APX™ TWO-WAY RADIOS

APX8500 MOBILE RADIO INSTALLATION MANUAL

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Foreword

This manual covers the O2, O3, O5, O7 and O9 models of the ASTRO® APX™ mobile radios. It includes all the information necessary to install mid power radios and configure radio installation inside vehicles.

For details on radio operation or component-level troubleshooting, refer to the applicable manuals available separately. A list of related publications is provided in the section “Related Publications”

RF Energy Exposure and Product Safety Guide for Mobile Two-way Radios

See “Installation Requirements for Compliance with Radio Frequency (RF) Energy Exposure Safety Standards,”.

Manual Revisions

Changes which occur after this manual is printed are described in PMRs (Publication Manual Revisions). These PMRs provide complete replacement pages for all added, changed, and deleted items.
To obtain PMRs, go to https://businessonline.motorolasolutions.com.

Parts Ordering

See Appendix A: Replacement Parts Ordering for information on how to obtain replacement parts. For part numbers, refer to the ASTRO APX Mobile Radio Basic Service Manual (Motorola Solutions publication).

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Installation Requirements for Compliance with Radio Frequency (RF) Energy Exposure Safety Standards

ATTENTION!

This radio is intended for use in occupational/controlled conditions, where users have full knowledge of their exposure and can exercise control over their exposure to meet FCC limits. This radio device is NOT authorized for general population, consumer, or any other use.

To ensure compliance to RF Energy Exposure Regulations:

- Install only Motorola Solutions approved antennas and accessories
- Be sure that antenna installation is per “Antenna Installation” of this manual
- Be sure that Product Safety and RF Safety Booklet enclosed with this radio is available to the end user upon completion of the installation of this radio

Before using this product, read the guide enclosed with your radio which contains important operating instructions for safe usage and RF energy awareness and control for compliance with applicable standards and regulations.

For a list of Motorola Solutions-approved antennas and other accessories, visit the following web site which lists approved accessories for your radio model: http://www.motorolasolutions.com.

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Related Publications

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ASTRO APX Mobile Radio O3 Control Head User Guide 6875946M01
ASTRO APX Mobile Radio O5 Control Head User Guide 6875947M01
ASTRO APX Mobile Radio O7 Control Head User Guide 68012006034
ASTRO APX Mobile Radio O9 Control Head User Guide 68007024014
ASTRO APX Mobile Radio Basic Service Manual MN003076A01
ASTRO APX Mobile Radio O2 Quick Reference Card PMLN6193
ASTRO APX Mobile Radio O3 Quick Reference Card PMLN5591
ASTRO APX Mobile Radio O5 Quick Reference Card PMLN5592
ASTRO APX Mobile Radio O7 Quick Reference Card PMLN6194
ASTRO APX Mobile Radio O9 Quick Reference Card PMLN5711
ASTRO APX Mobile Safety Manual NNTN7851
ASTRO APX Wi-Fi Provisioning Leaflet MN001435A01

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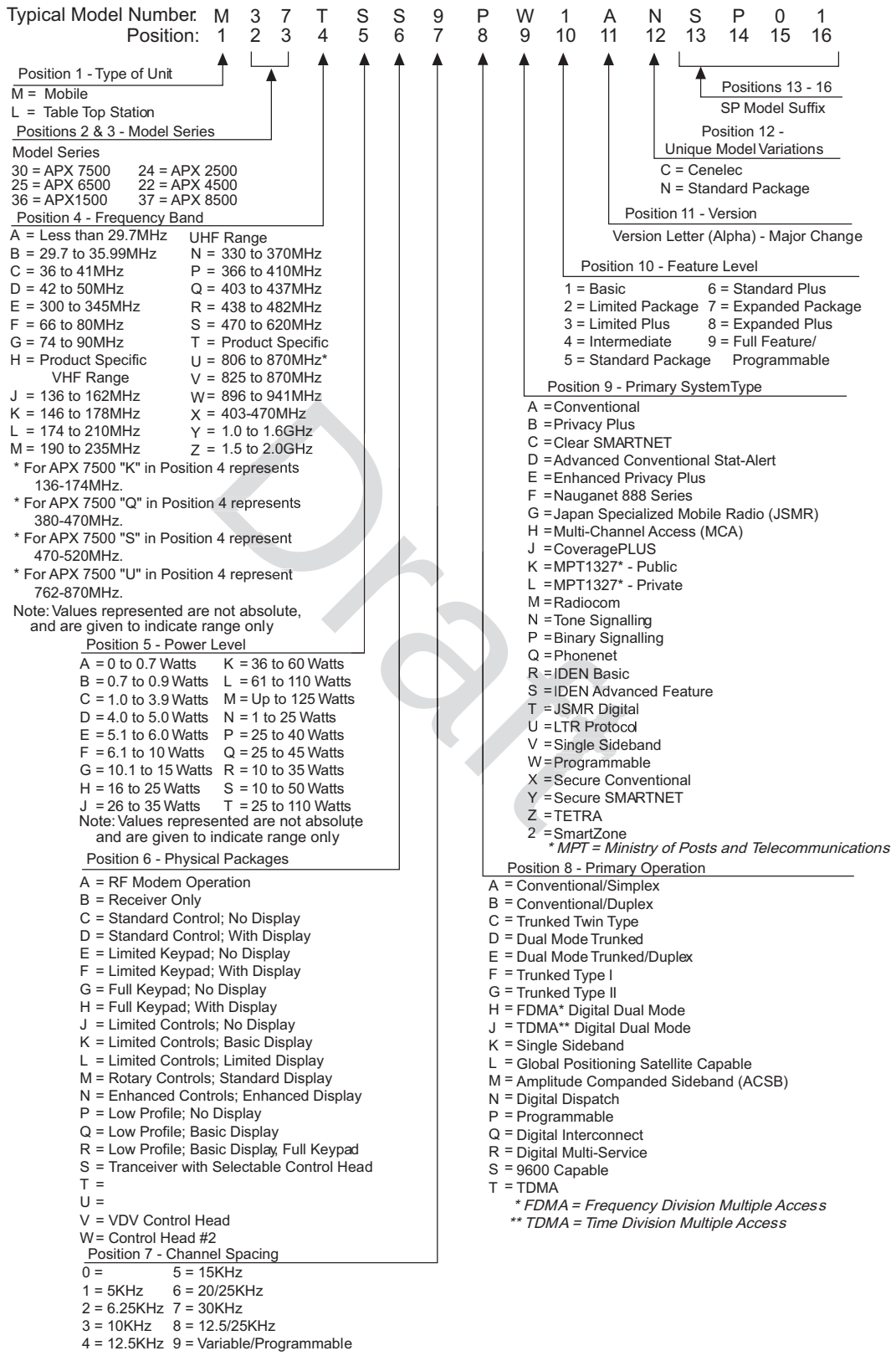
Mobile Radio Model Numbering Scheme



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Commercial Warranty

Limited Warranty

MOTOROLA SOLUTIONS COMMUNICATION PRODUCTS

I. What This Warranty Covers And For How Long

MOTOROLA SOLUTIONS INC. (“MOTOROLA”) warrants the MOTOROLA SOLUTIONS manufactured Communication Products listed below (“Product”) against defects in material and workmanship under normal use and service for a period of time from the date of purchase as scheduled below:

ASTRO APX Mobile Radio	One (1) Year
Product Accessories	One (1) Year

Motorola Solutions, at its option, will at no charge either repair the Product (with new or reconditioned parts), replace it (with a new or reconditioned Product), or refund the purchase price of the Product during the warranty period provided it is returned in accordance with the terms of this warranty. Replaced parts or boards are warranted for the balance of the original applicable warranty period. All replaced parts of Product shall become the property of MOTOROLA SOLUTIONS.

This express limited warranty is extended by MOTOROLA SOLUTIONS to the original end user purchaser only and is not assignable or transferable to any other party. This is the complete warranty for the Product manufactured by MOTOROLA SOLUTIONS. MOTOROLA SOLUTIONS assumes no obligations or liability for additions or modifications to this warranty unless made in writing and signed by an officer of MOTOROLA SOLUTIONS. Unless made in a separate agreement between MOTOROLA SOLUTIONS and the original end user purchaser, MOTOROLA SOLUTIONS does not warrant the installation, maintenance or service of the Product.

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II. General Provisions

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III. State Law Rights

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION OR EXCLUSIONS MAY NOT APPLY.

This warranty gives specific legal rights, and there may be other rights which may vary from state to state.

IV. How To Get Warranty Service

You must provide proof of purchase (bearing the date of purchase and Product item serial number) in order to receive warranty service and, also, deliver or send the Product item, transportation and insurance prepaid, to an authorized warranty service location. Warranty service will be 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.

V. What This Warranty Does Not Cover

A. Defects or damage resulting from use of the Product in other than its normal and customary manner.

B. Defects or damage from misuse, accident, water, or neglect.

C. Defects or damage from improper testing, operation, maintenance, installation, alteration, modification, or adjustment.

D. Breakage or damage to antennas unless caused directly by defects in material workmanship.

E. A Product subjected to unauthorized Product modifications, disassemblies or repairs (including, without limitation, the addition to the Product of non-Motorola Solutions supplied equipment) which adversely affect performance of the Product or interfere with Motorola Solutions's normal warranty inspection and testing of the Product to verify any warranty claim.

F. Product which has had the serial number removed or made illegible.

G. Rechargeable batteries if:

- any of the seals on the battery enclosure of cells are broken or show evidence of tampering.
- the damage or defect is caused by charging or using the battery in equipment or service other than the Product for which it is specified.

H. Freight costs to the repair depot.

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I. A Product which, due to illegal or unauthorized alteration of the software/firmware in the Product, does not function in accordance with MOTOROLA SOLUTIONS's published specifications or the FCC certification labeling in effect for the Product at the time the Product was initially distributed from MOTOROLA SOLUTIONS.

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K. Normal and customary wear and tear.

VI. Patent And Software Provisions

MOTOROLA SOLUTIONS will defend, at its own expense, any suit brought against the end user purchaser to the extent that it is based on a claim that the Product or parts infringe a United States patent, and MOTOROLA SOLUTIONS will pay those costs and damages finally awarded against the end user purchaser in any such suit which are attributable to any such claim, but such defense and payments are conditioned on the following:

A. that MOTOROLA SOLUTIONS will be notified promptly in writing by such purchaser of any notice of such claim;

B. that MOTOROLA SOLUTIONS will have sole control of the defense of such suit and all negotiations for its settlement or compromise; and

C. should the Product or parts become, or in MOTOROLA SOLUTIONS's opinion be likely to become, the subject of a claim of infringement of a United States patent, that such purchaser will permit MOTOROLA SOLUTIONS, at its option and expense, either to procure for such purchaser the right to continue using the Product or parts or to replace or modify the same so that it becomes noninfringing or to grant such purchaser a credit for the Product or parts as depreciated and accept its return. The depreciation will be an equal amount per year over the lifetime of the Product or parts as established by MOTOROLA SOLUTIONS.

MOTOROLA SOLUTIONS will have no liability with respect to any claim of patent infringement which is based upon the combination of the Product or parts furnished hereunder with software, apparatus or devices not furnished by MOTOROLA SOLUTIONS, nor will MOTOROLA SOLUTIONS have any liability for the use of ancillary equipment or software not furnished by MOTOROLA SOLUTIONS which is attached to or used in connection with the Product. The foregoing states the entire liability of MOTOROLA SOLUTIONS with respect to infringement of patents by the Product or any parts thereof.

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VII. Governing Law

This Warranty is governed by the laws of the State of Illinois, USA.

Notes

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Chapter 1 Introduction

This manual covers the installation procedures for ASTRO APX mobile and motorcycle radios with O2, O3, O5, O7 and O9 control heads, and accessories required to complete the radio system. The radio system consists of a control head, radio, antenna, microphone, speaker, cabling, Universal Relay Controller (URC), and accessories.

1.1 Mobile Radio Description

1.1.1 Dimensions

When installing the radio, make sure to plan the installation carefully and leave additional room in the rear of the radio for cabling and accessory connections; in the front of the radio for access, controls, and cabling (if remote mount); and to the sides of the radio so that you may access and install the trunnion screws/wing screws.

NOTE: The measurement unit used in Figure 1-1 to Figure 1-20 is millimeter.

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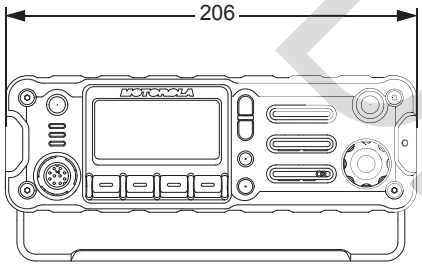

Figure 1-1. Front View of O2 Control Head Attached to APX 8500 Mid Power Dash Mount Transceiver and Trunnion

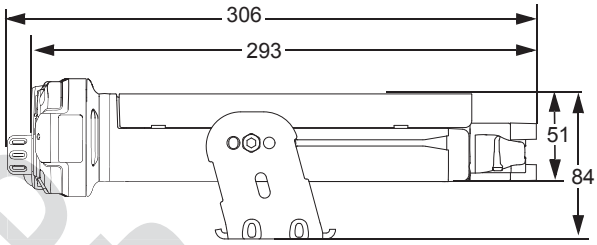

Figure 1-2. Side View of O2 Control Head Attached to APX 8500 Mid Power Dash Mount Transceiver and Trunnion

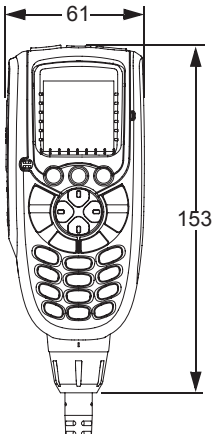

Figure 1-3. Front View of O3 Control Head with Coiled Cable

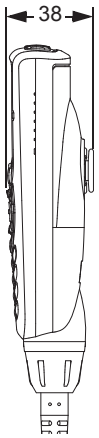

Figure 1-4. Side View of O3 Control Head with Coiled Cable

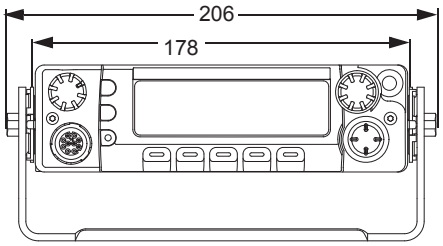

Figure 1-5. Front View of O5 Control Head Attached to APX 8500 Mid Power Dash Mount Transceiver and Trunnion

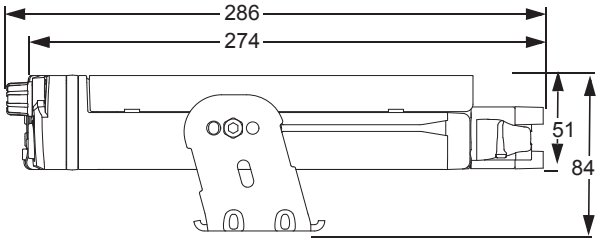

Figure 1-6. Side View of O5 Control Head Attached to APX 8500 Mid Power Dash Mount Transceiver and Trunnion

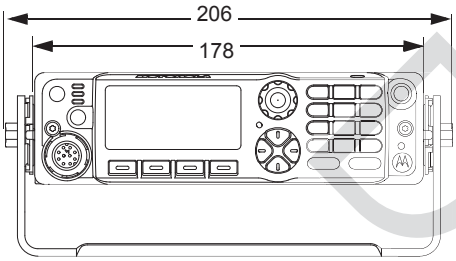

Figure 1-7. Front View of O7 Control Head Attached to APX 8500 Mid Power Dash Mount Transceiver and Trunnion

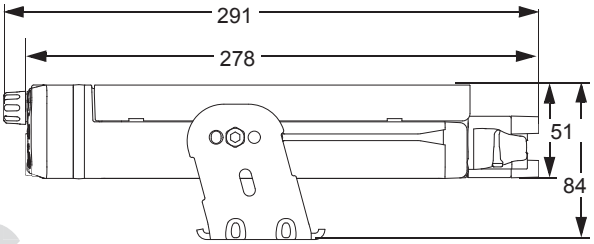

Figure 1-8. Side View of O7 Control Head Attached to APX 8500 Mid Power Dash Mount Transceiver and Trunnion

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Figure 1-9 and Figure 1-10, show the basic dimensions of the remote mount transceiver trunnion APX mobile radio.

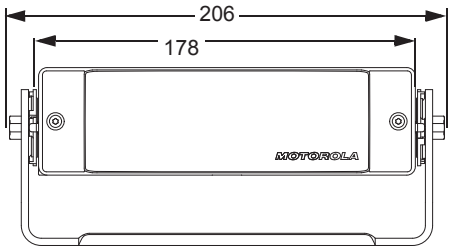

Figure 1-9. Front View of Remote Mount and Trunnion

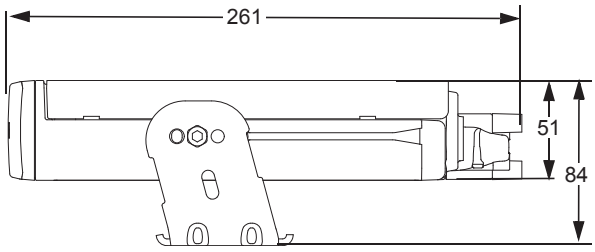

Figure 1-10. Side View of Remote Mount and Trunnion

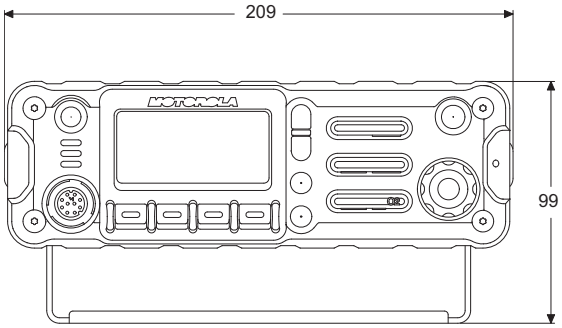

Figure 1-11. Front View of O2 Control Head with Remote Mount and Trunnion

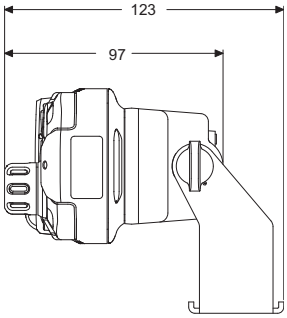

Figure 1-12. Side View of O2 Control Head with Remote Mount and Trunnion

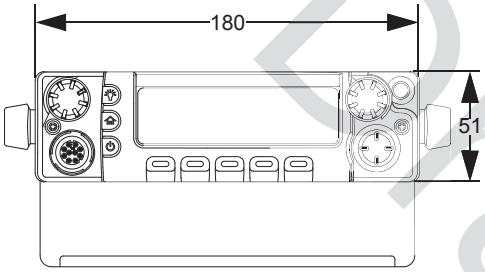

Figure 1-13. Front View of O5 Control Head with Remote Mount and Trunnion

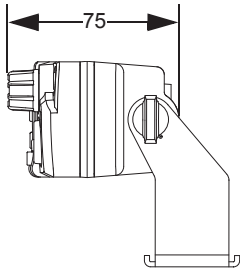

Figure 1-14. Side View of O5 Control Head with Remote Mount and Trunnion

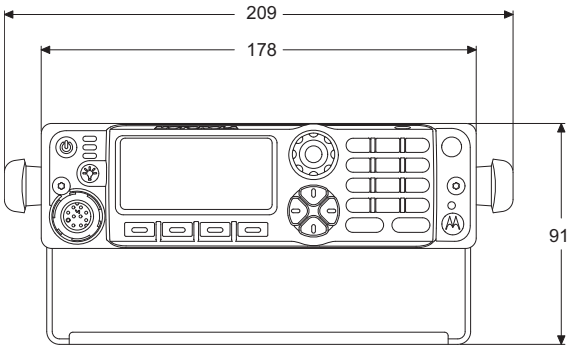

Figure 1-15. Front View of O7 Control Head with Remote Mount and Trunnion

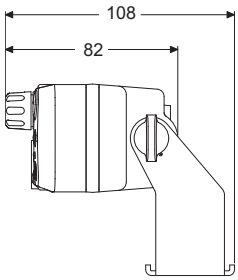

Figure 1-16. Side View of O7 Control Head with Remote Mount and Trunnion

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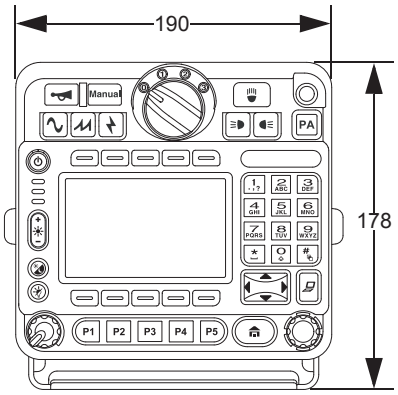

Figure 1-17. Front View of O9 Control Head with Trunnion

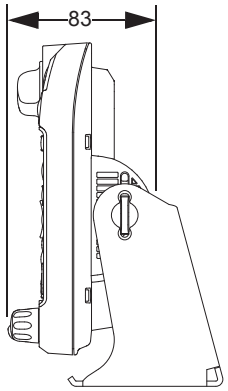

Figure 1-18. Side View of O9 Control Head with Trunnion

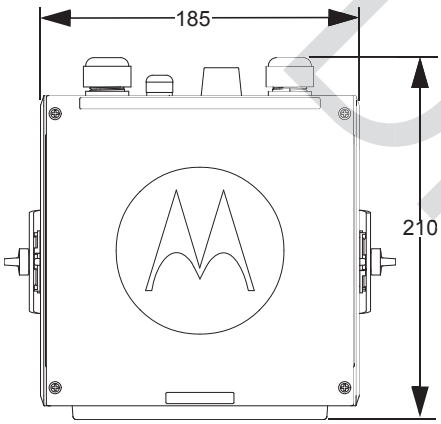

Figure 1-19. Top View of O9 Universal Relay Controller with Trunnion (URC is an orderable accessory)

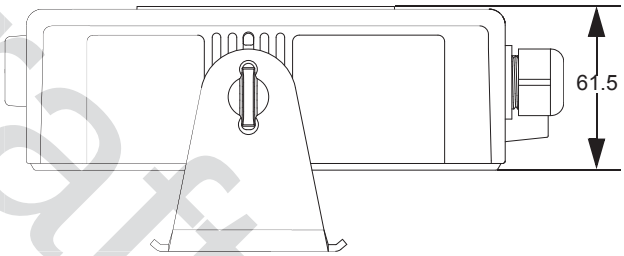

Figure 1-20. Side View of O9 Universal Relay Controller with Trunnion (URC is an orderable accessory)

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Figure 1-21. Siren and Lights Interface Module (SLIM)

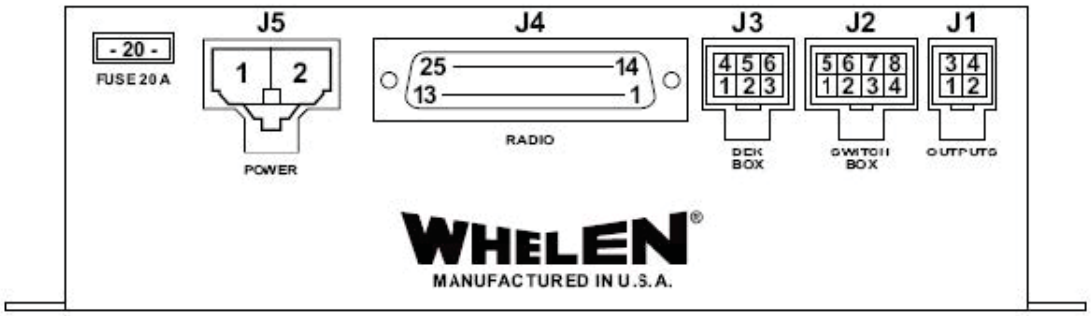

Figure 1-22. Front View of SB9600 Whelen Siren

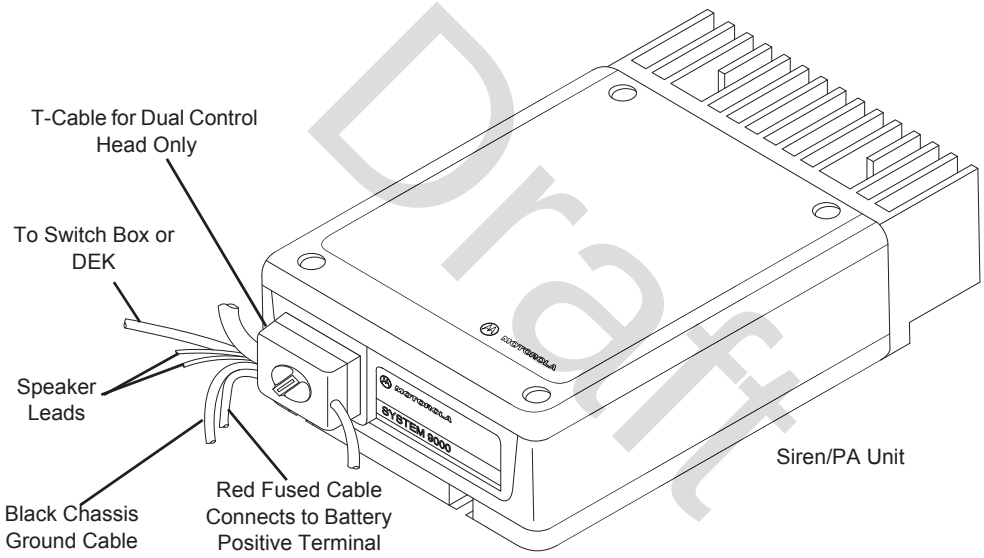

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Figure 1-23. Siren/PA Cable Connections