



MOTOROLA

INSTALLATION INSTRUCTIONS

REPLACEABLE PUSHBUTTON

RETROFIT KIT FOR MCS 2000

MODEL II AND MODEL III

CONTROL HEADS

MOTOROLA KIT NUMBERS

REX4455() AND REX4456()

Introduction

NOTE: The empty parentheses at the end of the kit numbers cited in this document stand for the alphabetical characters (A, B, etc.) that denote the revision levels of the kits. The revision levels of the kits may change from time to time without affecting the validity of these installation instructions.

The control heads on earlier production MCS 2000 Mobile Radios did not have the replaceable control head pushbutton feature. The replaceable pushbutton retrofit kit converts the earlier production MCS 2000 control heads to incorporate the replaceable control head pushbutton feature.

Applicability

- Retrofit Kit, Motorola Kit Number REX4455(), is applicable only to MCS 2000 Model II control heads.
- Retrofit Kit, Motorola Kit Number REX4456(), is applicable only to MCS 2000 Model III control heads.



Identifying Retrofittable Control Heads

- The Model II control heads that are retrofittable can be identified by the kit number HCN1092() marked on a paper tag located on the bottom front edge.
- The Model III control heads that are retrofittable can be identified by the kit number HCN1093() marked on a paper tag located on the bottom front edge.

Contents of Retrofit Kits

NOTE: Replaceable pushbuttons are not included with keyweb kits. Refer to Appendix A3 in MCS 2000 Installation Instructions Manual, Motorola Publication Number 68P02058U20-E, for part numbers, ordering information, and installation instructions for the replaceable pushbuttons.

- The Model II retrofit kit REX4455() contains the following component:

Motorola Part Number	Description
7505241Z03	Keyweb, Model II

- The Model III retrofit kit REX4456() contains the following component:

Motorola Part Number	Description
7505242Z01	Keyweb, Model III
	PUSHBUTTONS (One of Each):
3805233Z02	1
3805233Z14	2ABC
3805233Z15	3DEF
3805233Z16	4GHI
3805233Z17	5JKL
3805233Z18	6MNO
3805233Z19	7PRS

Motorola Part Number	Description
	PUSHBUTTONS (One of Each) (Continued)
3805233Z20	8TUV
3805233Z21	9WXY
3805233Z11	*
3805233Z12	0
3805233Z13	#

Retrofit Procedure

NOTE: Unless indicated otherwise in a particular procedural step, the following procedure applies to both the Model II and Model III control heads.



Caution

Before proceeding with this section, read and understand section titled Safe Handling of CMOS Devices at end of this publication.



Caution

Be certain that vehicle battery or base station power supply is disconnected from radio while retrofit kit is being installed.

Detaching Control Head from Radio Body or Back Housing

1. Disconnect microphone from control head and set it aside in a safe place.
2. Detach control head from radio body as follows:

NOTE: Adapter between radio body and control head has two snaps, one on each of its short sides. These snaps hold control head housing to adapter.

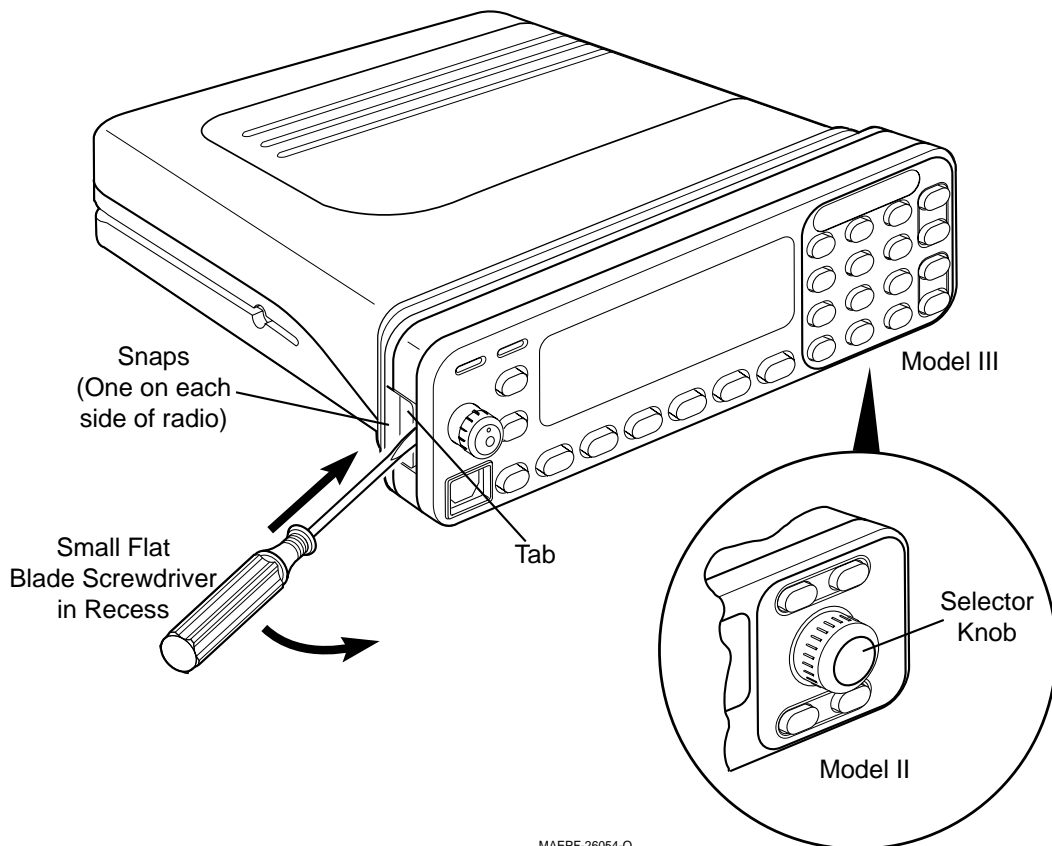


Caution

When performing either of the next two procedures, be very careful to avoid bending or otherwise damaging connector pins on back side of control head.

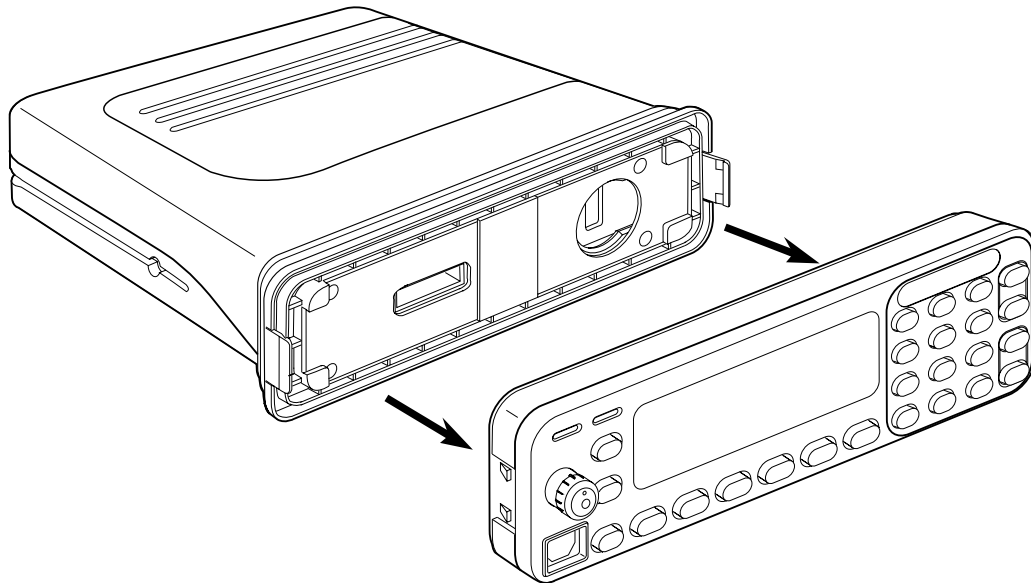
Dash Mount Radios Only

1. Refer to Figure 1 on page 4. Then, on either side of control head, insert tip of a small flat-blade screwdriver or similar tool into recess in front of tab on adapter and deflect tab outward.
2. While tab is deflected outward, pull on control head housing in a direction away from radio body and thereby release control head housing from adapter.
3. Refer to Figure 2 on page 4. Then repeat steps 2 and 3 above on other side of radio and separate control head housing from radio body.



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Figure 1. Inserting Screwdriver Blade into Recess in Front of Tab on Adapter



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Figure 2. Removing Control Head From Radio Body

Remote Mount Radios Only

1. Disconnect remote mount control head cable from control head by compressing sides of plug at control end of cable and pulling plug off of connector pins on back of control head.

NOTE: Remote mount back housing on control head has two snaps, one on each of its short sides. These snaps hold back housing to control head.

2. On either side of control head, insert tip of a small flat-blade screwdriver or similar tool into recess between back housing and control head and deflect tab outward.
3. While tab is deflected outward, pull on control head housing in a direction away from back housing and thereby release control head housing from back housing.
4. Repeat steps 1 through 3 above on other side of radio and separate control head from back housing.

Disassembling Control Head

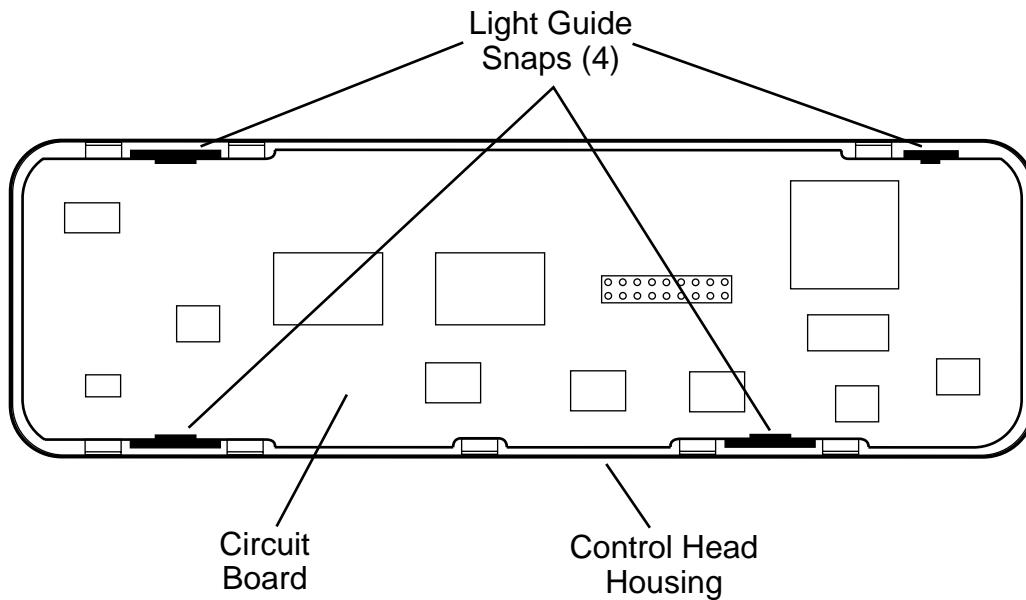
1. *On Model II control head only*, pull selector knob (refer to Figure 1) on right side of control head straight off shaft that protrudes through control head housing.
2. Lay control head on workbench face down



Caution

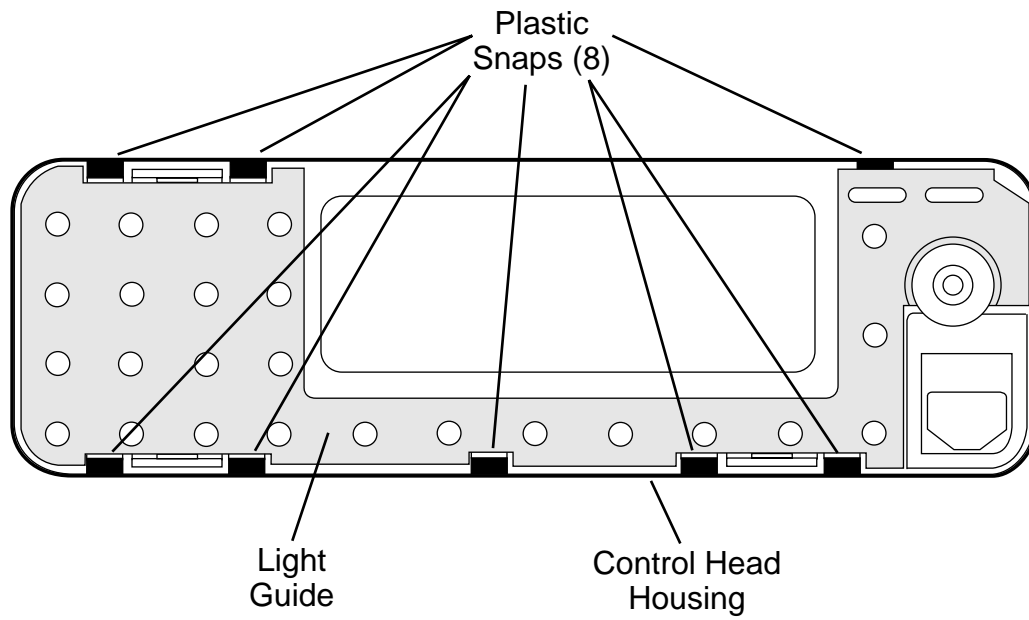
In step 3 below, be very careful to avoid damaging leads for volume potentiometer and microphone connector.

3. Refer to Figure 3 on page 6. Then, on inside edge of control head housing, pry back the four light guide snaps that retain circuit board in control head housing. Then remove circuit board very carefully by pulling it straight up.
4. Refer to Figure 4 on page 6. Then, on light guide, pry back on plastic snaps to release snaps from recesses on inside of control head housing. Then lift light guide straight out of control head housing.
5. Grasp flexible keypad and pull it out of housing.



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Figure 3. Prying Back Light Guide Snaps That Retain Circuit Board in Control Head Housing



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Figure 4. Prying Back Plastic Light Guide Snaps

Reassembling Control Head

1. Install new keyweb, Motorola part number 7505241Z03 for Model II or Motorola part number 7505242Z01 for Model III, into control head housing. Be sure that keyweb is seated completely and correctly.
2. Place light guide over keyweb in control head housing with snaps facing upward.

NOTE: In step 3 below, engage snaps one at a time and alternate between top and bottom sides of control head housing.

3. Press light guide into control head housing so that snaps engage into recesses on inside of housing.
4. Turn volume control knob on control head housing and shaft of volume control potentiometer on left end of circuit board fully counterclockwise.
5. Insert circuit board into control head housing being sure that shaft of volume control potentiometer engages completely with volume control knob.
6. Press down carefully on circuit board so that it engages with the four light guide snaps.
7. *On Model II control head only*, push selector knob straight onto shaft that protrudes through control head housing on right side of control head.

Installing Control Head

Dash Mount Radios Only



Caution

1. Place control head a short distance in front of radio body and align connector pins on back of control head with receptacles of socket on front of radio body.
2. Slide control head straight onto the radio body while being very careful to avoid bending or otherwise damaging connector pins on back of control head.
3. Press control head onto radio body until both snaps on radio body engage with recesses on short ends of control head housing.

Remote Mount Radios Only

1. Install remote mount back housing over back of control head and snap it in place securely. Be very careful to avoid bending or otherwise damaging connector pins on back of control head.
2. Compress sides of plug on end of remote mount control cable and insert plug onto connector pins on back of control head.

NOTE: Replaceable pushbuttons are not included with keyweb kit.

Reidentification of Control Head

On Model II control head only, use a fine point felt tip marker to change kit number on paper tag on bottom front edge of control head from HCN1092() to HCN1117().

On Model III control head only, use a fine point felt tip marker to change kit number on paper tag on bottom front edge of control head from HCN1093() to HCN1118().

Installing Replaceable Pushbuttons

Refer to Appendix A3 in MCS 2000 installation instructions manual, Motorola Publication Number 68P02058U20-E, for part numbers, installation instructions, and ordering information for the replaceable pushbuttons.

Safe Handling of CMOS Devices

Complementary metal-oxide semiconductor (CMOS) devices are used in the MCS 2000 radios. While the attributes of CMOS are many, their characteristics make them susceptible to damage by electrostatic or high voltage charges. Damage can be latent, resulting in failures that occur weeks or months after the actual damage is done. Consequently, special precautions must be taken to prevent device damage during disassembly, troubleshooting, and repair. Handling precautions are mandatory for CMOS circuits, and are especially important in low humidity conditions. DO NOT attempt to disassemble the radio without observing the following handling precautions:

1. Eliminate static generators (plastics, styrofoam, etc.) from the work area.
2. Remove nylon or double-knit polyester jackets, roll up long sleeves, and remove or tie back loose hanging neckties.
3. Store and transport all static-sensitive devices in ESD-protective containers.

4. If at all possible, handle CMOS devices by the package and not by the leads. Prior to touching the radio, touch an electrical ground to remove any static charge that you may have accumulated.

NOTE: The package and substrate of a CMOS device may be electrically common. If so, the reaction to a discharge to the case can cause the same damage as touching the leads.

5. Disconnect all power from the radio before ESD-sensitive components are removed or inserted unless otherwise noted.

6. Use a static-safeguarded workstation, which can be accomplished through the use of an anti-static kit (Motorola part number 01-80386A82). This kit includes a wrist strap, two ground cords, a static-control table mat and a static-control floor mat. For additional information, refer to Service and Repair Note SRN F1052, "Static Control Equipment for Servicing ESD Sensitive Products", available from Motorola Literature Distribution, 2290 Hammond Drive, Schaumburg, IL 60173 (847) 576-2826.

7. When a static-safeguarded workstation is not available, observe the following techniques to minimize the chance of damage.

- If a static-sensitive device is to be temporarily set down, use a conductive surface for placement of the device.

- Make skin contact with a conductive work surface first and maintain this contact when the device is set down or picked up.

8. Always wear a conductive wrist strap when servicing the radio. The Motorola part number for a replacement wrist strap that connects to the table mat is 42-80385A59.

9. When straightening the leads and/or pins of CMOS devices, provide ground straps for the tools used for that purpose.