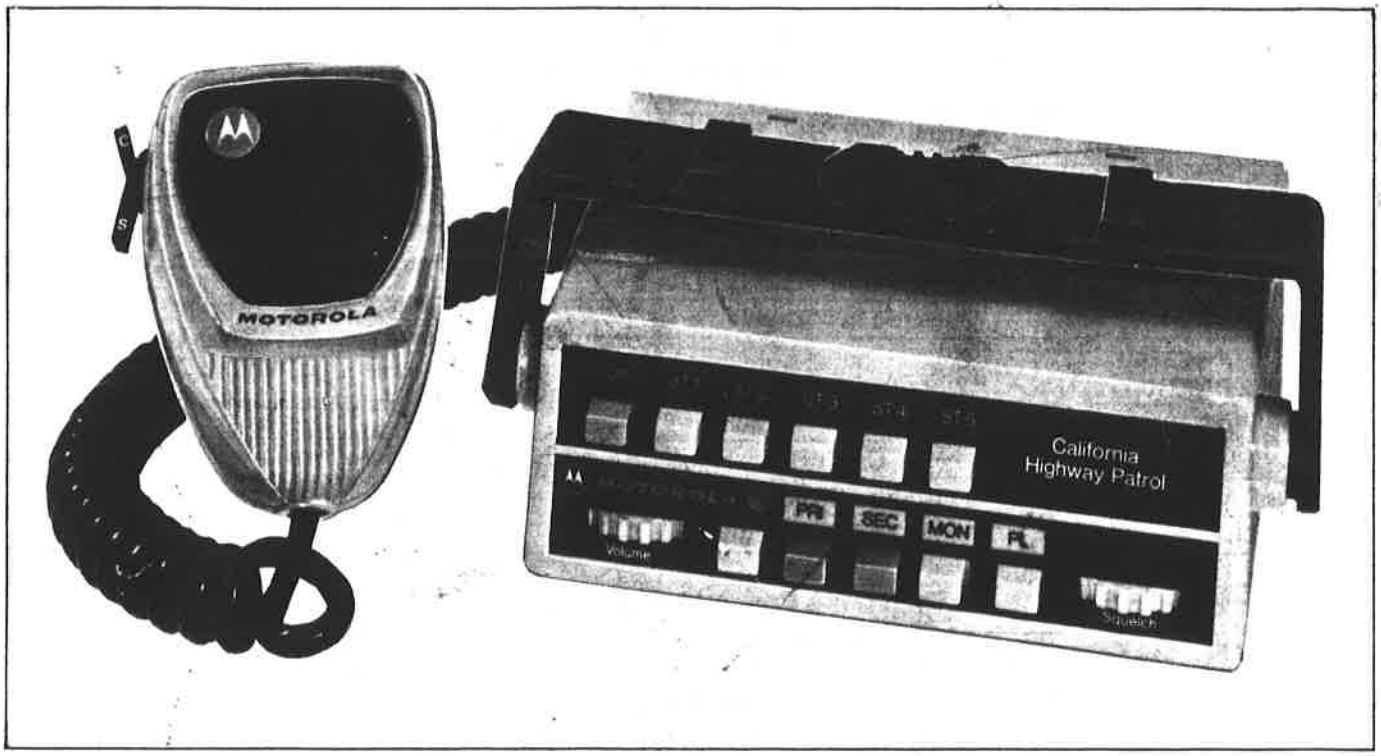
MOTOROLA

MICOR
DUAL RECEIVER MOBILE RADIO
42-50 MHz

Models X71RTA4413AK
And X71RTA4413AA

68P81034E45-A



SUPPLEMENT to Instruction Manual 68P81008E35

E45
C 11

California Highway Patrol
P.O. #00118 and 01399

MODEL CHART

X71RTA4413AK Dual Receiver Low Band Radio And Accessories

	X71RTA4413AA	Dual Receiver Low Band Radio*
	TKN6606A	Control Head Cable Kit
	TKN6456A	Radio Power Cable Kit
	TKN6458A	Cable and Fuse Kit
	TLN8845A	Noise Reduction Kit
	TLN4347A	Installation Kit
	TSN6016B	Speaker
	TMN6128A*	Microphone
	T1874A*	Control Unit

X71RTA4413AA Dual Receiver Low Band Radio*

	TLB1364A	Power Amplifier and Heat Sink
	TLB8164A	Exciter Board
(2)	TLB8354A*	"Extender" Receiver RF and IF Board
	TRN6791A*	Audio & Squelch Board
	TLN4290B	Audio Power Amplifier
	TRN6792B*	Control (Interface) Board
	TLN5983A*	Auxiliary Control Board
	TLN6911A*	Cable Kit for Auxiliary Control Board
	TLB6844A	Antenna Matching Board
	TLN4295A	Antenna Switch
	TRN6854A*	RF Coupler (2-Receiver)
	TLN5988A*	Low Band Hardware Kit
	TLN5731A	"Private-Line" Encoder Board
(2)	TLN4294B	"Private-Line" Decoder Board
	TLN6824A (KLN6210A)	"Vibrasender" Resonant Reed
(2)	TLN8381A	"Vibrasponder" Resonant Reed
	K1003A	Receiver Channel Element
	K1004A	Transmitter Channel Element
(1/5)	TLN4301A	Tuning Tool Kit

T1874A Control Unit*

	TCN1263A*	Alternate Control Module
	TLN1882A*	Single-Tone Encoder
	THN6125A	"Systems 90" Housing

TLN1882A Single-Tone Encoder*

	TRN6995A*	Monitor Tone Board
	TLN5987A*	Encoder Board
	TLN4535A*	Single-Tone Tuning Kit
	TKN6506A*	Cable Kit
	TLN5986A*	Hardware and Escutcheon Kit

Items indicated * are covered in this supplement. All other items are covered in the Low Band MICOR Mobile Radio instruction manual 68P81008E35.

MICOR

DUAL RECEIVER MOBILE RADIO

CONTENTS

MOTOROLA INC.
Communications Division

service publications
1301 E. Algonquin Road, Schaumburg, IL 60196

© Motorola, Inc. 1977

Printed in U.S.A.

68P81034E45-A
8/23/77-NPC

Section *Page*

DESCRIPTION AND INSTALLATION

1. INTRODUCTION

This MICOR Low Band Mobile Radio incorporates two receivers (main and auxiliary) with individual squelch controls, a common volume control, unique microphone and control head.

1.1 VOLUME AND SQUELCH CONTROL

The squelch control for the main receiver is on the control head. The squelch control for the auxiliary receiver is inside the mobile radio on the TLN5983A Auxiliary Control Board. The volume control on the control head adjusts the volume level of the speaker audio by controlling the voltage level on the common audio path of the two receivers.

1.2 MICROPHONE

A dual function PTT button is provided on the microphone to select one of two systems, the C and S system. These two systems are described in this supplement instruction manual. As the PTT button is pressed UP in the C direction the transmitter of the mobile radio is keyed on a frequency in the C system. As the PTT button is pressed DOWN in the S direction the transmitter of the mobile radio is keyed on a frequency in the S system. The control head provides all other functions necessary to complete the system.

1.3 CONTROL HEAD

1.3.1 ON/OFF, PRI and SEC Buttons

(Refer to the PL button description for additional details).

The On/Off button for the mobile radio is located under the RED transmit light. The On/Off, PRI (primary) and SEC (secondary) buttons are mechanically interlocked so that only one of the buttons can be engaged. Pressing the PRI button: (1) enables power to the radio, (2) enables the PRI main and auxiliary receivers, (3) brightly illuminates the PRI lamp above the PRI button, (4) enables the selection of either the C or S transmitter channels via the PTT button and (5) disengages the previously selected On/Off or SEC button and lowers the brightness of its associated lamp. Pressing the SEC button: (1) enables power to the radio, (2) enables the SEC main and auxiliary receivers, (3) brightly illuminates the SEC lamp above the SEC button, (4) enables the selection of either the C or S transmitter channels via the PTT button and (5) disengages the previously selected On/Off or PRI button and lowers the brightness of its associated lamp. Pressing the On/Off button: (1) disables power to the radio shutting it off, (2) extinguishes all the lamps on the control head and (3) disengages the previously selected PRI or SEC button. The PRI channels are "PL" squelched and the SEC channels are carrier squelched operations.

1.3.2 MON Button

(Refer to the chart shown in table 1 and the "PL" button description for additional details.)

When the MON button is engaged: (1) the auxiliary receiver audio is enabled and (2) the MON lamp above the MON button is brightly illuminated. When the MON button is disengaged: (1) the audio from the auxiliary receiver is muted and (2) the brightness of the MON button lamp is reduced to a lower level. The main receiver has priority over the auxiliary receiver. If, while receiving a message on the auxiliary receiver, a message is received by the main receiver, the auxiliary receiver is automatically muted since the main receiver has priority over the auxiliary receiver.

1.3.3 "PL" Button

(Refer to the chart shown in table 1)

The PL button is provided to allow this mobile radio to be compatible with PL systems. The PL function may be used or not used at any instant. Refer to the chart in table 1 for the desired mode of operation. When the PL and PRI buttons are engaged: (1) qualifying PL signals are decoded by the main receiver and (2) the PL lamp above the PL button is brightly illuminated. When the PL and SEC buttons are engaged: (1) the PL function is disabled and the mobile radio operates in the carrier squelch mode and (2) the PL lamp above the PL button is illuminated at the same level of brightness. When the PL button is disengaged: (1) the PL function is still disabled and (2) the brightness of the PL lamp above the "PL" button is reduced to a lower brightness.

1.3.4 TLN1882A Single-Tone Encoder

This single-tone encoder is a five-frequency SYSTEMS• 90 mobile single-tone encoder similar to the models described in the attached 68P81102E31 instruction manual. This unit has a strap selected tone duration of 0.4 or 1.0 seconds instead of 0.5 or 1.5 seconds as used with the models described in the attached 68P81102E31 instruction manual. In addition the output level specification is modified to provide a tone level of 15 mW at 1800 Hz ± 3 dBmeasured at the speaker leads.

1.4 CHANNEL SELECTION IN THE C AND S SYSTEM

1.4.1 Refer to the following channel selection scheme summarized in table 2 for various transmitting and receiving modes of operation. Refer also to the TCN1263A Alternate Control Module description for further information on the description of this system.

Table 1.
Conditions Required For Monitoring The Desired Auxiliary Receiver Audio

CONTROL UNIT MODE	PL SWITCH	AUXILIARY RECEIVER	MAIN RECEIVER
PRI Button Pressed	OFF	On-Frequency Carrier Squelch or "PL" Squelch Messages Present	No On-Frequency Messages Present (Main Receiver Squelched
PRI Button Pressed	ON	On-Frequency "PL" Squelch Message Present	No On-Frequency Messages Present (Main Receiver Squelched)
SEC Button Pressed	ON or OFF	On-Frequency Carrier Squelch or "PL" Squelch Messages Present	No On-Frequency Messages Present (Main Receiver Squelched)

NOTE
The SEC button voids all PL functions when engaged. If the PL and SEC buttons are engaged the receivers operate in the carrier squelch mode.

Table 2
Channel Selection Scheme

SWITCH POSITIONS PRESSED				MOBILE RADIO FREQUENCIES		
CONTROL HEAD		MICROPHONE PTT-BUTTON				MOBILE RADIO
PRI	SEC	S	C	TRANSMIT	RECEIVE	CHANNEL
X		X		T1	R1, Aux R1	F1
X			X	T2	R1, Aux R1	F2
	X	X		T3	R2, Aux R2	F3
	X		X	T4	R2, Aux R2	F4

Channel selection is described as follows:

- To receive information on R1 or Aux R1, the PRI button must be engaged. This condition causes the above PRI lamp to be brightly illuminated.
- To receive information on R2 or Aux R2, the SEC button must be engaged. This condition causes the above SEC lamp to be brightly illuminated.
- To transmit on T1 the PRI button must be engaged and the microphone PTT button pressed in the S direction.
- To transmit on T2 the PRI button must be engaged and the microphone PTT button pressed in the C direction.
- To transmit on T3 the SEC button must be engaged and the microphone PTT button pressed in the S direction.
- To transmit on T4 the SEC button must be engaged and the microphone PTT button pressed in the C direction.

1.4.2 In this MICOR mobile radio system the main receiver has priority over the auxiliary receiver. When the main receiver receives an audio signal, the main receiver is unsquelched. If audio is already being monitored by the auxiliary receiver when the main receiver is unsquelched, the auxiliary receiver audio will be muted, the main receiver will have priority and the main receiver audio is monitored.

2. MAJOR COMPONENTS

2.1 RADIO SET X71RTA4413AK

This MICOR mobile radio is similar to the radio set described in the attached standard instruction manual except for the addition of: (1) second receiver RF and IF board, (2) second PL decoder, (3) unique audio and squelch board, (4) auxiliary control board and cable, (5) two receiver coupler , (6) unique interface board and (7) a new hardware kit.

2.1.1 TLB8354A "Extender" Receiver RF and IF Board

This "Extender" Receiver RF and IF board is functionally similar to the TLB6860B Series "Extender" Receiver RF and IF board described in the attached instruction manual 68P81008E35. This Board has unique crystal IF filters. Minor changes were incorporated into this board by modifying the IF stages of the TLB6860B Series Board. These minor changes were incorporated to modify the IF stage for compatibility with the unique crystals used with this MICOR mobile radio system.

NOTE

The unique crystal IF filter must be replaced as a unit (five crystals total) if one of the crystals becomes defective. Refer to the schematic diagram and circuit board detail diagrams found in this supplement instruction manual for part numbers and schematic details.

2.1.2 TRN6791A Audio & Squelch Board

This board allows the main receiver audio and PL decoder output to be routed to the mixer and priority logic circuits respectively on the auxiliary control board. It also allows combined receiver audio to be returned to the audio amplifier. In all other respects this board operates in the same manner as the TRN6540A Audio and Squelch Board described in the standard instruction manual.

2.1.3 TRN6792A Control (Interface) Board

This board has been modified to provide interconnect pins for the TLN5983A auxiliary control board via the TKN6911A Cable Kit. Four bypass capacitors (.01 uF) have been added. The +9.6 V regulator is modified for use in the two receiver system. In all other respects the board is identical to the TLN4292B Control Board described in the standard manual.

2.1.4 TLN5983A Auxiliary Control Board (Refer to the schematic diagram)

This board provides the priority circuitry, audio buffers, squelch control, squelch circuitry, audio preamplifiers for the auxiliary receiver and mixer circuitry for the main and auxiliary receiver audio.

2.1.5 TRN6854A Two-Receiver Coupler

This unit allows two receivers to be connected to the same antenna. Refer to the attached instruction section 68P81108E32 for details.

2.1.6 TLN5986A Hardware Kit

This kit contains all the parts necessary for mounting the rear extension (bustle) to the rear of the main receiver chassis.

2.2 T1874A CONTROL UNIT

This control unit consists of a TCN1263A Alternate Control Module and a TLN1882A Single Tone Encoder mounted in a THN6125A SYSTEMS•90 Housing.

2.2.1 TCN1263A Alternate Control Module

This alternate control module is used with the TMN6128A switching microphone. They give the operator the capability of transmitting on two different transmitter frequencies at alternate times by the use of the switching microphone, and receiving on one common set of receiver frequencies. A built-in memory system composed of NAND gates is utilized to remember the last function used with the switching microphone.

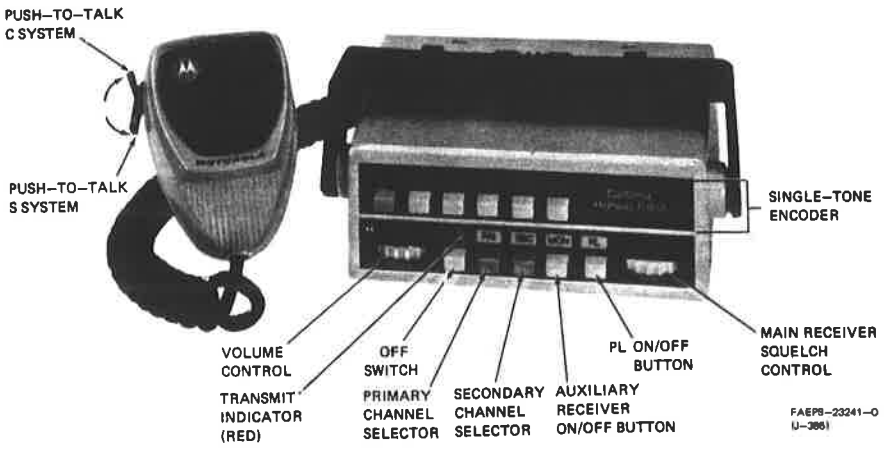
NOTE

The auxiliary receiver can be independently enabled by the MON button.

3. INSTALLATION

Complete installation instructions are packed in the shipping carton with the radio set. Install the radio set according to the instructions supplied.

OPERATION



1. EQUIPMENT TURN-ON/OFF

Step 1. Press both control head On/Off buttons to the off position.

Step 2. To turn on the MICOR SYSTEMS•90 Single-Tone encoder press any of the five single-tone (ST1-5) buttons.

Step 3. To turn on the MICOR mobile radio, press either the PRI or SEC button.

Step 4. To turn the control head and single tone encoder off, press both On/Off buttons in.

2. VOLUME AND SQUELCH CONTROL

Step 1. Rotate the squelch control fully to the left to unsquelch the radio.

Step 2. Adjust the volume control to the desired listening level.

Step 3. Rotate the squelch control slowly to the right so that the radio is squelched. Set this control just past the squelch threshold so that the radio is properly squelched.

NOTE

The squelch control should be set just past the unsquelching threshold so that the radio is not unsquelched by the noise level of the receiver channels. This squelch control is for the main receiver *only,* refer to the maintenance instruction section for instructions on setting the auxiliary squelch control. When the main receiver is unsquelched by a low noise level or a received transmission on the channel, any information being received by the auxiliary receiver will automatically be muted.

3. RECEPTION

NOTE

Press only the buttons that are specified in the following instructions. All other buttons should be disengaged.

3.1 PRI BUTTON OPERATION FOR R1 AND AUX R1

a. To receive carrier squelch transmissions on receiver channel R1 press the PRI button in.

b. To receive only PL transmission on receiver channel R1 press the PRI and PL buttons in.

c. To receive carrier squelch transmissions on receiver channels R1 or AUX R1 press the PRI and MON buttons in.

d. To receive PL transmissions on receiver channels R1 or AUX R1 press the PRI, MON and PL buttons in.

3.2 SEC BUTTON OPERATION FOR R2 AND AUX R2 (AUTOMATIC PL DISABLE)

a. To receive transmissions on receive channel R2 press the SEC button in.

b. To receive carrier squelch transmissions or receiver channels R2 and AUX R2 press the SEC and MON buttons in.

4. TRANSMISSION

4.1 SYSTEMS•90 SINGLE-TONE ENCODER

(Refer to the attached Single-Tone Encoder instruction section 68P81034E46 for further details)

4.2 TRANSMISSION ON CHANNELS T1-T4

4.2.1 Channel T1

To transmit on channel T1 press the PRI-button in and press the PTT button down to the S position.

4.2.2 CHANNEL T2

To transmit on channel T2 press the PRI button in and press the PTT button up to the C position.

4.2.3 Channel T3

To transmit on channel T3 press the SEC button in and press the PTT button down to the S position.

4.2.4 Channel T4

To transmit on channel T4 press the SEC button in and press the PTT button up to the C position.

THEORY OF OPERATION

1. INTRODUCTION

This Theory Of Operation section covers the boards and modules which are unique to this radio. All other boards and modules are described in the attached instruction sections and instruction manuals.

2. TLN5983A AUXILIARY CONTROL BOARD

(Refer to the Auxiliary Control Board diagrams found in this instruction section.)

2.1 The auxiliary control board receives the main receiver discriminator output from IC202-6 on the audio and squelch board. The discriminator output is routed through buffer transistor Q1 and mixer transistor Q3. The AUX control board receives the auxiliary receiver discriminator output from IC1002-6. This signal is passed through buffer transistor Q4 and fed into mixer transistor Q3. Buffer transistor Q2 receives the mixed audio and is connected to the volume control in the control head. The squelch control (R9) receives a signal from IC1001-2 and controls the input voltage to IC1002-15.

2.2 The priority logic of the main receiver is controlled by the auxiliary control board. The auxiliary receivers audio is muted whenever the main receiver is unsquelched. The transmit mute voltage enters the auxiliary control board on P3-2 and connects to IC-1002-11. The audio is muted when this line goes to a positive voltage. This positive voltage also mutes the main receivers audio in a similar manner. The auxiliary receiver MON button also mutes the auxiliary receiver audio. When the auxiliary receiver power switch is in the OFF position (push button switch on alternate control module disengaged) R30 and CR14 route a positive voltage to IC1002-11 which causes the audio to be muted. In the ON position (pushbutton switch engaged) a ground potential is applied to the function of R30 and CR14 unmutes the auxiliary receiver audio.

2.3 When the main receiver is squelched, the main receiver unsquelch indicator is positive. When the main receiver is in the carrier squelch mode and squelched Q7 turns ON and pulls the junction of R33 and CR15 low. This permits the auxiliary receivers audio to be supplied to the speaker. While the system is in the PL mode, the main receiver unsquelch indicator is grounded and the main receiver PL decoder switch output will be low unless the main receiver breaks squelch and the proper PL code is preset. When the main receiver PL decoder switch output is low, Q9 will be turned off and CR17 will route a positive voltage to Q7 and forward bias Q7. With Q7 forward biased the auxiliary receivers audio will be supplied to the speaker.

2.4 Potentiometer R22 adjusts the ratio of the volume level between main and auxiliary receiver by controlling the audio signal coupled to the base of mixer transistor Q3. The volume levels of the main and auxiliary receivers are set relatively equal.

3. TCN1263A ALTERNATE CONTROL MODULE

(Refer to the schematic diagram)

3.1 Depression of either the PRI or SEC button will activate the alternate control module. Depressing the MON button will provide a ground potential at J1102-1. The PL button will provide a switched ground at J1101-4, when the PL button is disengaged, J1101-4 is not grounded. If the SEC button is engaged the PL button is electrically disabled.

3.2 The circuit latch is composed of two NAND gates in IC1. When power is applied to the alternate control module, the latch goes into a random state. For example, IC1-3 high and IC1-6 low.

3.3 When the PRI button is engaged a high potential is supplied to IC2-10 & 12. Under this condition IC2-8 is low which activates a channel element in the radio. When the operator selects position C on the microphone, the state of the latch is reinforced. When the operator selects position S on the microphone, IC1-5 is grounded and the latch changes state. IC2-11 goes low and a different frequency is selected in the radio.

3.4 Operation when the SEC button is engaged is similar, but IC2 C & D are disabled and PL is automatically disabled.

3.5 When the C or S input to the alternate control module is grounded, Q1102 turns on which turns on transistors Q1103 and Q1104. Transistor Q1103 provides the PTT ground, while Q1104 provides a switched ground to J1101-5 for other use.

3.6 The voltage supply for the IC's and the PTT switches is provided by Q1101, CR1103, R~~1108~~ 1124 and R~~1109~~ 1125. These components represent a series regulator which supplies a 5 volt potential.

4. TRN6791A AUDIO & SQUELCH BOARD
(Refer to the Audio and Squelch Board diagrams found in this instruction section)

Circuit operation is essentially the same as for the standard TRN6540A Audio and Squelch Board described in the basic UHF MICOR radio set instruction manual except: (1) isolation diode CR220 is added in series with the "PL" On-Off line, and (2) two pins are added to the board. One pin is mounted at the output of IC202-6 to route the main receiver audio signals to the mixer circuitry located on the auxiliary control board. The second pin is added to IC202-8 to route the main receiver "PL" decoder output to the priority logic circuitry located on the auxiliary control board. The main receivers audio signals are fed directly to the auxiliary control board. The input of IC201-6 now receives the combined audio signal from the volume control.

5. TRN6792A CONTROL (INTERCONNECT) BOARD
(Refer to the Control (Interconnect) Board diagrams found in this instruction section)

In general, the main receiver control (interconnect) board operates in the same manner and performs the same functions as the TLN4292B control (interconnect) board described in the basic radio set instruction manual. This board interfaces with the TLN5983A auxiliary control board described in the instruction manual 68P81008E35. The TKN6911A cable kit interfaces the boards together. Inductor L1000 and diode CR1000 are added to the switched +9.6 volt line to provide transient suppression.

6. TKN6911A CABLE KIT
(Refer to the Cable Connection Wiring Table in this Supplementary Instruction Manual for cabling information)

The TKN6911A cable kit is a unique interconnect cable kit. It provides an interface between the TLN5983A auxiliary control board and the radio set. This cable also has connections to the TRN6792A Interface Board, TRN6791A Audio and Squelch Board and Front Plug Connector P901.

7. TLN5988A HARDWARE KIT

This hardware kit contains all the parts needed to mount a rear bustle package to the radio set.

MAINTENANCE AND ADJUSTMENTS

1. AUXILIARY SQUELCH CONTROL

The auxiliary squelch control is located inside the radio on the TLN5983A Auxiliary Control Board. Refer to the auxiliary control board for schematic and circuit board details.

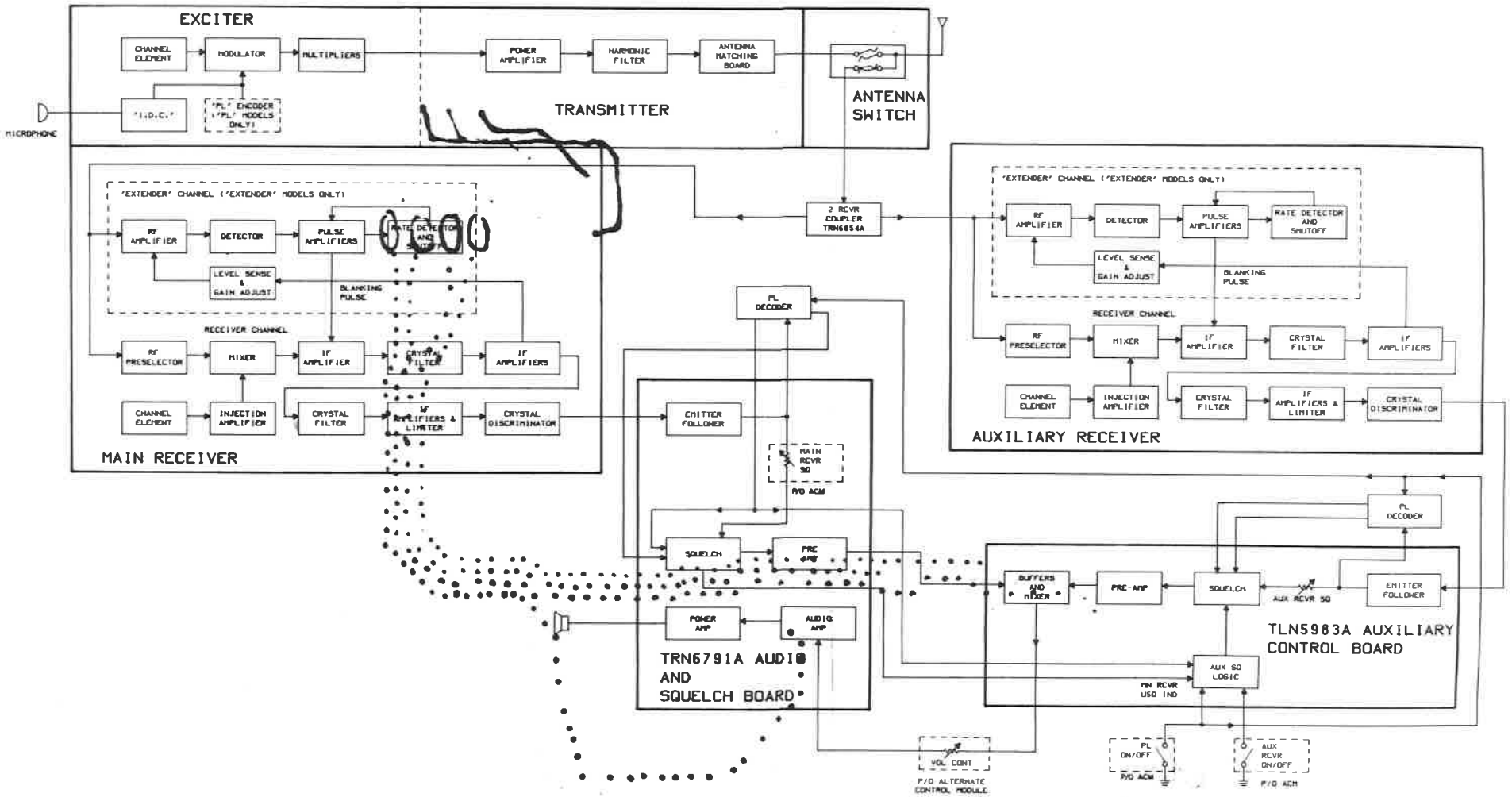
Step 1. Remove the top cover of the MICOR mobile radio as described in the instruction manual 68P81008E35.

Step 2. Locate the auxiliary squelch control potentiometer (R9) on the TLN5983A Auxiliary Squelch Control Board using the schematic diagram and circuit board detail in this supplement instruction manual.

Step 3. Adjust the auxiliary squelch control potentiometer (R9) to the desired squelch level.

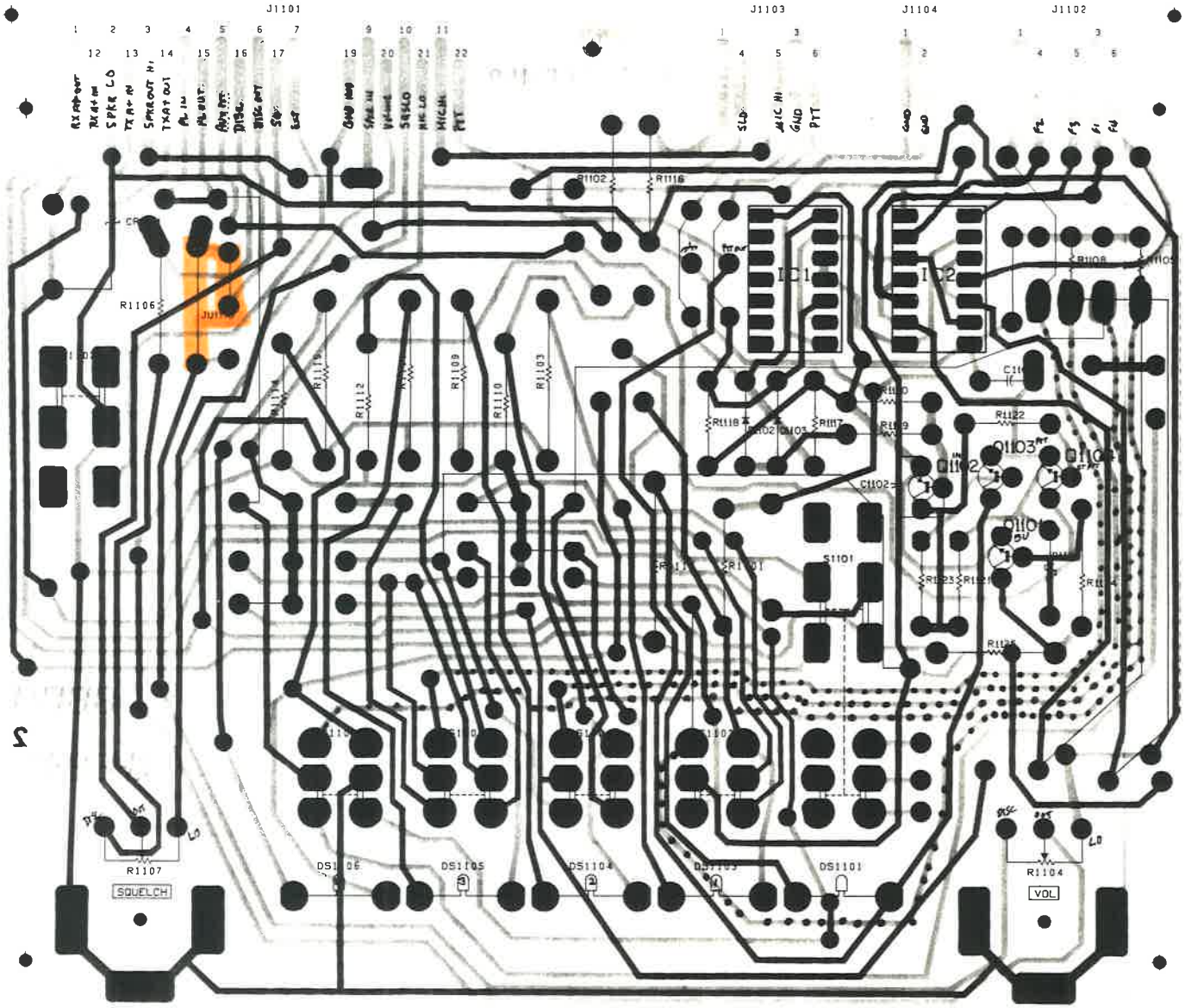
NOTE
A typical setting of the auxiliary squelch control is 12 dB quieting. The factory sets the auxiliary squelch control to threshold.

Step 4. Place the top cover of the MICOR mobile radio back in its proper place as described in the instruction manual 68P81008E35.



DEPS-23017-O

Dual Receiver Radio
Functional Block Diagram
Motorola No. DEPS-23017-O
2/17/77-PO



COMPONENT SIDE ● BD-DEPS-23035-O
SOLDER SIDE BD-DEPS-23034-O
OL-DEPS-23033-A

* MOUNTED ON SOLDER SIDE OF BOARD

SHOWN FROM SOLDER SIDE

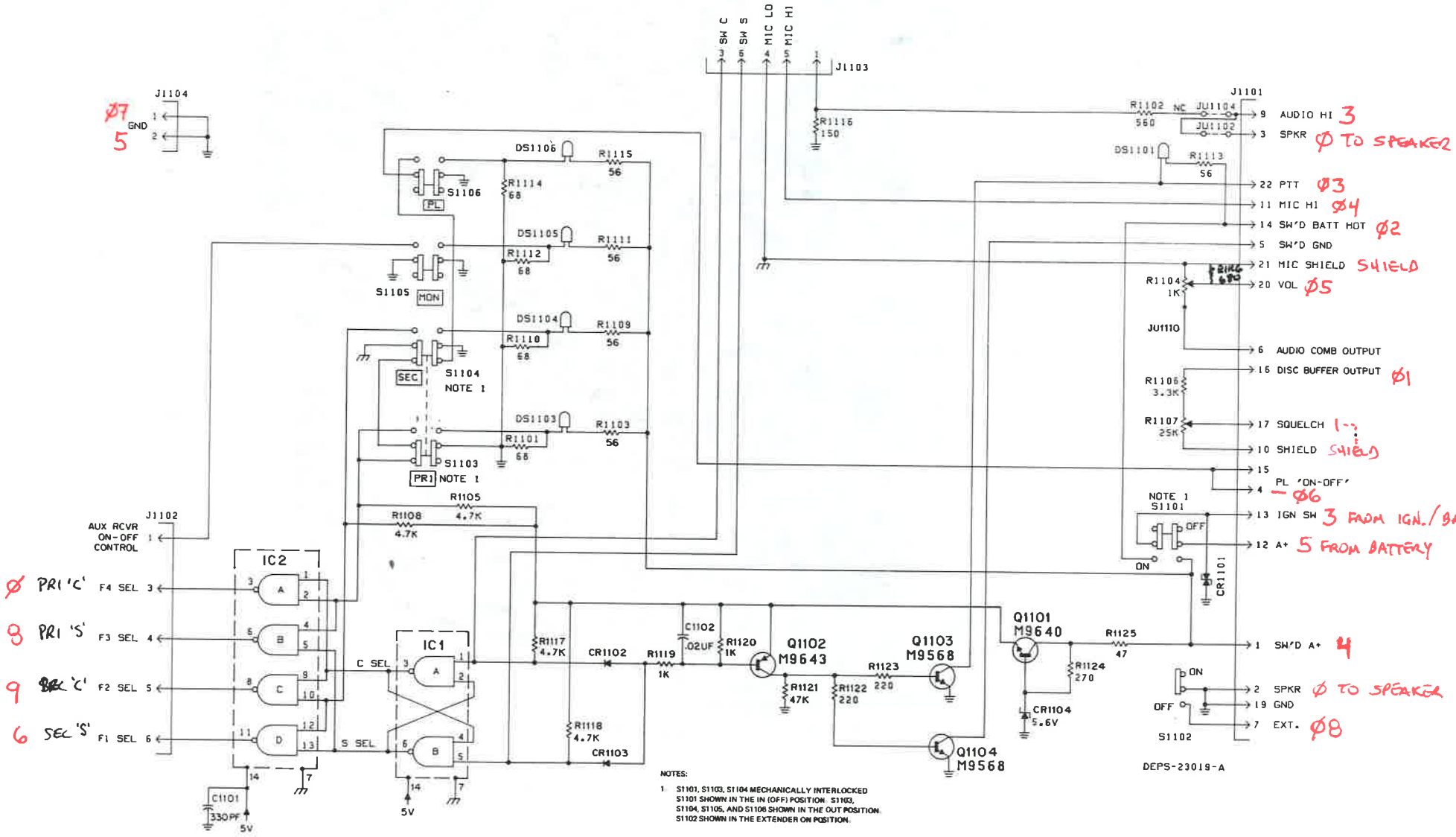
TCN1263A Alternate Control Board
Circuit Board Detail
Motorola No. PEPS-23654-A
(Sheet 1 of 2)
8/23/77-NPC

PARTS LIST

TLN5984A Alternate Control — PL-5371-O

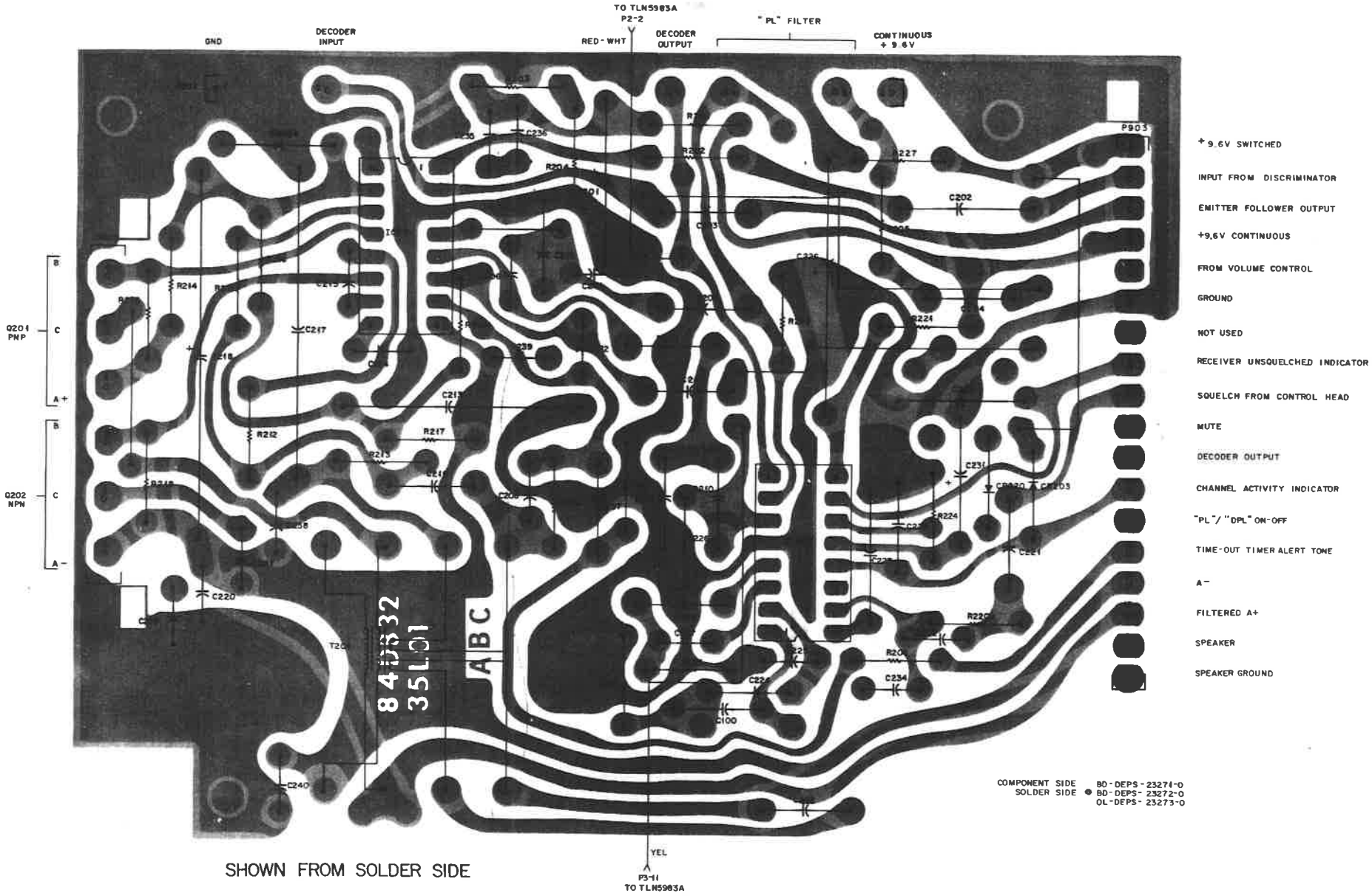
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		CAPACITOR, fixed:
C1101	21-82428B10	330 pF ±10%; 100 V
C1102	21-82428B18	.02 uF +60-40%; 100 V
		DIODE: (SEE NOTE)
CR1101	48-83461E45	Zener; 25 V
CR1102, 1103	48-83654H01	silicon
CR1104	48-82256C12	Zener; 5.6 V
		LAMP ASSEMBLY:
DS1101	65-84047E01	14 V
DS1102		NOT USED
DS1103 thru 1106	65-84047E01	14 V
		TRANSISTOR: (SEE NOTE)
Q1101	48-869640	NPN; type M9640
Q1102	48-869643	PNP; type M9643
Q1103, 1104	48-869568	NPN; type M9568
		RESISTOR, fixed: ±10%; 1/2 W unless otherwise stated
R1101	6-125C21	68
R1102	6-125A43	560 ±5%
R1103	6-126C19	56; 1 W
R1104	18-82238D27	variable; 1k ±30%
R1105	6-124C65	4.7k; 1/4 W
R1106	6-125A61	3.3k ±5%
R1107	18-82238D23	variable; 25k ±30%
R1108	6-124C65	4.7k; 1/4 W
R1109	6-126C19	56; 1 W
R1110	6-125C21	68
R1111	6-126C19	56; 1 W
R1112	6-125C21	68
R1113	6-126C19	56; 1 W
R1114	6-125C21	68
R1115	6-126C19	56; 1 W
R1116	6-125C29	150
R1117, 1118	6-124C65	4.7k; 1/4 W
R1119, 1120	6-124C49	1k; 1/4 W
R1121	6-124C89	47k; 1/4 W
R1122, 1123	6-124C33	220; 1/4 W
R1124	6-125C35	270
R1125	6-125C17	47
		SWITCH:
S1101, 1103, 1104, 1105	40-84324C38	pushbutton
S1102	40-84535C01	slide; dpdt
		INTEGRATED CIRCUIT: (SEE NOTE)
IC1	51-84084D01	7400
IC2	51-84084D21	7426
	NON-REFERENCED ITEMS	
	2-10101A68	NUT, spring; 2 used
	14-84360C01	INSULATOR, switch; 5 used
	36-84900C01	KNOB, control; 2 used

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



TCN1263A Alternate Control Board
Schematic Diagram
Motorola No. PEPS-23654-A
(Sheet 2 of 2)
8/23/77-NPC

ALTERNATE CONTROL BOARD



TRN6791A Audio & Squelch Board
Circuit Board Detail
Motorola No. PEPS-23270-A
(Sheet 1 of 2)
8/23/77-NPC

REFERENCE SYMBOL	MOTOROLA PART NO	DESCRIPTION

PARTS LIST

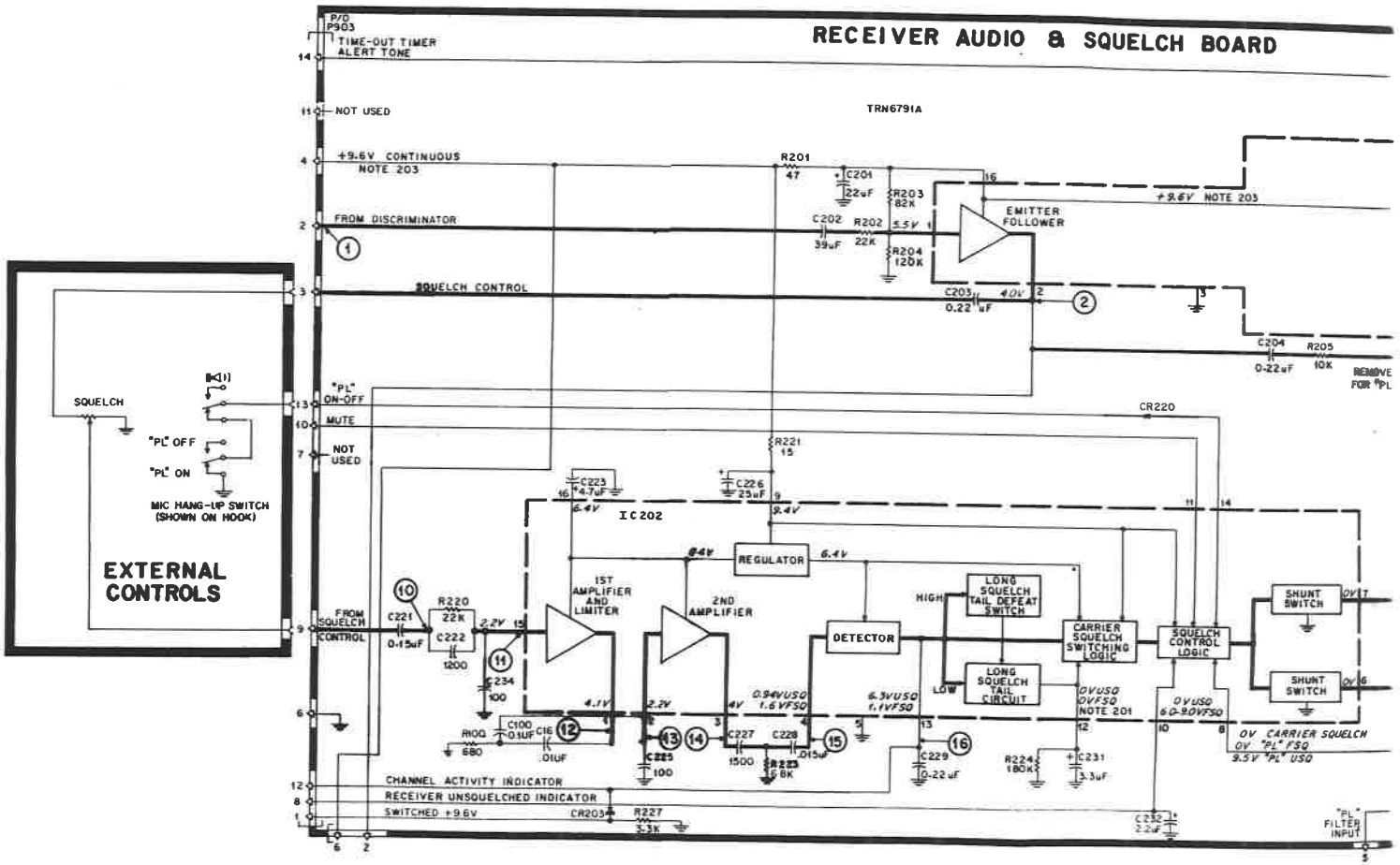
AUDIO & SQUELCH

TRN6791A Audio & Squelch Board PL-5369-A

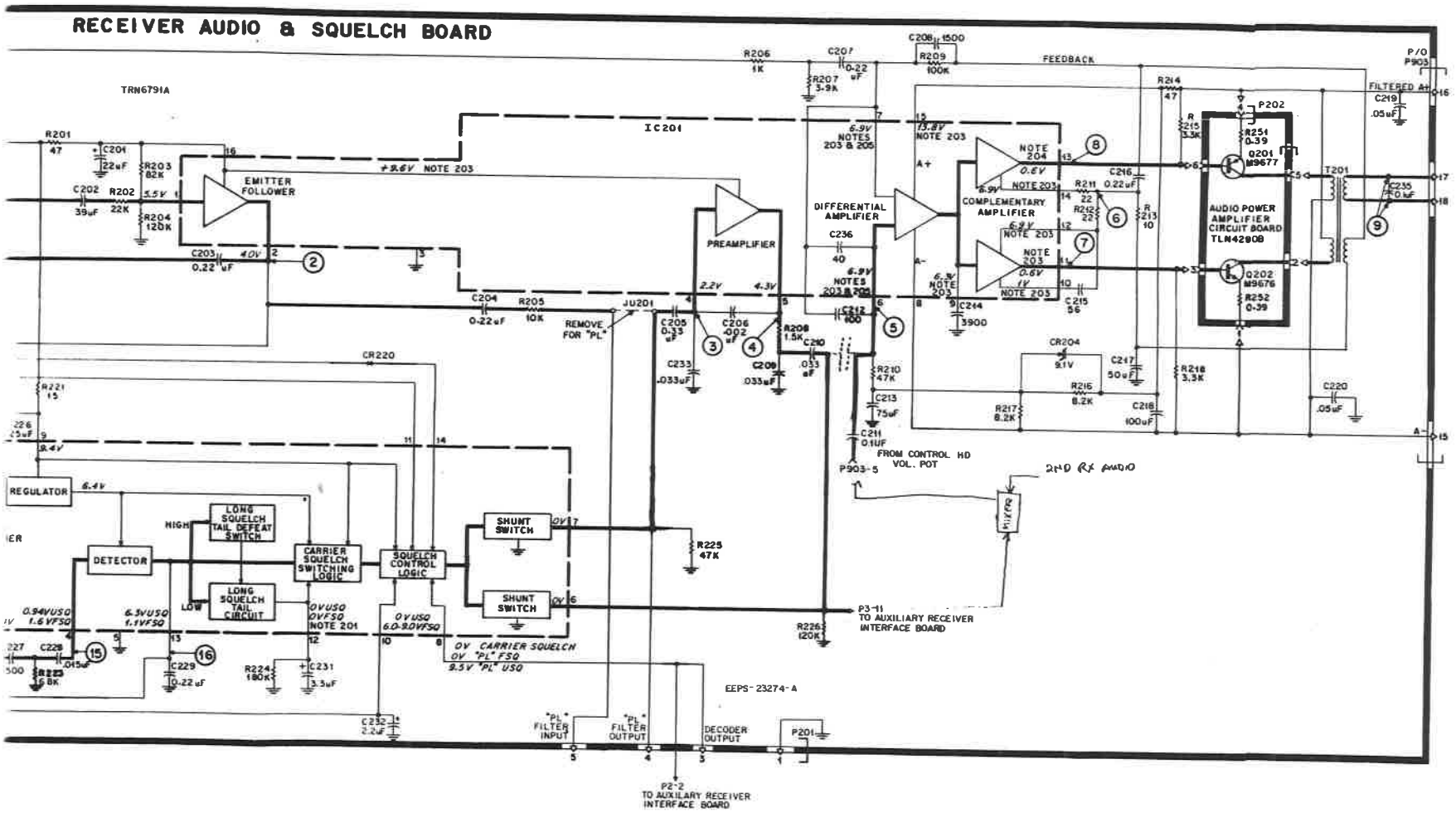
		CAPACITOR, fixed: uF; ±10%; 100 V; unless otherwise stated
C201	23D84762H10	22 ±20%; 15 V
C202	23D82783B36	39 ±10%; 10 V
C203	8D83813H11	0.22; 75 V
C204	8D83813H11	0.22; 75 V
C205	8D83813H29	0.33; 50 V
C206	21D82187B27	.002
C207	8D83813H11	0.22; 75 V
C208	21C82187B31	.0015; 100 V
C209, 210	8D83813H09	.033
C211	8D83813H06	0.1
C212	21D84426B06	100 pF ±5%; 500 V
C213	23D84081B03	75 ±10%; 15 V; NP
C214	21D82187B43	.0039; 200 V
C215	21D83406D46	56 pF ±5%; N150
C216	8D82905G32	0.22; 50 V
C217	23D84081B01	50 +100-10%; 25 V; NP
C218	23D83210A08	100 +150-10%; 25 V
C219	21C82372C04	.05 +80-20%; 25 V
C220	21C82372C04	.05 +80-20%; 25 V
C221	8D83813H07	0.15; 75 V
C222	21-82537G55	1200 pF ±1%; 100 V
C223	23D84762H07	4.7 ±20%; 10 V
C224	21D84493B05	1000 pF; N2200
C225	21D84426B06	100 pF ±5%; 500 V
C226	23D83210A01	25 +150-10%; 25 V
C227	21D84426B63	1500 pF
C228	8D83813H32	.015
C229	8D83813H11	0.22; 75 V
C230		NOT USED
C231	23D84762H17	3.3 ±20%; 15 V
C232	23D84762H04	2.2 ±20%; 25 V
C233	8D83813H09	.033
C234	21D82610C58	100 pF ±10%; 100 V; N750
C235	08-82905G30	0.1 uF; 50 V
C16	08-83813H28	.01 uF; ±10%; 100 V
C100	08-82905G30	.1 uF; 50 V
		SEMICONDUCTOR DEVICE, diode:
CR201, 202		NOT USED
CR203, 220	48C83654H01	silicon
CR204	48D82256C38	silicon; Zener type 9.1 V ±0.45 V
		INTEGRATED CIRCUIT:
IC201	51R84267A08	type M6708
IC202	51R84267F50	type M6709
		RESISTOR, fixed: ±5%; 1/4 W; unless otherwise stated
R201	6S129233	47 ±10%
R202	6S127802	1k ±10%
R203	6S124A95	82k
R204	6S131446	120k
R205	6S129668	10k
R206	6S127802	1k ±10%
R207	6S129819	3.9k
R208	6S00124A53	1.5k
R209	6S129226	100k ±10%
R210	6S131527	47k
R211	6S124A09	22
R212	6S124A09	22
R213	6S129755	10 ±10%
R214	6S129233	47 ±10%
R215	6S129981	3.3k
R216	6S129983	8.2k
R217	6S129983	8.2k
218	6S129981	3.3k
220	6S129667	22k
R221	6S131377	15 ±10%
R222		NOT USED
R223	0600124A69	6.8k
R224	6S129229	180k ±10%
R225	6S128902	47k ±10%
R226	6S128987	120k ±10%

REFERENCE SYMBOL	MOTOROLA PART NO	DESCRIPTION

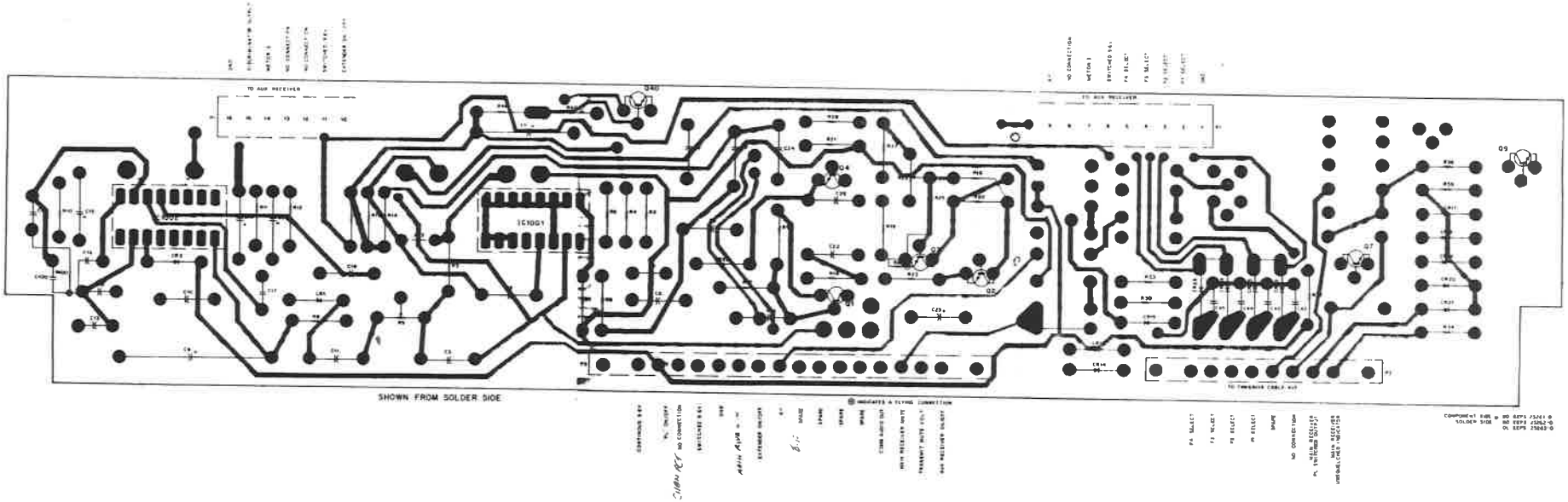
R227	6S129231	3.3k ±10%
R100	600124A45	680
		TRANSFORMER, AF:
T201	25D84083B02	audio output



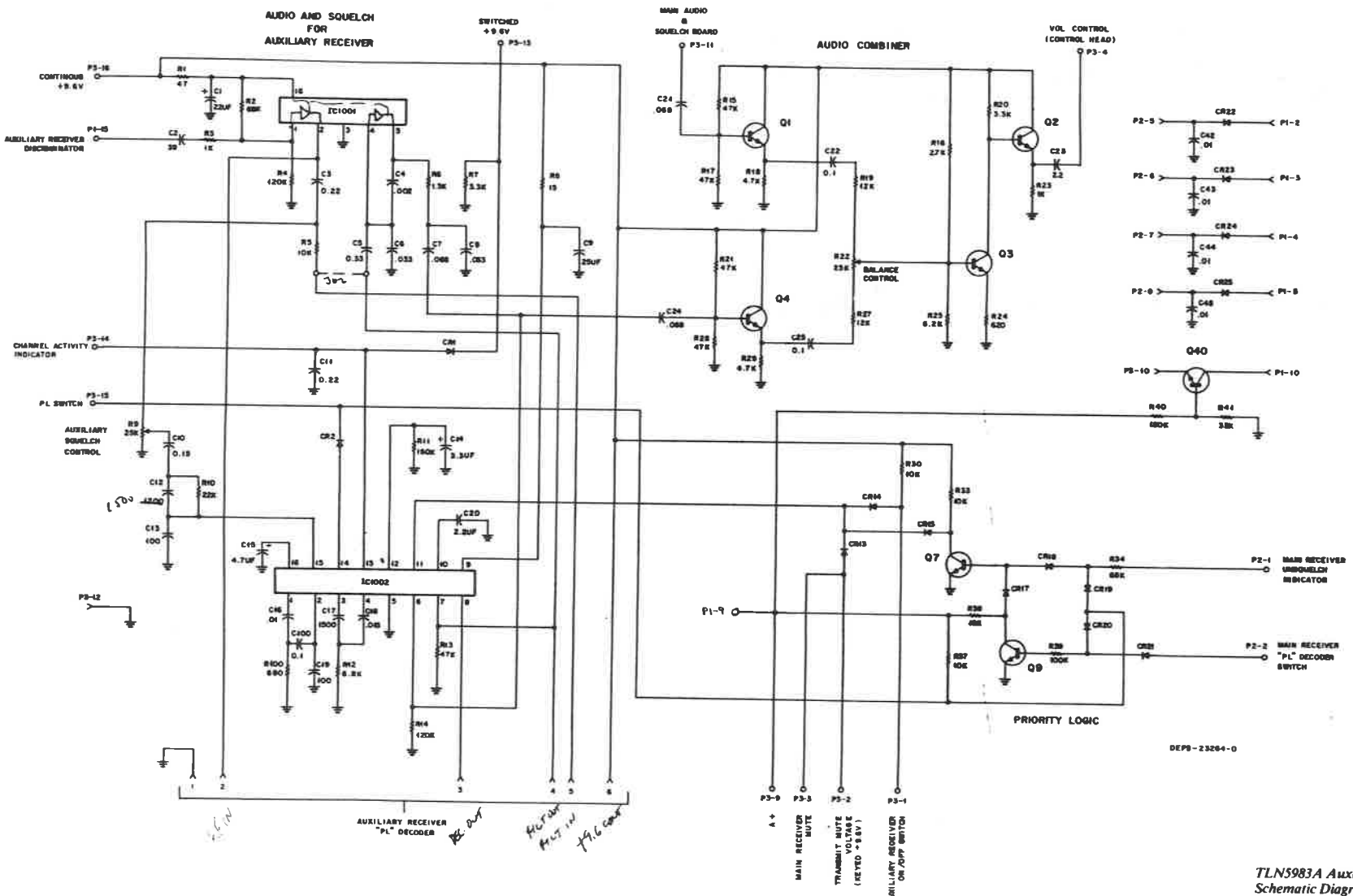
Auxiliary Control Board
Serial
EPS-23260-A



TRN6791A Audio & Squelch Board
Schematic Diagram
Motorola No. PEPS-23270-A
(Sheet 2 of 2)
8/23/77-NPC



TLN5983A Auxiliary Control Board
Circuit Board Detail
Motorola No. PEPS 23260-A
(Sheet 1 of 2)
8/23/77-NPC



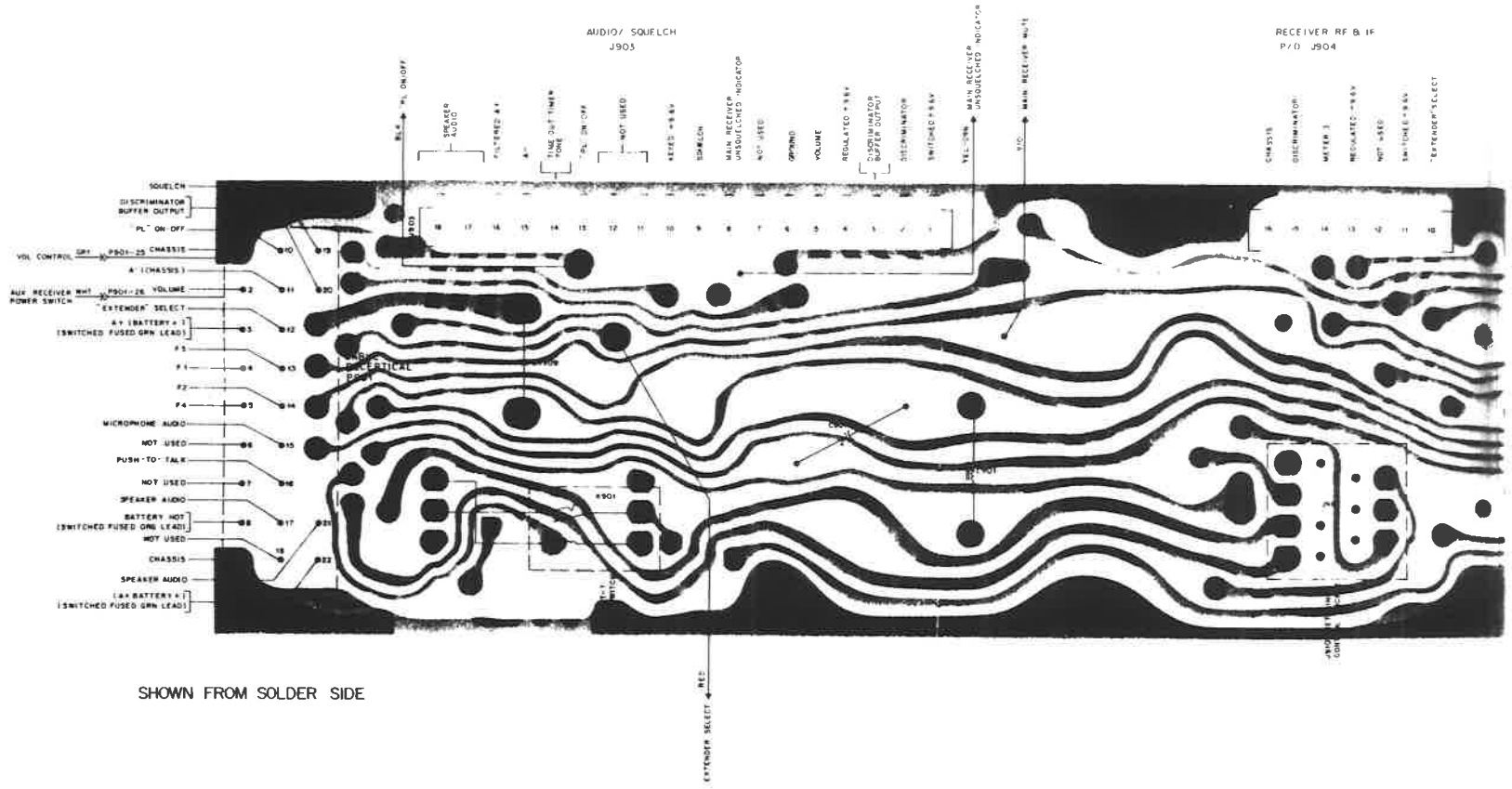
TLN5983A Auxiliary Control Board
Schematic Diagram
Motorola No. PEPS-23260-A
(Sheet 2 of 2)
8/23/77-NPC

PARTS LIST

TLN5983A Auxiliary Control Board PL-5370-A

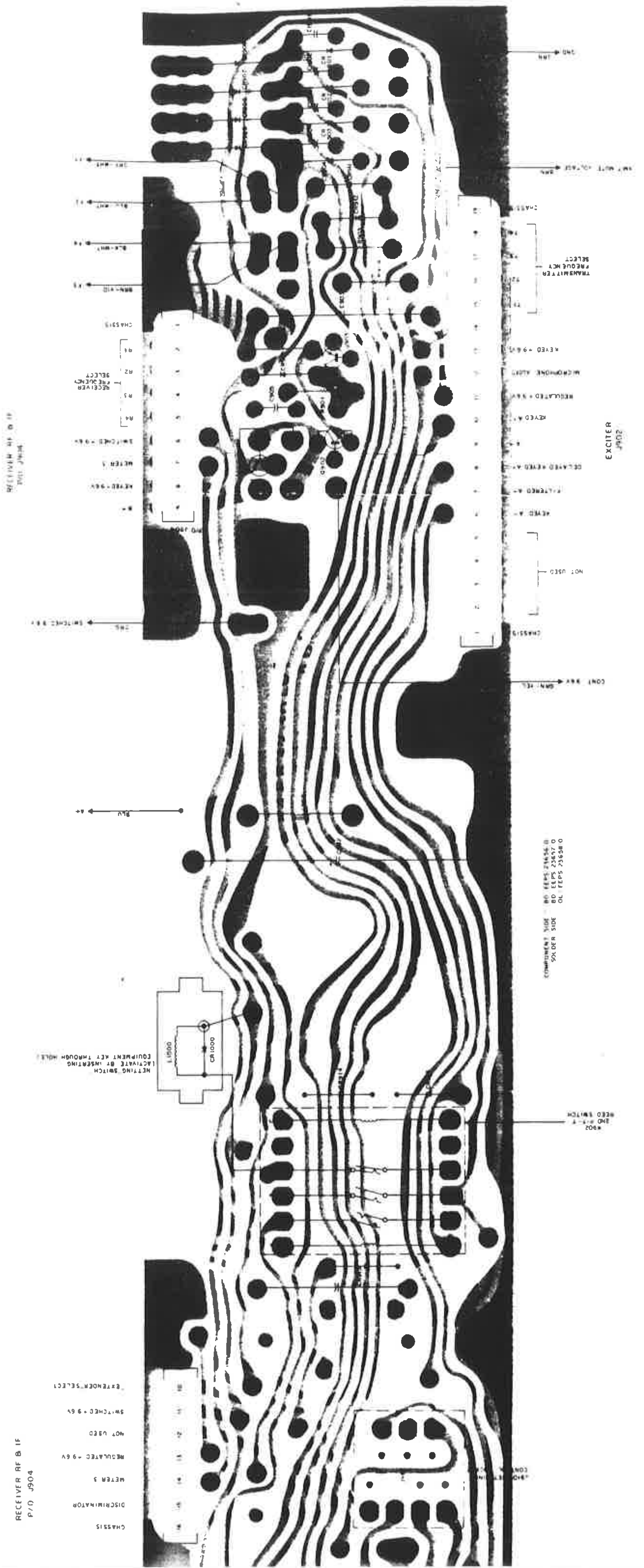
REFERENCE SYMBOL	MOTOROLA PART NO	DESCRIPTION
		CAPACITOR, fixed: uF ±10%; 50 V unless otherwise stated
C1	23-84762H10	22 ±20%; 15 V
C2	23-82783B36	39; 10 V
C3	8-83813H11	0.22; 75 V
C4	21-82187B27	.002; 100 V
C5	8-83813H29	0.33
C6	8-83813H09	.033; 100 V
C7	8-82905G04	.068
C8	8-83813H09	.033; 100 V
C9	23-83210A01	25 +150-10%; 25 V
C10	8-83813H07	.15; 75 V
C11	8-83813H11	0.22; 75 V
C12	21-82187B33	1200 pF ±20%; 200 V
C13	21-82610C58	100 pF; 100 V
C14	23-84762H17	3.3 ±20%; 15 V
C15	23-84762H07	4.7 ±20%; 10 V
C16	21-832501	.01 +60-40%; 250 V
C17	21-84426B63	1500 pF ±5%; 100 V
C18	8-83813H32	.015; 100 V
C19	21-84426B06	100 pF ±5%; 500 V
C20	23-84762H04	2.2 ±20%; 25 V
C21	8-82905G04	.068
C22	8-82905G07	0.1
C23	23-82783B16	2.2; 15 V
C24	8-82905G04	.068
C25	8-82905G07	0.1
C26 thru 41		NOT USED
C42 thru 45	21-832501	.01 +60-40%; 250 V
C46 thru 99		NOT USED
C100	8-82905G07	0.1
		DIODE: (SEE NOTE)
CR1, 2, 13, 14, 15, 17 thru 25	48-83654H01	silicon
		TRANSISTOR: (SEE NOTE)
Q1 thru 9	48-869642	NPN; type M9642
		RESISTOR, fixed: ±10%; 1/4 W unless otherwise stated
R1	6-124C17	47
R2	6-124A93	68k ±5%
R3	6-124C49	1k
R4	6-124A99	120k ±5%
R5	6-124A73	10k ±5%
R6	6-124A53	1.5k ±5%
R7	6-124C61	3.3k
R8	6-124C05	15
R9	18-83083G16	variable; 25k ±30%
R10	6-124A81	22k ±5%
R11	6-124D02	150k
R12	6-124C69	6.8k
R13	6-124C89	47k
R14	6-124C99	120k
R15	6-124C89	47k
R16	6-124A83	27k ±5%
R17	6-124A89	47k
R18	6-124C65	4.7k
R19	6-124C75	12k
R20	6-124C61	3.3k
R21	6-124C89	47k
R22	18-83083G16	variable; 25k ±30%
R23	6-124C49	1k
R24	6-124C45	620
R25	6-124A38	6.2k ±5%
R26		NOT USED
R27	6-124C75	12k
R28	6-124C89	47k
R29	6-124C65	4.7k
R30	6-124C73	10k
R31, 32		NOT USED
R33	6-124C73	4.7k
R34	6-124C93	68k
R35, 36		NOT USED
R37	6-124C73	10k
R38	6-124C79	18k
R39	6-124C97	100k
R40	6-124D04	180k
R41	6-124C85	33k
R42 thru 99		NOT USED
R100	6-124C45	680
		INTEGRATED CIRCUIT: (SEE NOTE)
IC1001	51-84267A08	SC6708
IC1002	51-84267A09	SC6709

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



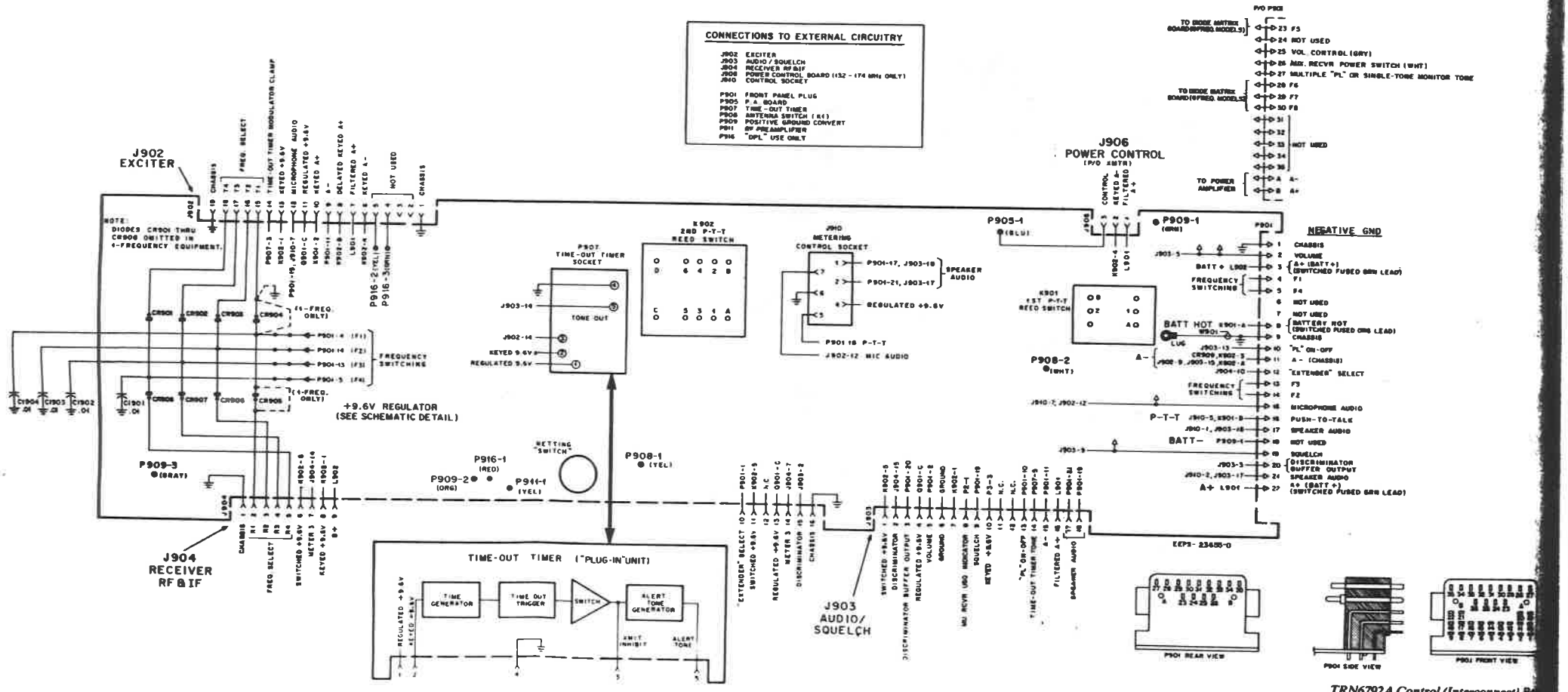
SHOWN FROM SOLDER SIDE

TRN6792A Control (Interface) Board
Circuit Board Detail
Motorola No. PEPS-23659-O
(Sheet 1 of 2)
2/17/77-PO

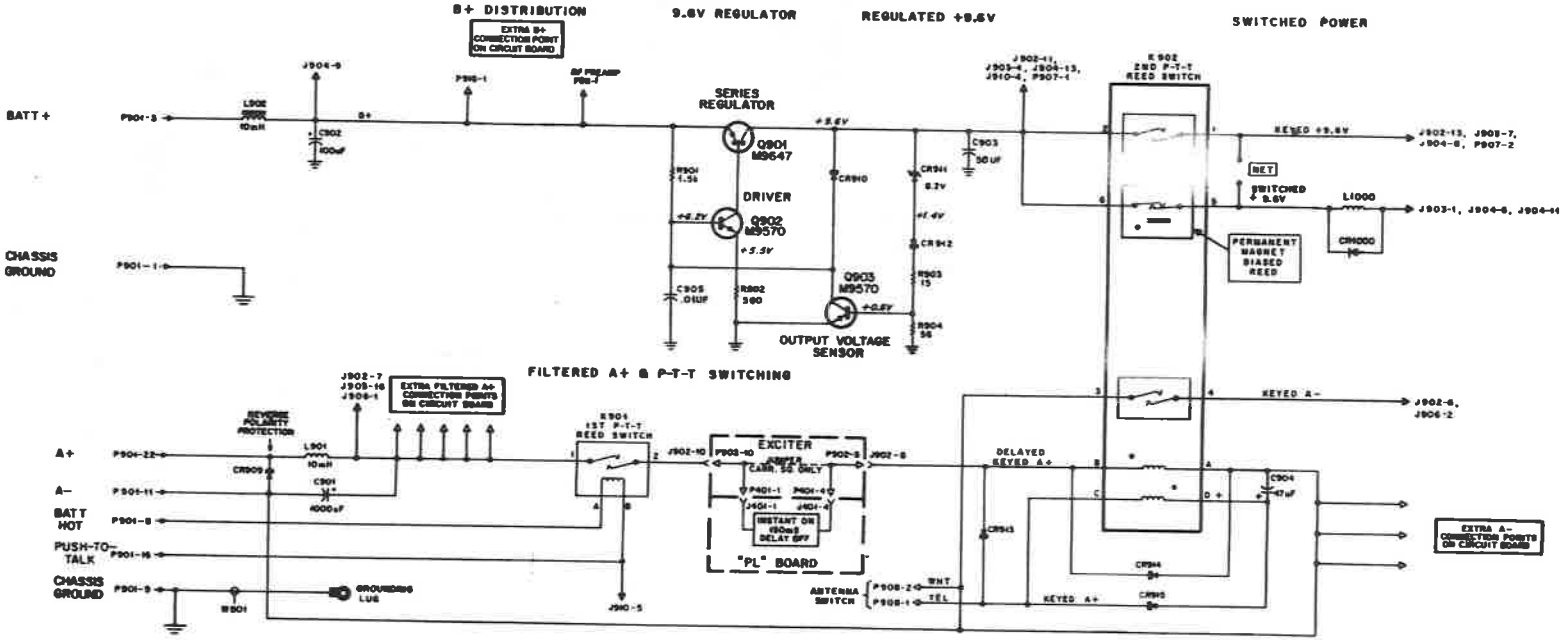


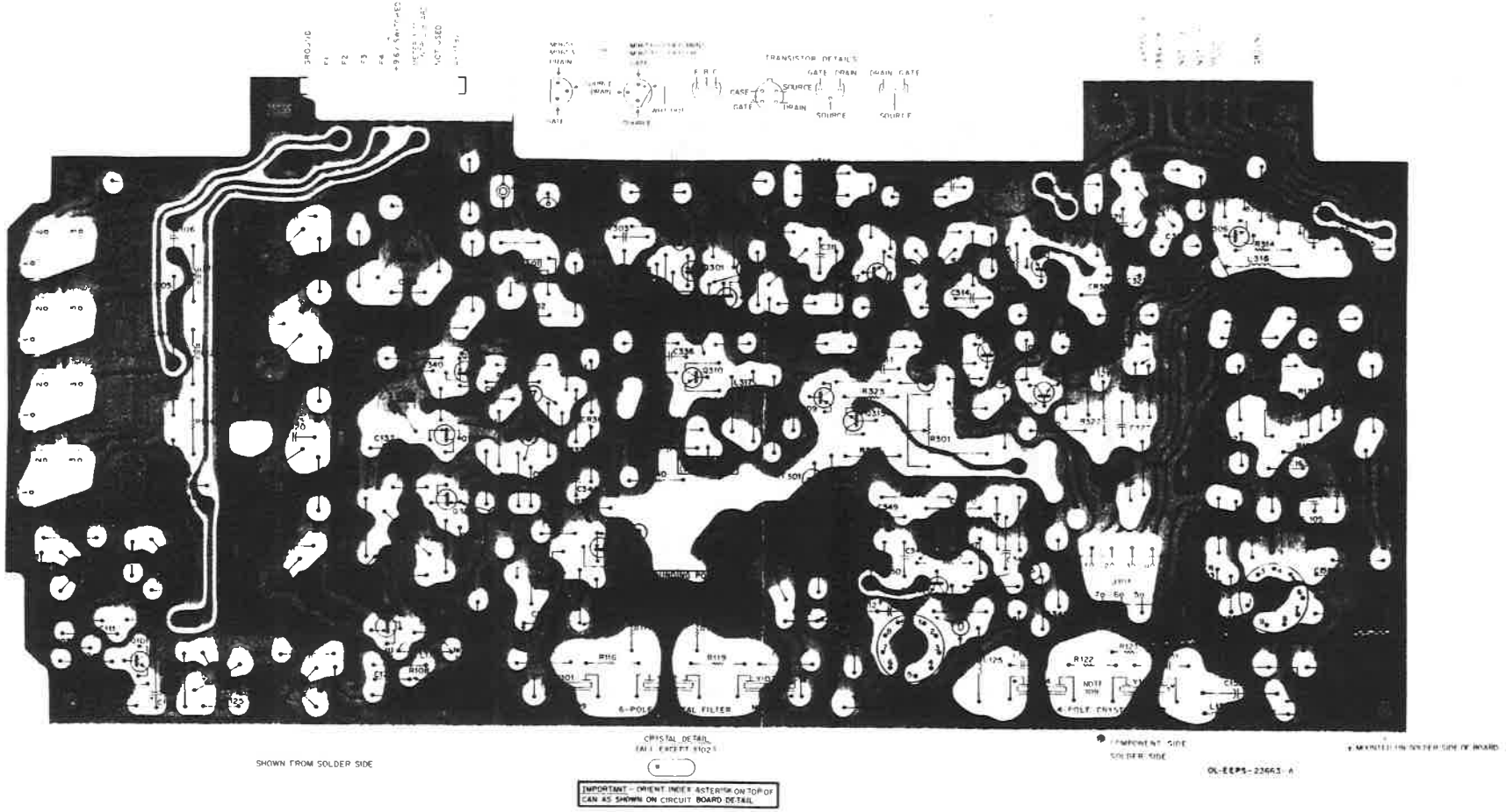
RECEIVER RF & IF P/O J904
EXCITER J902
TRANSMITTER FREQUENCY SELECT
RECEIVER FREQUENCY SELECT
NETTING SWITCH (ACTIVATE BY INSERTING EQUIPMENT KEY THROUGH HOLE)
L1500
CR1000
CHASSIS
KEYED +9.6V
MICROPHONE AUDIO
REGULATED +9.6V
NOT USED
METER 3
DISCRIMINATOR
EXTENDER SELECT

POINT-TO-POINT CONNECTIONS DETAIL



SCHEMATIC DETAIL





TLB8354A "Extender" Receiver RF & IF Board
Circuit Board Detail
Motorola No. PEPS-23664-A
(Sheet 1 of 3)
8/23/77-NPC

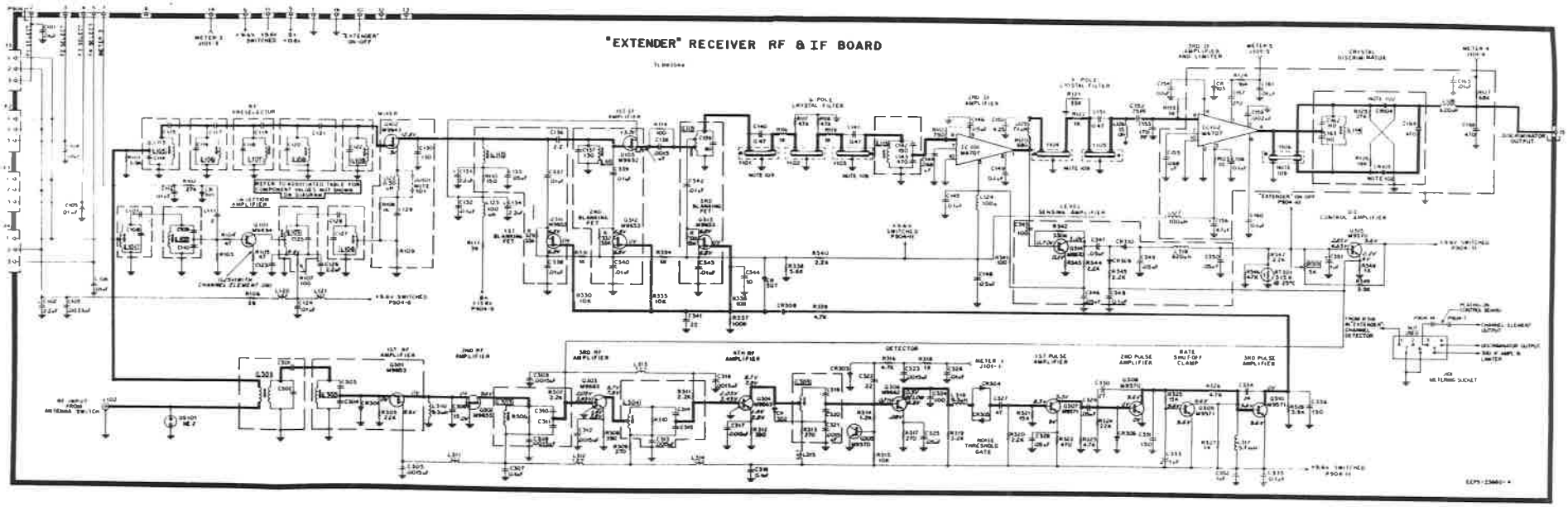
ELECTRICAL PARTS LIST

IMPORTANT

USE ONLY THE FOLLOWING MOTOROLA PART NUMBERS WHEN ORDERING REPLACEMENT PARTS

TRN6792A Control Board — PL-5367-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		CAPACITOR, fixed:
C901	23D82394A16	1000 uF +150 -10%; 25 V
C902	23-83210A08	100 uF +150-10%; 25 V
C903	23-84669A05	50 uF +150-10%; 25 V
C904	23D82783B31	47 uF ±20%; 20 V
C905, 1901, 1902, 1903, 1904	08-83813H28	.01 uF ±5%; 100 V
		SEMICONDUCTOR DEVICE, diode:
CR901 thru 908	48C82392B03	silicon (multi-freq. only)
CR909	48D82525G05	silicon (SR1034R)
CR910	48C82392B03	silicon
CR911	48D82256C16	Zener type (8.2 V)
CR912	48C82392B03	silicon
CR913 thru 915	48C82392B03	silicon
CR1000	48-82466H13	silicon
		CONNECTOR, receptacle:
J907	9C84207B01	female; 7 contact
		SWITCH, printed circuit reed:
K901	80D84157B01	12 V; coil res. 820 Ohms
K902	80D84157B02	12 V; dual coil; each coil res. 285 Ohms
		COIL, choke:
L901	25C84134B01	10 mH, coil res. 0.5 ohms
L902	25C84134B01	10 mH, coil res. 0.5 ohms
L1000	25-82815D01	2.5 mH
		CONNECTOR, plug:
P901	28C84085B01	male; 37 contact
		TRANSISTOR:
Q901	48R869647	P-N-P; type M9647
Q902	48R869570	N-P-N; type M9570
Q903	48R869570	N-P-N; type M9570
		RESISTOR, fixed: 1/4 W; unl stated
R901	6S127803	1.5K ±10%
R902	6S129620	560 ±10%
R903	6S124A05	15 ±5%
R904	6S124A19	56 ±5%
		CABLE ASSEMBLY:
W901	1V80727B44	includes: 30S10286A12 WIRE: No. 16 ga.; coded BLK; 1" length required 29K824456 LUG, ring-tongue



TLB8354A "Extender" Receiver RF & IF Board Schematic Diagram and Circuit Board Detail
Motorola No. PEPS-23664-A
(Sheet 2 of 3)
8/23/77-NPC

PARTS LIST

TLB8354A "Extender" Receiver
RF & IF Board

PL-5368-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		CAPACITOR, fixed: pF; ±5%; 500 V; unl stated
C101	21D82428B59	.01 uF +80-20%; 200 V
C102	23D84762H04	2.2 uF ±20%; 25 V
C103	21D82428B57	3300 ±10%; 200 V
C104	21D82428B59	.01 uF +80-20%; 200 V
C105	21D82428B59	.01 uF +80-20%; 200 V
C106	21D82428B59	.01 uF +80-20%; 200 V
C107L	21D82450B18	2
C107M	21D82450B19	1.8
C107H	21D82450B08	1.2
C107HH	21D82450B13	1.5
C108L	21D84426B10	75
C108M	21D83406D46	56; N150
C108H	21D83406D48	40; NP0
C108HH	21D83406D44	47; N80
C109L	21D84426B61	150
C109M	21D84426B32	105
C109H	21D84426B03	62
C109HH	21D84534B02	90
C110L	21D84426B61	150
C110M	21D84426B32	105
C110H	21D84534B02	90
C110HH	21D84534B02	90
C111	21D82450B18	2
C112	21D82428B59	.01 uF +80-20%; 200 V
C113L	21D84426B06	100
C113M	21D83406D49	60; N150
C113H	21D83406D48	40; NP0
C113HH	21D83406D37	27; NP0
C114L	21D84426B15	220
C114M	21D84534B04	270
C114H	21D84426B15	220
C114HH	21D84534B05	160
C115L	21K85I846	8
C115M	21D82450B32	2.7
C115H	21D82450B13	1.5
C115HH	21D82450B08	1.2
C116L	21D84426B25	68
C116M	21D83406D50	51; N80
C116H	21D83406D40	36; NP0
C116HH	21D82133G46	24; NP0
C117L	21D82450B10	4.3
C117M	21D82450B19	1.8
C117H	21D82450B08	1.2
C117HH	21D82450B44	0.82
C118L	21D84426B10	75
C118M	21D83406D50	51; N80
C118H	21D83406D40	36; NP0
C118HH	21D82133G46	24; NP0
C119L	21D82450B32	2.7
C119M	21D82450B13	1.5
C119H	21D82450B08	1.2
C119HH	21D82450B48	0.75
C120L	21D84426B10	75
C120M	21D83406D50	51; N80
C120H	21D83406D40	36; NP0
C120HH	21D82133G46	24; NP0
C121L	21D82450B08	1.2
C121M	21D82450B08	1.2
C121H	21D82450B44	0.82
C121HH	21D82450B44	0.82
C122L	21D82133G62	22; N150
C122M	21D83406D57	13; NP0
C122H	21D83406D16	11; N150
C122HH	21D83406D02	5 ±.25; N150
C123L	21D82428B57	3300 ±10%; 200 V
C123M	21D82428B57	3300 ±10%; 200 V
C123H	21D82187B31	1500 ±10%; 100 V

TLB8354A "Extended" Receiver RF & IF Board
Schematic Diagram and Circuit Board Detail
Motorola No. PEPS-23664-A
(Sheet 3 of 3)
8/23/77-NPC

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C123HH	21D82187B31	1500 ±10%; 100 V
C124	21D82428B59	.01 uF +80-20%; 200 V
C125L	21D84426B10	75
C125M	21D83406D50	51; N80
C125H	21D83406D43	39; NP0
C125HH	21D83406D42	43; NP0
C126	23D84762H04	2.2 uF ±20%; 25 V
C127L	21D84426B10	75
C127M	21D83406D46	56; N150
C127H	21D83406D48	40; NP0
C127HH	21D83406D50	51; N80
C128L	21D82450B17	2.2
C128M	21D82450B13	1.5
C128H	21D82450B08	1.2
C128HH	21D82450B08	1.2
C129L	21D82428B57	3300 ±10%; 200 V
C129M	21D82428B57	3300 ±10%; 200 V
C129H	21D82428B57	3300 ±10%; 200 V
C129HH	21D82187B31	1500 ±10%; 100 V
C130	21D84426B18	130
C131	23D84762H04	2.2 uF ±20%; 25 V
C132	21D82428B59	.01 uF +80-20%; 200 V
C133	8D82905G04	.068 uF ±10%; 50 V
C134	23D84762H04	2.2 uF ±20%; 25 V
C135		NOT USED
C136	21D82450B17	2.2
C137	21D84426B18	130
C138	21D82187B31	1500 ±10%; 100 V
C139	21D84426B21	80
C140	21D83406D44	47
C141	21-82450B37	.47
C142	21-840047	150
C143	21-84426B11	470
C144	8D82905G04	.068 uF ±10%; 50 V
C145	21D82428B59	.01 uF +80-20%; 200 V
C146	21C82372C04	.05 uF +80-20%; 25 V
C147		NOT USED
C148	21C82372C04	.05 uF +80-20%; 25 V
C149	8D83813H06	0.1 uF ±10%; 100 V
C150	21-863205	4.25
C151	21-82450B37	.47
C152	21-859938	75 pF
C153	21-865441	170 pF
C154	8D83813H06	0.1 uF ±10%; 100 V
C155	8D82905G04	.068 uF ±10%; 50 V
C156	23D83214C15	4.7 uF ±20%; 25 V
C157	21D82187B38	270 ±10%
C158	8D83813H06	0.1 uF ±10%; 100 V
C159	21D82187B27	2000 ±10%; 100 V
C160	8D83813H06	0.1 uF ±10%; 100 V
C161	21D82428B59	.01 uF +80-20%; 200 V
C162	21D82610C69	110; 200 V; N150
C163	21D84426B59	110
C164	21D82187B39	470 ±10%
C165	21D82428B59	.01 uF +80-20%; 200 V
C166	21D82187B39	470 ±10%
C301L	21D82450B18	2
C301M	21D82450B18	2
C301H	21D82450B44	0.82
C301HH	21D82450B48	0.75
C302L	21D84426B25	68
C302M	21D84426B25	68
C302H	21D83406D50	51; N80
C302HH	21D83406D39	32; NP0
C303L	21D84534B04	270
C303M	21D84534B04	270
C303H	21D84426B14	170
C303HH	21D84426B06	100
C304L	21D84534B02	90
C304M	21D84534B02	90
C304H	21D84426B03	62
C304HH	21D83406D44	47; N80
C305	21D82187B31	.0015 uF ±10%; 100 V
C306	21D82133G19	15; NP0
C307	8D83813H06	0.1 uF ±10%; 100 V
C308	21D82187B31	.0015 uF ±10%; 100 V
C309	21D82187B31	.0015 uF ±10%; 100 V
C310L	21D84426B06	100
C310M	21D84426B06	100

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C310H	21D84426B0	62
C310HH	21D83406D40	36; NP0
C311L	21D84426B14	170
C311M	21D84426B14	170
C311H	21D84426B14	170
C311HH	21D84426B15	220
C312	21D82187B31	.0015 uF ±10%; 100 V
C313	21D82187B31	.0015 uF ±10%; 100 V
C314L	21D84426B21	80
C314M	21D84426B21	80
C314H	21D83406D50	51; N80
C314HH	21D83406D40	36; NP0
C315L	21D84426B24	270
C315M	21D84426B24	270
C315H	21D84426B13	300
C315HH	21D84426B15	220
C316	21D82187B31	.0015 uF ±10%; 100 V
C317	21D82187B31	.0015 uF ±10%; 100 V
C318	8D83813H06	0.1 uF ±10%; 100 V
C319L	21D84426B32	105
C319M	21D84426B32	105
C319H	21D84426B10	75
C319HH	21D83406D42	43; NP0
C320L	21D84426B28	160
C320M	21D84426B28	160
C320H	21D84426B18	130
C320HH	21D84426B08	120
C321	21D82187B31	.0015 uF ±10%; 100 V
C322	21D84493B02	22; 200 V; NP0
C323	21D82187B31	.0015 uF ±10%; 100 V
C324	21D84426B06	100
C325	21C82372C04	.05 uF +80-20%; 25 V
C326	21D82428B59	.01 uF +80-20%; 200 V
C327	21D83406D44	47; N80
C328	21D82372C04	.05 uF +80-20%; 25 V
C329	21D82372C04	.05 uF +80-20%; 25 V
C330	21D83406D37	27; NP0
C331	21D84426B61	150
C332		NOT USED
C333	23D83214C04	1 uF ±20%; 15 V
C334	21D82133G46	24; NP0
C335	8D83813H06	0.1 uF ±10%; 100 V
C336	21D84426B61	150
C337	21D82428B59	.01 uF +80-20%; 200 V
C338	21D82428B59	.01 uF +80-20%; 200 V
C339	21D82428B59	.01 uF +80-20%; 200 V
C340	21D82428B59	.01 uF +80-20%; 200 V
C341	21D84493B02	22; 200 V; NP0
C342	21D82428B59	.01 uF +80-20%; 200 V
C343	21D82428B59	.01 uF +80-20%; 200 V
C344	21D82133G21	10 ±0.5 pF; NP0
C345	21D84426B06	100
C346	21C82372C04	.05 uF +80-20%; 25 V
C347	21C82372C04	.05 uF +80-20%; 25 V
C348	8D83813H06	0.1 uF ±10%; 100 V
C349	21C82372C04	.05 uF +80-20%; 25 V
C350	21C82372C04	.05 uF +80-20%; 25 V
C351	23D83214C04	1 uF ±20%; 15 V
C352	23-84762H06	1 uF ±20%; 35 V
		SEMICONDUCTOR DEVICE: diode:
CR101	48D82139G01	germanium
CR102		NOT USED
CR103	48D82139G01	germanium
CR104	48D84616A01	silicon; hot carrier
CR105	48D84616A01	silicon; hot carrier
CR301	48C83654H01	silicon
CR302	48C83654H01	silicon
CR303	48D82139G02	germanium
CR304	48C82178A04	germanium
CR305	48C82178A04	germanium
CR306 thru 310	48C83654H01	silicon
		LAMP, glow:
DS101	65B82267D02	neon; type NE-2
		INTEGRATED CIRCUIT:
IC101	51R84267A07	type M6707
IC102	51R84267A07	type M6707

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		CONNECTOR, receptacle:
J101	9C84207B01	female; 7-contact
J102	9C84231B02	female; coaxial; miniature type
		COIL, RF:
L101L	24D84115B03	8-1/2 turns; tapped; coded ORG includes tuning core (coded YEL)
L101M	24D84115B03	8-1/2 turns; tapped; coded ORG includes tuning core (coded YEL)
L101H	24D84115B03	8-1/2 turns; tapped; coded ORG includes tuning core (coded YEL)
L101HH	24D84115B03	8-1/2 turns; tapped; coded ORG includes tuning core (coded YEL)
L102	24D84115B02	8-1/2 turns; coded RED; includes tuning core (coded YEL)
L103	24D84115B03	8-1/2 turns; tapped coded ORG includes tuning core (coded YEL)
L104L	24D84115B06	8-1/2 turns; tapped coded BLU includes tuning core (coded YEL)
L104M	24D84115B06	8-1/2 turns; tapped; coded BLU includes tuning core (coded YEL)
L104H	24D84115B06	8-1/2 turns; tapped; coded BLU includes tuning core (coded YEL)
L104HH	24D84115B13	8-1/2 turns; tapped; coded YEL includes tuning core (coded YEL)
L105L	24D84113B03	7-1/2 turns; coded ORG; includes tuning core (coded YEL)
L105M	24D84113B03	7-1/2 turns; coded ORG; includes tuning core (coded YEL)
L105H	24D84113B03	7-1/2 turns; coded ORG; includes tuning core (coded YEL)
L105HH	24D84113B01	7-1/2 turns; coded BRN; includes tuning core (coded GRN)
L106L	24D84113B03	7-1/2 turns; coded ORG; includes tuning core (coded YEL)
L106M	24D84113B03	7-1/2 turns; coded ORG; includes tuning core (coded YEL)
L106H	24D84113B03	7-1/2 turns; coded ORG; includes tuning core (coded YEL)
L106HH	24D84113B01	7-1/2 turns; coded BRN; includes tuning core (coded GRN)
L107L	24D84113B03	7-1/2 turns; coded ORG; includes tuning core (coded YEL)
L107M	24D84113B03	7-1/2 turns; coded ORG; includes tuning core (coded YEL)
L107H	24D84113B03	7-1/2 turns; coded ORG; includes tuning core (coded YEL)
L107HH	24D84113B01	7-1/2 turns; coded BRN; includes tuning core (coded GRN)
L108L	24D84113B03	7-1/2 turns; coded ORG includes tuning core (coded YEL)
L108M	24D84113B03	7-1/2 turns; coded ORG includes tuning core (coded YEL)
L108H	24D84113B03	7-1/2 turns; coded ORG includes tuning core (coded YEL)
L108HH	24D84113B03	7-1/2 turns; coded ORG includes tuning core (coded YEL)
L109L	24D84114B03	12-1/2 turns; coded ORG; includes tuning core (coded YEL)
L109M	24D84114B03	12-1/2 turns; coded ORG; includes tuning core (coded YEL)
L109H	24D84114B02	10-1/2 turns; coded RED; includes tuning core (coded YEL)
L109HH	24D84114B02	10-1/2 turns; coded RED; includes tuning core (coded YEL)
L110	24D84258B01	21 turns; coded BRN; includes tuning core (coded RED)
L111	24D84258B01	21 turns; coded BRN; includes tuning core (coded RED)
L112	24D84258B02	27 turns; tapped; coded RED; includes tuning core (coded RED)
L113	24D84258B01	21 turns; coded BRN; includes tuning core (coded RED)
L114	24D84258B03	40 turns; coded ORG; includes tuning core (not coded)
L120	24C83961B01	choke; ferrite bead type
L121	24C83961B01	choke; ferrite bead type
L122L		NOT USED
L122M		NOT USED
L122H		NOT USED
L122HH	24C84270C01	choke; 0.30 uH
L123	24D82135G10	choke; 100 uH
L124	24D82135G10	choke; 100 uH
L125	24D82835G26	choke; 71 uH
L126	24-82549D09	choke; 15 uH
L127	24D82135G10	choke; 100 uH
L128	24D82135G01	choke; 620 uH
L301	24D84115B10	8-1/2 turns; coded WHT; includes tuning core (coded GRN)
L302	24D84115B02	8-1/2 turns; coded RED; includes tuning core (coded GRN)
L303	24D84115B02	8-1/2 turns; coded RED; includes tuning core (coded GRN)
L304L	24D84115B04	8-1/2 turns; tapped; coded YEL includes tuning core (coded GRN)
L304M	24D84115B04	8-1/2 turns; tapped; coded YEL includes tuning core (coded GRN)
L304H	24D84115B08	8-1/2 turns; coded BLK; includes tuning core (coded GRN)
L304HH	24D84115B06	8-1/2 turns; coded BLU; includes tuning core (coded GRN)
L305L	24D84115B04	8-1/2 turns; tapped; coded YEL includes tuning core (coded GRN)
L305M	24D84115B04	8-1/2 turns; tapped; coded YEL includes tuning core (coded GRN)
L305H	24D84115B04	8-1/2 turns; tapped; coded YEL includes tuning core (coded GRN)
L305HH	24D84115B09	8-1/2 turns; tapped; coded WHT includes tuning core (coded GRN)
L310	24C82835G20	choke; 9.3 uH
L311	24C83961B01	choke; ferrite bead type
L312	24C83961B01	choke; ferrite bead type
L313	24C83961B01	choke; ferrite bead type
L314	24C83961B01	choke; ferrite bead type
L315	24C83961B01	choke; ferrite bead type
L316	24C82835G20	choke; 9.3 uH
L317	24D82135G06	choke; 5.7 mH
L318	24D82135G01	choke; 620 uH
		TRANSISTOR:
Q101	48R869494	NPN; type M9494
Q102	48-869943	field-effect; N-channel; type M9943
Q103	48R869652	field-effect; N-channel; type M9652
Q301	48R869653	field-effect; type M9653
Q302	48R869653	field-effect; type M9653
Q303	48R869663	NPN; type M9663; does not include 26B84271B01 SHIELD
Q304	48R869663	NPN; type M9663; does not include 26B84271B01 SHIELD
Q305	48R869570	NPN; type M9570
Q306	48R869662	NPN; type M9662
Q307	48R869571	PNP; type M9571
Q308	48R869570	NPN; type M9570
Q309	48R860571	PNP; type M9571
Q310	48R860571	PNP; type M9571
Q311	48R860653	field-effect; type M9653
Q312	48R869653	field-effect; type M9653

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
Q313	48R869653	field-effect; type M9653
Q314	48R860570	NPN; type M9570
Q315	48R860570	NPN; type M9570
		RESISTOR, fixed: ±10%; 1/4 W unl. stated
R101	6S129232	3.9k
R102	6S129886	27k ±5%
R103L	6S129819	3.9k ±5%
R103M	6S129819	3.9k ±5%
R103H	6S124A60	3k ±5%
R103HH	6S124A60	3k ±5%
R104	6S131274	47 ±5%
R105	6S131274	47 ±5%
R106	6S131652	39
R107	6S129753	100
R108	6S129805	1k
R109L	6S131525	270 ±5%
R109M	6S129779	560 ±5%
R109H	6S129709	470 ±5%
R109HH	6S131524	100 ±5%
R110	6S129862	150
R111	6S131652	39
R112		NOT USED
R113		NOT USED
R114	6S131524	100 ±5%
R115		NOT USED
R116	6-124A49	1k ±5%
R117	6-124A89	47k ±5%
R118	6-124A89	47k ±5%
R119	6-124A49	1k ±5%
R120	6-124A45	680 ±5%
R121	6-124A85	33k ±5%
R122	6-124A49	1k ±5%
R123	6S129755	10
R124	6-124A86	36k ±5%
R125	6S129886	27k ±5%
R126	6S131526	18k ±5%
R127	6-124A93	68k ±5%
R301	18C83083G22	var; 5k ±20%
R305	6S128685	22k
R306L	6S129231	3.3k
R306M	6S129231	3.3k
R306H	6S129433	5.6k
R306HH	6S129804	18k
R307	6S128689	2.2k
R308	6S129863	390
R309	6S129752	270
R310L	6S129433	5.6k
R310M	6S129433	5.6k
R310H	6S128686	8.2k
R310HH		NOT USED
R311	6S128689	2.2k
R312	6S129863	390
R313	6S129752	270
R314	6S129708	1.2k ±5%
R315	6S129668	10k ±5%
R316	6S129669	4.7k ±5%
R317	6S131525	270 ±5%
R318	6S129805	1k ±5%
R319	6S128689	2.2k
R320	6S128689	2.2k
R321	6S127805	15k
R322	6S127801	470
R323	6S127804	4.7k
R324	6S129667	22k ±5%
R325	6S129236	15k ±5%
R326	6S129669	4.7k ±5%
R327	6S127802	1k ±5%
R328	6S129819	3.9k ±5%
R329	6S129526	33k ±5%
R330	6S129668	10k ±5%
R331	6S127802	1k
R332	6S129526	33k ±5%
R333	6S129668	10k ±5%
R334	6S127802	1k
R335	6S129236	15k ±5%
R336	6S129668	10k ±5%

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R337	6S124A97	100k ±5%
R338	6S129982	5.6k ±5%
R339	6S129669	4.7k ±5%
R340	6S129804	2.2k ±5%
R341	6S129753	100
R342	6S129228	330k
R343L	6S129863	390
R343M	6S129752	270
R343H	6S127800	220
R343HH	6S129662	180
R344	6S128689	2.2k
R345	6S128689	2.2k
R346	6S129669	4.7k ±5%
R347	6S129804	2.2k ±5%
R348	6S127802	1k
R349	6S129819	3.9k ±5%
R1112	6-124A46	750 ±5%
R1113	6-124A49	1k ±5%
		THERMISTOR:
RT301	6D83841B04	3.15k ±10%; @25°C; 0.5 W
		CRYSTAL UNIT, quartz:
--	1C84205L01	XTAL UNIT
Y101	48D84259B07	i-f filter; 5.26 MHz
Y102	48D84259B08	i-f filter; 5.26 MHz
Y103	48D84259B07	i-f filter; 5.26 MHz
Y104	48D84259B09	i-f filter; 5.26 MHz
Y105	48D84259B09	i-f filter; 5.26 MHz
Y106	48D84104B01	discriminator; 5.26 MHz

XTAL UNIT

Channel Element PL-2923-O

	K1003A	Receiver Control

CABLE CONNECTOR WIRING CHART FOR MICOR MOBILE RADIO SET

TLN5983A PIN NO.	FUNCTION	WIRE COLOR	CONNECTION TO
P2-1	Main Receiver Unsquelch Indicator	YEL-GRN	*TRN6792A Control (Interface) Board
P2-2	Main Receiver Decoder Switched Output	RED-WHT	*TRN6791A Audio & Squelch Board
P2-3	No Connection	—	—
P2-4	Spare	—	—
P2-5	Frequency Select F1	Foil Runs On	*TLB8354A "Extender" Receiver RF and IF Board
P2-6	Frequency Select F2	TLN5983 Auxiliary	*TLB8354A "Extender" Receiver RF and IF Board
P2-7	Frequency Select F3	Control Board	*TLB8354A "Extender" Receiver RF and IF Board
P2-8	Frequency Select F4		*TLB8354A "Extender" Receiver RF and IF Board
P3-1	Auxiliary Receiver On/Off Switch	WHT	P901-26
P3-2	Transmit Mute Voltage	BRN	*TRN6792A Control (Interface) Board
P3-3	Main Receiver Mute Voltage	VIO	*TRN6792A Control (Interface) Board
P3-4	Volume Control	GRY	P901-25
P3-5	Spare	—	—
P3-6	Spare	—	—
P3-7	Spare	—	—
P3-8	Spare	—	—
P3-9	A+	BLU	*TRN6792A Control (Interface) Board
P3-10	Extender Switch	RED	*TRN6792A Control (Interface) Board
P3-11	Main Receiver Audio Input	YEL	*TRN6791A Audio & Squelch Board
P3-12	GND	GRN	*TRN6792A Control (Interface) Board
P3-13	Switched +9.6 Volts	ORG	*TRN6792A Control (Interface) Board
P3-14	No Connection	—	—
P3-15	PL On/Off Switch	BLK	*TPN6792A Control (Interface) Board
P3-16	Continuous +9.6 Volts	GRN-YEL	*TRN6792A Control (Interface) Board

MAIN RADIO PLUG CONNECTOR	FUNCTION	(THESE WIRES ARE P/O TKN6606A CABLE KIT)	CONNECTION TO
P1105-1	Chassis GND	SHIELD	P1101-10 & P1101-21
P1105-2	Volume Control	BLK-GRN	P1101-20
P1105-3	A+	YEL	J1-9, 19; P1101-1
P1105-4	F1 Select	BLU	P1102-6
P1105-5	F4 Select	BLK	P1102-3
P1105-6	Not Used	—	—
P1105-7	Not Used	—	—
P1105-8	Switched Battery Hot	BLK-RED	P1101-14
P1105-9	Chassis GND	BLK-VIO	J1-1, 12; P1104-1
P1105-10	"PL" On/Off	BLK-BLU	P1101-4

MAIN RADIO PLUG CONNECTOR	FUNCTION	(THESE WIRES ARE P/O TKN6606A CABLE KIT)	CONNECTION TO
P1105-11	Internally Connected to P1105-9	—	—
P1105-12	"Extender" Select	BLK-GRY	P1101-7
P1105-13	F3 Select	GRY	P1102-4
P1105-14	F2 Select	WHT	P1102-5
P1105-15	Microphone Audio	BLK-YEL	J1-10, 20; P1101-11
P1105-16	Push-To-Talk	BLK-ORG	J1-7, 17; 22
P1105-17	Speaker Audio	GRN	P1104-2
P1105-18	Not Used	—	—
P1105-19	Squelch	BRN	P1101-17
P1105-20	Discriminator Buffer Output	BLK-BRN	P1101-16
P1105-21	Speaker Audio Input (+)	ORG	P1101-9
P1105-22	Internally Connected to P1105-3	—	—
P1105-23	Not Used	WHT-BLK	—
P1105-24	Not Used	—	—
P1105-25	Volume Control (Combined)	WHT-GRY	P1101-6
P1105-26	Auxiliary Receive Power Switch	RED-BLU	P1102-1
P1105-27	Multiple "PL" or Single-Tone Monitor Tone	VIO	J1-14
P1105-28	Not Used	WHT-BRN	—
P1105-29	Not Used	WHT-RED	—
P1105-30	Not Used	WHT-ORG	—
P1105-31	Not Used	WHT-YEL	—
P1105-32	Not Used	WHT-GRN	—
P1105-33	Not Used	WHT-BLU	—
P1105-34	Not Used	WHT-VIO	—
P1105-35	Not Used	—	—
P1105-A	A—	BLK(W1103)	—
P1105-B	A+	RED(W1107)	—

TKN6456A Cable Kit Connections

CONDUCTOR	GREEN	ORANGE	GREEN	ORANGE	GREEN	ORANGE
CONNECTED TO BATTERY	•	•	•			
CONNECTED TO IGNITION SWITCH				•	•	•
IGNITION SWITCH CONTROLS	NO CONTROL		XMTR		COMPLETE RADIO	

ORG connects to J1101-13 on TCN1263A ACM
GRN connects to J1101-12 on TCN1263A ACM

EPS-23666-O

DUAL PUSH-TO-TALK MICROPHONE

MODEL TMN6128A

1. DESCRIPTION

This mobile microphone is a palm-type unit housed in a high-impact plastic case with a transistorized preamplifier which is an integral part of the cartridge. It also includes a dual built-in push-to-talk switch and a tinsel-coiled cord which has a four-circuit connector with a molded-on vinyl sleeve. See Figure 1 for schematic details.

The microphone push-to-talk switch may be used to select one of two functions by means of logic circuits in the radio control unit. The microphone dual push-to-talk button "up" causes the BLK and WHT leads to be connected together by the S1 momentary spdt switch. Pushing the microphone dual push-to-talk button "down" causes the BLK and GRN leads to be connected together by the S1 momentary spdt switch. The RED lead supplies B+ to the microphone preamplifier.

The cartridge incorporated in this microphone provides fidelity inherently greater than that of carbon microphones. Superior voice quality is retained by amplifying the voice signals in the transistorized preamplifier before these signals become subject to the influence of noise due to stray electrical fields. This results in a high signal-to-noise ratio and high output. The preamplifier derives its operating power from the standard microphone voltage supplied by the associated Motorola radio equipment. The nominal output of this microphone with preamplifier is the same as that of carbon microphones.

The microphone kit also includes a microphone hang-up clip with a positive detect action and the necessary hardware to mount it to any flat surface.

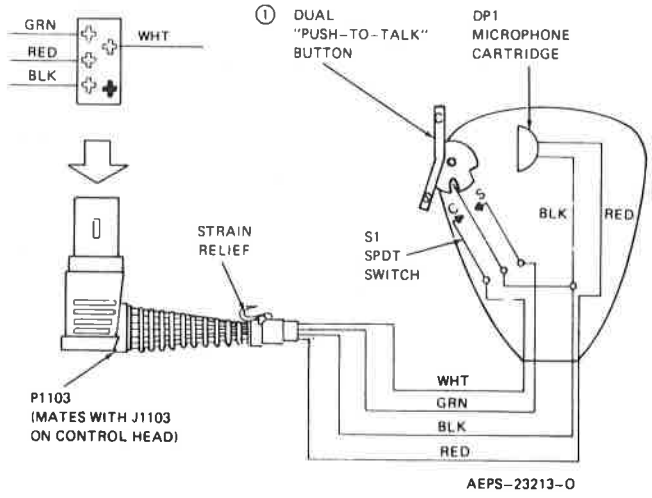


Figure 1. Schematic Diagram of Dual Push-To-Talk Microphone

DUAL PTT MICROPHONE

MOTOROLA INC.
Communications Division

service publications
1301 E. Algonquin Road, Schaumburg, IL 60196

© Motorola, Inc. 1977
Printed in U.S.A.

68P81108E54-A
8/23/77-NPC

2. PARTS LIST

TMN6128A Microphone PL-5269-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
DP1	59D82933C01	CARTRIDGE, microphone: dynamic: includes transistor preamplifier
P1		CONNECTOR, plug: part of W1
W1	01-84135C02	CORD, microphone: coiled 4-conductor; includes ref. part P1, CLAMP, cable "S" hook (ref. part 13), SPRING, strain relief (ref. part 12), and non-ref. LUG (4 req'd) 29B83277G02
1	38C83193L01	PUSHBUTTON for S1
S1	40C83214L01	SWITCH, push: momentary spdt
	NON-REFERENCED ITEMS	
	29B83277G02	LUG, insulation piercing: 4 req'd. (p/o W1)
	33B82599D01	NAMEPLATE
	13B84599B01	EMBLEM
	3S132436	SCREW, machine: No. 6-32 x 13/16"; 3 req'd. for rear housing
	4S7669	WASHER, lock: No. 6 split; 3 req'd.
	4S114201	WASHER, flat: 1/4" x 0.156" x 0.015"; 3 req'd.
	3S122830	SCREW, tapping: No. 8 x 1/2"; 2 req'd. for hangup bracket
	1V851094	BRACKET & SPRING ASSY. (eyeleted)
	1V80709B93	HOUSING, microphone (rear)
	3S129498	SCREW, lock: No. 6-32 x 5/16" "Phillips" round head for S1
	4S7666	LOCKWASHER: No. 6 external
	42A852710	STRAP, strain relief
	3S124693	SCREW, lock: No. 6-32 x 1/4" "Phillips" round head 2 req'd. for strain relief
	41A852707	SPRING, strain relief (p/o W1)
	42A893647	CLAMP, cable "S" hook (p/o W1)
	15D82701B12	COVER, microphone (front)
	42B82702B02	RETAINER, cartridge
	32A82703B01	GASKET, neoprene
	11S2506	TUBING, No. 9 black; 5" length req'd.

TWO-RECEIVER COUPLER

MODEL TRN6854A

1. DESCRIPTION

This unit allows two receivers to operate from a single antenna source without interaction. It provides a correct impedance match between both receivers and the antenna source, and also provides isolation between the two receivers. Signal coupling and impedance matching is accomplished by utilizing two transformers and a resistor. A capacitor in the coupler partially cancels the circuit inductance and thereby makes the circuit appear resistive. This coupler is designed for use with VHF (25-174 MHz) receivers only. See Figure 1 for schematic details.

2. ALIGNMENT

2.1 RADIOS WITHOUT PREAMPLIFIER

Check that the coupler is installed. The cable from the antenna switch should be connected to J1 on the coupler. The two cables from the coupler should connect to the inputs to the main and auxiliary receivers. Tune each receiver separately following the procedures in the instruction manual for the radio.

2.2 RADIOS WITH PREAMPLIFIER OPTION

NOTE

Only the following RF preamplifiers may be used with radios containing the two receiver coupler:

Frequency Range	*Preamplifier*
132-150.8 MHz	TLD8421B-SP1
150.8-174 MHz	TLD8422B-SP2

No low band preamplifiers are available.

Step 1. If the preamplifier is to be field installed, follow the installation instructions contained in the RF preamplifier section of the instruction manual. However, if the main and/or auxiliary receiver(s) haven't been previously aligned as described in paragraph 2.1, don't connect the input and output cables to the RF preamplifier. Proceed instead to paragraph 2.1 and follow the instructions to properly align the receivers. Once the receivers are aligned, proceed with step 2.

Step 2. Connect the cable from the antenna switch to the preamplifier input; then connect the preamplifier output cable to J1 on the coupler.

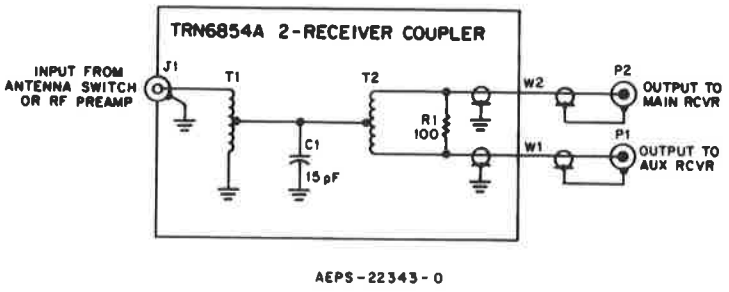


Figure 1. Schematic Diagram of Two-Receiver Coupler

MOTOROLA INC.
Communications Division

service publications
1301 E. Algonquin Road, Schaumburg, IL 60196

Copyright 1976 by Motorola, Inc.
Printed in U S A

68P81108E32-A
11/4/76

Step 3. Connect a Motorola portable test set to the main receiver. Connect an rf signal generator to the radio antenna connector.

Step 4. Set the frequency of the rf signal generator to the frequency that the main receiver was tuned on. The channel selector for the main receiver should be set to this same frequency.

Step 5. While monitoring position 5 on the portable test set, align the preamplifier for maximum meter indication by adjusting the tuning coils in the following order; L3, L2, L1. For final tuning repeak L3, L2, and L1 and then tune L2 for maximum quieting (minimum indication on meter position 11).

3. PARTS LIST

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		CAPACITOR:
C1	21D82785H57	15 pF ±0.5 pF, 850 V
		RESISTOR:
R1	6S125A25	100 ohms, 5%, ½ W
		TRANSFORMERS:
T1	24C84130G02	RF
T2	24C84130G01	RF
		CABLE ASSEMBLY:
W1	1V80795B01	16¾" coaxial cable & connector
W2	1V80795B02	12" coaxial cable & connector
	NON-REFERENCED ITEM	
	1V80795B03	Assembly, splitter board

MICOR/SYSTEMS•90
SINGLE-TONE ENCODER

MODEL TLN1882A

SUPPLEMENT TO INSTRUCTION MANUAL 68P81102E31

1. DESCRIPTION

The TLN1882A five-frequency SYSTEMS•90 mobile single-tone encoder is similar to the TLN1394A model described in the attached instruction manual. This unit has strap selected tone durations of 0.4 and 1.0 seconds instead of 0.5 and 1.5 seconds as used on the TLN1394A. In addition the output level specification is modified to provide a side-tone level of 15 mW ±3 dB at 1800 Hz as measured at the speaker. A .01 uF bypass capacitor (C100) is added in parallel to resistor R48. This capacitor is on the solder side of the printed circuit board shunting resistor R48.

2. CHANGES

The differences between the TLN1882A and TLN1394A single-tone encoders are shown in the following table:

COMPONENT	TLN1394A VALUE	TLN1882A VALUE	MOTOROLA PART NUMBER
C100	—	~~.01 uF~~ 1.0	—
R29	18k	12k	6-124C75
R30	15k	8.2k	6-124C71
R47	39k	33k	6-124C85
R48	4.7k	1k	6-124C49
R101	270k	180k	6S00124B04

SINGLE–TONE ENCODER

MOTOROLA INC.
Communications Division

service publications
1301 E. Algonquin Road, Schaumburg, IL 60196

© Motorola, Inc. 1977
Printed in U.S.A.

68P81034E46-A
8/23/77-NPC

ESCUTCHEONS

5 S/T "CHP" 13-84319C52

ACM; "PRI-SEC-MON R" 13-84319C57

BUTTONS

38-84321	C01	STD. WHITE
	C02	ORG
	C03	RED
	C04	TELEPHONE WHITE
	C05	VIOLET
	C06	GREEN
	C07	TAN
	C08	BLACK
	C09	BLUE
	C10	PINK
	C11	SILVER GRAY
	C12	GOLD (MUSTARD)
	C13	YELLOW

38-83193L01 S-C MIC BUTTON

SPDT SWITCH

40 83214L01