Ⓜ *MOTOROLA*

MOSTAR™
Speaker/Amplifier
Model HSN1000A

Note: Despite the fact that the HSN1000B unit has significant circuitry differences from the HSN1000A unit, this manual was shipped with each of several HSN1000B speakers.

THIS MANUAL HAS BEEN
DISCONTINUED
Instruction Manual

68P81113E96-O   i

SPECIFICATIONS

Rated Voltage	+13.8 V dc negative ground
Audio Input	2400 ohms with input level adjust
Input Sensitivity	0.5 volt input for full output
Audio Output to Speaker	6 Watts, with less than 10% distortion
Frequency Response	+1, -3 dB 300-3000 Hz
Speaker	5" Permanent Magnet, 2 ohm
Battery Drain: Standby Full Output	less than 0.1 amp 0.75 amp

SPEAKER AMPLIFIER MODEL COMPLEMENT

HLN4559A	Speaker Amplifier Board
HSN4015A	Speaker and Housing

ADDITIONAL ACCESSORY CABLE ASSEMBLIES

HKN4149A	Speaker Cable 15'
HKN4151A	Speaker Cable 30'
HKN4152A	Speaker Cable 50'
HKN4132A	Ground Extender (6-pin)
HKN4150A	Speaker Cable 8'

Note: When used with the MTR2000 station, use cable #0185180U01. Instructions for fabricating this cable are found in the MTR2000 section, in the RBTIP.

1. DESCRIPTION

1.1 The speaker/amplifier consists of a 6-watt integrated circuit amplifier and a 2.0 ohm speaker enclosed in a rugged weather-resistant housing. The housing is designed to be mounted either inside or outside of a school bus, truck, emergency van or other similar vehicle.

1.2 The speaker/amplifier is used in conjunction with public address options for the *Mostar* radio (options B330, B589, and B700) described in instruction section 68P81112E86.

1.3 To facilitate connection of multiple wires to single pinouts from the radio, 6-pin ground extenders are supplied with each radio. Their use is illustrated in instruction section 68P81112E86.

1.4 The speaker/amplifier includes a trunnion bracket, hanger bracket, and wall mount bracket, which permits the speaker to be mounted in a variety of ways. Refer to Details A and B of Figure 1. The trunnion bracket provides a large variety of permanent mountings (dashboard and accessible firewall areas) for the speaker while permitting it to be tilted or angled for best results. The hanger bracket (already attached to the speaker) by itself permits temporary mounting on projections such as automobile windows, etc. In this case, the trunnion bracket must be removed. The wall mount bracket can be used for permanent mountings if the trunnion bracket it too large to fit in some inaccessible areas. In this case, the trunnion bracket is removed and the speaker is attached to the wall mount bracket by the hanger bracket. Security screws are included for optional use in place of wing screws.

1.5 When the speaker is mounted external to the vehicle, it should be mounted under the engine hood near the front grille. The location selected should provide best audio projection while affording maximum protection from the weather and environmental elements.

2. INSTALLATION

2.1 TOOLS REQUIRED FOR INSTALLATION

Center Punch
Hammer
Drill (1/4" Chuck)
#22 Twist Drill (0.157" for self-tapping screws)
#38 Twist Drill (0.101" for self-tapping screws)
Nut Driver (1/4")
Nut Driver (5/16")

2.2 TRUNNION BRACKET INSTALLATION PROCEDURE (Refer to Detail A of Figure 1.)

Step 1. Remove the trunnion bracket by loosening the two wing screws.

Step 2. Remove the three paper retainers and screws from the trunnion bracket.

Step 3. Remove the wall mount bracket from its taped position on the hanger bracket (retain for future use).

Step 4. Using the trunnion bracket as a template, mark the location of the three desired mounting holes.

Step 5. Centerpunch and drill a 0.157" diameter hole at each location.

Step 6. Mount the trunnion bracket using the supplied screws.

Step 7. Remount the speaker into the trunnion bracket and retighten the two wing-screws.

2.3 WALL MOUNT BRACKET INSTALLATION PROCEDURE (Refer to Detail B of Figure 1.)

Step 1. Remove the wall mount bracket from its taped position on the hanger bracket.

Step 2. Remove the trunnion bracket and trunnion wing-screws (retain for future use).
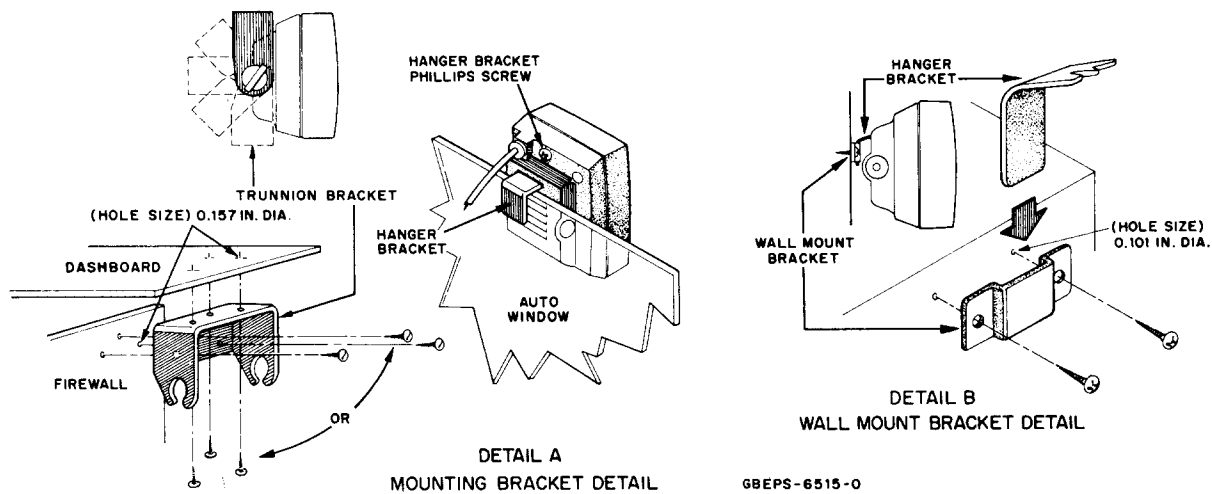
Figure 1.   Physical Installation Details

Step 3.   Remove the two paper retainers and screws from the wall mount bracket.

Step 4.   Determine the location for installation.

Step 5.   Using the bracket as a template, mark the location for the screws.

Step 6.   Centerpunch and drill a 0.101" diameter hole at both locations.

Step 7.   Mount the wall mount bracket to the surface with the supplied screws.

Step 8.   Firmly seat the hanger bracket (attached to the speaker) in the wall mount bracket.

2.4   DUAL TRUNNION AND WALL MOUNT INSTALLATION

In some installations, such as school buses, where the speaker may be subject to excess strain or abuse it may be desirable to use both the trunnion mounting bracket and the wall mount bracket. In this case follow the procedures in both 2.2 and 2.3 but use the template in Figure 2 to locate the hole centers.

2.5   ELECTRICAL CONNECTIONS

Install the radio following the preinstallation and installation procedures described in the basic radio manual. Use the following procedure to install the extension speaker.
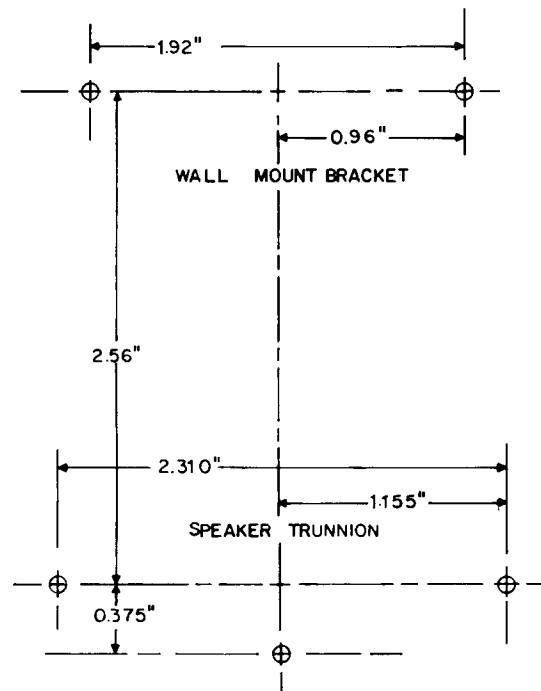
2.5.1   Ground Connection

Step 1.   Insert male pin from the BLACK speaker wire into any location on one of the HKN4132A ground extenders supplied with the P.A. option kit.

Step 2.   Insert the gold male pin from the HKN4132A ground extender into the correct position in the HLN4472A options connector as indicated in instruction section 68P81112E86.

2.5.2   Input Connection

Step 1.   Insert male pin from the BLUE speaker wire into any location on another HKN4132A ground extender supplied with the P.A. option kit.

Figure 2.   Dual Trunnion and Wall Mount Template

2

Step 2.   Insert the gold male pin from the HKN4132A ground extender into the correct position in the HLN4472A options connector as indicated in instruction section 68P81112E86.

2.5.3   Power Connection

Step 1.   Insert male pin from the RED speaker wire into any location on another HKN4132A ground extender supplied with the P.A. option kit.

Step 2.   Insert the gold male pin from the HKN4132A ground extender into the correct position in the HLN4472A options connector as indicated in instruction section 68P81112E86.

2.5.4   Multiple P.A. Speakers (Option B589)

2.5.4.1   Both RED and both BLACK wires are grouped on one HKN4132A ground extender. Each BLUE wire should be connected to an individual HKN4132A ground extender. Follow schematic diagram and instructions in instruction section 68P81112E86.

2.5.4.2   Plug P1 of each speaker/amplifier into J1 of each HKN4149A cable assembly.
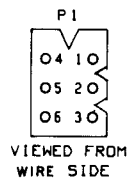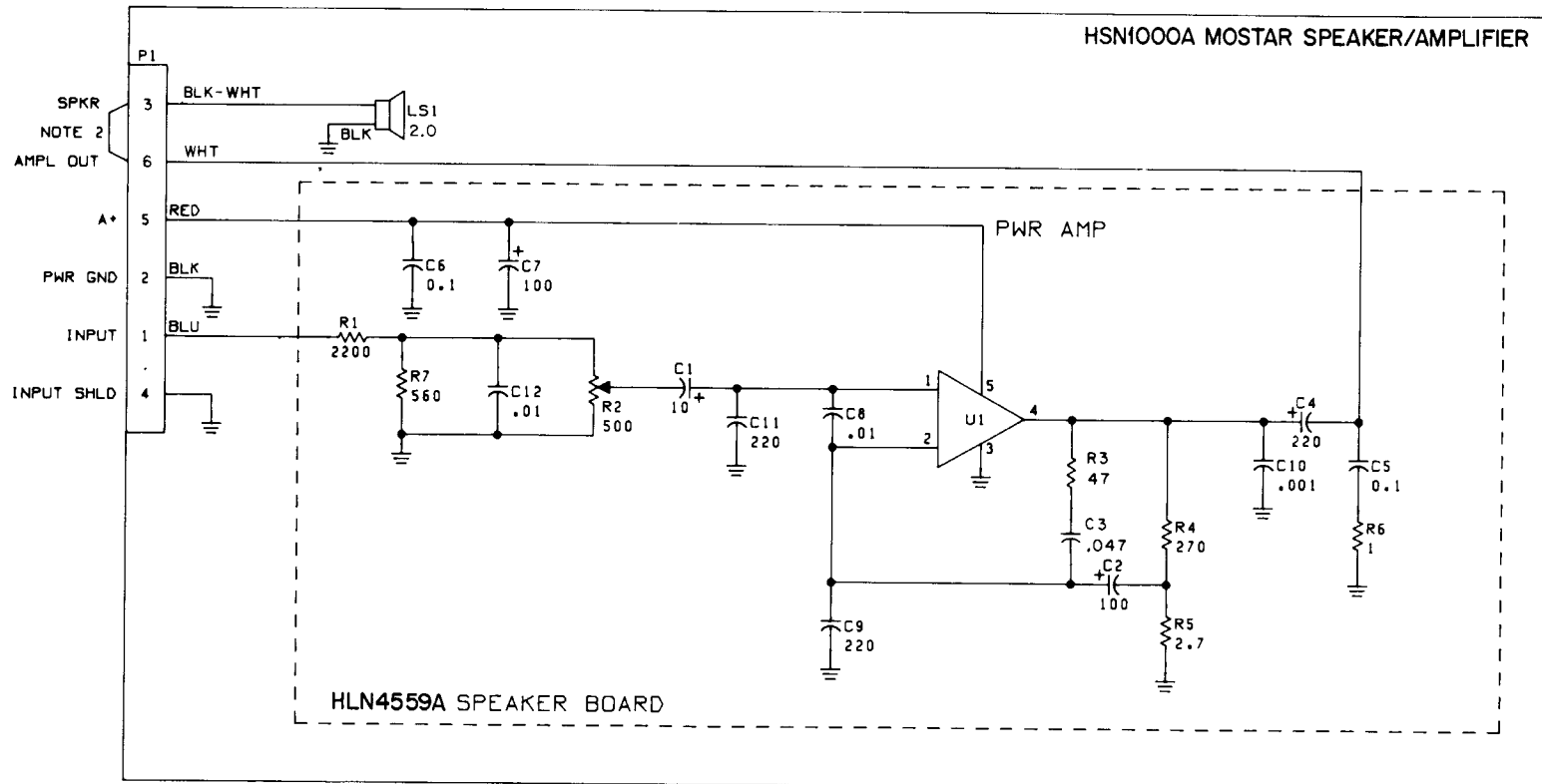
3.   ADJUSTMENT

Step 1.   Adjust the radio as described in the radio instruction manual.

Step 2.   Set up conditions to provide a signal to the speaker such as a PA message with PA mode selected for public address speakers.

Step 3.   Adjust the speaker/amplifier volume control (on speaker circuit board) for a convenient listening level clearly heard throughout the vehicle. Make sure that this level does not cause acoustic feedback howl when the microphone is held near the operator's mouth.

HSN1000A MOSTAR SPEAKER/AMPLIFIER

CEPS-35993-0

FUNCTION

The speaker/amplifier consists of a 6-watt integrated circuit amplifier and a 2.0 ohm speaker mounted in a rugged weather resistant housing.
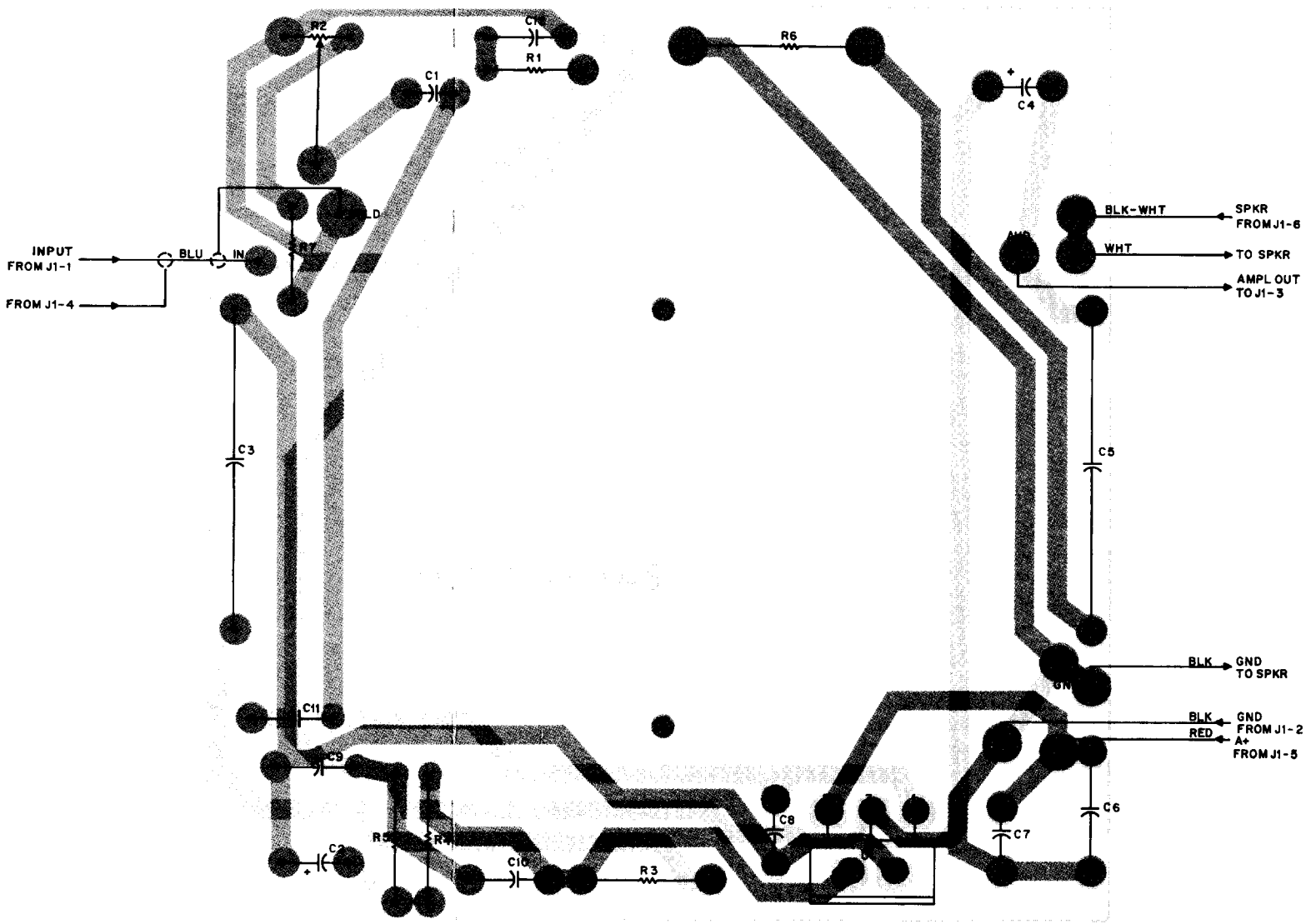
NOTES:

1. UNLESS OTHERWISE SPECIFIED:
    RESISTOR VALUES ARE IN OHMS
    CAPACITOR VALUES ARE IN MICROFARADS

2. JUMPER J1–3 TO J1–6 IS NORMALLY SUPPLIED
    AS PART OF CABLE KIT. JUMPER CAN BE
    REMOVED AND POWER AMPL USED TO
    DRIVE ANY 1.6 TO 4 OHM REMOTE SPEAKER.

SPEAKER/AMPLIFIER

4A

R2

C1

R1

R6

+
C4

D

BLK-WHT
SPKR
FROM J1-6

INPUT
FROM J1-1

BLU   IN

WHT
TO SPKR

FROM J1-4

AMPL OUT
TO J1-3

C3

C5

C11

BLK   GND
TO SPKR

C9

BLK   GND
FROM J1-2
RED   A+
FROM J1-5

R5   R4

C6

C2

C8

C7

C10

R 3

COMPONENT SIDE CEPS-26951-0
SOLDER SIDE   CEPS-26952-0
CEPS-26953-0

SHOWN FROM COMPONENT SIDE

4B

parts list

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
		unless otherwise stated
C1	23-84665F01	10 + 100-10%; 25 V
C2	23-84665F03	100 + 100-10%; 25 V
C3	8-852471	.047 ± 10%; 100 V
C4	23-84665F06	220 + 150-10%; 25 V
C5	8-847099	0.1 ± 20%; 150 V
C6	21-82372C01	0.1 + 80-20%; 25 V
C7	23-84665F03	100 + 100-10%; 25 V
C8	21-82213E12	.01 ± 20%; 100 V
C9	21-83596E10	220 pF ± 20%; 500 V
C10	21-82187B20	.001 ± 10%; 100 V
C11	21-83596E10	200 pF ± 20%; 100 V
C12	21-82428B59	.01 + 80-20%; 200 V
		resistor, fixed: ± 5%; 1/4 W:
		unless otherwise stated
R1	6-11041C73	2.2k ± 10%; 1/8 W
R2	18-84944C04	var. 500
R3	6-11009C17	47
R4	6-11009C35	270
R5	6-124B55	2.7
R6	6-11045B22	1; 1/2 W
R7	6-11041C59	560 ± 10%; 1/8 W
		integrated circuit: (see note)
U1	51-80065C04	type M6504
mechanical parts		
	29-84706E05	TERMINAL, pin; 6 used
	30-824273	CONDUCTOR, shielded; 8" used
	37-132562	TUBING, heat-shrink; 0.38" used
	42-10217A02	TIE-WRAP; 2 used

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
	15-84953L01	HOUSING, receptacle
	15-84954L01	HOUSING, plug
	29-84706E06	TERMINAL, socket; 6 used

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		fuse, cartridge
F1	65-817955	3A; 125 V; type 3AG
P1		**connector, plug**
		includes:
	15-84953L01	HOUSING, connector
	29-84706E06	TERMINAL; socket; 6 used
non-referenced items		
	14-82882A01	BODY, fuseholder
	14-82883A01	CAP, fuseholder
	41-82885A01	SPRING, fuseholder
	42-82884A01	CLIP, fuseholder; 2 used
	30-82335M01	CABLE, shielded; 360" used (HKN4151A), 180" used (HKN4149A), 600" used (HKN4152A) 96" used (HKN4150A)
	29-84706E05	TERMINAL, pin; 3 used
	30-10286A21	WIRE, #18 black; 2" used
	30-10286A23	WIRE, #18 red; 9.5" used

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
1	1-80724T25	HOUSING ASSEMBLY, rear includes: ref items #11, #13 and 15-84981B08 COVER, speaker
2	7-84568B02	BRACKET, trunnion
3	3-84244C01	SCREW, wing: 10-32x3/8"; 2 used
4	2-131435	NUT, hex; 4-40x1/4x3/32"
5	7-84707L01	BRACKET, hanger
6	3-1943	SCREW, machine; 4-40x5/16"
7	3-3360	SCREW, tapping; 6-20x1/2"; 2 used
8	7-84708L01	BRACKET, wall mounting
9	3-2941	SCREW, machine 6-32x1/4"; 2 used
10	13-82671M04	BEZEL, speaker front;
11	3-140001	SCREW, machine; 6-32x13/16"; 4 used
12	35-84709L01	GRILLE, cloth
13	42-10438A08	RING, retainer; 4 used
14	15-84954L01	HOUSING, plug; 6-contact
15	42-850861	RETAINER, cable
16	3-139047	SCREW, tapping; 4-40x5/16; 2 used
17	50-84561B03	SPEAKER, dynamic; 5"; 15 watts max.
18	33-82599D01	NAMEPLATE
19	3-136756	SCREW, tapping; 10-16x5/8";3 used
non-referenced items		
	3-84349K02	SCREW, security: 10-32x1/2"; 2 used
	4-139941	WASHER, security: 2 used
	66-84352K01	TOOL, security screw

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

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END OF DOCUMENT