MOBILE RADIO

Note: This PA is used in both Mastr II and Mastr Executive II radios.

LBI-30204B (DF3173)

MAINTENANCE MANUAL

29.7—50 MHz, 100 WATT POWER AMPLIFIER 19C321295G5-8

TABLE OF CONTENTS

DESCRIPTION

The PA assembly uses six RF power transistors and seven transistors in the Power Control circuitry to provide a power output of 100 watts. The broadband PA has no adjustments other than Power Control potentiometer R261.

Supply voltage for the PA is connected through power leads from the system board to feedthrough capacitors C297 and C298 on the bottom of the PA assembly. C297, C298 and C299, L297 and L298 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.

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 power control, Driver and PA current. L251 through L257 in conjunction with bypass capacitors C4210 through C4216 keep RF off of the metering leads.

The PA assembly is DC isolated 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.

CIRCUIT ANALYSIS

RF AMPLIFIERS

The exciter output is coupled through an RF cable to PA input jack J201. RF from the exciter is coupled through DC blocking capacitor C201 to the base of Class C amplifier Q204 through a matching network. The network matches 50-ohm input to the base of Q204, and consists of C205, C206, C207, L201 and L202. R203 and R204 lower the gain of the amplifier stage.

Part of the RF input is rectified by CR201 and used to activate the Power Control circuit. Another portion of the rectified RF is applied to voltage dividers R201 and R202 for metering the Ampl-1 drive at J205.

Collector voltage to Q204 (Ampl-1) is controlled by the Power Control Circuit, and is applied through a collector stabilizing network consisting of L258 and R272 and collector feed network L205 and C213. The collector voltage of Q204 is metered through R271 at J205.

Following Q204 is a matching network (C208 through C212, L204 and L206) to a resistive pad (R207, R208 and R209). The output of the resistor network is applied to the base of the Class C driver (Q205) through a matching network consisting of C218, C219, C220, L207 and L208. Resistors R207 through R215 lower the gain of driver Q205.

Collector voltage to Q205 is coupled through a collector stabilizing network consisting of L259 and R273 and collector feed network L211 and C226. Collector current for Q205 is metered across tapped manganin resistor R249 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 Q205 is a matching network (C221 through C225, L210 and L214) that matches the driver output to the input of the first power divider circuit (C230, C231, L214, L215 and L216).

The power amplifier stages consist of four identical paralleled Class C amplifiers (Q206 through Q209). The output of the first power divider circuit is applied to four additional power dividers. C235-L217 and C235-L218 provide drive for Q206 and Q207, while C236-L219 and C237-L220 provide drive for Q208 and Q209.

The output of C234-L217 is applied to the base of Q206 an impedance-matching network (L217, L221, C238, C242 and C243). Resistors R220 through R223, R236 and R237 lower the gain of Q206. Supply voltage for Q206 is coupled through a collector-stabilizing network consisting of L260 and R274 and collector feed network L223 and C270.

Collector current for Q206 through Q209 is metered across tapped manganin resistors R250 and R251 at J205 (PA CURRENT). 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 Q206 is coupled through a matching network (C250, C251, L229, C258, C259, C266 and L237), applied to a lumped-constant combiner circuit (C280, L237 and L241), and added to the output of Q207. The outputs of Q206 and Q207 are added to the outputs of Q208 and Q209 through lumped constant power combiner circuit C284, L249, C294, L250 and C285. The combined PA output is applied to 50-ohm microstrip W205, and then to a M-derived, constant K low-pass filter. The filter output is applied to the antenna through antenna switch K201.

Capacitors C286 through C293, C217, C228 and C233 provide ground isolation for ± ground operation.

WARNING

The stud mounted 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 CONTROL CIRCUIT

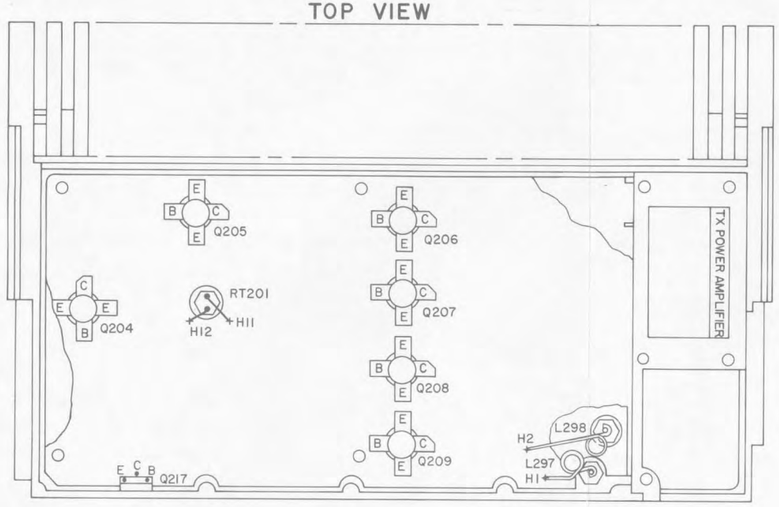
When the transmitter is keyed, rectified RF from CR201 is applied to the base of switch Q211, turning it on. Turning on Q211 turns on voltage regulator Q212 which supplies a constant voltage to Power Adjust potentiometer R261.

Q215, Q216, and Q217 operate as an amplifier chain to supply voltage to the collector of Q204 (Ampl-1). The setting of R261 determines the voltage applied to the base of Q215. The higher the voltage at the base of Q215, the harder the amplifiers conduct, supplying more collector voltage to Q204. The lower the voltage at the base of Q215, the less collector voltage is supplied to Q204. Reducing the supply voltage to Q204 reduces the drive to Q205, thereby reducing the power output of the PA. The power output can be adjusted by R261 from approximately 50 to 100 watts (75 to 100 watts at 25-30 MHz).

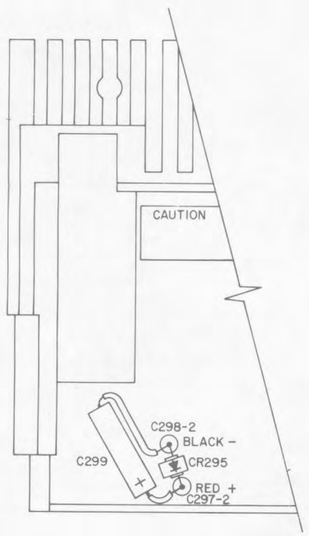
Temperature protection is provided by Q213, Q214, and thermistor RT201 which is mounted in the PA heatsink. Under normal operating conditions, the circuit is inactive (Q213 is on and Q214 is off). When the heatsink temperature reaches approximately 100°C, the resistance of RT201 decreases. This increases the base voltage applied to Q213, turning it off. Turning off Q213 allows Q214 to turn on, decreasing the voltage at Power Adjust potentiometer R261. This reduces the base voltage to Q215 which causes Q216 and Q217 to conduct less, reducing the collector voltage to Q204 (Ampl-1). This reduces the transmitter output power, keeping the heatsink at a maximum of approximately 100°C. When the heatsink temperature decreases below 100°C, the temperature control circuit turns off, allowing the normal transmitter power output.

(Page 3 is blank)

PA ASSEMBLY
TOP VIEW



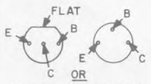
BOTTOM VIEW



LEAD IDENTIFICATION
FOR Q211&Q215

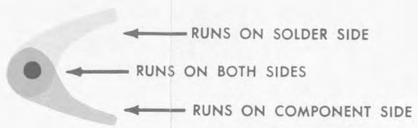
IN-LINE
VIEW FROM LEAD END

LEAD IDENTIFICATION
FOR Q212,Q213,Q214,
& Q216

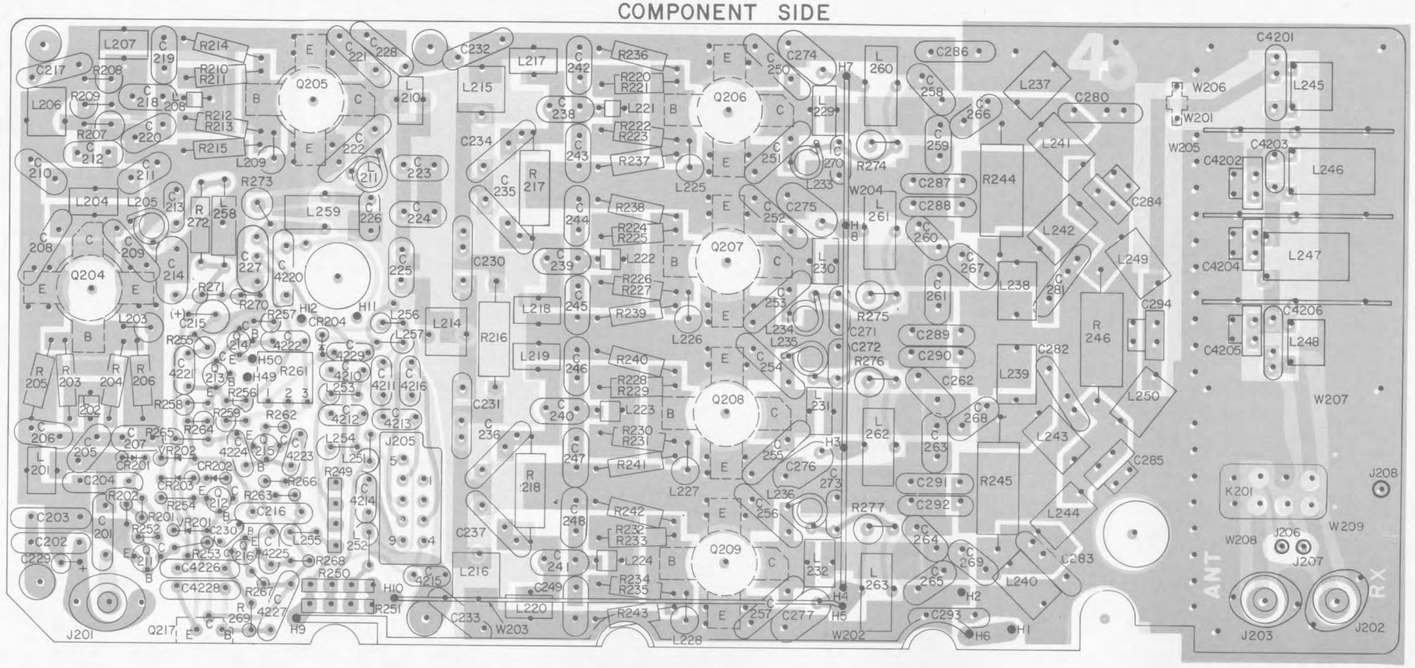


IN-LINE TRIANGULAR
VIEW FROM LEAD END

NOTE: LEAD ARRANGEMENT, AND NOT CASE SHAPE, IS DETERMINING FACTOR FOR LEAD IDENTIFICATION.

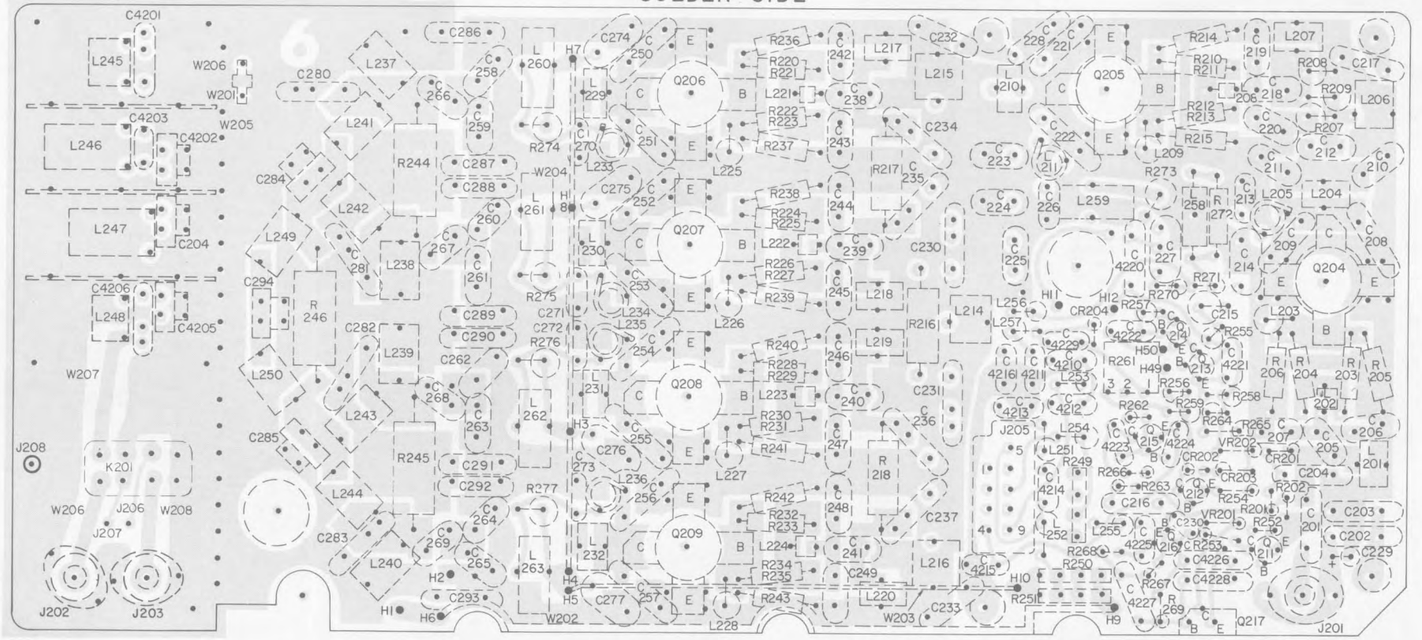


PA BOARD
COMPONENT SIDE



(19D417923, Sh. 2, Rev. 6)
(19D417923, Sh. 3, Rev. 4)

SOLDER SIDE

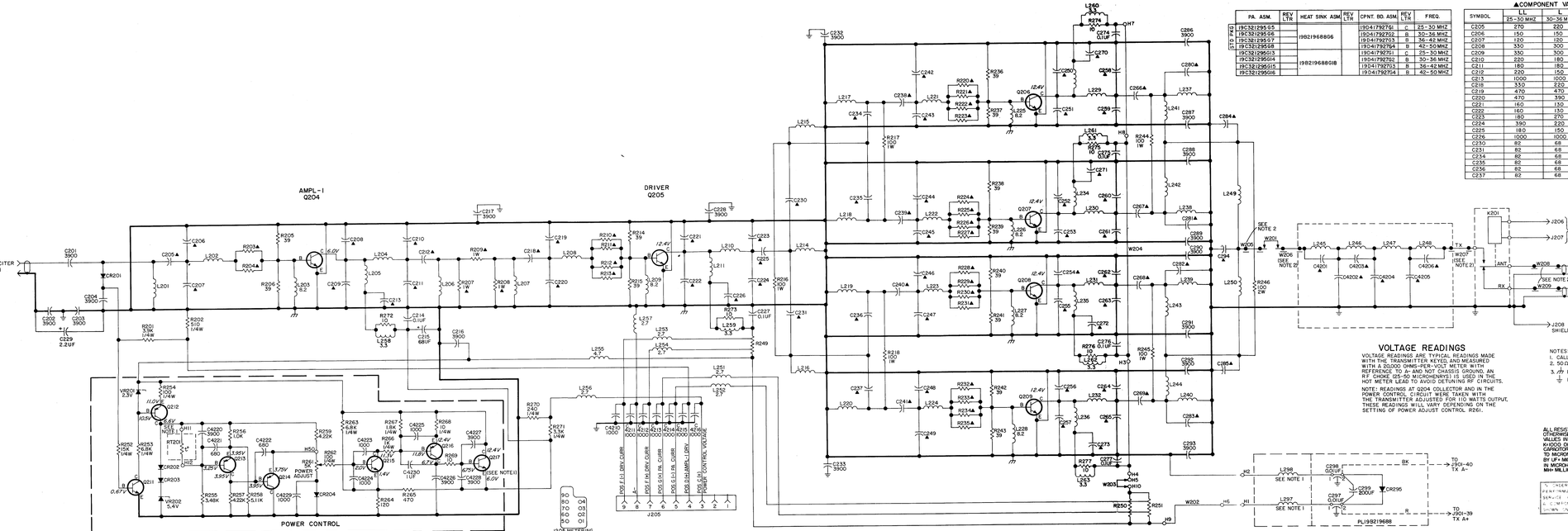


(19D417923, Sh. 2, Rev. 6)

(19R622110, Rev. 5)

OUTLINE DIAGRAM

29.7—50 MHz, 100-WATT
POWER AMPLIFIER



PA. ASM.	REV LTR	HEAT SINK ASM	REV LTR	CPNT. BD. ASM	REV LTR	FREQ.
19C321295G5				19D417927G1	C	25-30 MHZ
19C321295G6		19B219688G6		19D417927G2	B	30-36 MHZ
19C321295G7				19D417927G3	B	36-42 MHZ
19C321295G8				19D417927G4	B	42-50 MHZ
19C321295G13				19D417927G1	C	25-30 MHZ
19C321295G14		19B219688G18		19D417927G2	B	30-36 MHZ
19C321295G15				19D417927G3	B	36-42 MHZ
19C321295G16				19D417927G4	B	42-50 MHZ

▲COMPONENT VALUES					
SYMBOL	L	L	M	M	H
	25-30 MHZ	30-36 MHZ	36-42 MHZ	42-50 MHZ	42-50 MHZ
C205	270	220	180	180	
C206	150	150	150	220	
C207	120	120	150	180	
C208	330	300	200	180	
C209	330	300	200	180	
C210	220	180	150	150	
C211	180	180	120	100	
C212	220	150	120	120	
C213	1000	1000	680	680	
C218	330	220	180	180	
C219	470	470	470	390	
C220	470	390	390	390	
C221	160	130	110	91	
C222	160	130	110	91	
C223	180	270	270	180	
C224	390	220	180	180	
C225	180	150	120	120	
C226	1000	1000	680	680	
C230	82	68	56	47	
C231	82	68	56	47	
C234	82	68	56	47	
C235	82	68	56	47	
C236	82	68	56	47	
C237	82	68	56	47	

▲COMPONENT VALUES					
SYMBOL	LL	L	M	H	
	25-30 MHZ	30-36 MHZ	36-42 MHZ	42-50 MHZ	
C238	330	220	180	180	
C239	330	220	180	180	
C240	330	220	180	180	
C241	330	220	180	180	
C242	470	470	390	390	
C243	470	390	330	330	
C244	470	470	390	390	
C245	470	390	330	330	
C246	470	470	390	390	
C247	470	390	330	330	
C248	470	470	390	390	
C249	470	390	330	330	
C250	160	130	110	91	
C251	160	130	110	91	
C252	160	130	110	91	
C253	160	130	110	91	
C254	160	130	110	91	
C255	160	130	110	91	
C256	160	130	110	91	
C257	160	130	110	91	
C258	390	270	270	180	
C259	180	220	120	180	
C260	390	270	270	180	
C261	180	220	120	180	
C262	330	270	270	180	
C263	180	220	120	180	
C264	390	270	270	180	
C265	180	220	120	180	
C266	180	180	120	120	
C267	180	180	120	120	
C268	180	180	120	120	
C269	180	180	120	120	
C270	1000	1000	680	680	
C271	1000	1000	680	680	
C272	1000	1000	680	680	
C273	1000	1000	680	680	
C280	82	68	56	47	
C281	82	68	56	47	
C282	82	68	56	47	
C283	82	68	56	47	
C284	240	200	160	140	
C285	240	200	160	140	
C294	160	130	110	91	
C4201	91	68	56	51	
C4202	110	91	68	56	
C4203	15	13	12	10	
C4204	140	100	91	82	
C4205	120	100	82	75	
C4206	91	68	56	51	
R203	12	10	8.2	4.7	
R204	12	10	8.2	4.7	
R207	680	680	680	910	
R208	680	680	680	910	
R209	8.2	8.2	8.2	5.6	
R210	6.8	3.9	2.0	1.2	
R211	6.8	3.9	2.0	1.2	
R212	6.8	3.9	2.0	1.2	
R215	6.8	3.9	2.0	1.2	
R220	6.8	3.9	2.0	1.2	
R221	6.8	3.9	2.0	1.2	
R222	6.8	3.9	2.0	1.2	
R223	6.8	3.9	2.0	1.2	
R224	6.8	3.9	2.0	1.2	
R225	6.8	3.9	2.0	1.2	
R226	6.8	3.9	2.0	1.2	
R227	6.8	3.9	2.0	1.2	
R228	6.8	3.9	2.0	1.2	
R229	6.8	3.9	2.0	1.2	
R230	6.8	3.9	2.0	1.2	
R231	6.8	3.9	2.0	1.2	
R232	6.8	3.9	2.0	1.2	
R233	6.8	3.9	2.0	1.2	
R234	6.8	3.9	2.0	1.2	
R235	6.8	3.9	2.0	1.2	

VOLTAGE READINGS

VOLTAGE READINGS ARE TYPICAL READINGS MADE WITH A TRANSMITTER KEYED, AND MEASURED WITH A 20,000 OHMS-PER-VOLT METER WITH REFERENCE TO AC AND NOT CHASSIS GROUND. AN RF PROBE SHOULD BE CONNECTED TO THE HOT METER LEAD TO AVOID DETUNING RF CIRCUITS.

NOTE: READINGS AT Q204 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 R261.

ALL RESISTORS ARE 1/2 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. CALLED FOR ON PL19C321295
2. 50 Ω MICROSTRIP, W205-W209
3. ⫽ INDICATES A+
   ⏚ INDICATES VEHICLE GROUND

⚠ UNDER "TO RETAIN RATED EQUIPMENT PERFORMANCE, REPLACEMENT OF ANY SEMICONDUCTOR SHOULD BE MADE ONLY WITH A COMPONENT HAVING THE SPECIFICATIONS GIVEN IN THE PARTS LIST FOR THAT PART.

SCHEMATIC DIAGRAM

29.7—50 MHz, 100-WATT POWER AMPLIFIER

Issue 2

PARTS LIST

LBI4899C

25-50 MHz, 100 WATT
POWER AMPLIFIER
19C321295G5-G8
19C321295G13-G16

SYMBOL	GE PART NO.	DESCRIPTION
		19C321295G5, G13 25-30 MHz (LL) 19C321295G6, G14 30-36 MHz (L) 19C321295G7, G15 36-42 MHz (M) 19C321295G8, G16 42-50 MHz (H)
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L297	19B219997P1	Coil.
L298	19B219997P2	Coil.
		- - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q204	19A116965P1	Silicon, NPN.
Q205 thru Q209	19A134104P1	Silicon, NPN.
Q217	19A116742P1	Silicon, NPN.
		- - - - - - - - - - THERMISTORS - - - - - - - - - -
RT201	19A129379G1	Thermistor.
		POWER AMPLIFIER BOARD 19D417927G1 25-30 MHz (LL) 19D417927G2 30-36 MHz (L) 19D417927G3 36-42 MHz (M) 19D417927G4 42-50 MHz (H)
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C201 thru C204	19A116655P23	Ceramic disc: 3900 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C205LL	7489162P37	Silver mica: 270 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C205L	7489162P35	Silver mica: 220 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C205M and C205H	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C206LL	7489162P31	Silver mica: 150 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C206L	7489162P31	Silver mica: 150 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C206M	7489162P31	Silver mica: 150 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C206H	7489162P35	Silver mica: 220 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C207LL and C207L	7489162P29	Silver mica: 120 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C207M	7489162P31	Silver mica: 150 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C207H	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C208LL	19A116656P330J15	Ceramic disc: 330 pf ±5%, 500 VDCW, temp coef -1500 PPM.
C208L	19A116656P300J15	Ceramic disc: 300 pf ±5%, 500 VDCW, temp coef -1500 PPM.
C208M	19A116656P200J4	Ceramic disc: 200 pf ±5%, 500 VDCW, temp coef -470 PPM.
C208H	19A116656P180J4	Ceramic disc: 180 pf ±5%, 500 VDCW, temp coef -470 PPM.
C209LL	19A116656P330J15	Ceramic disc: 330 pf ±5%, 500 VDCW, temp coef -1500 PPM.
C209L	19A116656P300J15	Ceramic disc: 300 pf ±5%, 500 VDCW, temp coef -1500 PPM.
C209M	19A116656P200J4	Ceramic disc: 200 pf ±5%, 500 VDCW, temp coef -470 PPM.
C209H	19A116656P180J4	Ceramic disc: 180 pf ±5%, 500 VDCW, temp coef -470 PPM.
C210LL	7489162P35	Silver mica: 220 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C210L	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C210M and C210H	7489162P31	Silver mica: 150 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C211LL and C211L	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C211M	7489162P29	Silver mica: 120 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C211H	7489162P27	Silver mica: 100 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C212LL	7489162P35	Silver mica: 220 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C212L	7489162P31	Silver mica: 150 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C212M and C212H	7489162P29	Silver mica: 120 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C213LL and C213L	19A116655P19	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C213M and C213H	19A116655P17	Ceramic disc: 680 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C214	19A116966P107	Metallized polyester: 0.1 µf ±10%, 50 VDCW.
C215	5496267P11	Tantalum: 68 µf ±20%, 15 VDCW; sim to Sprague Type 150D.
C216 and C217	19A116655P23	Ceramic disc: 3900 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C218LL	7489162P39	Silver mica: 330 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C218L	7489162P35	Silver mica: 220 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C218M and C218H	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C219LL	7489162P43	Silver mica: 470 pf ±5%, 300 VDCW; sim to Electro Motive Type DM-15.
C219L	7489162P43	Silver mica: 470 pf ±5%, 300 VDCW; sim to Electro Motive Type DM-15.
C219M	7489162P43	Silver mica: 470 pf ±5%, 300 VDCW; sim to Electro Motive Type DM-15.
C219H	7489162P41	Silver mica: 390 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C220LL	7489162P43	Silver mica: 470 pf ±5%, 300 VDCW; sim to Electro Motive Type DM-15.
C220L	7489162P41	Silver mica: 390 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C220M	7489162P41	Silver mica: 390 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C220H	7489162P41	Silver mica: 390 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C221LL	19A116656P160J3	Ceramic disc: 160 pf ±5%, 500 VDCW, temp coef -330 PPM.
C221L	19A116656P130J1	Ceramic disc: 130 pf ±5%, 500 VDCW, temp coef -150 PPM.
C221M	19A116656P110J8	Ceramic disc: 110 pf ±5%, 500 VDCW, temp coef -80 PPM.
C221H	19A116656P91J0	Ceramic disc: 91 pf ±5%, 500 VDCW, temp coef 0 PPM.
C222LL	19A116656P160J3	Ceramic disc: 160 pf ±5%, 500 VDCW, temp coef -330 PPM.
C222L	19A116656P130J1	Ceramic disc: 130 pf ±5%, 500 VDCW, temp coef -150 PPM.
C222M	19A116656P110J8	Ceramic disc: 110 pf ±5%, 500 VDCW, temp coef -80 PPM.
C222H	19A116656P91J0	Ceramic disc: 91 pf ±5%, 500 VDCW, temp coef 0 PPM.
C223LL	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C223L and C223M	7489162P37	Silver mica: 270 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C223H	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C224LL	7489162P41	Silver mica: 390 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C224L	7489162P35	Silver mica: 220 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C224M	7489162P29	Silver mica: 120 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C224H	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C225LL	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C225L	7489162P31	Silver mica: 150 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C225M and C225H	7489162P29	Silver mica: 120 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C226LL and C226L	19A116655P19	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C226M and C226H	19A116655P17	Ceramic disc: 680 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C227	19A116966P107	Metallized polyester: 0.1 µf ±10%, 50 VDCW.
C228	19A116655P23	Ceramic disc: 3900 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C229	5496267P13	Tantalum: 2.2 µf ±20%, 20 VDCW; sim to Sprague Type 150D.
C230LL	19A116656P82J0	Ceramic disc: 82 pf ±5%, 500 VDCW, temp coef 0 PPM.
C230L	19A116656P68J0	Ceramic disc: 68 pf ±5%, 500 VDCW, temp coef 0 PPM.
C230M	19A116656P56J0	Ceramic disc: 56 pf ±5%, 500 VDCW, temp coef 0 PPM.
C230H	19A116656P47J0	Ceramic disc: 47 pf ±5%, 500 VDCW, temp coef 0 PPM.
C231LL	19A116656P82J0	Ceramic disc: 82 pf ±5%, 500 VDCW, temp coef 0 PPM.
C231L	19A116656P68J0	Ceramic disc: 68 pf ±5%, 500 VDCW, temp coef 0 PPM.
C231M	19A116656P56J0	Ceramic disc: 56 pf ±5%, 500 VDCW, temp coef 0 PPM.
C231H	19A116656P47J0	Ceramic disc: 47 pf ±5%, 500 VDCW, temp coef 0 PPM.
C232 and C233	19A116655P23	Ceramic disc: 3900 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C234LL	19A116656P82J0	Ceramic disc: 82 pf ±5%, 500 VDCW, temp coef 0 PPM.
C234L	19A116656P68J0	Ceramic disc: 68 pf ±5%, 500 VDCW, temp coef 0 PPM.
C234M	19A116656P56J0	Ceramic disc: 56 pf ±5%, 500 VDCW, temp coef 0 PPM.
C234H	19A116656P47J0	Ceramic disc: 47 pf ±5%, 500 VDCW, temp coef 0 PPM.
C235LL	19A116656P82J0	Ceramic disc: 82 pf ±5%, 500 VDCW, temp coef 0 PPM.
C235L	19A116656P68J0	Ceramic disc: 68 pf ±5%, 500 VDCW, temp coef 0 PPM.
C235M	19A116656P56J0	Ceramic disc: 56 pf ±5%, 500 VDCW, temp coef 0 PPM.
C235H	19A116656P47J0	Ceramic disc: 47 pf ±5%, 500 VDCW, temp coef 0 PPM.
C236LL	19A116656P82J0	Ceramic disc: 82 pf ±5%, 500 VDCW, temp coef 0 PPM.
C236L	19A116656P68J0	Ceramic disc: 68 pf ±5%, 500 VDCW, temp coef 0 PPM.
C236M	19A116656P56J0	Ceramic disc: 56 pf ±5%, 500 VDCW, temp coef 0 PPM.
C236H	19A116656P47J0	Ceramic disc: 47 pf ±5%, 500 VDCW, temp coef 0 PPM.
C237LL	19A116656P82J0	Ceramic disc: 82 pf ±5%, 500 VDCW, temp coef 0 PPM.
C237L	19A116656P68J0	Ceramic disc: 68 pf ±5%, 500 VDCW, temp coef 0 PPM.
C237M	19A116656P56J0	Ceramic disc: 56 pf ±5%, 500 VDCW, temp coef 0 PPM.
C237H	19A116656P47J0	Ceramic disc: 47 pf ±5%, 500 VDCW, temp coef 0 PPM.
C238LL	7489162P39	Silver mica: 330 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C238L	7489162P35	Silver mica: 220 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C238M and C238H	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C239LL	7489162P39	Silver mica: 330 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C239L	7489162P35	Silver mica: 220 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C239M and C239H	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C240LL	7489162P39	Silver mica: 330 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C240L	7489162P35	Silver mica: 220 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C240M and C240H	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C241LL	7489162P39	Silver mica: 330 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C241L	7489162P35	Silver mica: 220 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C241M and C241H	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C242LL and C242L	7489162P43	Silver mica: 470 pf ±5%, 300 VDCW; sim to Electro Motive Type DM-15.
C242M and C242H	7489162P41	Silver mica: 390 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C243LL	7489162P43	Silver mica: 470 pf ±5%, 300 VDCW; sim to Electro Motive Type DM-15.
C243L	7489162P41	Silver mica: 390 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C243M and C243H	7489162P39	Silver mica: 330 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C244LL and C244L	7489162P43	Silver mica: 470 pf ±5%, 300 VDCW; sim to Electro Motive Type DM-15.
C244M and C244H	7489162P41	Silver mica: 390 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C245LL	7489162P43	Silver mica: 470 pf ±5%, 300 VDCW; sim to Electro Motive Type DM-15.
C245L	7489162P41	Silver mica: 390 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C245M and C245H	7489162P39	Silver mica: 330 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C246LL and C246L	7489162P43	Silver mica: 470 pf ±5%, 300 VDCW; sim to Electro Motive Type DM-15.
C246M and C246H	7489162P41	Silver mica: 390 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C247LL	7489162P43	Silver mica: 470 pf ±5%, 300 VDCW; sim to Electro Motive Type DM-15.
C247L	7489162P41	Silver mica: 390 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C247M and C247H	7489162P39	Silver mica: 330 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C248LL and C248L	7489162P43	Silver mica: 470 pf ±5%, 300 VDCW; sim to Electro Motive Type DM-15.
C248M and C248H	7489162P41	Silver mica: 390 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C249LL	7489162P43	Silver mica: 470 pf ±5%, 300 VDCW; sim to Electro Motive Type DM-15.
C249L	7489162P41	Silver mica: 390 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C249M and C249H	7489162P39	Silver mica: 330 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C250LL	19A116656P160J3	Ceramic disc: 160 pf ±5%, 500 VDCW, temp coef -330 PPM.
C250L	19A116656P130J1	Ceramic disc: 130 pf ±5%, 500 VDCW, temp coef -150 PPM.
C250M	19A116656P110J8	Ceramic disc: 110 pf ±5%, 500 VDCW, temp coef -80 PPM.
C250H	19A116656P91J0	Ceramic disc: 91 pf ±5%, 500 VDCW, temp coef 0 PPM.
C251LL	19A116656P160J3	Ceramic disc: 160 pf ±5%, 500 VDCW, temp coef -330 PPM.
C251L	19A116656P130J1	Ceramic disc: 130 pf ±5%, 500 VDCW, temp coef -150 PPM.
C251M	19A116656P110J8	Ceramic disc: 110 pf ±5%, 500 VDCW, temp coef -80 PPM.
C251H	19A116656P91J0	Ceramic disc: 91 pf ±5%, 500 VDCW, temp coef 0 PPM.
C252LL	19A116656P160J3	Ceramic disc: 160 pf ±5%, 500 VDCW, temp coef -330 PPM.
C252L	19A116656P130J1	Ceramic disc: 130 pf ±5%, 500 VDCW, temp coef -150 PPM.
C252M	19A116656P110J8	Ceramic disc: 110 pf ±5%, 500 VDCW, temp coef -80 PPM.
C252H	19A116656P91J0	Ceramic disc: 91 pf ±5%, 500 VDCW, temp coef 0 PPM.
C253LL	19A116656P160J3	Ceramic disc: 160 pf ±5%, 500 VDCW, temp coef -330 PPM.
C253L	19A116656P130J1	Ceramic disc: 130 pf ±5%, 500 VDCW, temp coef -150 PPM.
C253M	19A116656P110J8	Ceramic disc: 110 pf ±5%, 500 VDCW, temp coef -80 PPM.
C253H	19A116656P91J0	Ceramic disc: 91 pf ±5%, 500 VDCW, temp coef 0 PPM.
C254LL	19A116656P160J3	Ceramic disc: 160 pf ±5%, 500 VDCW, temp coef -330 PPM.
C254L	19A116656P130J1	Ceramic disc: 130 pf ±5%, 500 VDCW, temp coef -150 PPM.
C254M	19A116656P110J8	Ceramic disc: 110 pf ±5%, 500 VDCW, temp coef -80 PPM.
C254H	19A116656P91J0	Ceramic disc: 91 pf ±5%, 500 VDCW, temp coef 0 PPM.
C255LL	19A116656P160J3	Ceramic disc: 160 pf ±5%, 500 VDCW, temp coef -330 PPM.
C255L	19A116656P130J1	Ceramic disc: 130 pf ±5%, 500 VDCW, temp coef -150 PPM.
C255M	19A116656P110J8	Ceramic disc: 110 pf ±5%, 500 VDCW, temp coef -80 PPM.
C255H	19A116656P91J0	Ceramic disc: 91 pf ±5%, 500 VDCW, temp coef 0 PPM.
C256LL	19A116656P160J3	Ceramic disc: 160 pf ±5%, 500 VDCW, temp coef -330 PPM.
C256L	19A116656P130J1	Ceramic disc: 130 pf ±5%, 500 VDCW, temp coef -150 PPM.
C256M	19A116656P110J8	Ceramic disc: 110 pf ±5%, 500 VDCW, temp coef -80 PPM.
C256H	19A116656P91J0	Ceramic disc: 91 pf ±5%, 500 VDCW, temp coef 0 PPM.
C257LL	19A116656P160J3	Ceramic disc: 160 pf ±5%, 500 VDCW, temp coef -330 PPM.
C257L	19A116656P130J1	Ceramic disc: 130 pf ±5%, 500 VDCW, temp coef -150 PPM.
C257M	19A116656P110J8	Ceramic disc: 110 pf ±5%, 500 VDCW, temp coef -80 PPM.
C257H	19A116656P91J0	Ceramic disc: 91 pf ±5%, 500 VDCW, temp coef 0 PPM.
C258LL	7489162P41	Silver mica: 390 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C258L and C258M	7489162P37	Silver mica: 270 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C258H and C258LL	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C259L	7489162P35	Silver mica: 220 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C259M	7489162P29	Silver mica: 120 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C259H	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C260LL	7489162P41	Silver mica: 390 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C260L and C260M	7489162P37	Silver mica: 270 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C260H and C261LL	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C261L	7489162P35	Silver mica: 220 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C261M	7489162P29	Silver mica: 120 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C261H	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C262LL	7489162P41	Silver mica: 390 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C262L and C262M	7489162P37	Silver mica: 270 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C262H and C263LL	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C263L	7489162P35	Silver mica: 220 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C263M	7489162P29	Silver mica: 120 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C263H	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C264LL	7489162P41	Silver mica: 390 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C264L and C264M	7489162P37	Silver mica: 270 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C264H and C265LL	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C265L	7489162P35	Silver mica: 220 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C265M	7489162P29	Silver mica: 120 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C265H	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C266LL	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C266L	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C266M and C266H	7489162P29	Silver mica: 120 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C267LL and C267L	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C267M and C267H	7489162P29	Silver mica: 120 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C268LL and C268L	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C268M and C268H	7489162P29	Silver mica: 120 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C269LL and C269L	7489162P33	Silver mica: 180 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C269M and C269H	7489162P29	Silver mica: 120 pf ±5%, 500 VDCW; sim to Electro Motive Type DM-15.
C270LL and C270L	19A116655P19	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C270M and C270H	19A116655P17	Ceramic disc: 680 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C271LL and C271L	19A116655P19	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C271M and C271H	19A116655P17	Ceramic disc: 680 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C272LL and C272L	19A116655P19	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C272M and C272H	19A116655P17	Ceramic disc: 680 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C273LL and C273L	19A116655P19	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C273M and C273H	19A116655P17	Ceramic disc: 680 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C274 thru C277	19A116966P107	Metallized polyester: 0.1 µf ±10%, 50 VDCW.
C280LL	19A116656P82J0	Ceramic disc: 82 pf ±5%, 500 VDCW, temp coef 0 PPM.
C280L	19A116656P68J0	Ceramic disc: 68 pf ±5%, 500 VDCW, temp coef 0 PPM.
C280M	19A116656P56J0	Ceramic disc: 56 pf ±5%, 500 VDCW, temp coef 0 PPM.
C280H	19A116656P47J0	Ceramic disc: 68 pf ±5%, 500 VDCW, temp coef 0 PPM.
C281LL	19A116656P82J0	Ceramic disc: 82 pf ±5%, 500 VDCW, temp coef 0 PPM.
C281L	19A116656P68J0	Ceramic disc: 68 pf ±5%, 500 VDCW, temp coef 0 PPM.
C281M	19A116656P56J0	Ceramic disc: 56 pf ±5%, 500 VDCW, temp coef 0 PPM.
C281H	19A116656P47J0	Ceramic disc: 68 pf ±5%, 500 VDCW, temp coef 0 PPM.
C282LL	19A116656P82J0	Ceramic disc: 82 pf ±5%, 500 VDCW, temp coef 0 PPM.
C282L	19A116656P68J0	Ceramic disc: 68 pf ±5%, 500 VDCW, temp coef 0 PPM.
C282M	19A116656P56J0	Ceramic disc: 56 pf ±5%, 500 VDCW, temp coef 0 PPM.
C282H	19A116656P47J0	Ceramic disc: 47 pf ±5%, 500 VDCW, temp coef 0 PPM.
C283LL	19A116656P82J0	Ceramic disc: 82 pf ±5%, 500 VDCW, temp coef 0 PPM.
C283L	19A116656P68J0	Ceramic disc: 68 pf ±5%, 500 VDCW, temp coef 0 PPM.
C283M	19A116656P56J0	Ceramic disc: 56 pf ±5%, 500 VDCW, temp coef 0 PPM.
C283H	19A116656P47J0	Ceramic disc: 47 pf ±5%, 500 VDCW, temp coef 0 PPM.
C284LL	19A116679P240J	Mica: 240 pf ±5%, 250 VDCW.
C284L	19A116679P200J	Mica: 200 pf ±5%, 250 VDCW.
C284M	19A116679P160J	Mica: 160 pf ±5%, 250 VDCW.
C284H	19A116679P140J	Mica: 140 pf ±5%, 250 VDCW.
C285LL	19A116679P240J	Mica: 240 pf ±5%, 250 VDCW.
C285L	19A116679P200J	Mica: 200 pf ±5%, 250 VDCW.
C285M	19A116679P160J	Mica: 160 pf ±5%, 250 VDCW.
C285H	19A116679P140J	Mica: 140 pf ±5%, 250 VDCW.
C286 thru C293	19A116655P23	Ceramic disc: 3900 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C294LL	19A116679P160J	Mica: 160 pf ±5%, 250 VDCW.
C294L	19A116679P130J	Mica: 130 pf ±5%, 250 VDCW.
C294M	19A116679P110J	Mica: 110 pf ±5%, 250 VDCW.
C294H	19A116679P91J	Mica: 91 pf ±5%, 250 VDCW.
C4201LL*	19A116656P91J1	Ceramic disc: 91 pf ±5%, 500 VDCW, temp coef -150 PPM.
		In REV A & earlier:
	19A116656P82J1	Ceramic disc: 82 pf ±5%, 500 VDCW, temp coef -150 PPM.
C4201L	19A116656P68J1	Ceramic disc: 68 pf ±5%, 500 VDCW, temp coef -150 PPM.
C4201M	19A116656P56J1	Ceramic disc: 56 pf ±5%, 500 VDCW, temp coef -150 PPM.
C4201H	19A116656P51J1	Ceramic disc: 51 pf ±5%, 500 VDCW, temp coef -150 PPM.
C4202LL	19A116679P110J	Mica: 110 pf ±5%, 250 VDCW.
C4202L	19A116679P91J	Mica: 91 pf ±5%, 250 VDCW.
C4202M	19A116679P68J	Mica: 68 pf ±5%, 250 VDCW.
C4202H	19A116679P56J	Mica: 56 pf ±5%, 250 VDCW.
C4203LL	19A116656P15J1	Ceramic disc: 15 pf ±5%, 500 VDCW, temp coef -150 PPM.
C4203L	19A116656P13J1	Ceramic disc: 13 pf ±5%, 500 VDCW, temp coef -150 PPM.
C4203M	19A116656P12J1	Ceramic disc: 12 pf ±5%, 500 VDCW, temp coef -150 PPM.
C4203H	19A116656P10J1	Ceramic disc: 10 pf ±5%, 500 VDCW, temp coef -150 PPM.
C4204LL	19A116679P140J	Mica: 140 pf ±5%, 250 VDCW.
C4204L	19A116679P110J	Mica: 110 pf ±5%, 250 VDCW.
C4204M	19A116679P91J	Mica: 91 pf ±5%, 250 VDCW.
C4204H	19A116679P82J	Mica: 82 pf ±5%, 250 VDCW.
C4205LL*	19A116679P120J	Mica: 120 pf ±5%, 250 VDCW.
		In REV A & earlier:
	19A116656P82J1	Ceramic disc: 82 pf ±5%, 500 VDCW, temp coef -150 PPM.
C4205L	19A116679P100J	Mica: 100 pf ±5%, 250 VDCW.
C4205M	19A116679P82J	Mica: 82 pf ±5%, 250 VDCW.
C4205H	19A116679P75J	Mica: 75 pf ±5%, 250 VDCW.
C4206LL*	19A116656P91J2	Ceramic disc: 91 pf ±5%, 500 VDCW, temp coef -220 PPM.
		In REV A & earlier:
	19A116656P82J1	Ceramic disc: 82 pf ±5%, 500 VDCW, temp coef -150 PPM.
C4206L	19A116656P68J1	Ceramic disc: 68 pf ±5%, 500 VDCW, temp coef -150 PPM.
C4206M	19A116656P56J1	Ceramic disc: 56 pf ±5%, 500 VDCW, temp coef -150 PPM.
C4206H	19A116656P51J1	Ceramic disc: 51 pf ±5%, 500 VDCW, temp coef -150 PPM.
C4210 thru C4216	19A116655P19	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C4220	19A116655P23	Ceramic disc: 3900 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C4221 and C4222	19A116655P17	Ceramic disc: 680 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C4223 thru C4225	19A116655P19	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C4226 thru C4228	19A116655P23	Ceramic disc: 3900 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.
C4229	19A116655P19	Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

SYMBOL	GE PART NO.	DESCRIPTION
C4230*	19A116192P14	Ceramic: 0.1 μf ±5%, 50 VDCW; sim to Erie USCC CW20C104-M2. Added to G1 by REV C. Added to G2-G4 by REV B.
		- - - - - - - - DIODES AND RECTIFIERS - - - - - - - -
CR201*	19A116052P2	Silicon, hot carrier: Fwd. drop .410 volts max.
		Earlier than REV A:
	19A115250P1	Silicon, fast recovery, 225 MA, 50 PIV.
CR202 thru CR204	19A115250P1	Silicon, fast recovery, 225 MA, 50 PIV.
		- - - - - - - - JACKS AND RECEPTACLES - - - - - -
J201 thru J203	19A130924G1	Receptacle, coaxial: jack type; sim to Cinch 14H11613.
J205	19B219374G1	Connector: 9 contacts.
J206 and J207		(Part of K201).
J208	4033513P4	Contact, electrical: sim to Bead Chain L93-3.
		- - - - - - - - - - - RELAYS - - - - - - - - - - -
K201	19A116722P1	Hermetic sealed: 125 ohms ±20%, 1 form C contact, 9.6 to 15.8 VDC (over the temp range indicated).
		- - - - - - - - - - INDUCTORS - - - - - - - - -
L201LL	19C320617P1	Coil.
L201L	19C320617P23	Coil.
L201M	19C320617P24	Coil.
L201H	19C320617P2	Coil.
L202LL	19C320617P3	Coil.
L202L	19C320617P5	Coil.
L202M	19C320617P25	Coil.
L202H	19C320617P4	Coil.
L203	7488079P42	Choke, RF: 8.20 μh ±10%, 0.25 ohms DC res max; sim to Jeffers 4422-3K.
L204LL	19C320617P5	Coil.
L204L	19C320617P26	Coil.
L204M	19C320617P27	Coil.
L204H	19C320617P6	Coil.
L205LL	19C320618P2	Coil.
L205L and L205M	19C320618P6	Coil.
L205H	19C320618P1	Coil.
L206LL	19C320617P7	Coil.
L206L	19C320617P28	Coil.
L206M	19C320617P29	Coil.
L206H	19C320617P8	Coil.
L207LL	19C320617P9	Coil.
L207L	19C320617P30	Coil.
L207M	19C320617P31	Coil.
L207H	19C320617P10	Coil.
L208LL	19C320619P1	Coil.
L208L	19C320618P7	Coil.
L208M	19C320619P5	Coil.
L208H	19C320619P6	Coil.
L209	7488079P42	Choke, RF: 8.20 μh ±10%, 0.25 ohms DC res max; sim to Jeffers 4422-3K.
L210LL	19C320617P11	Coil.
L210L and L210M	19C320617P4	Coil.
L210H	19C320617P12	Coil.
L211LL	19C320618P2	Coil.

SYMBOL	GE PART NO.	DESCRIPTION
L211L and L211M	19C320618P6	Coil.
L211H	19C320618P1	Coil.
L214LL	19C320617P13	Coil.
L214L	19C320617P32	Coil.
L214M	19C320617P18	Coil.
L214H	19C320617P14	Coil.
L215LL	19C320617P13	Coil.
L215L	19C320617P33	Coil.
L215M	19C320617P34	Coil.
L215H	19C320617P18	Coil.
L216LL	19C320617P13	Coil.
L216L	19C320617P33	Coil.
L216M	19C320617P34	Coil.
L216H	19C320617P18	Coil.
L217LL	19C320617P15	Coil.
L217L	19C320617P5	Coil.
L217M	19C320617P26	Coil.
L217H	19C320617P6	Coil.
L218LL	19C320617P15	Coil.
L218L	19C320617P5	Coil.
L218M	19C320617P26	Coil.
L218H	19C320617P6	Coil.
L219LL	19C320617P15	Coil.
L219L	19C320617P5	Coil.
L219M	19C320617P26	Coil.
L219H	19C320617P6	Coil.
L220LL	19C320617P15	Coil.
L220L	19C320617P5	Coil.
L220M	19C320617P26	Coil.
L220H	19C320617P6	Coil.
L221LL	19C320619P1	Coil.
L221L	19C320618P7	Coil.
L221M	19C320619P5	Coil.
L221H	19C320619P6	Coil.
L222LL	19C320619P1	Coil.
L222L	19C320618P7	Coil.
L222M	19C320619P5	Coil.
L222H	19C320619P6	Coil.
L223LL	19C320619P1	Coil.
L222L	19C320618P7	Coil.
L222M	19C320619P5	Coil.
L223H	19C320619P6	Coil.
L224LL	19C320619P1	Coil.
L224L	19C320618P7	Coil.
L224M	19C320619P5	Coil.
L224H	19C320619P6	Coil.
L225 thru L228	7488079P42	Choke, RF: 8.20 μh ±10%, 0.25 ohms DC res max; sim to Jeffers 4422-3K.
L229LL	19C320617P16	Coil.
L229L	19C320617P35	Coil.
L229M	19C320617P12	Coil.
L229H	19C320617P17	Coil.
L230LL	19C320617P16	Coil.
L230L	19C320617P35	Coil.
L230M	19C320617P12	Coil.
L230H	19C320617P17	Coil.
L231LL	19C320617P16	Coil.

SYMBOL	GE PART NO.	DESCRIPTION
L231L	19C320617P35	Coil.
L231M	19C320617P12	Coil.
L231H	19C320617P17	Coil.
L232LL	19C320617P16	Coil.
L232L	19C320617P35	Coil.
L232M	19C320617P12	Coil.
L232H	19C320617P17	Coil.
L233LL	19C320618P2	Coil.
L233L and L233M	19C320618P6	Coil.
L233H	19C320618P1	Coil.
L234LL	19C320618P2	Coil.
L234L and L234M	19C320618P6	Coil.
L234H	19C320618P1	Coil.
L235LL	19C320618P2	Coil.
L235L and L235M	19C320618P6	Coil.
L235H	19C320618P1	Coil.
L236LL	19C320618P2	Coil.
L236L and L236M	19C320618P6	Coil.
L236H	19C320618P1	Coil.
L237LL	19C320617P37	Coil.
L237L	19C320617P38	Coil.
L237M	19C320617P39	Coil.
L237H	19C320617P40	Coil.
L238LL	19C320617P37	Coil.
L238L	19C320617P38	Coil.
L238M	19C320617P39	Coil.
L238H	19C320617P40	Coil.
L239LL	19C320617P37	Coil.
L239L	19C320617P38	Coil.
L239M	19C320617P39	Coil.
L239H	19C320617P40	Coil.
L240LL	19C320617P37	Coil.
L240L	19C320617P38	Coil.
L240M	19C320617P39	Coil.
L240H	19C320617P40	Coil.
L241LL	19C320617P41	Coil.
L241L	19C320617P42	Coil.
L241M	19C320617P43	Coil.
L241H	19C320617P44	Coil.
L242LL	19C320617P41	Coil.
L242L	19C320617P42	Coil.
L242M	19C320617P43	Coil.
L242H	19C320617P44	Coil.
L243LL	19C320617P41	Coil.
L243L	19C320617P42	Coil.
L243M	19C320617P43	Coil.
L243H	19C320617P44	Coil.
L244LL	19C320617P41	Coil.
L244L	19C320617P42	Coil.
L244M	19C320617P43	Coil.
L244H	19C320617P44	Coil.
L245LL	19A129360P9	Coil.
L245L	19A129360P6	Coil.
L245M	19A129360P4	Coil.

SYMBOL	GE PART NO.	DESCRIPTION
L245H	19A129360P1	Coil.
L246LL	19A129360P10	Coil.
L246L	19A129360P7	Coil.
L246M	19A129360P3	Coil.
L246H	19A129360P2	Coil.
L247LL	19A129360P11	Coil.
L247L	19A129360P8	Coil.
L247M	19A129360P5	Coil.
L247H	19A129360P3	Coil.
L248LL	19A129360P9	Coil.
L248L	19A129360P6	Coil.
L248M	19A129360P4	Coil.
L248H	19A129360P1	Coil.
L249LL	19C320617P41	Coil.
L249L	19C320617P42	Coil.
L249M	19C320617P43	Coil.
L249H	19C320617P44	Coil.
L250LL	19C320617P41	Coil.
L250L	19C320617P42	Coil.
L250M	19C320617P43	Coil.
L250H	19C320617P44	Coil.
L251 thru L254	7488079P9	Choke, RF: 2.70 μh ±10%, 1.20 ohms DC res max; sim to Jeffers 4411-13K.
L255	7488079P12	Choke, RF: 4.70 μh ±10%, 0.22 ohms DC res max; sim to Jeffers 4421-3K.
L256 and L257	7488079P9	Choke, RF: 2.70 μh ±10%, 1.20 ohms DC res max; sim to Jeffers 4411-13K.
L258	7488079P10	Choke, RF: 3.30 μh ±10%, 0.15 ohms DC res max; sim to Jeffers 4421-1K.
L259 thru L263	19A129346G1	Coil.
		- - - - - - - - - - TRANSISTORS - - - - - - - - -
Q211	19A115910P1	Silicon, NPN; sim to Type 2N3906.
Q212 thru Q214	19A115768P1	Silicon, PNP; sim to Type 2N3702.
Q215	19A115910P1	Silicon, NPN; sim to Type 2N3906.
Q216	19A115779P1	Silicon, PNP; sim to Type 2N3251.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R201	3R152P392J	Composition: 3900 ohms ±5%, 1/4 w.
R202	3R152P511J	Composition: 510 ohms ±5%, 1/4 w.
R203LL	3R77P120J	Composition: 12 ohms ±5%, 1/2 w.
R203L	3R77P100J	Composition: 10 ohms ±5%, 1/2 w.
R203M	7147161P42	Composition: 8.2 ohms ±5%, 1/2 w.
R203H	7147161P13	Composition: 4.7 ohms ±5%, 1/2 w.
R204LL	3R77P120J	Composition: 12 ohms ±5%, 1/2 w.
R204L	3R77P100J	Composition: 10 ohms ±5%, 1/2 w.
R204M	7147161P42	Composition: 8.2 ohms ±5%, 1/2 w.
R204H	7147161P13	Composition: 4.7 ohms ±5%, 1/2 w.
R205 and R206	3R77P390J	Composition: 39 ohms ±5%, 1/2 w.
R207LL	3R78P681J	Composition: 680 ohms ±5%, 1 w.
R207L	3R78P681J	Composition: 680 ohms ±5%, 1 w.
R207M	3R78P681J	Composition: 680 ohms ±5%, 1 w.
R207H	3R78P911J	Composition: 910 ohms ±5%, 1 w.

SYMBOL	GE PART NO.	DESCRIPTION
R208LL	3R78P681J	Composition: 680 ohms ±5%, 1 w.
R208L	3R78P681J	Composition: 680 ohms ±5%, 1 w.
R208M	3R78P681J	Composition: 680 ohms ±5%, 1 w.
R208H	3R78P911J	Composition: 910 ohms ±5%, 1 w.
R209LL	5490205P14	Composition: 8.2 ohms ±5%, 1 w.
R209L	5490205P14	Composition: 8.2 ohms ±5%, 1 w.
R209M	5490205P14	Composition: 8.2 ohms ±5%, 1 w.
R209H	5490205P6	Composition: 5.6 ohms ±5%, 1 w.
R210LL	7147161P39	Composition: 6.8 ohms ±5%, 1/2 w.
R210L	7147161P34	Composition: 3.9 ohms ±5%, 1/2 w.
R210M	7147161P27	Composition: 2.0 ohms ±5%, 1/2 w.
R210H	7147161P22	Composition: 1.2 ohms ±5%, 1/2 w.
R211LL	7147161P39	Composition: 6.8 ohms ±5%, 1/2 w.
R211L	7147161P34	Composition: 3.9 ohms ±5%, 1/2 w.
R211M	7147161P27	Composition: 2.0 ohms ±5%, 1/2 w.
R211H	7147161P22	Composition: 1.2 ohms ±5%, 1/2 w.
R212LL	7147161P39	Composition: 6.8 ohms ±5%, 1/2 w.
R212L	7147161P34	Composition: 3.9 ohms ±5%, 1/2 w.
R212M	7147161P27	Composition: 2.0 ohms ±5%, 1/2 w.
R212H	7147161P22	Composition: 1.2 ohms ±5%, 1/2 w.
R213LL	7147161P39	Composition: 6.8 ohms ±5%, 1/2 w.
R213L	7147161P34	Composition: 3.9 ohms ±5%, 1/2 w.
R213M	7147161P27	Composition: 2.0 ohms ±5%, 1/2 w.
R213H	7147161P22	Composition: 1.2 ohms ±5%, 1/2 w.
R214 and R215	3R77P390J	Composition: 39 ohms ±5%, 1/2 w.
R216 thru R218	3R78P101J	Composition: 100 ohms ±5%, 1 w.
R220LL	7147161P39	Composition: 6.8 ohms ±5%, 1/2 w.
R220L	7147161P34	Composition: 3.9 ohms ±5%, 1/2 w.
R220M	7147161P27	Composition: 2.0 ohms ±5%, 1/2 w.
R220H	7147161P22	Composition: 1.2 ohms ±5%, 1/2 w.
R221LL	7147161P39	Composition: 6.8 ohms ±5%, 1/2 w.
R221L	7147161P34	Composition: 3.9 ohms ±5%, 1/2 w.
R221M	7147161P27	Composition: 2.0 ohms ±5%, 1/2 w.
R221H	7147161P22	Composition: 1.2 ohms ±5%, 1/2 w.
R222LL	7147161P39	Composition: 6.8 ohms ±5%, 1/2 w.
R222L	7147161P34	Composition: 3.9 ohms ±5%, 1/2 w.
R222M	7147161P27	Composition: 2.0 ohms ±5%, 1/2 w.
R222H	7147161P22	Composition: 1.2 ohms ±5%, 1/2 w.
R223LL	7147161P39	Composition: 6.8 ohms ±5%, 1/2 w.
R223L	7147161P34	Composition: 3.9 ohms ±5%, 1/2 w.
R223M	7147161P27	Composition: 2.0 ohms ±5%, 1/2 w.
R223H	7147161P22	Composition: 1.2 ohms ±5%, 1/2 w.
R224LL	7147161P39	Composition: 6.8 ohms ±5%, 1/2 w.
R224L	7147161P34	Composition: 3.9 ohms ±5%, 1/2 w.
R224M	7147161P27	Composition: 2.0 ohms ±5%, 1/2 w.
R224H	7147161P22	Composition: 1.2 ohms ±5%, 1/2 w.
R225LL	7147161P39	Composition: 6.8 ohms ±5%, 1/2 w.
R225L	7147161P34	Composition: 3.9 ohms ±5%, 1/2 w.
R225M	7147161P27	Composition: 2.0 ohms ±5%, 1/2 w.
R225H	7147161P22	Composition: 1.2 ohms ±5%, 1/2 w.
R226LL	7147161P39	Composition: 6.8 ohms ±5%, 1/2 w.

SYMBOL	GE PART NO.	DESCRIPTION
R226L	7147161P34	Composition: 3.9 ohms ±5%, 1/2 w.
R226M	7147161P27	Composition: 2.0 ohms ±5%, 1/2 w.
R226H	7147161P22	Composition: 1.2 ohms ±5%, 1/2 w.
R227LL	7147161P39	Composition: 6.8 ohms ±5%, 1/2 w.
R227L	7147161P34	Composition: 3.9 ohms ±5%, 1/2 w.
R227M	7147161P27	Composition: 2.0 ohms ±5%, 1/2 w.
R227H	7147161P22	Composition: 1.2 ohms ±5%, 1/2 w.
R228LL	7147161P39	Composition: 6.8 ohms ±5%, 1/2 w.
R228L	7147161P34	Composition: 3.9 ohms ±5%, 1/2 w.
R228M	7147161P27	Composition: 2.0 ohms ±5%, 1/2 w.
R228H	7147161P22	Composition: 1.2 ohms ±5%, 1/2 w.
R229LL	7147161P39	Composition: 6.8 ohms ±5%, 1/2 w.
R229L	7147161P34	Composition: 3.9 ohms ±5%, 1/2 w.
R229M	7147161P27	Composition: 2.0 ohms ±5%, 1/2 w.
R229H	7147161P22	Composition: 1.2 ohms ±5%, 1/2 w.
R230LL	7147161P39	Composition: 6.8 ohms ±5%, 1/2 w.
R230L	7147161P34	Composition: 3.9 ohms ±5%, 1/2 w.
R230M	7147161P27	Composition: 2.0 ohms ±5%, 1/2 w.
R230H	7147161P22	Composition: 1.2 ohms ±5%, 1/2 w.
R231LL	7147161P39	Composition: 6.8 ohms ±5%, 1/2 w.
R231L	7147161P34	Composition: 3.9 ohms ±5%, 1/2 w.
R231M	7147161P27	Composition: 2.0 ohms ±5%, 1/2 w.
R231H	7147161P22	Composition: 1.2 ohms ±5%, 1/2 w.
R232LL	7147161P39	Composition: 6.8 ohms ±5%, 1/2 w.
R232L	7147161P34	Composition: 3.9 ohms ±5%, 1/2 w.
R232M	7147161P27	Composition: 2.0 ohms ±5%, 1/2 w.
R232H	7147161P22	Composition: 1.2 ohms ±5%, 1/2 w.
R233LL	7147161P39	Composition: 6.8 ohms ±5%, 1/2 w.
R233L	7147161P34	Composition: 3.9 ohms ±5%, 1/2 w.
R233M	7147161P27	Composition: 2.0 ohms ±5%, 1/2 w.
R233H	7147161P22	Composition: 1.2 ohms ±5%, 1/2 w.
R234LL	7147161P39	Composition: 6.8 ohms ±5%, 1/2 w.
R234L	7147161P34	Composition: 3.9 ohms ±5%, 1/2 w.
R234M	7147161P27	Composition: 2.0 ohms ±5%, 1/2 w.
R234H	7147161P22	Composition: 1.2 ohms ±5%, 1/2 w.
R235LL	7147161P39	Composition: 6.8 ohms ±5%, 1/2 w.
R235L	7147161P34	Composition: 3.9 ohms ±5%, 1/2 w.
R235M	7147161P27	Composition: 2.0 ohms ±5%, 1/2 w.
R235H	7147161P22	Composition: 1.2 ohms ±5%, 1/2 w.
R236 thru R243	3R77P390J	Composition: 39 ohms ±5%, 1/2 w.
R244 thru R246	3R79P101J	Composition: 100 ohms ±5%, 2 w.
R249	19C320212P2	Shunt resistor.
R250 and R251	19C320212P1	Shunt resistor.
R252	3R152P153J	Composition: 15K ohms ±5%, 1/4 w.
R253	3R152P682J	Composition: 6.8K ohms ±5%, 1/4 w.
R254	3R152P101J	Composition: 100 ohms ±5%, 1/4 w.
R255	19A116278P253	Metal film: 3480 ohms ±%, 1/2 w.
R256	19A116278P201	Metal film: 1K ohms ±2%, 1/2 w.
R257	19A116278P261	Metal film: 4220 ohms ±2%, 1/2 w.
R258	19A116278P269	Metal film: 5110 ohms ±2%, 1/2 w.

SYMBOL	GE PART NO.	DESCRIPTION
R259	19A116278P261	Metal film: 4.22K ohms ±2%, 1/2 w.
R261	19A116559P102	Variable, cermet: 5K ohms ±20%, .5 w; sim to CTS Series 360.
R262	3R152P101J	Composition: 100 ohms ±5%, 1/4 w.
R263	3R152P682J	Composition: 6.8K ohms ±5%, 1/4 w.
R264	3R77P121J	Composition: 120 ohms ±5%, 1/2 w.
R265	3R77P471J	Composition: 470 ohms ±5%, 1/2 w.
R266	3R152P102J	Composition: 1K ohms ±5%, 1/4 w.
R267	3R152P182J	Composition: 1.8K ohms ±5%, 1/4 w.
R268	3R152P100J	Composition: 10 ohms ±5%, 1/4 w.
R269	3R77P100J	Composition: 10 ohms ±5%, 1/2 w.
R270	3R152P241J	Composition: 240 ohms ±5%, 1/4 w.
R271	3R152P332J	Composition: 3.3K ohms ±5%, 1/4 w.
R272	3R77P100J	Composition: 10 ohms ±5%, 1/2 w.
R273 thru R277	3R78P100K	Composition: 10 ohms ±10%, 1 w.
		- - - - - - - - VOLTAGE REGULATORS - - - - - -
VR201	4036887P1	Silicon, Zener: 5 MA, 1.0 PIV.
VR202	4036887P5	Silicon, Zener: 5 MA, 1.5 PIV.
		- - - - - - - - - - - CABLES - - - - - - - - -
W201	19A129571P1	Strap.
W202	19B219998P2	Jumper.
W203	19B219998P1	Jumper.
W204	19C320624P1	Strip, connector.
W205 thru W209		(Part of printed wiring board 19D417923P1).
		HEAT SINK ASSEMBLY 19B219688G6 M MODEL AND INTERMITTANT DUTY STATION 19B219688G18 E MODEL
		- - - - - - - - - - CAPACITORS - - - - - - - - -
C297 and C298	19A116708P1	Ceramic, feed-thru: 0.01 µf +100% -0%, 500 VDCW; sim to Erie Style 327.
C299	19A115680P10	Electrolytic: 200 µf +150% -10%, 18 VDCW; sim to Mallory Type TTX.
		- - - - - - - DIODES AND RECTIFIERS - - - - - -
CR295	19A116783P1	Silicon.
		- - - - - - - - - MISCELLANEOUS - - - - - - - -
	19A129361P1	Shield. (Located between L246 and L247, L247 and L248).
	19A129361P2	Shield. (Located between L245 and L246).
	19B219391G1	Filter casting.
	19A134016P1	Insulator, bushing. (Used with Q217).
	19A116023P1	Insulator, plate. (Used with Q217).
	19D416712P6	Insulator. (Located under Power Amplifier Board).
	19A129661P1	Insulator. (Located at L298).
	19B201074P320	Tap screw, Phillips POZIDRIV®: No. 6-32 x 1-1/4. (Secures Filter Casting).
	5492178P2	Washer, spring tension: sim to Wallace Barnes 375-20. (Used with Q204-Q209).
	N207P15C6	Hexnut: No. 8-32. (Used with Q204-Q209).
	19A129434P1	Washer. (Used with C297, C298).

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. The revision stamped on the unit includes all previous revisions. Refer to the Parts List for descriptions of parts affected by these revisions.

REV. A - Power Amplifier Board 19D417927G1-4

To improve operation. Changed CR201.

REV. B - Power Amplifier Board 19D417927G1

To improve stopband attenuation (25-30 MHz range)
Changed C4201LL and C4206LL.

REV. B - Power Amplifier Board 19D417927G2-4

REV. C - Power Amplifier Board 19D417927G1

To improve operation of power control circuit. Added C4230.

END OF DOCUMENT