Before you drill a hole or run a wire, inspect the vehicle. Determine the method and location that you intend to mount the antenna, radio, and accessories. Plan wire and cable runs to provide maximum protection from pinching, crushing, and overheating.

The following list of considerations should, as a minimum, be checked during installation planning:

Figure 42: Motorcycle Installation

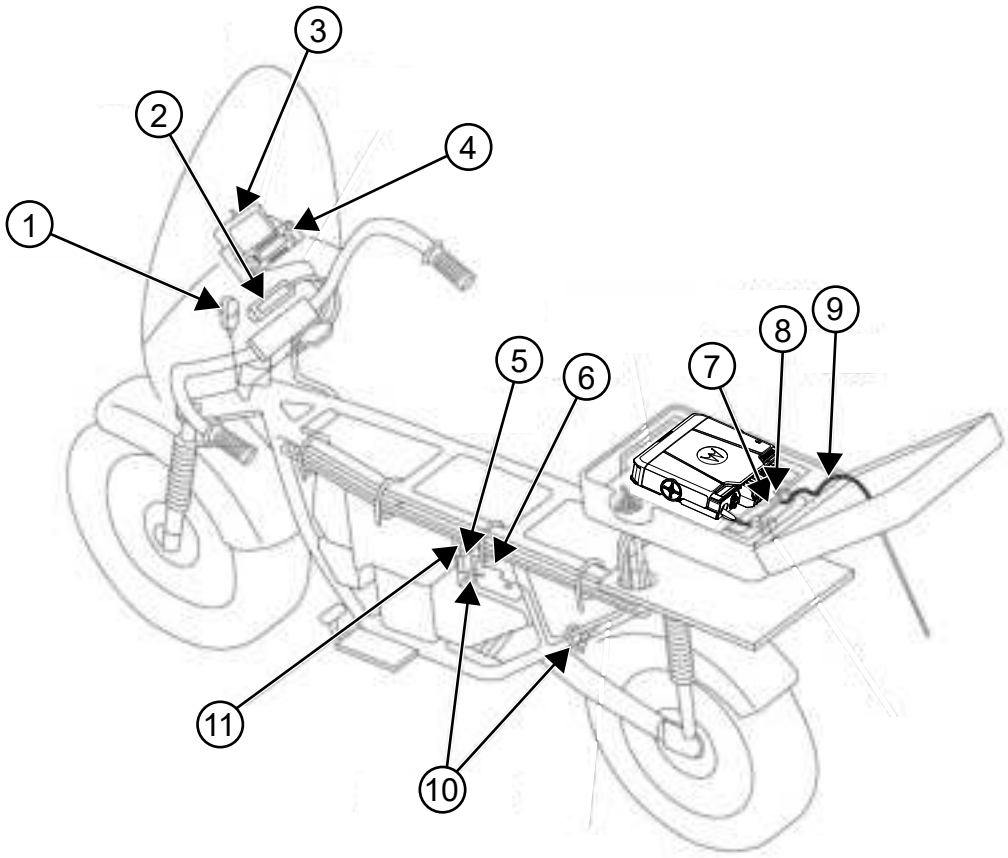


Table 57: Motorcycle Installation Description

Number	Description
1	Microphone
2	Control Head Cable
3	Speaker
4	Control Head
5	Fuse Block
6	Battery
7	Power Cable
8	Accessory Cable
9	Antenna
10	Chassis Ground

Number	Description
11	Ignition Cable

Procedure:

1. Place the transceiver in the box at the back of the motorcycle.
2. Mount the IP67 Remote Ethernet Control Head (RECH) horizontally at a position that enables the driver to view the controls and operate them easily.
3. Ensure that the IP67 RECH is close enough to the vehicle operator to permit easy access to operating controls.
4. Mount the IP67 RECH directly on the chassis or handle part.
5. Ensure that the units mounted in the motorcycle box are protected from dirt and moisture.
6. Verify that sufficient space is available around the units to allow air flow and removal.
7. Verify that the cable from the IP67 RECH on the handlebars to the radio unit is long enough to allow sufficient space for turning the handles.
8. Route the antenna in the shortest way to minimize power loss over the cable.
9. Check that the mounting surfaces are able to support the weight of the units.

   NOTE: If a combined TETRA/GNSS/Bluetooth/Wi-Fi antenna is used, the antenna housing carries the GNSS/Bluetooth/Wi-Fi transmitter and receiver. Ensure not to cover the antenna housing with metal or other radio wave absorbing materials.
10. Slide the IP67 RECH onto the mounting trunnion until it locks into place.
11. Tighten the screws at both sides of the trunnion. After a few turns, tilt the IP67 RECH for an optimum view of the display. Then, complete the tightening of the screws.
12. Mount the motorcycle trunnion in an upward movement or downward movement.

    The movement is limited to a 77° angle.

    Figure 43: Upward Movement

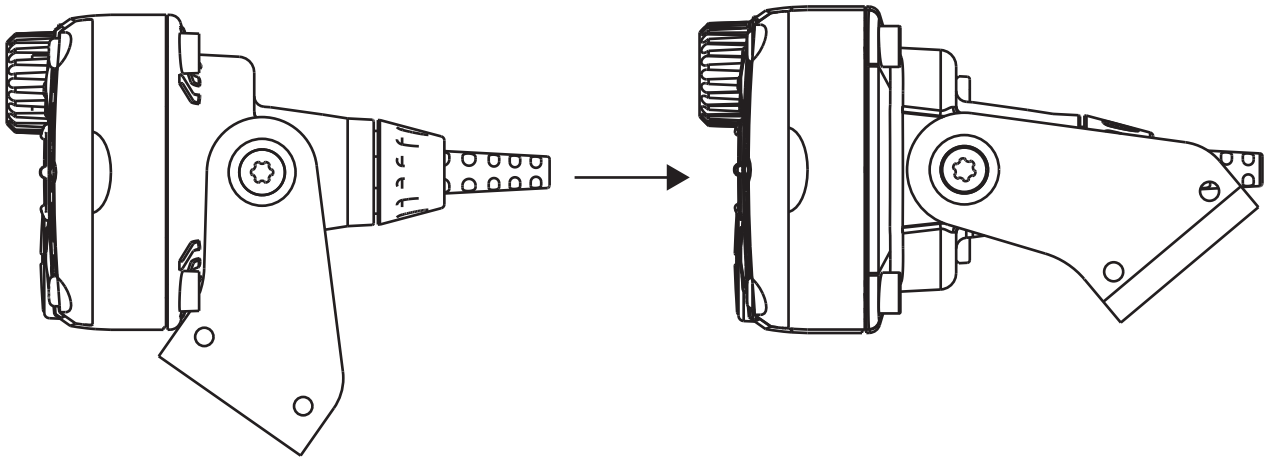
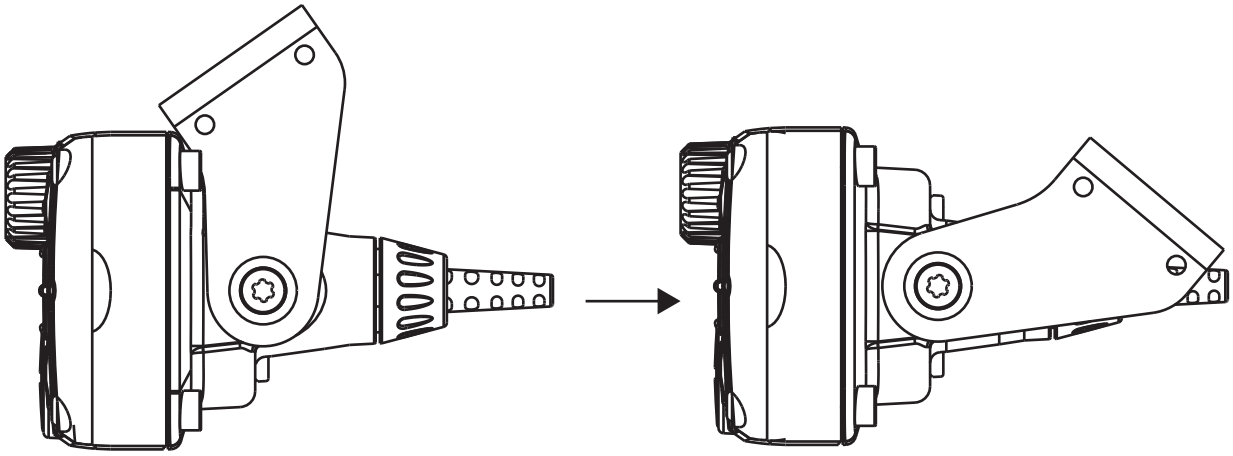


Figure 44: Downward Movement



3.5.2

Mechanical Parts List for IP67 Remote Mount Installation

Figure 45: IP67 Remote Ethernet Control Head (RECH) Mounted in a Trunnion

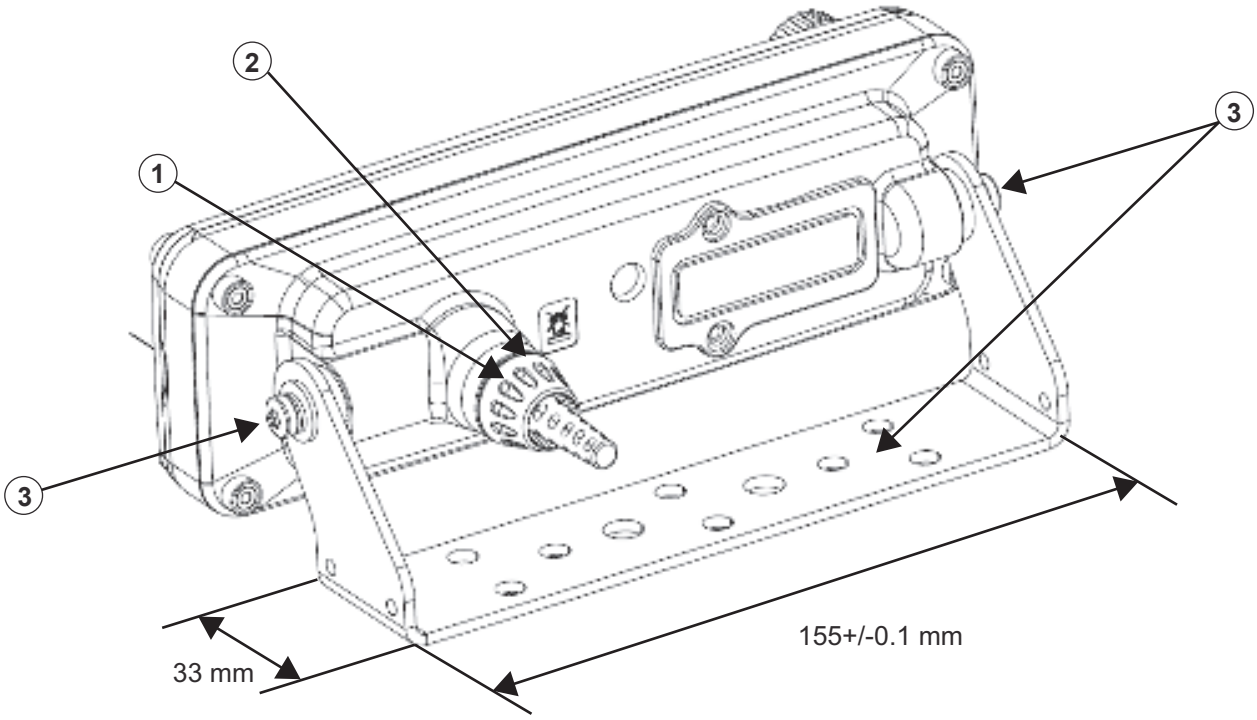


Table 58: Mechanical Parts List for Installation

Item	Description	Part Number
1	IP67 RECH Ethernet Cable	PMKN4320_ (3 m) **NOTE:** Recommended for Motorcycle Mount.
		PMKN4321_ (5 m)
		PMKN4322_ (7 m)
		PMKN4323_ (10 m)
		PMKN4324_ (15 m)
		PMKN4325_ (40 m)
2	Motorcycle Remote Control Head (TELCO) Cable	PMKN4030_
3	IP67 RECH Trunnion Kit	PMLN5092_

3.5.3 Extra Connectivity to the IP67 Remote Ethernet Control Head

For information on adding extra connectivity using the Accessories Expansion Cable and the Mobile Microphone Port (MMP). See Installing the Accessories Expansion Cable on page 64.

3.6 Junction Box Installation

The data junction box (GMLN7825_) assists easy installation for dash and remote mount configurations.

The junction box allows you to add a laptop to the remote configuration. The junction box allows connections of a visor microphone, various accessories, or fist microphone.

WARNING: The junction box (GMLN7825_) is only compatible with MXM600.

NOTE: Only trained personnel can install the mobile terminal. All installations must take place in accordance with the requirements of the vehicle and antenna manufacturer or supplier.

Figure 46: Junction Box Installation (Rear)

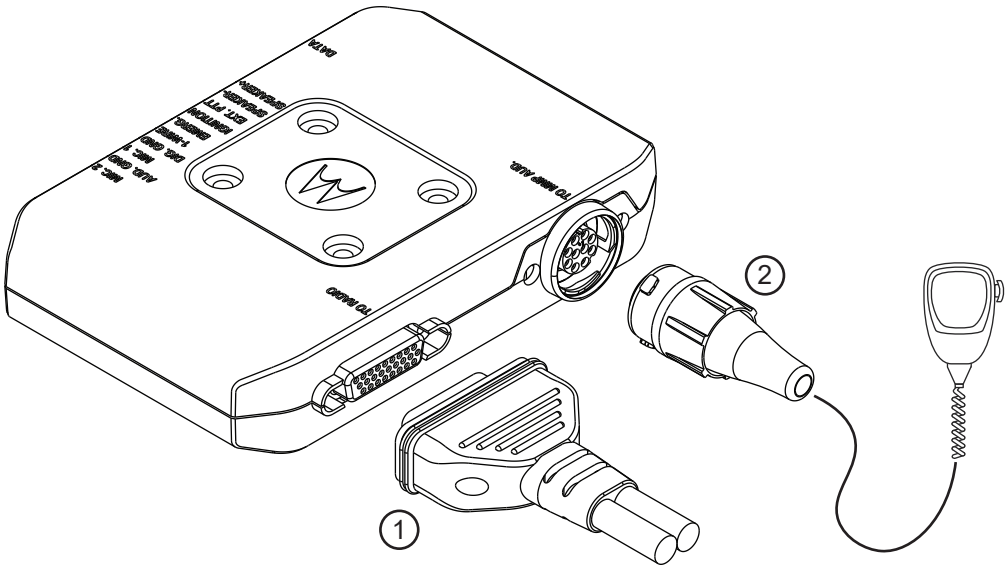


Figure 47: Junction Box Installation (Front)

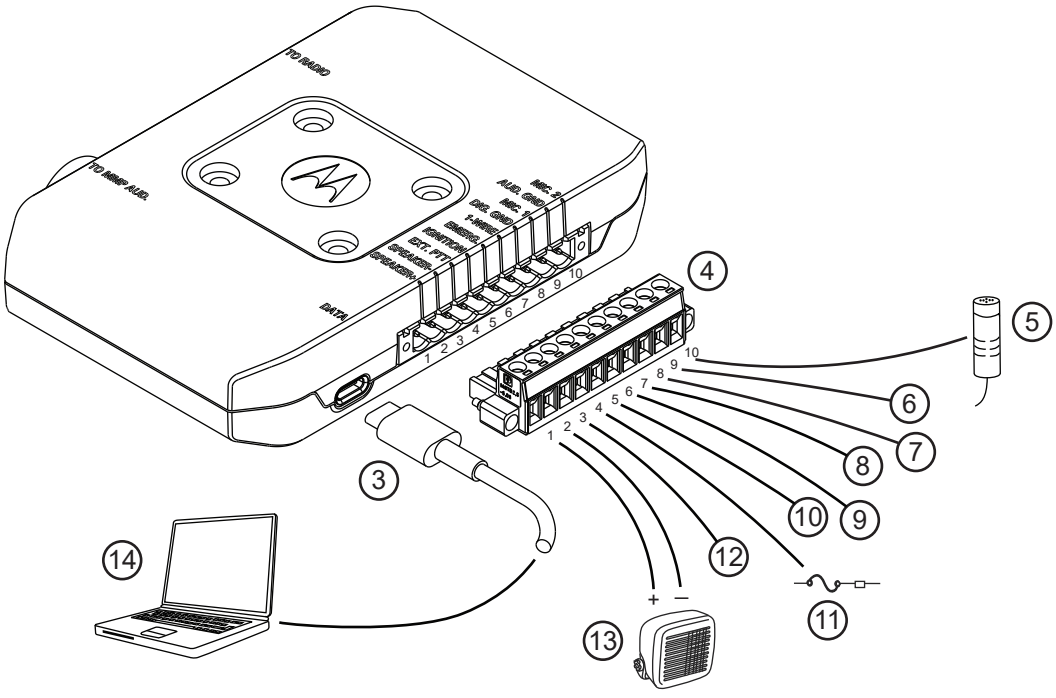


Table 59: Junction Box Installation Description

Number	Description
1	Connecting cable between junction box and mobile (MXM600) terminal (Accessory plug on rear side of the transceiver)
2	GCAI connector for Mobile Microphone Port (MMP) audio accessories
3	USB-C for programming and data (PEI)
4	Accessory plug
5	Mic +2 (smart noise canceling visor mic)
6	Mic GND
7	Mic +1
8	GND
9	1-Wire
10	Emergency cable
11	Ignition sense cable
12	External PTT
13	Speaker
14	Laptop

NOTE: The junction box PCB is not repairable. Order a new junction box as necessary.

3.6.1
Installing the Junction Box

The junction box can be installed horizontally or vertically. The junction box has no connector sealing and is designed for use in locations that are not exposed to dust and water.

Procedure:

1. Secure the data junction box using the four screws supplied with the kit.
2. Connect the connection cable PMKN4302_ (5 m in length), PMKN4301_ (4 m in length), or PMKN4300_ (2 m in length) from the junction box to the accessory connector on the rear side of the transceiver.

   The cable used is for installation purposes only, and must be ordered separately.
3. Fasten the cable with the plug screws.

3.6.2
Connecting Accessories to the Junction Box

Procedure:

1. Connect all accessories to the junction box.
2. Connect the cable from the mobile terminal to the junction box.
3. Connect the programming cable to the junction box, if required.

3.6.3

Connectors on the Junction Box

Figure 48: Connectors on the Junction Box – Rear Panel

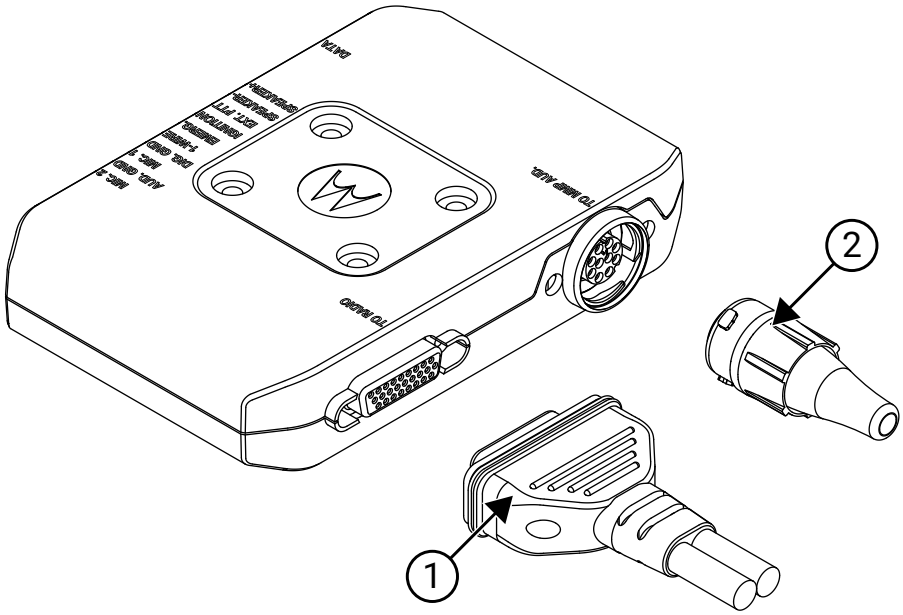


Table 60: Associated Components

No.	Part/Kit Number	Description
1	PMKN4302_ (length 5 m)	Connecting cable from Junction Box to MXM600 (rear side 26-pin accessory connector) for installation purpose only
	PMKN4301_ (length 4 m)	
	PMKN4300_ (length 2 m)	
2	–	GCAI connector for Mobile Microphone Port (MMP) audio accessories

Figure 49: Connectors on the Junction Box - Front Panel

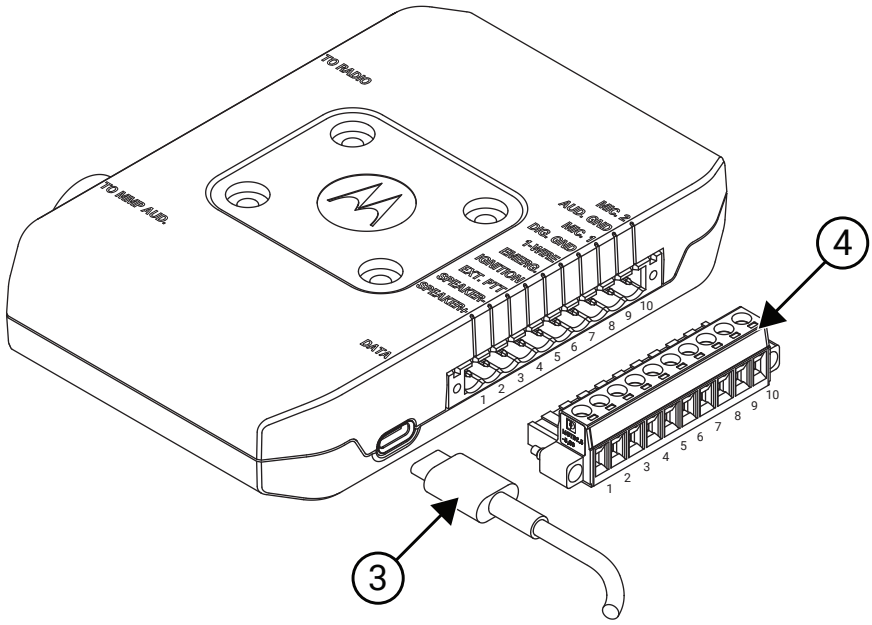


Table 61: Associated Components

No.	Part/Kit Number	Description
3	USB-C	For programming and data (PEI)
4	pin 1	Speaker +
	pin 2	Speaker -
	pin 3	External PTT
	pin 4	Ignition Sense
	pin 5	Emergency
	pin 6	1-Wire
	pin 7	Digital Ground
	pin 8	MIC_1
	pin 9	Audio Ground
	pin 10	MIC_2

CAUTION: PIN 4: To short the ignition to the ground, use an adapter between your radio and the accessory connector. Interference can cause your radio to hang.

3.6.4

Connection Plan for the Junction Box Accessory Plug

Figure 50: Connection Plan for the Speaker

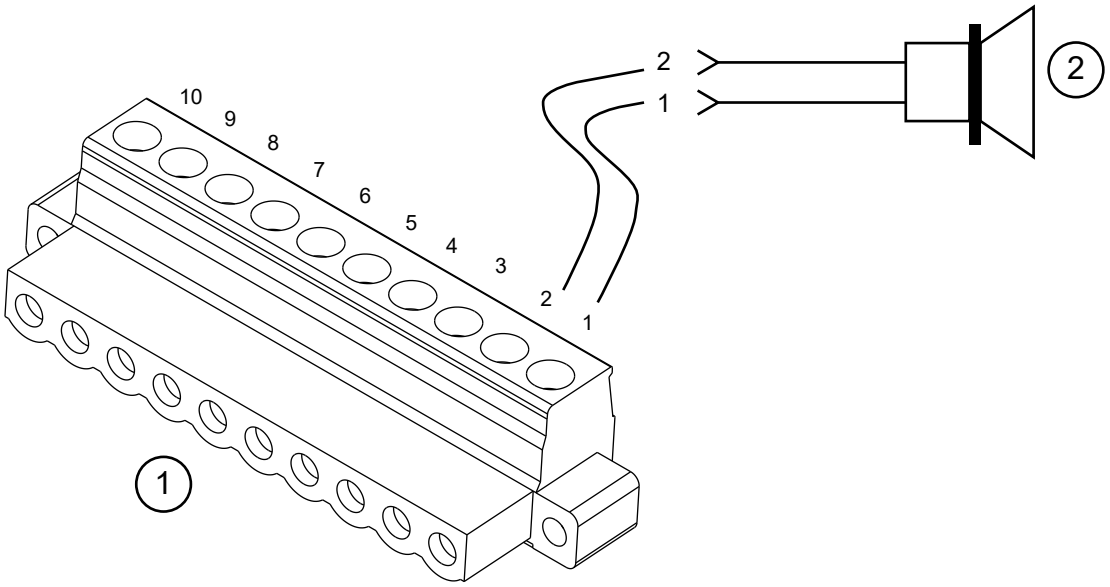


Table 62: Associated Components

Number	Description
1	Junction Box 10 Pin Accessory Plug
2	Speaker

Figure 51: Connection Plan for the Emergency Switch

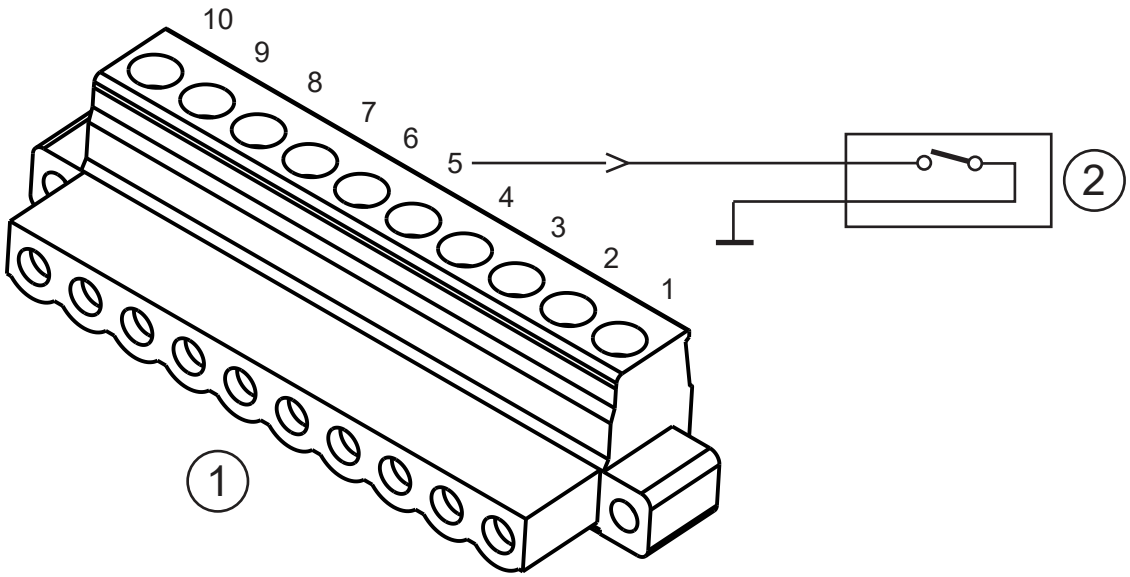


Table 63: Associated Components

Number	Description
1	Junction Box 10 Pin Accessory Plug
2	Emergency Switch

Figure 52: Connection Plan for the Ignition Sense Cable

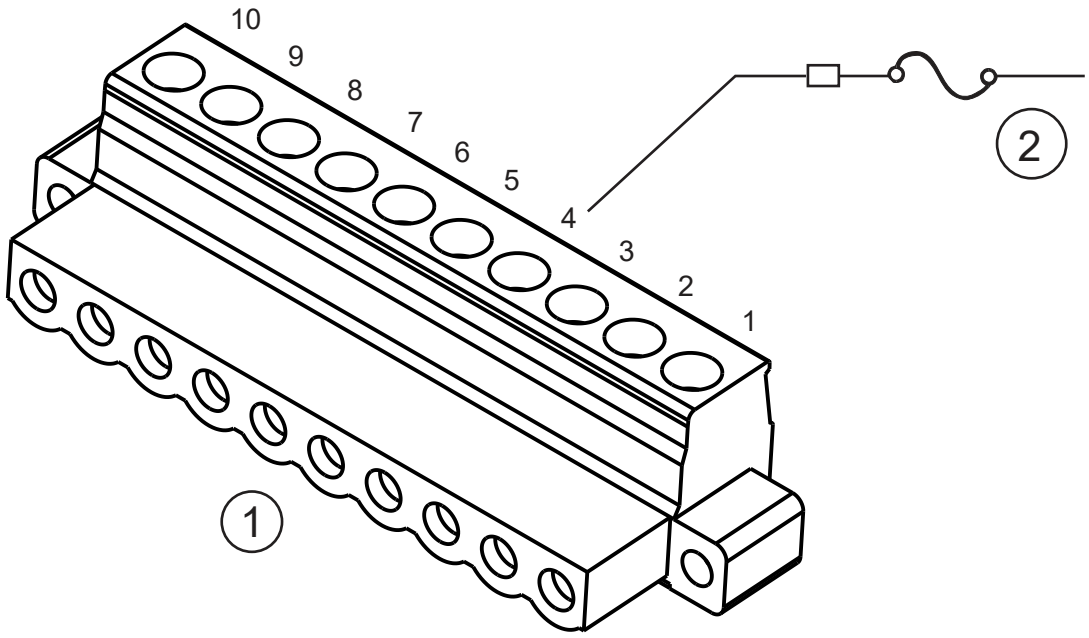


Table 64: Associated Components

Number	Description
1	Junction Box 10 Pin Accessory Plug
2	To Ignition Switch, Ignition Switch Cable, Switched Battery Voltage

Figure 53: Connection Plan for External Push-To-Talk (PTT)

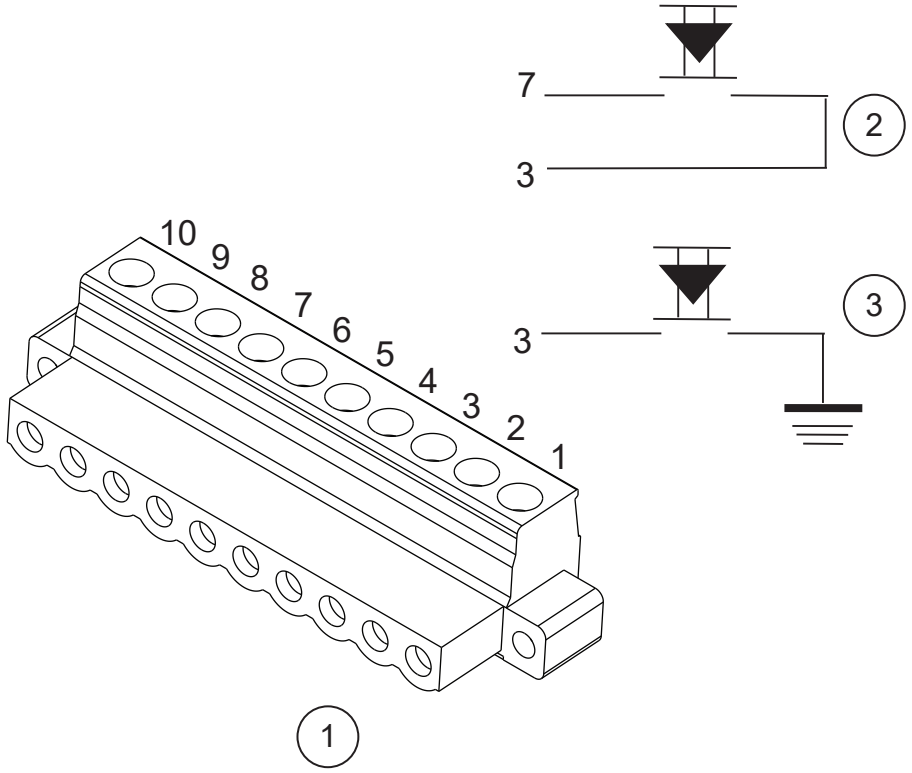


Table 65: Associated Components

Number	Description
1	Junction Box 10 Pin Accessory Plug
2	External PTT Version A
3	External PTT Version B

3.6.5
Installing the Ignition Sense Cable

Procedure:

1. Connect the stripped lead of the fuse holder cable only to an ignition switched terminal of the fuse block.

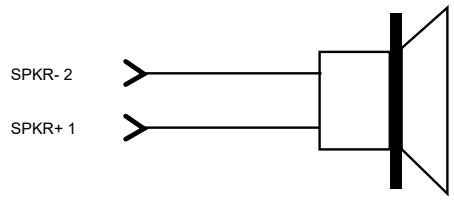
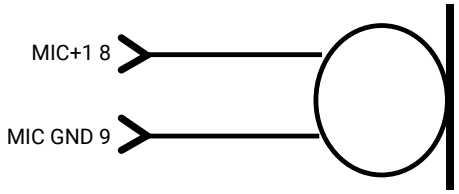
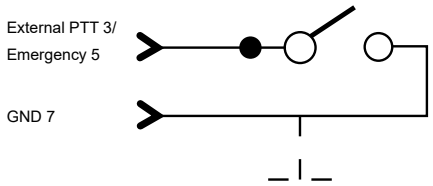
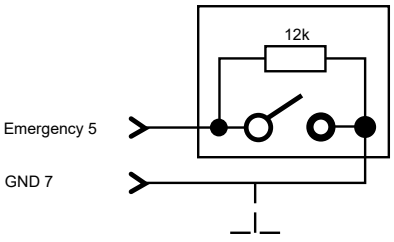
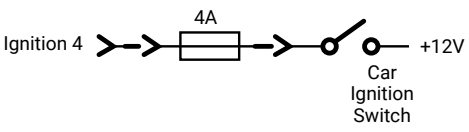
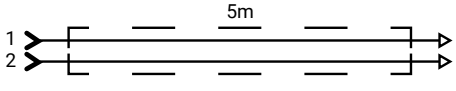
   Use the supplied terminal or any other suitable terminal.
2. Mount the fuse holder using the mounting hole, and dress wires as required.
3. Cut the thin cable to the required length, crimp the supplied red lead to the stripped lead of the thin cable, and connect it to the blue terminal of the fuse holder cable.
4. Connect the other end of the ignition sense thin cable to pin 4 of the junction box terminal.

5. Insert the provided fuse into the fuse holder and close the cover.

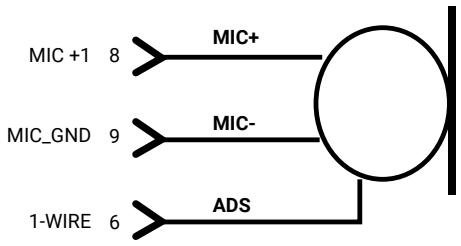
CAUTION: PIN 4: Ground the ignition line if it is not in used. Interference can cause your radio to hang.

3.6.6
Connection Plan for Accessory Plug

Table 66: Connection Plan for Accessory Connector Kit

Part Number	Description	Cable Connectivity
RSN4002 _	Speaker 13 W	
RSN4003_	Speaker 7.5 W	
RSN4004_	Speaker 5 W	
AC000240A02	Speaker 15.6 W, Wideband	
PMMN4087_	Visor-mounted micro-phone	
RLN5926_[2]	Push button for Push-to-Talk (PTT)	
RLN4858_ [2]	Goose neck PTT	
RLN4836_	Tri-state emergency foot switch and cable	
PMKN4120_	Ignition sense cable	
PMKN4119_	Speaker extension cable	

[2] You can use this accessory for the Push-To-Talk (PTT) or Emergency function.

Part Number	Description	Cable Connectivity
RMN5054_	Smart-visor microphone	

3.7

Installing the Trunnion

The trunnion allows the terminal to be mounted to various surfaces. The trunnion must be securely fixed to the vehicle chassis.

The MXM600 is compatible with the following trunnions:

- GLN7317 High Profile
- GLN7324 Low Profile
- RLN4779 Key Lock Bracket
- PMLN8620_ MXM600 Standard Trunnion Kit

The PMLN8620_ is an enhanced trunnion kit that comes with screw hole alignment features. It allows the mobile radio prealigned to the enhanced trunnion screw holes, and uses guide rings on the trunnion to guide the wing screws tighten to the mobile radio.

Procedure:

1. Ensure that the surface can support the weight of the terminal.

   NOTE: Although the trunnion can be mounted to a plastic dashboard, you are recommended to locate the mounting screws to penetrate the supporting metal frame of the dashboard.

2. Ground your radio housing to the nearest vehicle chassis ground point. To ground your radio housing, perform one of the following:
   - Remove the paint from the part of the trunnion that touches your radio and vehicle chassis.
   - Connect a short cable with ring lugs on both ends to the chassis under the wing screw.

Figure 54: Terminal into Low or High Profile Trunnion (GLN7324_ / GLN7317_)

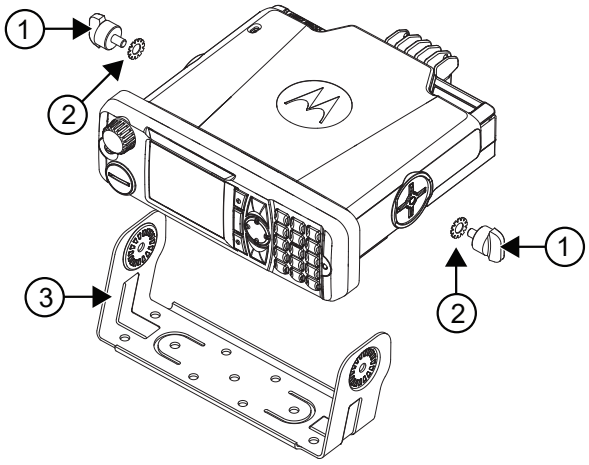


Figure 55: Terminal into Enhanced Trunnion Kit (PMLN8620_)

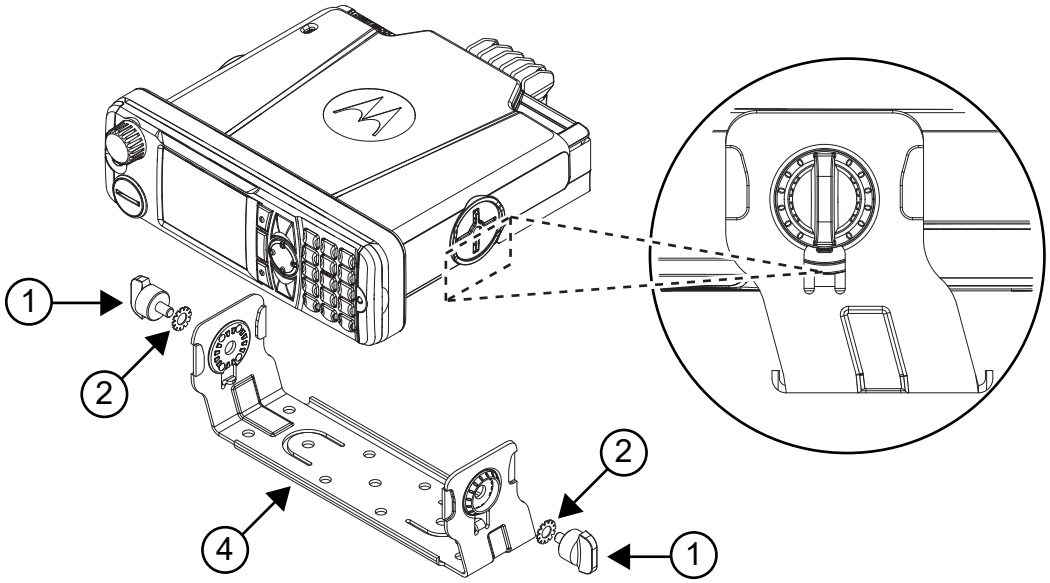
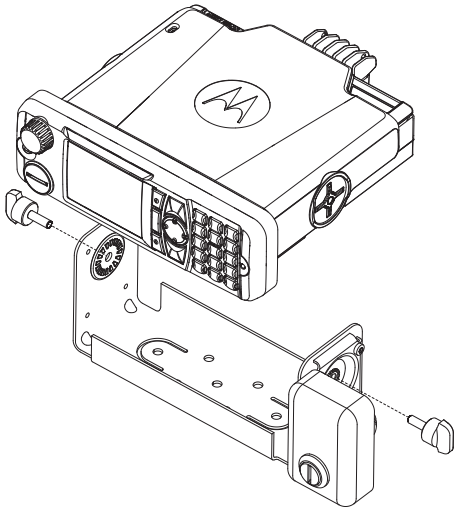


Table 67: Associated Components

Number	Part Number	Description
1	0302637Y01	Wing screws included in the Trunnion Mount Kit.
2	0400002647	Washer 2x
3	GLN7324_, GLN7317_	Trunnion
4	PMLN8620_	Enhanced Trunnion

Figure 56: Terminal into Key Locked Mount Trunnion (RLN4779_)



3. Select the transmission hump, or open underneath portion of the dash to mount your terminal.

   When mounting the trunnion on the transmission hump, be careful that the transmission housing is not affected.

4. To mark the hole positions on the mounting surface, use the trunnion mounting bracket as a template.

   Use the innermost three holes for a curved mounting surface, such as the transmission hump, and the three outermost holes for a flat surface such as under the dash.

5. To drill a hole at each location, center-punch the spots you marked and use a 4 mm (5/32 in.) bit for drilling.

6. To secure the trunnion mounting bracket to the mounting surface, use the three self-tapping screws provided.

7. Slide the terminal into the trunnion. Secure the terminal with the two wing screws provided.

   NOTE: The keypad labeling of the control head varies according to the specific customer or country requirements.

8. Ground your radio housing to the nearest vehicle chassis ground point. To ground your radio housing, perform one of the following:

   - Remove the paint from the part of the trunnion that touches your radio and vehicle chassis.
   - Connect a short cable with ring lugs on both ends to the chassis under the wing screw.

Figure 57: Top of Dash Mount

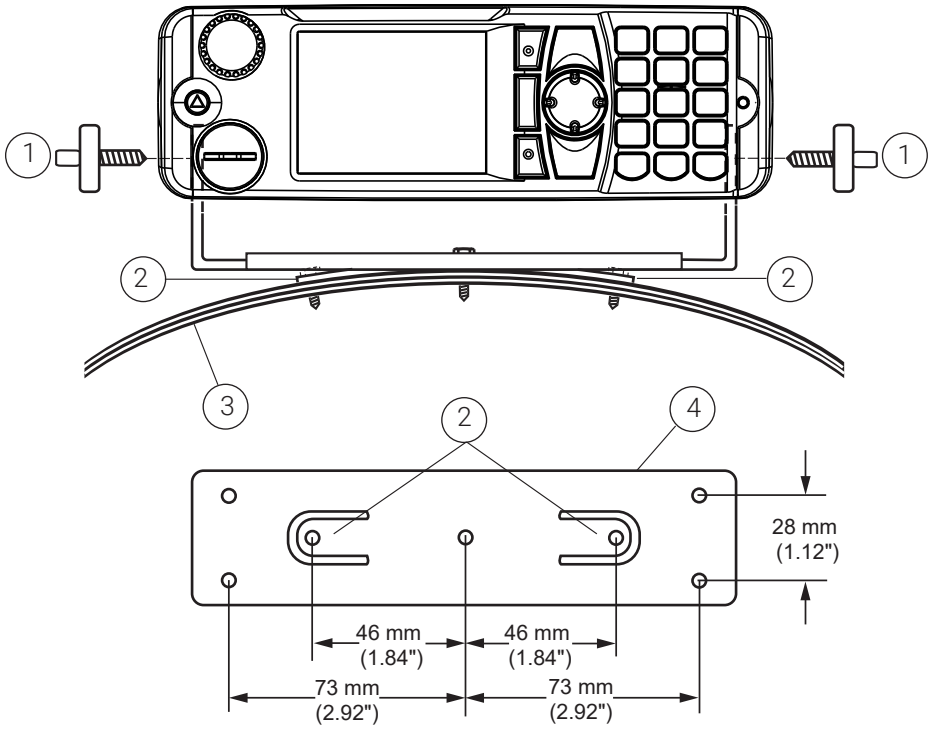


Table 68: Associated Components

Number	Description
1	Wing screw
2	Tab
3	Mounting surface
4	Trunnion mounting bracket

The compatible trunnion kit comes complete with the following:

- 0771061L01 – GLN7317_Bracket, Standard Trunnion, or
- 0771061L02 – GLN7317_Bracket, Low Trunnion, or
- BR000490A01 – PMLN8620_ Bracket, Enhanced Trunnion
- 0302637Y01 – Wing Screw M5x7.9 mm, quantity 2
- 0400002647 – Lock Washer, quantity 2
- 0312002B14 – Self-drill Steel 10-16x1, quantity 4

Figure 58: Below Dash Mounting

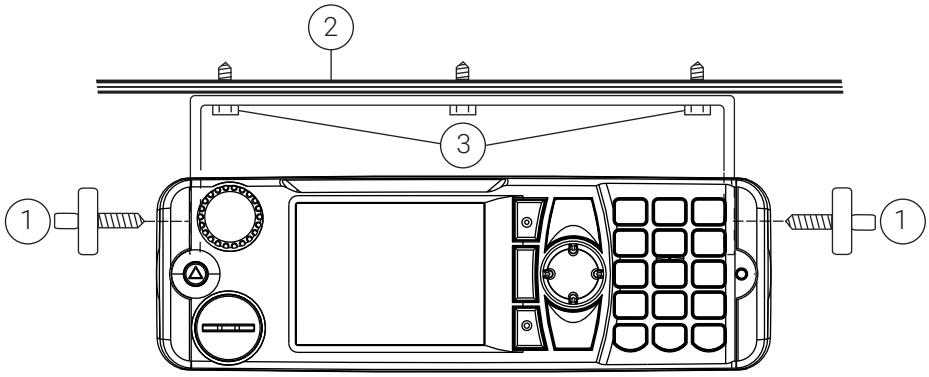


Table 69: Associated Components

Number	Description
1	Wing screw
2	Mounting surface
3	Sheet metal screws

Chapter 4

Connectors and PIN Assignment

This section describes the connectors and pin assignments available for your radio.

4.1 Connector Pin Functions

Figure 59: Transceiver Interfaces Overview

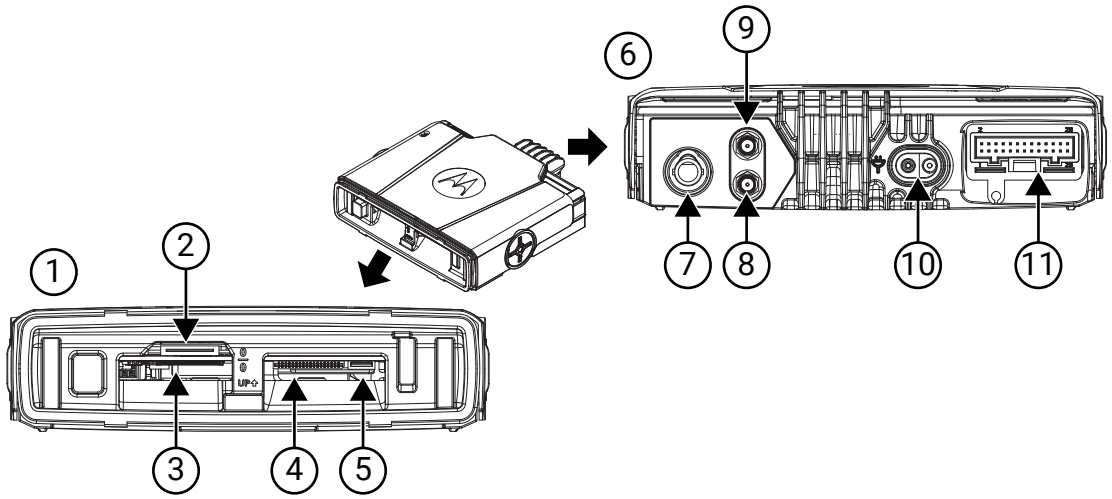


Table 70: Associated Components

No	Description
1	Front view of the transceiver
2	Control Head Interface (12-pin)
3	Expansion Board (40-pin)
4	Y-Flex Connector (18-pin)
5	Y-Flex Connector (6-pin)
6	Rear view of the transceiver
7	TETRA Antenna BNC Connector
8	GNSS Antenna SMA Connector
9	Bluetooth/Wi-Fi Antenna SMA Connector
10	Power Connector
11	26-pin rear Accessory Connector

4.2

Transceiver Front – Pin Functions

Figure 60: Transceiver Front View - Dash/Desk Control Head and Expansion Head Interface

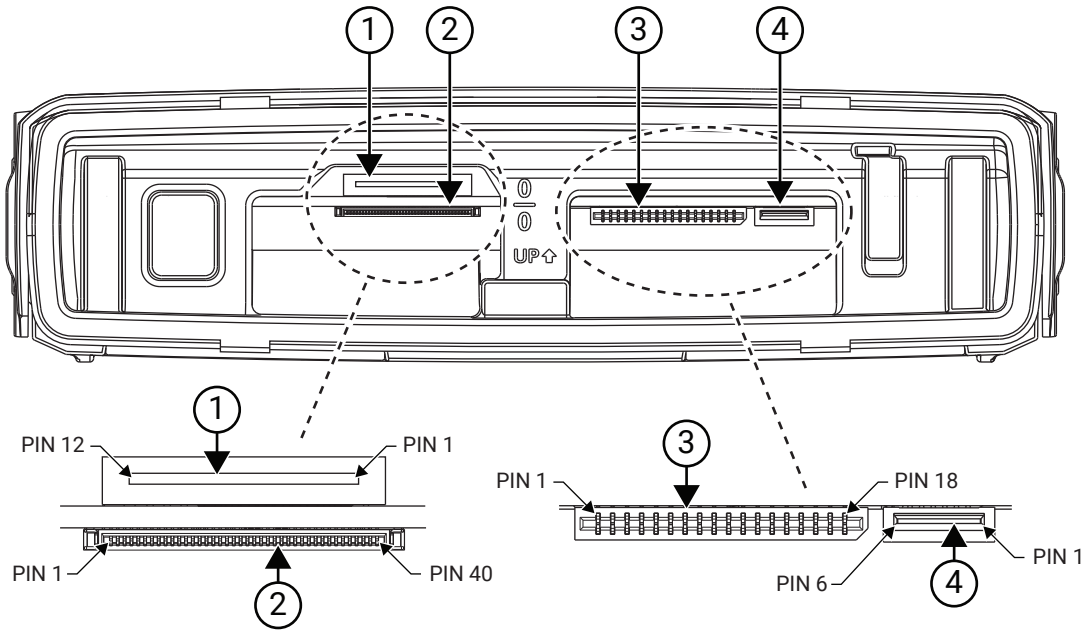


Table 71: Transceiver Front View

Number	Description
1	12-Pins FPC CONN 0916162H02
2	40-Pins ZIF CONN CN002046A01
3	18-Pins FPC CONN CN002031A03
4	6-Pins FPC CONN CN002104A01

Table 72: Transceiver Pin Assignment of the Enhanced Control Head Interface (12-Pins)

Pin	Function	Description
1	SCI_TX	Serial Communication Interface TXD
2	TBD	Not-Connected – SPEAKER+ line in transceiver
3	TBD	Not-Connected – SPEAKER- line in transceiver
4	GND	Ground
5	EXTERNAL-PTT	External PTT
6	5VD	+ 5 V regulated
7	HANDSET_AUDIO	Handset audio
8	BUS +	Either SBEP or Serial Communication Interface
9	INT_MIC	Microphone input – impedance of 560 Ω

Pin	Function	Description
10	FLT_A +	Filtered A+
11	ON_OFF_CONTROL_SV	Terminal On/Off Control shared with Enhanced Control Head request
12	GND	Ground

Table 73: Transceiver Pin Assignment of the Expansion Board Connector (40-Pins)

Pin	Function	Description
1	GND	Ground
2	EXPH_GPIO1	New GPIO reserved.
3	SPIB_CLK	Part of the QSPIB
4	GND	Ground
5	FLT_A+	Continuous battery voltage for sense via 22 Ω
6	RESET_OUT	Reset, it is an output to reset the device.
7	ON_OFF_BR	On/Off functionalities. Connected to dual core processor at 1.8 V level
8	ON_OFF_CONTROL_5V	Terminal On/Off Control shared with Enhanced Control Head Request
9	3V3_DIG	3.3 V Sense Output (max 10 mA)
10	EXP_REQ	Request Line from 4Wire / UART
11	SPIB_CS_UART	Part of the QSPIB (chip select) for 4wire RS232 UART
12	SPIB_CS_NEW	For future use; 1.8 V logic level
13	SPIB_MISO	Part of the QSPIB
14	I2C_SDA	I2C Data; 1.8 V logic levels
15	SPIB_MOSI	Part of the QSPIB
16	IRQ-40-pin	Interrupt for external device for future use; 1.8 V logic levels.
17	CH_ON_OFF_OUT2	I/O for on/off functional support for multiple control-head; 1.8 V logic levels
18	GND	Ground
19	INT_MIC	Microphone Input - impedance of 560 Ω
20	GND	Ground
21	EXPANSION_PTT	Expansion PTT
22	I2C_SCL	I2C Clock; 1.8 V logic levels
23	CH_ON_OFF_OUT3	I/O for On/Off Control in multiple control heads. 1.8 V logic level.
24	CH_ON_OFF_IN2	I/O for on/off functional support for multiple control-head; 1.8 V logic levels
25	CH_ON_OFF_IN3	I/O for on/off functional support for multiple control-head; 1.8 V logic levels

Pin	Function	Description
26	EXPH_ID2	Reserve pin for Expansion ID in future
27	TERMINAL ON/OFF (IGNITION)	I2C Clock; 1.8 V logic levels
28	GND	Ground
29	RS232_DCD	Data Carrier Detect
30	RS232_TX	Tx Data
31	RS232_DSR	Data Set Ready
32	RS232_RTS	Request to Send
33	RS232_DTR	Data Terminal Ready
34	RS232_CTS	Clear to Send
35	RS232_RX	Rx Data
36	RS232_RI	Ring Indicator
37	OPTION_DET - EXPH_ID	Input pin to read the Expansion Head ID.
38	9V3	Regulated 9V3 (max 10 mA)
39	5VD	Same 5 V regulator as the 12-pin connector (100 mA); for future use.
40	HANDSET_AUDIO	Handset Audio to earpiece

Table 74: Transceiver Pin Assignment of the Ethernet Connector (18-Pins)

Pin	Function	Description
1	GND	Ground
2	GND	Ground
3	GND	Ground
4	GND	Ground
5	Ethernet RXM	RX-
6	Ethernet RXP	RX+
7	FLT_A +	Filtered A+
8	FLT_A +	Filtered A+
9	FLT_A +	Filtered A+
10	FLT_A +	Filtered A+
11	FLT_A +	Filtered A+
12	FLT_A +	Filtered A+
13	Ethernet TXM	TX-
14	Ethernet TXP	TX+
15	ON_OFF_BR	On/Off functionality for future use. Connected to Dual Core Processor I/O at 1.8 V level.
16	ON_OFF_CH	On/Off functionality. Same as in 12-pin ON_OFF_CONTROL_SV.

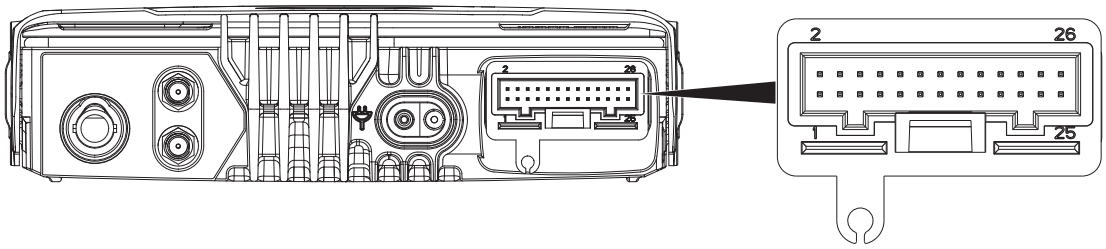
Pin	Function	Description
17	GND	Ground
18	GND	Ground

Table 75: Transceiver Pin Assignment of the Enhanced Control Head Interface (6-Pins)

Pin	Function	Description
1	REEH_5V	5 V regulator (100 mA), enable SW_B+ in DEH.
2	REEH_1.8V	1.8 V Regulator for future use.
3	GND	Ground
4	RE-EH_CH_ON_OFF_OUT2_1V8	Output pin to turn Control Head On/Off. 1.8 V logic level.
5	REEH_ID2	Reserve pin for Expansion ID in future
6	REEH_EXPH_ID	Input pin to read the Expansion Head ID.

4.3 Transceiver Rear Side – Pin Functions

Figure 61: Location of Accessory Connector – Rear Side



CAUTION: The accessory connections shown are not compatible to some other models of Motorola Solutions radios. Check MXM600 Accessories-to-Model Chart on page 23 for the appropriate accessory or technical manual for further information. Ensure that the accessory connector is correctly positioned.

Table 76: 26-Pin Accessory Connector Pin Functions

Pin	Function	Description
1	UART0_TXD / USBx_D+	USB1.1 – Default Host
2	UART0_RXD / USBx_D–	
3	UART0_RTS / USBx_VBUS	
4	GND_USBx	

Pin	Function	Description
		RS232 or UART0 – Alternative Setting **NOTE:** • The default connection is USB1.1 when the Expansion Head is connected. • UART0 is configured on the DB9 interface on the Expansion Head if it is configured in the CPS. • The DB9 radio monitor interface can detect cable connection based on the pin voltage level of RX and DTR lines. • When the Expansion Head is not connected and your radio is with or without BSI software, the connection is configurable to UART0 in CPS codeplug.
5	1-WIRE	1-Wire standard port (pulled through 2K2 to 5 V inside U600_B), Data for RMN5054_ Microphone
6	KEYFAIL / FLASH	Key load (pulled through 10 K to 5 V) Flash input (>10 V triggers Flash mode)
7	SWB +	A+ voltage (limited to 14 V) with 1 A current limitation
8	GND_MAIN	Main and power ground
9	SPEAKER –	Loudspeaker (PA) negative output **WARNING:** Do not ground! See Normal Load Conditions (for MXM600) for Rated Audio Power. Do not attach audio accessories single-ended between the speaker out (+ or –) and ground on the rear connector because the mobile radio has a Class D amplifier. If it is required to connect a single-ended accessory to the speaker out, then convert the balanced speaker output from your radio to single-ended using a transformer or an electrical circuit.
10	SPEAKER +	Loudspeaker (PA) positive output **WARNING:** Do not ground! See Normal Load Conditions (for MXM600) for Rated Audio Power. Do not attach audio accessories single-ended between the speaker out (+ or –) and ground on the rear connector because the mobile radio has a Class D amplifier. If it is required to connect a single-ended accessory to the speaker out, then convert the balanced speaker output from your radio to single-ended using a transformer or an electrical circuit.
11	TX_AUDIO	TX audio input (Line In, 26-pin rear connector J400, used for audio recording)
12	GND_ANA	Main audio ground

Pin	Function	Description	
13	MIC1 / EXT_MIC	External microphone input (EXT_MIC) or first microphone (MIC1) for noise canceling dual microphone input Nominal sensitivity: 80 mV RMS, Bias voltage: 9.3 V or 2.1 V (Selected accessory dependant)	
14	RX_AUDIO	RX audio output (Line Out, 26-pin rear connector J400, used for audio playback) **NOTE:** Voice recorder feature is only applicable for software release MR15.1 and above.	
15	MIC2	Microphone input (MIC2) Nominal sensitivity: 80 mVrms, Bias voltage: 9.3 V or 2.1 V (selected accessory dependant)	
16	GND_MIC	Ground (for MIC)	
17	EXTERNAL_PTT	PTT input (pulled through 4K7 to 5 V)	
18	UART0_DTR / USBy_ID	RS232 or UART1/UART0 DTR/2nd USB2.0 (OTG) ID	**NOTE:** • When Expansion Head is connected, the connection is USB2.0. • When Expansion Head is not connected and UART0 is configured on pins 1–4 in CPS codeplug, the connection is USB2.0. • If UART0 is not configured on pins 1–4 in CPS codeplug, USB2.0/UART0 is automatically switched depending on which accessory is detected.
19	HOOK_PA_EN	HOOK_PA_EN input or configurable GPIO1 (5 V)	
20	UART0_TXD / USBy_TX	RS232 or UART0 TXD/2nd USB2.0 (OTG) D+	
21	UART0_RTS / USBy_VBUS	RS232 or UART0 RTS/2nd USB2.0 (OTG) VBUS – 100 mA	
22	UART0_RXD / USBy_RX	RS232 or UART0 RXD/2nd USB2.0 (OTG) D-	
23	EMERGENCY	Emergency Input (Pulled through 24K9 to A+) – Pull low to power on	
24	UART_CTS	RS232 or UART1/UART0 CTS input	
25	IGNITION	Ignition input (through series 15 K) – Pull > 10.8 V to power on	
26	EXTERNAL ALARM	External Alarm output (Pulled through 4K7 to A+) or configurable GPIO2 (12 V) (open drain). **NOTE:** External Alarm works only when the ignition is off.	

CAUTION: Pin 25: If the ignition line is not used, it must be grounded for example connected to pin 8. Interference can cause your radio to hang.

NOTE: Pins 13 and 15 cannot be used or configured at the same time.

4.4

Accessory Connection Plan

CAUTION: The accessory connections shown are not compatible to some other models of Motorola Solutions radios. Check MXM7000 Accessories-to-Model Chart for the appropriate accessory or technical manual for further information. Ensure that the accessory connector is correctly positioned.

Figure 62: Accessory Connector

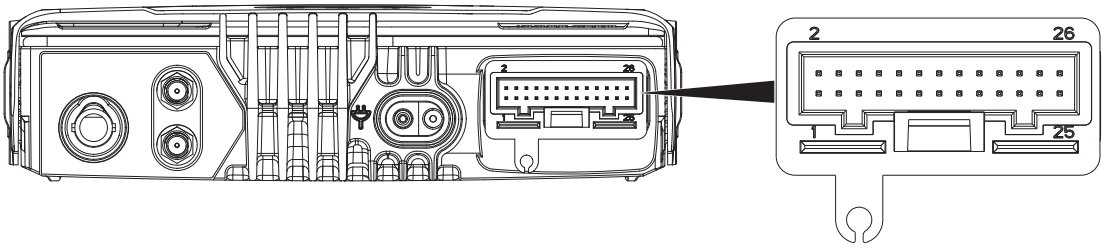


Figure 63: 26-Pin Accessory Connector (PMLN8541_)

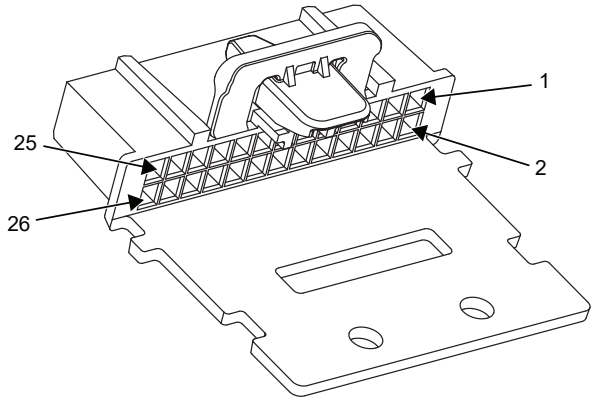
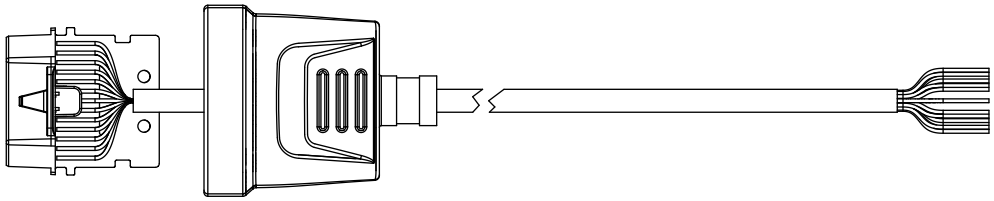


Table 77: PMLN5072_ Accessory Connector Kit Items

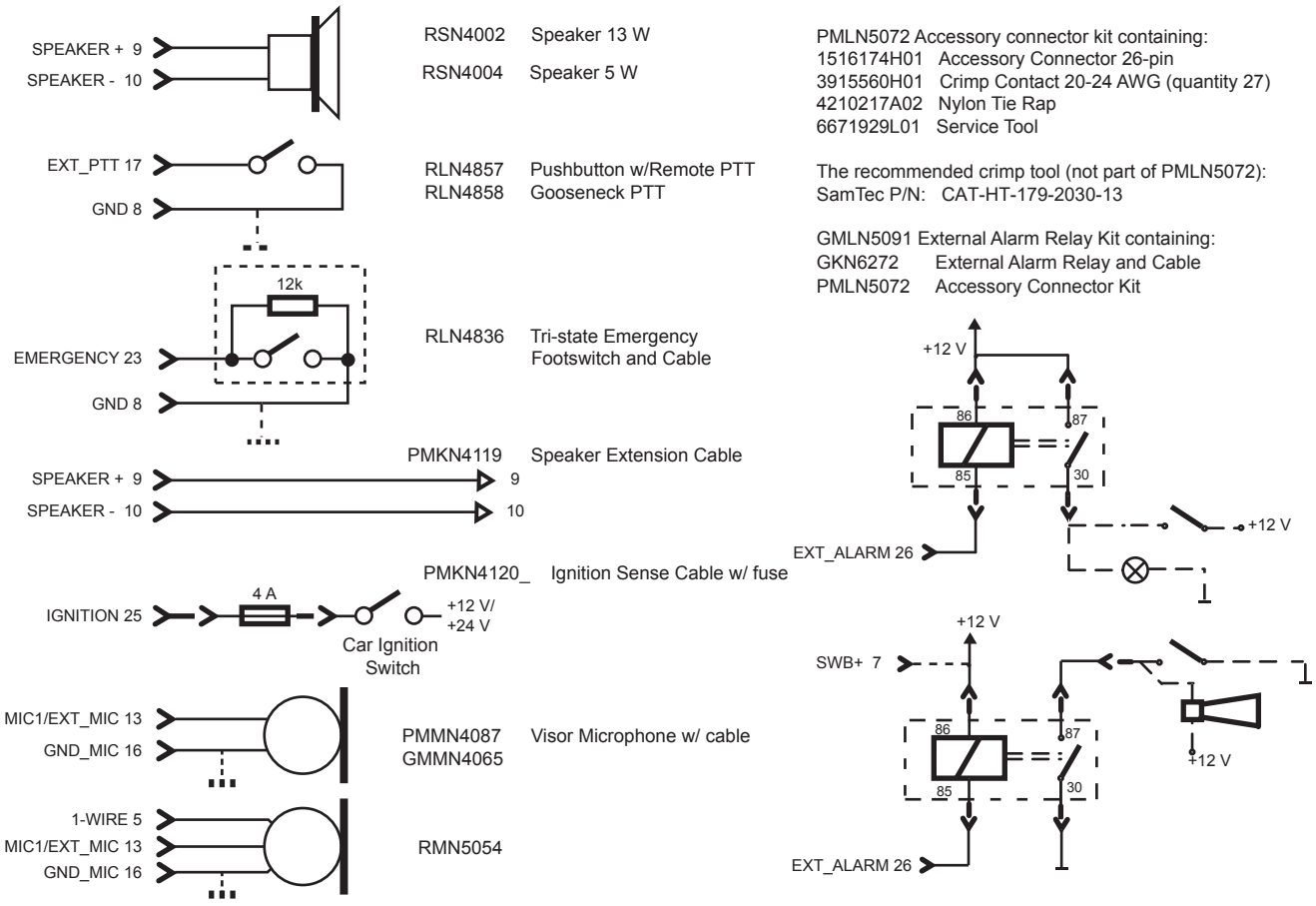
Item	Part Number
Accessory Connector 26-pin	1516174H01
Crimp Contact 20–24 AWG (27 units)	3915560H01
Nylon Tie Rap	4210217A02
Service Tool	6671929L01

Figure 64: 26-Pin Rear Connector with Pre-Crimped, Open-Ended Cable (PMKN4303_)



PMKN4303_ is a cable assembly with the 26-pin connector (CN002065A01) that comes with fully crimped contacts and wires.

Figure 65: Connecting Diagrams



⚠ **CAUTION:** PMKN4120_ Ignition Sense Cable: If the ignition line is not used, it needs to be grounded. Interference can cause radio to hang.

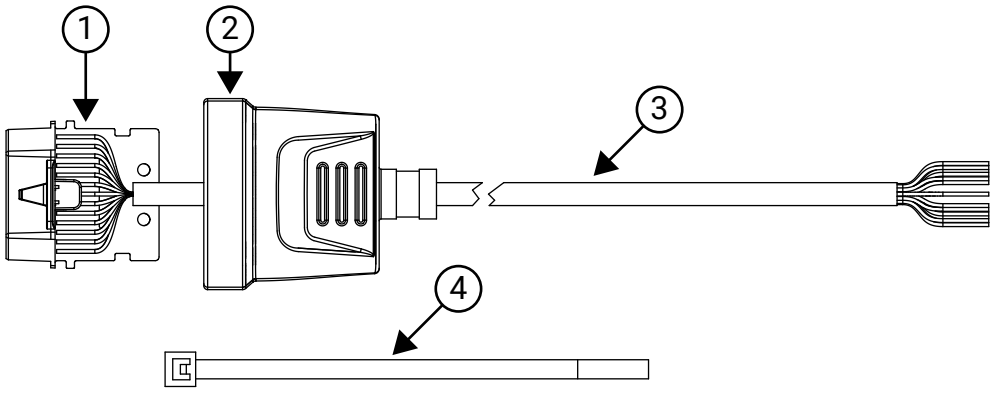
4.5
Connecting Accessories to 26-Pin Connector

IMPORTANT: Refer to MXM600 Accessories-to-Model Chart on page 23 for accessories or technical manual for more information. Ensure the correct position of the accessory connector.

4.5.1
Cabled 26-Pin Connector

The Cabled 26-Pin Connector, PMKN4303_ is crimped and terminated to the 26-Pin Accessory Connector, with open-ended wires. The cable enables the installer to directly connect necessary accessories to the open-ended side of the cable without crimping process, unlike PMLN8541_.

Figure 66: 26-Pin Rear Connector with Pre-Crimped, Open-Ended Cable and Dust Cover



Number	Description
1	26-Pin Accessory Connector
2	Dust Cover
3	Pre-crimp wires, open-ended
4	Cable tie

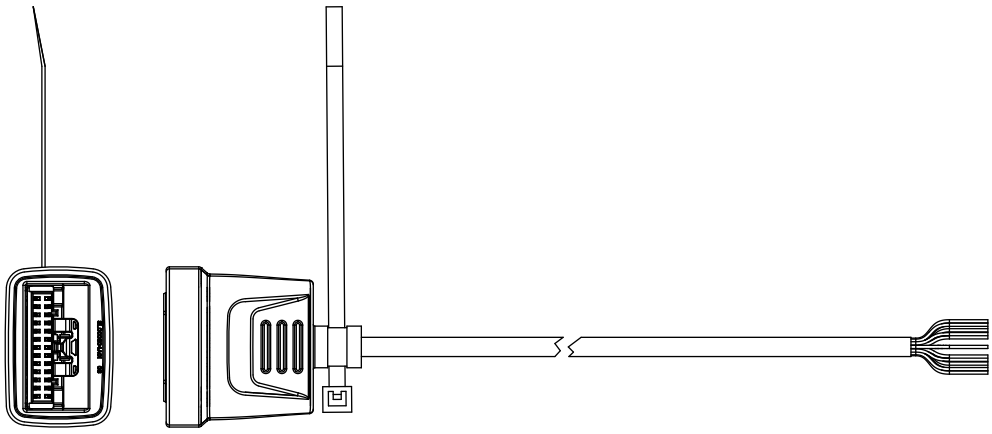
Table 78: Cabled 26-Pin Connector Pin Layout and Cable Color Mapping

Pin	Cable Color	Signal
Pin 1	Black	UART0_TXD / USBx_D+
Pin 2	White	UART0_RXD / USBx_D-
Pin 3	Green	UART0_RTS / USBx_VBUS
Pin 4	Yellow + Drain	GND_USBx
Pin 5	Orange	1 WIRE
Pin 6	Blue	KEYFAIL / FLASH
Pin 7	Brown	SWB+
Pin 8	Red	GND_MAIN
Pin 9	Purple	SPEAKER-

Pin	Cable Color	Signal
Pin 10	Grey	SPEAKER+
Pin 11	Pink	TX_AUDIO
Pin 12	White / Black	GND_ANA
Pin 13	White / Brown	MIC1 / EXT_MIC
Pin 14	White / Red	RX_AUDIO
Pin 15	White / Orange	MIC2
Pin 16	White / Green	GND_MIC
Pin 17	White / Blue	EXTERNAL_PTT
Pin 18	White / Purple	UART0_DTR / USBy_ID
Pin 19	White / Yellow	HOOK_PA_EN
Pin 20	Brown / Black	UART0_TXD / USBy_TX
Pin 21	Orange / Black	UART0_RTS / USBy_VBUS
Pin 22	Yellow / Black	UART0_RXD / USBy_RX
Pin 23	Green / Black	EMERGENCY
Pin 24	Blue / Black	UART_CTS
Pin 25	Purple / Black	IGNITION
Pin 26	Red / Black	EXTERNAL ALARM

NOTE: Crimp the yellow wire (Pin 4) and the drain wire to terminal on the 26 pin connector. Tin yellow wire and drain wire must be together on wire lead side.

Figure 67: Dust Cover Installation



NOTE: The cable tie must be fully tightened to achieve IP54 compliance.

4.5.2

Performing Re-crimp Procedure Using Rear Accessories Connector

To use accessories such as RLN4858_ and GKN6272_ with the rear connector of your radio, follow the re-crimp procedure using the crimp pins provided with PMLN8541_ connector kit. These accessories do not require to be re-crimped when used with the Data Junction Box GMLN7825_.

Procedure:

1. Cut and remove nickel-plated pins from the wire.
2. Strip the insulation from the end of the wires (2 mm to 4 mm).
3. Place the new gold plated crimp pin (from the PMLN8541_ kit) on the gauge slot on the crimp tool.
4. Insert the wire into the wire slot of the crimp pin.
5. Apply pressure to the crimp tool handle until the wire is crimped by the pin.

   NOTE: The recommended crimp tool is SamTec P/N: CAT-HT-179-2030-13. The tool is not part of PMLN8541_.

4.6

Connectors and Pin Assignment of Expansion Heads

CAUTION: Do **not** connect a TELCO remote cable to the Ethernet RJ50 port.

Figure 68: Single Remote Expansion Head – Front View and Connector Location

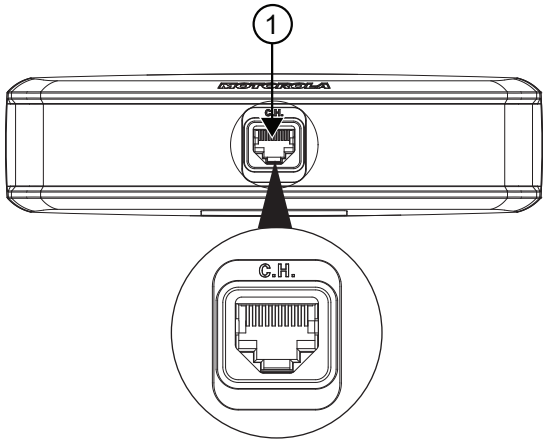


Table 79: Associated Components

Number	Description
1	10-pin RJ50 Ethernet Connector, Front View **NOTE:** This is a connector to the Control Head and not to a microphone.

Figure 69: Dual Remote Expansion Head – Front View and Connector Location

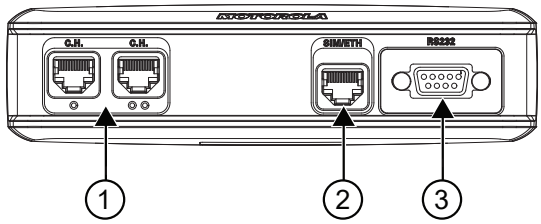


Table 80: Associated Components

Number	Description
1	Two RJ50 Ethernet Connectors. (Connectors to the Control Heads or Dual Remote Expansion Head.) **CAUTION:** Dual Remote Expansion Heads are only compatible with Ethernet Remote Heads. Do **not** mix Ethernet Control Heads with non-Ethernet Control Heads.
2	RJ50 Connector (Connects to TETRA SIM card reader or RJ-45 Ethernet)
3	9-Pin subD Connector

NOTE: Use an appropriate RJ50 Ethernet cable to connect Control Heads or Dual Remote Expansion Head. Do **not** use TELCO cables.

Figure 70: Databox Expansion Head – Front View and Connector Location

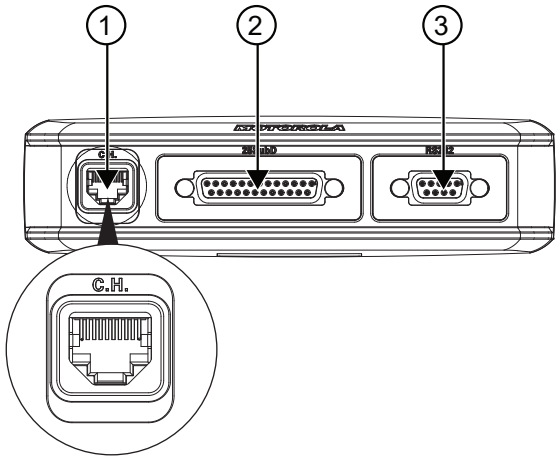


Table 81: Associated Components

Number	Description
1	10-pin RJ50 Ethernet Connector, Front View, **NOTE:** This is a connector to the Control Head and not to a microphone.
2	25-pin subD Connector

Number	Description
3	9-pin subD Connector

4.6.1
10-Pin RJ50 Connector for Control Head

Single Remote Expansion Head (SREH):

You can use the 10-pin RJ50 Ethernet connector to connect a remote mount control head, option of an IP54 Remote Ethernet Control Head, IP67 Remote Ethernet Control Head, or Telephone Style Control Head (TSCH).

CAUTION: Do not connect any other accessories such as a microphone. This action can result in hardware failure or malfunction.

Dual Remote Expansion Head (DREH):

You can use two 10-pin RJ50 connectors for port-1 and port-2 of the DREH in the same way as described in Single Remote Expansion Head (SREH). Port-1 in RJ-50_1 goes to port-1 of the Ethernet Switch Integrated Circuit (IC) in U201. Port-2 in RJ-50_2 goes to port-5 in U201. Data port in RJ-50_3 goes to port-3 in U201.

Databox Expansion Head (DEH):

You can use the 10-pin RJ50 connector of the DEH in the same way as described in Single Remote Expansion Head (SREH).

Table 82: 10–Pin RJ50 Ethernet Connector Pins

PIN	Function	Description
1	FLT_A+ (12 V)	This is the voltage supply for SREH, DREH, and DEH from a power supply or battery
2	TX+ Ethernet	Ethernet transmit positive line, TX+
3	TX- Ethernet	Ethernet transmit negative line, TX–
4	RX+ Ethernet	Ethernet receive positive line, RX+
5	GND	Main board GND
6	GND	Main board GND
7	RX- Ethernet	Ethernet receive negative line, RX–
8	CH_ON_OFF_OUT1_5V	ON/OFF control line Transceiver to Control Head
9	CH_ON_OFF_IN1_5V	ON/OFF control line from Control Head to Transceiver
10	FLT_A+ (12 V)	This is the voltage supply for SREH, DREH, and DEH from a power supply or battery

4.6.2
25-Pin SubD Connector

Databox Expansion Head:

Turn your radio on or off using the Ignition Sense Cable PMKN4120_. Connect the PMKN4120_ cable to Pin 10 on the rear side Accessory Connector.

Table 83: 25-Pin SubD Connector Pins

PIN	Function	Description
1	GND	Ground
2	RS232_SCI_TX	Transceive data (RS232 line with RS232 level)
3	RS232_SCI_RX	Receive data (RS232 line with RS232 level)
4	RS232_RTS	Request to Send (RS232 line with RS232 level)
5	RS232_CTS	Clear to Send (RS232 line with RS232 level)
6	FLT_A+	Filtered unswitched UB+/200 mA
7	Signal_GND	Ground for RS232
8	Not Connected	NC
9	Not Connected	NC
10	Not Connected	NC
11	Not Connected	NC
12	SW_B+	Switched B+/100 mA
13	Not Connected	NC
14	ON_OFF_CONTROL / FLASH_MODE	• Switch into flash mode (connect Pin 14 with 6) • On/Off control for Standard Control Head
15	Not Connected	NC
16	INT_MIC	Microphone analog input of 80 mV RMS, 600 Ω impedance, 9 V
17	Not Connected	NC
18	Not Connected	NC
19	GROUND	Ground
20	IGNITION	Connecting this pin to the ignition line of the vehicle will automatically turn on your radio if the ignition of the vehicle is turned on
21	ON_OFF_GND	This is the On/Off control for the old Control Head “J” (MTM300 Control Head)
22	EXPANSION_PTT	Expansion PTT works together with INT_MIC
23	Not Connected	NC
24	HANDSET_AUDIO	Handset audio to earpiece impedance has to be > 200 Ω
25	Not Connected	NC

4.6.3
9-Pin SubD Connector

Dual Remote Expansion Head (DREH):

The pin assignment of this 9-pin subD connector follows the requirements of an RS232 standard interface with the RS232 voltage level. The cable used is a standardized serial interface cable that allows connecting a data device with an RS232 Interface such as a PC, laptop, console, and other devices. See Connecting Cables on page 119.

Databox Expansion Head (DEH)

You can use 9-pin subD connector of the DEH in the same way as described in Dual Remote Expansion Head (DREH).

Table 84: 9-Pin SubD Connector Pins

Pin	Function	Description	PC Direction
1	DCD	Data Carrier Detect	Input
2	RXD	Received Data Serial	Serial IN
3	TXD	Transmitted Data	Serial OUT
4	DTR	Data Terminal Ready	Output
5	GND	Ground Output	Output
6	DSR	Data Set Ready	Input
7	RTS	Request to Send	Output
8	CTS	Clear to Send	Input
9	RI	Ring Indicator	Input

4.6.4
10-Pin RJ50 Connector for SIM or Ethernet

Dual Remote Expansion Head (DREH):

You can use the third 10-pin RJ50 connector of DREH (marked as SIM/ETH) to connect to an external TETRA SIM card reader, or to connect to RJ45 Ethernet network (hardware-ready).

Table 85: Pin Assignment for the Third RJ50 Port (SIM/ETH)

Pin	Function	Description
1	RS232_RX	RS232 Receiver line
2	TX_P_P1	Ethernet transmit positive line, TX+
3	TX_N_P1	Ethernet transmit negative line, TX-
4	RX_P_P1	Ethernet receive positive line, RX+
5	RS232_RTS	RS232 Request to Send line
6	GND	Main board GND
7	RX_N_P1	Ethernet receive negative line, RX-
8	RS232_TX	RS232 Transmitter line
9	RS232_CTS	RS232 Clear to Send line
10	FLT_A+ (12 V)	This item is the voltage supply for EEH from the power supply or battery.

4.7

Connector and Pin Assignment of the Dash/Desk Control Head

Figure 71: Mobile Microphone Port (MMP) Connector of the Dash/Desk Control Head

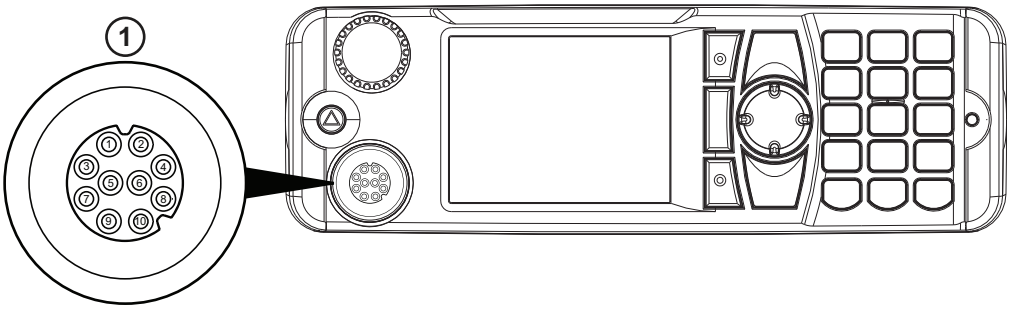


Table 86: Associated Components

Number	Description
1	View of the MMP Connector for the Dash/Desk Control Head

NOTE: The keypad labeling of the control head varies according to the specific customer or country requirements.

Table 87: MPP Connector of the Dash/Desk Control Head Functions

Mobile Microphone Port (MPP) Pin		Default Functions	Alternative Functions	USB Functions	RS232 Functions
1	1-WIRE	1-WIRE	1-WIRE	1-WIRE	1-WIRE
2	GPIO_3	PTT	GP Input or Output	GP Input or Output	RS-232-RTS
3	SPEAKER	SPEAKER	SPEAKER	SPEAKER	SPEAKER
4	GPIO_2	GPIO_2 INPUT	GP Input or Output	DATA -	RS-232-RXD
5	GND	GND	GND	GND	GND
6	OPT 5 V	HIGH Impedance	OPT 5 V	VBUS	OPT 5 V
7	MIC +	MIC +	MIC +	MIC +	MIC +
8	GPIO_1	GPIO_1 INPUT	GP Input or Output	DATA +	RS-232-TXD
9	GPIO_4	HOOK	GP Input or Output	GP Input or Output	RS-232-CTS

Mobile Microphone Port (MPP) Pin		Default Functions	Alternative Functions	USB Functions	RS232 Functions
10	GPIO_0	GPIO_0 INPUT	GP Input or Output, PWR ON	GP Input or Output, PWR ON	GP Input or Output, PWR ON

NOTE:
The connector enters one of the five modes automatically based on the automatic detection of the connected accessory.

The accessory GPIO 1 and GPIO 2 are not programmable in your radio.

4.8

Connector and Pin Assignment of IP54 or IP67 RECH

Figure 72: View of the IP54 or IP67 Remote Ethernet Control Head (RECH) with Mobile Microphone Port (MMP) Connector

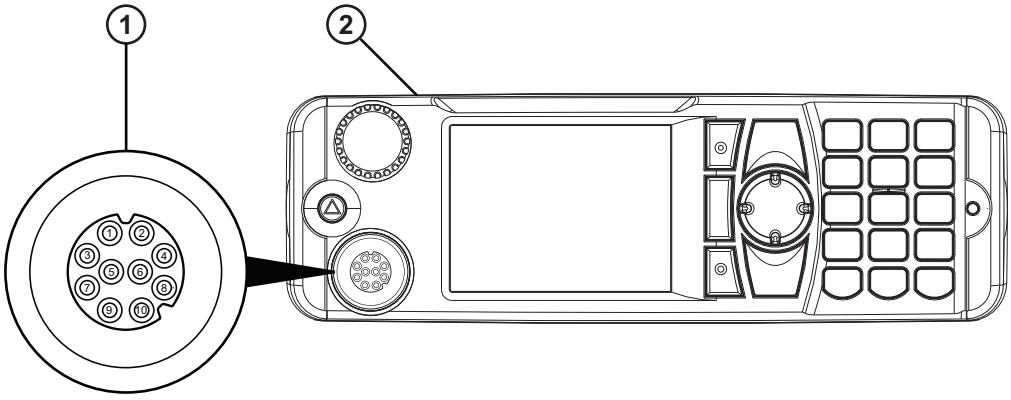


Table 88: Associated Components

Number	Description
1	View of the MMP Connector for the IP54 or IP67 RECH
2	IP54 or IP67 RECH

Table 89: MMP Connector of the IP54 or IP67 RECH Functions

Mobile Microphone Port (MPP) Pin		Default Functions	Alternative Functions	USB Functions	RS232 Functions
1	1-WIRE	1-WIRE	1-WIRE	1-WIRE	1-WIRE
2	GPIO_3	PTT	GP Input or Output	GP Input or Output	RS-232-RTS
3	SPEAKER	SPEAKER	SPEAKER	SPEAKER	SPEAKER
4	GPIO_2	GPIO_2 INPUT	GP Input or Output	DATA -	RS-232-RXD
5	GND	GND	GND	GND	GND

Mobile Micro-phone Port (MPP) Pin		Default Functions	Alternative Functions	USB Functions	RS232 Functions
6	OPT 5 V	HIGH Impedance	OPT 5 V	VBUS	OPT 5 V
7	MIC +	MIC +	MIC +	MIC +	MIC +
8	GPIO_1	GPIO_1 INPUT	GP Input or Output	DATA +	RS-232-TXD
9	GPIO_4	HOOK	GP Input or Output	GP Input or Output	RS-232-CTS
10	GPIO_0	GPIO_0 INPUT	GP Input or Output, PWR ON	GP Input or Output, PWR ON	GP Input or Output, PWR ON

NOTE:
The connector enters one of the five modes automatically based on the automatic detection of the connected accessory.

The accessory GPIO 1 and GPIO 2 are not programmable in your radio.

Figure 73: IP54 RECH – Rear Connectors

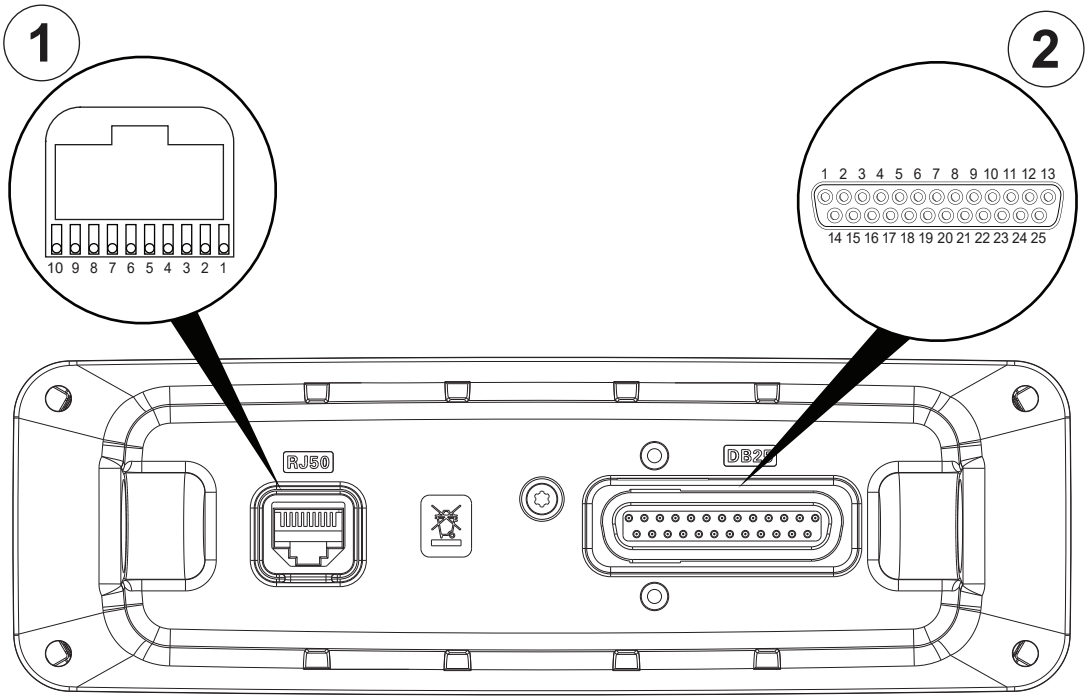


Figure 74: IP67 RECH – Rear Connectors

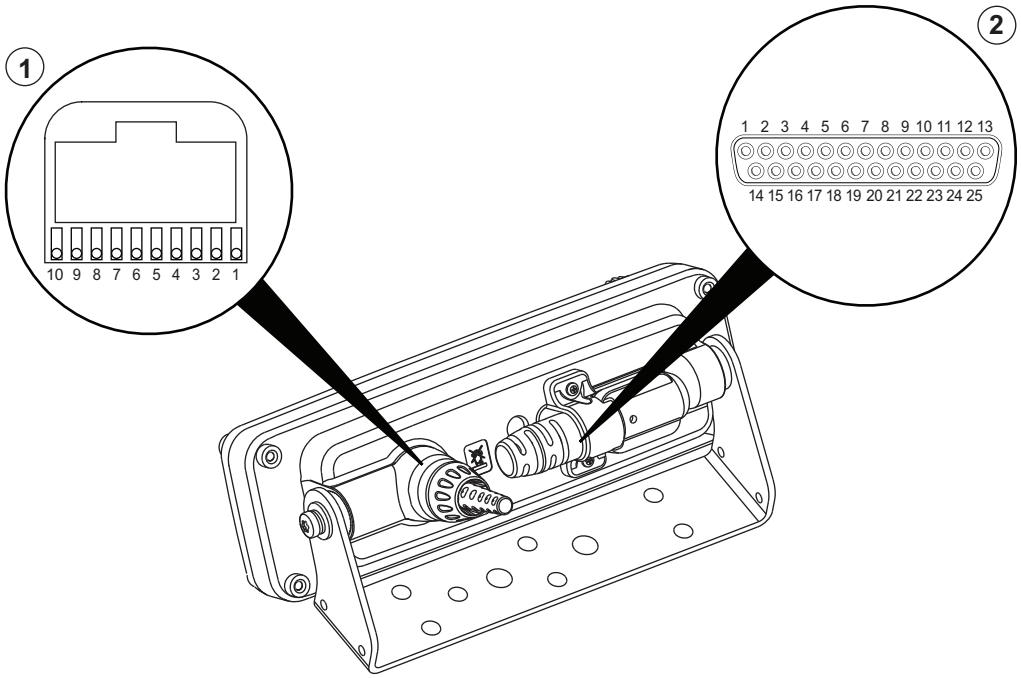


Table 90: Associated Components

Number	Description
1	10-Pin Ethernet RJ50 Connector
2	25-Pin Back Connector

Table 91: 10-Pin Ethernet Connector

Pin	Function	Description
1	FLT_A+ (12 V)	This is the voltage supply for the Control Head from power supply or battery
2	TX+ Ethernet	Ethernet transmit positive line, TX+
3	TX– Ethernet	Ethernet transmit negative line, TX-
4	RX+ Ethernet	Ethernet receive positive line, RX+
5	GND	Main board GND
6	GND	Main board GND
7	RX- Ethernet	Ethernet receive negative line, RX-
8	CH_ON_OFF_OUT1_5V	ON/OFF control line from Transceiver to Control Head
9	CH_ON_OFF_IN1_5V	ON/OFF control line from Control Head to Transceiver
10	FLT_A+ (12 V)	The voltage supply for the Control Head from power supply or battery

Table 92: 25-Pin Back Connector

Pin	Function	Description
1	GPIO_9	Output: Active for duration of call (car radio mute)
2	GPIO_6	External PTT for MIC_HF1, Ethernet Control Head GPIO6
3	GPIO_8	Control Head GPIO2 (CPS configurable)
4	GPIO_3	GCAI PIN 2 GPIO
5	VBUS_1B	+5 V Supply, Connected to Pin 6 of Mobile Microphone Port
6	REAR_D -	Rear handset D+ line
7	REAR_D +	Rear handset D- line
8	GPIO_0	GCAI Pin 10 GPIO
9	EXT_PWR_12V	External power supply, 12 V or 24 V for External Speaker
10	1_Wire	1-wire® bidirectional serial bus, Connected to GCAI Pin 1 of Mobile Microphone Port
11	MIC_HF1_GND	Ground for external microphone MIC_HF_1
12	MIC_HF1	External microphone input (MIC_HF1), Nominal sensitivity: 80 mV rms, Bias voltage: 9.3 V or 2.1 V (Selected accessory dependant)
13	GND	GND Common Ground
14	GPIO_5	Control Head GPIO1 (CPS configured/enabled)
15	GPIO_7	4 Level Analog Input, 33 k to 5.0 V PU
16	1_WIRE	1-wire® bidirectional serial bus, Dedicated to power up detection of IMPRES Visor Mic (input MIC_HF1)
17	REAR_AUDIO	Handset VOL controlled audio output, Min RL = 150 Ω unbalanced, Connected to GCAI Pin 3 Mobile Microphone Port Connector
18	GND	GND, Connected to GCAI Pin 5 Mobile Microphone Port
19	MIC_MMP_REAR	Rear microphone input MIC_MMP_REAR, Input 80 mV rms, Bias voltage 7.7 V, Connected to GCAI Pin 7 Mobile Microphone Port
20	GPIO_4	GPIO, Hook Input, Connected to GCAI Pin 9 Mobile Microphone Port.
21	SPK +	Speaker positive line : Do not ground!
22	SPK –	Speaker negative line

Pin	Function	Description
		: Do not ground!
23	MIC_HF2_GND	Ground for external MIC_HF2
24	MIC_HF2	Second external microphone input MIC_HF2, Nominal sensitivity 80 mV rms, CPS selectable bias voltage 7.7 V or 2 V
25	RM_ON	Turn on Control Head through accessories

4.9
Connecting Cables

This section describes the connecting cables used in your radio.

4.9.1
IP67 Remote Ethernet Control Head (RECH) Cable

IP67 RECH is available in six different lengths to support a different range of applications, including Motorcycle Mount.

For more information, see Table 13: Cables on page 25.

Figure 75: IP67 RECH Ethernet Cable

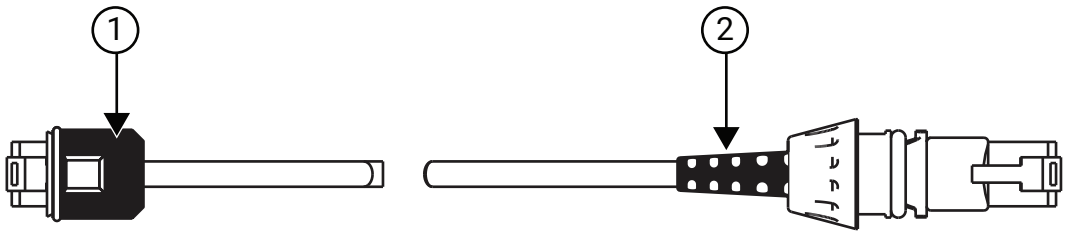


Table 93: IP67 RECH Ethernet Cable Description

Number	Description
1	Dust Cap Rubber (blue color)
2	Strain Relieve (blue color)

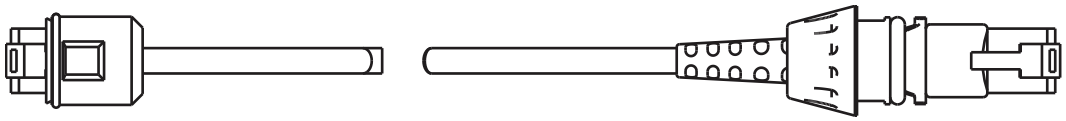
CAUTION: Compatible with IP67 RECH only. Do **not** mix the IP67 RECH Ethernet Cable with the Motorcycle Remote Control Head TELCO Cable.

4.9.2
Motorcycle Mount TELCO Cable

IP67 TELCO Control Head Cable (to connect IP67 TELCO Control Head to Serial Expansion Head PMLN4904_ only). Part Number: PMKN4030_, Length: 2.3 m (7.55 ft).

For more information, see Mechanical Parts List for IP67 Remote Mount Installation on page 82

Figure 76: Motorcycle Remote Control Head (TELCO) Cable



4.9.3

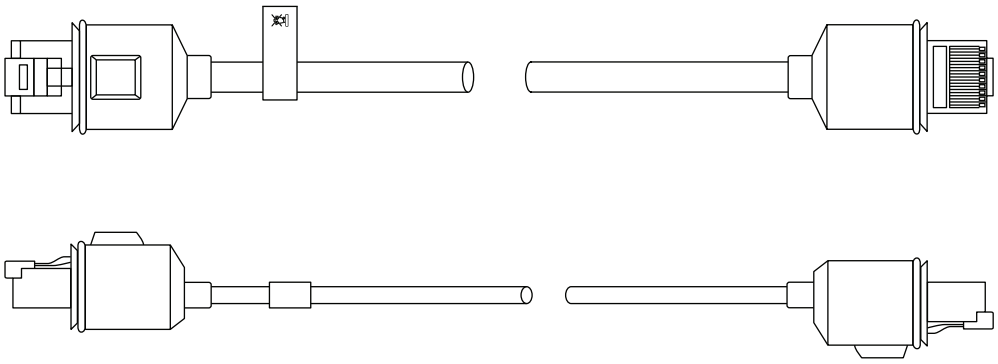
Remote Mount Ethernet Cables

Remote Mount Ethernet Cables are compatible with:

- IP54 or IP67 Remote Ethernet Control Head (RECH)
- Telephone Style Control Head (TSCH)
- Single Remote Expansion Head (SREH)
- Dual Remote Expansion Head (DREH)
- Databox Expansion Head (DEH)

For more information, see Ethernet Cables on page 56.

Figure 77: Remote Mount Ethernet Cables



4.9.4

Accessories Expansion Cable

The Accessories Expansion Cable is used to connect the IP54 or IP67 Remote Ethernet Control Head (RECH) to accessories.

The Part Numbers are as follows:

- IP54 RECH Accessories Expansion Cable – PMKN4029_ or PMKN4056_.
- IP67 RECH Accessories Expansion Cable – PMKN4429_ or PMKN4456_.

Figure 78: Accessories Expansion Cable, PMKN4029_ or PMKN4056_

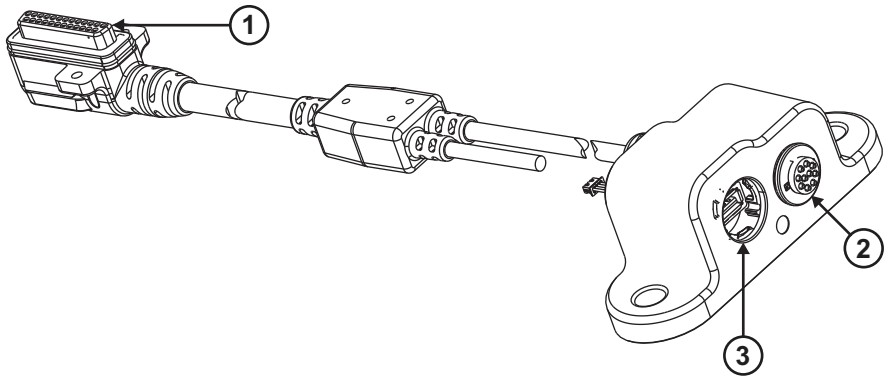


Figure 79: Accessories Expansion Cable, PMKN4429_ or PMKN4456_

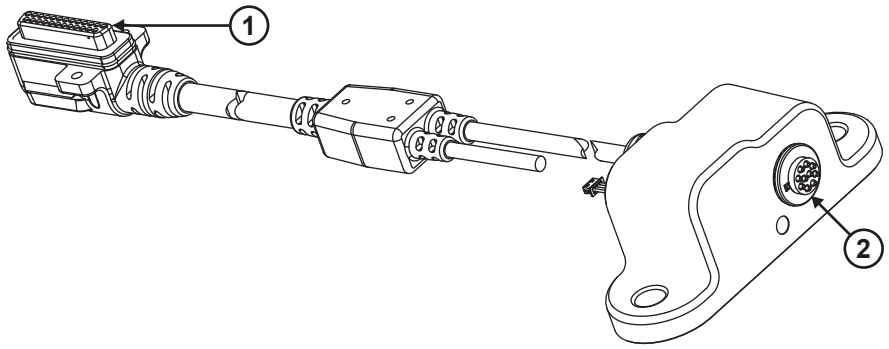


Table 94: Associated Components

Annotation	Description
1	DB25 Connector
2	Mobile Microphone Port
3	USB Connector

Table 95: Accessories Expansion Cable — Connections

USB A JACK	Signal	subD 25 Pos
1	VBUS	9
2	D-	22
3	D+	21
4	Ground	18
Mobile Microphone Port (MMP)		
1	1_WIRE	16
2	GPIO_3 / OTG-ID / RTSc (PTT)	4
3	Speaker to Headset	17
4	GPIO_2 / D- / RxDc	6
5	GND (Ground)	N/A

6	Opt_5V / VBUS	5
7	Mic+	19
8	GPIO_1 / D+ / TxDc	7
9	GPIO_4 / CTSc / Keyfail (HOOK)	20
10	GPIO_0 / Pwr On	8
Customized Wire Color		
BROWN / BLACK	GPIO_9	1
ORANGE / BLACK	GPIO_6	2
YELLOW / BLACK	GPIO_8	3
LIGHT BLUE	GPIO_2	6
TURQUOISE	GPIO_1	7
GREEN / BLACK	TX	10
BLUE / BLACK	RX	11
GRAY / BLACK	MIC_2	12
BLUE	Ground	13
PINK / BLACK	GPIO_5	14
BLACK / WHITE	GPI_7	15
USB A JACK	**Signal**	**subD 25 Pos**
BROWN / WHITE	RTS	23
RED / WHITE	CTS	24
ORANGE / WHITE	Power On	25
RED / BLACK	Headset	17
YELLOW / WHITE	Ground	N/A

4.9.5

Connector and Pin Assignment for Cradle - Telephone Style Control Head

Figure 80: View of the Telephone Style Control Head Cradle (TSCH)

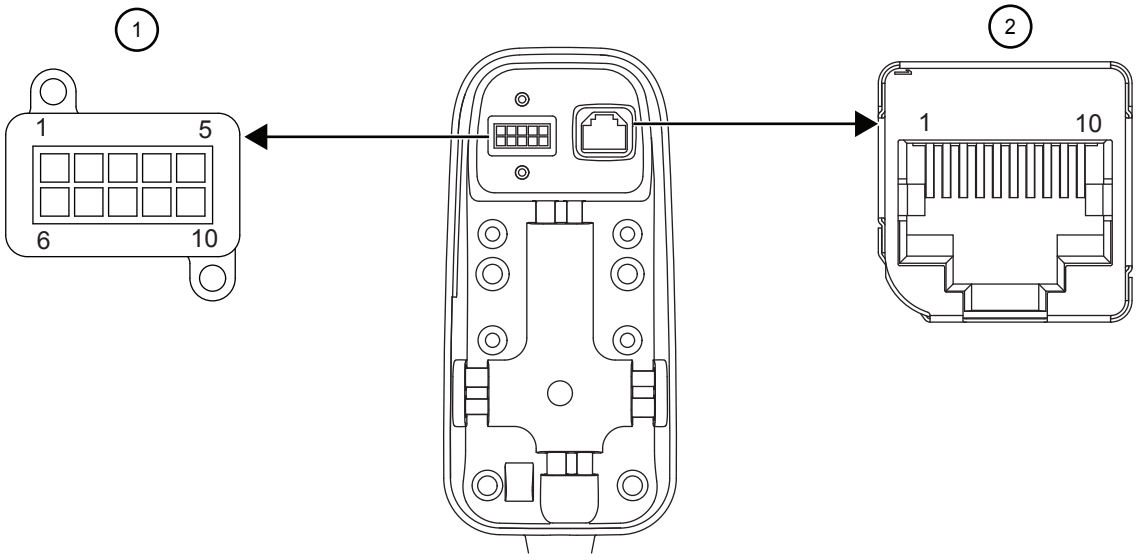


Table 96: Connectors at the Back of the TSCH Cradle

Number	Description
1	10-Pin Audio Connector
2	Ethernet RJ50 Connector

See the following tables for the Pin assignments of the 10-Pin Audio Connector and the RJ50 Connector.

Table 97: Pin Assignment of the 10-Pin Audio Connector – TSCH

PIN	Function	Description
1	EXT_PWR_12	This is the external voltage supply (12 V or 24 V) from power supply or battery for external speaker
2	PTT2	CPS configurable GPIO
3	PTT1	External PTT (for HF MIC 2)
4	EMERGENCY_FT_SW	Emergency signal line from external MIC
5	EXT_MIC	External MIC input line
6	GND	Main board GND
7	SPKR+	Output to External Speaker
8	SPKR-	Output to External Speaker
9	1-WIRE	1-Wire® bidirectional serial bus for accessories ID identification
10	Analog Ground	Analog Ground

Table 98: Pin Assignment of the 10-Pin RJ50 Connector – Telephone Style Control Head

PIN	Function	Description
1	FLT_A+ (12 V)	This is the voltage supply for the Control Head from power supply or battery. The maximum current is 300 mA
2	ETH_TX_POS	Ethernet transmit positive line, TX+
3	ETH_TX_NEG	Ethernet transmit negative line, TX-
4	ETH_RX_POS	Ethernet receive positive line, RX+
5	GND	Main board GND
6	GND	Main board GND
7	ETH_RX_NEG	Ethernet receive negative line, RX-
8	CH_ON_OFF_OUT1_5V	ON/OFF control line from Transceiver to Control Head
9	CH_ON_OFF_IN1_5V	ON/OFF control line from Control Head to Transceiver
10	FLT_A+ (12 V)	This is the voltage supply for the Control Head from power supply or battery. The maximum current is 300 mA

4.9.6
Ethernet Cables

Figure 81: Mobile to Control Head Ethernet Cable Pin Diagram

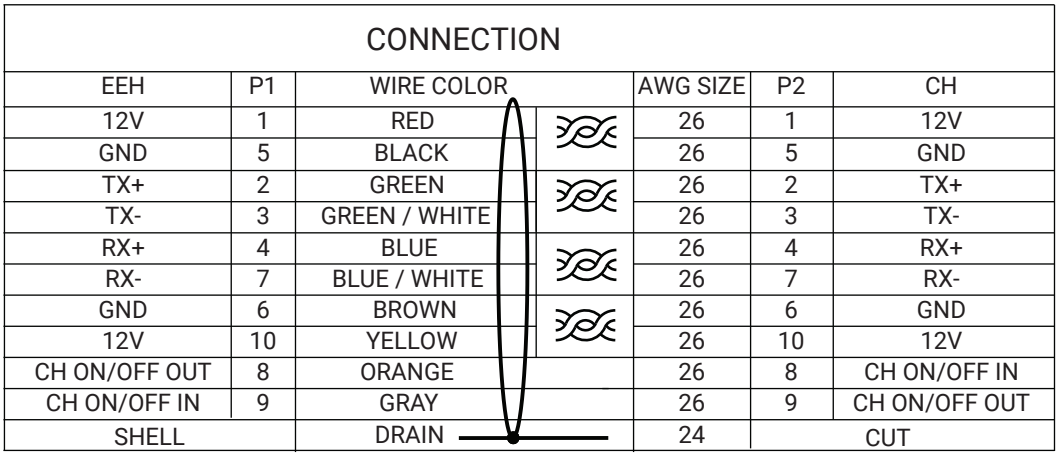


Figure 82: Mobile to Mobile Ethernet Cable Pin Diagram

CONNECTION					
BRICK 1	P1	COLOR		P2	BRICK 2
TX+	2	GREEN		4	RX+
TX-	3	GREEN / WHITE		7	RX-
RX+	4	BLUE		2	TX+
RX-	7	BLUE / WHITE		3	TX-
GND	5	BLACK		5	GND
GND	6	BROWN		6	GND
CH ON OFF OUT	8	ORANGE		9	CH ON OFF IN
CH ON OFF IN	9	GRAY		8	CH ON OFF OUT
SHIELD		DRAIN			SHIELD

4.9.7

Remote Ethernet Control Head Y-Cable (Accessories Expansion Cable)

Cable Part Number: PMKN4333_ (5A)

Figure 83: RECH Y-Cable Pin Diagram

CONNECTION									
P1	SIGNAL NAME	WIRE COLOR(CABLE 1)	SR MOLD	WIRE COLOR	P2	P3	P4	P5	P6
16	1_WIRE	BLACK 28#		CABLE 1/BLACK 28#	1				
4	GPIO_3/PTT(GCAI)	YELLOW 28#		CABLE 1/YELLOW 28#	2				
17	REAR_AUDIO	GREEN 28#		CABLE 1/GREEN 28#	3				
5	VBUS_1B	WHITE 26#		CABLE 1/WHITE 26#	6				
18	MC_MMP_REAR GND	DRAIN 26#		CABLE 1/DRAIN 26#	5				
19	MIC_MMP_REAR	WHITE 28#		CABLE 1/WHITE 28#	7				
6	REAR_D–	BROWN 28#		CABLE 1/BROWN 28#	4				
7	REAR_D+	ORANGE 28#		CABLE 1/ORANGE 28#	8				
20	GPIO_4	BLUE 28#		CABLE 1/BLUE 28#	9				
–	GPIO_0	GRAY 28#		CABLE 1/GRAY 28#	10				
1	GPIO_9	BROWN/BLACK 28#		CABLE 2/BROWN 28#		OPEN			
–	GPIO_6/PTT1	ORANGE/BLACK 28#		CABLE 2/ORANGE 28#		OPEN			
3	GPIO_8/PTT2	YELLOW/BLACK 28#		CABLE 2/YELLOW 28#		OPEN			
10	1_WIRE	GREEN/BLACK 28#		CABLE 2/GREEN 28#		OPEN			
11	MIC_HF1_GND(ANALOG_GND_2)	PINK 28#		CABLE 2/PINK 28#		OPEN			
12	MIC_HF1	PURPLE 28#		CABLE 2/PURPLE 28#		OPEN			
13	GND	DRAIN*3 26#		CABLE 2/DRAIN*3 26#		OPEN			
14	GPIO_5	BLUE/BLACK 28#		CABLE 2/BLUE 28#		OPEN			
15	GPI_7	GRAY/BLACK 28#		CABLE 2/GRAY 28#		OPEN			
17	REAR_AUDIO	PINK/BLACK 28#		CABLE 2/RED 28#		OPEN			
23	MIC_HF2_GND(ANALOG_GND_1)	LIGHT BLUE 28#		CABLE 2/LIGHT BLUE 28#		OPEN			
24	MIC_HF2	LIGHT GREEN 28#		CABLE 2/LIGHT GREEN 28#		OPEN			
21	SPKR+	BROWN 20#		CABLE 4/BROWN 20#					OPEN
22	SPKR–	ORANGE 20#		CABLE 4/ORANGE 20#					OPEN
25	PWR_ON	TAN 28#		CABLE 2/BLACK 28#		OPEN			
9	EXT_PWR_12/24V	RED 20#		CABLE 3/RED 20#+FUSE			OPEN		
18	GND	BLACK 20#		CABLE 3/BLACK 20#				OPEN	

4.9.8

Telephone Style Control Head Y-Cable (Accessories Expansion Cable)

Part Number: PMKN4134_

Figure 84: TSCH Y-Cable Pin Diagram

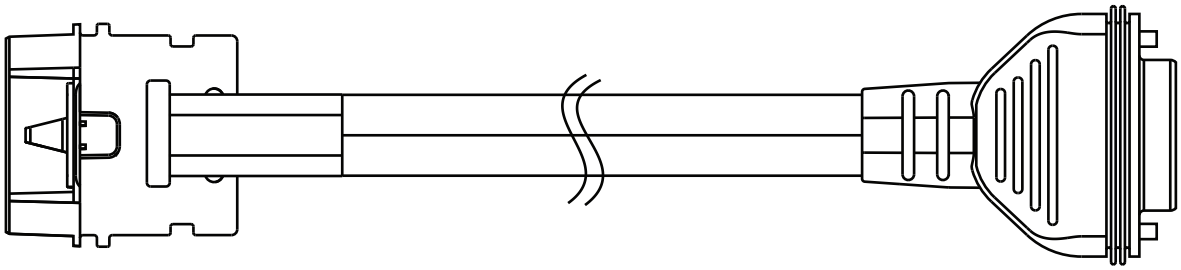
CONNECTION									
P1	SIGNAL NAME	WIRE COLOR(CABLE 1)	SR MOLD	WIRE COLOR		P2	P3	P4	P5
2	PTT2/GPI2	BLACK 28#		CABLE 2/BLACK 28#		OPEN			
3	PTT1/GPI1	GREEN 28#		CABLE 2/GREEN 28#		OPEN			
4	Emergency	BLUE 28#		CABLE 2/BLUE 28#		OPEN			
7	Speaker+	BROWN 20#			CABLE 3/BROWN 20#				OPEN
8	Speaker–	ORANGE 20#			CABLE 3/ORANGE 20#				OPEN
5	Microphone Input	RED 28#			CABLE 2/RED 28#	OPEN			
10	Analog Ground	WHITE 28#			CABLE 2/WHITE 28#	OPEN			
9	1–WIRE	YELLOW 28#			CABLE 2/YELLOW 28#	OPEN			
1	External Power 12/24V	RED 20#			CABLE 4/RED 20#+FUSE		OPEN		
6	Power Ground	BLACK+DRAIN 24#			CABLE 4/BLACK+DRAIN 24#	OPEN		OPEN	

4.9.9

Radio-to-Junction Box

- Part Number: PMKN4300_, Length: 2 m (6.57 ft)
- Part Number: PMKN4301_, Length: 4 m (13.13 ft)
- Part Number: PMKN4302_, Length: 5 m (16.40 ft)

Figure 85: Connecting Cable – Radio-to-Junction Box



TERMINAL ACCESSORY CONNECTOR
26-Pin AMP

JUNCTION BOX CONNECTOR
26-Pin subD

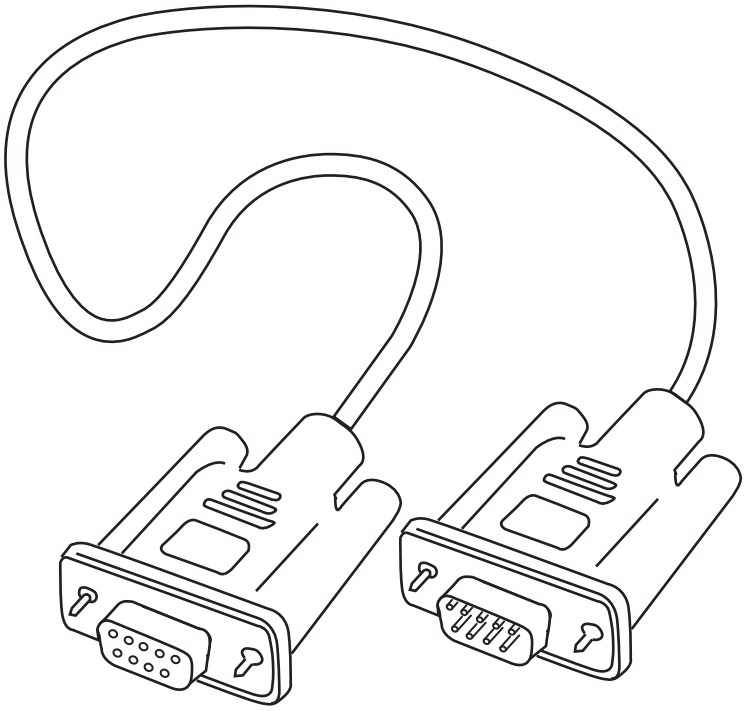
CONNECTION							
P1	SIGNAL	AWG	COLOR		SIGNAL	P2	CABLE
1	USB_HOST_D+	26#	GREEN	GREEN	USB1_DM_GPIO2	2	A
2	USB_HOST_D-	26#	WHITE	WHITE	USB1_DM_GPIO1	1	
3	USB_HOST_VBUS	26#	RED		USB1_VBUS	3	
4	GND (USB)	26#	DRAIN		GND_USB	12	
5	1 WIRE	26#	BLACK		1 WIRE	13	
14	RX_AUDIO	26#	BROWN		RX_AUDIO	7	
7	SWB+	20#	GRAY		SWB+	4	
9	SPEAKER-	20#	PURPLE	PURPLE	SPKR-	9	
10	SPEAKER+	20#	ORANGE	ORANGE	SPKR+	8	
11	TX_AUDIO	26#	TAN		TX_AUDIO	18	
12	ANALOG GROUND	26#	DRAIN		GND	16	
			PINK		NC	17	
13	MIC1/EXT_MIC	26#	BLUE		MIC1	6	
15	MIC2	26#	YELLOW		MIC2	15	
8	GND	20# + 20#	DRAIN x2		GND	5	
16	GND	26#	DRAIN		GND	14	B
17	EXTERNAL_PTT	26#	PINK		EXT_PTT	11	
18	SCI_DTR_USB_ID	26#	ORANGE		PTT_GPIO3	10	
19	HOOK_PA_EN	26#	YELLOW		HOOK_GPIO4	26	
21	RS232_RTS	26#	RED		USB0 VBUS	25	
20	SCI_TXD	26#	WHITE	WHITE	USB0_DP	24	
22	SCI_RXD	26#	GREEN	GREEN	USB0_DM	23	
23	EMERGENCY	26#	BLACK		EMERGENGY	22	
24	RS232_CTS	26#	BLUE		1 WIRE_MUX_SEL	21	
25	IGNITION	26#	PURPLE		IGNITION	20	
26	EXTERNAL ALARM	26#	GRAY		DETECT_GPIOO	19	

NOTE: The keypad labeling of the control head varies according to the specific customer or country concerns.

4.9.10
Databox Expansion Head Radio-to-Data Device

This is a standardized RS232 cable (not provided by Motorola Solutions). To connect this cable with the data device, use the 9-pin socket on the front side of the Databox Expansion Head Radio.

Figure 86: Standardized RS232 Cable



NOTE: The Databox Expansion Head has a protection grade of IP54. To maintain IP54 sealing when connecting an RS232 data cable, use an IP54 specified cable such as ROLINE AT-Modem cable ST-BU 1.8 m order no. 11.01.4518.

4.9.11
Databox Expansion Head Radio-to-Fist Microphone

Operation

Connect the crimped wires of the cable into the Accessory Connector (delivered with speaker RSN4002) and then plugged into the connector on the rear side of your radio. The other end has a connector that fits into the fist microphone housing.

Making Connections

First connect the exposed four wires to the Accessory Connector as shown in Power Cabling Routing to the Engine Compartment and then plug the connector block into the accessory socket on the rear side of your radio. The connector block plugs into the accessory connector (the four outside pins do not connect).

4.9.11.1

Removing the Existing Coiled Cord Cable

Procedure:

1. Rotate the locking collar at the base of the microphone in a counterclockwise direction until it stops.
2. Pull out the cord and away from the base of the microphone.
3. Install the new coiled cord GMKN4072_ in a reverse order of removal.

   Part Number: GMKN4072_, Length: 65 cm (2.2 ft)

Figure 87: Pin Assignment of Cable from Accessory Connector to Microphone Housing

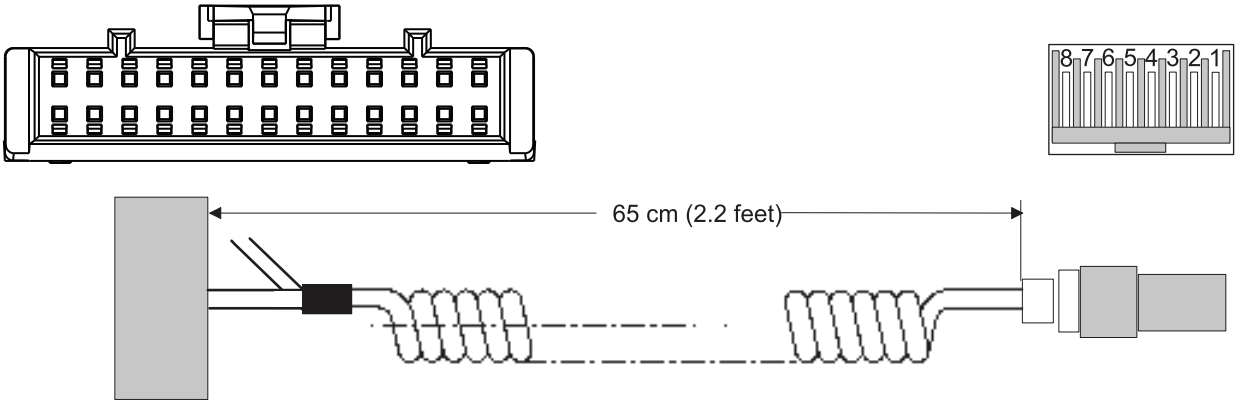


Table 99: Pin Assignment of Cable from Accessory Connector to Microphone Housing

To Accessory Connector (left)		To Microphone Housing (right)	
1	nc	1	nc
...	...	2	nc
11	nc	3	PTT (white)
12	GND (black)	4	EXT_MIC (blue)
13	EXT_MIC (blue)	5	GND (black)
14	nc	6	HOOK (red)
15	nc	7	nc
16	nc	8	nc
17	EXT_PTT (white)		
18	nc		
19	HOOK (red)		
20	nc		
...	...		
26	nc		

4.9.12

Cables to Provision AIE/E2E Keys

The following cables are used when provisioning your radio with encryption keys:

- PMKN4104_ – Active Data Cable to provision your radio with Air interface encryption keys.
- PMKN4108_ – Key Variable Load (KVL) cable to provision your radio with E2E keys.

The PMKN4104_ Active Data Cable provides a 5-wire RS232 interface such as RxD, TxD, CTS, RTS, DTR between a computer and a mobile radio. Connect the cable to the 26-pin Accessory Connector on the rear side of your radio, and into the 9-pin connector of a Data Device such as PC, laptop, console. The PMKN4104_ Active Data Cable is not repairable. Order a replacement cable as necessary: Length: 2.0 m (6.56 ft).

Figure 88: Active Data Cable PMKN4104_

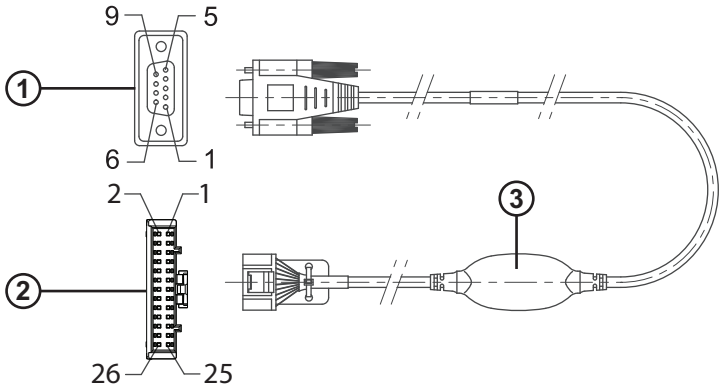


Table 100: Associated Components

Number	Description
1	To the computer
2	To Radio Accessory Connector
3	Radio Interface Box

Table 101: Pin Assignment - Active Data Cable PMKN4104_

26-Pin Connector	Function	Color
17	Ext PTT (+5 V)	Black
8	GND_MAIN	Yellow
7	SWB+	Brown
18	DTR	Red
24	CTS	White
21	RTS	Blue
20	TxD	Gray
22	RxD	Tan

Chapter 5

External Equipment Installation

This section describes the external equipment installation available for your radio.

5.1 Vehicle Antenna Installation

This section describes the installation of the vehicle antenna for your radio.

5.1.1 Mobile Radio Operation and EME Exposure

Transmit only when people outside the vehicle are at least the minimum recommended distance away from the vehicle body. The minimum recommended distance is 90 cm (3 ft). This separation ensures sufficient distance from a properly installed, externally mounted antenna. This assures optimal radio performance and human exposure to radio frequency electromagnetic energy is within the guidelines referenced in this manual.

5.1.2 Selecting an Antenna Site

When and where to use: To assure optimum performance and compliance with RF Energy Safety standards, these antenna installation guidelines and instructions are limited to metal-body vehicles with appropriate ground planes and take into account the potential exposure of back-seat passengers and bystanders outside the vehicle.

Procedure:

1. Install the vehicle antenna external to the vehicle and in accordance with:
   - The requirements of the antenna manufacturer or supplier
   - The requirements of the vehicle manufacturer
2. If you use the trunk lid, ensure that the trunk lid is grounded by connecting grounding straps between the trunk lid and the vehicle chassis.
3. Select an Antenna Site or Location on a Metal Body Vehicle.
   a. External installation – Check the requirements of the antenna supplier and install the vehicle antenna external to a metal body vehicle in accordance with those requirements.
   b. Roof top – For optimum performance and compliance with RF Energy Safety standards, mount the antenna in the center area of the roof.
   c. Trunk lid – On some vehicles with clearly defined, flat trunk lids, the antennas of some radio models can also be mounted on the center area of the trunk lid. For vehicles without clearly defined, flat trunk lids (such as hatchback autos, sports utility vehicles, and pick-up trucks), mount the antenna in the center area of the roof. The following restrictions apply when mounting the antenna on the trunk lid. Be sure that the distance from the antenna location on the trunk lid is at least 90 cm (36 inches) from the front surface of the rear seat-back to assure compliance with

RF Energy Safety standards. Ensure that the trunk lid is grounded by connecting grounding straps between the trunk lid and the vehicle chassis.

CAUTION: If these conditions cannot be satisfied, then mount the antenna on the roof top.

4. Ensure that the antenna cable can be easily routed to your radio. Route the antenna cable as far away as possible from any vehicle electronic control units and associated wiring.

   CAUTION: Ensure that your power cable is not placed with the antenna in parallel. Interference can cause your radio to hang.

5. Check the antenna location for any electrical interference according to vehicle manufacturer requirements.
6. The minimum distance between the antenna and your radio or accessories must be at least 91.5 cm (3 ft).
7. Ensure that the mobile radio antenna is installed at least 3 ft (0.9 meter) away from any other antenna on the vehicle.

   NOTE: Any two metal pieces rubbing against each other (such as seat springs, shift levers, trunk and hood lids, exhaust pipes) close to the antenna can cause severe receiver interference.

8. If a GPS or combined TETRA/GPS antenna is used, ensure that the antenna has a clear view to the sky and that the antenna base that carries the GPS/GNSS receiver is not covered with any metallic or radio frequency absorbing material.

5.1.3
Installing the Antenna

Procedure:

1. Mount the antenna according to the instructions provided with the antenna kit.
2. Run the coaxial cable to your radio mounting location. If necessary, cut off the excess cable and install the cable connector.
3. Connect the antenna cable connector to your radio antenna connector on the rear of your radio.

Figure 89: Connections to the Rear Side of Your Radio

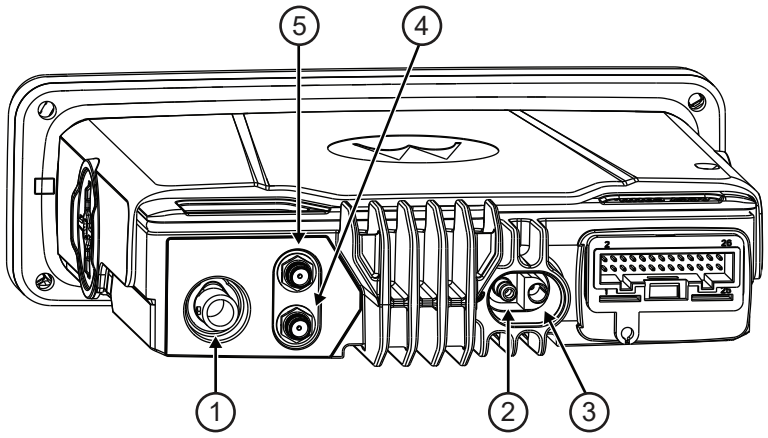


Table 102: Associated Components

Number	Description
1	TETRA Antenna BNC Connector
2	Battery +
3	Battery –
4	GNSS Antenna SMA Connector
5	Bluetooth/Wi-Fi Antenna SMA Connector

5.1.4
Completing Radio Installation

Procedure:

1. Mount the microphone clip to a convenient spot near your radio.
2. Plug the power cable into your radio power connector.

NOTE:
Motorola Solutions supplies a wide range of antennas and associated coaxial cables correctly terminated for use with the mobile radio. However should the need arise to carry out reinstallation or repair of a cable or connector then suitable information on selection and installation of replacement connectors and cables can be found on most recognized connector and cable manufacturers, for example Radiall, Huber and Suhner, Samtec.

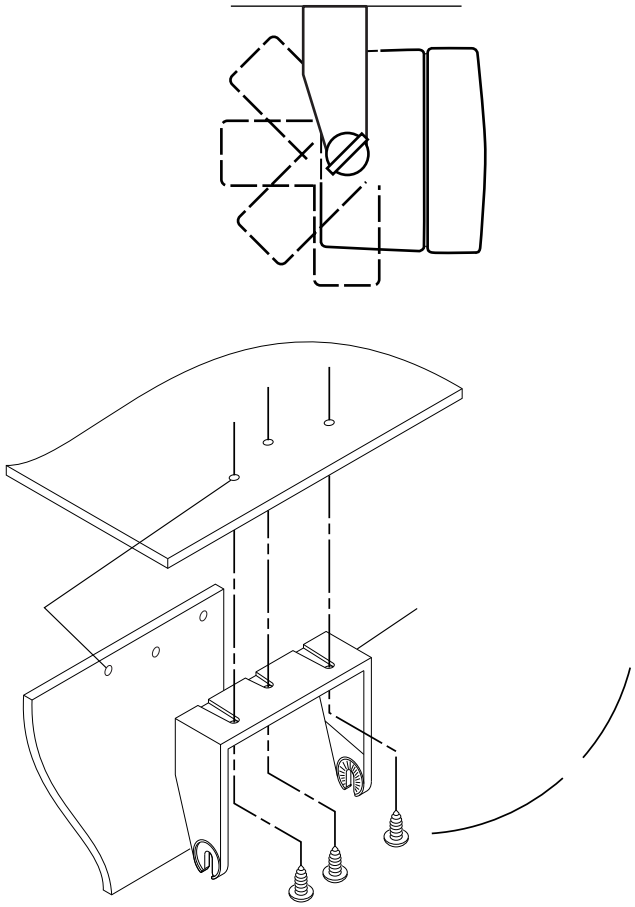
The BNC Connector should be typically of the crimped variety, likewise the SMA, or FME Connector used for GPS should also be of the crimped variety. Coaxial cable should be screened and low loss, see the individual specification sheets for the antennas to find details of specific cable types and or connectors. Additionally see the TETRA Interface Specification for the mobile radios for further information.

5.2
Installing External Speaker

Procedure:

1. Remove the speaker from the trunnion bracket by loosening the two wing screws.
2. Choose a place to mount the speaker. When mounting the trunnion on the transmission hump, be careful that the transmission housing is not affected.
3. Use the trunnion bracket as a template to mark the positions of the mounting holes.
4. Center-punch the spots you marked and drill a 4 mm (5/32 in.) diameter hole at each location.

Figure 90: External Speaker Trunnion Bracket



FL0830253-O

5. Mount the trunnion bracket with the screws supplied.
6. Insert the speaker into the trunnion bracket and tighten the two wing screws.
7. Insert the external speaker accessory plug into the accessory connector of your radio.

Appendix A

Service Information

Technical & Repair Support (for Contracted Customers Only)

If you would like to contact the Motorola Solutions Customer Care team, use the appropriate contact details below. Please be prepared to provide your contract number, product serial numbers, and detailed issue description for a faster response and a resolution. If the support request is Technical Support related, the request will be handled by the Technical Support Operations (TSO) team. This team of highly skilled professionals provides Technical Support to help resolve technical issues and quickly restore networks and systems. If you are unsure whether your current service agreement entitles you to benefit from this service, or if you would like more information about the Technical or Repair Support Services, contact your local customer support or account manager for further information.

Contact Details

Technical Requests: techsupport.emea@motorolasolutions.com

Repair Support: repair.emea@motorolasolutions.com

Contact Us: https://www.motorolasolutions.com/en_xu/support.html

Parts Identification and Ordering

If you need help with identifying non-referenced spare parts, direct a request to the Customer Care Organization of a local area Motorola Solutions representative. Orders for replacement parts, kits, and assemblies should be placed directly at the local distribution organization of Motorola Solutions.

However, you cannot order export-controlled products or spare parts such as TEA-related boards through an online shop or https://shop-business.motorolasolutions.com/. Send an order form with actual end-customer details by e-mail to your customer care team.

Appendix B

Service Information for APAC

This topic contains contact details to service centers in the Asia and Pacific region.

Technical Support

Technical support is available to assist the dealer or distributor in resolving any malfunction, which may be encountered. Initial contact must be by telephone wherever possible. When contacting Motorola Solutions Technical Support, be prepared to provide the product model number and the serial number.

Further Assistance From Motorola Solutions

You can also contact the Customer Help Desk through the website: http://www.motorolasolutions.com/en_xp/products. If a unit requires further complete testing, knowledge, details, or both of component level troubleshooting or service than is customarily performed at the basic level, send your radio to a Motorola Solutions Service Center as listed in the following table:

Table 103: Service Information – Telephone Numbers and Addresses of the Asia and Pacific Motorola Solutions Centers

Country	Telephone Number	Address
Singapore	+65-6817-6800	**Motorola Solutions Singapore Pte. Ltd,** 80 Pasir Panjang Road, #18-81 Mapletree Business City, Singapore 117372 Contact: Alvin Tan E-mail: alvin.tan@motorolasolutions.com
Malaysia	+603-7809-0000	**Motorola Solutions Sdn. Bhd.** Level 14, Persoft Tower, No. 68, Pesiaran Tropicana, 47410 Petaling Jaya, Selangor Darul Ehsan, Malaysia Contact: Andi bin Jaferi E-mail: andisuria.binjaferi@motorolasolutions.com
Indonesia	+62-21-251-3040	**PT. Motorola Solutions Indonesia** Wisma GKBI, 17thFl, Suite 1717, Jl. Jend. Sudirman No. 28, Bendungan Hilir, Tanah Abang, Jakarta 10210, Indonesia Contact: Yanto E-mail: yanto.yanto@motorolasolutions.com Indiranti Asmarina E-mail: indiranti.asmarina@motorolasolutions.com
Thailand	+662-005-0712	**Motorola Solutions (Thailand) Ltd.** 142 Two Pacific Place Suite 2201,

Country	Telephone Number	Address
		3220 Sukhumvit Road, Klongtoey, Bangkok 10110 Contact: Nitas Vatanasupapon E-mail: Nitas@motorolasolutions.com
India	+91-9844218850	**Motorola Solutions India Pvt. Ltd.** C/o Communication Test Design India Private Limited, No. 48/1, 2nd Main Road, Peenya Industrial Area, Bangalore - 560058, India Contact: K. Umamaheswari E-mail: umamaheshwari@motorolasolutions.com
China	+86-40-0120-2101	**Motorola Solutions (China) Co. Ltd.** Level 26, Fortune Financial Center, No. 5 Dongsanhuan Zhong Road, Chaoyang District, Beijing, P.R. China Contact: Matt Huang E-mail: matt.huang@motorolasolutions.com
Hong Kong	852-6829-8490	**Motorola Solutions Asia Pacific Ltd.** Unit 1904-07A, 19/F, One Harbourfront, 18 Tak Fung Street, Hunghom, Kowloon, Hong Kong Contact: Judy Leung E-mail: Judy.Leung@motorolasolutions.com
Philippines	Tel: +632-8884-3973	**Motorola Communications Philippines, Inc.** Office 2704 27th Floor Tower 2, The Enterprise Center Building, Ayala Ave. Corner Paseo de Roxas, Makati City, Philippines 1226 Contact: Gilbert Mariano E-mail: gilbert.mariano@motorolasolutions.com
Korea	+822-6022-1272	**Motorola Solutions Korea, Inc.** 8th Floor, Hanyang Tower 12 Beobwon-ro 11-gil, Songpa-gu, Seoul, 05836, Korea Contact: KS Kwak E-mail: ks.kwak@motorolasolutions.com
Taiwan	+886-2-7750-0388	**Motorola Solutions Taiwan, Ltd.** 5F-1, No. 2, Sec.3, Monsheng E. Rd, Chungshan Dist., Taipei 104, Taiwan (R.O.C.)

Country	Telephone Number	Address
		Contact: KunTeng Hsieh E-mail: k.t.hsieh@motorolasolutions.com
Australia	+613-9847-7725	**Motorola Solutions Australia Pty. Ltd.** 10 Wesley Court, Tally Ho Business Park, East Burwood Victoria 3151, Australia. E-mail: servicecentre.au@motorolasolutions.com

Piece Parts

Some replacement parts, spare parts, product information, or all can be ordered directly. If a complete Motorola Solutions part number is assigned to the part, the part is available from the Motorola Solutions Service Organization. If no part number is assigned, the part is not normally available from Motorola Solutions. If a list of parts is not included, that means no user-serviceable parts are available for that kit or assembly.

Customer Programming Software has no capability to tune your radio. Tuning your radio can only be performed at the factory or at the appropriate Motorola Solutions Repair Center. Component replacement can affect your radio tuning and must only be performed by the appropriate Motorola Solutions Repair Center.

All orders for parts or information must include the complete Motorola Solutions identification number. All part orders must be directed to your local Motorola Solutions Service Organization. See your latest price pages.

Parts Identification and Ordering

Request for help in identification of nonreferenced spare parts must be directed to the Customer Care Organization of Motorola Solutions local area representation. Orders for replacement parts, kits, and assemblies must be placed directly on a Motorola Solutions local distribution organization.

Appendix C

Service Information for Americas

This topic contains contact details to service centers in Latin America and Caribbean region.

Technical Support

To request technical support, go to https://businessonline.motorolasolutions.com, **Contact Us**.

Some replacement parts, spare parts, product information, or all can be ordered directly. If a complete Motorola Solutions part number is assigned to the part, the part is available from Motorola Solutions. If no part number is assigned, the part is not normally available from Motorola Solutions. If the part number is appended with an asterisk, the part is serviceable by Motorola Solutions Depot only. If a list of parts is not included, that means no user-serviceable parts are available for that kit or assembly.

Warranty and Repairs

Table 104: Service Information – Telephone Numbers and Addresses of Latin America Radio Support Centers

Country	Telephone Number	Address
Colombia	571- 376-6990	Motorola Solutions de Colombia Service Centre Torre Banco Ganadero Carrera 7 No. 71-52 Torre B piso 13 Oficina 1301 Bogota
Mexico	5252576700	Motorola Solutions de México Service Centre Bosques de Alisos #125 Col. Bosques de las Lomas CP 05120 Mexico DF

Piece Parts

To order parts in Latin America and the Caribbean, contact your local Motorola Solutions CGISS representative.

Table 105: Service Information – Telephone Numbers and Addresses of Latin America Motorola Solutions Centers

Country	Telephone Number	Address
Argentina	5411-4317-5300	Motorola Solutions Argentina Ave. del Libertador 1855 B1638BGE, Vicente Lopez Buenos Aires
Brasil	5511-3847-668	Motorola Solutions Ltda Av. Chedid Jafet 222 Bloco D Conjuntos 11,12,21,22 E 41 Condominio Millennium Office Park

Country	Telephone Number	Address
		04551-065- Vila Olimpia, Sao Paulo
Chile	562-338-9000	Motorola Solutions Chile S.A. Av. Nueva Tajamar 481 Edif. World Trade Center Of. 1702, Torre Norte Las Condes Santiago
Colombia	571-376-6990	Motorola Solutions Colombia LTDA. Carrera 7 #71-52 Torre A, Oficina 1301 Bogotá
Costa Rica	506-201-1480	Motorola Solutions de Costa Rica Parque Empresarial Plaza Roble Edificio El Portico, 1er Piso Centro de Negocios Internacional Guachepelin, Escazu San Jose
Ecuador	5932-264-1627	Motorola Solutions del Ecuador Autopist Gral. Rumiñahui, Puente 2 Conjunto Puerta del Sol Este-Ciudad Jardin Pasa E, Casa 65 Quito
Mexico	52-555-257-6700	Motorola Solutions de México, S.A. Calle Bosques de Alisos #125 Col. Bosques de Las Lomas 05120 México D.F.
Peru	511-211-0700	Motorola Solutions del Peru Ave. República de Panama 3535 Piso 11, San Isidro Lima 27
USA	954-723-8959	Motorola Solutions, Inc. Latin American Countries Region 789 International Parkway Sunrise, FL 33325
Venezuela	58212-901-4600	Motorola Solutions de Los Andes C.A. Ave. Francisco de Miranda Centro Lido, Torre A Piso 15, El Rosal Caracas, 1060

Appendix D

Warranty and Service Support

Motorola Solutions offers long-term support for its products. This support includes full exchange and/or repair of the product during the warranty period, and service/ repair or spare parts support out of warranty. Before shipping any terminal back to the appropriate Motorola Solutions warranty depot, contact Customer Resources or your Motorola Solutions dealer, distributor or reseller. All returns must be accompanied by a Warranty Claim Form, available from your Customer Service representative or through https://shop-business.motorolasolutions.com/ or your Motorola Solutions dealer, distributor, or reseller.

Warranty Period and Return Instructions

The terms and conditions of warranty are defined fully in the Motorola Solutions Customer, Dealer, or Distributor or Reseller contract. These conditions may change from time to time and the following notes are for guidance purposes only.

In instances where the product is covered under a "return for replacement" or "return for repair" warranty, a check of the product should be performed before shipping the unit back to Motorola Solutions. This procedure is to ensure that the product has been correctly programmed or has not been subjected to damage outside the terms of the warranty.

Before shipping any terminal back to the appropriate Motorola Solutions warranty depot, contact Customer Resources (see the following pages). All returns must be accompanied by a Warranty Claim Form, available from your Customer Services representative. Products should be shipped back in the original packaging, or correctly packaged to ensure that no damage occurs in transit.

After Warranty Period

After the Warranty period, Motorola Solutions continues to support its products in two ways:

- Motorola Solutions Regional Radio Support Centers offer a repair service to both end users and dealers at competitive prices.
- AAD supplies individual parts and modules that can be purchased by dealers who are technically capable of performing fault analysis and repair.

How To Get Warranty Service

In order to receive warranty service, provide proof of purchase (bearing the date of purchase and Product item serial number) and, also, deliver or send the Product item, transportation and insurance prepaid, to an authorized warranty service location. Warranty service is provided by Motorola Solutions through one of its authorized warranty service locations. If you first contact the company which sold you the Product, it can facilitate your obtaining warranty service. You can also call Motorola Solutions at 1-888-567-7347 US/Canada.

Appendix E

Product Specific Information for Digital Terminals Type MTC953DE

This section gives the Service Personnel an overview about product-specific notes. It is necessary to take special precautions to avoid the introduction of hazards when operating, installing, servicing, or storing equipment. This terminal meets the applicable safety standards if it is used as described. Follow carefully all operating and safety instructions.

Table 106: Equipment Electrical Ratings

Parameter		Value
Rated Voltage		12 VDC
Rated Voltage Range		10.8 VDC to 15.6 VDC
Rated Current		MTC953DE (350–470 MHz): 5.5 A at 10 W RF power. Please be aware when planning the installation that there is a maximum current consumption of 10.5 A during PTT and even 100 mA (non-Ethernet)/ 90 mA (Ethernet) when terminal is switched off.
Transmitter Frequency Range		
	TMO	350–470 MHz
	DMO	350–470 MHz
Receiver Frequency Range		350–470 MHz

Table 107: Normal Load Conditions

Parameter	Value
Rated RF Power	10 W
Rated Audio Power	13 W @ 4 Ω, 15.6 W @ 4 Ω
Antenna Impedance	50 Ω
Operating Temp. Range	-30 °C to +60 °C
Operating Time	Continuous/Intermittent

NOTE: In general, the communication system determines terminal transmit and receive time (operating cycle time). On overload, respectively on extensive use beyond the system specifications at high ambient temperatures, the thermal control protects the terminal. The thermal control cuts down the RF output power, thus reducing the terminal coverage range.

Table 108: Fuse Identification

Parameter	Value	
Fuse for Power Cable PMKN4289_, PMKN4243_, or PMKN4275_	15 A (Motorola Solutions Part Number: 6580283E06)	**IMPORTANT:** In case of blown fuses during the installation, replace **only** with fuses of identical value. Never insert ones of different values.
Fuse for Ignition Sense Cable PMKN4120	4 A (Motorola Solutions Part Number: 6580283E02)	