

MAINTENANCE MANUAL

30-50 MHz, 50-WATT POWER AMPLIFIER BOARD I9D423356GI-G6

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DESCRIPTION

The 30-50 MHz PA assembly for MASTR[®] Executive II uses three RF power transistors to provide a power output of 50 watts. The output power is adjustable using power adjust control R14 over a range of 15 to 50 watts. A single transistor is used in the power adjust circuit.

Supply voltage for the PA is connected through power leads from the system-audio-squelch board (SAS) to feed through capacitors C297 and C298 on the side of the PA assembly. C297, C298, C299, L295 and L296 prevent RF from getting on the power leads. Diode CR295 will cause the main fuse assembly to blow if the polarity of the power leads is reversed, providing reverse voltage protection for the radio.

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

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 in-line fuses to blow.

The hinged PA heat sink pivots 90° to provide access to the power amplifier board, low pass filter and centralized metering jack J205.

Centralized metering jack J205 is provided for use with GE Test Set Model 4EX3A11 or Test Kit 4EX8K12. The Test Set meters the Ampl-1 drive (exciter output), Ampl-1 (collector), driver current and PA current.

CIRCUIT ANALYSIS

RF AMPLIFIERS

The exciter output is coupled through cable W216 to PA input jack J201. The RF is coupled through DC blocking capacitor C1 and an impedance matching network to the base of Class C amplifier Q201. The network matches the 50-ohm input to the base of Q201, and consists of C6, C7, C8, L1 and L2. L3 and R1 comprise a stabilizing network in the base circuit of Q201.

Part of the RF input is rectified by CR1 and applied to voltage divider R2 and R3. This voltage is used to meter the AMPL-1 drive at J205.

Collector voltage to Q201 (Ampl-1) is controlled by the power adjust circuit, Q204 and is applied through collector stabilizing network (L15 and R7) and collector feed network L4 and C9. The collector voltage of Q201 is metered through R11 at J205.

The output of Q201 is coupled to the base of Class C driver Q202 through coupling capacitor C10, a matching network consisting of L5, L6, C12 and C13 and a resistive pad consisting of R4, R5 and R6. The output of the resistive pad is applied to the base of driver Q202. The resistive pad lowers the gain of driver Q202. L7 and R8 comprise a stabilizing network in the base circuit of Q202.

Collector voltage to Q202 is applied through collector stabilizing network Z1 and collector feed network L9 and C17.

Collector current for Q202 is metered across tapped manganin resistor R12 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.

The output of Q202 is applied to the base of Class C Power Amplifier Q203 through a matching network (L9, L10, C16 and C19 through C24) that matches the output impedance of driver Q202 with the input impedance of power amplifier Q203. R9, R10 and L11 comprise a stabilizing network in the base circuit of Q203.

Collector voltage to Q203 is coupled through collector stabilizing network Z2 and collector feed network L12 and C27.

Collector current for Q203 is metered across tapped manganin resistor R13. The reading is taken on the one-Volt scale with the High Sensitivity button pressed, and read as 10 amperes full scale.

Following Q203 is a matching network (L13, C25, C26, C29, C31 and L14) that matches the output of Q203 to the 50-ohm microstrip impedance (W1) to the input of low pass filter. Coupling capacitor C30 couples the output of the PA to the low pass filter. It also provides DC isolation between the transmitter and the antenna.

The PA output is coupled through the low-pass filter to the antenna through antenna transfer relay K1901.

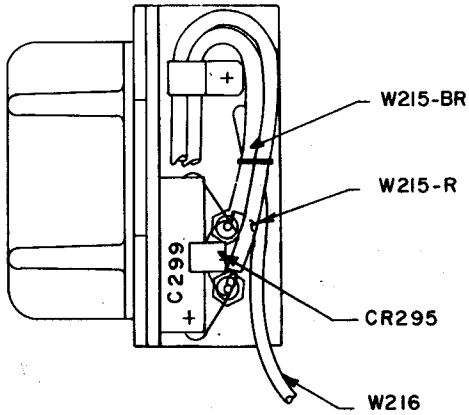
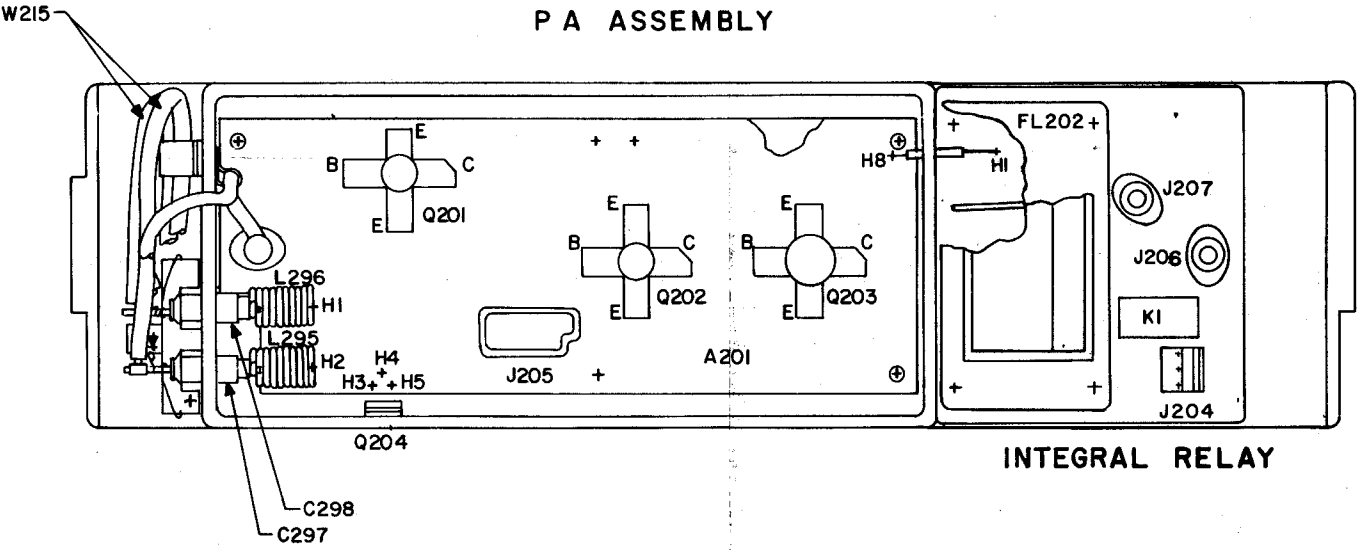
Capacitors C34 through C37 provide ground isolation for positive and negative ground operation.

WARNING

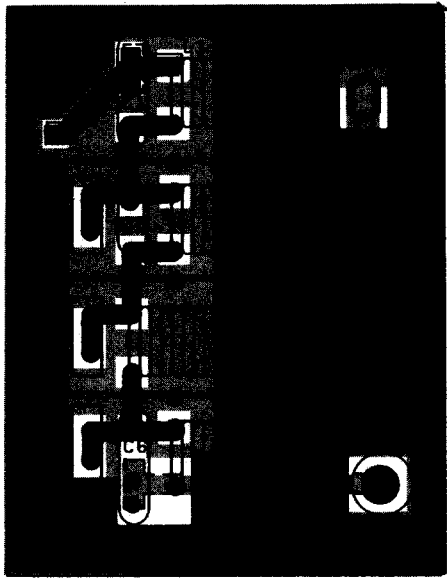
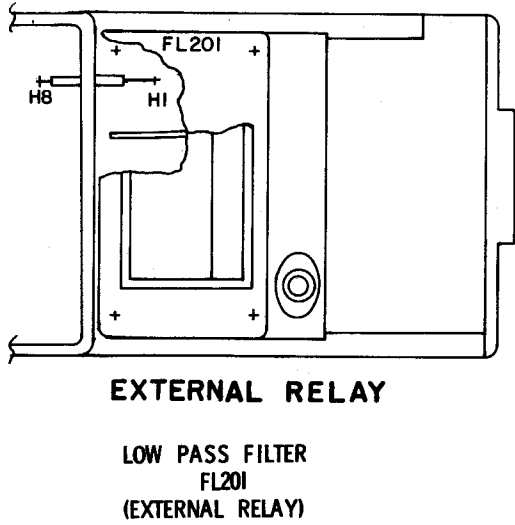
The RF Power Transistors used in the transmitter contain Beryllium Oxide, A TOXIC substance. If the ceramic, or other encapsulation is opened, crushed, broken or abraded, the dust may be hazardous if inhaled. Use care in replacing transistors of this type.

POWER ADJUST CIRCUIT

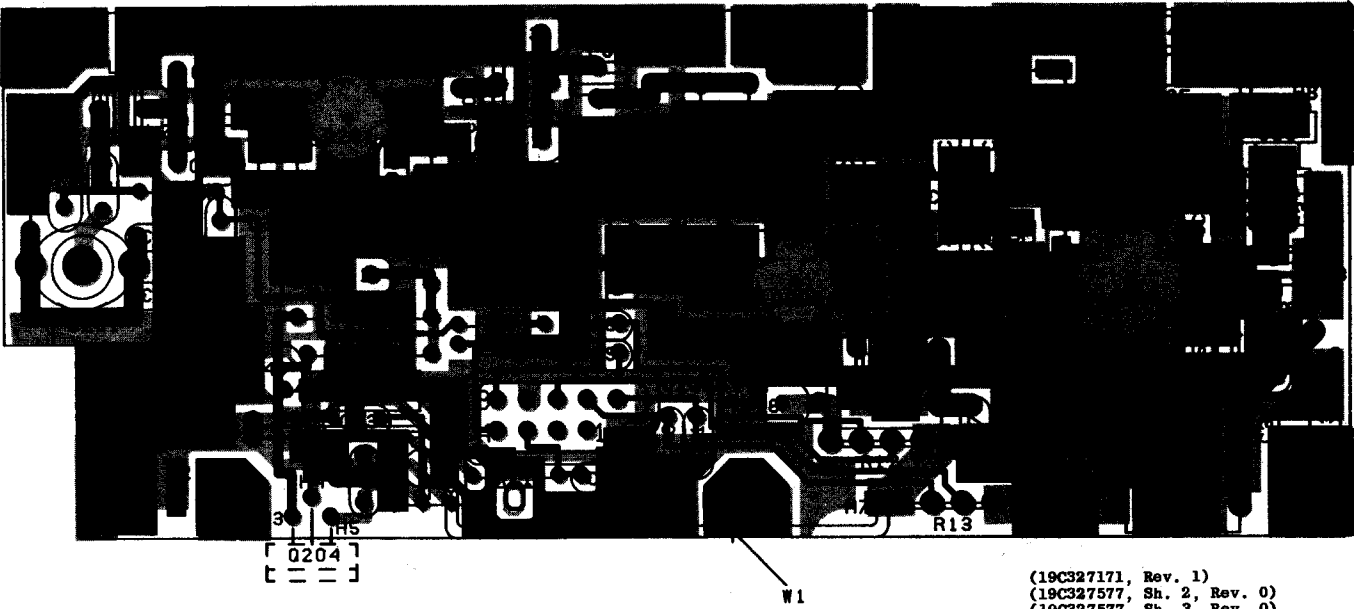
The power adjust circuit consists of R14 and Q204. R14 controls the base voltage and therefore the conduction of Q204. Q204 is connected in series with the collector feed network for Q201 thereby controlling the drive to driver Q202 and the output power. R14 is adjusted to provide the desired output power over a range of 15 to 50 watts.



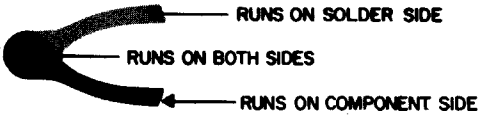
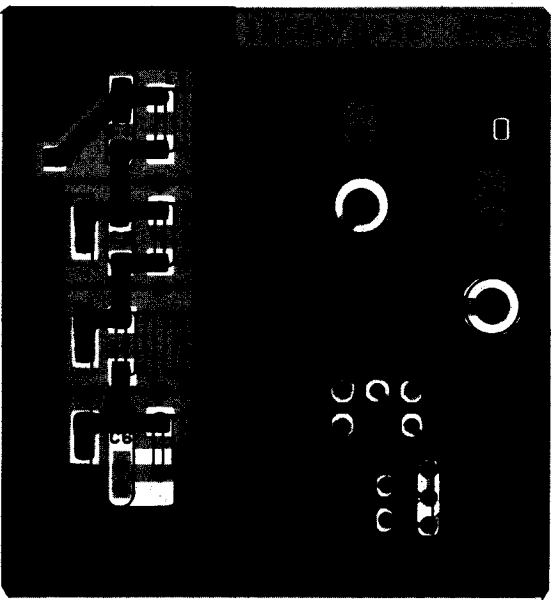
(19C327195, Rev. 4)



PA BOARD
A201



LOW PASS FILTER
FL 202
(INTEGRAL RELAY)



OUTLINE DIAGRAM

30—50 MHz POWER AMPLIFIER

PARTS LIST

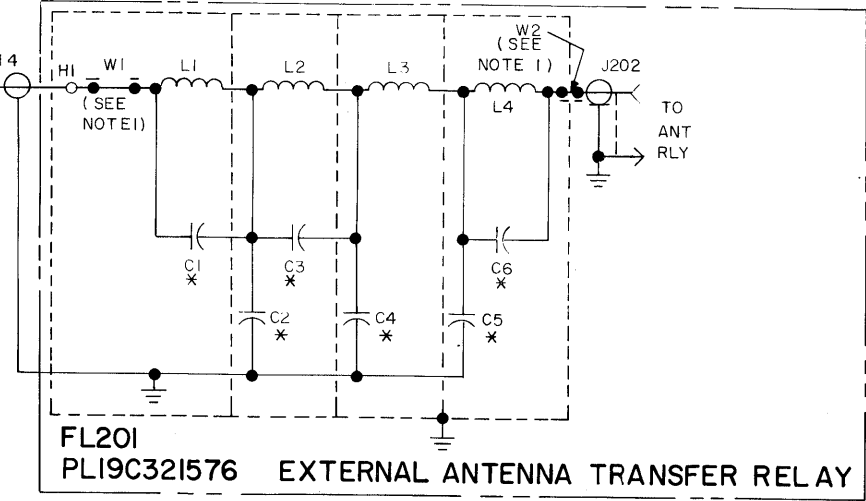
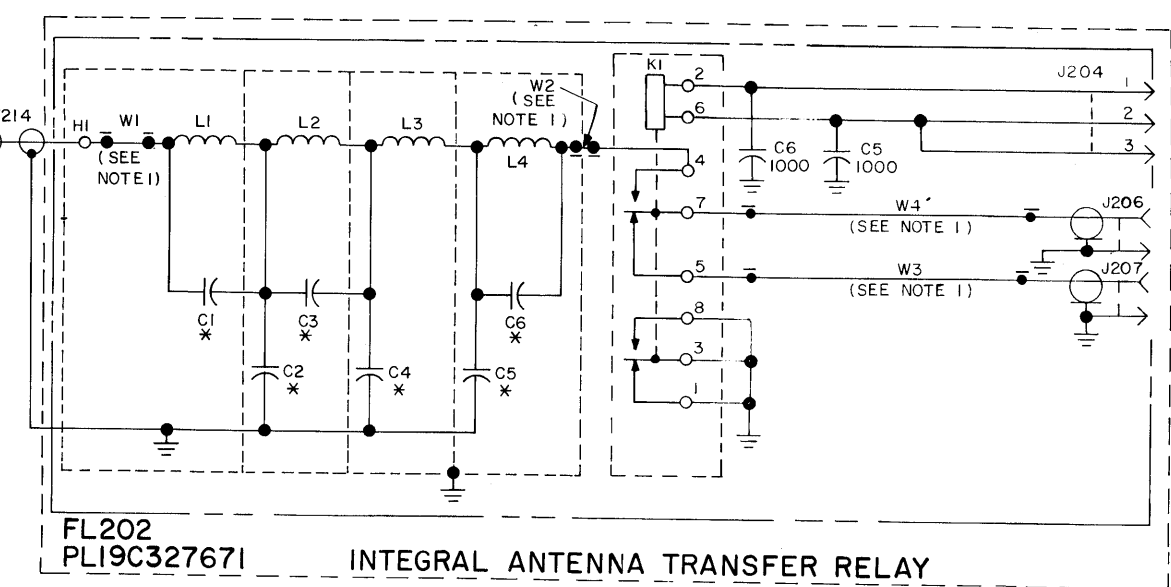
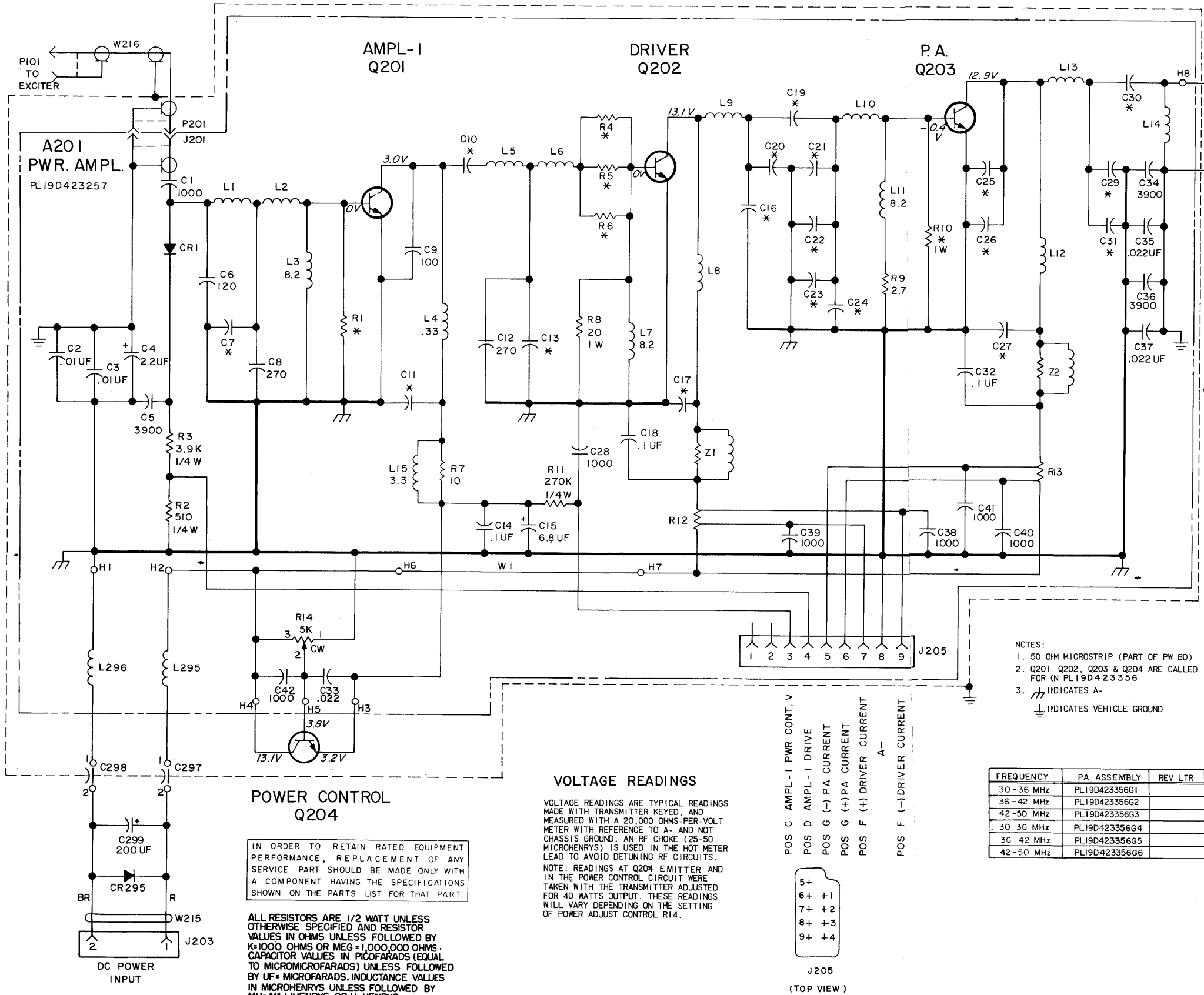
LB1-30094B

50 WATT POWER AMPLIFIER
19D423356G1 30-36 MHz (L) EXTERNAL RELAY
19D423356G2 36-42 MHz (M) EXTERNAL RELAY
19D423356G3 42-50 MHz (H) EXTERNAL RELAY
19D423356G4 30-36 MHz (L) INTEGRAL RELAY
19D423356G5 36-42 MHz (M) INTEGRAL RELAY
19D423356G6 42-50 MHz (H) INTEGRAL RELAY

SYMBOL	GE PART NO.	DESCRIPTION
A201		COMPONENT BOARD A201L 19D423357G1 30-36 MHz A201M 19D423357G2 36-42 MHz A201H 19D423357G3 42-50 MHz
----- CAPACITORS -----		
C1	19A116655P19	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C2 and C3	19A116680P101	Polyester: 0.01 µf ±10%, 50 VDCW.
C4	5496267P13	Tantalum: 2.2 µf ±20%, 20 VDCW; sim to Sprague Type 150D.
C5	19A116655P23	Ceramic disc: 3900 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C6	7489162P29	Silver mica: 120 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C7L	7489162P37	Silver mica: 270 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C7M	7489162P35	Silver mica: 220 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C7H	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C8	7489162P37	Silver mica: 270 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C9	19A116656P100J1	Ceramic disc: 100 pf ±5%, 500 VDCW, temp coef -150 PPM.
C10L	7489162P37	Silver mica: 270 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C10M	7489162P37	Silver mica: 270 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C10H	7489162P35	Silver mica: 220 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C11L	7489162P39	Silver mica: 330 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C11M	7489162P37	Silver mica: 270 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C11H	7489162P35	Silver mica: 220 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C12	7489162P37	Silver mica: 270 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C13L	7489162P35	Silver mica: 220 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C13M	7489162P35	Silver mica: 220 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C13H	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C14	19A116680P107	Polyester: 0.1 µf ±10%, 50 VDCW.
C15	5496267P18	Tantalum: 6.8 µf ±20%, 35 VDCW; sim to Sprague Type 150D.
C16L	19A116656P56J0	Ceramic disc: 56 pf ±5%, 500 VDCW, temp coef 0 PPM.
C16M	19A116656P47J0	Ceramic disc: 47 pf ±5%, 500 VDCW, temp coef 0 PPM.
C16H	19A116656P39J0	Ceramic disc: 39 pf ±5%, 500 VDCW, temp coef 0 PPM.
C17L	19A116655P19	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C17M	19A116655P17	Ceramic disc: 680 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C17H	19A116655P17	Ceramic disc: 680 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

SYMBOL	GE PART NO.	DESCRIPTION
C18	19A116080P107	Polyester: 0.1 µf ±10%, 50 VDCW.
C19L	7489162P39	Silver mica: 330 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C19M	7489162P37	Silver mica: 270 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C19H	7489162P35	Silver mica: 220 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C20L	19A116656P56J0	Ceramic disc: 56 pf ±5%, 500 VDCW, temp coef 0 PPM.
C20M	19A116656P47J0	Ceramic disc: 47 pf ±5%, 500 VDCW, temp coef 0 PPM.
C20H	19A116656P39J0	Ceramic disc: 39 pf ±5%, 500 VDCW, temp coef 0 PPM.
C21L	7489162P39	Silver mica: 330 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C21M	7489162P37	Silver mica: 270 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C21H	7489162P37	Silver mica: 270 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C22L	7489162P37	Silver mica: 270 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C22M	7489162P37	Silver mica: 270 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C22H	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C23L	7489162P39	Silver mica: 330 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C23M	7489162P37	Silver mica: 270 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C23H	7489162P37	Silver mica: 270 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C24L	7489162P37	Silver mica: 270 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C24M	7489162P37	Silver mica: 270 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C24H	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C25L	19A116656P150J1	Ceramic disc: 150 pf ±5%, 500 VDCW, temp coef -150 PPM.
C25M	19A116656P100J1	Ceramic disc: 100 pf ±5%, 500 VDCW, temp coef -150 PPM.
C25H	19A116656P56J0	Ceramic disc: 56 pf ±5%, 500 VDCW, temp coef 0 PPM.
C26L	19A116656P150J1	Ceramic disc: 150 pf ±5%, 500 VDCW, temp coef -150 PPM.
C26M	19A116656P100J1	Ceramic disc: 100 pf ±5%, 500 VDCW, temp coef -150 PPM.
C26H	19A116656P56J0	Ceramic disc: 56 pf ±5%, 500 VDCW, temp coef 0 PPM.
C27L	19A116655P19	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C27M	19A116655P17	Ceramic disc: 680 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C27H	19A116655P17	Ceramic disc: 680 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C28	19A116655P19	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C29L	19A116679P500J	Mica: 500 pf ±5%, 250 VDCW.
C29M	19A116679P430J	Mica: 430 pf ±5%, 250 VDCW.
C29H	19A116679P360J	Mica: 360 pf ±5%, 250 VDCW.
C30L	19A116679P240J	Mica: 240 pf ±5%, 250 VDCW.
C30M	19A116679P220J	Mica: 220 pf ±5%, 250 VDCW.
C30H	19A116679P180J	Mica: 180 pf ±5%, 250 VDCW.
C31L	19A116679P500J	Mica: 500 pf ±5%, 250 VDCW.
C31M	19A116679P430J	Mica: 430 pf ±5%, 250 VDCW.
C31H	19A116679P360J	Mica: 360 pf ±5%, 250 VDCW.
C32	19A116080P107	Polyester: 0.1 µf ±10%, 50 VDCW.



*COMPONENT VALUES AS FOLLOWS				
COMP. IDENT	L	M	H	
A201-C7	270	220	180	
A201-C10	270	270	220	
A201-C11	330	270	220	
A201-C13	220	220	180	
A201-C16	56	47	39	
A201-C17	1000	680	680	
A201-C19	330	270	220	
A201-C20	56	47	39	
A201-C21	330	270	270	
A201-C22	270	270	180	
A201-C23	330	270	270	
A201-C24	270	270	180	
A201-C25	150	100	56	
A201-C26	150	100	56	
A201-C27	1000	680	680	
A201-C29	500	430	360	
A201-C30	240	220	180	
A201-C31	500	430	360	
A201-R1	10	20	20	
A201-R4	5.6	2.7	1.2	
A201-R5	5.6	2.7	1.2	
A201-R6	5.6	2.7	1.2	
A201-R10	10	20	20	
FL201, 202-C1	68	56	51	
FL201, 202-C2	91	68	56	
FL201, 202-C3	13	12	10	
FL201, 202-C4	110	91	82	
FL201, 202-C5	100	82	75	
FL201, 202-C6	68	56	51	

SCHEMATIC DIAGRAM

30-50 MHz POWER AMPLIFIER

SYMBOL	GE PART NO.	DESCRIPTION
C33	19A116080P103	Polyester: 0.022 μ f $\pm$ 10%, 50 VDCW.
C34	19A116655P23	Ceramic disc: 3900 pf $\pm$ 20%, 1000 VDCW; sim to RMC Type JF Discap.
C35	19A116080P103	Polyester: 0.022 μ f $\pm$ 10%, 50 VDCW.
C36	19A116655P23	Ceramic disc: 3900 pf $\pm$ 20%, 1000 VDCW; sim to RMC Type JF Discap.
C37	19A116080P103	Polyester: 0.022 μ f $\pm$ 10%, 50 VDCW.
C38 thru C42	19A116655P19	Ceramic disc: 1000 pf $\pm$ 20%, 1000 VDCW; sim to RMC Type JF Discap.
CRI	19A115250P1	----- DIODES AND RECTIFIERS -----
		Silicon.
		----- JACKS AND RECEPTACLES -----
		Connector, receptacle: jack type; sim to Cinch 14H11613.
		Connector: 9 contacts.
J201	19A130924G1	Connector, receptacle: jack type; sim to Cinch 14H11613.
J205	19B219374G1	Connector: 9 contacts.
L1L	19A129347P1	----- INDUCTORS -----
		Coil.
		Coil.
		Coil.
		Coil.
L1M	19A129347P3	Coil.
L1H	19A129347P4	Coil.
L2L	19A129354P4	Coil.
L2M	19A129352P8	Coil.
L2H	19A129352P7	Coil.
L3	7488079P42	Choke, RF: 8.20 μ h $\pm$ 10%, 0.25 ohms DC res max; sim to Jeffers 4422-3.
L4	7488079P3	Choke, RF: 0.33 μ h $\pm$ 20%, 0.07 ohms DC res max; sim to Jeffers 4411-3.
L5L	19A129351P3	Coil.
L5M	19A129351P2	Coil.
L5H	19A129351P2	Coil.
L6L	19A129352P1	Coil.
L6M	19A129352P3	Coil.
L6H	19A129348P2	Coil.
L7	7488079P42	Choke, RF: 8.20 μ h $\pm$ 10%, 0.25 ohms DC res max; sim to Jeffers 4422-3.
L8L	19A129349P1	Coil.
L8M	19A129349P2	Coil.
L8H	19A129349P2	Coil.
L9L	19A129352P4	Coil.
L9M	19A129352P4	Coil.
L9H	19A129352P2	Coil.
L10L	19A129359P1	Coil.
L10M	19A129357P1	Coil.
L10H	19A129357P2	Coil.
L11	7488079P42	Choke, RF: 8.20 μ h $\pm$ 10%, 0.25 ohms DC res max; sim to Jeffers 4422-3.
L12L	19A129349P1	Coil.
L12M	19A129349P2	Coil.
L12H	19A129349P2	Coil.
L13L	19A129358P2	Coil.
L13M	19A129355P3	Coil.
L13H	19A129351P4	Coil.
L14L	19A129355P5	Coil.
L14M	19A129355P4	Coil.
L14H	19A129352P10	Coil.
L15	7488079P10	Choke, RF: 3.30 μ h $\pm$ 10%, 0.15 ohms DC res max; sim to Jeffers 4421-1.

SYMBOL	GE PART NO.	DESCRIPTION
R1L	3R77P100J	----- RESISTORS -----
		Composition: 10 ohms $\pm$ 5%, 1/2 w.
		Composition: 20 ohms $\pm$ 5%, 1/2 w.
		Composition: 20 ohms $\pm$ 5%, 1/2 w.
		Composition: 510 ohms $\pm$ 5%, 1/4 w.
R1M	3R77P200J	Composition: 20 ohms $\pm$ 5%, 1/2 w.
R1H	3R77P200J	Composition: 20 ohms $\pm$ 5%, 1/2 w.
R2	3R152P511J	Composition: 510 ohms $\pm$ 5%, 1/4 w.
R3	3R152P392J	Composition: 3.9K ohms $\pm$ 5%, 1/4 w.
R4L	5490205P6	Composition: 5.6 ohms $\pm$ 5%, 1 w.
R4M	5490205P16	Composition: 2.7 ohms $\pm$ 5%, 1 w.
R4H	7147161P22	Composition: 1.2 ohm $\pm$ 5%, 1/2 w.
R5L	5490205P6	Composition: 5.6 ohms $\pm$ 5%, 1 w.
R5M	5490205P16	Composition: 2.7 ohms $\pm$ 5%, 1 w.
R5H	7147161P22	Composition: 1.2 ohm $\pm$ 5%, 1/2 w.
R6L	5490205P6	Composition: 5.6 ohms $\pm$ 5%, 1 w.
R6M	5490205P16	Composition: 2.7 ohms $\pm$ 5%, 1 w.
R6H	7147161P22	Composition: 1.2 ohm $\pm$ 5%, 1/2 w.
R7	3R77P100J	Composition: 10 ohms $\pm$ 5%, 1/2 w.
R8	3R78P200J	Composition: 20 ohms $\pm$ 5%, 1 w.
R9	7147161P6	Composition: 2.7 ohms $\pm$ 5%, 1/2 w.
R10L	3R78P100J	Composition: 10 ohms $\pm$ 5%, 1 w.
R10M	3R78P200J	Composition: 20 ohms $\pm$ 5%, 1 w.
R10H	3R78P200J	Composition: 20 ohms $\pm$ 5%, 1 w.
R11	3R152P274J	Composition: 270K ohms $\pm$ 5%, 1/4 w.
R12 and R13	19C320212P2	Shunt resistor.
R14	19A116559P102	Variable, cermet: 5K ohms $\pm$ 20%, .5 w; sim to CTS Series 360.
W1	19B226909G2	----- CABLES -----
		Jumper.
		----- NETWORKS -----
		Filter Assembly 19B219649G1
		----- INDUCTORS -----
L1	19A129346G1	Coil.
R1	3R78P100K	----- RESISTORS -----
		Composition: 10 ohms $\pm$ 10%, 1 w.
		----- CAPACITORS -----
		Ceramic, feed-thru: 0.01 μ f $\pm$ 100% $\pm$ 0%, 500 VDCW; sim to Erie Style 327.
		Electrolytic: 200 μ f $\pm$ 150% $\pm$ 10%, 18 VDCW; sim to Mallory Type TTX.
C297 and C298	19A116708P1	
C299	19A115680P10	
CR295	19A116783P1	----- DIODES AND RECTIFIERS -----
		Silicon.
		----- FILTERS -----
		Low Pass Filter (External Relay) 19C321576G1 30-36 MHz
		----- CAPACITORS -----
C1L	19A116656P6&J1	Ceramic disc: 68 pf $\pm$ 5%, 500 VDCW, temp coef $\pm$ 150 PPM.
C2L	19A116679P01J	Silver mica: 91 pf $\pm$ 5%, 250 VDCW.
C3L	19A116656P13J1	Ceramic disc: 13 pf $\pm$ 5%, 500 VDCW, temp coef $\pm$ 150 PPM.
C4L	19A116679P110J	Silver mica: 110 pf $\pm$ 5%, 250 VDCW.

SYMBOL	GE PART NO.	DESCRIPTION
C5L	19A116679P100J	Silver mica: 100 pf $\pm$ 5%, 250 VDCW.
C6L	19A116656P6&J1	Ceramic disc: 68 pf $\pm$ 5%, 500 VDCW, temp coef $\pm$ 150 PPM.
J202	19A130924G1	----- JACKS AND RECEPTACLES -----
		Connector, receptacle: jack type; sim to Cinch 14H11613.
		----- INDUCTORS -----
		Coil.
		Coil.
L1L	19A12936CP6	Coil.
L2L	19A12936CP7	Coil.
L3L	19A12936CP8	Coil.
L4L	19A12936CP6	Coil.
W1 and W2	FL201M	----- CABLES -----
		(Part of printed wiring board 19C321575P1).
		----- FILTERS -----
		Low Pass Filter (External Relay) 19C321576G2 36-42 MHz
		----- CAPACITORS -----
C1M	19A116656P56J1	Ceramic disc: 56 pf $\pm$ 5%, 500 VDCW, temp coef $\pm$ 150 PPM.
C2M	19A116679P6&J	Silver mica: 68 pf $\pm$ 5%, 250 VDCW.
C3M	19A116656P12J1	Ceramic disc: 12 pf $\pm$ 5%, 500 VDCW, temp coef $\pm$ 150 PPM.
C4M	19A116679P91J	Silver mica: 91 pf $\pm$ 5%, 250 VDCW.
C5M	19A116679P82J	Silver mica: 82 pf $\pm$ 5%, 250 VDCW.
C6M	19A116656P56J1	Ceramic disc: 56 pf $\pm$ 5%, 500 VDCW, temp coef $\pm$ 150 PPM.
J202	19A130924G1	----- JACKS AND RECEPTACLES -----
		Connector, receptacle: jack type; sim to Cinch 14H11613.
		----- INDUCTORS -----
		Coil.
		Coil.
L1M	19A12936CP4	Coil.
L2M	19A12936CP3	Coil.
L3M	19A12936CP5	Coil.
L4M	19A12936CP4	Coil.
W1 and W2	FL201H	----- CABLES -----
		(Part of printed wiring board 19C321575P1).
		----- CAPACITORS -----
		Low Pass Filter (External Relay) 19C321576G3 42-50 MHz
		----- DIODES AND RECTIFIERS -----
C1H	19A116656P51J1	Ceramic disc: 51 pf $\pm$ 5%, 500 VDCW, temp coef $\pm$ 150 PPM.
C2H	19A116679P56J	Silver mica: 56 pf $\pm$ 5%, 250 VDCW.
C3H	19A116656P10J1	Ceramic disc: 10 pf $\pm$ 0.5 pf, 500 VDCW, temp coef $\pm$ 150 PPM.
C4H	19A116679P82J	Silver mica: 82 pf $\pm$ 5%, 250 VDCW.
C5H	19A116679P75J	Mica: 75 pf $\pm$ 5%, 250 VDCW.
C6H	19A116656P51J1	Ceramic disc: 51 pf $\pm$ 5%, 500 VDCW, temp coef $\pm$ 150 PPM.
J202	19A130924G1	----- JACKS AND RECEPTACLES -----
		Connector, receptacle: jack type; sim to Cinch 14H11613.
		----- INDUCTORS -----
		Coil.
		Coil.
L1H	19A12936CP1	Coil.
L2H	19A12936CP2	Coil.
L3H	19A12936CP1	Coil.

SYMBOL	GE PART NO.	DESCRIPTION
W1 and W2	FL202L	----- CABLES -----
		(Part of printed wiring board 19C321575P1).
		----- FILTERS -----
		Low Pass Filter (Integral Relay) 19C327671G1 30-36 MHz
		----- CAPACITORS -----
C1L	19A116656P6&J1	Ceramic disc: 68 pf $\pm$ 5%, 500 VDCW, temp coef $\pm$ 150 PPM.
C2L	19A116679P91J	Silver mica: 91 pf $\pm$ 5%, 250 VDCW.
C3L	19A116656P13J1	Ceramic disc: 13 pf $\pm$ 5%, 500 VDCW, temp coef $\pm$ 150 PPM.
C4L	19A116679P110J	Silver mica: 110 pf $\pm$ 5%, 250 VDCW.
C5L	19A116679P100J	Silver mica: 100 pf $\pm$ 5%, 250 VDCW.
C6L	19A116656P6&J1	Ceramic disc: 68 pf $\pm$ 5%, 500 VDCW, temp coef $\pm$ 150 PPM.
C7 and C8	19A116655P20	Ceramic disc: 1000 pf $\pm$ 10%, 1000 VDCW; sim to RMC Type JF Discap.
J204	19A116659P55	----- JACKS AND RECEPTACLES -----
		Connector, printed wiring: 3 contacts; sim to Molex 09-65-1061.
		Connector, receptacle: coaxial, jack type; sim to Cinch 14H11613.
		----- RELAYS -----
		Hermetic sealed: 180 to 341 ohms coil res, 2 form C contacts, 8.0 to 16.3 VDC; sim to GE 38A1760A2.
L1L	19A12936CP6	----- INDUCTORS -----
		Coil.
		Coil.
		Coil.
		Coil.
W1 thru W4	FL202M	----- CABLES -----
		(Part of printed wiring board 19C327672P1).
		----- FILTERS -----
		Low Pass Filter (Integral Relay) 19C327671G2 36-42 MHz
		----- CAPACITORS -----
C1M	19A116656P56J1	Ceramic disc: 56 pf $\pm$ 5%, 500 VDCW, temp coef $\pm$ 150 PPM.
C2M	19A116679P6&J	Silver mica: 68 pf $\pm$ 5%, 250 VDCW.
C3M	19A116656P12J1	Ceramic disc: 12 pf $\pm$ 5%, 500 VDCW, temp coef $\pm$ 150 PPM.
C4M	19A116679P91J	Silver mica: 91 pf $\pm$ 5%, 250 VDCW.
C5M	19A116679P82J	Silver mica: 82 pf $\pm$ 5%, 250 VDCW.
C6M	19A116656P6&J1	Ceramic disc: 56 pf $\pm$ 5%, 500 VDCW, temp coef $\pm$ 150 PPM.
C7 and C8	19A116655P20	Ceramic disc: 1000 pf $\pm$ 10%, 1000 VDCW; sim to RMC Type JF Discap.
J204	19A116659P55	----- JACKS AND RECEPTACLES -----
		Connector, printed wiring: 3 contacts; sim to Molex 09-65-1061.
		Connector, receptacle: coaxial, jack type; sim to Cinch 14H11613.
		----- INDUCTORS -----
		Coil.
J206 and J207	19A130924G1	Connector, receptacle: coaxial, jack type; sim to Cinch 14H11613.

SYMBOL	GE PART NO.	DESCRIPTION
K1	19B209558P1	----- RELAYS -----
		Hermetic sealed: 180 to 341 ohms coil res, 2 form C contacts, 8.0 to 16.3 VDC; sim to GE 38A1760A2.
		----- INDUCTORS -----
		Coil.
		Coil.
L1M	19A12936CP4	Coil.
L2M	19A12936CP3	Coil.
L3M	19A12936CP5	Coil.
L4M	19A12936CP4	Coil.
W1 thru W4	FL202H	----- CABLES -----
		(Part of printed wiring board 19C327672P1).
		----- FILTERS -----
		Low Pass Filter (Integral Relay) 19C327671G3 42-50 MHz
		----- CAPACITORS -----
C1H	19A116656P51J1	Ceramic disc: 51 pf $\pm$ 5%, 500 VDCW, temp coef $\pm$ 150 PPM.
C2H	19A116679P56J	Silver mica: 56 pf $\pm$ 5%, 250 VDCW.
C3H	19A116656P10J1	Ceramic disc: 10 pf $\pm$ 0.5 pf, 500 VDCW, temp coef $\pm$ 150 PPM.
C4H	19A116679P82J	Silver mica: 82 pf $\pm$ 5%, 250 VDCW.
C5H	19A116679P75J	Silver mica: 75 pf $\pm$ 5%, 250 VDCW.
C6H	19A116656P51J1	Ceramic disc: 51 pf $\pm$ 5%, 500 VDCW, temp coef $\pm$ 150 PPM.
C7 and C8	19A116655P20	Ceramic disc: 1000 pf $\pm$ 10%, 1000 VDCW; sim to RMC Type JF Discap.
J204	19A116659P55	----- JACKS AND RECEPTACLES -----
		Connector, printed wiring: 3 contacts; sim to Molex 09-65-1061.
		Connector, receptacle: coaxial, jack type; sim to Cinch 14H11613.
		----- RELAYS -----
		Hermetic sealed: 180 to 341 ohms coil res, 2 form C contacts, 8.0 to 16.3 VDC; sim to GE-38A1760A2.
K1	19B209558P1	----- INDUCTORS -----
		Coil.
		Coil.
		Coil.
		Coil.
W1 thru W4	FL202M	----- CABLES -----
		(Part of printed wiring board 19C327672P1).
		----- FILTERS -----
		Low Pass Filter (Integral Relay) 19C327671G2 36-42 MHz
		----- CAPACITORS -----
C1M	19A116656P56J1	Ceramic disc: 56 pf $\pm$ 5%, 500 VDCW, temp coef $\pm$ 150 PPM.
C2M	19A116679P6&J	Silver mica: 68 pf $\pm$ 5%, 250 VDCW.
C3M	19A116656P12J1	Ceramic disc: 12 pf $\pm$ 5%, 500 VDCW, temp coef $\pm$ 150 PPM.
C4M	19A116679P91J	Silver mica: 91 pf $\pm$ 5%, 250 VDCW.
C5M	19A116679P82J	Silver mica: 82 pf $\pm$ 5%, 250 VDCW.
C6M	19A116656P6&J1	Ceramic disc: 56 pf $\pm$ 5%, 500 VDCW, temp coef $\pm$ 150 PPM.
C7 and C8	19A116655P20	Ceramic disc: 1000 pf $\pm$ 10%, 1000 VDCW; sim to RMC Type JF Discap.
J204	19A116659P55	----- JACKS AND RECEPTACLES -----
		Connector, printed wiring: 3 contacts; sim to Molex 09-65-1061.
		Connector, receptacle: coaxial, jack type; sim to Cinch 14H11613.
		----- INDUCTORS -----
		Coil.
L295 and L296	19A130640G1	Coil.
Q201	19A116839P1	Silicon, NPN.
Q202	19A116839P2	Silicon, NPN.
Q203	19A116839P3	Silicon, NPN.
Q204	19A116742P1	Silicon, NPN.

SYMBOL	GE PART NO.	DESCRIPTION
W214	19A130607G2	----- CABLES -----
		Cable, RF: approx 1 foot long.
		Cable: approx 1 foot long.
		Cable, RF: approx 7-1/2 inches long.
		----- MISCELLANEOUS -----
W215	19B227058G1	Heat sink, casting.
W216	19A130909G1	Insulator. (Located under A201).
19C321591G1	19A134016P1	Insulator, bushing. (Used with Q204).
		Insulator, plate. (Used with Q204).
		Washer, spring tension: sim to Wallace Barnes 375-20. (Used with Q201-Q203).