure cable to tower.

Chapter

5

Optional Equipment

Rack Mounting

Rack Mount Instructions

to be followed in all rack mount installations for all voltage range equipment (+27 VDC, -48 VDC, and A/C):

1. Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature of the equipment (55C)

2. Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

3. Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

4. Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

5. Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

Optional Band Pass Filters

Overview

This chapter contains general information and procedures for installing optional equipment. Band pass filters are available as optional equipment to accommodate customers with specific band allocations.

Filter Requirements

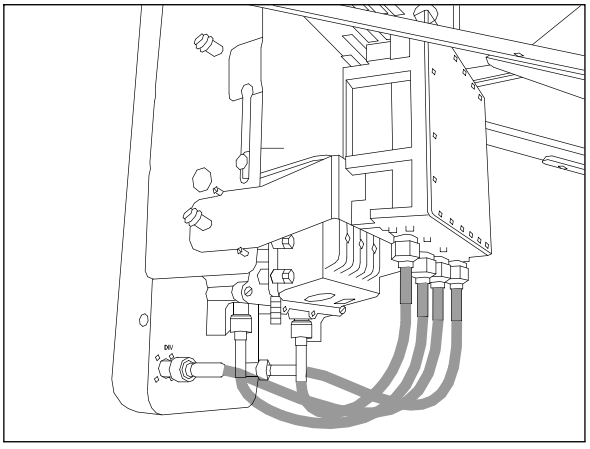
Weight and Dimensions The band pass filter(s) used should meet the following requirements:

- Weight: 1.6 kg (3.5 lbs)
- Dimensions: 50 mm (2 in) **W** x 150 mm (6 in) **H** x 100 mm (4 in) **D**.

Figure 5-1 Band Pass Filter

Filter Mounting Figure 5-2 shows the optimal mounting position on the RF Carrier Unit (RFCU). The filters are mounted such that cable lengths are kept to a minimum. There is a mounting bracket already on the RF Head Assembly for the optional filter.

Figure 5-2 Filter Mounting



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Motorola Stability Oscillator (MSO)

Overview

The Motorola Stability Oscillator (MSO) is available as optional equipment to accommodate customers that want this backup timing module.

Chapter

6

What's Next and Cleanup

What's Next

Introduction

Optimization is the next procedure you should perform. There are two things left to do before you begin the optimization:

1. Clean up the site
2. Fill out the installation completion checklist

Clean Up Site

Clean up the site by following the information given in the *Site Cleanup* area in this chapter.

Fill Out Checklist

After the site is cleaned up, fill out the installation completion checklist. This checklist is located in the *Installation Completion Checklist* area of this chapter.

Optimize the System

Optimize the system by following the procedures given in the appropriate optimization manual.

The hardware installation does not include card placement and turning on power. These things and more are covered in the appropriate optimization manual.

Site Cleanup

Tools

Place all hand and power tools in the installation tool kit or other appropriate place. Note any tools that need replacement, cleaning, or adjustment.

Materials

Place any leftover materials in a location specified by the site manager.

Remove Debris

Remove any packing material. Ensure that all scrap materials have been removed. Clean/sweep the floor. Ensure that all chalk line marks have been removed.

Environment

Organize any items (manuals, materials, etc.) left on site and place them in a location specified by the site manager.

Installation Completion Checklist

Installation Completion Checklist

Check the items listed in Table 6-1.

Directions

Fill out the installation completion checklist and make any necessary copies. You may copy this check sheet as needed. The item numbers do not represent a specific order, they are supplied for convenience.

Installation Checklist

Hardware Installation Completion Date: _____

Site: _____

Serial Number: _____

Checklist Completed By: _____

Checklist Reviewed By: _____

Table 6-1 Hardware Installation Checklist

Item No.	Item	Notes
1	Equipment is not damaged.	
2	Air flow clearance requirements are met.	
3	Base Control Unit (BCU) is securely mounted to wall or pole.	
4	BCU and RF Carrier Unit (RFCU) are RF cabled correctly.	
5	BCU and RFCU are DC power cabled correctly.	
6	BCU is ethernet cabled. (If installed)	
7	RF Head is securely mounted to pole.	
8	Band Pass filters are cabled to RFCU correctly (If used)	
9	Conduit is sufficiently grounded	
10	Antennas are grounded to tower	
11	The antenna cables are protected by lightning arrestors (if applicable).	
12	BCU is grounded	
13	RF Head is grounded.	
14	RGPS is cabled to BCU.	
15	RGPS head and mast are secure.	
16	RGPS connection is protected by lightning arrestors (if applicable).	
17	RGPS head has a clear view of the sky and is not in a location which accumulates debris. Make sure the RGPS is located away from the transmit antennas.	
18	Local GPS (RF GPS) antenna is secure. (If used)	
19	Local GPS cabling is installed (If used).	
20	Installation hardware is removed.	
21	The site is cleaned, swept and trash removed.	
22	The site specific documentation is present at the site.	

PRELIMINARY - UNDER DEVELOPMENT

Appendix
A

Alternate RF Head Installation Procedure

Manual RF Head Installation Procedures

Overview

This section contains the procedures for installing the Diversity Access Point RF Head which is comprised of the TRX Module and antenna radome. Refer to Figure 1–2.

DAP RF Head

Refer to Figure 1-4 for the major components of the DAP RF Head.

Electrical Requirements

The RF Head is designed to use 40 to 59 VDC (nominal +54 VDC) supplied through the Base Control Unit (BCU).

Dimensions and Weight

- Dimension: 228.6 mm (9 in) **W** x 712 mm (28 in) **H** x 406 mm (16 in) **D**
- Weight: 27.2 kg (60 lbs)

The dimension measurements do not include connectors, hinges, handles, or latches.

Conduit Sizes

Refer to Table A-1 for conduit sizes.

Table A-1 Conduit Requirements

No.	Designation	Required Size
1	Power	1–1/4 inch
2	Fiber Optic	None

Tools and Materials

- Mounting Bracket Assembly
- U-bolts
- Set of metric sockets (3/8–in or 1/4–in)
- Set of standard sockets (3/8–in or 1/4–in)
- 3/8–in or 1/4–in driver
- Torque Driver
- Cordless Power Driver
- Ground Lug
- Crimp Tool
- T30 Torx Screw Driver
- Adjustable Crescent Wrench

U-Bolt Specifications

The U-bolt is *supplied by the Customer.* Reference Figure A-1 and to determine the proper U-bolt to use.

PRELIMINARY - UNDER DEVELOPMENT

Figure A-1 U-Bolt Sizing

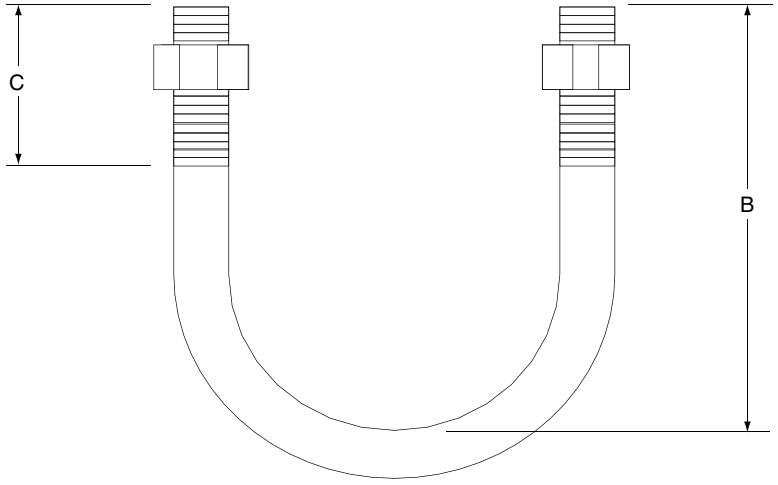

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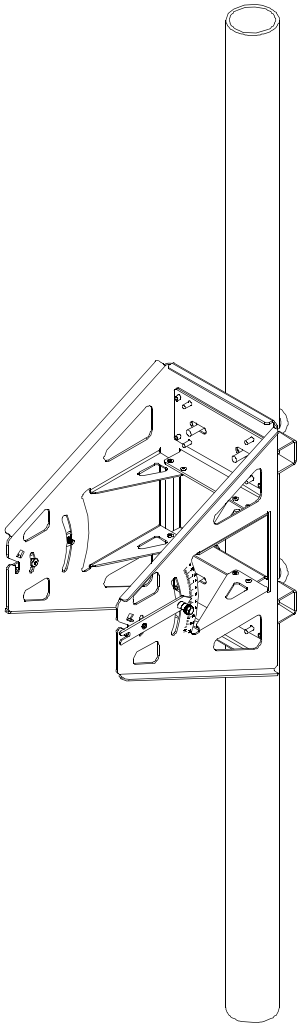
Table A-2 DAP U-Bolt Sizing

Nominal Pipe Size	Pipe OD		Minimum Dimension B		Maximum Dimension B		Minimum Dimension C	
(in)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)
2	2.375	60.33	3.886	98.70	4.886	124.10	0.6	15
2.5	2.875	73.03	4.429	112.50	5.429	137.90	0.6	15
3	3.500	88.90	5.098	129.50	6.098	154.90	0.6	15
Dimension B maximum allowable increase is 1 inch (25.4) mm. This will result in a corresponding increase in dimension C in order to maintain proper clamping force								

RF Head Mounting Bracket Assembly Installation

Figure A-2 shows the Mounting Bracket Assembly for the RF Head.

Figure A-2 RF Head Mounting Bracket Assembly



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RF Head Mounting Bracket Assembly Procedure

Follow the steps in Procedure A-1 to install the pole mounting bracket for the RF Head.

Procedure A-1 Procedure to Install RF Head Main Support Bracket Assembly

1	Remove nuts and washers from both ends of the U-bolt.
2	Set Main Support Bracket Assembly at the required location on the pole.  **NOTE** It is recommended that two people perform mounting the bracket to the pole. One person can perform the bracket mounting by using a block and tackle to hold bracket at the desired mounting location.
3	Slide first U-bolt around pole and through top slots of Main Support Bracket Assembly. Slide washers over threads. Thread nuts on U-bolt and hand tighten.
4	Slide second U-bolt around pole and through bottom slots of Main Support Bracket Assembly. Slide washers over threads. Thread nuts on U-bolt and hand tighten.
5	Align Main Support Bracket Assembly on pole facing the appropriate direction and tighten nuts using a socket wrench or power driver. Torque nuts to 24 ft-lbs (32.5 N-m).

Installing the RF Head

Follow the steps in Procedure A-2 to install the RF Head.

Procedure A-2 Procedure to Prepare and Install RF Head

Prepare RF Head	
1	Place the RF Head on a flat surface, large finned-side down.
2	Attach the left and right side mounting brackets to RF Head using a T30 Torx screw driver. The brackets straight edges face away from Main Support Bracket Assembly. See Figure A-3
3	Attach solar shield to side brackets by snapping the tabs on the bottom of the shield into side bracket slots. Refer to Figure A-3.
4	Lift shield and drop over the top of the RF Head. Handle of RF Head slips through slot in solar shield. The captive screws on the mounting bracket are used to secure the solar shield to it. Tighten the captive screws to secure the solar shield to the mounting brackets. Torque captive screws to 45 in-lbs (5.0 N-m)
5	Set the RF Head so that it is resting on the side brackets support arms and RF Head bottom (filter if attached).

Procedure A-2 Procedure to Prepare and Install RF Head (Continued)

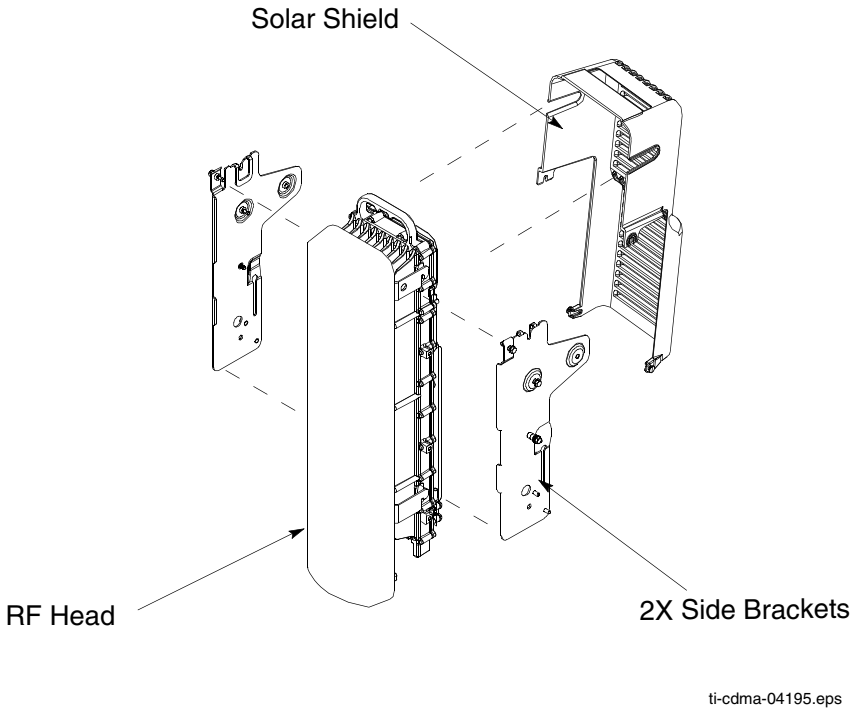
6	Install the antenna (Radome). Hook the antenna top support brackets over the bolts near the top of the RF Head. Push the bottom of the antenna and hook those brackets over the bolts near the bottom of the RF Head.
7	Secure antenna using a 10 mm socket and driver to tighten the 4 screws. Torque the bolts to 45 in-lbs (5.0 N-m).
8	Reposition the RF Head on its side. Attach RF cables between antenna and RF Head. Torque the nuts to 38 in-lbs (4.3 N-m). If the optional filter is being used, proceed to Procedure A-3 to attach it to the RF Head. Refer to Figure A-4. Otherwise, proceed to step 9
9	If more than one RF Head is in use tag the DC Power cable pairs using the color coded labels supplied inside the BCU Customer Interface compartment. Label the cables with the color coded tie-wraps as required.  **NOTE** The cables are color coded as follows: • RFU 1 — Red • RFU 2 — Blue • RFU 3 — Yellow • RFU 4 — Green Place the color coded labels at the connector ends of both the DC power and Fiber Optic cables.
10	Loosen captive screws and ground lug from RF Head. Insert 6 AWG ground wire into ground lug and crimp in place. Reattach ground lug to RF Head. Attach opposite end of ground wire to tower ground. Do the same for the remaining RF Head ground lugs, as required.
11	Connect Fiber Optic Cables (color coded as well) to RF Head. Twist on connector until it stops (detent)
12	At this point, proceed to the Site Commissioning document for BCU and RF Head test information and operational verification.
13	The BCU and RF Head have been verified as operational, proceed with step 14.
14	Verify that the DC power cables are disconnected from the BCU.
15	Attach solar shield. Insert mushroom head knobs near bottom of shield into keyhole slots on sides of mounting bracket. Slide solar shield into position over handle and into slots on top of mounting bracket. Tighten screws to secure shield to brackets.

PRELIMINARY - UNDER DEVELOPMENT

Procedure A-2 Procedure to Prepare and Install RF Head (Continued)

Install RF Head	
16	Prepare the RF Head for hoisting. Attach carabiner to handle of RF Head. Use the block and tackle to hoist the RF Head to the Main Support Bracket Assembly. Carefully hoist RF Head up to Main Support Bracket Assembly.
17	Align to captive screws on side support bracket with the Main Support Bracket Assembly curved slots and drop into place. (Retention brackets on each side of the Main Support Bracket Assembly should automatically slide upward to help hold the RF Head.) If not, slide retention bracket on Main Support Bracket Assembly up, aligning the RF Head screw with captive nuts on the side support brackets. Hand tighten captive screws. Do not fully tighten screws. Refer to Figure A-3.
18	Ensure that the RF Head is properly mounted and its movement is not obstructed. Adjust the azimuth (up/down angle) loosen two M6 screws on each side of unit (if required, use a 10 mm socket or crescent wrench). Range of motion is ±25 degrees from horizontal. The retention bracket serves as an indicator of the azimuth in degrees. When RF Head is set at the desired position, tighten captive screws on retention bracket. Torque bolts to 45 in-lbs (5.0 N-m). Tighten captive screws at pivot of each side of unit to secure RF Head. Torque bolts to 45 in-lbs (5.0N-m).
19	Use a 10 mm socket wrench to loosen ground lug captive screws on RF Head. Remove ground lug. Slide a 6 AWG wire into the ground lug. Crimp ground lug onto wire. Verify that 6 AWG wire is secure within ground lug.
20	Reattach ground lug onto RF Head. Use a 10 mm socket wrench to tighten captive screws. Torque screws to 45 in-lbs (5.0 N-m). Secure opposite other end of ground wire to tower ground.
21	Connect DC power cables to the RF Heads. Route DC power cables through conduit to bottom of the BCU and up into the BCU Customer Interface Compartment. Connect the cables to their respective RFU 1 — RFU 4 connectors by matching the tie-wrap color with the connector color.
22	Route Fiber Optic cables down the tower to the under side of the BCU. Connect cable to the appropriate FIBER feedthrough connector.

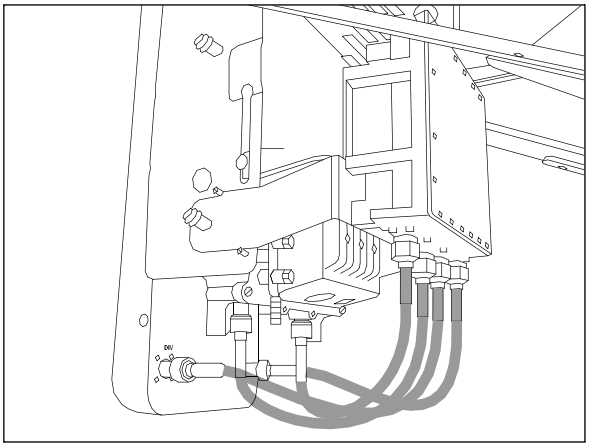
Figure A-3 RF Head Side Mounting Brackets and Solar Shield



Procedure A-3 Procedure to Install Optional RF Filter

1	From Procedure A-2. If already attached to side mounting brackets, remove RF Filter mounting bracket.
2	Secure RF Filter to filter mounting bracket using four screws. Torque screws to 45 in-lbs (5 N-m).
3	Reattach RF Filter mounting bracket to RF Head side mounting brackets and secure with two captive screws. Torque screws to 45 in-lbs (5 N-m).
4	Attach four RF cables between the antenna and the RF Head. See Figure A-4. Return to Procedure A-2. step 9

Figure A-4 Antenna to Filter RF Cable Connection Diagram



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Appendix
B

Alternate RGPS Installation

RGPS Cabling Installation

Objective

This section contains procedures for installing the Remote Global Positioning System (RGPS).

Cable Description

Cables C and L as listed in Table 3-1 are required for installation.

Tools Required

The following tools are required for RGPS installation.

- Flat blade screw driver

Cable Pinout

Figure B-1 Connector Pins Numbering for Cables C and L

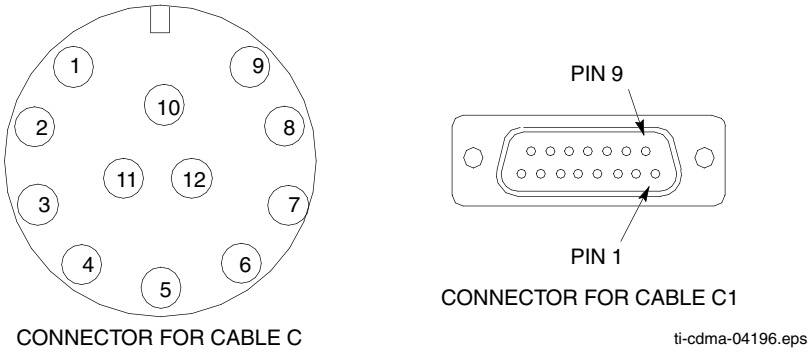

Table B-1 Pinout for Cables C and L

Cable C				Cable L	
Pin No.	Signal Name	Wire Color	Connector A Pin No.	Signal Name	Connector B Pin No.
9	DC Ground 1	Blue–Black	15	RGPS Return	15
1	Power 1	Blue	8	RGPS +54V Supply	8
8	DC Ground 2	Yellow–Black	14	RGPS Return	14
10	Power 2	Yellow	7	RGPS +54V Supply	7
4	Transmit Port (–)	Green–Black	9	DATA (-) From Head	12
5	Transmit Port (+)	Green	1	DATA (+) From Head	4
2	Receive Port (–)	White–Black	12	DATA (-) To Head	9
3	Receive Port (+)	White	4	DATA (+) To Head	1
7	No Connect	Red–Black	No Connect	No Connect	No Connect
6	No Connect	Red	No Connect	No Connect	No Connect
12	PPS Timing (–)	Brown–Black	10	SYNC (-) From Head	10
11	PPS Timing (+)	Brown	2	SYNC (+) From Head	2

RGPS Installation

Figure B-2 shows the RGPS Head and Figure B-3 shows the RGPS installation. Be sure to factor in mounting considerations as described in Chapter 3 Cable Descriptions.

CAUTION

The RGPS head must not make contact with any metal surface other than the provided hardware. Use only the equipment provided to mount the RGPS head. Failure to do so could damage the RGPS head.

Procedure B-1 Procedure for Installing the RGPS Head and Cabling

1	Determine the RGPS mounting location.
2	**WARNING** The structure of the wall should be verified by a qualified structural engineer.

Procedure B-1 Procedure for Installing the RGPS Head and Cabling (Continued)

	Mounting the RGPS head and hardware to an inadequate wall structure and/or using inadequate installment methods can result in serious personal injury. Use the appropriate mounting bolts for the mounting surface and install the two wall mounting brackets. Refer to Figure B-3.
3	Route the 12-pin Deutsch connector of the RGPS cable (C) through the RGPS mounting pipe.
4	Connect the RGPS cable (C) connector to the RGPS head 12-pin connector as shown in Figure B-3 and Figure B-4. Tighten the spinning flange on the connector a quarter turn to secure the connection.
5	Insert the RGPS mounting pipe into the threaded mount of the RGPS head and carefully hand-tighten.
6	Install the RGPS mounting pipe into the mounting brackets as shown in Figure B-3. Tighten the U-bolt clamps to secure the assembly.
7	Route the free ends of the BTS RGPS cable (L) and RGPS cable (C) to the lightning arrestor. Remove any excess cable length and strip off approximately 15 cm of the cables outer insulation.
8	Connect the 12 individual connectors and cable drain of each cable end to the lightning arrestor as shown in Figure B-5. Double check the lightning arrestor connections for compliance with those presented in Figure B-5.
9	Route the RGPS cable from the lightning arrestor to the bottom of the BCU.
10	If not already open, open the Customer Interface compartment. If not already done, remove access hole cover.
11	Route the RGPS cable up through the access hole and connect to RGPS D-Connector.

Figure B-2 RGPS Head

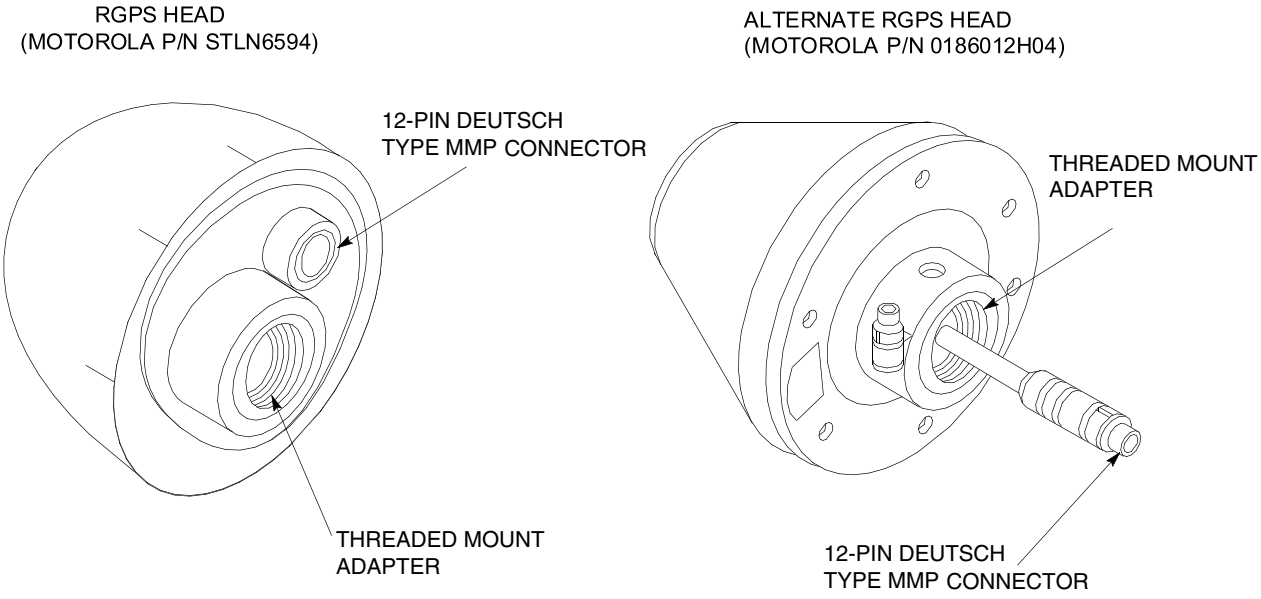

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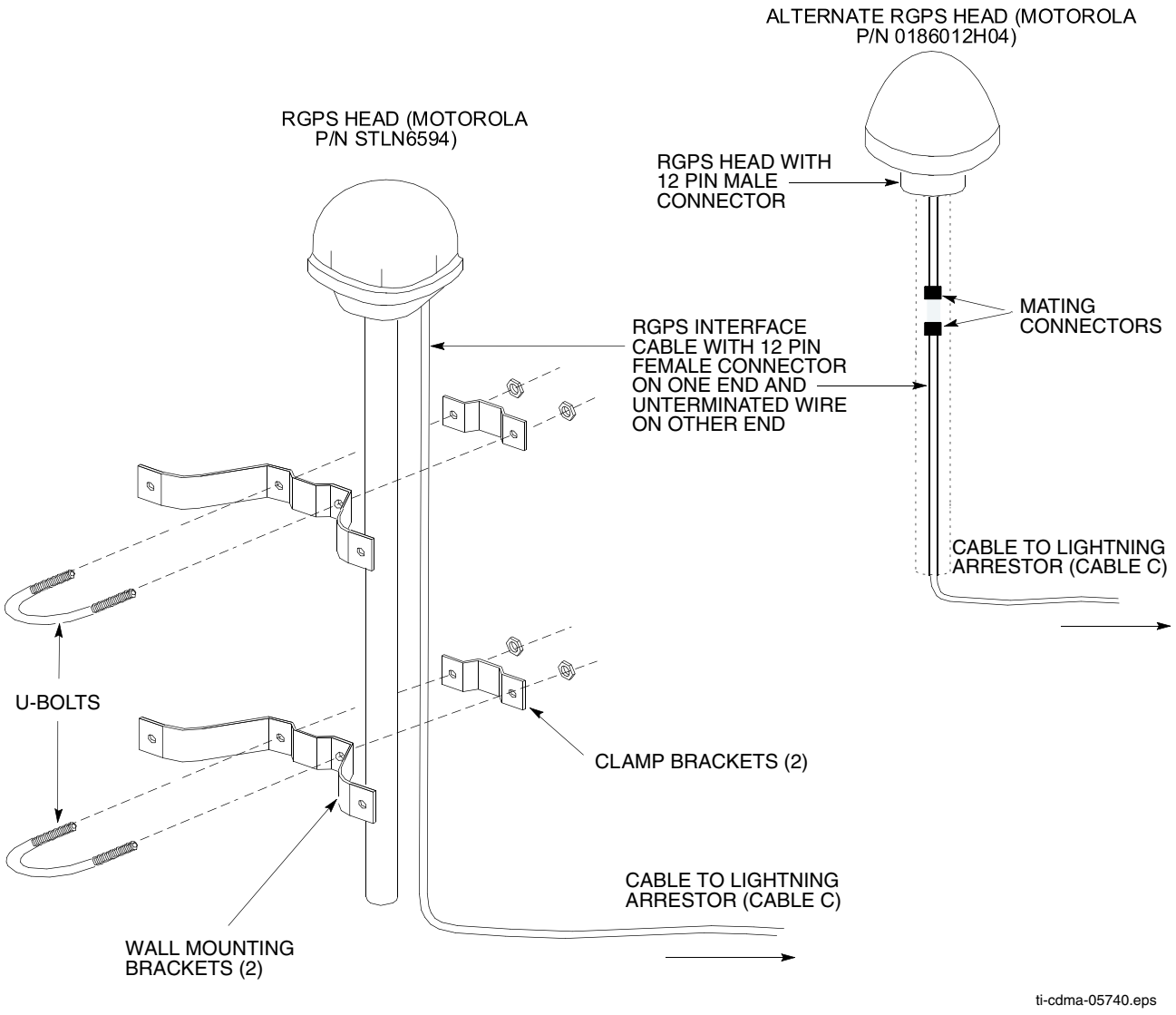
Figure B-3 Installing the Remote GPS Head



Connecting the RGPS Cable to Lightning Arrestor

Figure B-4 is a diagram of the RGPS connections. Figure B-5 is a detail of the Lightning Arrestor connections.

Figure B-4 RGPS to Base Control Unit Connection Diagram

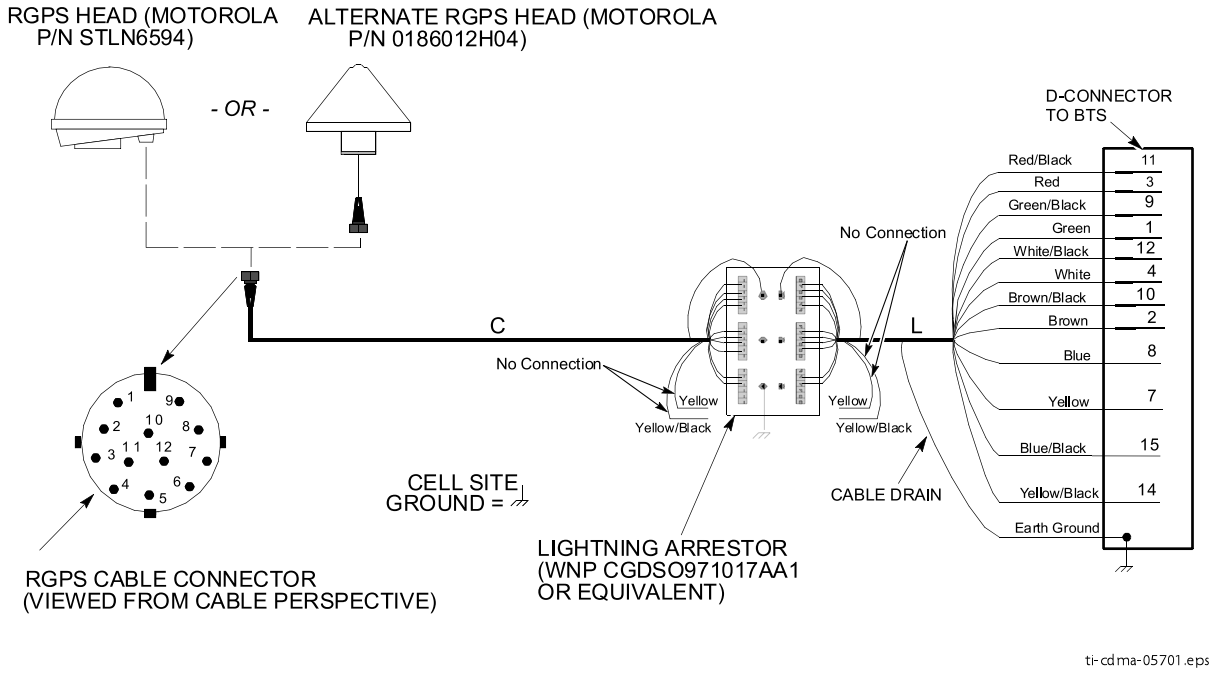
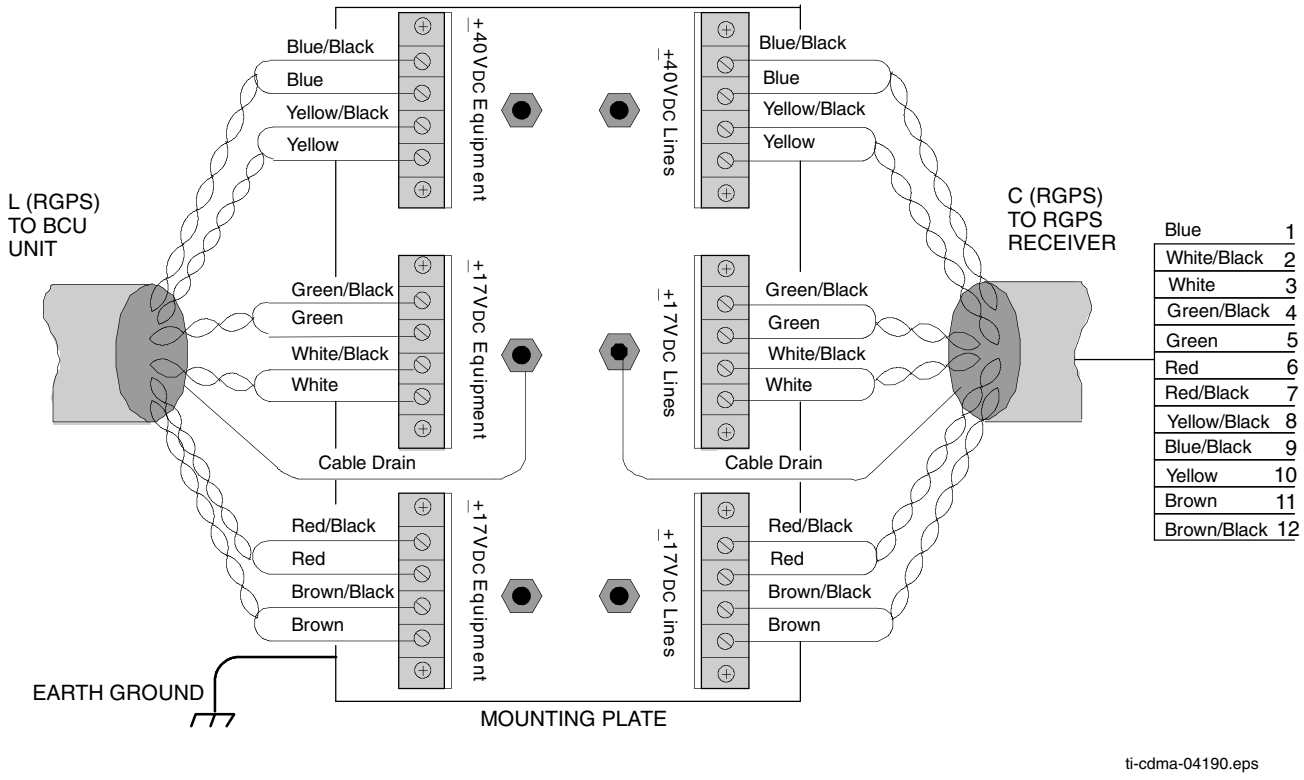


Figure B-5 RGPS Lightning Arrestor Wiring



Appendix
C

MMI Cable Fabrication

MMI Cable Fabrication

Purpose

If the Motorola SLN2006A Man Machine Interface (MMI) Interface Kit is not available, cables can be fabricated by the user to interface a nine-pin serial connector on an Line Maintenance Facility (LMF) computer platform with an MMI connector. This section provides the information necessary for fabricating these cables.

Required Parts

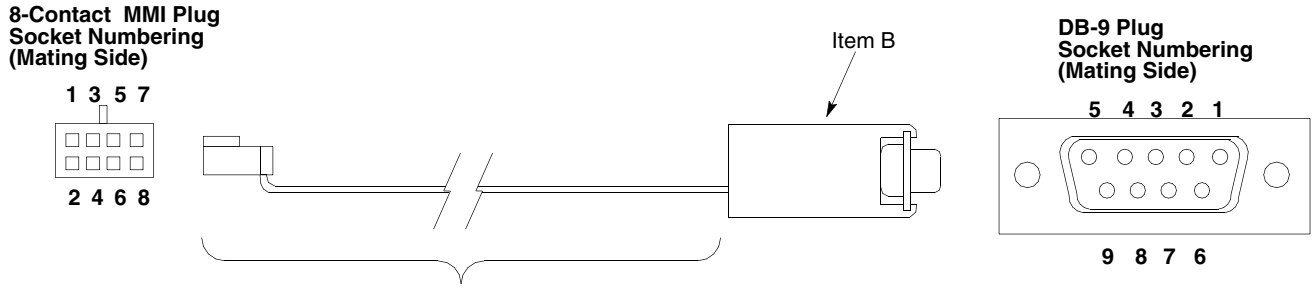
Table C-1 Parts Required to Fabricate MMI Cable

Item	Part Number	Qty	Description
A	Motorola 3009786R01	1	Ribbon cable assembly, 1.524 M, one 8-contact MMI connector, one 10-contact connector
B	AMP 749814-1, Belkin A4B202BGC, or equivalent	1	Receptacle kit, unassembled, 9-position, socket contacts, unshielded, metal or plastic shell, solder or crimp-type contacts

Cable Details

Figure C-1 illustrates the details of the fabricated MMI cable.

Figure C-1 Fabricated MMI Cable Details



FABRICATION NOTES:

1. Separate wires at unterminated end of ribbon cable as required to connect to DB-9 connector contacts
2. Dark wire on ribbon cable of cable assembly 3009786R01 connects to pin 1 of the 8-contact plug
3. Strip three ribbon cable wires with connections specified in and connect to DB-9 plug contacts as specified in Table C-2
4. Shorten un-connected ribbon cable wires enough to prevent contacting DB-9 contacts, leaving enough wire to engage any strain relief in the DB-9 connector shell

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Wire Run List

Table C-2 provides the wire run/pin-out information MMI cable.

Table C-2 Fabricated MMI Cable Wire Run List

8-CONTACT MMI PLUG CONTACT		DB-9 PLUG CONTACT
1		NC
2		NC
3		NC
Common 4	– — — — — — — — —	5
RxD 5	— — — — — — — — —	2
TxD 6	— — — — — — — — —	3
7		NC
8		NC

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