MAINTENANCE MANUAL
138-174 MHz, 100/110/130 WATT POWER AMPLIFIERS
19D424583G4 110 WATT MOBILE "M" SERIES & INTERMITTANT DUTY STATION
19D424583G8 110 WATT MOBILE "E" SERIES
19D424786G4 110 WATT CONTINUOUS DUTY
19D424786G7 110 WATT CONTINUOUS DUTY DUPLEX
19D424786G8 130 WATT CONTINUOUS DUTY FOR COMBINING19D424786G9 130 WATT CONTINUOUS DUTY FOR COMBINING WITH ANTENNA TUNER

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DESCRIPTION

The modularized 110 Watt PA assembly contains a 10 watt driver module A201, a 110 Watt PA module A206, power control circuitry and low pass filter. A total of five transistors, two in the 10-watt driver and three in the 110-watt driver and three in the 110-watt PA, are used to provide 110 watts RF power for MASTR® II applications and 110-watts for MASTR Executive II. The output power is adjustable from 20 watts to rated output power and is held constant for normal variations in temperature and voltage. For combining applications PA module A207 is used in place of A206. This increases power to 130 watts.

CAUTION

Mobile and Station Power Amplifier Assemblies ARE NOT interchangeable due to different chassis grounding requirements.

However, the individual driver and power amplifier board may be interchanged between mobiles and stations.

Supply voltage for the PA is connected through power leads (from the system-audio-squelch board (SAS) on MASTR Executive II and from the system board on MASTR II) to feedthrough capacitors C297 and C298 on the bottom of the PA assembly. C297, C298, C299, L201 and L202 prevent RF from getting on the power leads. Diode CR295 will cause the main fuse in the fuse assembly to blow if the polarity of the power leads is reversed, providing reverse voltage protection for the radio.

NOTE

In positive ground vehicles, A - is "hot" with respect to vehicle ground. Shorting the transmitter PA printed wiring board ground pattern to the radio case may cause one of the inline fuses to blow.

The PA assembly is insulated from vehicle ground to permit operation in positive or negative ground vehicles.

Centralized metering jacks J205 and J210 are provided for use with GE Test Set Model 4EX3A11 or Test Kit 4EX8K12. The Test Set, when connected to J205, meters the AMPl-1 drive (exciter output), power control voltage, Ampl-2 current, and driver current. PA current is metered at J210.

CIRCUIT ANALYSIS

10 WATT DRIVER A201

The exciter output is coupled through an RF cable to PA input jack J201. The RF is coupled through a matching network to the base of Class C amplifier Q1. The network matches the 50 ohm input to the base of Q1 and consists of A201-T1, CA, C5 and C39. R3, C3, R13 and L1 are stabilizing networks in the base circuit of Q1.

Part of the RF input is rectified by CR1 and is applied to voltage divider R1 and R2. The voltage is divided to activate the Power Control circuits and for metering the Ampl-1 drive at J205.

Collector voltage to Q1 and Q2 is controlled by the Power Control circuit, and is applied to Q1 through collector stabilizing network L4 and R4 and collector voltage is metered through R7 at J205-3 (Pos. C).

The output of Q1 is coupled to the base of the second class C amplifier Q2 through a matching network consisting of C10 through C14 and L5 through L7. Collector voltage to Q2 is applied through collector stabilizing network L11 and R6 and collector feed network L8 and C15.

The output of the 10 watt driver is taken from the collector of Q2 and applied to the base of the PA driver A206-Q1 on the 110 watt PA module through an impedance network, two 50 ohm microstrips, W30, and a second impedance matching network.

The collector impedance matching network for A201-Q2 (L9, L10, C20 and C21), matches the output of Q2 to 50 ohm microstrip A201W2. C22 is a DC blocking capacitor. W30 interconnects the output of the 10 watt driver (A201-W2) to the input (50 ohm microstrip A206-W1) of the 110 watt PA module.

NOTE

For MASTR II High Power Solid State applications where "Combining" is used a new Power Amplifier, A207, (19D424786G8) has been added. The new PA does not use 10 watt driver A201 or driver Q203 as inA206. Two new PA's are used in conjunction with a combiner panel to sum the power output of each PA.

PA MODULE A206/A207

The base impedance matching network (L1-L3, C1-C4 and R1) matches the 50 ohm input impedance to the base of Q1. Collector voltage is coupled through collector stabilizing network L5 and C5.

Collector current for Q1 is metered across tapped manganin resistor R15 at J205 (Driver Current). The reading is taken on the one-volt scale with the High Sensitivity button pressed and read as 10 amperes full scale.

Following Q1 is a matching network (L4, L21, C7, C57 and C61) that matches the output of Q1 to 50 ohm microstrip W2. The RF energy is then coupled to power divider L6, L7 and Z4 through W2, 50 ohm microstrip W9 and impedance matching network L22, C6 and C62.

The power amplifier stages consist of two identical paralleled Class C PA circuits Q2 and Q3. The output of power divider provides drive for PA transistors Q2 and Q3.

One output of the power divider is applied to the base of Q2 through impedance matching network C8 through (C11 and L23). L25, L8, C13 and R3 comprise a stabilizing network in the base of Q2. Supply voltage for Q2 is coupled through collector stabilizing network Z2 and collector feed network L10 and C12.

Collector current for Q2 and Q3 is metered across paralleled tapped manganin resistors R12 and R13. The reading is taken on the one-volt scale with the High Sensitivity button pressed, and read as 30 amperes full scale.

The output of Q2 is coupled through matching network L9, L11, C28 and C14-C16 and added to the output of Q3 by power combiner Z5, L12 and L13. The combined output is applied to 50 ohm microstrip W6 through T1 and C56 and is coupled through a low pass filter to the antenna. Capacitors A206-C43 through C54 and A201-C30 through C34 provided isolation for ± ground operation.

WARNING

The RF Power Transistors used in the transmitter contain Beryillium Oxide, a TOXIC substance. If the ceramic, or other encapsulation is opened, crushed, broken or abraded, the dust may be hazardous if inhaled. Use care in replacing transistors of this type.

POWER CONTROL CIRCUIT

The power control circuit, located on the 10 watt driver module and PA Assembly, consists of power control IC A201-U1, thermistor RT201, power adjust A201-R8, pass transistor Q215 and the directional coupler. The power control IC senses the presence of drive power from the exciter, the heat sink temperature, power level, reflected power, and input voltage to provide automatic power leveling across the frequency band.

When the transmitter is keyed, rectified RF from A201-CR1 is applied to pin 10 of U1, turning it on. U1 supplies a reference voltage through pin 4 to power adjust potentiometer A201-R8. The voltage appearing at the arm of R8 is applied back to pin 2 of U1. This voltage determines the base voltage of Q215. The conduction of Q215 sets the collector voltage for 10 watt drivers A201-Q1 and Q2, thereby controlling the RF drive to the PA. The RF output power varies in direct proportion to the RF drive applied to the PA and can be adjusted from approximately 22 to 100 watts for MASTR Executive II and 22 to 110 watts for MASTR II.

CAUTION

Due to the reduced heat dissipation capability of the MASTR Executive II heat sink assembly, the MASTR Executive II transmitter should not be adjusted above 100 watts RF output.

Once the power is set to the desired level, U1 compares the setting of power adjust control R8 to the actual output power flowing through the directional coupler and adjusts the collector voltage on the 10 watt driver transistors accordingly. A206-CR1 rectifies the sensed forward power from the directional coupler and A206-R6 sets the forward power reference voltage applied to pin of U1.

Reflected power is sensed by the directional coupler and rectified by A206-CR2. When the reflected power exceeds a preset level established by A206-R7, a DC voltage proportional to the reflected power is applied to pin 3 of U1. U1 lowers the base voltage of Q215, which in turn lowers the collector voltage of the 10 watt driver transistors, thereby reducing transmitter output power.

Temperature protection is provided by U1 and thermistor RT201. RT201 is mounted on the heat sink assembly. Under normal operating conditions, the temperature sensing circuit is inactive. When the heat sink temperature reaches approximately 100°C, the resistance of RT101 decreases, decreasing the base voltage of Q215. This in turn reduces the collector voltage applied to the 10 watt driver transistors, reducing the transmitter output until at approximately 125°C the output is almost zero. As the temperature of the heat sink decreases, the output power increases until full power returns at approximately 100°C.

Overvoltage protection for the RF transistors is also provided by U1. Should the supply voltage exceed approximately 18 volts, U1 will switch off the collector voltage to the driver transistors, turning them off. The IC will hold the driver transistors off until the supply voltage is reduced to a safe level.

CAUTION

U1 may be damaged if output terminals 12 or 14 are shorted to ground. Use extreme caution when servicing the power control circuit.

ANTENNA MATCHING UNIT

The Antenna Matching Unit is used only in continuous duty duplex stations to optimize impedance matching between the power amplifier and the load. It consists of a Pi network (C2-C5 and L1) and a reverse directional coupler. RF from the low pass filter is applied to the Pi network through the reverse directional coupler and then to the duplexer load. The reverse directional coupler permits monitoring the reflected power by connecting a DC voltmeter across TP1 (+) and ground (-). C2 and C4 are tuned for minimum DC voltage which represents minimum reflected power. The turns of L1 may also be spread or compressed to further reduce the DC voltage. C2, C4, and L1 should be alternately tuned until an absolute minimum voltage reading is obtained. The residual voltage reading after tuning may vary from one transmitter to the next depending on output power level, operating frequency and the load.

110 WATT 138-174 MHZ POWER AMPLIFIER
19D424583G4 MOBILE "M" SERIES & INTER. DUTY STATION
19D424583G8 MOBILE "E" SERIES

SYMBOL	PART NO.	DESCRIPTION
A201		10 WATT DRIVER BOARD 19D424309G1 (See separate Parts List)
A206		110 WATT POWER AMPLIFIER BOARD 19D424266G1 (See separate Parts List)
FL201		LOW PASS FILTER BOARD 19C327454G1
		- - - - - - - - - - CAPACITORS - - - - - - - - -
C1	19A116679P8D	Metallized teflon: 8 pF ±0.5 pF, 250 VDCW. (Used in G1). C2 19A700015P12 Teflon/Mica: 22 pF ±5%, 250 VDCW. (Used in G1).
C3	19A116795P29J	Teflon: 29 pF ±5%, 250 VDCW. (Used in G1).
C4		19A116679P8D Metallized teflon: 8 pF ±0.5 pF, 250 VDCW. (Used in G1).
C5 and C6	19A116655P18	Ceramic disc: 680 pF ±10%, 1000 VDCW; sim to RMC Type JF Discap. (Used in G1).
		- - - - - - - - - - - JACKS - - - - - - - - - - -
J202 and J203	19A700049P2	Connector, receptacle; 500 VDCW maximum; sim to NTTF-1058. (Used in G1).
J206 and J207	19A134263P2	Contact, electrical: sim to Sel ectro 229-1071.(Used in G1).
J208	4033513P4	Contact, electrical: sim to Bead Chain L93-3. (Used in G1).
		- - - - - - - - - - - RELAYS - - - - - - - - - -
K1	19A700061P1	Hermetic sealed: 180 to 341 ohms coil res, 8-16.3 VDC; sim to GE 3SAV1760A2, CP Clare HFW-1201558, or Potter-Brumfield HCM6160. (Used in G1).
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L1	19A129569P1	Coil. (Used in G1).
L2	19A701418P1	Coil. (Used in G1).
L3	19A129569P1	Coil. (Used in G1).
L4	19A701420P5	Coil. (Used in G1).
L5	19A129569P1	Coil. (Used in G1).
L6	19A701418P1	Coil. (Used in G1).
L7	19A136907P1	Coil. (Used in G1).
		- - - - - - - - - - - CABLES - - - - - - - - - - -
W1 thru W5		Part of PWB 19D424357P1.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19A129361P2	Shield. (Used in G1).
		MAIN ASSEMBLY 19D424583G4,G8
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L201 and L202	19A129562P1	Coil.

*COMPONENTS, ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

SYMBOL	PART NO.	DESCRIPTION
		- - - - - - - - - - TRANSISTORS - - - - - - - - -
Q201	19A134340P1	Silicon, NPN: VHF Amplifier, 4 watts, 12.5 v.
Q202A	19A134340P3	Silicon, NPN: VHF Amplifier, 12 watts.
Q203A	19A134340P4	Silicon, NPN, VHF Amplifier: 45 w.
Q204 and Q205	19A134387P1	Silicon, NPN.
Q215	19A116742P1	Silicon, NPN; sim to Type 2N6103.
		- - - - - - - - - - THERMISTOR - - - - - - - - -
RT201	19A129379G1	Thermistor: 40K ohms ±20%, color code white; sim to Carborundum Type M0806J-5.
	19A129316P1	Stud, Thermistor (Used in G1).
	19A700046P1	Resistor, THERM40000 (Used in G1).
		- - - - - - - - - - - CABLES - - - - - - - - - - -
W203	19A136942P1	Strap.
W204	7878455P1	Lug terminal; sim to GE89473.
W206	19B227931G3	Jumper.
W207	19B227931G1	Jumper.
W210	19B227934G1	Cable: approx 13 inches long.
	19A700136P3	Insulative Sleeving, Electrical: sim to19C301208. (Used in G1).
W211	19A137006P2	Jumper.
		HEAT SINK ASSEMBLY 19B219688G7 (Used in G4). 19B219688G19 (Used in G8).
C297 and C298	19A116708P1	Ceramic: 0.01 µF -0 +100%, 500 VDCW, rated 20 amps; sim to Erie 327050X5W0103P. (Used in G4).
C299	19A115680P10	Electrolytic: 200 µF +150 -10%, VDCW; sim to Mallory Type TTX.
CR295	19A116783P1	Silicon, 100 VDC blocking, 6 amp; sim to MR751.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19A129434P1	Washer, fiber. (Used with C297 C298).
	NP280071	Nameplate. (CAUTION).
	19A148393P306	Tap screw, TORZ drive: No. 6-32 X 3/8. (Used in G19).
	19B219929P1	Support, heat sink. (Used in G19).
	19A129639P1	Cover, heat sink (Used in G19).
	19B201074P305	Tap screw, Phillips POZIDRIV: No. 6-32 x 5/16. Secures heat sink cover; (Used in G19).
	19D416732G7	Heat sink. (Used in G7).
	19D417105G7	Heat sink. (Used in G19).
	19A129637G6	Hardware Kit. (Used in G19).
	19A700068P1	Insulator, bushing. (Used with Q215).
	19A700115P3	Insulator, plate. (Used with Q215).
	19C321982P1	Insulator. (Under A201).

SYMBOL	PART NO.	DESCRIPTION
	19C321442P1	Insulator. (Under A201).
	19B201074P306	Tap screw, Phillips POZIDRIV: No. 6-32 x 3/8. (Between FL201 cover and A206). 19B201074P312
		Tap screw, Phillips POZIDRIV: No. 6-32 x 3/4. (Secures FL201).
	N44P9010B6	Machine Screw. (Secures Q201 - Q205).
	19D416275G2	Casting. (Filter).
	NP280428	Nameplate.
		138-174 MHZ 10 Watt Driver. A20119D424309G1
		- - - - - - - - - - CAPACITORS - - - - - - - - -
C1A	19A700105P8	Mica: 12 pF ±5%, 500 VDCW.
C2	7489162P39	Silver mica: 330 pF ±5%, 500 VDCW; sim to Sprague Type 118.
C3	19A700105P28	Mica: 56 pF ±5%, 500 VDCW.
C4A	19A700015P23	Teflon/Mica: 56 pF ±5%, 250 VDCW. (Used in and G1).
C5A		
C6	19A700015P37	Teflon/Mica: 220 pF ±5%, 250 VDCW. (Used in G1).
C8	19A116080P107	Polyester: 0.1 µF ±10%, 50 VDCW. (Used in G1).
C9	19A116655P8	Ceramic disc: 150 pF ±10%, 1000 VDCW; sim. to RMC Type JF Discap.
C10A	19A700105P30	Mica: 68 pF ±5%, 500 VDCW.
C11A	7489162P101	Silver mica: 5 pF ±10%, 500 VDCW; sim. to Sprague Type 118.
C12	19A700015P30	Silver mica: 110 pF ±5%, 250 VDCW. (Used in G1).
C13A and C14A	19A700014P33	Metallized teflon: 150 pF ±5%, 250 VDCW.
C15	19A700015P37	Teflon/Mica: 220 pF ±5%, 250 VDCW. (Used in G1).
C16	19A134202P15	Tantalum: 6.8 µF ±20%, 35 VDCW. (Used in G1).
C17	19A116080P107	Polyester: 0.1 µF ±10%, 50 VDCW. (Used in G1).
C18	19A116655P8	Ceramic disc: 150 pF ±10%, 1000 VDCW; sim. to RMC Type JF Discap.
C20A	19A700015P27	Silver mica: 82 pF ±5%, 250 VDCW. (Used in G1).
C21A	19A700015P16	Teflon/Mica: 30 pF ±5%, 250 VDCW. (Used in G1).
C22B	19A700015P25	Silver mica: 68 pF ±5%, 250 VDCW. (Used in G1).
C23 thru C25	19A116655P18	Ceramic disc: 680 pF ±10%, 1000 VDCW; simto RMC Type JF Discap.
C26	19A134202P15	Tantalum: 6.8 µF ±20%, 35 VDCW. (Used in G1).
C27	19A116655P19	Ceramic disc: 1000 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C28	19A116655P8	Ceramic disc: 150 pF ±10%, 1000 VDCW; sim. to RMC Type JF Discap.
C29 and C30	19A116655P18	Ceramic disc: 680 pF ±10%, 1000 VDCW; sim to RMC Type JF Discap.
C31	19A116080P107	Polyester: 0.1 µF ±10%, 50 VDCW. (Used in G1).
C32 thru C34	19A116655P18	Ceramic disc: 680 pF ±10%, 1000 VDCW; simto RMC Type JF Discap.
C35	19A134202P6	Tantalum: 22 µF ±20%, 15 VDCW. (Used in G1).

SYMBOL	PART NO.	DESCRIPTION
C36	19A134202P15	Tantalum: 6.8 µF ±20%, 35 VDCW. (Used in G1).
C37 thru C40	19A116655P18	Ceramic disc: 680 pF ±10%, 1000 VDCW; sim to RMC Type JF Discap.
C42 and C43	19A116655P18	Ceramic disc: 680 pF ±10%, 1000 VDCW; simto RMC Type JF Discap.
C44	19A703314P4	Electrolytic: 47 µF -10+50% tol, 16 VDCW; sim to Panasonic LS Series.
C45	19A701602P13	Ceramic: 470 pF ±20%, 1000 VDCW; sim to Type JF Discap.
C46	19A116655P18	Ceramic disc: 680 pF ±10%, 1000 VDCW; sim to RMC Type JF Discap.
C48 thru C50	19A116655P18	Ceramic disc: 680 pF ±10%, 1000 VDCW; sim to RMC Type JF Discap.
C52	19A700006P17	Mica: 22 pF ±5%, 250 VDCW; sim to Underwood 3HS0020.
		- - - - - - - - - - DIODES - - - - - - - - - -
CR1	19A115250P1	Silicon, fast recovery, 225 mA, 50 PIV. (Used in G1).
		- - - - - - - - - - JACKS - - - - - - - - - -
J201	19A700049P2	Connector, receptacle; 500 VDCW maximum; sim to NTTF-1058.
J205	19B219374G1	Connector: 9 contacts.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19C317957P1	Connector, Includes: Shell.
	19A700237P1	Contact, electrical: sim to Malco 003-0132-001.
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L1	19A700024P25	Coil, RF: 10.0 uH ±10%, 3.70 ohms DC res max.
L3A	19A136530P1	Coil.
L4	19A701091G1	Coil.
	19A700125P10	Wire Magnet, Plastic Coated.
	19A700122P1	Torroidal core.
L5A	19A136532P2	Coil.
L6	19A701420P5	Coil.
L7	19A701091G1	Coil.
L8A	19A129561P1	Coil.
L9A	19A701420P3	Coil.
L10A	19A129561P1	Coil.
L11	19A701091G1	Coil.
L12	19A129569P1	Coil.
L13	19A701419P3	Coil.
L14 thru L16	19A700024P25	Coil, RF: 10.0 uH ±10%, 3.70 ohms DC res max.
		- - - - - - - - - - TRANSISTORS - - - - - - - - -
Q1	19A700023P1	Silicon, NPN: sim to 2N3904.

SYMBOL	PART NO.	DESCRIPTION
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1	19A700106P67	Composition: 1.5K ohms ±5%, 1/4 w. (Used in G1).
R2	3R152P241J	Composition: 240 ohms ±5%, 1/4 w. (Used in G1).
R3	19A700106P32	Composition: 51 ohms ±5%, 1/4 w. (Used in G1).
R4	19A700113P15	Composition: 10 ohms ±5%, 1/2 w. (Used in G1).
R5A	19A700113P32	Composition: 51 ohms ±5%, 1/2 w. (Used in G1).
R6	19A700113P15	Composition: 10 ohms ±5%, 1/2 w. (Used in G1).
R7	3R152P274J	Composition: 270K ohms ±5%, 1/4 w. (Used in G1).
R8A	19A116559P106	Variable cermet: 10K ohms ±20%, 1/2 w; sim to CTS Series 360.
R9	19C850605P2	Shunt resistor.
R10	19A700113P51	Composition: 330 ohms ±5%, 1/2 w. (Used in G1).
R11	3R152P564J	Composition: 560K ohms ±5%, 1/4 w. (Used in G1).
R12	19A700106P75	Composition: 3.3K ohms ±5%, 1/4 w. (Used in G1).
R13	H212CRP910C	Deposited carbon: 1 ohm ±5%, 1/4 w. (Used in G1).
R15	19C850605P2	Shunt resistor.
R16	19A700106P61	Composition: 820 ohms ±5%, 1/4 w. (Used in G1).
R17	19A700106P49	Composition: 270 ohms ±5%, 1/4 w. (Used in G1).
		- - - - - - - - - - TRANSFORMERS - - - - - - - -
T1	19A129564G1	Transformer.
		- - - - - - - - INTEGRATED CIRCUITS - - - - - - -
U1	19D429709G3	Power Control IC Assembly.
		- - - - - - - - - - - CABLES - - - - - - - - - -
W1 and W2		Part of PWB 19D438434P1.
W3	19B227912P1	Jumper.
W4	19B227912P2	Jumper.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19A134263P1	Contact, electrical: sim to Selectro 229-1082-00-0-590.
	19A701093P2	Strap. Solders to W2.
A206		110 Watt Power Amplifier. 19D424266G1
		- - - - - - - - - - CAPACITORS - - - - - - - - -
C1	19A700015P17	Teflon/Mica: 33 pF ±5%, 250 VDCW. (Used in G1).
C2	19A116795P120J	Mica: 120 pF ±5%, 250 VDCW.
C3 and C4	19A700014P37	Metallized teflon: 220 pF ±5%, 250 VDCW.
C5	19A700015P37	Teflon/Mica: 220 pF ±5%, 250 VDCW. (Used in G1).
C6	19A116795P100J	Mica: 100 pF ±5%, 250 VDCW.
C7	19A700015P16	Teflon/Mica: 30 pF ±5%, 250 VDCW. (Used in G1).
C8	19A700015P31	Teflon/Mica: 120 pF ±5%, 250 VDCW. (Used in G1).

SYMBOL	PART NO.	DESCRIPTION
C9	19A700015P37	Teflon/Mica: 220 pF ±5%, 250 VDCW. (Used in G1).
C10	19A700014P35	Metallized teflon: 180 pF ±5%, 250 VDCW.
C11	19A700014P33	Metallized teflon: 150 pF ±5%, 250 VDCW.
C12	19A700015P41	Teflon/Mica: 330 pF ±5%, 250 VDCW. (Used in G1).
C13	19A700105P36	Mica: 120 pF ±5%, 500 VDCW.
C14 and C15	19A700014P35	Metallized teflon: 180 pF ±5%, 250 VDCW.
C16	19A700015P28	Teflon/Mica: 91 pF ±5%, 250 VDCW. (Used in G1).
C17	19A700015P31	Teflon/Mica: 120 pF ±5%, 250 VDCW. (Used in G1).
C18	19A700015P37	Teflon/Mica: 220 pF ±5%, 250 VDCW. (Used in G1).
C19	19A700014P33	Metallized teflon: 150 pF ±5%, 250 VDCW.
C20	19A700014P35	Metallized teflon: 180 pF ±5%, 250 VDCW.
C21	19A700105P36	Mica: 120 pF ±5%, 500 VDCW.
C22 and C23	19A700014P35	Metallized teflon: 180 pF ±5%, 250 VDCW.
C24	19A700015P28	Teflon/Mica: 91 pF ±5%, 250 VDCW. (Used in G1).
C25	19A134202P15	Tantalum: 6.8 µF ±20%, 35 VDCW. (Used in G1).
C26	19A116080P107	Polyester: 0.1 µF ±10%, 50 VDCW. (Used in G1).
C27	19A116655P13	Ceramic disc: 470 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C28 and C29	19A700015P37	Teflon/Mica: 220 pF ±5%, 250 VDCW. (Used in G1).
C30 and C31	19A116655P13	Ceramic disc: 470 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C32	19A700015P41	Teflon/Mica: 330 pF ±5%, 250 VDCW. (Used in G1).
C33	19A116080P107	Polyester: 0.1 µF ±10%, 50 VDCW. (Used in G1).
C34	19A134202P15	Tantalum: 6.8 µF ±20%, 35 VDCW. (Used in G1).
C35	19A116655P13	Ceramic disc: 470 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C36	19A116795P110J	Mica: 110 pF ±5%, 250 VDCW.
C37	19A700015P4	Teflon/Mica: 10 pF ±5%, 250 VDCW. (Used in G1).
C38	5496218P648	Ceramic disc: 24 pF ±5%, 500 VDCW, temp. coef -470 PPM.
C39 thru C41	19A116192P2	Ceramic: 470 pF ±20%, 50 VDCW; sim to Erie 811-A050-W5R-471M.
C43	19A116080P107	Polyester: 0.1 µF ±10%, 50 VDCW. (Used in G1).
C44	19A116655P13	Ceramic disc: 470 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C45 thru C47	19A116655P18	Ceramic disc: 680 pF ±10%, 1000 VDCW; sim to RMC Type JF Discap.
C48 thru C54	19A116655P13	Ceramic disc: 470 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C55	19A134202P15	Tantalum: 6.8 µF ±20%, 35 VDCW. (Used in G1).
C56	19A700015P37	Teflon/Mica: 220 pF ±5%, 250 VDCW. (Used in G1).
C57	19A700015P32	Teflon/Mica: 130 pF ±5%, 250 VDCW. (Used in G1).

SYMBOL	PART NO.	DESCRIPTION
C61	19A700015P37	Teflon/Mica: 220 pF ±5%, 250 VDCW. (Used in G1).
C62	19A116795P39J	Teflon: 39 PF ±5%, 250 VDCW.
C63	19A116655P13	Ceramic disc: 470 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap.
		- - - - - - - - - - - DIODES - - - - - - - - - -
CR1	19A700047P4	Silicon, Schottky, 100 mW continuous dissipation.
C23 and CR2		- - - - - - - - - - - JACKS - - - - - - - - - - -
J210	19B219374G1	Connector: 9 contacts.
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L1	19B227929P1	Coil.
L2	19A137008P1	Coil.
L3	19A701091G1	Coil.
L4	19A701420P5	Coil.
L5	19A701848P1	Coil.
L6 and L7	19A137007P1	Coil.
L8	19A701091G1	Coil.
L9		Part of PWB 19D424265P1.
L10	19A136716P2	Coil.
L11	19A701420P4	Coil.
L12 and L13	19A137007P1	COIL
L14	19A701091G1	Coil.
L15		Part of PWB 19D424265P1.
L16	19A136716P2	Coil.
L17	19A701420P4	Coil.
L18 thru L20	19A700024P13	Coil, RF: 1.0 uH ±10%.
L21	19A129561P3	Coil
L22	19A136533P2	Coil.
L23	19A701420P3	Coil.
and		
L24		
L25 and L26	19A700024P1	Coil, RF: 100 nH ±10%, 0.08 ohms DC res max, 100 v.

SYMBOL	PART NO.	DESCRIPTION
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1	19A700113P15	Composition: 10 ohms ±5%, 1/2 w. (Used in G1).
R3	19A700113P15	Composition: 10 ohms ±5%, 1/2 w. (Used in G1).
R5	19A700113P15	Composition: 10 ohms ±5%, 1/2 w. (Used in G1).
R6 and R7	19A700109P1	Variable, cermet: 1K ohms ±20%, 1/4 w.
R8	19A700106P32	Composition: 51 ohms ±5%, 1/4 w. (Used in G1).
R9	19A700106P35	Composition: 68 ohms ±5%, 1/4 w. (Used in G1).
R12 and R13	19C850605P1	Shunt resistor.
		- - - - - - - - - - TRANSFORMERS - - - - - - - -
T1	19A701878G1	Coil.
		- - - - - - - - - - - CABLES - - - - - - - - - -
W1 thru W6		Part of PWB 19D424265P1
W7	19A137006P2	Jumper.
W8	19A137006P1	Jumper
W9		Part of PWB 19D424265P1.
W30 thru W32	19A701093P2	Strap.
		- - - - - - - - - - - FILTER - - - - - - - - - -
Z1	19A137330G1	Filter. (Used in A206).
Z2,Z3	19B219649G3	Filter.
Z4,Z5	19A702003G1	Filter
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19B232325P1	Shield
	19A137331P1	Shield

138-174 MHZ POWER AMPLIFIER
19D424786G4 110 WATT CONTINUOUS DUTY
19D424786G7 110 WATT CONTINUOUS DUTY DUPLEX
19D424786G8 130 WATT CONTINUOUS DUTY FOR COMBINING

SYMBOL	PART NO.	DESCRIPTION
A201		10 WATT DRIVER BOARD 19D424309G1 (Used in G4 and G7) (See separate Parts List)
A206 A207		110/130 POWER AMPLIFIER BOARD 19D424266G1 110 WATT PA (Used in G4 and G7). 19D424266G2 130 WATT PA (Used in G8 and G9).
		- - - - - - - - - - CAPACITORS - - - - - - - - -
C297 and C298	19A116708P1	Ceramic: 0.01 µF -0 +100%, 500 VDCW, rated 20 amps; sim to Erie 327050X5W0103P. (Used in G4).
FL201		LOW PASS FILTER BOARD 19C327454G1 (Used in G4)
		- - - - - - - - - - CAPACITORS - - - - - - - - -
C1	19A116679P8D	Metallized teflon: 8 pF ±0.5 pF, 250 VDCW.
C2	19A700015P12	Teflon/Mica: 22 pF ±5%, 250 VDCW. (Used in G1).
C3	19A116795P29J	Teflon: 29 pF ±5%, 250 VDCW.
C4	19A116679P8D	Metallized teflon: 8 pF ±0.5 pF, 250 VDCW.
C5 and C6	19A116655P18	Ceramic disc: 680 pF ±10%, 1000 VDCW; simto RMC Type JF Discap.
		- - - - - - - - - - - JACKS - - - - - - - - - - -
J202 and J203	19A700049P2	Connector, receptacle; 500 VDCW maximum; sim toNTTF-1058.
J206 and J207	19A134263P2	Contact, electrical: sim to Selectro 229-1071.
J208	4033513P4	Contact, electrical: sim to Bead Chain L93-3.
		- - - - - - - - - - - RELAYS - - - - - - - - - -
K1	19A700061P1	Hermetic sealed: 180 to 341 ohms coil res, 8-16.3 VDC; sim to GE 3SAV1760A2, CP Clare HFW-1201558, or Potter-Brumfield HCM6160. (Used in G1).
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L1	19A129569P1	Coil.
L2	19A701418P1	Coil.
L3	19A129569P1	Coil.
L4	19A701420P5	Coil.
L5	19A129569P1	Coil.
L6	19A701418P1	Coil.
L7	19A136907P1	Coil.
		- - - - - - - - - - - CABLES - - - - - - - - - - -
W1 thru W5		Part of PWB 19D424357P1.

*COMPONENTS, ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

SYMBOL	PART NO.	DESCRIPTION
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19A129361P2	Shield.
FL202		LOW PASS FILTER BOARD 19C327354G2 (Used in G7 & G9)
		- - - - - - - - - - CAPACITORS - - - - - - - - -
C1	19A116679P8D	Metallized teflon: 8 pF ±0.5 pF, 250 VDCW.
C2	19A700015P12	Teflon/Mica: 22 pF ±5%, 250 VDCW. (Used in G1).
C3	19A116795P29J	Teflon: 29 pF ±5%, 250 VDCW.
C4	19A116679P8D	Metallized teflon: 8 pF ±0.5 pF, 250 VDCW.
		- - - - - - - - - - - JACKS - - - - - - - - - - -
J1 thru J4	19A116364P2	Contact, electrical; sim to AMP 86182-7.
J203	19A700049P2	Connector, receptacle; 500 VDCW maximum; sim to NTTF-1058.
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L1	19A129569P1	Coil.
L2	19A701418P1	Coil.
L3	19A129569P1	Coil.
L4	19A701420P5	Coil.
L5	19A129569P1	Coil.
L6	19A701418P1	Coil.
		- - - - - - - - - - - CABLES - - - - - - - - - - -
W1 thru W3		Part of PWB 19D432086P1.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19A129361P2	Shield.
FL203		LOW PASS FILTER BOARD 19C327354G1 (Used in G8)
		- - - - - - - - - - CAPACITORS - - - - - - - - -
C1	19A116679P8D	Metallized teflon: 8 pF ±0.5 pF, 250 VDCW.
C2	19A700015P12	Teflon/Mica: 22 pF ±5%, 250 VDCW. (Used in G1).
C3	19A116795P29J	Teflon: 29 pF ±5%, 250 VDCW.
C4	19A116679P8D	Metallized teflon: 8 pF ±0.5 pF, 250 VDCW.
		- - - - - - - - - - - JACKS - - - - - - - - - - -
J203	19A700049P2	Connector, receptacle; 500 VDCW maximum; sim to NTTF-1058.
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L1	19A129569P1	Coil.
L2	19A701418P1	Coil.
L3	19A129569P1	Coil.
L4	19A701420P5	Coil.
L5	19A129569P1	Coil.
L6	19A701418P1	Coil.

SYMBOL	PART NO.	DESCRIPTION
		- - - - - - - - - - CABLES - - - - - - - - - -
W1 thru W3		Part of PWB 19D424362P1.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19A129361P2	Shield.
		Antenna Matching Unit 19C330778G1
C1A	19A116192P1	Ceramic,: 0.01 µF ±20%, 50 VDCW; sim to Erie 8121 Special.
C2	19A700008P2	Variable: 2.28 to 14.13 pF; sim to EF Johnson 187-0109-005.
C3A		19A116656P15J0 Ceramic disc: 15 pF ±5%, 500 VDCW, temp coef 0 PPM/°C.
C4A	19A700008P2	Variable: 2.28 to 14.13 pF; sim to EF Johnson 187-0109-005.
C5A	19A116656P15J0	Ceramic disc: 15 pF + or - 5%, 500 VDCW, temp coef PPM/C.
CR1	19A700047P3	Silicon, Schottky, 100 mW continuous dissipation. sim to IN6263.
L1A	19A143343P1	Coil.
R1	19A70010P31	Composition: 47 ohms ±5%, 1/4 w.
		MAIN ASSEMBLY 19D424786G4, G7-9
		- - - - - - - - - - JACKS - - - - - - - - - -
J213		Consists of: (Used in G8 and G9).
	19A701869P1	Housing
	19A701869P2	Contact, electrical
J214		Part of W214. (Used in G8 and G9).
J241		Part of W241. (Used in G4 and G7).
J242		Part of C298. (Used in G4).
J243		Part of W243.
J244		Part of W244 (Used in G4).
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L201	19A129562P4	Coil.
L202	19A129562P3	Coil.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P201		Part of W244. (Used in G4 and G7).
P202		Part of W244. (Used in G4).
P203		Part of W243.
P206	4036634P1	Contact, electrical; sim to AMP 42428-2. (Used in G4).
		- - - - - - - - - - TRANSISTORS - - - - - - - - -
Q201	19A134340P1	Silicon, NPN: VHF Amplifier, 4 watts, 12.5 v. (Used in G4 and G7).
Q202A	19A134340P3	Silicon, NPN: VHF Amplifier, 12 watts. (Used in G4 and G7).
Q203A	19A134340P4	Silicon, NPN, VHF Amplifier: 45 w. (Used in G4 and G7).
Q204 and Q205	19A149632P1	Silicon, NPN.
Q215	19A116753P1	Silicon, NPN. (Used in G4 and G7).

SYMBOL	PART NO.	DESCRIPTION
		- - - - - - - - - - THERMISTOR - - - - - - - - -
RT201	19A129379G1	Thermistor: 40K ohms ±20%, color code white; sim to Carborundum Type M0806J-5. (Used in G4 and G7).
		- - - - - - - - - - CABLES - - - - - - - - - -
W203	19A136942P1	Strap.
W204	7878455P1	Lug terminal; sim to GE89473. (Used in G4 & G7).
W210	19B227934G1	Cable: approx 13 inches long. (Used in G4 & G7).
W211	19A137006P2	Jumper. (Used in G4 & G7).
W214	19A129312G14	Antenna Cable. consists of: (Used in G8 & G9).
	19A700067P1	Receptical, coax; sim to Amphenol 83-798.
	4029082P2	Cover.
	19A700136P6	Insulated sleeving.
	5491689P108	Connector/cable: approx. 10 inches long.
	19B800560P3	Cable, RF.
W220	19B227931G2	Jumper. (Used in G4 & G7).
W221	19B227931G4	Jumper. (Used in G4 & G7).
W241		Part of frame 19D417526G3. (Used in G4 & G7).
W243	19A129312G6	Antenna Cable.
W244	5491689P104	Cable, RF: approx 4 inches long, 350 VRMS, 500 VDC operating voltage. (Used in G4).
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19C321982P1	Insulator. (Under A201) (Used in G4 and G7).
	19B201074P308	Tap screw, Phillips POZIDRIV: No. 6-32 x 1/2. (Grounds filter board shield).
	N80P13016B6	Machine screw, panhead: No. 6-32 x 1. (Secures filter board).
	19C321442P1	Insulator. (Under A206).
	N44P9010B6	Machine screw. (Secures Q201-Q205).
	19B201074P320	Tap screw, Phillips POZIDRIV: No. 6-32 x 1-1/4.
		(Secures L201 and W211 at spacer).
	19A149460G11	Spacer. (Used with L201 and W221).
	19D416275G2	Casting.
	7139898P3	Nut, hex, brass: No. 1/4-28. (Secures C297 and C298). (Used in G4).
	N529P18B6	Plug button. (For feed thru caps when not used). (Used in G7, G8 and G9).
	NP280428	Nameplate, "Tx Power Amplifier". (Used in G4 and G7).
	19B201074P205	Tap screw, Phillips POZIDRIV: No. 4-40 x 5/16.
		(Secures J243 & J244). (Used in G4).
	19B219404G1	Web filter. (Near A206, W1).
	19B226929G4	Plate. (Used in G4 and G7).
	19B226929G3	Plate. (Used in G8 and G9).

SYMBOL	PART NO.	DESCRIPTION
	19B209103P306	Tap screw, hex head: No. 6-32 x 3/8. (Secures frame to plate, 26 places).
	19B226212G1	Heat sink.
	19B209103P410	Tap screw, hex head: No. 8-32 x 5/8. (Secures heat sink to plate).
	19B209260P11	Solderless terminal. (Used in G8 and G9).
	19B201074P205	Tap screw, Phillips POZIDRIV: No. 4-40 x 5/16. (Secures J243).
	19D417513G1	PA Cover.
	19B209268P113	Terminal, solderless: sim to AMP 2-34835-4. (Solders to C297-2).
	19A701863P13	Cable clip.
	19B201074P306	Tap screw, Phillips POZIDRIV: No. 6-32 x 3/8. (Secures clip).
	NP280071	Nameplate. (CAUTION).
	7139898P3	Nut, hex, brass: No. 1/4-28.
	7491823P13	Terminal, solderless.
	19A700136P7	Insulator. (Used over C297-2).
	19D417526G3	PA Frame. (Used in G4 and G7).
	19D417526G4	PA Frame. (Used in G8 and G9).
	19B226212G2	Heat sink. (Used in G8 and G9).
	19B226212G3	Heat sink. (Used in G4 and G7).
	19A134260P1	Insulator cover. (Used over Q215). (Used in G4 and G7).
	4029974P1	Insulator, plate: aluminum. (Used with Q215). (Used in G4 and G7).
	4036994P1	Terminal, solderless. (Used with Q215). (Used in G4 and G7).
	19A115222P3	Washer, shield. (Used with Q215). (Used in G4 and G7).
	N210P9B6	Hex nut. (Used with Q215). (Used in G4 and G7).
	N404P11B6	Lockwasher, internal tooth, No. 4. (Used in G4 and G7).
	N80P9007B6	Machine screw. (Used in G4 and G7).
	N80P13004B6	Screw, machine: Pan head; No. 6-32 x 1/4".
	N404P13B6	Lockwasher, internal tooth: No. 6.
	N403P25B6	Lockwasher, external tooth: 1/4(.250). (Used in G4).
	N402P7B6	Flatwasher, narrow: No. 6.
	344A3805P1	Contact. (Used in G4 and G7).
	344A3804P1	Connector Cap, High current (Used in G4 and G7).

PRODUCTION CHANGES

Changes in the equipment to improve performance or to simplify circuits are identified by a "Revision Letter" which is stamped after the model number of the unit. Ther evision stamped on the unit includes allprevious revisions. Refer to the Parts List for the descriptions of parts affected by these revisions.

REV. A - 110 WATT POWER AMPLIFIER 19D424266G1

To improve operation of power control circuit, addedC64.

REV. B - 110 WATT POWER AMPLIFIER 19D424266G1

To delete component not required with improved power control IC, delted C64.

REV. C - 110 WATT POWER AMPLIFIER 19D424266G1, G2

To improve reliability, changed Z2 and Z3. Z2 and Z3 were: 19A137330G1 filter.

REV. A - 10 WATT DRIVER 19D424309G1

To improve operation when Solid State Scientific, Inc. (SSS) transistors are used for Q201, deletd C39 and replace with L2. Also changed C11.

REV. B - 10 WATT DRIVER 19D424309G1

To improve operation when Communication Transistor Corp. (CTC) transistors are used for Q201, delted C39 and replaced with L2. Also changed C11 and added C51.

REV C - 10 WATT DRIVER 19D424309G1

To improve opeation when TRW transistors are used for Q201, deleted C51 and L2, added C39 and changed C11.

REV. D - 10 WATT DRIVER 19D424309G1

To improve performance, changed R5.

REV. E - 10 WATT DRIVER 19D424309G1

To improve operation of power control circuit, added C51 and C64.

REV. F - 10 WATT DRIVER 19D424309G1

To delete components not required with improved Power Control IC, deleted C51 and C64.

REV. G - 10 WATT DRIVER 19D424309G1

To prevent C26 failure if +12 volts is applied without A- connected and with antenna connected, reversed C26 polarity.

REV. H - 10 WATT DRIVER 19D424309G1

To improve opeation by reducing spurious output, added C52.

REV. J - 10 WATT DRIVER 19D424309G1

To improve reliability by modifying power control circuit to eliminate overshoot at key-on, added driver circuit at output of U1. Added components were C44, C45, Q1, R16 and R17.

REV. A - CONTINUOUS DUTY PA 19D424786G4, G7

To improve reliability, changed Q215 from a plastic case to a metal case hermetically sealed transistor.

REV. B - CONTINUOUS DUTY PA 19D424786G7

To improve operation, changed filter FL202 form 19C327354G1 to 19C327354G2.

REV. B - CONTINUOUS DUTY PA 19D424786G4

REV. C - CONTINUOUS DUTY PA 19D424786G7

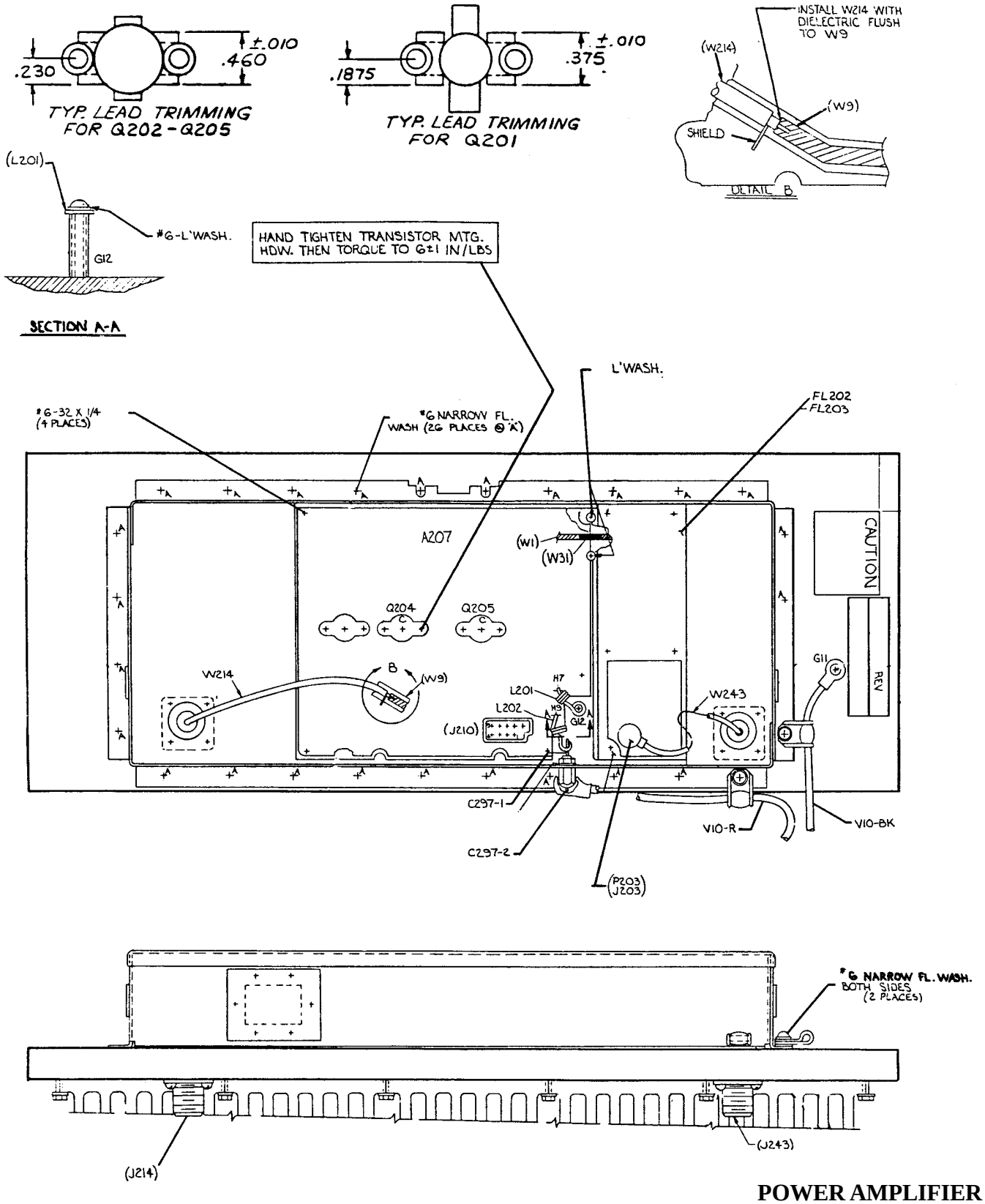
To improve reliability by modifying power control circuit (19D424309G1 Rev. J) to eliminate overshoot at key-on, added driver circuit at output of U1. Added components were C44, C45, Q1, R16 and R17.

REV. A - CONTINUOUS DUTY PA 19D424786G8, G9

REV. C - CONTINUOUS DUTY PA 19D424786G4

REV. D - CONTINUOUS DUTY PA 19D424786G7

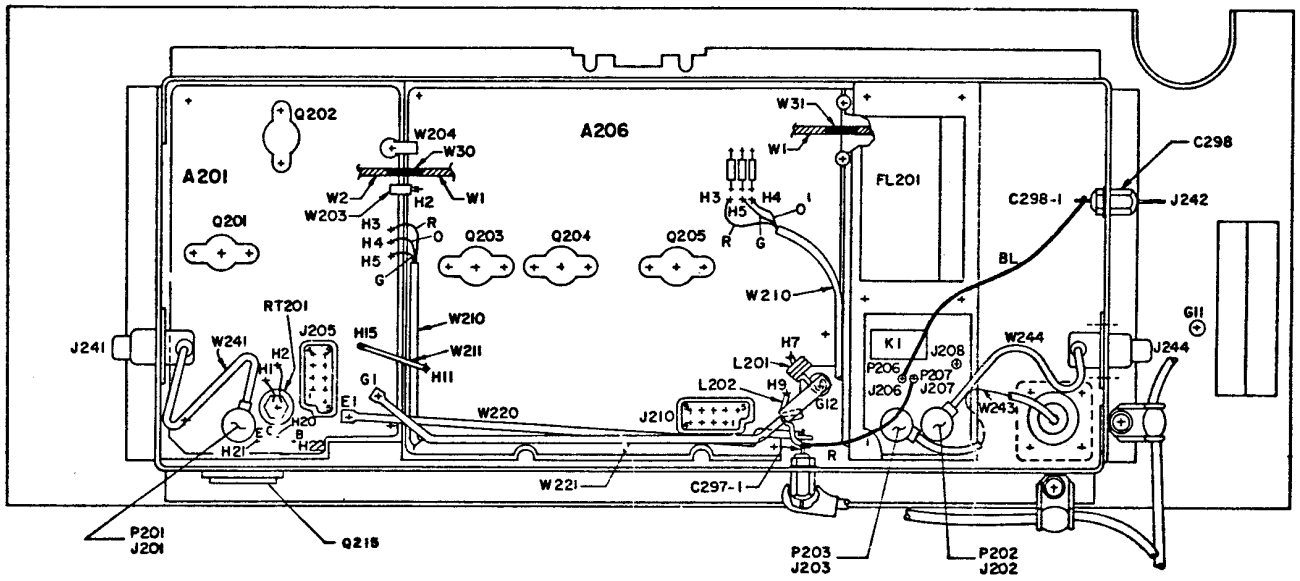
To improve reliability, changed Q204 and Q205. Old part was: 19A134387P1 Silicon, NPN.

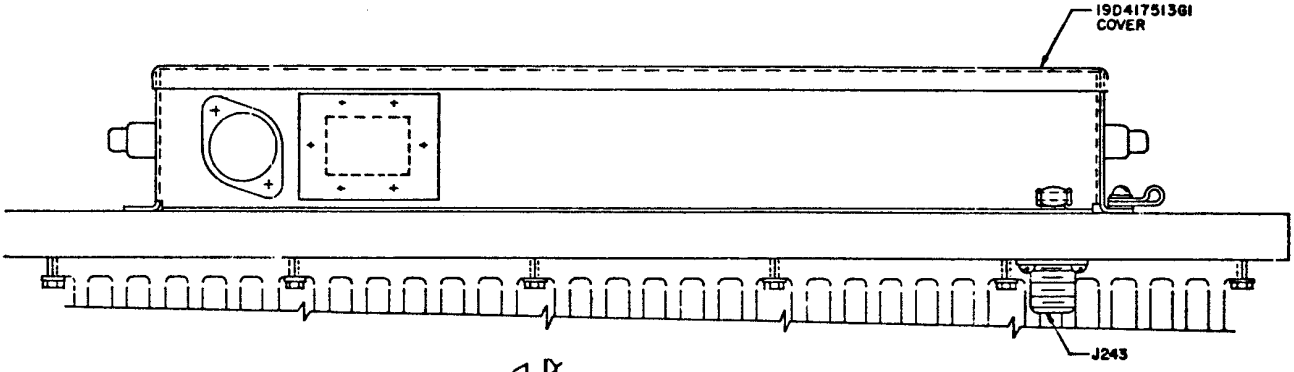


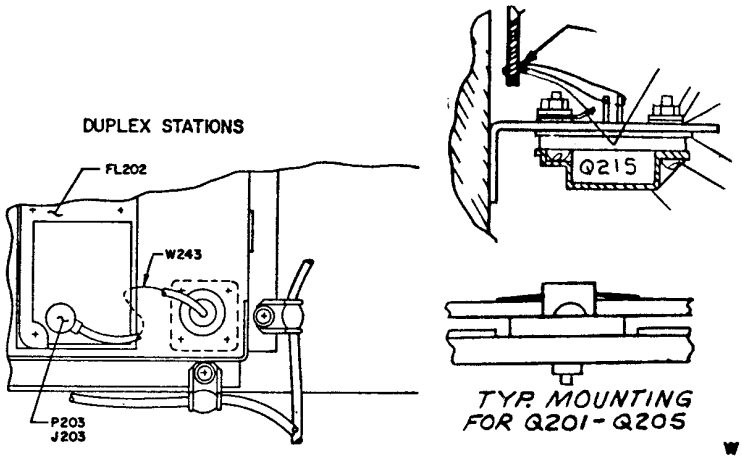
POWER AMPLIFIER

(19D424786, Sh. 3, Rev. 4)
(19D424786G8, G9)

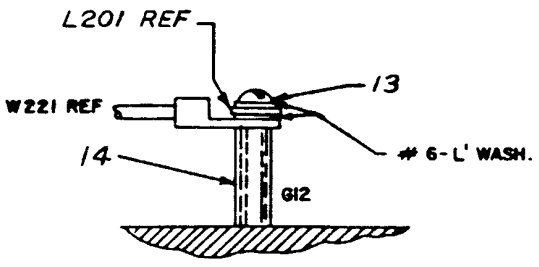
CONTINUOUS DUTY & DUPLEX STATION







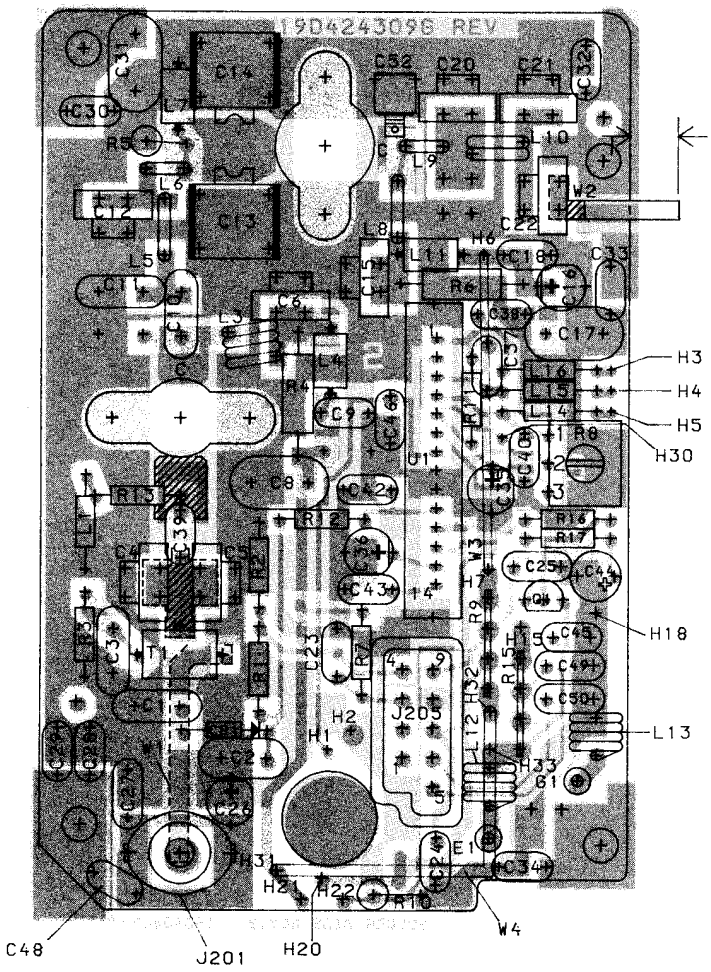
CONNECTION CHART FOR Q215		
FROM	TO	REMARKS
H21	E	ST 22 W
H22	B	ST 22 W
H20	C	ST 22 W



138-174 MHz POWER AMPLIFIER ASSEMBLIES
CONTINUOUS DUTY & DUPLEX STATION

(19D424786, Sh. 2, Rev. 10)

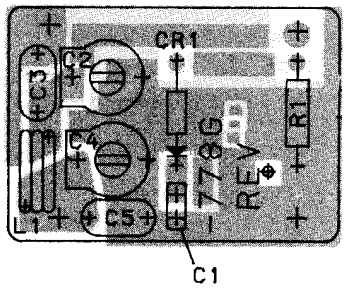
10-WATT DRIVER A201



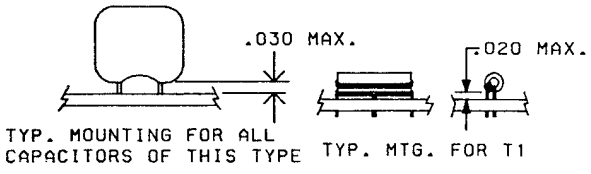
(19D424309, Sh. 1, Rev. 16)
(19D438434, Comp. Side, Rev. 2)
(19D438434, Solder Side, Rev. 2)

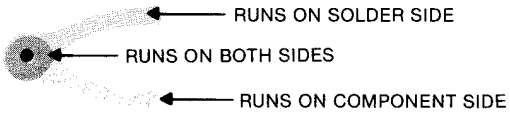
ANTENNA MATCHING UNIT

(Part of FL202)

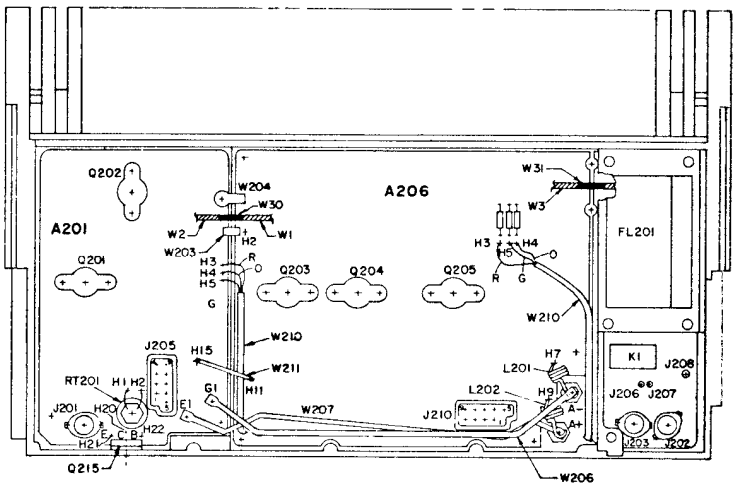


(19C330778, Sh. 1, Rev. 0)
(19A143200, Sh. 1, Rev. 0)
(19A143200, Sh. 2, Rev. 0)

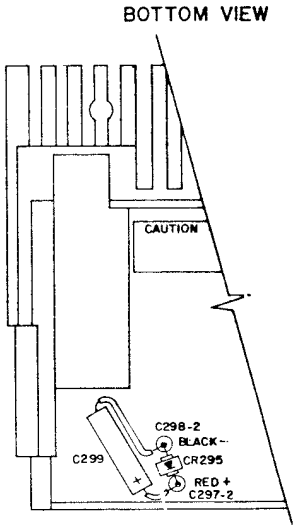




TOP VIEW



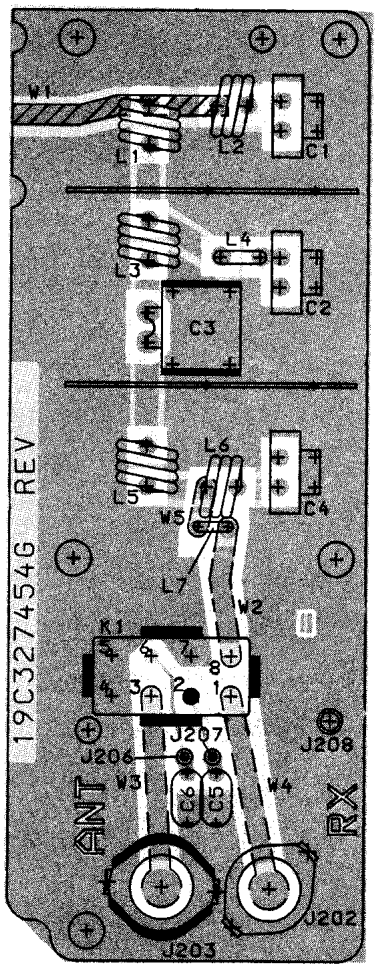
BOTTOM VIEW



138-174 MHz POWER AMPLIFIER
MOBILE & INT. DUTY STATION

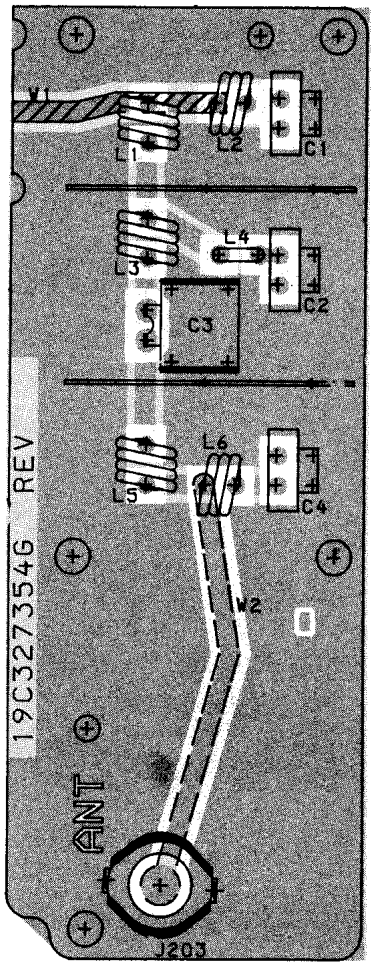
(19D424583, Sh. 3, Rev. 4)

FL201



(19C327454, Sh. 1, Rev. 1)
(19B227645, Sh. 1, Rev. 1)
(19B227645, Sh. 2, Rev. 0)

FL202, FL203

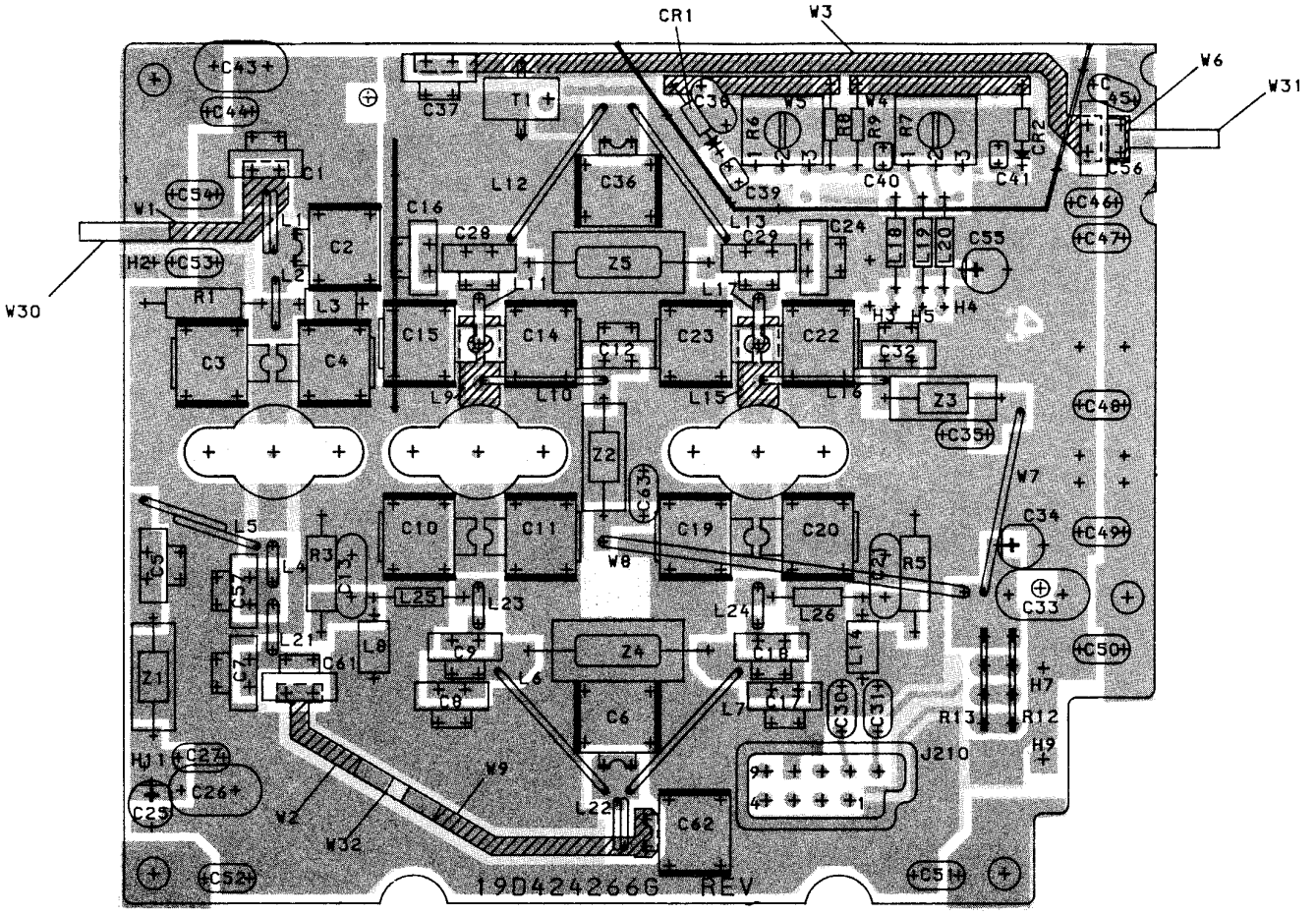


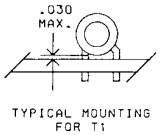
(19C327354, Sh. 1, Rev. 2)
(19B227651, Sh. 1, Rev. 0)
(19B227651, Sh. 2, Rev. 0)

RUNS ON SOLDER SIDE
RUNS ON BOTH SIDES
RUNS ON COMPONENT SIDE

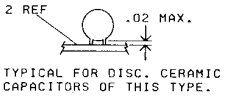
138-174 MHz POWER AMPLIFIER
FILTER ASSEMBLIES

110-WATT PA A206



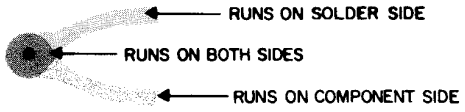


TYPICAL MOUNTING FOR T1



TYPICAL FOR DISC. CERAMIC CAPACITORS OF THIS TYPE.

(19D424266, Sh. 1, Rev. 5)
(19B227604, Sh. 1, Rev. 3)
(19B227604, Sh. 2, Rev. 4)



138-174 MHz, 110-WATT POWER AMPLIFIER

(19D424583, Sh. 3, Rev. 4)

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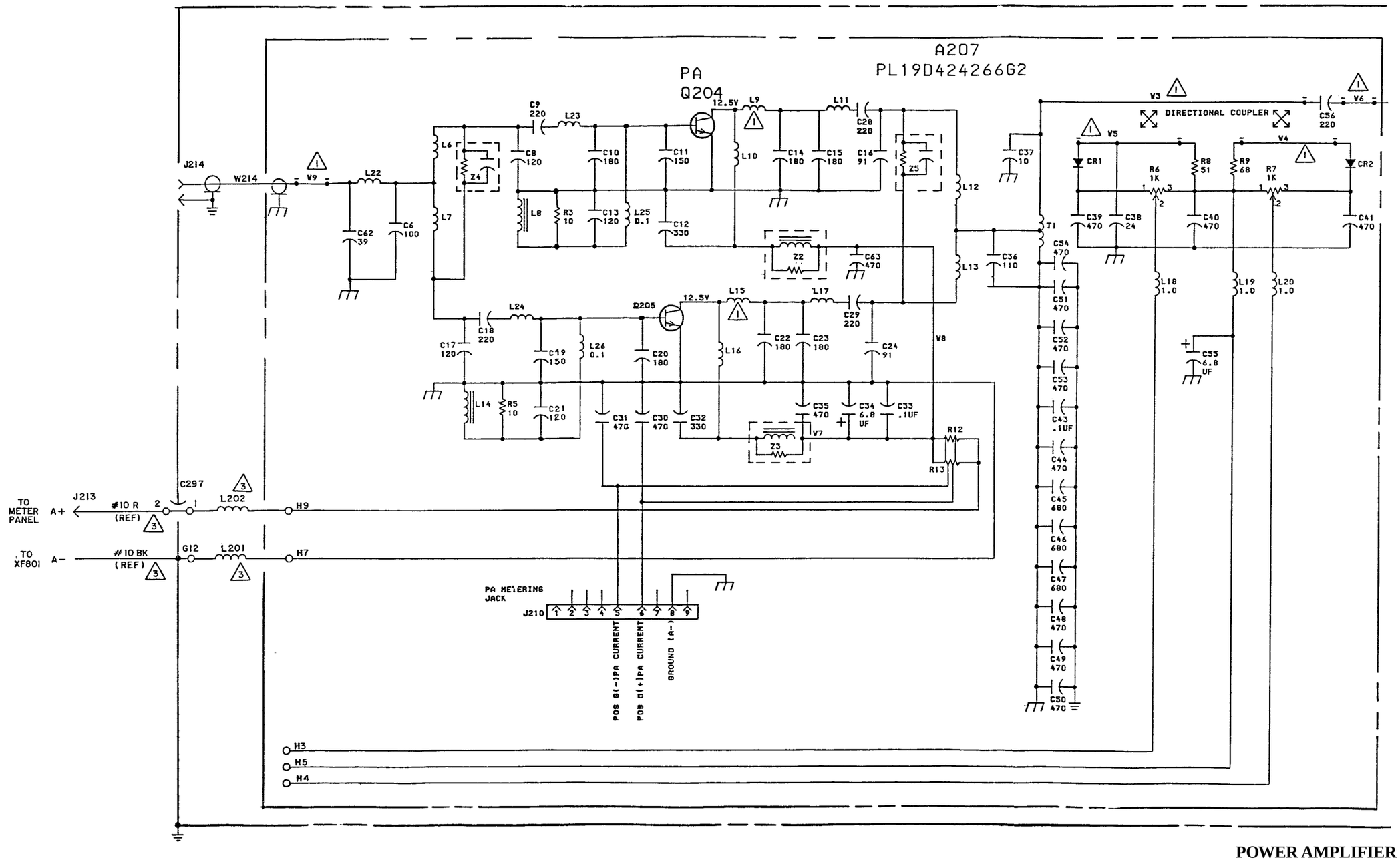
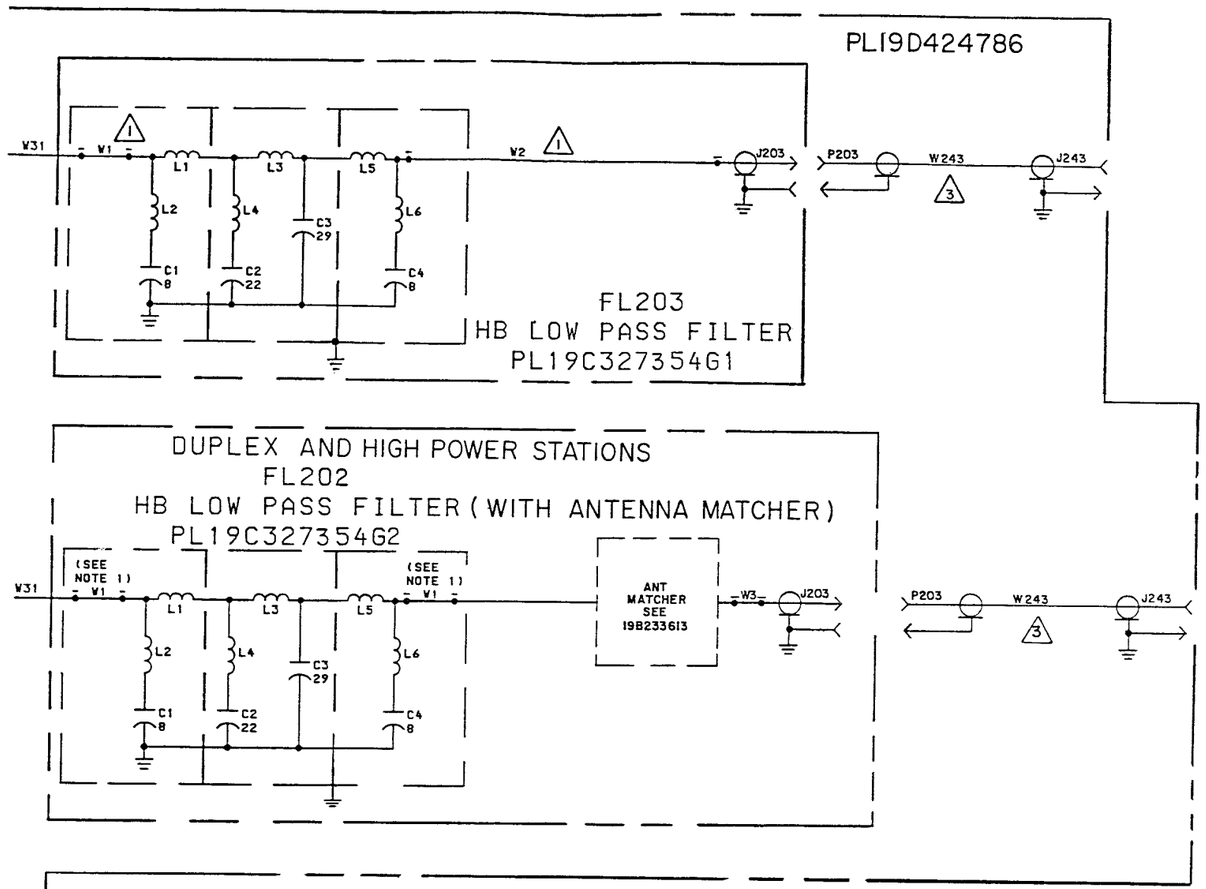


POWER AMPLIFIER
19D424786G8, 9

(19R601706, Sh. 1, Rev. 3)



NOTES:

1. MICROSTRIP PART OF PCB.
2. INDICATES A-. INDICATES STATION GROUND.
3. PART OF PL19D424786.

ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K-1000 OHMS OR MEG-1,000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF-MICROFARADS. INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH-MILLIHENRYS OR H-HENRYS.

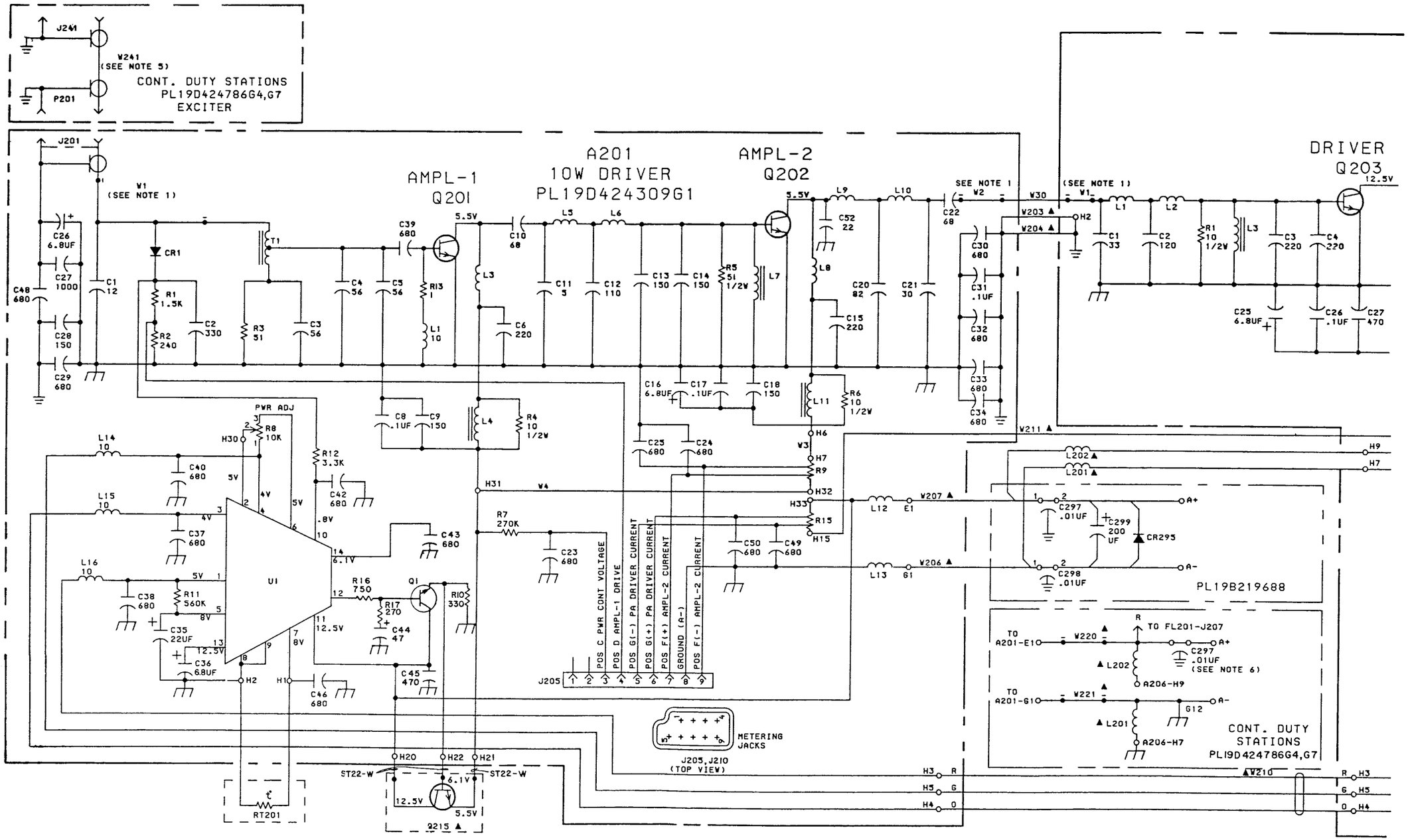
DESCRIPTION	PA ASSEMBLY	REV. LTR.	130WATT PA	REV. LTR.	LOW PASS FILTER	REV. LTR.
CONT. DUTY	19D42478668	B	19D424266G2		19C327354G1	
CONT. DUTY WITH ANT. MATCHER	19D42478669	B	19D424266G2		19C327354G2	

VOLTAGE READINGS

VOLTAGE READINGS ARE TYPICAL READINGS MADE WITH THE TRANSMITTER KEYED, AND MEASURED WITH A 20,000 OHMS-PER-VOLT METER WITH REFERENCE TO A- AND NOT CHASSIS GROUND. AN RF CHOKE (25-50 MICROHENRYS) IS USED IN THE HOT METER LEAD TO AVOID DETUNING RF CIRCUITS.

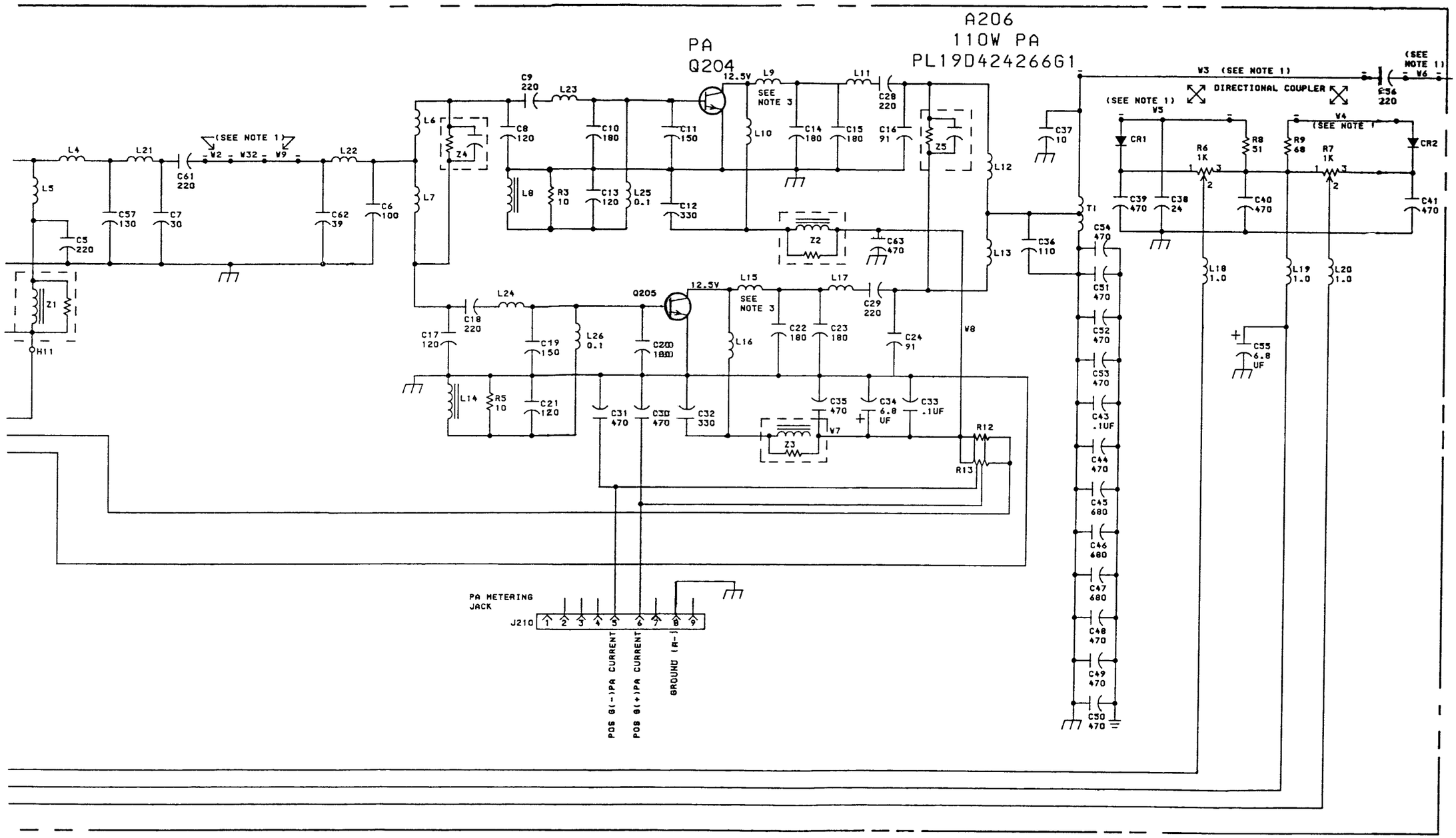
POWER AMPLIFIER
19D424786G8, 9

(19R601706, Sh. 1, Rev. 3)



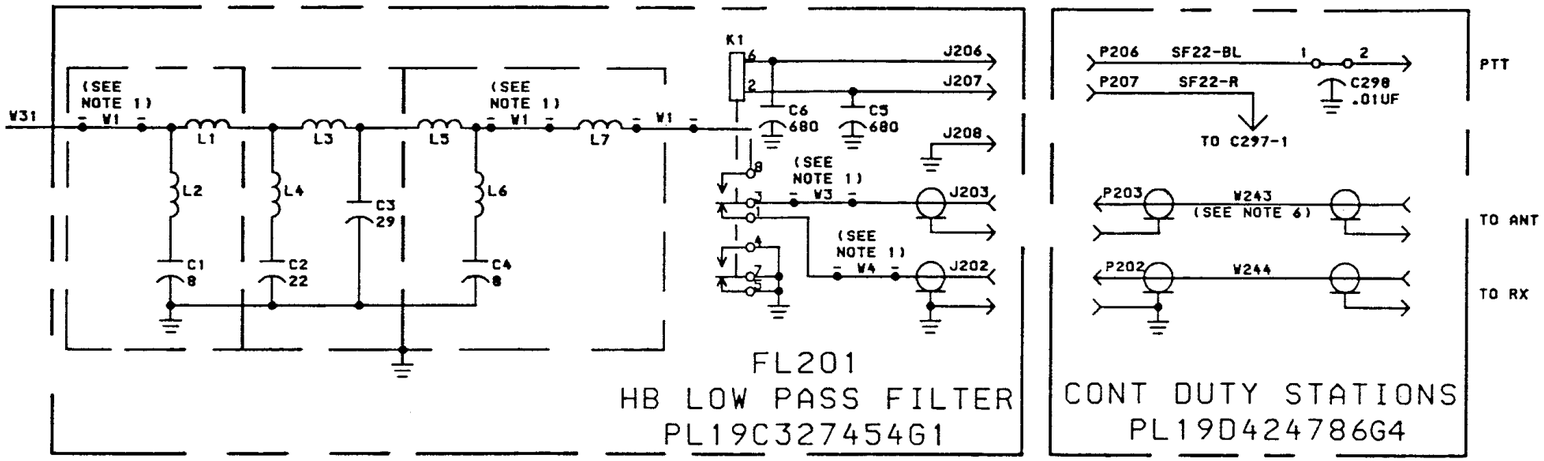
138-174 MHz, 110-WATT POWER AMPLIFIER

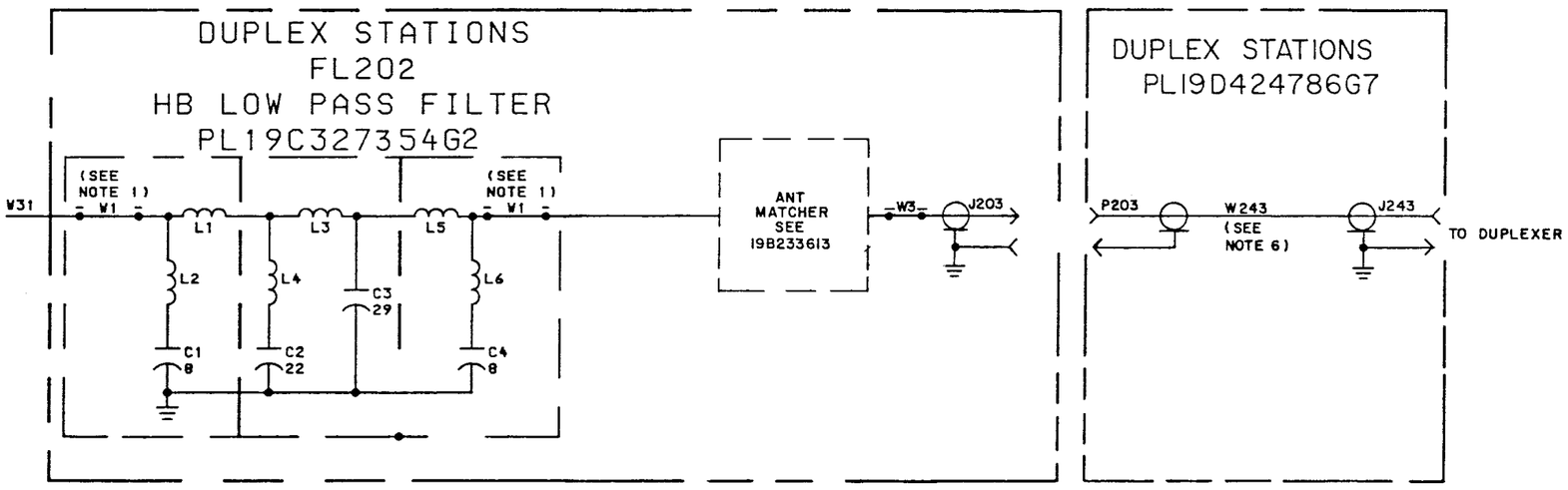
(19D424583G4, 8 (Intermittent Duty)
(19D424786G4, 7 (Continuous Duty)
(19R622291, Sh. 1, Rev. 21)



138-174 MHz, 110-WATT POWER AMPLIFIER

(19D424583G4, 8 (Intermittent Duty)
(19D424786G4, 7 (Continuous Duty)
(19R622291, Sh. 1, Rev. 21)





DESCRIPTION	PA ASSEMBLY	REV. LTR.	10 WATT DRIVER	REV. LTR.	110 WATT PA	REV. LTR.	LOW PASS FILTER	REV. LTR.
INT. DUTY STA "M" SERIES MOB.	19D42458384		19D42430981	J	19D42426661	B	19C32745461	
INT. DUTY STA "E" SERIES MOB.	19D42458388		19D42430981	J	19D42426681	B	19C32745481	
CONT. DUTY STATION	19D42478664	D	19D42430981	J	19D42426661	B	19C32745481	
CONT. DUTY DUPLEX	19D42478667	E	19D42430961	J	19D42426661	B	19C32735461	

VOLTAGE READINGS

VOLTAGE READINGS ARE TYPICAL READINGS MADE WITH THE TRANSMITTER KEYED, AND MEASURED WITH A 20,000 OHMS-PER-VOLT METER WITH REFERENCE TO A- AND NOT CHASSIS GROUND. AN RF CHOKE (25-50 MICROHENRYS) IS USED IN THE HOT METER LEAD TO AVOID DETUNING RF CIRCUITS. NOTE: READINGS AT Q215 COLLECTOR AND IN THE POWER CONTROL CIRCUIT WERE TAKEN WITH THE TRANSMITTER ADJUSTED FOR 110 WATTS OUTPUT. THESE READINGS WILL VARY DEPENDING ON THE SETTING OF POWER ADJUST CONTROL A201-R8.

ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K=1000 OHMS OR MEG=1,000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF-MICROFARADS. INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH-MILLIHENRYS OR H-HENRYS.

NOTES:
1. MICROSTRIP PART OF PCB.
2.
3. ⏚ INDICATES A-.
   ⏚ INDICATES VEHICLE GROUND.
4. CALLED FOR ON 19D417526.
5. CALLED FOR ON 19R423340.
6. ALL COMPONENTS MARKED ARE PART OF PL19D424583 OR PL19D424786.

138-174 MHz, 110-WATT POWER AMPLIFIER

(19D424583G4, 8 (Intermittent Duty)
(19D424786G4, 7 (Continuous Duty)
(19R622291, Sh. 1, Rev. 21)

Ericsson Inc.
Private Radio Systems
Mountain View Road
Lynchburg, Virginia 24502
1-800-528-7711 (Outside USA, 804-528-7711)

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