

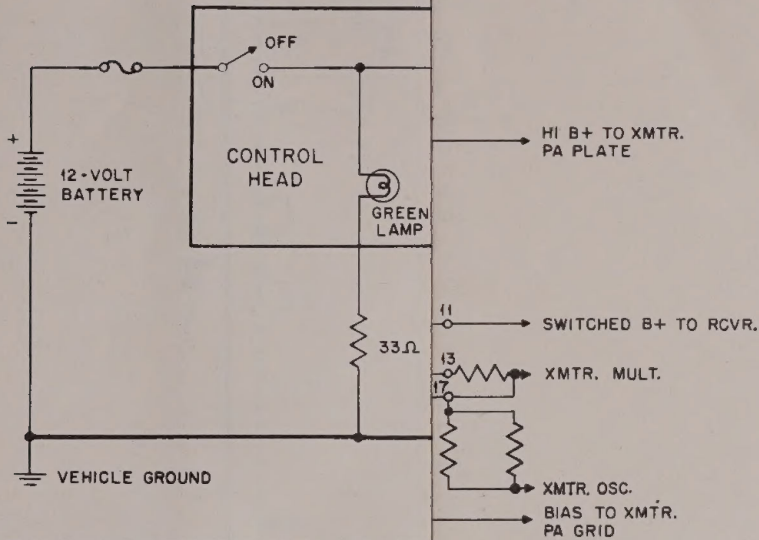


Mobile FM Two-Way Radio

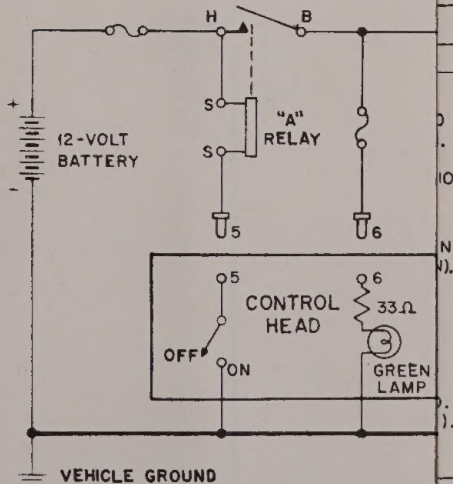
144-174 MC 25 W RF POWER 12 VDC



FRONT MOUNT INSTALLATIONS



REAR MOUNT INSTALLATIONS



FACTS

OF OPERATIONS

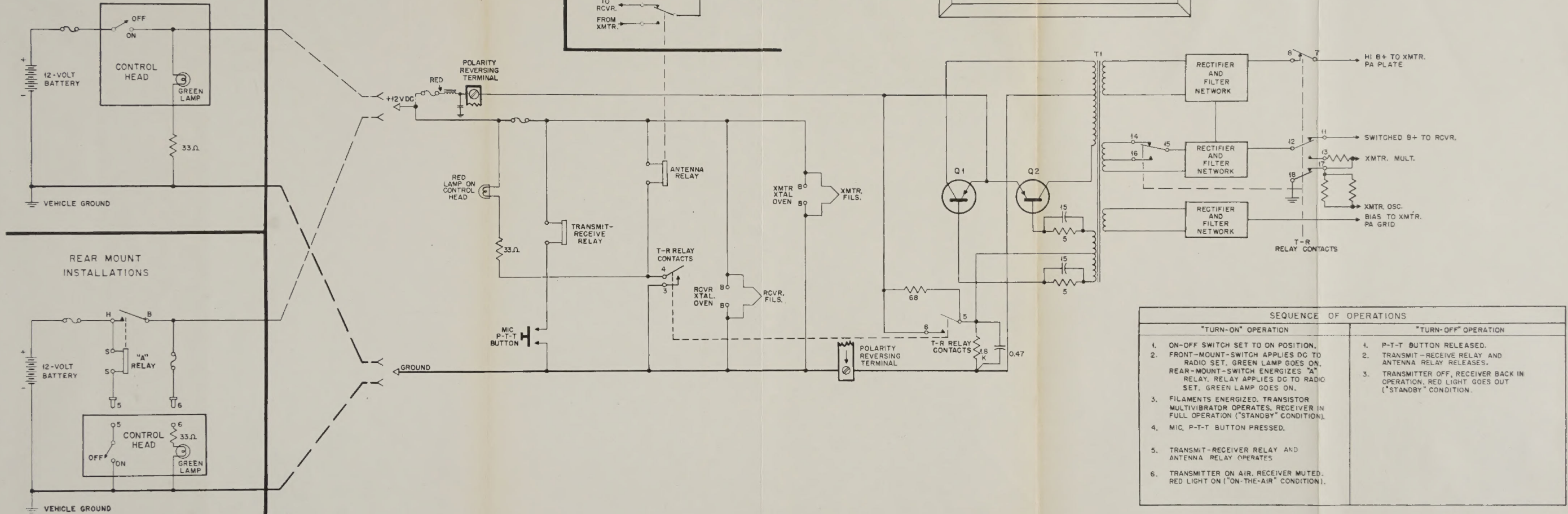
"TURN-OFF" OPERATION

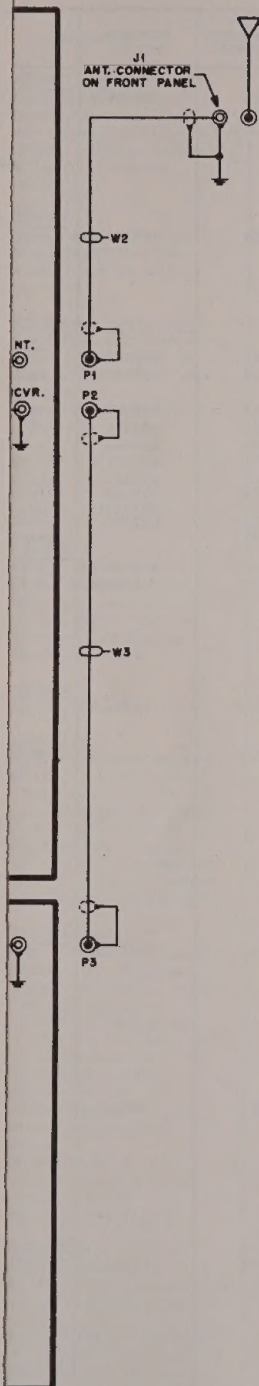
1. P-T-T BUTTON RELEASED.
2. TRANSMIT-RECEIVE RELAY AND ANTENNA RELAY RELEASES.
3. TRANSMITTER OFF, RECEIVER BACK IN OPERATION. RED LIGHT GOES OUT ("STANDBY" CONDITION).

FRONT MOUNT INSTALLATIONS

ANTENNA RELAY CIRCUIT

THIS IS A SIMPLIFIED FUNCTIONAL DIAGRAM.
SEE SCHEMATICS FOR EXACT DETAILS. ALL
RELAYS SHOWN DE-ENERGIZED.

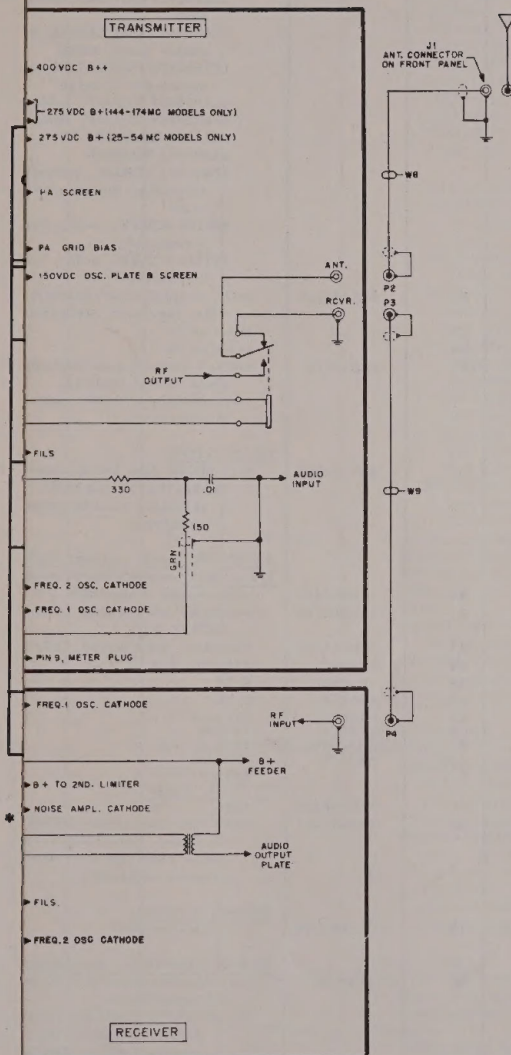




REVISIONS

DIAG. ISSUE	CHASSIS SUFFIX	REF. SYMBOL	CHANGE	LOCATION
A			TLN6155A 2-FREQ. RCVR. FILTER KIT ADDED	RCVR. TERM. BOARD ON POWER SUPPLY
B			MINOR REVISIONS IN POWER SUPPLY	

Front Mount Radio Set
Interconnecting Diagram
Motorola No. 63E856643-B
11/3/59-RCS



REVISIONS

DIAG. ISSUE	CHASSIS SUFFIX	REF. SYMBOL	CHANGE	LOCATION
A			TLN6155A 2-FREQ. RCVR. FILTER KIT ADDED	RCVR. TERM. BOARD ON POWER SUPPLY
B			MINOR CHANGES IN POWER SUPPLY	

NOTE
Reference symbols using the initial letter "X" (XV1, etc.) denote the mounting for "plug-in" components. Thus, "XV1" is the socket for tube V1, etc.

REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION
A1	1V861317	AMPLIFIER, AF: microphone pre-amplifier; assembly; includes: 1V859594 BOARD, printed circuit; assembly; includes soldering lug terminals Reference parts C1, Q1, R5, R6, R7, R8
C1	23C855013 or 23B844927	CAPACITOR, fixed: electrolytic; tubular; 20 uf +100-10%; 25 vdcw
C2	23C855013	tubular; 20 uf +100-10%; 25 vdcw same as C2
C3		
DP1	59C852603	CARTRIDGE, microphone: magnetic; dynamic type; 175 ohm impedance at 1 kc
DS1	65R4151	LAMP, incandescent: 6-8 volt; .2 ampere; single contact bayonet base; globular glass; type 51
DS2		same as DS1
F1	65K82482	FUSE, cartridge: one time; paper; 20 ampere; 250 volt; 2" long x 9/16" diameter
J1	1V855055	CONNECTOR, receptacle: female; assembly; includes mounting bracket and single contact, coaxial connector
J2	9D16345	4 contact; polarized; round molded black phenolic base; chassis mounted; includes: 457699 LOCKWASHER: 13/16" internal
J3	9C801050	2K6180 NUT, ring
		19 contact; polarized; rectangular molded black phenolic base; chassis mounted; does not include 7B85113 BRACKET, connector mounting; nor 64C855103 PLATE, connector mounting; bracket and plate must be ordered separately
MK1	TU353A ("plug-in") or 1V852400 ("wired-in")	MICROPHONE, dynamic: palm type; contains transistor amplifier and "push-to-talk" switch; includes reference parts A1, DP1, W8
		palm type; contains transistor amplifier and "push-to-talk" switch; includes reference parts A1, DP1, W4
P1	28A474006	CONNECTOR, plug: male; single contact; round bakelite wafer insulator; cable mounted; connects to Transmitter Antenna Relay Antenna Connector
P2		same as P1 except connects to Transmitter Antenna Relay Receiver Connector
P3		same as P1 except connects to Receiver Antenna Connector

REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION
P4	9D855112	CONNECTOR, plug: (continued) 2 contact; polarized; round phenolic wafer insulator; cable mounted; does not include 15B85111 SHELL, connector; shell nor #10 wire and #10 stud; lug must be ordered separately
Q1	48K124317	TRANSISTOR: type MN60; does not include 14A86196 INSULATOR; insulator must be ordered separately
R1	17K892469	RESISTOR, fixed: carbon; #10%; 1/2 W; ins.; unless otherwise stated
R2	18K855108	wire-wound; 4 ohm ±2%; 1 w variable: wire-wound; 20 ohm ±20%; 2 w
R3	18K855107	variable: wire-wound; 10K; 2 w
R4	6R6336	270 ohm; 1 w
R5	6R6080	4.7K
R6	6R5981	3.3K
R7	6R5660	180 ohm
R8	6R5621	10 ohm
R9	6R488016	33 ohm; 2 w
R10	6R5350	47 ohm
R11		same as R10
S1	40B858304	SWITCH, toggle: S. P. S. T.
S2	40A80248	S. P. D. T.; does not include 258382 NUT, machine; 15/32-32 x 9/16" hex; 2 required; nuts must be ordered separately
TB1	31A890699	BOARD, terminal: 6 screw terminals
W1	1V832063	LEAD, electrical: Battery to Fuseholder; includes: 30K831572 CABLE, power: single conductor; #10 ga.; stranded; ins; coded BLK; 2 ft. length required
		29K832116 LUG, ring tongue; for 3/8" stud and #10 wire
		29K824154 LUG, ring tongue; for #10 stud and #10 wire
W2	1V855053	LINE, RF transmission: assembly; Antenna to Transmitter
		Antenna Relay; includes: 1V855054 ASSEMBLY, cable and plug; includes: 30B475378 CABLE, RF; coaxial; RG-58A/U; 6" length required
		Reference part P1
W3	1K800193	Transmitter Antenna Relay to Receiver Antenna Input; includes: 30B475378 CABLE, RF; coaxial; RG-58A/U; 24" length required
		Reference parts P2, P3
W4	1V854006	CORD, microphone: assembly; includes: 30K852742 CORD, coiled; tinsel
		41A852707 SPRING, strain relief
		11M2506 TUBING, extruded; #9 BLK; 1" length required
		29A847033 LUG, terminal; wire mounted; insulation piercing; 2 required

REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION
W5	30K831572	CABLE, power: single conductor; #10 ga. stranded; insulated; coded black; 9 ft. length required does not include 29K824154 LUG, ring tongue; for #10 wire and #10 stud; lug must be ordered separately
W6		same as W5 except does not include 29K832116 LUG, ring tongue; for #10 wire and 3/8" stud; lug must be ordered separately
W7	30A825430	2 conductor; rubber covered; each conductor; #18 ga. stranded; 41" length required
W8	1V854034	assembly; includes: 30K852742 CORD, coiled; tinsel
		41A852707 SPRING, strain relief
		11M2506 TUBING, extruded; #9 BLK; 2" length required
		29A847033 LUG, terminal; wire mounted; insulation piercing; 4 required
		29A847034 LUG, terminal; wire mounted; insulation piercing; 4 required
		37K480513 SLEEVE, rubber
		Reference part P5
XDS1	9A859619	LAMPHOLDER: single contact; miniature; bayonet base
XDS2		same as XDS1
XF1	67K892616	FUSEHOLDER: single fuse mounting rectangular porcelain base; chassis mounted; for fuse 2" long x 9/16" diameter
NON-REFERENCED ITEMS		
TLN6000A Installation Kit, includes:		
	1V859627	Cable Clamp Kit: includes: 42A19376 CLAMP, cable; 4 req'd
		357467 SCREW, tapping: #8 x 3/8" plain hex; 4 required
	1V849628	Mounting Hardware Kit: includes: 35125947 SCREW, tapping: #14 x 3/4" plain hex; 4 required
		45119331 LOCKWASHER: 1/4" split; 4 required
	1V84019	Noise Filter Kit: includes: 8A821889 CAPACITOR, generator hash filter; fixed; paper; tubular; .5 uf ±20%; 150 vdcw; one lead grounded; one lead insulated; 2 supplied
		64A141 SUPERSESSOR, noise: resistor; screw type
		457670 LOCKWASHER: 1/4" internal; 2 required
TK611 Cable Kit, includes:		
	32A880952	Reference parts F1, XF1, W1
	1V474596	GASKET, fuseholder
		Mounting Hardware Kit, fuseholder; includes: 4A53863 WASHER, cushion: 2 supplied
		35400465 SCREW, tapping: #10 x 3/4" slotted round head; 2 supplied

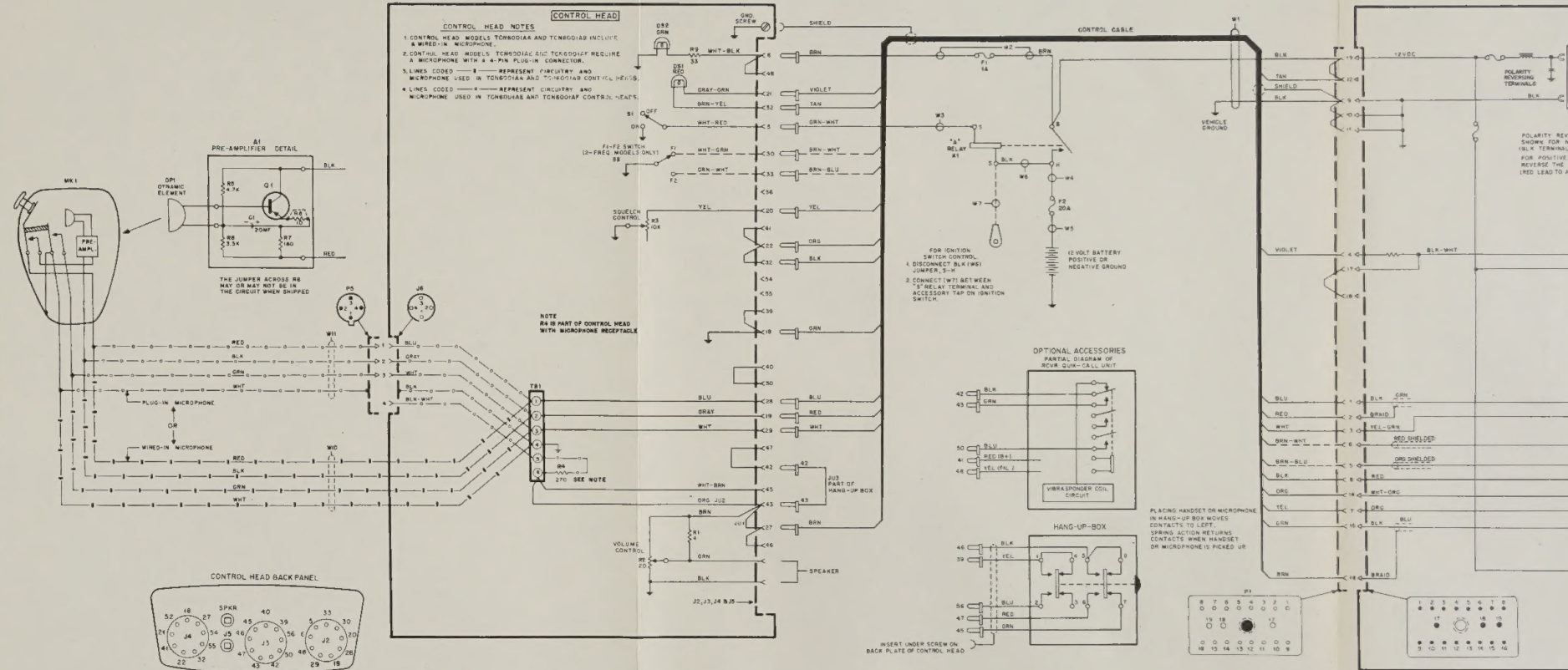
REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION
		Mounting Hardware Kit, (continued) 457658 LOCKWASHER: #10 internal; 2 supplied
		451706 WASHER: 3/8" x .203 x .033"; 2 supplied
		Microphone, includes:
	1V854005	Items used in both "wired-in" microphone and "plug-in" microphone
		Reference part A1
		BACK HOUSING AND HANG-UP STUD ASSEMBLY
	40B857174	SWITCH, push
	35124693	LOCKSCREW: 6-32 x 1/4"; Phillips round head; 3 required
	42A852710	STRAP, strain relief
	38A852699	BUTTON, push
	15B852566	FRONT HOUSING
	13B852703	GRILLE
	35A852701	CLOTH, grille
	13A852709	EMBLEM, MOTOROLA trade mark
	32B852702	GASKET, rubber
	14A857138	INSULATOR: used for insulating printed circuit assembly
	42A852705	CLAMP, used for securing microphone cartridge
	14A857137	INSULATOR: used between clamp and microphone cartridge
	4K852762	WASHER, insulating; used as a spacer
	35127924	LOCKSCREW: 6-32 x 5/16"; Phillips round head
	35127481	SCREW, machine: 6-32 x 7/8"; Phillips round head; 2 required
	45400386	LOCKWASHER: #6 split; 2 required
		Items used in 1V852400 "wired-in" microphone only
	33K852697	NAMEPLATE: Model Identification
		Items used in TU353A "plug-in" microphone only
		Reference part W8
	33K852698	NAMEPLATE: Model Identification
	1V16241	Mounting Kit, microphone: includes: 64A85596 PLATE, support: for microphone hang-up
		35122830 SCREW, tapping: #8 x 1/2"; 2 required
		Control Head
		Each control head model includes the items shown for the model, plus items which are common to all.
	1V852400	TCN6000AA (1-freq. with "wired-in" microphone); includes the following items:
		MICROPHONE (reference part MK1)
	13D859614	ESCUTCHEON
	38A857093	BUTTON, plug
	37K106352	GROMMET, rubber; for 7/16" diameter hole
	1V16241	MOUNTING KIT, microphone: includes: 64A85596 PLATE, support: for microphone hang-up
		35122830 SCREW, tapping: #8 x 1/2"; 2 required

REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION
	1V852400	TCN6000AB (2-freq. with "wired-in" microphone); includes reference part S2 and the following items:
		MICROPHONE (reference part MK1)
	13D859615	ESCUTCHEON
	38A857093	BUTTON, plug
	37K106352	GROMMET, rubber; for 7/16" diameter hole
	1V16241	MOUNTING KIT, microphone: includes: 64A85596 PLATE, support: for microphone hang-up
		35122830 SCREW, tapping: #8 x 1/2"; 2 required
		TCN6000AA (1-freq. with receptacle for "plug-in" microphone); includes reference parts J2, R4 and the following items:
	13D859614	ESCUTCHEON
	457691	LOCKWASHER: 3/8" internal
	29R5279	LUG, soldering: 7/8"
		TCN6000AF (2-freq. with receptacle for "plug-in" microphone); includes reference parts J2, R4, S2 and the following items:
	13D859615	ESCUTCHEON
	457691	LOCKWASHER: 3/8" internal
	29R5279	LUG, soldering: 7/8"
		Items common to all control heads
		Reference parts DS1, DS2, J3, F4, S1, TB1, W5, W6, W7, XDS1, XDS2
	258382	NUT, machine: 15/32-32 x 9/16" hex; 2 required
	61B859620	LENS, indicator: RED
	61K859621	LENS, indicator: GRN
	457691	LOCKWASHER: 3/8" internal
	258364	NUT, machine: 3/8-32 x 1/2" hex; 2 required
	64C855103	PLATE, connector mounting (back cover)
	7B855113	BRACKET, connector mounting
	42A855115	CLAMP, cable
	26B857812	SHIELD, indicator lamp: 2 req'd
	35122080	LOCKSCREW: 6-32 x 1/4" plain hex; 6 required
	36B855027	KNOB, control: 2 required

CONTROL HEAD JUMPER TABLE

CASE NO.	EQUIPMENT USED*				CIRCUIT OPERATION	JUMPERS		
	MIC.	HANDSET	HANG-UP BOX	QUIK-CALL		JU1	JU2	JU3
1	EITHER		---	---	Basic operation. Radio Set Speaker in circuit at all times	USED	USED	OMIT
2	---	X	X	---	Handset picked up connects audio to handset earpiece	OMIT	OMIT	USED
					Handset picked up connects audio to handset earpiece, speaker in circuit.	USED	OMIT	USED
3	X	---	X	X	Audio to speaker when microphone is removed or hung up. Alarm circuit energized. "Quik-call" disabled.	OMIT	USED	OMIT
4	---	X	X	X	Audio switched from speaker to handset earpiece. Alarm circuit energized	OMIT	OMIT	OMIT
					Audio switched from "quik-call" to speaker and handset. Alarm circuit energized.	OMIT	USED	OMIT
5	EITHER		---	X	"Quik-call" used for alarm purposes only. Audio to speaker at all times.	USED	USED	OMIT

* X = item used
 --- = item not used



REF ID	MOTOROLA PART No.	DESCRIPTION	REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION	REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION	REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION	REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION	REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION																																										
		CONNECTOR, plug; (continued) component parts which must be ordered separately: 15B80074 SHELL, connector 15B80074 COVER, connector shell 14A80073 INSULATOR, connector shell; small 14B80078 INSULATOR, connector shell; large 42A00647 CLAMP, cable 42A00648 CLAMP, cable 44A1172 WASHER, "C" 44A0071 WASHER 3B80061 SCREW, connector retaining; includes knurled knob 35720 SCREW, 6-32 x 1/8; 2 required 35732 SCREW, 6-32 x 1/2; 2 required			CABLE ASSEMBLY, special purpose (continued) Part No. Code # 29K80419 20 29K80420 20 29K80421 21 29K80422 21 29K80427 27 29K80428 28 29K80429 29 29K80430 30 29K80432 32 29K80433 33 29K83540 52 also includes: 42A03468 CLAMP, cable; "wrap around"; strain relief 42A83464 HOOK, "S"; strain relief 29A84151 LUG, slotted tongue; for #10 stud and #10 wire 30K81370 CABLE, power; single conductor, stranded; insulated; coded BLK; one 17 ft. and one 4 ft. length req'd 29K84154 LUG, ring tongue; for #10 stud and #10 wire 29K83073 LUG, ring tongue; for 5/16" stud and #10 wire assembly consisting of "in line" fasciculator with attached connecting leads; includes reference part XF1 and the following items: 29K84456 LUG, ring tongue; for #10 stud and #10 wire 29K80406 CONNECTOR, plug; male; single conductor; pin type; coded #6 LEAD, electrical; includes: 10M48028 WIRE, electrical; #10 g., stranded; ins.; coded GRN-WHT; 66" length required 29K80405 CONNECTOR, plug; male; single conductor; pin type; cable mounted; coded #9 29K84456 LUG, ring tongue; for #10 stud and #20 wire	W6	1V830177	LEAD, electrical; includes: 10M4370 WIRE, electrical; single conductor; #12 g.; stranded; ins.; coded BLK; 4' length req'd 29A82451 LUG, slotted tongue; for #10 stud and #12 wire; 2 req'd Ignition Switch Control includes: 10M4610 WIRE, electrical; single conductor; #20 g.; str.; ins.; coded BLK; 5 ft. length required 29K82455 LUG, ring tongue 2 supplied	W7	1V847414	LINE, RF, transmission; coaxial; includes: 30B85178 CABLE, RF; coaxial; RG-58A/U, 5-1/2" length required; reference parts J1 and P2 30K81370 CABLE, power; single conductor, stranded; insulated; coded BLK; one 17 ft. and one 4 ft. length req'd 29K84154 LUG, ring tongue; for #10 stud and #10 wire 29K83073 LUG, ring tongue; for 5/16" stud and #10 wire CORD, microphone; includes: ("wired-in" mic.) 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 1" length required 29A84703 LUG, terminal; wire mounted; insulation piercing; 8 required 29K84456 LUG, ring tongue; for #10 stud and #10 wire 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 2" length req'd 29A84703 LUG, terminal; wire mounted; insulation piercing; 4 required 29A84704 LUG, terminal; wire mounted; insulation piercing; 4 required 37K480513 SLEEVE, rubber; Reference part P5	W8	1V854406	CORD, microphone; includes: ("wired-in" mic.) 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 1" length required 29A84703 LUG, terminal; wire mounted; insulation piercing; 8 required 29K84456 LUG, ring tongue; for #10 stud and #10 wire 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 2" length req'd 29A84703 LUG, terminal; wire mounted; insulation piercing; 4 required 29A84704 LUG, terminal; wire mounted; insulation piercing; 4 required 37K480513 SLEEVE, rubber; Reference part P5	W9	1K800193	COAXIAL; includes: 30B85178 CABLE, RF; coaxial; RG-58A/U, 2 ft. length required; reference parts J1 and P4	W10	1V854406	CORD, microphone; includes: ("wired-in" mic.) 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 1" length required 29A84703 LUG, terminal; wire mounted; insulation piercing; 8 required 29K84456 LUG, ring tongue; for #10 stud and #10 wire 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 2" length req'd 29A84703 LUG, terminal; wire mounted; insulation piercing; 4 required 29A84704 LUG, terminal; wire mounted; insulation piercing; 4 required 37K480513 SLEEVE, rubber; Reference part P5	W11	1V854034	CORD, microphone; includes: ("plug-in" mic.) 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 2" length req'd 29A84703 LUG, terminal; wire mounted; insulation piercing; 4 required 29A84704 LUG, terminal; wire mounted; insulation piercing; 4 required 37K480513 SLEEVE, rubber; Reference part P5	W12	1V854441	CORD, microphone; includes: ("plug-in" mic.) 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 2" length req'd 29A84703 LUG, terminal; wire mounted; insulation piercing; 4 required 29A84704 LUG, terminal; wire mounted; insulation piercing; 4 required 37K480513 SLEEVE, rubber; Reference part P5	W13	1V854441	CORD, microphone; includes: ("plug-in" mic.) 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 2" length req'd 29A84703 LUG, terminal; wire mounted; insulation piercing; 4 required 29A84704 LUG, terminal; wire mounted; insulation piercing; 4 required 37K480513 SLEEVE, rubber; Reference part P5	W14	42A858471	CABLE, power; consists of a braze strap 2-1/4" long x 5/8" wide x .015" thick, processed and plated; includes: 30K81213 CABLE, power; single conductor; #10 g.; stranded; ins.; coded RED, 5 ft. length required 29K83073 LUG, ring tongue for 5/16" stud 29K84154 LUG, ring tongue for #10 stud	W5	1V854446	CABLE, power; consists of a braze strap 2-1/4" long x 5/8" wide x .015" thick, processed and plated; includes: 30K81213 CABLE, power; single conductor; #10 g.; stranded; ins.; coded RED, 5 ft. length required 29K83073 LUG, ring tongue for 5/16" stud 29K84154 LUG, ring tongue for #10 stud	W15	1V832061	CABLE ASSEMBLY, special purpose includes reference part P1 and the following items: 30C810012 CABLE, 12 conductor; stranded; ins.; leads: shielded; black plastic covered; 17 ft. length req'd 26K809418 CONNECTOR, plug male; single conductor; pin type; cable mounted; coded #10 also includes the following connectors which are the same as above part number 29K809418 except for coding as indicated:	W16	1V832061	CABLE ASSEMBLY, special purpose includes reference part P1 and the following items: 30C810012 CABLE, 12 conductor; stranded; ins.; leads: shielded; black plastic covered; 17 ft. length req'd 26K809418 CONNECTOR, plug male; single conductor; pin type; cable mounted; coded #10 also includes the following connectors which are the same as above part number 29K809418 except for coding as indicated:	W17	1V832061	CABLE ASSEMBLY, special purpose includes reference part P1 and the following items: 30C810012 CABLE, 12 conductor; stranded; ins.; leads: shielded; black plastic covered; 17 ft. length req'd 26K809418 CONNECTOR, plug male; single conductor; pin type; cable mounted; coded #10 also includes the following connectors which are the same as above part number 29K809418 except for coding as indicated:	W18	1V832061	CABLE ASSEMBLY, special purpose includes reference part P1 and the following items: 30C810012 CABLE, 12 conductor; stranded; ins.; leads: shielded; black plastic covered; 17 ft. length req'd 26K809418 CONNECTOR, plug male; single conductor; pin type; cable mounted; coded #10 also includes the following connectors which are the same as above part number 29K809418 except for coding as indicated:	W19	1V832061	CABLE ASSEMBLY, special purpose includes reference part P1 and the following items: 30C810012 CABLE, 12 conductor; stranded; ins.; leads: shielded; black plastic covered; 17 ft. length req'd 26K809418 CONNECTOR, plug male; single conductor; pin type; cable mounted; coded #10 also includes the following connectors which are the same as above part number 29K809418 except for coding as indicated:	W20	1V832061	CABLE ASSEMBLY, special purpose includes reference part P1 and the following items: 30C810012 CABLE, 12 conductor; stranded; ins.; leads: shielded; black plastic covered; 17 ft. length req'd 26K809418 CONNECTOR, plug male; single conductor; pin type; cable mounted; coded #10 also includes the following connectors which are the same as above part number 29K809418 except for coding as indicated:	W21	1V832061	CABLE ASSEMBLY, special purpose includes reference part P1 and the following items: 30C810012 CABLE, 12 conductor; stranded; ins.; leads: shielded; black plastic covered; 17 ft. length req'd 26K809418 CONNECTOR, plug male; single conductor; pin type; cable mounted; coded #10 also includes the following connectors which are the same as above part number 29K809418 except for coding as indicated:	W22	1V832061	CABLE ASSEMBLY, special purpose includes reference part P1 and the following items: 30C810012 CABLE, 12 conductor; stranded; ins.; leads: shielded; black plastic covered; 17 ft. length req'd 26K809418 CONNECTOR, plug male; single conductor; pin type; cable mounted; coded #10 also includes the following connectors which are the same as above part number 29K809418 except for coding as indicated:
P2	2B8474066	male; conical; round baffle w/air insulator; cable mounted same as P2																																																									
P3		same as P2																																																									
P4		male; 4 conduct; polarized; includes metal shell and 41K818813 SPRING, cable strain relief																																																									
P5	2B814370	male; 4 conduct; polarized; includes metal shell and 41K818813 SPRING, cable strain relief																																																									
Q1	48A124317	TRANSISTOR: type MN50; does not include 14A811196 INSULATOR; insulator must be ordered separately																																																									
R1	17B92469	RESISTOR, fixed; carbon; 410K; 1/2 w. ins.; unused otherwise slotted	W2	1V859441	assembly consisting of "in line" fasciculator with attached connecting leads; includes reference part XF1 and the following items: 29K84456 LUG, ring tongue; for #10 stud and #10 wire 29K80406 CONNECTOR, plug; male; single conductor; pin type; coded #6 LEAD, electrical; includes: 10M48028 WIRE, electrical; #10 g., stranded; ins.; coded GRN-WHT; 66" length required 29K80405 CONNECTOR, plug; male; single conductor; pin type; cable mounted; coded #9 29K84456 LUG, ring tongue; for #10 stud and #20 wire	W6	1V830177	LEAD, electrical; includes: 10M4370 WIRE, electrical; single conductor; #12 g.; stranded; ins.; coded BLK; 4' length req'd 29A82451 LUG, slotted tongue; for #10 stud and #12 wire; 2 req'd Ignition Switch Control includes: 10M4610 WIRE, electrical; single conductor; #20 g.; str.; ins.; coded BLK; 5 ft. length required 29K82455 LUG, ring tongue 2 supplied	W7	1V847414	LINE, RF, transmission; coaxial; includes: 30B85178 CABLE, RF; coaxial; RG-58A/U, 5-1/2" length required; reference parts J1 and P2 30K81370 CABLE, power; single conductor, stranded; insulated; coded BLK; one 17 ft. and one 4 ft. length req'd 29K84154 LUG, ring tongue; for #10 stud and #10 wire 29K83073 LUG, ring tongue; for 5/16" stud and #10 wire CORD, microphone; includes: ("wired-in" mic.) 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 1" length required 29A84703 LUG, terminal; wire mounted; insulation piercing; 8 required 29K84456 LUG, ring tongue; for #10 stud and #10 wire 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 2" length req'd 29A84703 LUG, terminal; wire mounted; insulation piercing; 4 required 29A84704 LUG, terminal; wire mounted; insulation piercing; 4 required 37K480513 SLEEVE, rubber; Reference part P5	W8	1V854406	CORD, microphone; includes: ("wired-in" mic.) 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 1" length required 29A84703 LUG, terminal; wire mounted; insulation piercing; 8 required 29K84456 LUG, ring tongue; for #10 stud and #10 wire 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 2" length req'd 29A84703 LUG, terminal; wire mounted; insulation piercing; 4 required 29A84704 LUG, terminal; wire mounted; insulation piercing; 4 required 37K480513 SLEEVE, rubber; Reference part P5	W9	1K800193	COAXIAL; includes: 30B85178 CABLE, RF; coaxial; RG-58A/U, 2 ft. length required; reference parts J1 and P4	W10	1V854406	CORD, microphone; includes: ("wired-in" mic.) 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 1" length required 29A84703 LUG, terminal; wire mounted; insulation piercing; 8 required 29K84456 LUG, ring tongue; for #10 stud and #10 wire 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 2" length req'd 29A84703 LUG, terminal; wire mounted; insulation piercing; 4 required 29A84704 LUG, terminal; wire mounted; insulation piercing; 4 required 37K480513 SLEEVE, rubber; Reference part P5	W11	1V854034	CORD, microphone; includes: ("plug-in" mic.) 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 2" length req'd 29A84703 LUG, terminal; wire mounted; insulation piercing; 4 required 29A84704 LUG, terminal; wire mounted; insulation piercing; 4 required 37K480513 SLEEVE, rubber; Reference part P5	W12	1V854441	CORD, microphone; includes: ("plug-in" mic.) 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 2" length req'd 29A84703 LUG, terminal; wire mounted; insulation piercing; 4 required 29A84704 LUG, terminal; wire mounted; insulation piercing; 4 required 37K480513 SLEEVE, rubber; Reference part P5	W13	1V854441	CORD, microphone; includes: ("plug-in" mic.) 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 2" length req'd 29A84703 LUG, terminal; wire mounted; insulation piercing; 4 required 29A84704 LUG, terminal; wire mounted; insulation piercing; 4 required 37K480513 SLEEVE, rubber; Reference part P5	W14	42A858471	CABLE, power; consists of a braze strap 2-1/4" long x 5/8" wide x .015" thick, processed and plated; includes: 30K81213 CABLE, power; single conductor; #10 g.; stranded; ins.; coded RED, 5 ft. length required 29K83073 LUG, ring tongue for 5/16" stud 29K84154 LUG, ring tongue for #10 stud	W5	1V854446	CABLE, power; consists of a braze strap 2-1/4" long x 5/8" wide x .015" thick, processed and plated; includes: 30K81213 CABLE, power; single conductor; #10 g.; stranded; ins.; coded RED, 5 ft. length required 29K83073 LUG, ring tongue for 5/16" stud 29K84154 LUG, ring tongue for #10 stud	W15	1V832061	CABLE ASSEMBLY, special purpose includes reference part P1 and the following items: 30C810012 CABLE, 12 conductor; stranded; ins.; leads: shielded; black plastic covered; 17 ft. length req'd 26K809418 CONNECTOR, plug male; single conductor; pin type; cable mounted; coded #10 also includes the following connectors which are the same as above part number 29K809418 except for coding as indicated:	W16	1V832061	CABLE ASSEMBLY, special purpose includes reference part P1 and the following items: 30C810012 CABLE, 12 conductor; stranded; ins.; leads: shielded; black plastic covered; 17 ft. length req'd 26K809418 CONNECTOR, plug male; single conductor; pin type; cable mounted; coded #10 also includes the following connectors which are the same as above part number 29K809418 except for coding as indicated:	W17	1V832061	CABLE ASSEMBLY, special purpose includes reference part P1 and the following items: 30C810012 CABLE, 12 conductor; stranded; ins.; leads: shielded; black plastic covered; 17 ft. length req'd 26K809418 CONNECTOR, plug male; single conductor; pin type; cable mounted; coded #10 also includes the following connectors which are the same as above part number 29K809418 except for coding as indicated:	W18	1V832061	CABLE ASSEMBLY, special purpose includes reference part P1 and the following items: 30C810012 CABLE, 12 conductor; stranded; ins.; leads: shielded; black plastic covered; 17 ft. length req'd 26K809418 CONNECTOR, plug male; single conductor; pin type; cable mounted; coded #10 also includes the following connectors which are the same as above part number 29K809418 except for coding as indicated:	W19	1V832061	CABLE ASSEMBLY, special purpose includes reference part P1 and the following items: 30C810012 CABLE, 12 conductor; stranded; ins.; leads: shielded; black plastic covered; 17 ft. length req'd 26K809418 CONNECTOR, plug male; single conductor; pin type; cable mounted; coded #10 also includes the following connectors which are the same as above part number 29K809418 except for coding as indicated:	W20	1V832061	CABLE ASSEMBLY, special purpose includes reference part P1 and the following items: 30C810012 CABLE, 12 conductor; stranded; ins.; leads: shielded; black plastic covered; 17 ft. length req'd 26K809418 CONNECTOR, plug male; single conductor; pin type; cable mounted; coded #10 also includes the following connectors which are the same as above part number 29K809418 except for coding as indicated:	W21	1V832061	CABLE ASSEMBLY, special purpose includes reference part P1 and the following items: 30C810012 CABLE, 12 conductor; stranded; ins.; leads: shielded; black plastic covered; 17 ft. length req'd 26K809418 CONNECTOR, plug male; single conductor; pin type; cable mounted; coded #10 also includes the following connectors which are the same as above part number 29K809418 except for coding as indicated:	W22	1V832061	CABLE ASSEMBLY, special purpose includes reference part P1 and the following items: 30C810012 CABLE, 12 conductor; stranded; ins.; leads: shielded; black plastic covered; 17 ft. length req'd 26K809418 CONNECTOR, plug male; single conductor; pin type; cable mounted; coded #10 also includes the following connectors which are the same as above part number 29K809418 except for coding as indicated:
R2	17B92469	wire-wound; 4 ohm 425K; 1 w variable; wire-wound; 20 ohm 425K; 2 w																																																									
R3	1K8055107	variable; wire-wound; 10K; 2 w																																																									
R4	6K8150	270 ohm; 1 w																																																									
R5	6K8080	4.7K																																																									
R6	6K5581	3.3K																																																									
R7	6K8360	180 ohm																																																									
R8	6K5621	10 ohm																																																									
R9	6K84816	31 ohm; 2 w																																																									
R10	6K5520	47 ohm																																																									
R11		same as R10																																																									
S1	40D58304	SPST																																																									
S2	40A02048	spdt; does not include 25B8182 nut; machine: 1N/30-32 x 9/16; ins.; 2 required; nuts must be ordered separately																																																									
TB1	31A89069	BOARD, terminal; 6 screw terminals																																																									
W1	1V832061	CABLE ASSEMBLY, special purpose includes reference part P1 and the following items: 30C810012 CABLE, 12 conductor; stranded; ins.; leads: shielded; black plastic covered; 17 ft. length req'd 26K809418 CONNECTOR, plug male; single conductor; pin type; cable mounted; coded #10 also includes the following connectors which are the same as above part number 29K809418 except for coding as indicated:	W4	42A858471	CABLE, power; consists of a braze strap 2-1/4" long x 5/8" wide x .015" thick, processed and plated; includes: 30K81213 CABLE, power; single conductor; #10 g.; stranded; ins.; coded RED, 5 ft. length required 29K83073 LUG, ring tongue for 5/16" stud 29K84154 LUG, ring tongue for #10 stud	W5	1V854446	CABLE, power; consists of a braze strap 2-1/4" long x 5/8" wide x .015" thick, processed and plated; includes: 30K81213 CABLE, power; single conductor; #10 g.; stranded; ins.; coded RED, 5 ft. length required 29K83073 LUG, ring tongue for 5/16" stud 29K84154 LUG, ring tongue for #10 stud	W6	1V830177	LEAD, electrical; includes: 10M4370 WIRE, electrical; single conductor; #12 g.; stranded; ins.; coded BLK; 4' length req'd 29A82451 LUG, slotted tongue; for #10 stud and #12 wire; 2 req'd Ignition Switch Control includes: 10M4610 WIRE, electrical; single conductor; #20 g.; str.; ins.; coded BLK; 5 ft. length required 29K82455 LUG, ring tongue 2 supplied	W7	1V847414	LINE, RF, transmission; coaxial; includes: 30B85178 CABLE, RF; coaxial; RG-58A/U, 5-1/2" length required; reference parts J1 and P2 30K81370 CABLE, power; single conductor, stranded; insulated; coded BLK; one 17 ft. and one 4 ft. length req'd 29K84154 LUG, ring tongue; for #10 stud and #10 wire 29K83073 LUG, ring tongue; for 5/16" stud and #10 wire CORD, microphone; includes: ("wired-in" mic.) 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 1" length required 29A84703 LUG, terminal; wire mounted; insulation piercing; 8 required 29K84456 LUG, ring tongue; for #10 stud and #10 wire 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 2" length req'd 29A84703 LUG, terminal; wire mounted; insulation piercing; 4 required 29A84704 LUG, terminal; wire mounted; insulation piercing; 4 required 37K480513 SLEEVE, rubber; Reference part P5	W8	1V854406	CORD, microphone; includes: ("wired-in" mic.) 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 1" length required 29A84703 LUG, terminal; wire mounted; insulation piercing; 8 required 29K84456 LUG, ring tongue; for #10 stud and #10 wire 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 2" length req'd 29A84703 LUG, terminal; wire mounted; insulation piercing; 4 required 29A84704 LUG, terminal; wire mounted; insulation piercing; 4 required 37K480513 SLEEVE, rubber; Reference part P5	W9	1K800193	COAXIAL; includes: 30B85178 CABLE, RF; coaxial; RG-58A/U, 2 ft. length required; reference parts J1 and P4	W10	1V854406	CORD, microphone; includes: ("wired-in" mic.) 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 1" length required 29A84703 LUG, terminal; wire mounted; insulation piercing; 8 required 29K84456 LUG, ring tongue; for #10 stud and #10 wire 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 2" length req'd 29A84703 LUG, terminal; wire mounted; insulation piercing; 4 required 29A84704 LUG, terminal; wire mounted; insulation piercing; 4 required 37K480513 SLEEVE, rubber; Reference part P5	W11	1V854034	CORD, microphone; includes: ("plug-in" mic.) 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 2" length req'd 29A84703 LUG, terminal; wire mounted; insulation piercing; 4 required 29A84704 LUG, terminal; wire mounted; insulation piercing; 4 required 37K480513 SLEEVE, rubber; Reference part P5	W12	1V854441	CORD, microphone; includes: ("plug-in" mic.) 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 2" length req'd 29A84703 LUG, terminal; wire mounted; insulation piercing; 4 required 29A84704 LUG, terminal; wire mounted; insulation piercing; 4 required 37K480513 SLEEVE, rubber; Reference part P5	W13	1V854441	CORD, microphone; includes: ("plug-in" mic.) 29K83742 CORD, coiled; lineal, 4 conductor 41A85707 SPRING, strain relief 11M2506 TUBING, extruded; 10 BLK, 2" length req'd 29A84703 LUG, terminal; wire mounted; insulation piercing; 4 required 29A84704 LUG, terminal; wire mounted; insulation piercing; 4 required 37K480513 SLEEVE, rubber; Reference part P5	W14	42A858471	CABLE, power; consists of a braze strap 2-1/4" long x 5/8" wide x .015" thick, processed and plated; includes: 30K81213 CABLE, power; single conductor; #10 g.; stranded; ins.; coded RED, 5 ft. length required 29K83073 LUG, ring tongue for 5/16" stud 29K84154 LUG, ring tongue for #10 stud	W5	1V854446	CABLE, power; consists of a braze strap 2-1/4" long x 5/8" wide x .015" thick, processed and plated; includes: 30K81213 CABLE, power; single conductor; #10 g.; stranded; ins.; coded RED, 5 ft. length required 29K83073 LUG, ring tongue for 5/16" stud 29K84154 LUG, ring tongue for #10 stud	W15	1V832061	CABLE ASSEMBLY, special purpose includes reference part P1 and the following items: 30C810012 CABLE, 12 conductor; stranded; ins.; leads: shielded; black plastic covered; 17 ft. length req'd 26K809418 CONNECTOR, plug male; single conductor; pin type; cable mounted; coded #10 also includes the following connectors which are the same as above part number 29K809418 except for coding as indicated:	W16	1V832061	CABLE ASSEMBLY, special purpose includes reference part P1 and the following items: 30C810012 CABLE, 12 conductor; stranded; ins.; leads: shielded; black plastic covered; 17 ft. length req'd 26K809418 CONNECTOR, plug male; single conductor; pin type; cable mounted; coded #10 also includes the following connectors which are the same as above part number 29K809418 except for coding as indicated:	W17	1V832061	CABLE ASSEMBLY, special purpose includes reference part P1 and the following items: 30C810012 CABLE, 12 conductor; stranded; ins.; leads: shielded; black plastic covered; 17 ft. length req'd 26K809418 CONNECTOR, plug male; single conductor; pin type; cable mounted; coded #10 also includes the following connectors which are the same as above part number 29K809418 except for coding as indicated:	W18	1V832061	CABLE ASSEMBLY, special purpose includes reference part P1 and the following items: 30C810012 CABLE, 12 conductor; stranded; ins.; leads: shielded; black plastic covered; 17 ft. length req'd 26K809418 CONNECTOR, plug male									

PRE-ALIGNMENT NOTES

EXCERPTS FROM F. C. C. REGULATIONS

- Radio transmitters may be tuned or adjusted only by duly authorized radio operators or by personnel working directly under their supervision.
- The RF power output of a station shall be no more than required for satisfactory technical operation considering the area to be covered and the local conditions.

TEST EQUIPMENT REQUIRED

- MOTOROLA Portable Test Set (P-8500 series, P-8501 series or TU546 series)
- MOTOROLA K-9322 Alignment Tool Kit
- MOTOROLA T1034A Series Frequency Monitor (for oscillator alignment and deviation adjustment)
- RF wattmeter or dummy antenna
- Power Supply (preferably the one designed for the transmitter under test)

HOW TO SET UP THE P-8500 SERIES AND THE P-8501 SERIES TEST SETS

- Connect the dummy antenna or RF wattmeter to the transmitter ANT. jack.
- Connect the test set cable plug to the transmitter METER jack.
- Place the test set REC. - XMTR. -0-50 UA switch in the XMTR. position.
- Place the GRID CURRENT-METER-FIELD STRENGTH switch in the METER position.
- Connect the power supply to the transmitter as shown on the intercabing diagram for the equipment.
- If the power supply chassis has a HI-LO switch place it in the LO position.
- Turn the equipment on. Allow 30 seconds for the tubes to warm up.

HOW TO SET UP THE TU546 SERIES TEST SET

- Connect the dummy antenna or RF wattmeter to the transmitter ANT. jack.
- Connect one end of the metering cable to the test set and the other end to the transmitter METER receptacle.
- Place the Function Selector Switch in the XMTR. position.
- Place the oscillator and meter reversing switch in the OFF position.
- Connect the power supply to the transmitter as shown on the intercabing diagram for the radio set.
- Place the HI-LO switch on the power supply in the LO position.
- Turn the equipment on. Allow 30 seconds for the tubes to warm up.

TEST SET SWITCH POSITIONS

P-8500 & P-8501 Series	1	2	3	4	4(PA)	5	6	7	8
TU546 Series	1	2	3	4	7	5	6	9	10
Circuit Metered	—	—	Tripler Grid	2nd Doubler Grid	PA Plate Current	Doubler Driver Grid	PA Grid	PA Plate Voltage	Push-to-Talk

HOW TO KEY THE TRANSMITTER

- Use the XMTR-ON switch of the test set to place the unmodulated carrier on the air for meter reading and adjustment.
- Use the MOTOROLA TU353A Microphone (or equivalent) to key the transmitter and modulate the carrier as required.

CAUTION

Do not key the transmitter for more than a few seconds at a time until it is properly tuned. Plate current is excessive in untuned stages and may damage the unit. Turn the transmitter on for brief periods while reading the meter and making the adjustments.

FREQUENCY CALCULATIONS

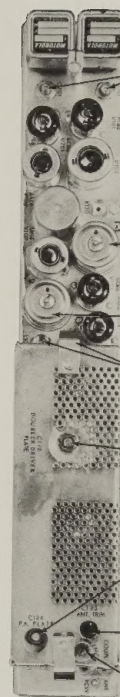
$$f_0 = \frac{f_c}{24} \text{ where: } f_0 = \text{crystal frequency, and } f_c = \text{carrier frequency}$$

I. D. C. CONTROL SETTING

- Set up the Frequency Monitor for voice modulation measurement. (If an oscilloscope is available see text for I. D. C. setting using the scope.)
- Turn transmitter on and modulate with 1000 cps tone.
- Adjust the I. D. C. control (R130) on the transmitter chassis until the MODULATION DEVIATION meter on the station monitor reads as outlined in the following paragraphs.
 - When the transmitter is intended for operation on a 60 kc or 120 kc channel spacing, the I. D. C. control should be adjusted for an approximate 17 kc reading on the station monitor MODULATION DEVIATION METER. Note that the MODULATION DEVIATION METER reads average voltage but is calibrated in peak voltage. The setting of 17 kc corresponds to a peak of 15 kc.
 - When the transmitter is intended for operation on a 30 kc channel spacing, the I. D. C. control should be adjusted for an approximate 5-1/2 kc reading on the station monitor MODULATION DEVIATION METER.

ALIGNMENT PROCEDURE

STEP	SWITCH POSITION TU546 TEST SET	ADJUSTMENT	METER READING	STAGE, CONDITIONS AND PROCEDURE
1	2	C101 C201	Maximum On-frequency Allow 15 minutes crystal warm-up period	OSCILLATOR. Adjust only when primary or secondary available (MOTOROLA T1034A may be used). Set Adjust C101 for "on-frequency" reading on monitor. frequency transmitter adjust C201. same as above, ex monitor to accept frequency No. 2. The adjustments should be made with the transmitter switched to the hi preferably to the frequency more commonly used.
2	3	T1	Maximum	1ST DOUBLER. Adjust primary slug from bottom. A top. The circuit frequency is twice the crystal frequency.
3	4	T2	Maximum	TRIPLER. Adjust primary slug from bottom. Adjust The circuit frequency is six times the crystal frequency meter switch in position 4.
4	5	L106 L107	Maximum	2ND DOUBLER. Adjust L106 and L107 for maximum frequency is twelve times the crystal frequency. Repe position 5.
5	6	C119	Maximum	DOUBLER-DRIVER. Adjust C119 for maximum. Tun meter will always show the fixed bias in this position. indicates proper alignment. The circuit frequency is crystal frequency.
6	7	C124	Minimum (Dip)	POWER AMPLIFIER. Set C125 for minimum plate cu adjustment fully clockwise (decoupled). Tune C124 for HI-LO switch to HI.
7	7	C125	Maximum	ANTENNA INPUT. Adjust C125 for maximum meter (150 ma).
8	7	COUPLING and C124 or C125	Maximum rf Output NOTE DO NOT EXCEED 150 ma	ANTENNA COUPLING. Remove test load and connect 1. Using field strength meter: Make adjustments with transmitter shielded a Place rf probe near antenna. Adjust C125 an indication on meter. Do not exceed 150 ma. 2. Without field strength meter: Turn COUPLING counterclockwise (increasing C124 for dip. Increase coupling until only a overcouple. This causes the dip to disappear Recheck setting of C125. DO NOT EXCEED L107 and C119. Tighten locknuts on C124.



STEP 1
C101, C201
OSCILLATORS

STEP 2
T1
1ST DOUBLER

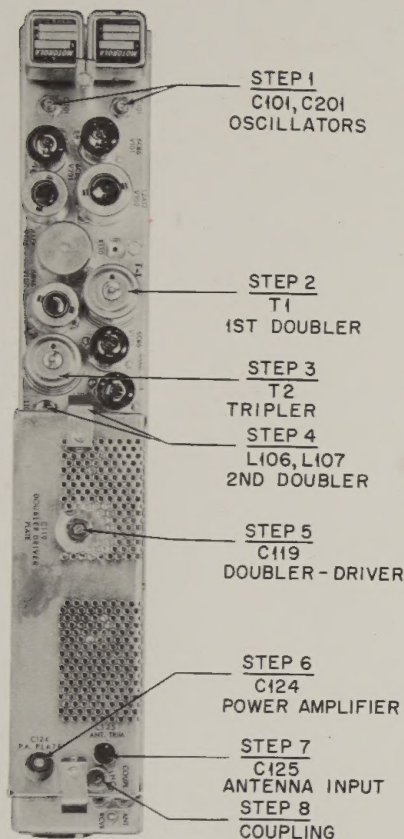
STEP 3
T2
TRIPLER

STEP 4
L106, L107
2ND DOUBLER

STEP 5
C119
DOUBLER - DRIVER

STEP 6
C124
POWER AMPLIFIER

STEP 7
C125
ANTENNA INPUT
STEP 8
COUPLING



ALIGNMENT PROCEDURE

STEP	SWITCH POSITION TU546 TEST SET	ADJUSTMENT	METER READING	STAGE, CONDITIONS AND PROCEDURE
1	2	C101 C201	Maximum On-frequency Allow 15 min- utes crystal warm-up period	OSCILLATOR. Adjust only when primary or secondary frequency standard is available (MOTOROLA T1034A may be used). Set up frequency monitor. Adjust C101 for "on-frequency" reading on monitor. When aligning a two-frequency transmitter adjust C201, same as above, except set frequency monitor to accept frequency No. 2. The adjustments in Steps 2 through 8 should be made with the transmitter switched to the higher frequency or preferably to the frequency more commonly used.
2	3	T1	Maximum	1ST DOUBLER. Adjust primary slug from bottom. Adjust secondary slug from top. The circuit frequency is twice the crystal frequency.
3	4	T2	Maximum	TRIPLER. Adjust primary slug from bottom. Adjust secondary slug from top. The circuit frequency is six times the crystal frequency. Repeak T1 with the meter switch in position 4.
4	5	L106 L107	Maximum	2ND DOUBLER. Adjust L106 and L107 for maximum meter reading. The circuit frequency is twelve times the crystal frequency. Repeak T2 with the switch in position 5.
5	6	C119	Maximum	DOUBLER-DRIVER. Adjust C119 for maximum. Tune for a definite peak. The meter will always show the fixed bias in this position. A definite peak reading indicates proper alignment. The circuit frequency is twenty-four times the crystal frequency.
6	7	C124	Minimum (Dip)	POWER AMPLIFIER. Set C125 for minimum plate current. Turn COUPLING adjustment fully clockwise (decoupled). Tune C124 for a dip. Set power supply HI-LO switch to HI.
7	7	C125	Maximum	ANTENNA INPUT. Adjust C125 for maximum meter reading. Do not exceed 30 (150 ma).
8	7	COUPLING and C124 or C125	Maximum rf Output NOTE DO NOT EXCEED 150 ma	ANTENNA COUPLING. Remove test load and connect antenna. 1. Using field strength meter: Make adjustments with transmitter shielded as much as possible by housing. Place rf probe near antenna. Adjust C125 and COUPLING for maximum rf indication on meter. Do not exceed 150 ma. 2. Without field strength meter: Turn COUPLING counterclockwise (increasing) gradually while retuning C124 for dip. Increase coupling until only a slight dip is apparent. DO NOT overcouple. This causes the dip to disappear and reduces power output. Recheck setting of C125. DO NOT EXCEED 150 ma. Repeak T1, T2, L106, L107 and C119. Tighten locknuts on C124.

FINAL METER READINGS

Each time a transmitter is aligned or tested, final meter readings should be made and entered in a logbook.

All readings given in the table below are minimum except PA, which is maximum. DO NOT exceed the value given for the PA current. This is the maximum plate current to which the unit can be safely tuned.

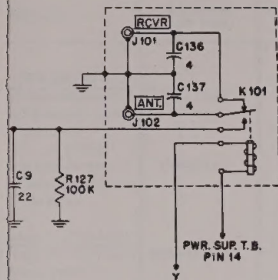
Readings 1 through 6 are purely relative and do not give actual current or voltage measurement.

When using the P-8500 or the P-8501 series test sets, position 7 is a d-c voltmeter with 1000 volts full scale. Actual B+ reading is obtained by multiplying the microampere scale reading by 20. The TU546 series test sets have a 0-1000 volt d-c scale from which the B+ is read directly.

When using the P-8500 or the P-8501 series test sets, position 8 indicates d-c relay control voltage when the transmitter is not keyed. Multiply the microampere scale reading by 0.3 to obtain the actual value of the d-c voltage. When using the TU546 series test sets, the relay control voltage is read directly with the position selector switch in position 10.

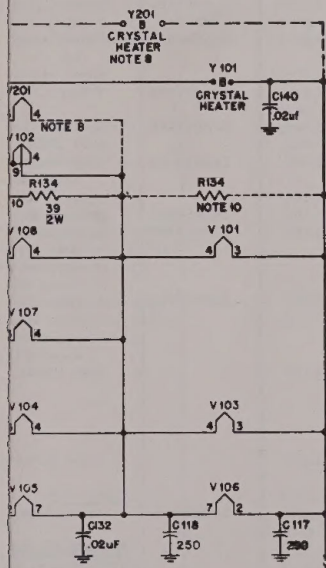
For all three series portable test sets, multiply the scale reading by 5 to obtain the actual PA plate current in milliamperes.

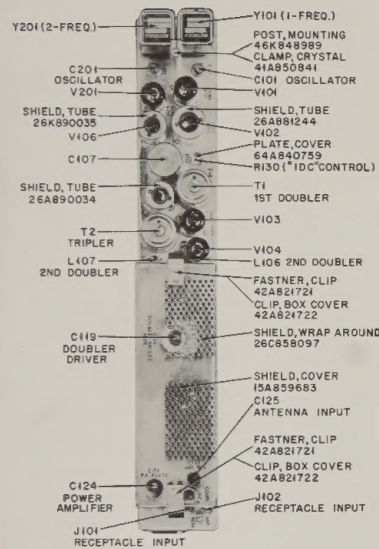
SWITCH POSITION	P-8500 & P-8501 SERIES	1	2	3	~4	5	6	7	8	PA(+4)
	TU546 SERIES	1	2	3	4	5	6	9	10	7
METER READING		-	-	4	6	11	9	18	-	30



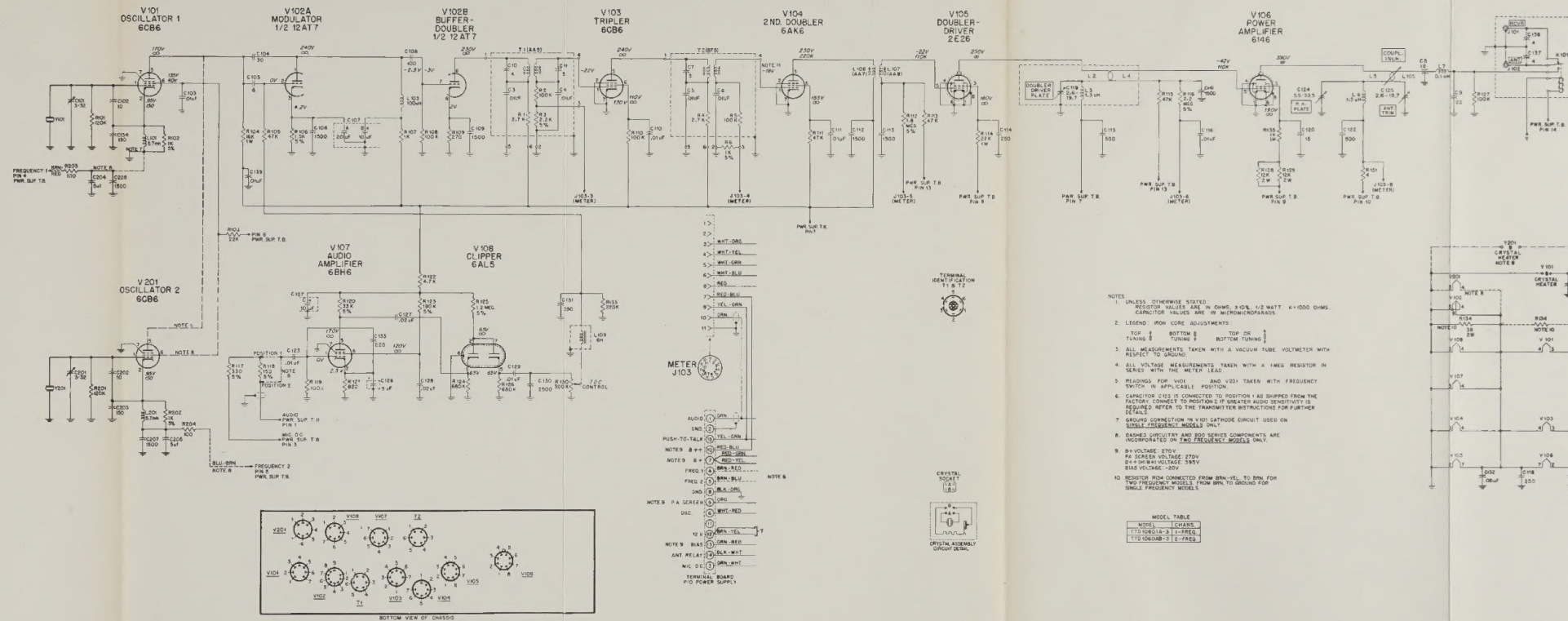
REVISIONS

DIAG ISSUE	CHASSIS SUFFIX	REF. SYMBOL	CHANGE	LOCATION
A	TTD1060AA-1 TTD1060AB-1	C105	WAS 5 uuf	V102A-2
		C117	WAS 800 uuf	V106-2
		C118	WAS 800 uuf	V106-7
B	TTD1060AA-2 TTD1060AB-2	R119	WAS 27K	V107-1
C	TTD1060AA-3 TTD1060AB-3	C105	WAS 3, 3 uuf	V102A-2 (MODULATOR GRID)
D			CHASSIS MARKINGS ADDED TO DIAGRAM	

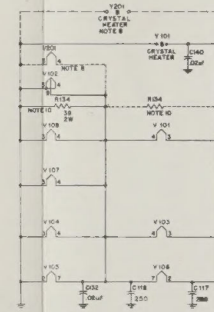




AEPD-1690-A



REVISIONS				
DIAG ISSUE	CHASSIS SUFFIX	REF SYMBOL	CHANGE	LOCATION
A	TTD100AA-1 TTD100AB-1	C105 C117 C118	WAS 5.0 uaf WAS 5.0 uaf WAS 500 uaf	V10A-2 V10B-2 V10B-1
B	TTD100AA-2 TTD100AB-2	R119	WAS 27K	V10T-1
C	TTD100AA-3 TTD100AB-3	C105	WAS 5.3 uaf	V10A-2 (MODULATED GATED)
D			CHASSIS MARKING ADDED TO DIAGRAM	



- NOTES
- 1 UNLESS OTHERWISE STATED:
 - a. RESISTOR VALUES ARE IN OHMS, $\times 10^3$, $\frac{1}{2}$ WATT $\times 1000$ OHMS
 - b. CAPACITOR VALUES ARE IN P.F., $\times 10^3$ IN MICROFARADS
- 2 LEADS FROM CORE ADJUSTMENTS
- 3 TOP OR BOTTOM TUNING
- 4 TOP OR BOTTOM TUNING
- 5 ALL MEASUREMENTS TAKEN WITH A VACUUM TUBE VOLTMETER WITH RESPECT TO GROUND
- 6 ALL VOLTAGE MEASUREMENTS TAKEN WITH A 1MEG RESISTOR IN SERIES WITH THE METER LEAD
- 7 CAPACITORS FOR VHF1 AND VHF2 TUNED WITH FREQUENCY SWITCH IN APPLICABLE PORT
- 8 PLACED CIP3 IN CONNECTION TO POSITION 1 AS SHIPPED FROM THE FACTORY TO OBTAIN THE BEST SIGNAL TO NOISE RATIO. GREATER ADJUSTABILITY IS REQUIRED AFTER TO THE TRANSMITTER INSTRUCTIONS FOR FURTHER
- 9 GROUND CONNECTION IN VHF1 CATHODE CIRCUIT USED ON SIGNAL GENERATOR
- 10 SIGNALS AND FREQUENCY SCALES MODELS ONLY ARE INCORPORATED ON TWO-FREQUENCY MODELS ONLY.
- 11 B=VOLTAGE $\times 270V$
PA SCREEN VOLTAGE $270V$
B+ = BORN VOLTAGE $350V$
A=VOLTAGE $-20V$
- 12 RESISTOR B1A CONNECTED FROM B1N TO GROUND FOR TWO FREQUENCY MODELS. FROM B1N TO GROUND FOR ONE FREQUENCY MODEL

MODEL	CHANS
TTD10601A-3	1-FREQ
TTD10602B-3	2-FREQ

TTD1060 Transmitter
Schematic Diagram
Motorola No. 63E856652-D
11/3/59-RC5

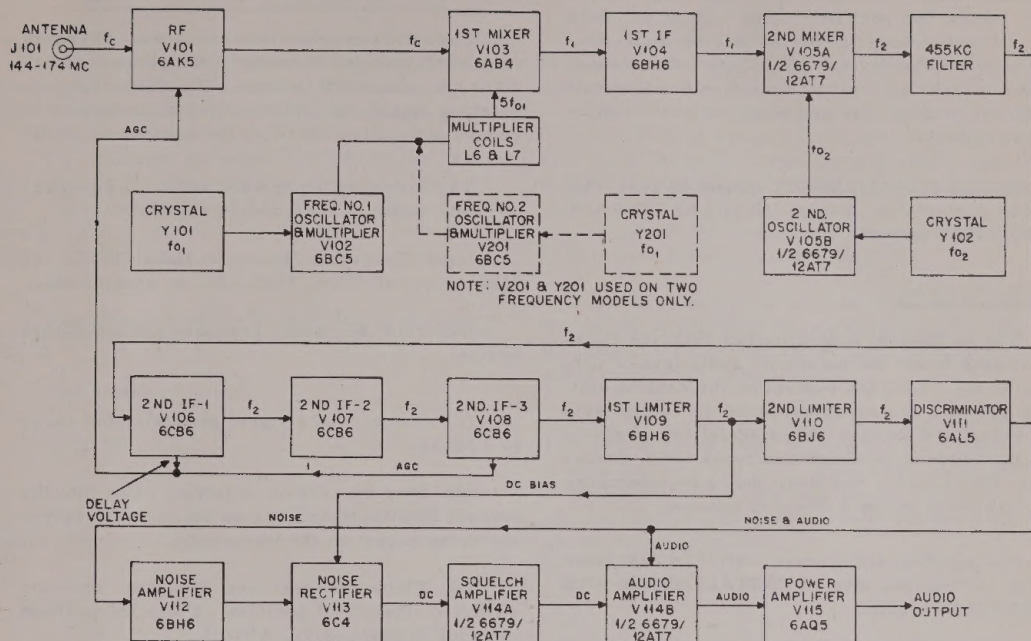
PARTS LIST for Transmitter Diagram 63E85662-D

REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION
		CAPACITOR, fixed; uuf, 500 vdcw; unless otherwise stated
C1		NOT USED
C2		NOT USED
C3	21B80139	.01 uf +80-20%; 600 vdcw
C4		same as C3
C5		same as C3
C6		same as C3
C7	21K83259	feed-thru; 18 +5%
C8	21K851767	feed-thru; 18 +5%
C9	21R124554	22 +5%
C10	21K840850	4 +.5 uuf
C11	21K840847	5 +.5 uuf
C101	19K859115	variable; 3-32
C102	21K859119	10 +.5 uuf
C103		same as C3
C104	21K848156	30 +5%
C105	21K840848	6 +.5 uuf
C106	21B808001	1500 GMV +100% max
C107	23K892117	elec; consists of:
C107A		20 uf +50-10%; 450 vdcw
C107B		Δ 10 uf +50-10%; 450 vdcw
C107C		□ 10 uf +100-10%; 25 vdcw
C108	21K840046	100 +10%
C109		same as C106
C110		same as C3
C111		same as C3
C112		same as C106
C113		same as C106
C114	21A112247	250 +10%; 850 vdcw
C115	21A824948	500 +20-10%; 600 vdcw
C116		same as C3
C117		same as C114
C118		same as C114
C119	19K800032	variable; 2.8-19.7
C120	21K835358	15 +10%
C121		NOT USED
C122		same as C115
C123		same as C3
C124	19B858032	variable; 5.5-33.5
C125		same as C119
C126	23K890624	elec; 5 uf +100-15%; 150 vdcw
C127	21B401029	.02 uf +80-20%; 600 vdcw
C128		same as C127
C129		same as C3
C130	21K859773	2500 +5%
C131	21K846158	390 +10%; 300 vdcw
C132		same as C127
C133	21R410115	220 +20%
C134	21K840047	150 +5%
C135		NOT USED
C136	21K840850	4 +.5 uuf
C137		same as C136
C138		NOT USED
C139		same as C3
C140		same as C127
C141		same as C106
C201		same as C101
C202		same as C102
C203		same as C134
C204	23K857384	elec; 5 uf +100-10%; 150 vdcw
C205		same as C204
C206		NOT USED
C207		same as C106
C208		same as C106

REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION
J101	9A87120	CONNECTOR, receptacle; female; single contact; round molded mica filled base; chassis mounted
J102		same as J101
J103	9B860881	11 contact; polarized; round molded black phenolic base; saddle mounted
K101	59K854405	RELAY, armature: 12 v dc; non-coaxial; contact arrangement, 1 form "C" NOTE Relay K101 is mounted inside 1V84669 ASSEMBLY, shield [includes J101, J102]; shield assembly must be ordered separately
L1		COIL, RF: NOT USED
L2	1V835418	Doubler Driver Plate; includes C119
L3	24A891063	choke; 1.3 mh; coded BLU dot
L4	1V859750	Power Amplifier Grid
L5	24A58031	Power Amplifier Plate; includes L6
L6		same as L3
L7	24A852574	Filter; .1 uh
L101	24K847941	choke; 5.7 mh; coded BRN-YEL
L102		NOT USED
L103	24A832402	choke; 100 uh; coded BLU dot; Modulator
L104		same as L3
L105	24A858093	Antenna Pick-up Loop
L106	24B815995	2nd Doubler Plate; base stamped AA7; includes 1V835422 CORE, adjustable tuning; and clip; coded BLUE dot
L107	24K835396	2nd Doubler Grid; base stamped AA8; includes 1V835422 CORE, adjustable tuning; and clip; coded BLUE dot
L108		NOT USED
L201		same as L101
L109	25D850636	COIL, AF: choke; 6 henries
R1	6R5577	2.7K
R2	6R6031	100K
R3	6R2028	2.2K +5%
R4		same as R1
R5		same as R2
R6	6R6411	1K +5%
R101	6R6531	120K
R102	6R6411	1K +5%
R103	6R6397	22K
R104	6R5734	18K; 1 w
R105	6R6048	47K
R106		same as R102
R107	6R6229	1K
R108		same as R2
R109	6R6432	270 ohm

REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION
R110		RESISTOR, (cont'd)
R111		same as R2
R112	6R401017	1.8 meg +5%
R113	6R6434	27K
R114	6R6341	22K; 1 w
R115		same as R105
R116	6R2073	2.2 meg +5%
R117	6R120638	330 ohm +5%
R118	6R5645	150 ohm +5%
R119		same as R2
R120	6R2068	33K +5%
R121	6R6269	820 ohm
R122	6R6080	4.7K
R123	6R2061	180K +5%
R124	6R6475	680K
R125	6R5779	1.2 meg
R126		same as R124
R127		same as R2
R128	6R5766	12K; 2 w
R129		same as R128
R130	18K612998	variable; 300K +20%; 1/4 w
R131	17K892469	wire wound; 4 ohm +2%; 1 w
R132	or 17B821901	wire wound; 4 ohm +2%; 3 w
R133		NOT USED
R134		same as R119
R135	6R488043	39 ohm; 2 w
R201		1K; 1 w
R202		same as R101
R203	6R6326	same as R102
R204		100 ohm
		same as R203
T1	24B835397	TRANSFORMER, RF: 1st Doubler; base stamped AA5; includes: 1V87207 CORE, adjustable tuning; and palmot 1V87208 CORE, adjustable tuning; and clip Reference parts C3, C4, C10, C11, R1, R2, R3
T2	24K861145	Tripler; base stamped BF9; includes: 1V87207 CORE, adjustable tuning; and palmot 1V87208 CORE, adjustable tuning; and clip Reference parts C5, C6, C7, R4, R5, R6
V101	6CB6	TUBE electron
V102	12AT7	electron
V103		same as V101
V104	6AK6	electron
V105	2E26	electron
V106	6146	electron
V107	6B5H6	electron
V108	6AL6	electron
V201		same as V101
XV101	9K87124	SOCKET, tube; female; 7 contact; miniature; molded mica filled phenolic base; includes center shield; saddle mounting
XV102	9B881243	9 contact; miniature; molded mica filled phenolic base; includes center shield and tube shield base; saddle mounting
XV103		same as XV101

REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION
XV104		SOCKET, (cont'd)
XV105	9B890001	same as XV101
XV106		8 contact; brown bakelite wafer base; saddle mounting
XV107	9B834683	same as XV105
XV108		7 contact; miniature; molded mica filled phenolic base; includes center shield and tube shield base; saddle mounting
XV201		same as XV107
		same as XV101
XY101	9K857508	SOCKET, crystal; female; 4 contact; square molded black bakelite base; chassis mounted
XY201		same as XY101
CRYSTAL		
NOTE When ordering a Transmitter Chassis only, crystals must be ordered separately. Crystal type number and operating frequency must be specified when ordering crystal.		
Y101	Type RN-A	CRYSTAL UNIT, quartz; assembly; includes 12 volt heater element and thermostat



LEGEND:

 f_c = CARRIER FREQUENCY = 144-174 MC. f_{01} = 1ST. OSCILLATOR FREQUENCY = $\frac{f_c - f_1}{5} = 26.4 - 32.4$ MC. f_1 = 1ST. INTERMEDIATE FREQUENCY = $f_c - 5 f_{01} = 12$ MC. f_2 = 2ND. INTERMEDIATE FREQUENCY = $f_0 - f_1 = 455$ KC. f_{02} = 2ND. OSCILLATOR FREQUENCY = 12.455 MC.g. Noise-Actuated Squelch Circuit

The noise-actuated squelch circuit consists of a noise amplifier, a noise rectifier, a dc amplifier and associated circuit components, as shown on the schematic diagram. The discriminator output is applied to the input of the noise amplifier, V112. The input r-c network greatly attenuates the low-frequency components but passes frequencies above 3000 cps. These random frequencies are applied as a signal to the grid of V112 and amplified like other types of signal inputs. In the cathode of the noise amplifier the variable SQUELCH control varies the gain of the tube by adjusting its bias. The setting of this control is covered in the following paragraph.

The output of the noise amplifier drives the noise rectifier, V113. The rectified noise signal

appears as positive voltage across the load resistor, R152. This positive voltage is added to a steady negative bias taken from the second limiter stage. The resultant of these two voltages is applied to the grid of the dc amplifier tube. In the no-signal condition, i.e., noise alone, the resultant voltage is zero or somewhat positive. The dc amplifier conducts and cuts off the audio amplifier tube. This keeps the speaker silent when signals are not being received. When signals are received the noise is greatly reduced and the rectified noise output is not enough to overcome the steady negative bias on the grid of the dc amplifier. In this condition, the dc amplifier is cut off and the audio amplifier operates, passing on the received audio signals.

h. Squelch Control

The SQUELCH control limits the gain of the noise amplifier tube. In practice, this control is

HOW TO SET UP THE P-8500 AND P-8501 SERIES TEST SETS FOR DISCRIMINATOR AND 455 KC ALIGNMENT

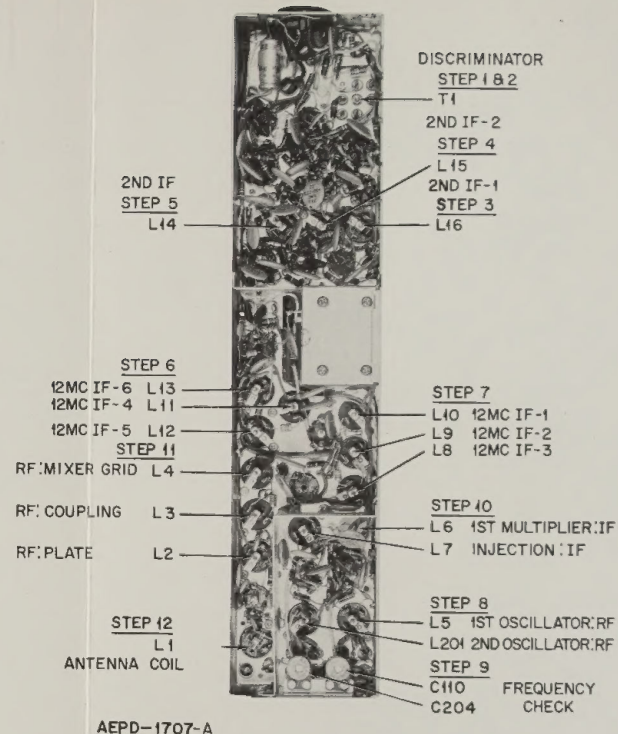
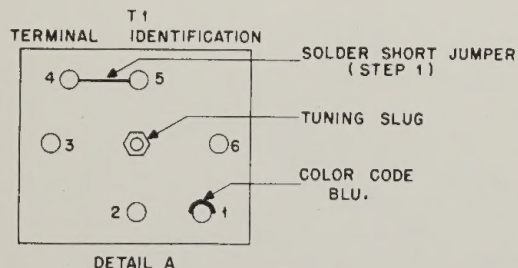
1. Set the REC.-XMTR. 0-50 UA switch to the REC position.
2. Plug a 455 kc crystal into the two-pin crystal socket.
3. Set the GRID CURRENT-METER-FIELD STRENGTH selector switch to the GRID CURRENT position.
4. Set the ATTENUATOR control for maximum output (10).
5. Place the test set ON-OFF switch in the ON position. (Test set operates on internal battery. Conserve battery life by keeping switch OFF when set is not in use.)
6. Adjust the frequency control (ADJ) for a maximum meter reading.
7. Set the ON-OFF switch to the OFF position.
8. Set the GRID CURRENT-METER-FIELD STRENGTH switch to the METER position.
9. Plug the test set metering cable into the METER receptacle on the receiver chassis.
10. Connect one end of the test set extension cable to the RF OUTPUT jack on the test set. Connect the other end of the extension cable to the RF probe cable.

TEST SET SELECTOR SWITCH POSITIONS

P-8500 & P-8501 SERIES TEST SETS	1	2	+4, -4	5	6
TU546 SERIES TEST SETS	1	2	4	5	6
CIRCUIT METERED	2nd I-F #3 Grid	1st Lim. Grid	Discr. Output	Discr. Input	1st Osc. Grid

HOW TO SET UP THE TU546 SERIES TEST SETS FOR DISCRIMINATOR AND 455 KC ALIGNMENT

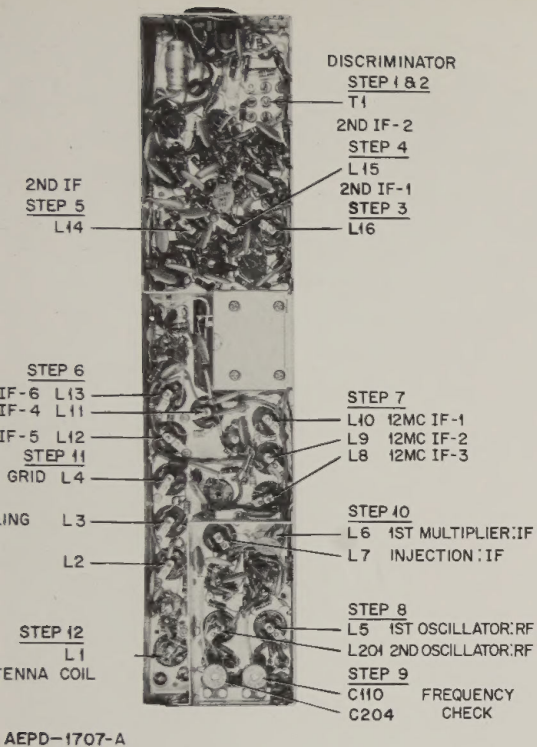
1. Set the function selector switch to the RCVR position.
2. Connect the 20-pin metering cable into the receptacle on the test set. Plug the other end (11-pin) into the metering socket on the receiver.
3. Connect one end of the test set rf extension cable to the rf connector on the test set. Connect the other end of the extension cable to the rf probe cable.
4. Place the oscillator and meter reversing switch to the 455 kc position.



HOW TO SET UP THE SIGNAL GENERATOR* FOR 12 MC. I.F. ALIGNMENT

1. Couple the signal generator output loosely to the grid (pin 7) of V105. Couple just enough input to give a small meter reading.
2. Set the test set selector switch to position 4. Turn on the test set.
3. Set the signal generator frequency for approximately 12 mc.
4. Locate the exact 12 mc point by rotating the generator dial back and forth around the 12 mc setting until you obtain a meter reading of exactly zero (position 4). The meter reading should go above and below zero as the dial is rotated. Leave the generator set for zero meter reading. Make sure the signal remains constant throughout the alignment (generator may drift).

*Use a Motorola T1034A Series, or equivalent.



HOW TO SET UP THE SIGNAL GENERATOR* FOR 12 MC. I.F. ALIGNMENT

the signal generator output loosely to the grid (pin 7) of V105. Just enough input to give a small meter reading.

test set selector switch to position 4. Turn on the test set.

signal generator frequency for approximately 12 mc.

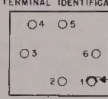
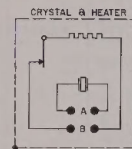
the exact 12 mc point by rotating the generator dial back and around the 12 mc setting until you obtain a meter reading of zero (position 4). The meter reading should go above and below as the dial is rotated. Leave the generator set for zero meter reading. Make sure the signal remains constant throughout the alignment. (The signal generator may drift).

Motorola T1034A Series, or equivalent.

STEP	STAGE, TEST CONDITIONS AND PROCEDURE	ALIGNMENT FREQUENCY	ADJUSTMENT	TU546 TEST SET SWITCH POSITION	METER READING
1	DISCRIMINATOR PRIMARY -- Solder a short jumper across terminals 4 and 5 of the discriminator secondary coil (see DETAIL A, lower left). Set up the Motorola Test Set as described in the left hand column. Place the test set selector switch in position 1 and set the ON-OFF switch to the ON position. Move the rf probe around near pin 1, V106, until the meter reading is at least 15 ua. Secure the probe in its position and place the selector switch in position 5. Adjust T1 for maximum meter reading. Unsolder the jumper.	455 kc, sharp tuning	T1 bottom slug	5	Maximum
2	DISCRIMINATOR SECONDARY -- With the rf probe placed as in step 1 adjust the top slug of T1 for exactly zero meter reading (selector switch in position 4).	455 kc, sharp tuning	T1 top slug	4	Zero
3	455 KC, I.F. COIL L16 -- Place the rf probe near the input to the 455 kc I-F filter. Couple the signal loosely so that an increase of signal strength will produce a linear increase in meter reading (switch in position 1 or 2). Secure the probe in position to keep the input at a constant level. Adjust L16 for a maximum meter reading with the switch in position 2.	455 kc, sharp tuning	L16	2	Maximum
4	455 KC, I-F COIL L15 -- Couple the signal to the I-F filter so as to obtain a maximum reading of approximately 5 ua with the selector switch in position 1. Adjust L15 for a maximum reading.	455 kc, broad tuning	L15	1	Maximum
5	455 KC, I-F COIL L14 -- Use the same conditions as in step 4. Adjust L14 for a maximum meter reading. Place the test set ON-OFF switch in the OFF position and remove the rf probe.	455 kc, sharp tuning	L14	1	Maximum
6	12 MC. I-F COILS L13, L12 and L11 -- Set up the Motorola T1034A Series (or equivalent) as described below the illustration. After adjusting the signal generator set the test set selector switch to position 1 or 2 and couple the generator output to the grid (pin 1) of V104. The signal must be coupled loosely so that an increase of signal strength produces a linear increase in meter reading (position 1 or 2). Adjust L13 for a maximum meter reading with switch in position 1 or 2, note that two peaks are present within the coil tuning range. The peak found when the slug is nearest the top of the coil (as viewed from bottom of chassis) is the proper alignment peak. Adjust L12 and L11 for a maximum meter reading (position 1 or 2).	12 mc, sharp tuning	L13, L12 and L11	1 or 2	Maximum
7	12 MC. I-F COILS L10, L9 and L8 -- Follow the same procedure as in step 6 except couple the signal to the grid (pin 6) of V103 and adjust L10, L9 and L8; no double peaks will be found.	12 mc, sharp tuning	L10, L9 and L8	1 or 2	Maximum
8	FIRST OSCILLATOR COIL L5 -- Uncouple the signal generator. Position the ceramic trimmer, C110, so that the screwdriver adjustment slot is parallel with the length of the receiver chassis. Adjust coil L5 for a maximum meter reading with the selector switch in position 6. If 2-frequency, set F1-F2 switch on control head to F1 position while adjusting L5. Then repeat in F2 position while adjusting trimmer C204 and coil L201.	Receiver crystal frequency, sharp tuning	L5 (L201)	6	Maximum
9	FREQUENCY CHECK -- Transmit the carrier frequency from the transmitter which this receiver is normally intended to receive. A zero meter reading indicates that the receiver is on frequency. Adjust trimmer C110 to obtain a zero meter reading. Check the final setting by rotating C110 back and forth while observing the meter. The reading should go above and below the zero point as the trimmer is rotated. Set C110 for exactly zero meter reading. On 2-frequency receivers, adjust C204 for the number 2 frequency.	Carrier frequency, sharp tuning	C110, C204	4	Zero
10	MULTIPLIER COILS L7 AND L6 -- The signal generator must be set for the exact carrier frequency to be received. To do this follow the procedure outlined below the illustration except select the carrier frequency instead of 12 mc and couple the signal to pin 6 of V103 instead of pin 7, V105. With the generator output coupled loosely to pin 6, V103, adjust L7 and L6 for maximum meter reading (position 1 or 2).	Carrier frequency, sharp tuning	L7 L6	1 or 2	Maximum
11	RF COILS L4, L3 and L2 -- Keep the signal generator set for the carrier frequency as in step 10. Couple the signal loosely to the grid (pin 1) of V101. Adjust L4, L3 and L2 for maximum reading (position 1 or 2).	Carrier freq., sharp tuning	L4, L3 and L2	1 or 2	Maximum
12	ANTENNA COIL L1 -- Connect the signal generator output to the antenna receptacle on the receiver chassis. Use a 6 db, 50 ohm, attenuation pad between the generator and the receiver input. Adjust L1 for maximum reading.	Carrier freq., sharp tuning	L1	1 or 2	Maximum
13	IGNITION NOISE ADJUSTMENT -- Install the receiver in the vehicle. Start the vehicle engine and allow it to run while making the adjustments. Turn the receiver ON and allow it to warm up for five minutes. Radiate a carrier frequency signal from a transmitter, signal generator or test set (see test set instruction manual). The signal should be just strong enough to produce quieting (20 to 30 db). Turn VOLUME control on control head to normal usable level. Plug the test set metering cable into the METER receptacle on the receiver. Set the selector switch to position 2 and note the meter reading. Adjust coil L14 very slightly to reduce audible ignition noise. DO NOT reduce the meter reading more than one-half microampere.	Carrier freq., slight adj.	L14	2	Reduce audible noise

AEPD-909-B

1ST Q

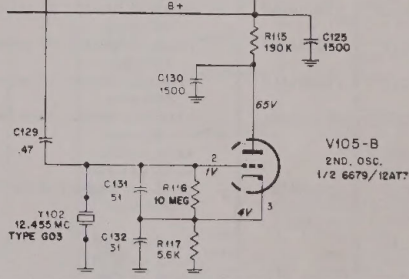
MODEL TABLE

S	ONE - FREQUENCY	CHASSIS SUFFIX	FREQ. RANGE	CHANNEL SPACING
A237W	TRD1171AA / TA237W-L	5	144-152 MC	60 KC
	TRD1172AA / TA237W-H	5	152-174 MC	60 KC
A237S	TRD1171AB / TA237S-L	6	144-152 MC	30 KC
	TRD1172AB / TA237S-H	6	152-174 MC	30 KC

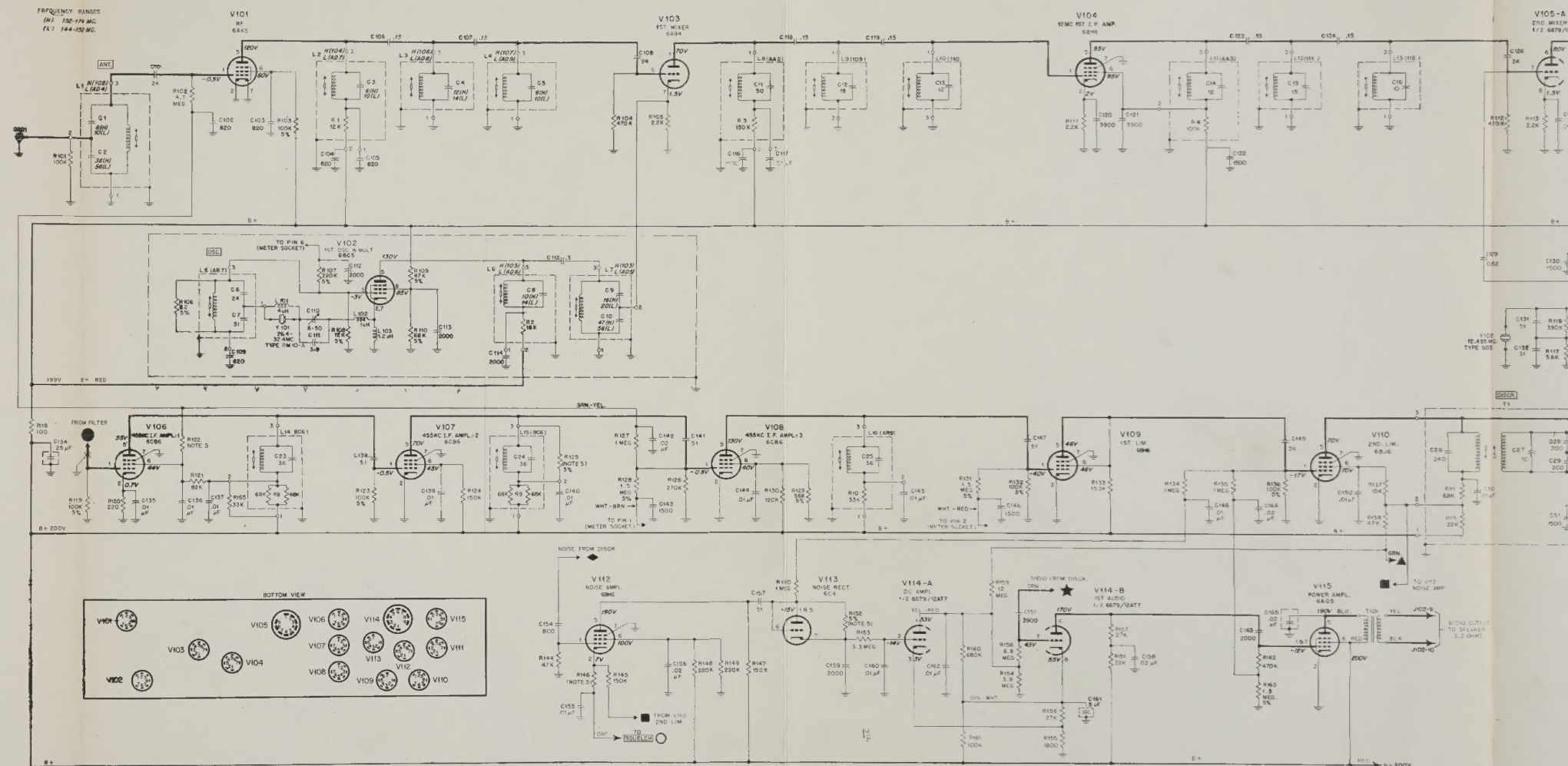
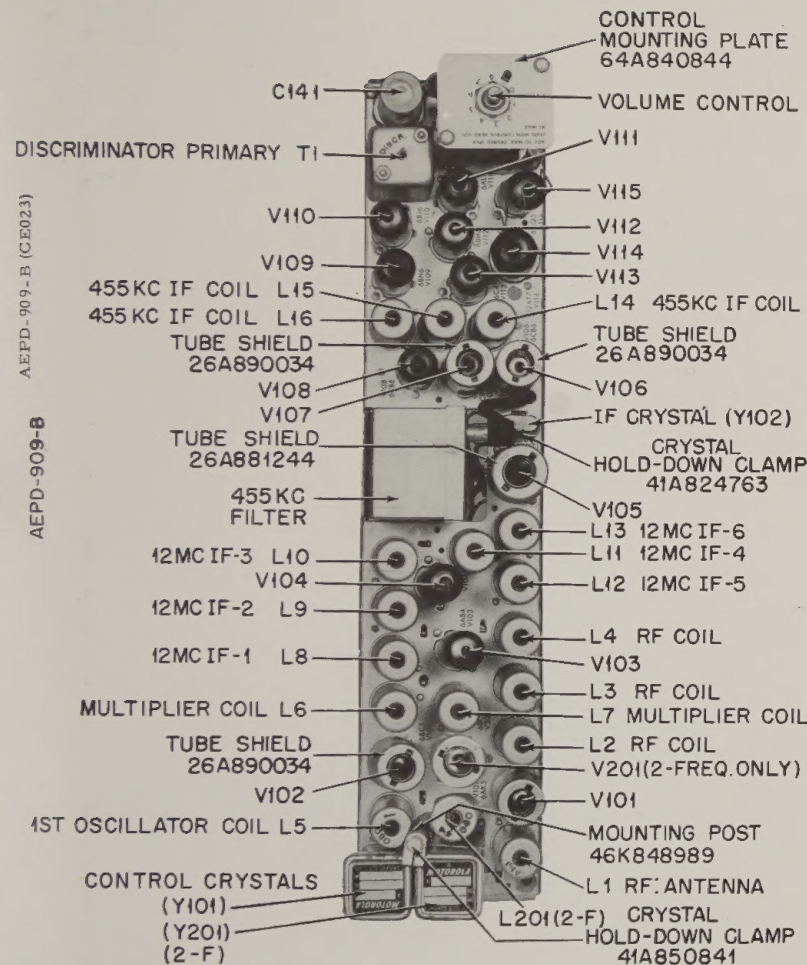
DIAG ISSUE		CHASSIS SUFFIX	REV SYMBOL	CHANGE	LOCATION
63E854-792-F	TRD1171AA/ TA237W-L-4	R165	33K RESISTOR ADDED	V106-6	
	TA237W-H-4				
	TRD1171AB/ TA237S-L-5				
	TRD1172AB/ TA237S-H-5				
63E854-792-G	TRD1171AA/ TA237W-L-5	R166	6.8K RESISTOR ADDED	2ND OSC.	
	TRD1172AA/ TA237W-H-6	R115	WAS 180K		
	TRD1171AB/ TA237S-L-6	R116	WAS 10 MEG		
	TRD1172AB/ TA237S-H-6	C129	WAS .47 uuf AND RELOCATED CIRCUIT WAS AS SHOWN BELOW		

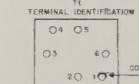
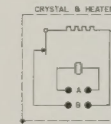
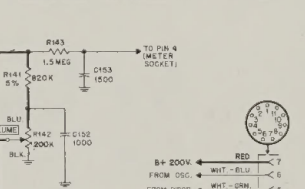
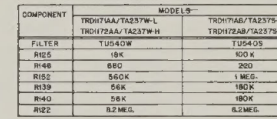
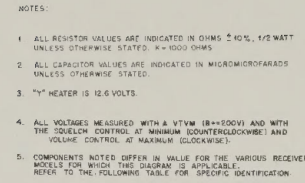
V105-B
2ND. OSC.
1/2 6679/12AT7

O	MODEL TA237X REMOVED	MODEL TABLE

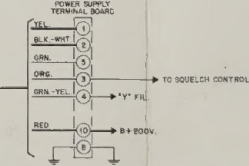
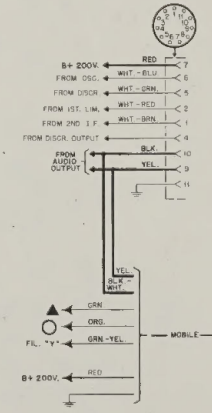


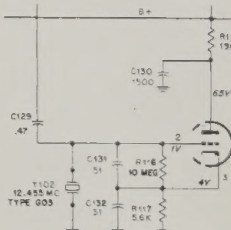
Single Frequency Receiver
Schematic Diagram and Parts Location Detail
Motorola No. 63E862486-O
11/3/59-RCS





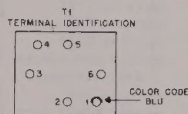
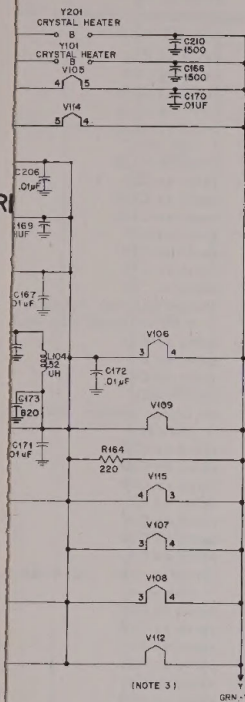
SERIES	ONE - FREQUENCY	CHASSIS SUFFIX	FREQ. RANGE	CHANNEL SPACING
TRD170AA/TA237W	TRD171AA / TA237W-L	5	144-152MC	60KC
	TRD172AA / TA237W-H	5	152-174MC	60KC
TRD170AB/TA237S	TRD171AB / TA237S-L	6	144-152MC	30KC
	TRD172AB / TA237S-H	6	152-174MC	30KC



REVISIONS				
DIAG ISSUE	CHASSIS SUFFIX	REF SYMBOL	CHANGE	LOCATION
63E54792-F	TRD1171AA/ TA237W-L-4 TRD1172AA/ TA237W-H-4 TRD1171AB/ TA237S-L-5 TRD1172AB/ TA237S-H-5	R165	33K RESISTOR ADDED	V106-6
	R166		4.8K RESISTOR ADDED	
	R115		WAS 180K	
	TRD1171AA/ TA237W-L-5 TRD1172AA/ TA237W-H-5 TRD1171AB/ TA237S-L-6 TRD1172AB/ TA237S-H-6	R116	WAS 10 MEG	2ND OSC.
	C129	WAS .47 MFD AND RELOCATED		
		CIRCUIT WAS AS SHOWN BELOW		
63E54792-G				
		V105-B 2ND. OSC. 1/2 6679 /2AT7		
		1102 12.455 MC TYPE G03		
	O		MODEL TA237X REMOVED	MODEL TABLE

DISCR

AEPD-909-B



MODEL TABLE

TWO-FREQUENCY	CHASSIS SUFFIX	FREQ. RANGE	CHANNEL SPACING
TRD117AC/TA237W-R2-L	5	144-152 MC	60KC
TRD117AC/TA237W-R2-H	5	152-174 MC	60KC
TRD117AD/TA237S-R2-L	6	144-152 MC	30KC
TRD117AD/TA237S-R2-H	6	152-174 MC	30KC

1ST

REVISIONS

DIAG ISSUE	CHASSIS SUFFIX	REF SYMBOL	CHANGE	LOCATION
63E854793-E	TRD117AC/ TA237W-R2-L-4 TRD1172AC/ TA237W-R2-H-4 TRD1171AD/ TA237S-R2-L-5 TRD1172AD/ TA237S-R2-H-5	R165	33K RESISTOR ADDED	V106-6
		R166	6.8K RESISTOR ADDED	
63E854793-F	TRD1170AC/ TA237W-R2-5 TRD1170AD/ TA237S-R2-6	R115	WAS 180K	2ND OSC.
		R116	WAS 10 MEG	
		C129	WAS .47 uuf AND RELOCATED.	
			CIRCUIT WAS AS SHOWN BELOW	
O			MODEL TA237X REMOVED	MODEL TABLE

Two-Frequency Receiver
Schematic Diagram and Parts Location Detail
Motorola No. 63E862487-O
11/3/59-RCS

SCHEMATIC DIAGRAM PARTS LIST

REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION
References: Schematic Diagram 63E862486-O		
C1L	21R490602	CAPACITOR, fixed; unless otherwise stated
C1M	21R400072	ceramic; tubular; 10 uuf ±5%; 500 vdcw
C2L	21R114052	ceramic; tubular; 56 uuf ±10%; 500 vdcw
C2H	21R87127	ceramic; tubular; 36 uuf ±5%; 500 vdcw
C3L	21R121918	same as C1L
C3M	21R121918	ceramic; tubular; 6 uuf ±5 uuf; 500 vdcw
C4L	21R336528	ceramic; disc; 14 uuf ±5%; 500 vdcw
C4H	21R490605	ceramic; tubular; 12 uuf ±5%; 500 vdcw
C5L		same as C1L
C5H		same as C1H
C6	21K840716	ceramic; disc; 24 uuf ±5%; 500 vdcw
C7	21K840711	molded silver mica; 51 uuf ±5%; 500 vdcw
C8L	21K836528	ceramic; disc; 14 uuf ±5%; 500 vdcw
C8H	21R791561	fixed; ceramic; tubular; 6 uuf ±5 uuf; 500 vdcw
C9L	21R31492	ceramic; tubular; 20 uuf ±5%; 500 vdcw
C9H	21R119296	ceramic; tubular; 16 uuf ±5%; 500 vdcw
C10L		same as C2L
C10H	21R114153	ceramic; tubular; 47 uuf ±10%; 500 vdcw
C11	21R474573	ceramic; tubular; 50 uuf ±5%; 500 vdcw
C12	21R475262	ceramic; tubular; 15 uuf ±5%; 500 vdcw
C13	21R475261	ceramic; tubular; 12 uuf ±5%; 500 vdcw
C14		same as C13
C15		same as C12
C16	21R890124	ceramic; tubular; 10 uuf ±5%; 500 vdcw
C23		same as C2H
C24		same as C2H
C25		same as C2H
C26	21K840048	molded silver mica; 240 uuf ±5%; 500 vdcw
C27	21K840811	ceramic; disc; 10 uuf ±5%; 500 vdcw
C28	21K840812	molded silver mica; 200 uuf ±5%; 500 vdcw
C29		same as C28
C30	21B801139	ceramic; disc; .01 uf ±80-20%; 800 vdcw
C31	21B800801	ceramic; disc; 1500 uuf GMV ±100% max.; 500 vdcw
C101	21K840365	cer., disc; 24 uuf ±5%; 500 vdcw
C102	21B837745	cer., disc; 820 uuf ±10%; 500 vdcw
C103		same as C102
C104		same as C102
C105		mid. phen. tub.; .15 uuf ±5%; 500 vdcw
C107		same as C106
C108		same as C101
C109		same as C102
C110	20B846719	var.; air; 8 uuf min. to 50 uuf max.
C111	21K838284	cer.; disc; 3.9 uuf ±.25 uuf; 250 vdcw

REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION
C112	21K837746	CAPACITOR, fixed; cont'd.
C113		ceramic; disc; 2000 uuf ±10%; 500 vdcw
C114		same as C112
C115	21K830201	molded phenolic; tubular; .3 uuf ±5%; 500 vdcw
C116		same as C115
C117		same as C10
C118		same as C106
C119		same as C106
C120	21K837996	ceramic; disc; 1900 uuf ±10%; 500 vdcw
C121		same as C120
C122		same as C31
C123		same as C106
C124		same as C106
C125		same as C31
C126		same as C101
C127		same as C10
C128		same as C30
C129	21K475679	molded phenolic; tubular; .082 uuf ±10%; 500 vdcw
C130		same as C31
C131		same as C7
C132		same as C7
C133		NOT USED
C134	8A892986	oil filled; tubular; .25 uf ±20%; 400 vdcw
C135		same as C30
C136		same as C30
C137		same as C30
C138		same as C7
C139		same as C30
C140		same as C30
C141		same as C7
C142	21B401029	ceramic; disc; .02 uf ±80-20%; 600 vdcw
C143		same as C31
C144		same as C30
C145		same as C30
C146		same as C31
C147		same as C7
C148		same as C30
C149		same as C101
C150		same as C30
C151		same as C10
C152	21K847601	molded silver mica; 1000 uuf ±5%; 500 vdcw
C153		same as C31
C154	21K840049	molded silver mica; phenolic coated; 800 uuf ±5%; 300 vdcw
C155		same as C30
C156		same as C142
C157		same as C7
C158		same as C142
C159		same as C112
C160		same as C30
C161	23K890624	electrolytic; tubular; 5 uf ±100-15%; 150 vdcw
C162		same as C30
C163		same as C112
C164		same as C142
C165	8K85984	oil filled; tubular; .02 uf ±20%; 400 vdcw
C166		same as C31
C167		same as C30
C168		same as C102
C169		same as C30
C170		same as C30
C171		same as C30
C172		same as C30
C173		same as C102

REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION
E101	21K842354	CAPACITOR-RESISTOR ASSEMBLY; tubular; consisting of:
		Dual CAPACITOR: printed circuit, silver paint on ceramic form; each section 100 uuf; 300 vdcw
		One RESISTOR: fixed; carbon 47K ±20%
J101	9C87120	CONNECTOR, receptacle; female; single contact; round molded mica filled phenolic base; for 1/8" diameter male pin connector
J102	9B86564	11 contact; polarized; round molded black plastic base; chassis mounted; does not include 42A81428 RING, connector retainer; ring must be ordered separately
L1L	24K836515	COIL; RF: Antenna; base stamped AD4; includes 76A824120 CORE, adjustable tuning and C1L, C2L
L1H	24B824102	RF: Antenna; base stamped 102; includes 76A824120 CORE, adjustable tuning and C1H, C2H
L2L	24K836518	RF: Pilot; base stamped AD7; includes 76A824120 CORE, adjustable tuning and C1L, R1
L2H	24B824104	RF: Pilot; base stamped 104; includes 76A824120 CORE, adjustable tuning and C1H, R1
L3L	24K836519	RF: Coupling; base stamped AD8 includes 76A824120 CORE, adjustable tuning and C4L
L3H	24B824106	RF: Coupling; base stamped 106; includes 76A824120 CORE, adjustable tuning and C4H
L4L	24K836520	RF: Mixer Grid; base stamped AD9; includes 76A824120 CORE, adjustable tuning and C1L
L4H	24K824107	RF: Mixer Grid; base stamped 107; includes 76A824120 CORE, adjustable tuning and C5H
L5	24B845709	RF: 1st Oscillator; base stamped AR7; includes 46K881276 CORE, adjustable tuning; coded ORANGE dot and C6, C7
L6L	24B824105	RF: 1st Multiplier; base stamped 105; includes 76A824120 CORE, adjustable tuning and C8L
L6H	24B838987	RF: 1st Multiplier; base stamped AP7; includes 76A838181 CORE, adjustable tuning and C8H
L7L	24K836516	RF: Injection; base stamped AD5; includes 76A824120 CORE, adjustable tuning and C9L, C10L
L7H	24K824103	RF: Injection; base stamped 103; includes 76A824120 CORE, adjustable tuning and C9H, C10H
L8	24K834778	1F: 12 mc 1F - 1, base stamped AA2; includes 76A824118 CORE, adjustable tuning and C11, R1

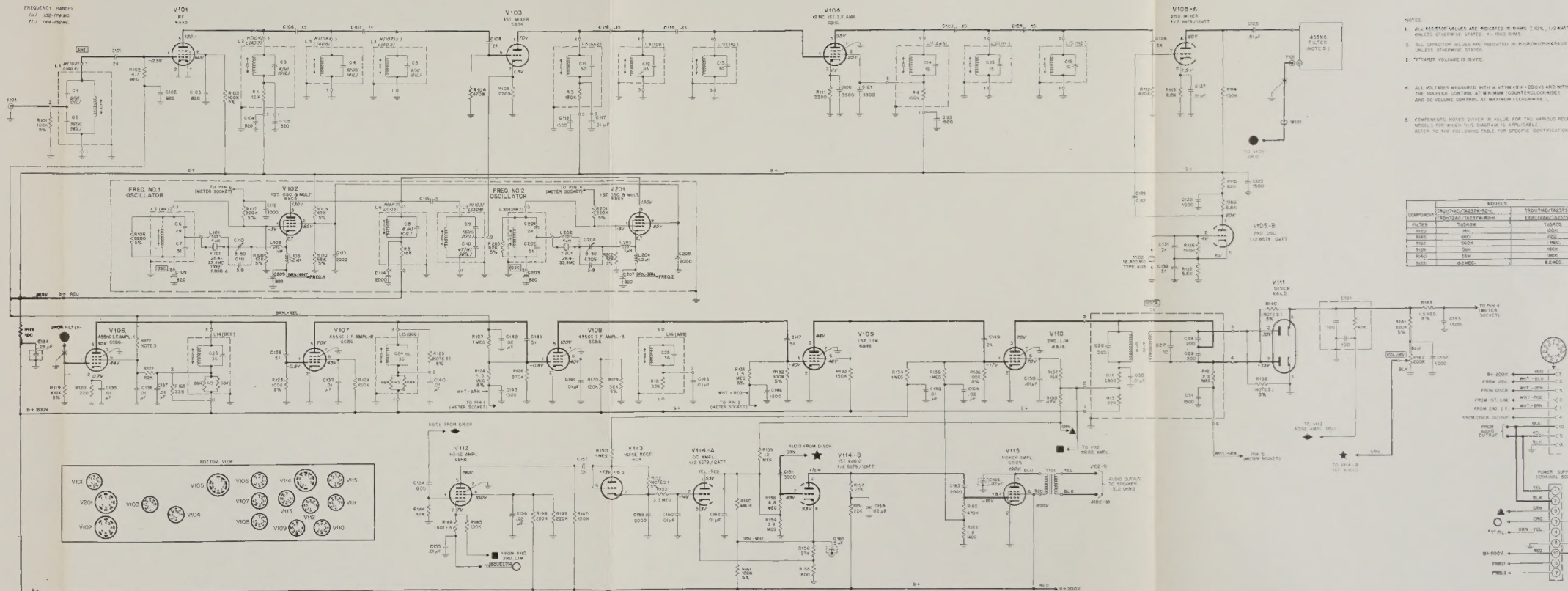
REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION
L9	24B824109	COIL; 1F: 12 mc 1F - 2, base stamped 109; includes 76A824118 CORE, adjustable tuning and C12
L10	24B824110	1F: 12 mc 1F - 3; base stamped 110; includes 76A824118 CORE, adjustable tuning and C12
L11	24K834779	1F: 12 mc 1F - 4; base stamped AA3; includes 76A824118 CORE, adjustable tuning and C14, R4
L12	24K824111	1F: 12 mc 1F - 5; base stamped 111; includes 76A824118 CORE, adjustable tuning and C15
L13	24K824112	1F: 12 mc 1F - 6; base stamped 112; includes 76A824118 CORE, adjustable tuning and C16
L14	24K854048	1F: 2nd IF - 1; base stamped RC6; includes 46K891110 CORE, adjustable tuning; coded GREEN dot and C21, R8
L15		same as L14 except 2nd IF - 2 and includes C24, R9
L16	24K840842	1F: 2nd IF - 1; base stamped AR9; includes 46K891110 CORE, adjustable tuning; coded GREEN dot and C25, R10
L101	24A840728	RF: choke; 4 microhenry; coded WHT-BLU dot
L102	24B840042	RF: choke; 1 microhenry; coded RED-BLU dot
L103	24K840559	RF: choke; 1.2 microhenry; coded BLK-GRN dot
L104	24A855418	RF: choke; .52 uh
P1	28K849416	CONNECTOR, plug; male; single contact; brown bakelite wafer insulator; cable mounted
R1	6R6394	RESISTOR, fixed; carbon; 1/2 w.; 10K ±5%; unless otherwise stated
R2	6R5591	18K ±10%
R3	6R6398	150K ±5%
R4	6R6031	100K ±10%
R5		12K ±10%
R6		560K ±5%; used in TA237W only
R7		NOT USED
R8	6R6410	33K ±10%
R9		same as R8
R10	6R6428	same as R8
R11	6R6428	6.8K ±10%
R12	6R6433	2.2 megohm ±10%
R13	6R6397	2.2K ±10%
R101	6R6031	100K
R102	6R6446	4.7 megohm ±10%
R103	6R5553	100K ±5%
R104	6R6177	470K ±10%
R105	6R6069	2.2K ±10%
R106	6R400490	8.2K ±5%
R107	6R400666	2.0K ±5%
R108	6R2075	12K ±5%
R109	6R6048	47K ±10%
R110	6R6479	68K ±5%
R111		same as R105
R112		same as R104
R113		same as R105

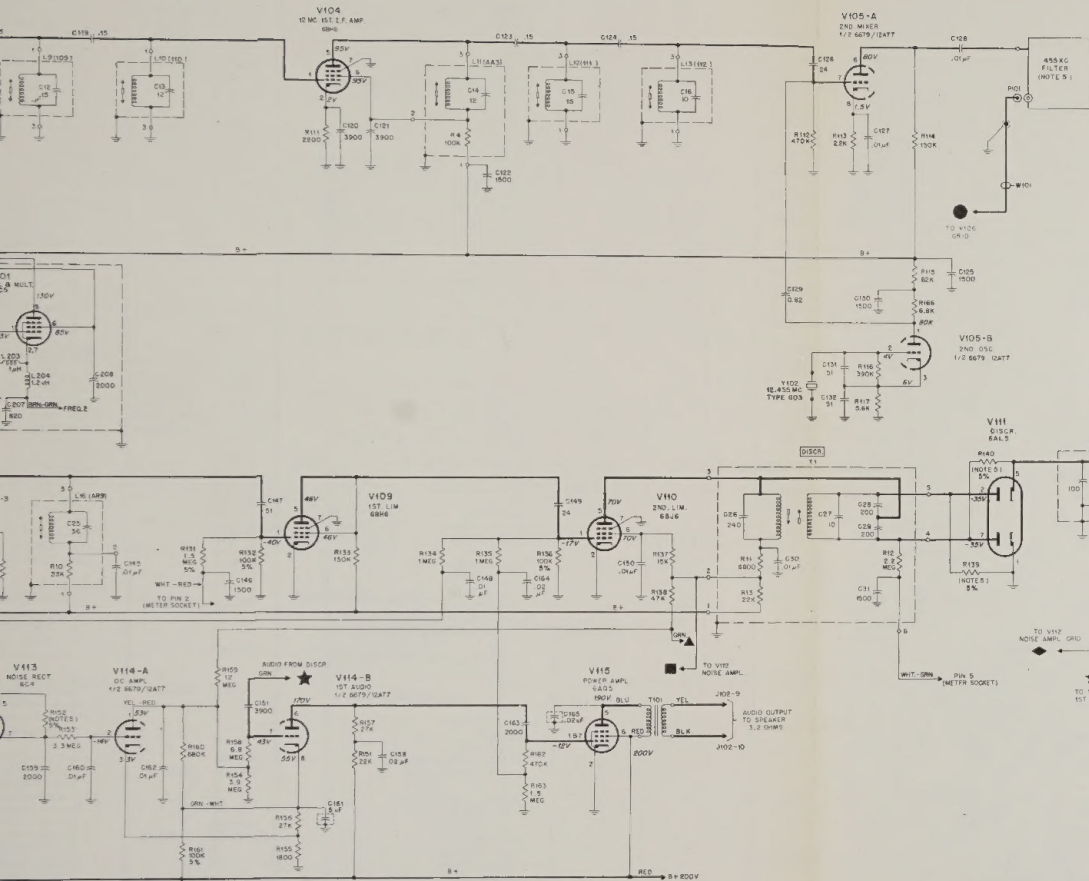
REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION
R114		RESISTOR, (cont'd)
R115	6R5644	same as R3
R116	6R5644	82K ±10%
R117	6R6177	390K ±10%
R118	6R6326	5.6K ±10%
R119		100 ohm ±10%
R120	6R6270	same as R103
R121		220 ohm ±10%
R122	6R5585	same as R115
		8.2 megohm ±10%; used only in TA237W and TA237S
R123		same as R103
R124		same as R3
R125	6R488095	18K ±5%; used in TA237W only
	or 6R5553	100K ±5%; used in TA237S only
R126	6R6414	270K ±10%; 1/2 w.; ins.
R127	6R6046	1 megohm ±10%
R128	6R400228	1.5 megohm ±5%
R129	6R401008	56K ±5%
R130	6R5631	120K ±10%
R131		same as R128
R132		same as R103
R133		same as R3
R134		same as R127
R135		same as R127
R136		same as R103
R137	6R6477	15K ±10%
R138		same as R109
R139	6R401006	56K ±5%; used in TA237W only
	or 6R2061	180K ±5%; used in TA237S only
R140		same as R139
R141	6R5773	820K ±5%
R142	18K845110	variable; carbon; 200K ±20%; 1/4 w.
R143		same as R128
R144	6R5772	47K ±5%
R145		same as R3
R146	6R6040	680 ohm ±10%; used in TA237W only
	or 6R6270	220 ohm ±10%; used in TA237S only
R147		same as R3
R148	6R6407	220K ±10%
R149		same as R148
R150		same as R127
R151		same as R13
R152	6R5796	560K ±5%; used in TA237W only
	or 6R5587	1 meg. ±5%; used in TA237S only
R153	6R4049	3.3 megohm ±10%
R154	6R490110	3.9 megohm ±10%
R155	6R2089	1.8K ±10%
R156	6R6434	27K ±10%
R157		same as R156
R158	6R2097	6.8 megohm ±10%
R159	6R400334	12 megohm ±10%
R160	6R6475	680K ±10%
R161		same as R101
R162		same as R104
R163		same as R128
R164		same as R120
R165		same as R8
R166		same as R11
T1	1V842353	TRANSFORMER; discriminator; base coded BLUE dot; includes 76A821495 CORE, adjustable tuning; coded YELLOW dot and C26, C27, C28, C29, C30, C31, R11, R12 and R13
T101	25K847479	AF: output; 5000 ohm to 3.2 ohm at 55 ma dc

REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION
V101	195T170A01	TUBE, electron; type 6AK5
V102	195T225A01	type 6BC5
V103	195T212A01	type 6AB4
V104	195T175A01	type 6BH6
V105	195T113A02	type 12AT7
V106	195T147A03	type 6CD6
V107		same as V106
V108		same as V106
V109		same as V104
V110	195T176A01	type 6DJ6
V111	195T111A03	type 6AL5
V112		same as V104
V113	195T179A01	type 6C4
V114		same as V105
V115	195T101A01	type 6AQ5
W1	30B849414	LINE, RF transmission; assembly; includes: 30B850951 CABLE, RF; coaxial, RG-98A/U; 4" length required; reference part P1
XV101	9B84083	SOCKET, tube; female; 7 contact; miniature; molded mica filled phenolic base; saddle mounting; includes center shield and tube shield base
XV102		same as XV101
XV103	9K87124	7 contact; miniature; molded mica filled phenolic base; saddle mounting; includes center shield
XV104		same as XV103
XV105	9B881243	9 contact; miniature; molded mica filled phenolic base; saddle mounting; includes center shield and tube shield base
XV106		same as XV101
XV107	9B87123	7 contact; miniature; molded black phenolic base; saddle mounting; includes center shield
XV108		same as XV107
XV109		same as XV107
XV110		same as XV107
XV111		same as XV107
XV112		same as XV107
XV113		same as XV107
XV114	9B88688	SOCKET, tube; female; 9 contact; miniature; molded black phenolic base; saddle mounting; includes center shield
XV115		same as XV107
XV101	9K857508	SOCKET, crystal; female; 4 contact; square molded black bakelite base; chassis mounted
XV102	9K861367	2 contact; rectangular; black phenolic base, chassis mounted

REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION
FILTER		
	TU340W	PERMAKAY IF Filter; used in 60 kc models
	TU340S	PERMAKAY D Filter; used in 30 kc models
CRYSTAL		
NOTE Crystals are part of the Radio Set model. When ordering a receiver chassis only, crystals must be ordered separately. Crystal type number and operating frequency must be specified when ordering crystal.		
Y101	RM10-A	CRYSTAL UNIT, quartz; Receiver Control; for 144-174 mc carrier frequency; includes 12 volt heater unit
Y102	Type G03	Receiver IF; 12.455 mc

DISCRIMINATOR PRIMARY TI





NOTES

1. ALL RESISTOR VALUES ARE INDICATED IN OHMS, 1/2 WATT, UNLESS OTHERWISE STATED. X = 1000 OHMS.
2. ALL CAPACITOR VALUES ARE INDICATED IN MICROFARADS, UNLESS OTHERWISE STATED.
3. * INPUT VOLTAGE IS 250V.
4. ALL VOLTAGES MEASURED WITH A VTVM (50 ± 200V) AND WITH THE SQUELCH CONTROL AT MINIMUM (COUNTERCLOCKWISE) AND DC VOLUME CONTROL AT MAXIMUM (CLOCKWISE).
5. COMPONENTS NOTED DIFFER IN VALUE FOR THE VARIOUS RECEIVER MODELS FOR WHICH THIS DIAGRAM IS APPLICABLE. REFER TO THE FOLLOWING TABLE FOR SPECIFIC IDENTIFICATION.

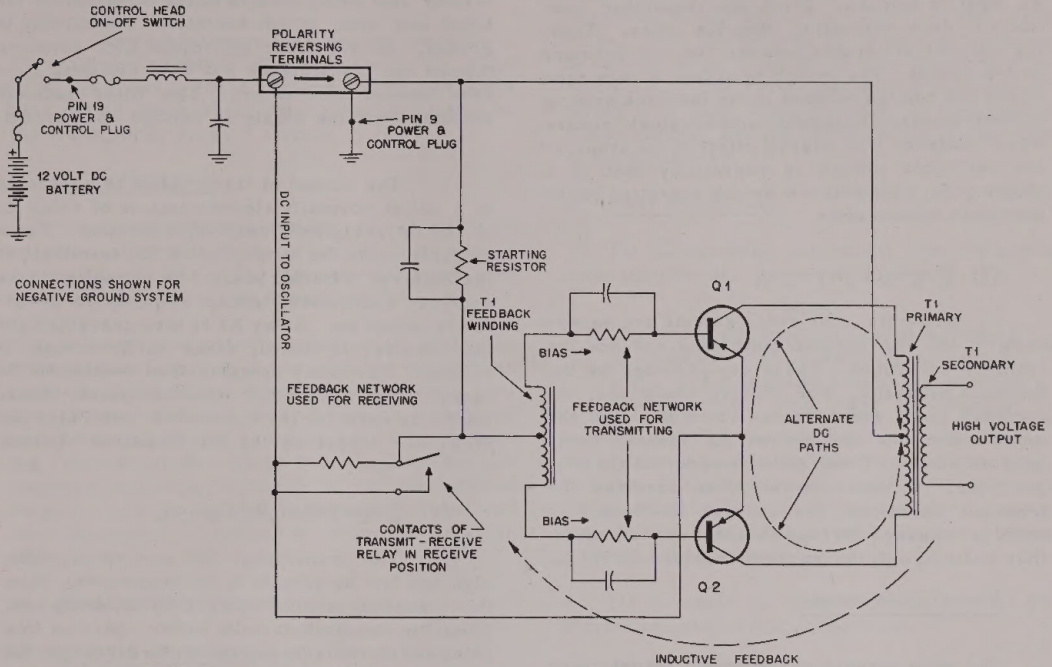
COMPONENT	MODELS	
	TRD1171AC/TA237W-R2-L	TRD1171AD/TA237S-R2-L
FILTER	TRD1272AC/TA237W-R2-M	TRD1172AD/TA237S-R2-L
1. T104C	T104C	T104C
2. R101	10K	100K
3. R102	680	220
4. R103	50K	1 MEG
5. R104	50K	400K
6. R105	50K	180K
7. R106	5.0 MEG	5.0 MEG

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power and control plug on the power supply. When the switch is ON, one side of the dc input positive potential is applied to the transistor emitters and the receive feedback network. The negative side is connected to the primary center tap of the transformer and the starting resistor.

(a) Feedback Path

The path through the "receive" feedback network leads to the center tap of the feedback winding of the transformer. The opposite ends of this transformer winding are connected to the two transistor base elements. The starting resistor is connected between the center tap and the dc input. Current flows through the feedback network and starting resistor, applying a bias to the base elements of each transistor. Due to a slight unbalance in transistor conductivity, one will tend to conduct more heavily than the other. This is the effect which starts the oscillation cycle.

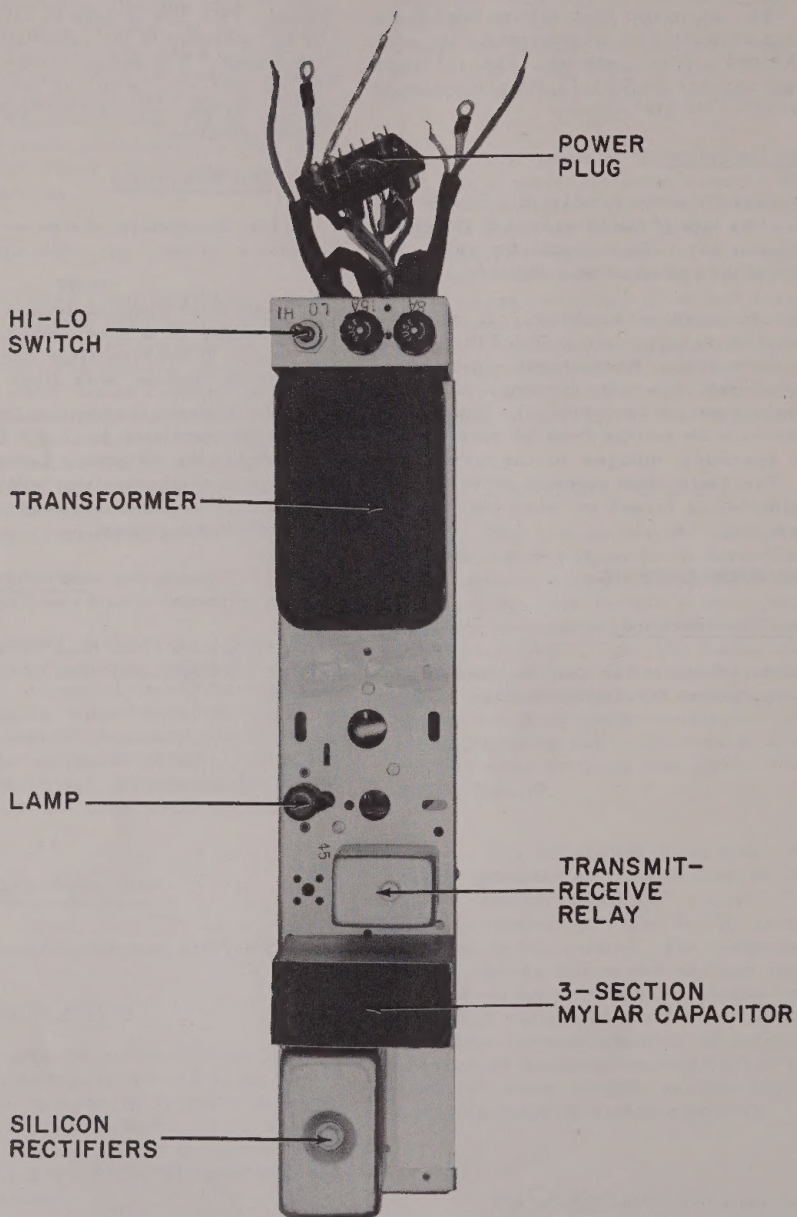
(b) Transformer Primary Path

The dc path through the center tap of the main transformer primary winding leads to

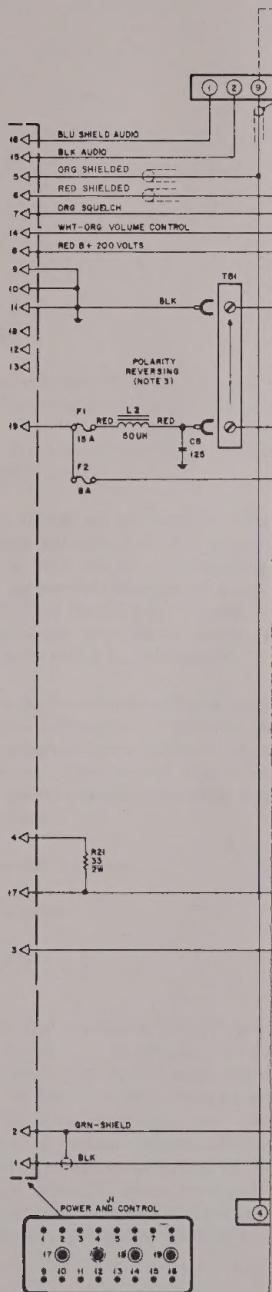
the two transistor collector elements, which are connected to opposite ends of the winding. The slight unbalance in transistor conductivity causes more current to flow through one primary half-winding than through the other. The current path is through the primary half-winding and the transistor (emitter-to-collector) to the dc input. The current in the transformer half-winding induces voltages in the two feedback half-windings. Polarity is such that the more heavily conducting transistor is quickly biased to full conduction; the other transistor is quickly driven to cut-off.

(3) Oscillation Cycle

The induced feedback voltage drops to zero as the current through the conducting transistor reaches the point of saturating the transformer core. The cut-off transistor begins to conduct, reversing the polarity of the voltage in the feedback windings and conduction through this transistor increases inducing greater feedback bias and quickly cutting off the first transistor. Current through the second transistor then reaches core saturation, completing a cycle of oscillation. The circuitry is designed for self-sustaining, continuous oscillation as long as the



AEPD-1538-O (CE1063-B)

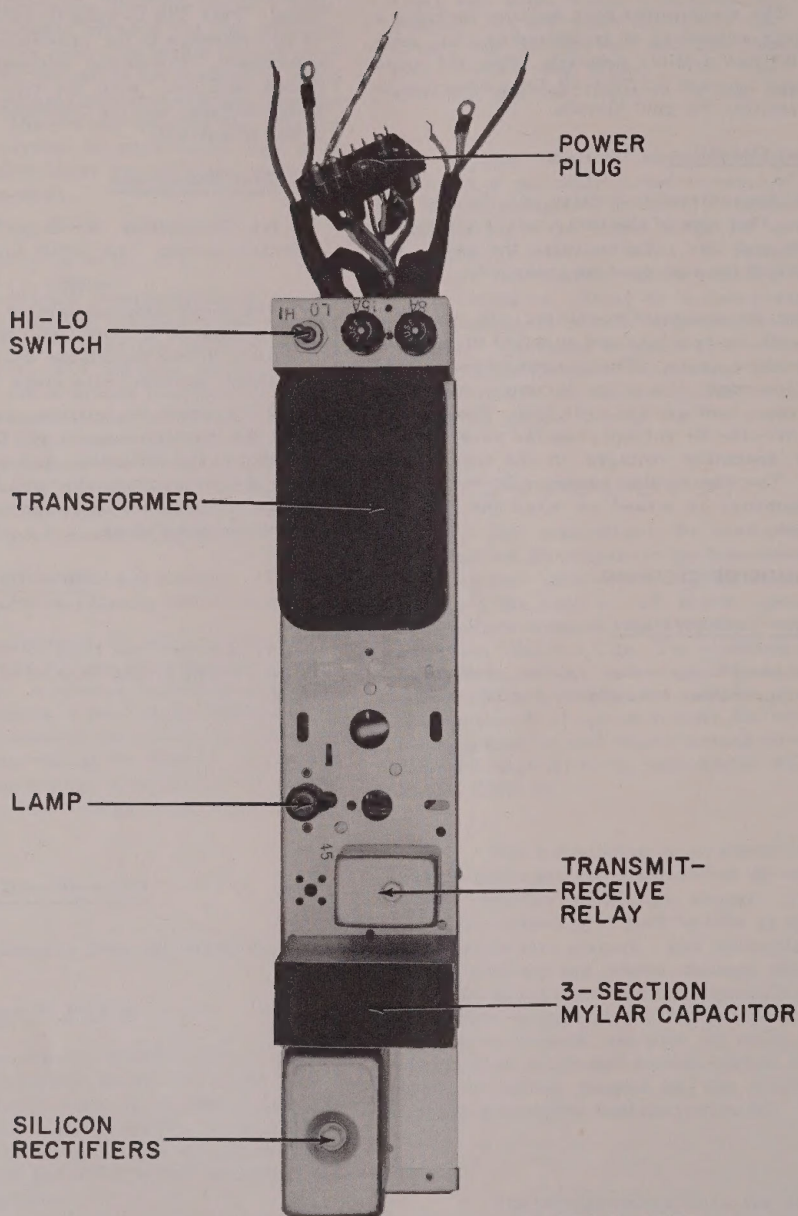


REVISIONS

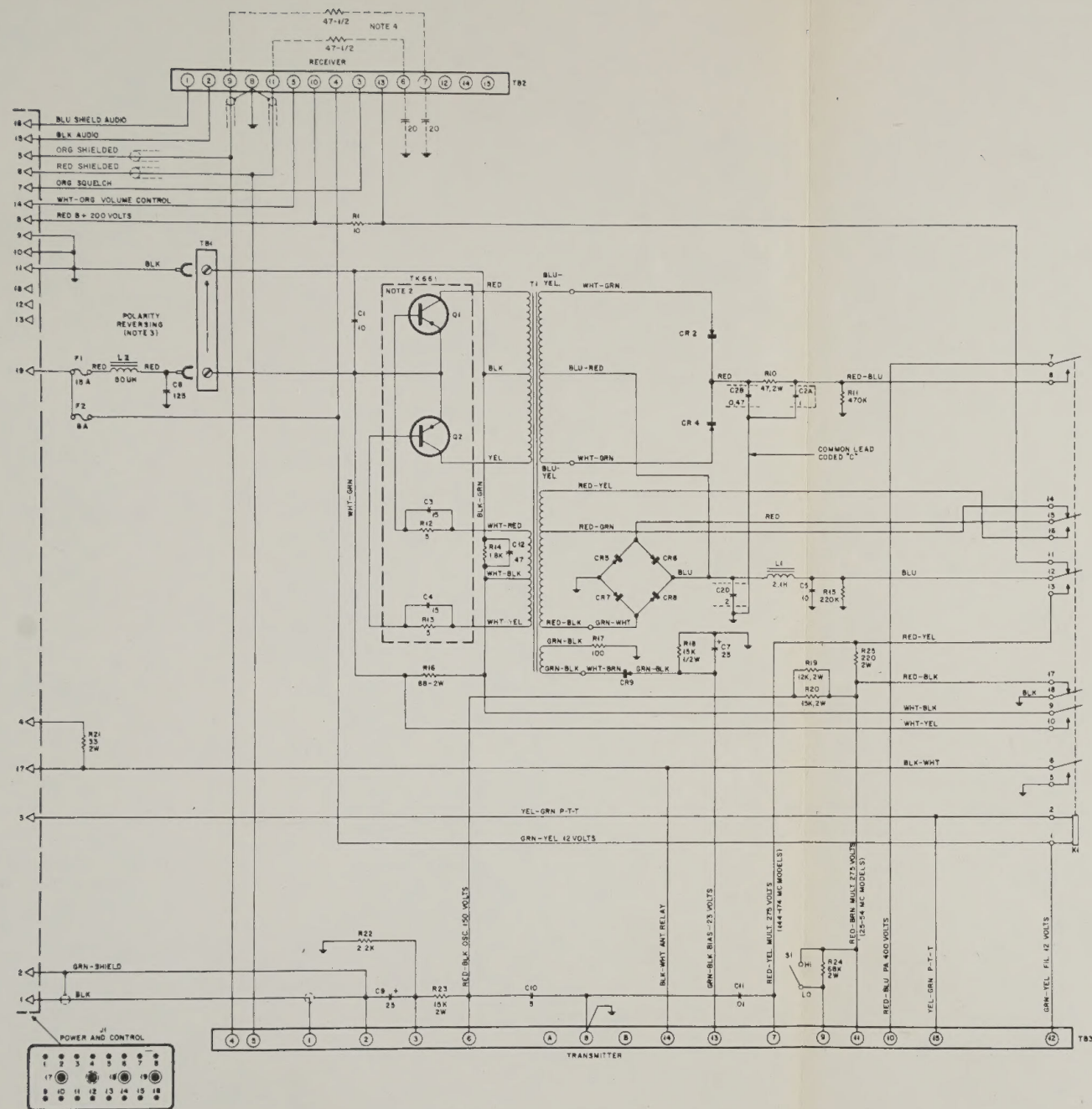
DIAG ISSUE	CHASSIS SUFFIX	REF SYMBOL	CHANGE	LOCATION
C	TPN6000BA-3	T1	PART NUMBER CHANGED	POWER TRANS- FORMER
		CR1	REMOVED	T1 SECONDARY CIRCUIT
		CR3	REMOVED	T1 SECONDARY CIRCUIT
			T1 OUTPUT CIRCUIT WAS	
D	TPN6000BA-4		TLN6155A 2-FREQ. RCVR FILTER KIT ADDED TO SCHEMAT- IC FOR REFERENCE. SEE NOTE 4.	TB2 & J1
E	TK661-1	Q1, Q2	WAS 48A125286	FRONT PANEL. SEE NOTE 2

TPN6000BA Power Supply
Schematic Diagram
Motorola No. 63E856657-E
11/3/59-RCS

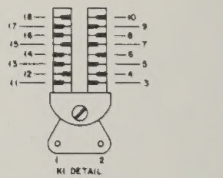
AEPD-1538-O (CE1063-B)



AEPD-1538



- NOTES:
1. UNLESS OTHERWISE SPECIFIED:
ALL RESISTOR VALUES ARE IN OHMS, 1/4W, 10% TYP.
ALL CAPACITOR VALUES ARE IN MICROFARADS.
 2. COMPONENTS ENCLOSED IN DASHED LINES ARE LOCATED ON FRONT PANEL.
 3. POLARITY REVERSING TERMINALS SHOWN FOR NEGATIVE BATTERY GROUND (BLK TERMINAL TO ARROW). FOR POSITIVE BATTERY GROUND, REVERSE THE TWO TERMINALS (RED LEAD TO ARROW).
 4. TLN6155A RCVR. FILTER KIT IS P/O. 2-FREQ. RADIO SET ONLY. REFER TO INTERCABLEING DIAGRAM FOR PARTS IDENTIFICATION.



MODEL	DESCRIPTION
TPN6000BA-4	TRANSISTOR POWER SUPPLY

REVISIONS

DIAG. ISSUE	CHASSIS SUFFIX	REF. SYMBOL	CHANGE	LOCATION
C	TPN6000BA-3	T1	PART NUMBER CHANGED	POWER TRANSFORMER
		CR1	REMOVED	T1 SECONDARY CIRCUIT
		CR3	REMOVED	T1 SECONDARY CIRCUIT
			T1 OUTPUT CIRCUIT WAS	
D	TPN6000BA-4		TLN6155A 2-FREQ. RCVR. FILTER KIT ADDED TO SCHEMATIC FOR REFERENCE. SEE NOTE 4.	TB2 & J1
E	TK661-1	Q1, Q2	WAS 48A125286	FRONT PANEL, SEE NOTE 2

MOTOROLA PART No.	DESCRIPTION
9B820279	<u>FUSEHOLDER:</u> extractor post type; molded black bakelite bayonet base; single hole chassis mounted; for 1-1/4" long x 1/4" dia fuse; includes cap, lockwasher and mounting nut same as XF1

NON-REFERENCED PARTS

1V859763	MOUNTING BOARD ASSEMBLY, rectifier: riveted; includes: 1V859764 TERMINAL BOARD ASSEMBLY: riveted; includes 5 pairs of mounting clips and solder lug terminals 1V859765 TERMINAL BOARD ASSEMBLY: riveted; includes 4 pairs of mounting clips and solder lug terminals
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PARTS LIST for Power Supply Diagram 63E856657-E

REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION
C1	23K859299	<u>CAPACITOR, fixed:</u> tantalum; 10 uf +75-15%; 25 vdcw mylar; consists of: 1 uf ±20%; 900 vdcw; coded "A" .47 uf ±20%; 900 vdcw; coded "B" common connection; coded "C" 2 uf ±20%; 400 vdcw; coded "D" electrolytic; tubular; 15 uf +100-10%; 10 vdcw same as C3 electrolytic; tubular; 10 uf +50-10%; 450 vdcw NOT USED +100-10%; 15 vdcw electrolytic; tubular; 25 uf +100-10%; 50 vdcw electrolytic; tubular; 125 uf +100-10%; 18 vdcw electrolytic; tubular; 25 uf +100-10%; 20 vdcw electrolytic; tubular; 5 uf +50-10%; 250 vdcw ceramic; disc; .01 uf +80-20%; 600 vdcw mylar; tub. .47uf±10%; 100 vdcw <u>CRYSTAL UNIT, rectifying; silicon junction; cartridge:</u> NOT USED type 1N1222 NOT USED same as CR2 same as CR2 same as CR2 same as CR2 same as CR2 type 1N1219 <u>FUSE, cartridge; one time;</u> slow blow type; glass; 15 amp; 32 volt; 1-1/4" long x 1/4" dia slow blow type; glass; 8 amp; 32 volt; 1-1/4" long x 1/4" dia <u>CONNECTOR, receptacle:</u> male; 19 contact; polarized; rectangular molded black phenolic insulator; chassis mounted <u>RELAY, armature:</u> dual stack; contact arrangement; 1st stack, 1 form "B", 2 form "C", 2nd stack, 4 form "A"; coil resistance 100 ohms; does not include 15K848892 COVER, relay, nor 7A811735 BRACKET, relay cover mounting; cover and bracket must be ordered separately <u>REACTOR:</u> filter; 2.1 henries at 100 ma dc
C2	8K861326	
C2A		
C2B		
C2C		
C2D		
C3	23K858677	
C4		
C5	23K837903	
C6		
C7	23K850516	
C8	23K840707	
C9	23K850516	
C10	23K824135	
C11	21B801139	
C12	8K861614	
CR1		
CR2	48K859708	
CR3		
CR4		
CR5		
CR6		
CR7		
CR8		
CR9	48K859726	
F1	65K804906	
F2	65K475248	
J1	28C802820	
K1	80D863333	
L1	25B837416	

REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION
LZ	25B861375	<u>COIL, AF:</u> choke; 50 microhenry
Q1	48A124376	<u>TRANSISTOR:</u> P-N-P same as Q1
Q2		<u>RESISTOR, fixed; carbon; ±10%;</u> 1 w; ins.; unless otherwise stated
R1	6R118205	10 ohm ±20%
R2		NOT USED
R3		NOT USED
R4		NOT USED
R5		NOT USED
R6		NOT USED
R7		NOT USED
R8		NOT USED
R9		NOT USED
R10	6R488035	47 ohm; 2 w
R11	6R6459	470K
R12	17C863951	wire-wound; 5 ohm; 5 w
R13		same as R12
R14	6R5620	1.8K ohm
R15	6R5574	220K
R16	6R118239	68 ohm; 2 w
R17	6R6415	100 ohm
R18	6R6477	15K; 1/2 w
R19	6R5766	12K; 2 w
R20	6R5732	15K; 2 w
R21	6R488016	33 ohm; 2 w
R22	6R6409	2.2K
R23		same as R20
R24	6R2079	68K; 2 w
R25	6R488053	220 ohm; 2 w
S1	40A482097	<u>SWITCH, toggle:</u> spst
T1	25D865192	<u>TRANSFORMER, power:</u> transistor controlled; consists of the following windings: primary #1; YEL, RED leads with BLK center tap; total resistance .045 ohms primary #2; WHT-RED, WHT-YEL leads with WHT- BLK center tap; total resistance .085 ohms secondary #1; BLU-YEL, BLU-YEL leads; resistance 14.5 ohms secondary #2; RED-BLK, RED-YEL leads with RED- GRN tap; total resistance 10.3 ohms secondary #3; GRN-BLK, GRN-BLK leads; resistance 1.81 ohms
TB1	31A858723	<u>BOARD, terminal:</u> 2 screw terminals
TB2	31B802699	14 solder lug terminals; board coded 1 to 15
TB3	31B851408	17 solder lug terminals; board coded B, A, and 1 to 16

REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION
XF1	9B820279	<u>FUSEHOLDER:</u> extractor post type; molded black bakelite bayonet base; single hole chassis mounted; for 1-1/4" long x 1/4" dia fuse; includes cap, lockwasher and mounting nut same as XF1
XF2		
NON-REFERENCED PARTS		
	1V859763	MOUNTING BOARD ASSEMBLY, rectifier: riveted; includes: 1V859764 TERMINAL BOARD ASSEMBLY: riveted; includes 5 pairs of mounting clips and solder lug terminals 1V859765 TERMINAL BOARD ASSEMBLY: riveted; includes 4 pairs of mounting clips and solder lug terminals

Transistors located in the heat sink on the front panel are coated with DC-4 silicone grease. This grease increases the rate of heat transfer.

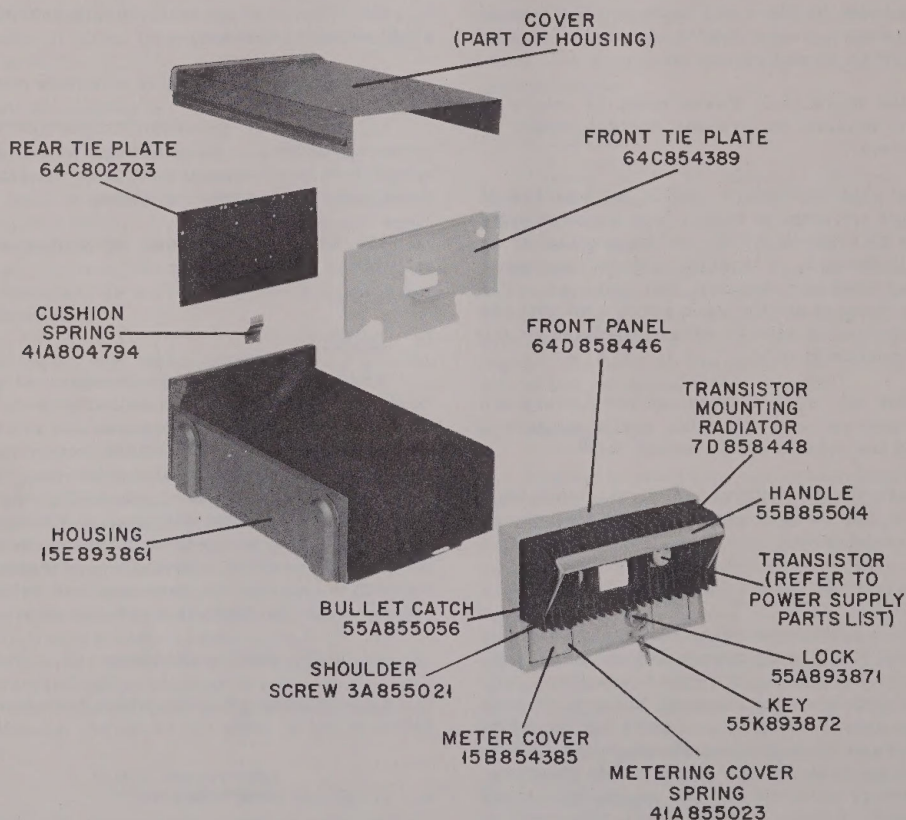
Note that a thin mica insulator is between each transistor and the front panel. When replacing a transistor, first coat it with silicone grease and place the insulator between the transistor and the front panel. There also must be silicone grease between the mica washer and the heat sink. Replace the mica insulator if it is damaged.

m. Check the filament voltage and the B+ voltages.

- n. Set the transmitter oscillators on frequency.
- o. Tune the entire transmitter.
- p. Check the transmitter modulation.
- q. Tune the entire receiver.
- r. Check the audio response against a fixed station.

NOTE

For detailed alignment procedures of the various chassis refer to the pertaining instruction section of this instruction manual.

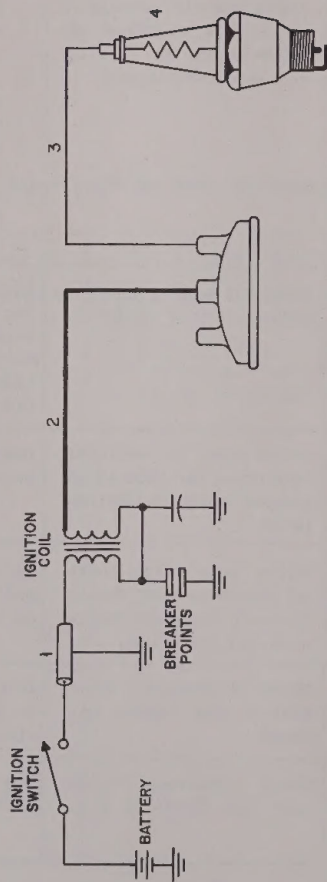


HOUSING PARTS IDENTIFICATION DETAIL

AEPD-1285-O (CE-830) (CE1099)

NOTES:

1. THE 0.1UF COAXIAL CAPACITOR SHOULD BE MOUNTED AS CLOSE TO THE IGNITION COIL PRIMARY INPUT AS POSSIBLE. EITHER A SUPPRESSOR CABLE OR A RESISTOR SUPPRESSOR IN THE DISTRIBUTOR ROTOR LEAD OR BOTH MAY BE USED ACCORDING TO THE REQUIREMENTS OF THE INDIVIDUAL INSTALLATION. SEE PARAGRAPH 5 OF THIS SECTION FOR FURTHER DETAILS.
2. EITHER RESISTOR SUPPRESSORS IN THE DISTRIBUTOR SPARK PLUG LEADS, OR RESISTANCE WIRES, OR RESISTANCE SPARK PLUGS OR ANY COMBINATION MAY BE USED ACCORDING TO THE REQUIREMENTS OF THE INDIVIDUAL INSTALLATION. SEE PARAGRAPH 5 OF THIS SECTION FOR FURTHER DETAILS.
3. THE 0.5UF COAXIAL CAPACITORS SHOULD BE MOUNTED AS CLOSE TO THE GENERATOR AND THE REGULATOR AS POSSIBLE.
4. NOISE SUPPRESSION CAN BE ACHIEVED ONLY IF COMPONENTS ARE PROPERLY GROUNDED. BE SURE ALL COMPONENTS ARE PROPERLY GROUNDED.



TYPICAL NOISE SUPPRESSION DETAIL

THIS DIAGRAM IS A SUGGESTED NOISE SUPPRESSION SETUP. IT MAY BE USED IN ITS ENTIRETY OR IN PART, ACCORDING TO THE NEEDS OR LIMITATIONS OF THE INDIVIDUAL INSTALLATION. (SEE TEXT FOR COMPLETE INFORMATION.)

REF. SYM.	DESCRIPTION	PART NO.
1	*COAXIAL CAPACITOR, 0.1UF	8B839908
2	*SUPPRESSOR CABLE	30A502396
3	RESISTIVE WIRE	SEE AUTO PARTS DEALER
4	RESISTOR SPARK PLUG	AUTO-LIGHT OR CHAMPION
5	*COAXIAL CAPACITOR, 0.5UF	8K839909
6	*GENERATOR FIELD SUPPRESSOR ASSEMBLY (3.3Ω RESISTOR & .002UF CAPACITOR)	1V80700A89

* THE TENG018A NOISE SUPPRESSION KIT CONSISTS OF THE ITEMS MARKED WITH AN ASTERISK.

