SIEMENS

QUICK GUIDE

INSTALLATION FOR RITRON RADIO

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VERSION B

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PROPRIETARY INFORMATION

TRANSLATIONS

WARRANTY INFORMATION

SALES AND SERVICE LOCATIONS

Technical assistance and sales information on Siemens Mobility, Inc. products may be obtained at the following locations:

SIEMENS MOBILITY, INC. RAIL AUTOMATION		SIEMENS MOBILITY, INC. RAIL AUTOMATION	
2400 NELSON MILLER PARKWAY		939 S. MAIN STREET	
LOUISVILLE, KENTUCKY 40223		MARION, KENTUCKY 42064	
TELEPHONE:	(502) 618-8800	TELEPHONE:	(270) 918-7800
FAX:	(502) 618-8810	CUSTOMER SERVICE:	(800) 626-2710
SALES & SERVICE:	(800) 626-2710	TECHNICAL SUPPORT:	(800) 793-7233
WEB SITE:	USA Rail Automation Site	FAX:	(270) 918-7830

FCC RULES COMPLIANCE

DOCUMENT HISTORY

Version	Release Date	Sections Changed	Details of Change
A	10/12/2018	N/A	Initial Release
B	12/05/2018	Figure 1-4 Figure 1-8	Updated to show correct power lead.

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NOTES, CAUTIONS, AND WARNINGS

Throughout this manual, notes, cautions, and warnings are frequently used to direct the reader's attention to specific information. Use of the three terms is defined as follows:

⚠ WARNING	**WARNING** **INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY. WARNINGS ALWAYS TAKE PRECEDENCE OVER NOTES, CAUTIONS, AND ALL OTHER INFORMATION.**
⚠ CAUTION	**CAUTION** REFERS TO PROPER PROCEDURES OR PRACTICES WHICH IF NOT STRICTLY OBSERVED, COULD RESULT IN A POTENTIALLY HAZARDOUS SITUATION AND/OR POSSIBLE DAMAGE TO EQUIPMENT. CAUTIONS TAKE PRECEDENCE OVER NOTES AND ALL OTHER INFORMATION, EXCEPT WARNINGS.
NOTE	**NOTE** Generally used to highlight certain information relating to the topic under discussion.

If there are any questions, contact Siemens Mobility, Inc. Application Engineering

ELECTROSTATIC DISCHARGE (ESD) PRECAUTIONS

Static electricity can damage electronic circuitry, particularly low voltage components such as the integrated circuits commonly used throughout the electronics industry. Therefore, procedures have been adopted industry-wide which make it possible to avoid the sometimes invisible damage caused by electrostatic discharge (ESD) during the handling, shipping, and storage of electronic modules and components. Siemens Mobility, Inc. has instituted these practices at its manufacturing facility and encourages its customers to adopt them as well to lessen the likelihood of equipment damage in the field due to ESD. Some of the basic protective practices include the following:

- Ground yourself before touching card cages, assemblies, modules, or components.
- Remove power from card cages and assemblies before removing or installing modules.
- Remove circuit boards (modules) from card cages by the ejector lever only. If an ejector lever is not provided, grasp the edge of the circuit board but avoid touching circuit traces or components.
- Handle circuit boards by the edges only.
- Never physically touch circuit board or connector contact fingers or allow these fingers to come in contact with an insulator (e.g., plastic, rubber, etc.).
- When not in use, place circuit boards in approved static-shielding bags, contact fingers first. Remove circuit boards from static-shielding bags by grasping the ejector lever or the edge of the board only. Each bag should include a caution label on the outside indicating static-sensitive contents.
- Cover workbench surfaces used for repair of electronic equipment with static dissipative workbench matting.
- Use integrated circuit extractor/inserter tools designed to remove and install electrostatic-sensitive integrated circuit devices such as PROM's (OK Industries, Inc., Model EX-2 Extractor and Model MOS-40 Inserter (or equivalent) are highly recommended).
- Utilize only anti-static cushioning material in equipment shipping and storage containers.

For information concerning ESD material applications, please contact the Technical Support Staff at 1-800-793-7233. ESD Awareness Classes and additional ESD product information are also available through the Technical Support Staff.

GLOSSARY

TERM	DESCRIPTION
AAR:	Association of American Railroads – An organization that establishes uniformity and standardization among different railroad systems.
AREMA:	American Railroad Equipment Manufacturing Association – An organization that supersedes AAR.
ATCS:	Advanced Train Control System – A set of standards compiled by the AAR for controlling all aspects of train operation.
ECD:	External Configuration Device – A serial EEPROM (Flash Memory) device mounted inside the chassis of the GEO unit. The ECD is used to store site-specific configuration data (MCF, SIN, UCN, and card parameters) for the CPU.
EX Value	Is the phase of the received signal, which is the measure of the impedance of the track ballast. This measurement identifies how much current is leaking from one rail to another.
EZ Value	Is the measure of the received signal level.
MEF:	Module Executable File – The executive software running in the CPU or I/O Modules. The user can download the MEF through the Diag port to update the software.
MCF:	Module Configuration File – The GCP application logic file.
SIN:	Site Identification Number – The 12-digit ATCS address for the The SIN has the form 7.RRR.LLL.GGG.SS stored in binary coded decimal, with each digit in one nibble. The digit 0 is represented by "A" and 0 is used as a null byte.
Site Location:	The location where GCP unit is installed.
VPI:	Vital Parallel Input – A module input circuit the function of which affects the safety of train operation.
VRO:	Vital Relay Output – A module output circuit the function of which affects the safety of train operation.

1.0 GENERAL INFORMATION

This quick guide provides installation information for the Ritron 30 watt self-contained radio and power amp.

1.1 INTERFACE CABLE

Below is the A26678-01 MCM to Radio interface cable installed on the WCP. You can use this cable with the Ritron radio by disconnecting Qorvo amp power leads from DC to DC converter and the 9 pin connector from Qorvo amp. Tape the power lugs and coil up the cable and strap it back.
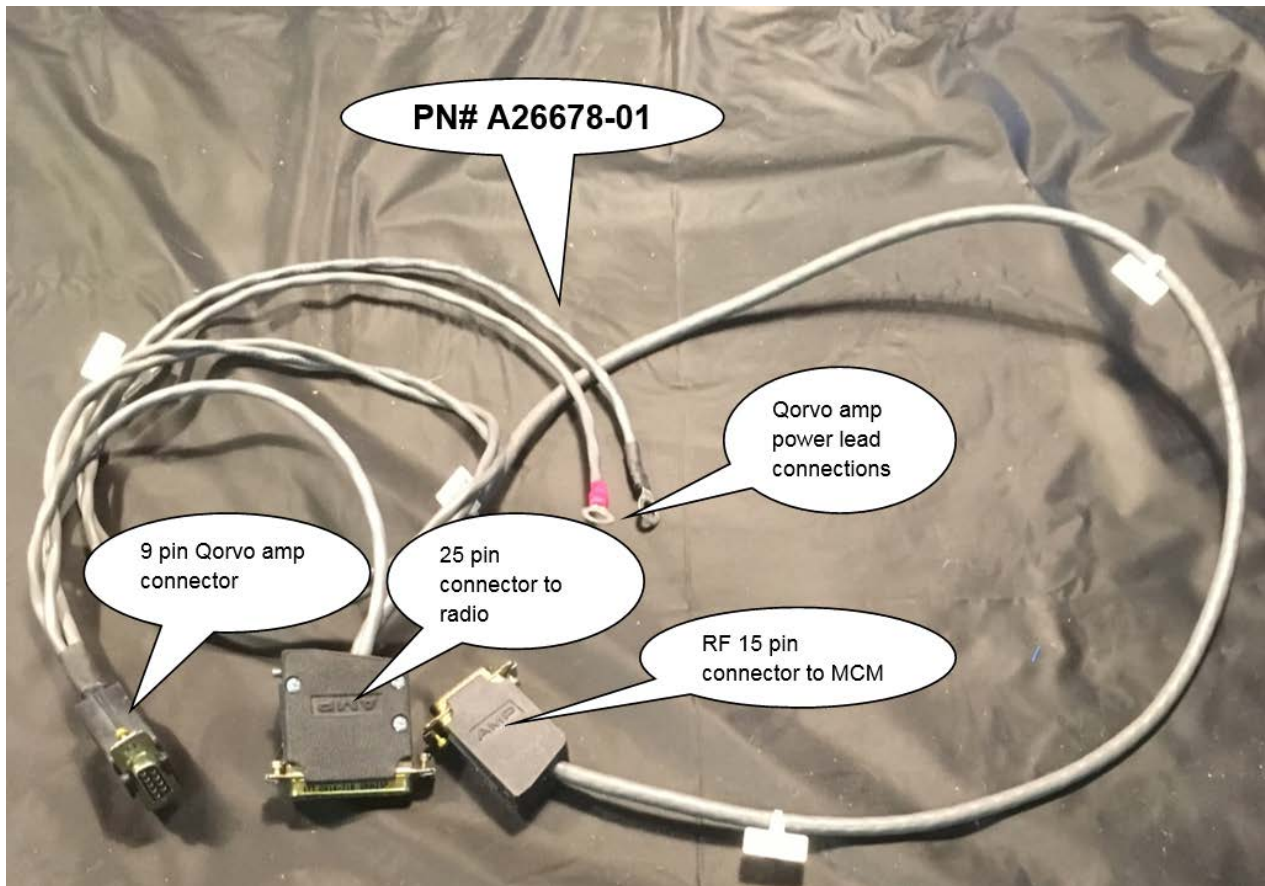
Figure 1-1 Interface Cable

⚠ CAUTION	**CAUTION**
	MAKE SURE YOU HAVE THE OPERATING RAILROAD'S PERMISSION BEFORE MAKING ANY CHANGES.

NOTE	**NOTE**
	The A26791 Radio Data Cable can be used with the Ritron Radio in place of modifying the A26678 Radio Data Cable used with the SD9 MDS radio.

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1.2 TYPICAL WCP WITH CABLES ATTACHED

Before making any wiring changes, disconnect power by pressing breaker button shown below.
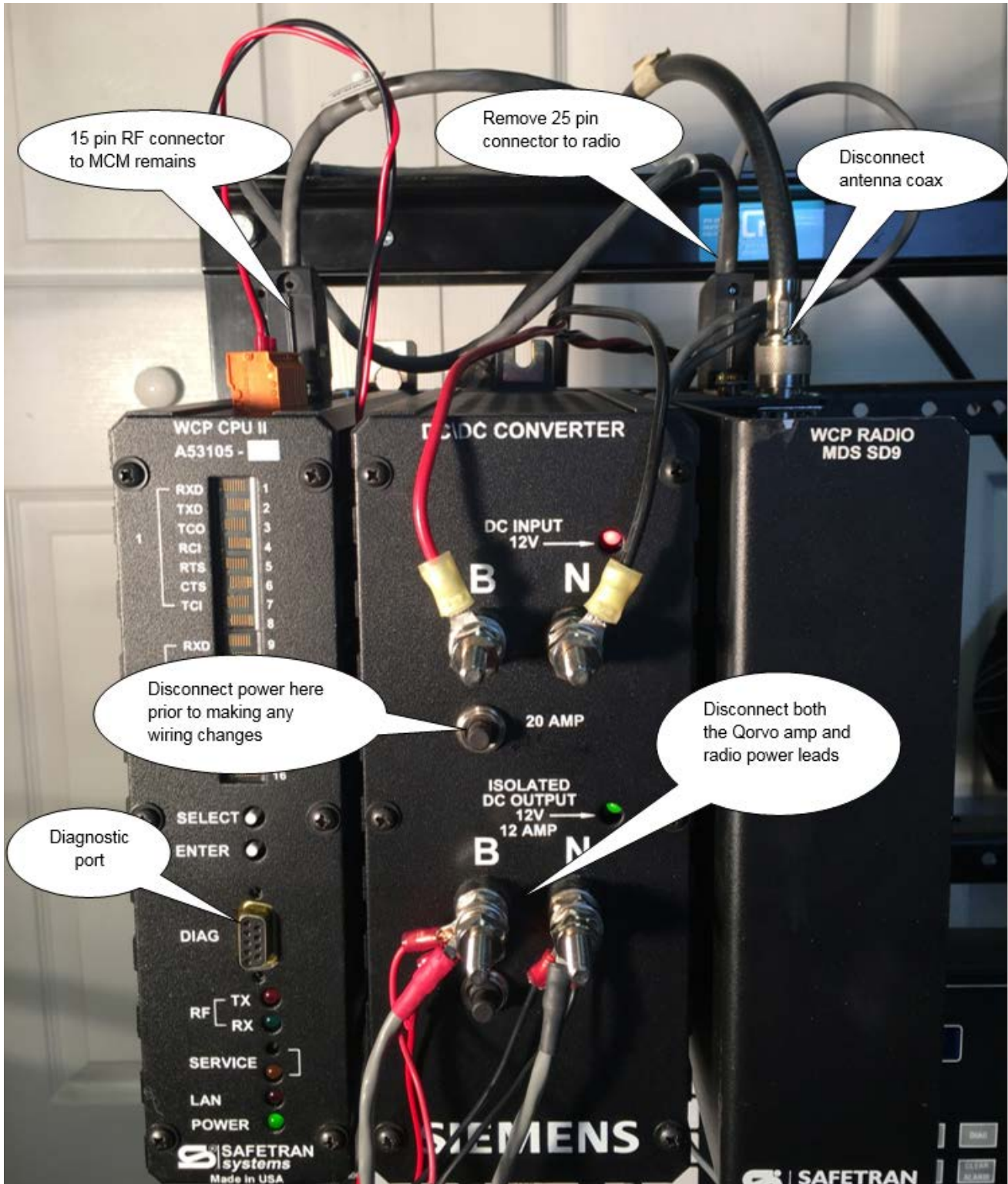

Figure 1-2 Typical WCP Installation with Cables Attached

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After completing all cable removals mentioned, remove the radio mount from rack.
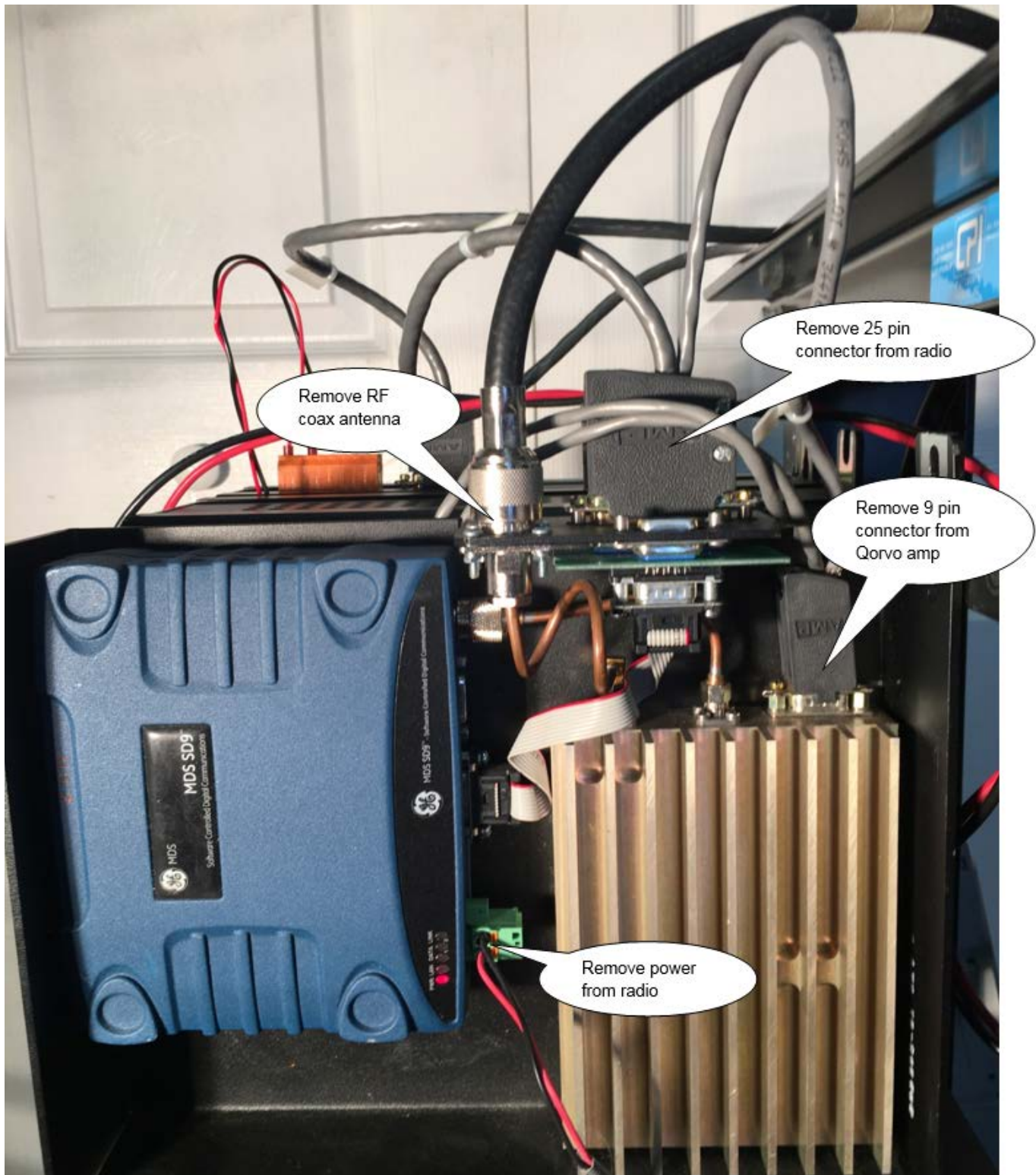
Figure 1-3 Radio Mount Removal

After removing older radio mount install Ritron radio mount on to rack. After reconnecting all cables, turn breaker back on. You can use the existing radio mount bracket, radio holes are already there to mount Ritron radio.
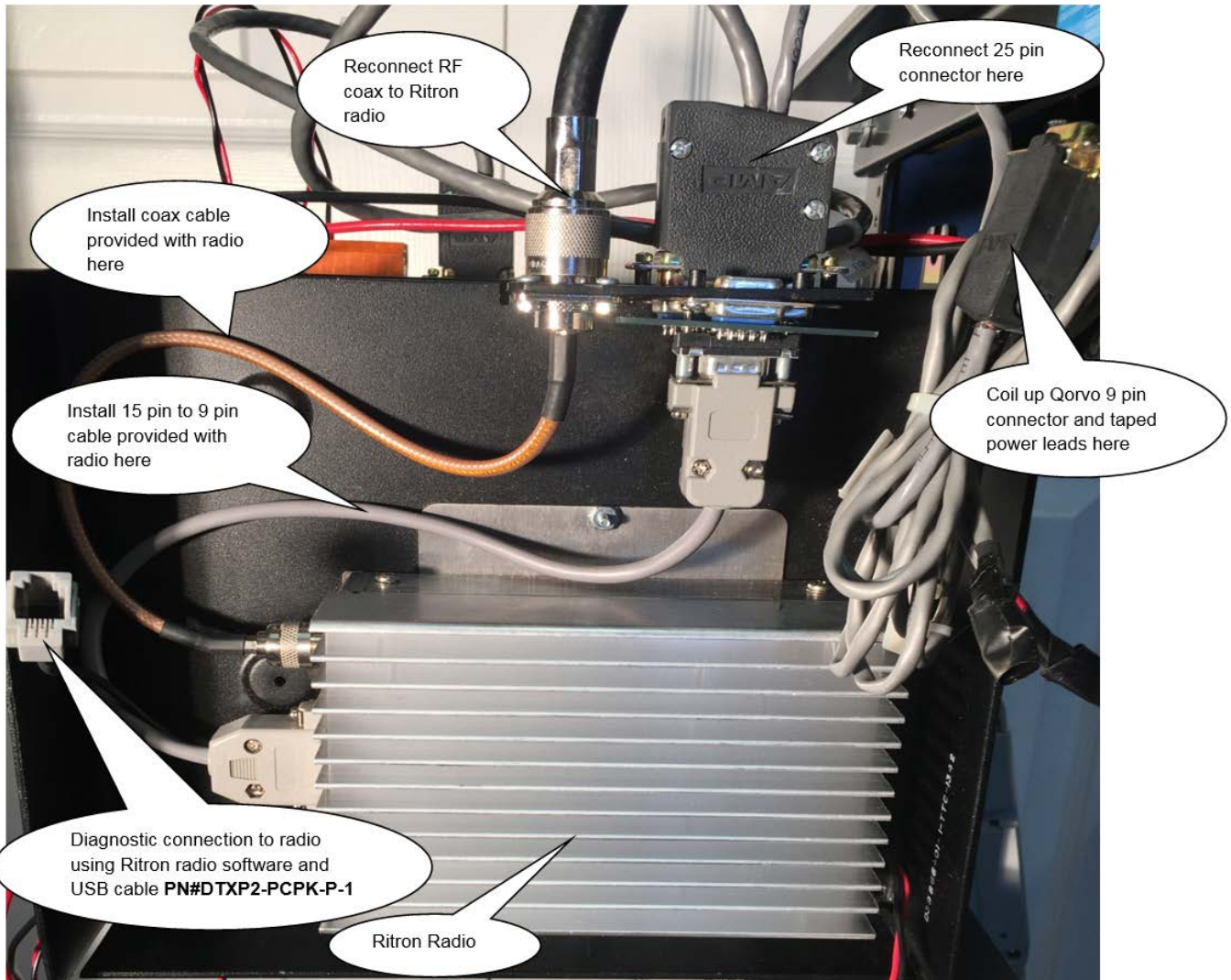

Figure 1-4 Reconnecting Cables on the Ritron Radio

1.3   MCM II CONFIG TOOL

After you have completed installing the radio, you will need to connect your laptop to the MCM diagnostic port and with the MCMII Config v1.17.40.10 software or newer. Hit the **Read from Unit** button shown below. You will notice, after reading the codeplug from unit, it will display the radio type as the one you previously removed. You now have all the codeplug settings residing on your laptop.
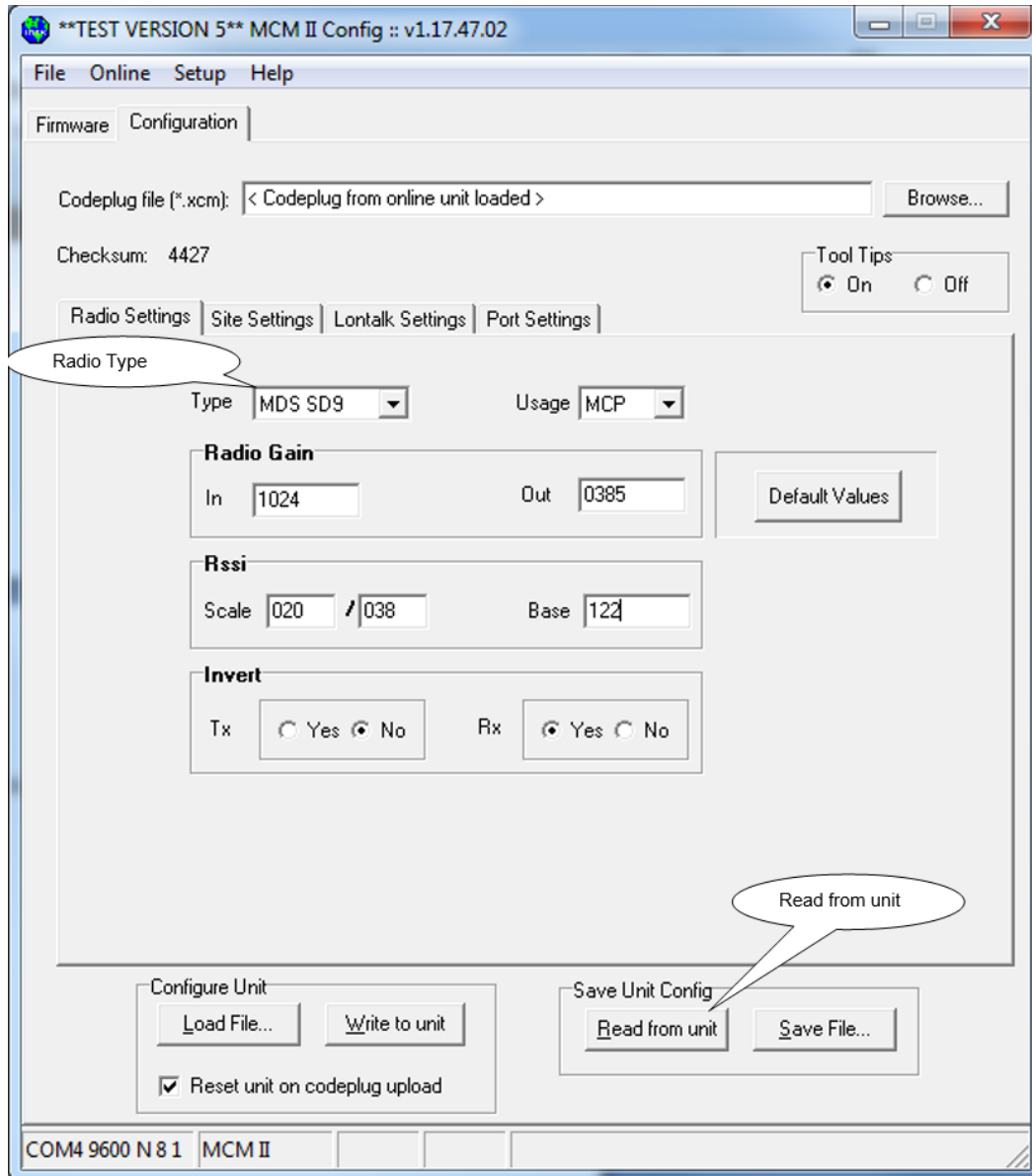

Figure 1-5 Read from Unit

1.3.1.1 Select Ritron 900

Select the down arrow under radio type below and select Ritron 900. You will notice your Radio gains and RSSI values will change to values for Ritron radio. After you have selected your radio type, select the **Write to Unit** button and upload the codeplug with the new radio settings. This is the only change needed to the codeplug. When the codeplug has completed uploading, the MCM should reboot. You will now be back in service with Ritron radio installed.
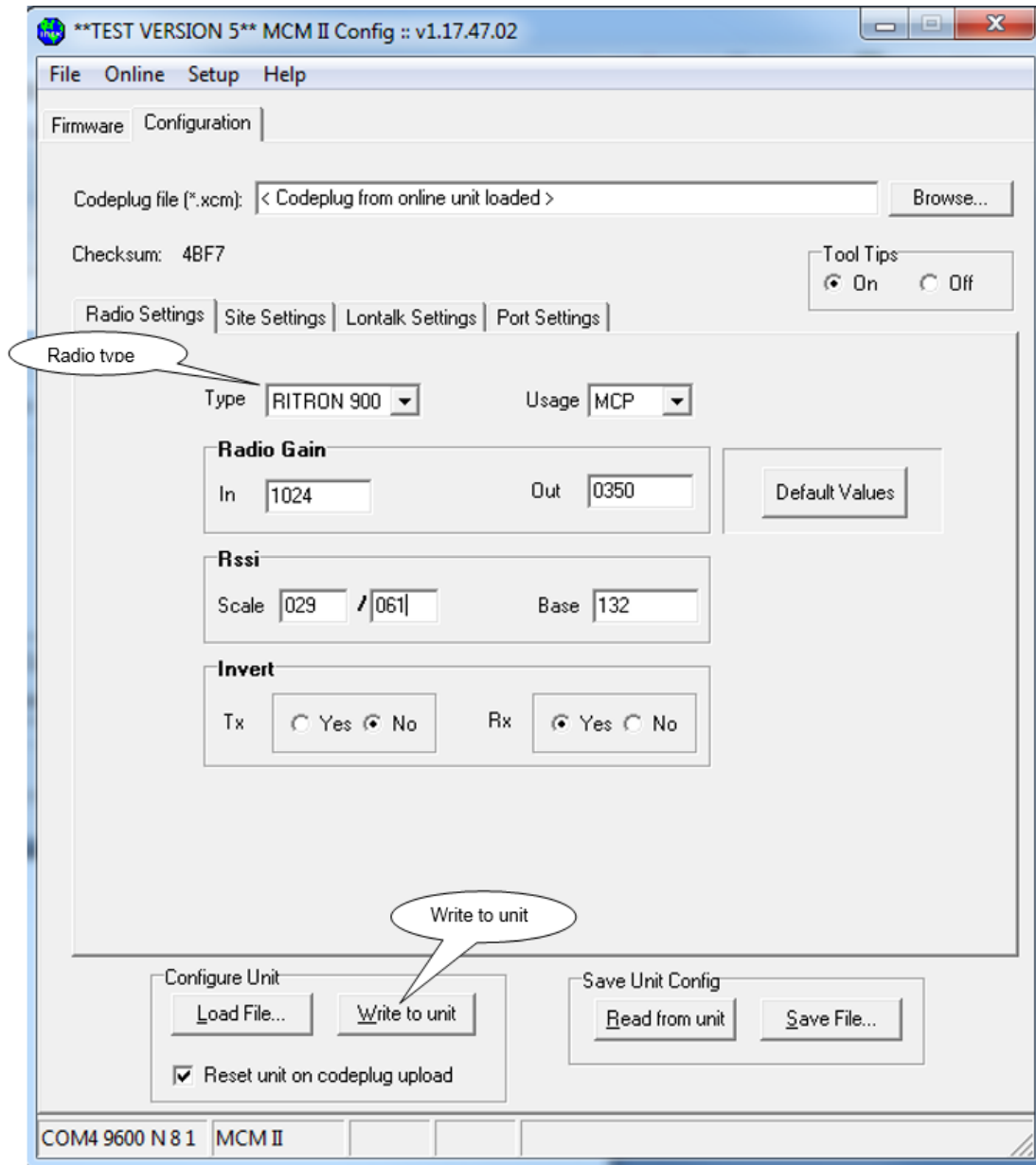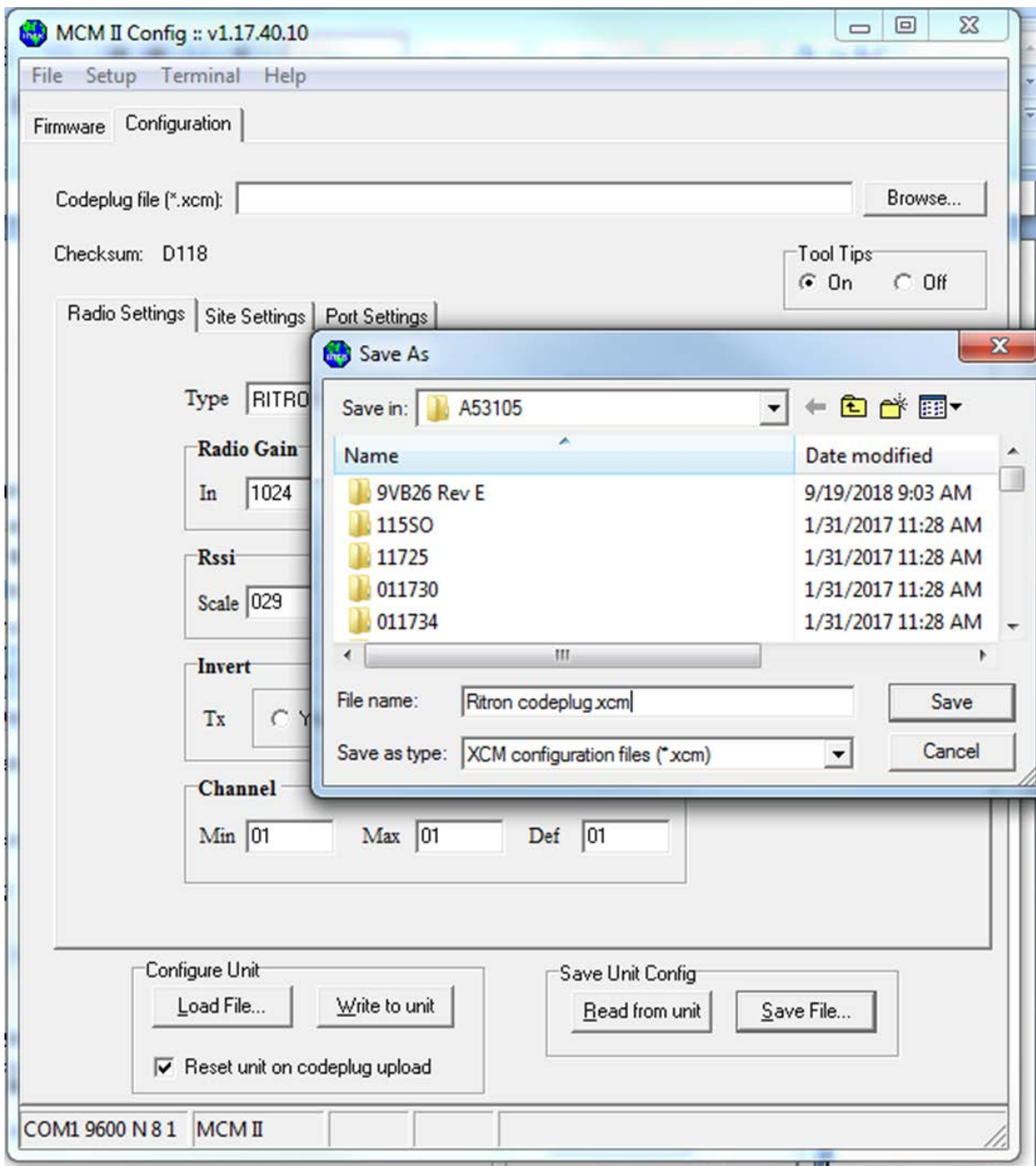

Figure 1-6 Write to Unit

It is always a good idea to save a copy of the codeplug in the unit to your laptop. To do this, select **Save File** and a pop-up window will appear for you to name the codeplug you are saving and browse to directory you want to save it in.

This completes the Ritron Radio Installation.

1.4 MODIFYING DRAWINGS

Table 1-1 can be used to identify the cables (reference Cable # column and locate corresponding number on drawing) illustrated in Figure 1-6 and Figure 1-7. Cable connection and Pin-out for the SD9 radio data cable A26678 can be found in Figure 1-8 and Figure 1-9. Cable connection and pin-out details for the Ritron DTX 9650 radio data cable A26791 can be found in Figure 1-10.

Table 1-1 Connection Cables

| Cable #	Part Number	Where Used	Termination
1	See Appendix E	WCP Radio to Antenna	Male N to male N
2	9000-26678-000X	53106 to RF Amp	Dual-lead, DC-power cable with Ring Lugs to DB-9 connector (Part of 26678 Cable)
3	Customer supplied	43030 to battery	10/12 AWG insulated ring lug to 10/12 AWG insulated ring lug
4	Customer supplied	43030 to battery	10/12 AWG insulated ring lug to 10/12 AWG insulated ring lug
5	Customer supplied	53106 to 53105	16/18 AWG insulated ring lug to black stripped and tinned
6	Customer supplied	53106 to 53105	16/18 AWG insulated ring lug to red stripped and tinned
7	9000-26678-000X	53105 to SD9 Data Interface Connector	Male 25-pin D to male 15-pin D (Part of 26678 Cable)
8	See Figures 4-5 thru 4-8	53105 to 50636	See Figures 4-5 thru 4-8
9	Z715-09038-0008	53105	8-pin WAGO®
10	Belden 8461	53105	Dual-lead stripped (see paragraph 4.4)
11	Customer supplied	53106 to SD9 Radio Power Plug (#13)	16/18 AWG insulated ring lug to black stripped and tinned
12	Customer supplied	53106 to SD9 Radio Power Plug (#13)	16/18 AWG insulated ring lug to red stripped and tinned
13	Part of 53412	SD9 Radio Power Plug	2 terminal Phoenix compression power plug
14	9000-26678-000X	RF Amplifier Power Plug	(Part of 26678 Power/Data Cable)
15	9000-26791-000X	Radio Data Cable 53105 to Ritron	See Figure 1-10

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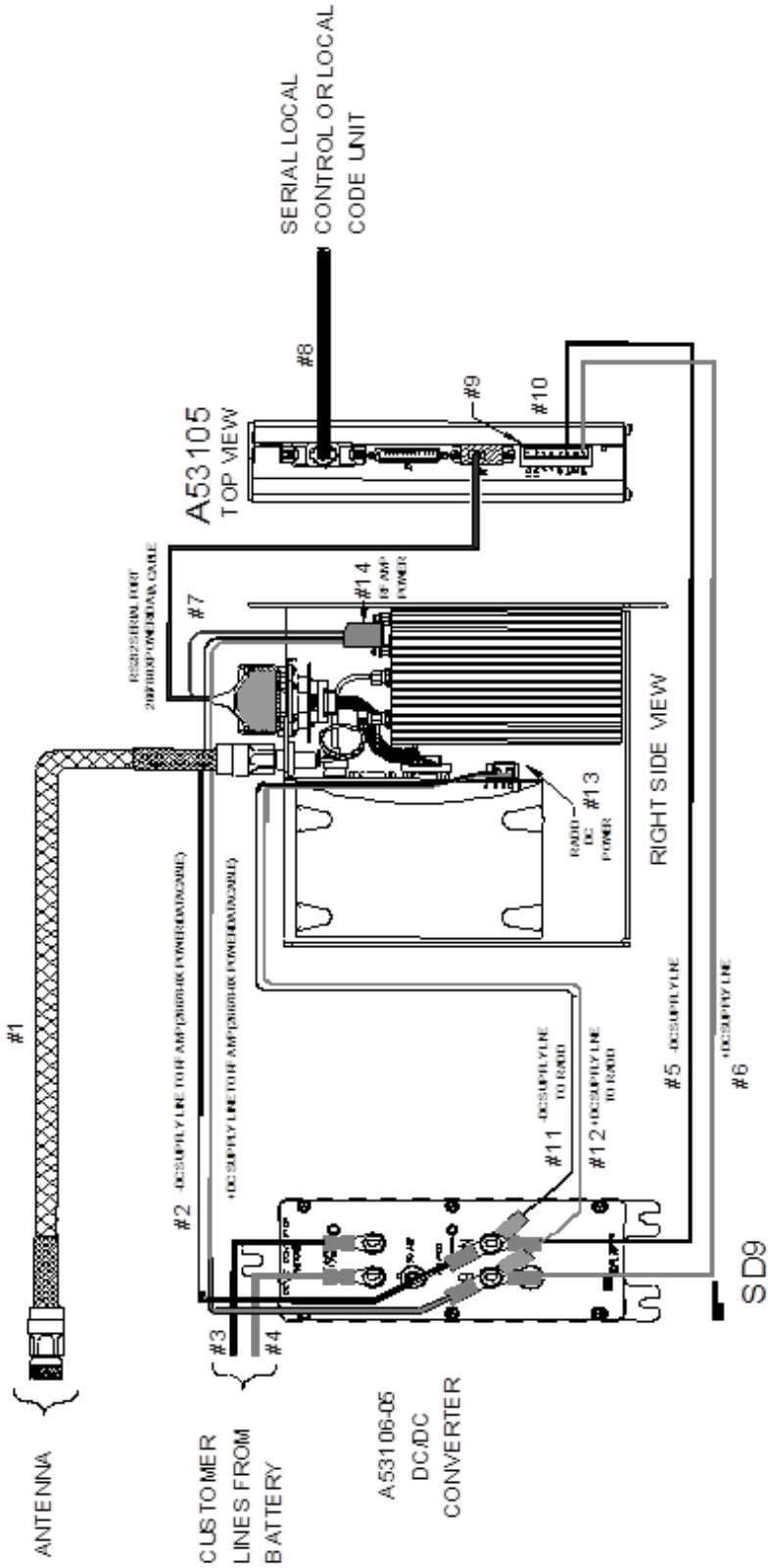
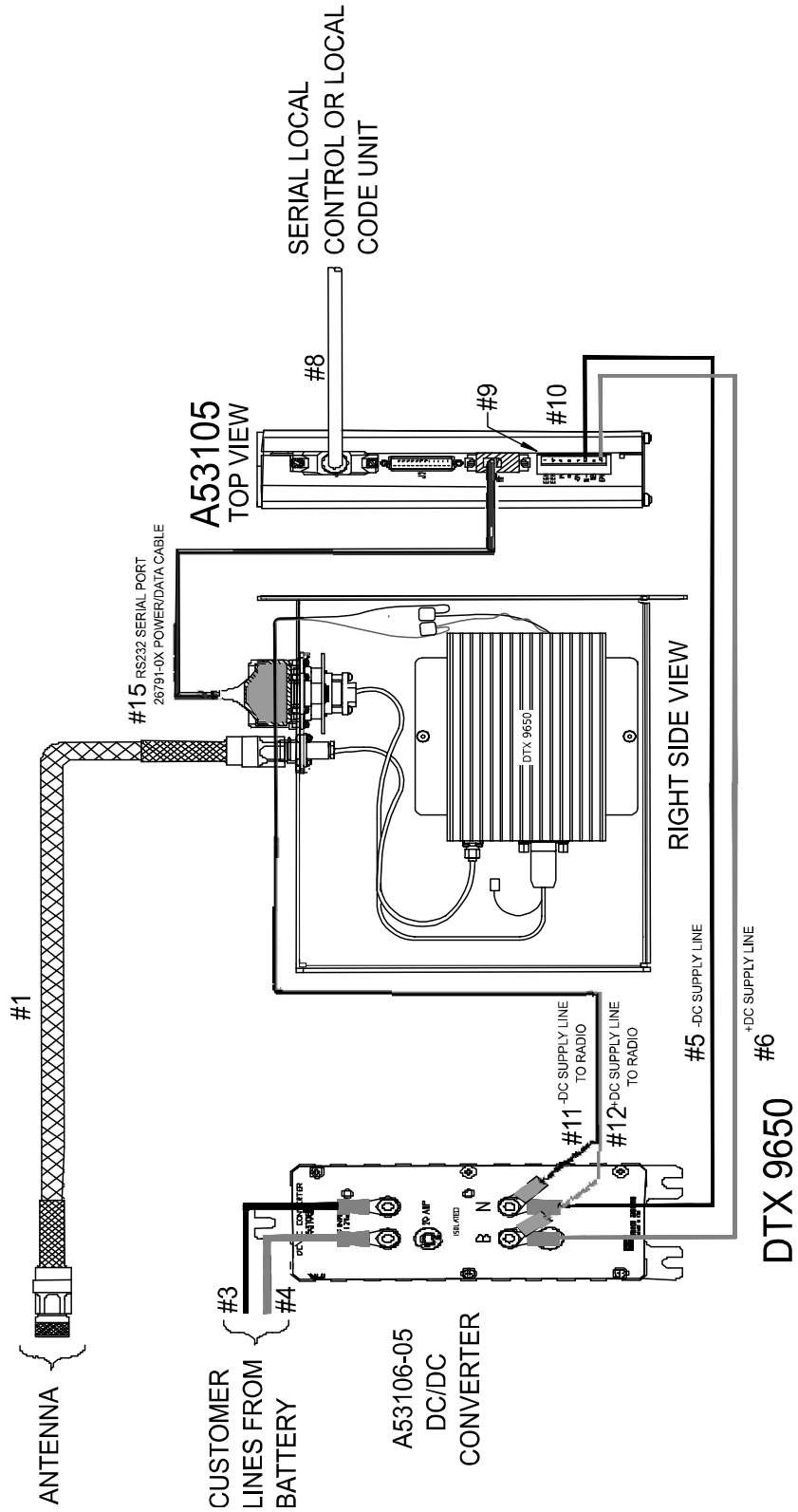**Figure 1-7 SD9 Radio Connection Diagram**
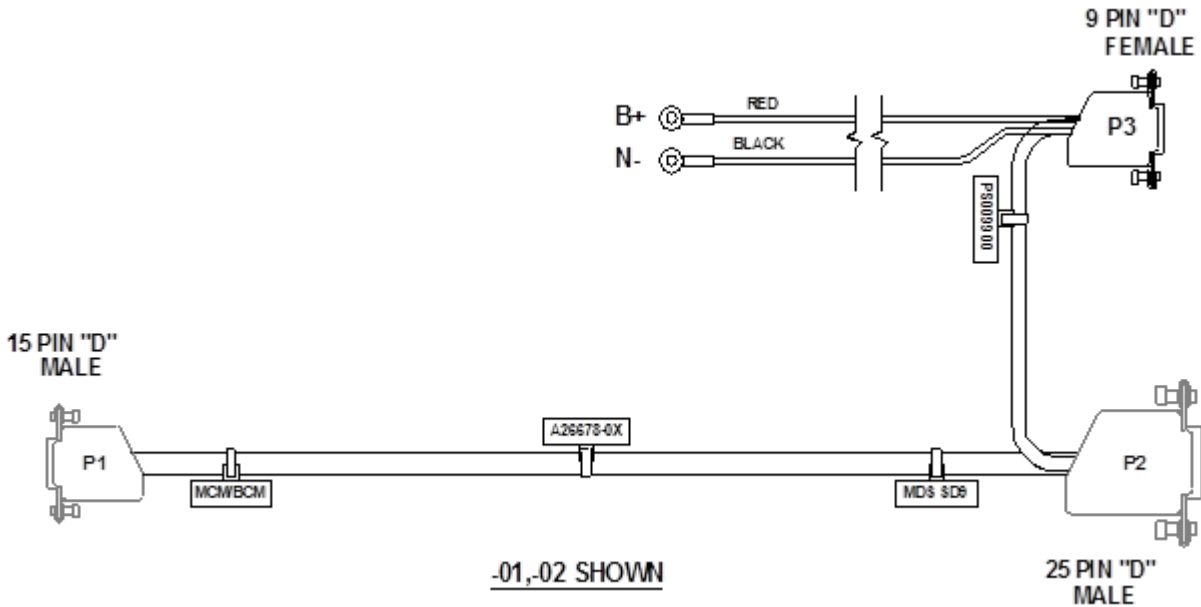
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Figure 1-8 Ritron DTX 9650 Connection Diagram
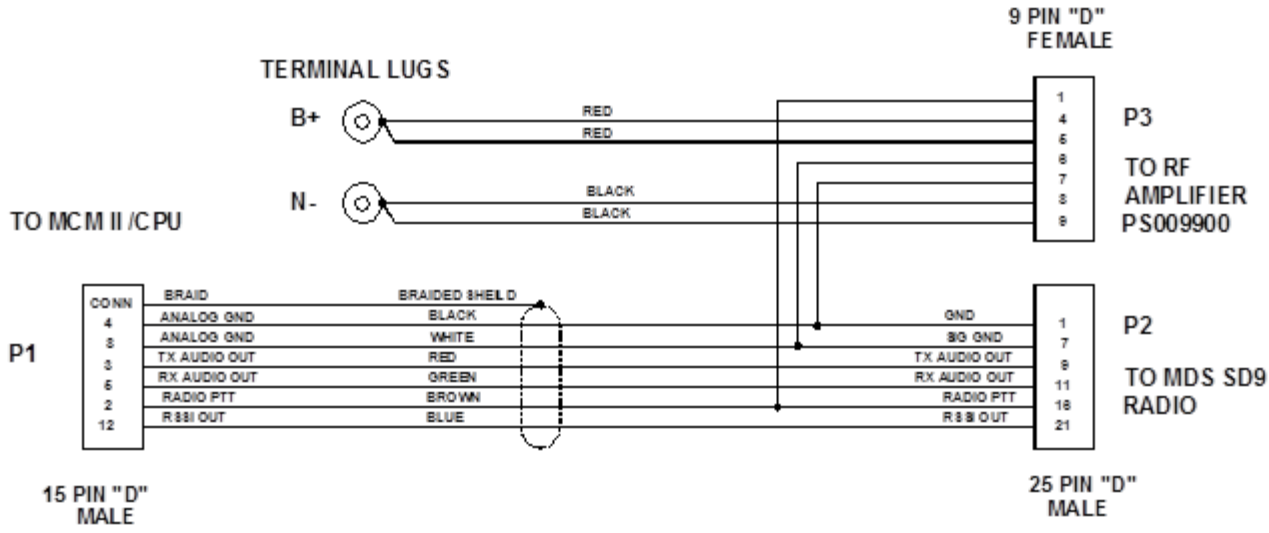
Figure 1-9 A26678 MDS Radio Data Cable

Figure 1-10 A26678 MDS Radio Data Cable Connection and Pin-Out

15 PIN "D"
MALE

P1

A26791-0X

MCM/BCM

DTX-X65

P2

-01,-02 SHOWN

25 PIN "D"
MALE

TO MCM II /CPU

CONN	BRAID	BRAIDED SHEILD		
4	ANALOG GND	BLACK	GND	1
8	ANALOG GND	WHITE	SIG GND	7
3	TX AUDIO OUT	RED	TX AUDIO OUT	9
5	RX AUDIO OUT	GREEN	RX AUDIO OUT	11
2	RADIO PTT	BROWN	RADIO PTT	16
12	RSSI OUT	BLUE	RSSI OUT	21

P1

P2

TO DTX 9650
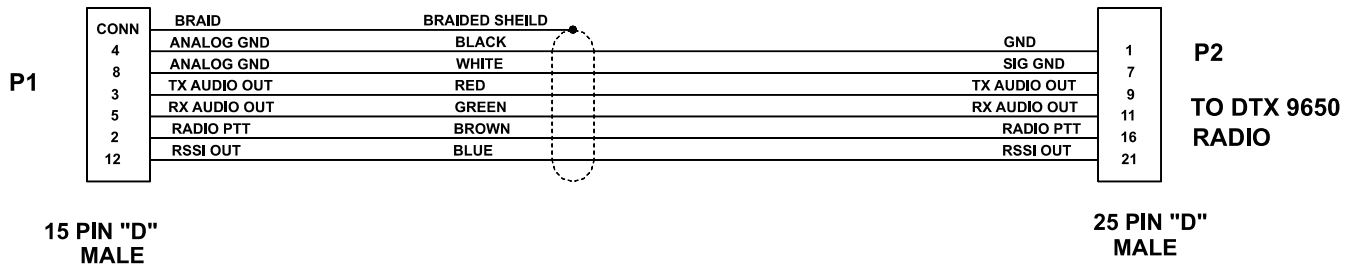**RADIO**

15 PIN "D"
MALE

25 PIN "D"
MALE
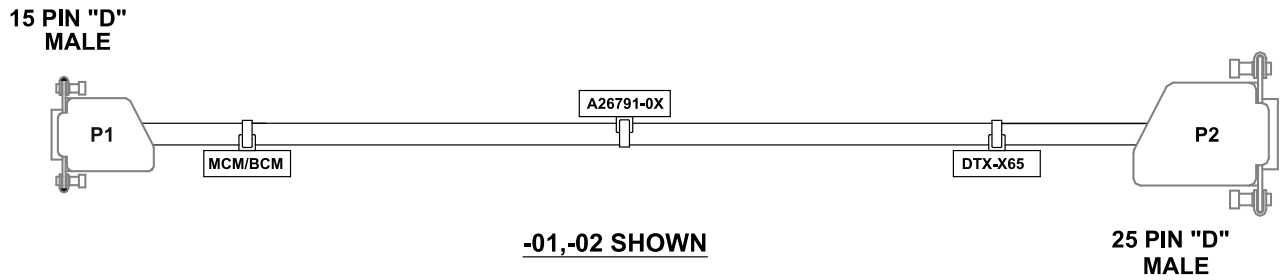
Figure 1-11 A26791 Radio Data Cable to Ritron Radio Connection and Pin-Out