

MOTOROLA

WEATHERPROOF "POWER-VOICE" SPEAKER

MODEL TSN6015A
TRANSISTORIZED 12 V DC



1. INTRODUCTION

The Model TSN6015A Weatherproof "Power-Voice" Speaker is a self-contained transformer coupled, push-pull, transistorized amplifier and speaker. It is designed for all high ambient noise and/or remote aural monitoring applications.

The TSN6015A is wired to operate in a 13.6 vdc mobile installation and is capable of 15 watts audio power output at less than 10% distortion.

This unit is designed to operate with "Motrac" receivers or equivalent. Enough power gain is developed from the push-pull transistor amplifier to produce 15 watts of audio output from a 1 watt input.

2. DESCRIPTION

The amplifier portion of the TSN6015A Weatherproof "Power-Voice" Speaker consists of

a driver transformer with a 3.2 ohm primary, two Motorola power transistors and an audio output transformer with a 3.2 ohm secondary. These components are mounted on an aluminum chassis which acts as a heat sink for the power transistors.

The 3.2 ohm 5" PM speaker is mounted to the removable bezel and grille assembly. The amplifier chassis is mounted over the speaker on 4 stand-off posts fastened to the bezel. The complete assembly is fastened to a steel housing by four screws.

The audio leads of the cable are terminated in black pin connectors. Because chassis ground polarity differs with the make of some vehicles, the power leads must be fitted with the proper termination at the time of installation. A pin connector and ground lugs are supplied for this purpose. A small adapter cable assembly for tapping off voltage from the control head is also supplied.

The hardware supplied for mounting the TSN6015A Weatherproof "Power-Voice" Speaker includes a unique bracket which permits mounting on a flat surface.

An optional kit (TK395) is available on separate order for adapting the flat surface mount to a steering column mount. This kit consists of a bracket cradle and adjustable clamp installed as shown on the accompanying installation detail.

3. PRE-INSTALLATION

Determine the chassis ground polarity of the vehicle in which the installation is to be made.



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5/16/69-UP

CAUTION

The red lead must always connect to positive (+) side of supply. Reversed polarity may result in damage to the unit. Audio input should not exceed 4.5 volts ac level at 1000 Hz.

4. INSTALLATION

Two installation procedures are given in the following paragraphs. Use the first procedure if you desire to mount the speaker to a horizontal surface such as the under side of a vehicle dashboard. Use the second procedure if you desire to mount the speaker to a vertical surface such as a vehicle firewall. For either type of speaker mounting, finish with the cable installation procedure.

Carefully study the installation detail to determine the type of mounting best suited for your application. Refer to the detail during installation.

NOTE

This speaker must be mounted with the "Motorola" nameplate right-side up and at the bottom, as shown in the accompanying speaker installation detail.

a. Horizontal Mounting

(1) Select a location within the vehicle for mounting the speaker. Make sure there are no obstructions on either side of the mounting surface and the installation will not interfere with the mechanical function of the vehicle or safety of the driver or passengers.

(2) If there is enough room on the mounting surface for four mounting holes, use the bracket (item 1) as a template and mark the mounting holes shown in the installation detail. If there is not enough room, use the slotted holes to provide at least two mounting centers.

(3) Center punch the mounting holes.

(4) Determine whether it is best to use the self-tapping screws (item 6) or the machine screws, with flatwashers, lockwashers, and nuts (item 2) for fastening the bracket to the mounting surface. Drill the mounting holes with a #32 twist drill if self-tapping screws are to be used. Drill 3/16-inch mounting holes if the machine screws are to be used.

(5) Fasten the bracket (item 1) to the mounting surface with the proper mounting hardware (item 2 or 6).

(6) Mount the speaker between the ears of the bracket (item 1) using the two wing screws (item 5) with a fiber washer (item 3) on each side between the speaker housing and the bracket ears.

(7) After positioning the speaker, tighten the wing screws (item 5).

b. Vertical Mounting

(1) Select the location for mounting the speaker. Make sure there are no obstructions on either side of the mounting surface and the installation will not interfere with the mechanical function of the vehicle or safety of the driver or passengers.

(2) Setting the bracket (item 1) in place, mark the location of the mounting hole (square hole in center of bracket).

(3) Center punch and drill a 9/32-inch mounting hole through the mounting surface.

(4) Mount the bracket (item 1) to the mounting surface with the carriage bolt (item 7), flat washer (item 8), lock washer (item 4), and nut (item 9). Make sure the bolt is properly seated and the bracket is in position, then securely tighten the nut.

(5) Mount the speaker between the ears of the bracket (item 1) using wing screws (item 5) with a fiber washer (item 3) on each side between the speaker housing and the bracket ears.

(6) After positioning the speaker, tighten the wing screws (item 5).

c. Cable Installation

(1) "Power-Voice Connections (Extended Control Console)"

A special grommet (with slot which accommodates additional wires) is supplied with the TSN6015A Speaker. This grommet is used when the TSN6015A Speaker is used with the T1170A Extended Control Console.

Replace the rubber grommet in the back cover plate of the Extended Control Console with the supplied slotted grommet. Insert the speaker

leads in the slot and connect the BLACK zip-cord leads to the "SPKR" pin terminal jacks on the extended control console terminal board.

(2) Negative Ground

(a) Connect the BLACK lead to the extended control console terminal board pin jack #31.

(b) Connect the RED lead to extended control console terminal board pin jack #30.

(3) Positive Ground

(a) Connect the RED lead to the extended control console terminal board pin jack #31.

(b) Connect the BLACK lead to the extended control console terminal board pin jack #30.

d. "Power-Voice" Connections (Transfer Head)

(1) Negative Ground

(a) Connect the BLACK "Power-Voice" zip-cord leads to the "SPKR" pin jacks on the transfer head terminal board.

(b) Cut the pin off the BLACK lead, attach a terminal lug, and ground the lug under one of the control head mounting screws.

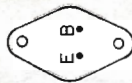
(c) Connect the RED lead to pin #33 on the control head terminal board.

(2) Positive Ground

(a) Connect the BLACK zip-cord leads of the "Power-Voice" speaker to the "SPKR" pin jacks on the transfer head terminal board.

(b) Cut the pin off the "Power-Voice" speaker RED lead, attach a terminal lug, and ground the lug under one of the control head mounting screws.

(c) Connect the BLACK lead to pin jack #33 on the control head.




BOTTOM VIEW
OF TRANSISTOR

63C81100E71-0

1V867986
ADAPTOR CABLE
ASSEMBLY

MODEL TABLE

MODEL	SUFFIX	DESCRIPTION
TSN6015A		WEATHERPROOF POWER VOICE SPEAKER(12 VOLT)

1. AMPLIFIER CHASSIS IS INSULATED FROM HOUSING.
2.  INDICATES CONNECTION TO AMPLIFIER CHASSIS.
3. REGARDLESS OF VEHICLE GROUND POLARITY:
 - A. THE BLK LEAD OF CABLE W1 MUST ALWAYS CONNECT TO NEGATIVE(-) SIDE OF BATTERY.
 - B. THE RED LEAD OF CABLE W1 MUST ALWAYS CONNECT TO POSITIVE(+) SIDE OF BATTERY.
4. WHEN BLK LEAD IS CONNECTED TO BRN TAP ON T1, INPUT LEVEL SHOULD NOT EXCEED 19V (1000CPS), WHEN CONNECTED TO RED LEAD IT SHOULD NOT EXCEED 4.5V (1000CPS).

Model TSN6015A Weatherproof
"Power-Voice" Speaker
Schematic Diagram
Motorola No. 63C81100E71-O
5/16/69-UP

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
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PARTS LIST

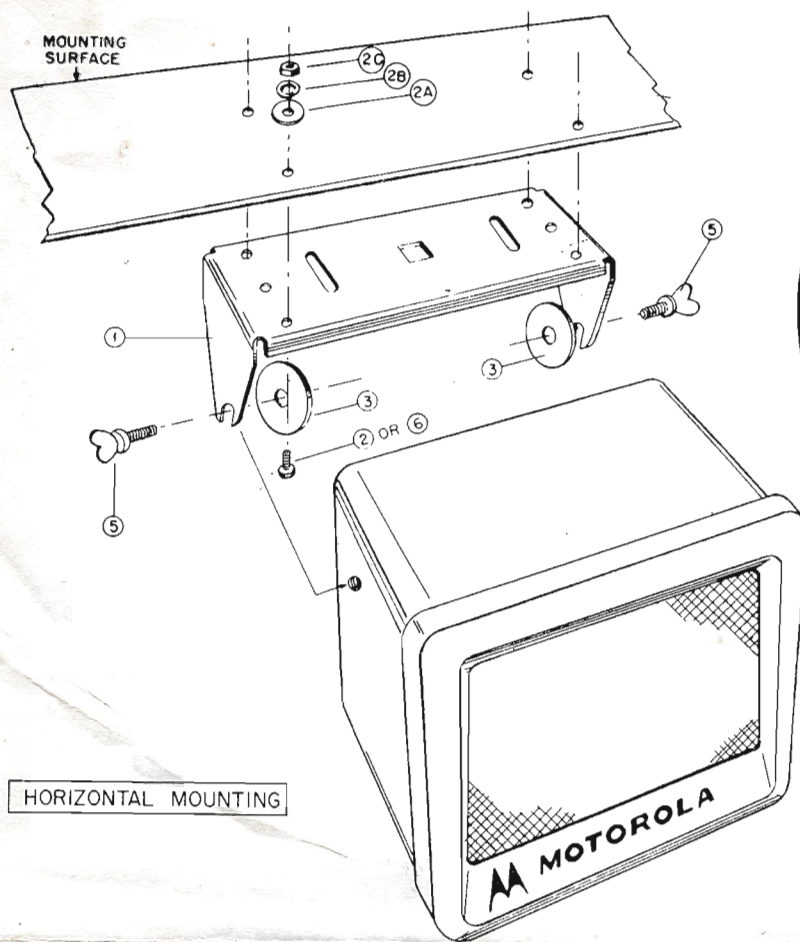
Model TSN6015A 12 V Transistorized
Weatherproof "Power-Voice" Speaker

PL-487-O

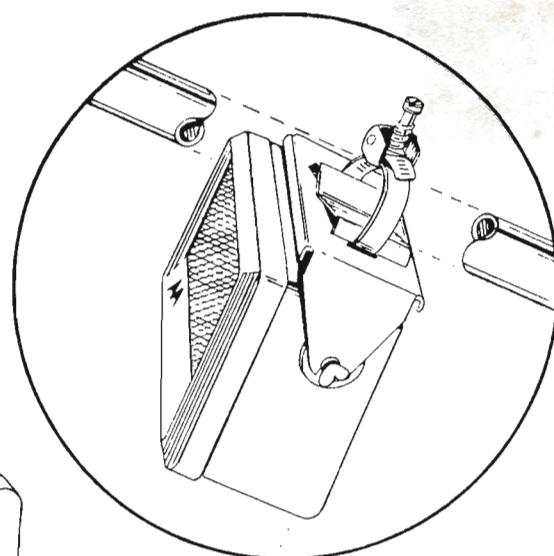
LS1	50K850633	<u>SPEAKER, magnetic:</u> 3.2 ohm impedance; 15 watts max; 5"; "pincushion" type
P1, 2	29A82072D01	<u>CONNECTOR, plug:</u> male; single cont; incl. BLK finger grip
Q1, 2	48R134619 or 48R134620	<u>TRANSISTOR: (SEE NOTE)</u> P-N-P; type 2N176 (RED) P-N-P; type 2N176 (GRN)
R1 R2 R3, 4	6R6254 17K892226 17K890467	<u>RESISTOR, fixed:</u> 330 $\pm 10\%$; 1 w 2.7 $\pm 5\%$; 1/2 w 0.33 $\pm 10\%$; 1/2 w
T1	25C867969	<u>TRANSFORMER:</u> pri: BLU, RED with BRN tap sec: GRN, GRN with BLK center tap
T2	25C850556	pri: BLU, BRN with RED center tap; sec: GRN, BLK with YEL tap
W1	1V80704B73	<u>CABLE ASSEMBLY, special purpose:</u> incl. P1, P2 and the following items: 30S10286A45 WIRE, electrical: single-cond; stranded; coded BLK; 12 ft. length req'd, 30S10286A47 WIRE electrical: single-cond; stranded; coded RED; 12 ft. length req'd, 30C83155H01 CABLE, power: 2-cond; each cond No. 18 ga; stranded ("zip cord"); 12 ft. length req'd, 29A82602D01 TERMINAL, cont: male; 2 req'd
XQ1, 2	9B851303	<u>SOCKET, transistor:</u> female; 2-cont
NON-REFERENCED ITEMS		
	13D83530E02 46A82930B01 32B82407B01 13C83053G01 35A849461 64B82406B01 32B82408B01 46A855273 15C82302H05 1V867986	BEZEL (front of housing) STUD, threaded: 6-32 x 1"; 4 req'd GASKET, grille: 2 req'd GRILLE CLOTH, grille PLATE, retainer GASKET, speaker STUD, amplifier mtg; 4 req'd HOUSING CONNECTOR ADAPTER ASS'Y: incl. 9K857509 CONNECTOR, female: 2 cont; 29K890404 CONNECTOR, plug: male; single-cont; coded No. 4

NOTE:

Replacement transistors must be ordered by Motorola part number only for optimum performance.

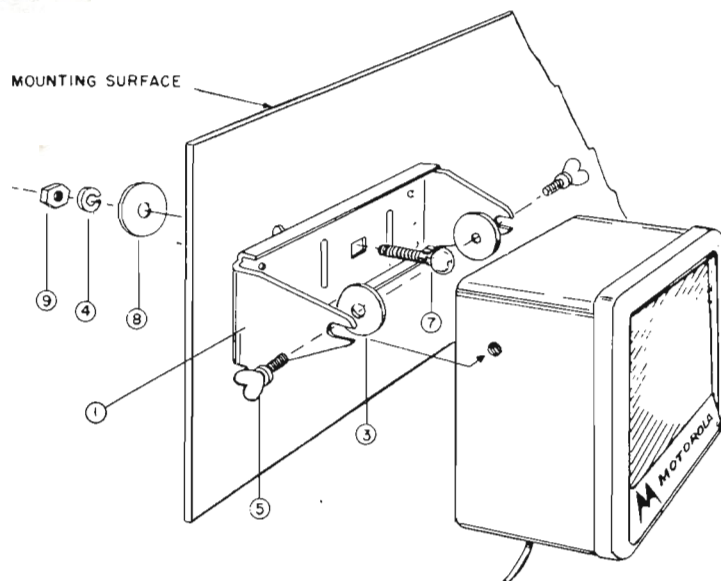


HORIZONTAL MOUNTING



TK395
STEERING COLUMN MOUNT ADAPTER KIT
(OPTIONAL)

CONSISTS OF
42K848308 CLAMP, ADJUSTABLE
7A847998 BRACKET, CRADLE



VERTICAL MOUNTING

DEPS-2224-0

HARDWARE

ITEM	QTY	PART NO.	DESCRIPTION
1	1	7B83368H02	BRACKET, SPEAKER MOUNTING
2	4	3S125496	SCREW, MACHINE (8-32 X 1")
2A	4	4S7629	WASHER, FLAT (1/2" X .188 X .048)
2B	4	4S9746	LOCKWASHER (8-32 X 5/16")
2C	4	2S1355	NUT (8-32 X 5/16")
3	2	4K847649	WASHER, FIBRE
4	1	4S119331	LOCKWASHER (1/4 SPLIT)
5	2	3A82278A01	SCREW, WING
6	4	3S8153	SCREW, SELF-TAPPING (8 X 5/4")
7	1	3S124070	BOLT, CARRIAGE (1/4-20 X 2 1/2")
8	1	4S122238	WASHER, FLAT (2-1/8 X .257 X .095)
9	1	2S119495	NUT (1/4-20 X 7/16" X 9/32")

Speaker Installation Detail
Motorola No. DEPS-2224-O
5/16/69-UP