MAINTENANCE MANUAL 806-825 MHz OSCILLATOR-MULTIPLIER BOARD 19D423194G1

TABLE OF CONTENTS	
	Page
DESCRIPTION	Front Cover
CIRCUIT ANALYSIS	Front Cover
OUTLINE DIAGRAM	2
SCHEMATIC DIAGRAM	3
PARTS LIST AND PRODUCTION CHANGES	4

DESCRIPTION

The Oscillator-Multiplier board (OSC-Mult) for MASTR[®] II station contains an Integrated circuit Oscillator Module (ICOM) The ICOM crystal frequencies range from approximately 15.85 to 16.25 megahertz, and the crystal frequency is multiplied 48 times to provide a low side injection frequency is multiplied 48 times to provide a low side injection frequency to the mixer.

CIRCUIT ANALYSIS

1 PPM ICOM (Y401)

The quartz crystal used in the ICOM exhibits the traditional "S" curve characteristics of output frequency versus operating temperature. Rated stability (±1 PPM) of the ICOM is maintained over a temperature range of -30C° to +85°C.

At both the coldest and hottest temperatures, the frequency increases with increasing temperature. In the middle temperature range (approximately 0°C to 55°C), frequency decreases with increasing temperature.

Since the rate of change is nearly linear over the midtemperature range, the output frequency change can be compensated by choosing a parallel compensation capacitor with a temperature coefficient approximately equal and opposite that of the crystal.

Figure 1 shows the typical performance of an uncompensated crystal as well as the typical performance of a crystal which has been matched with a properly chosen compensation capacitor.

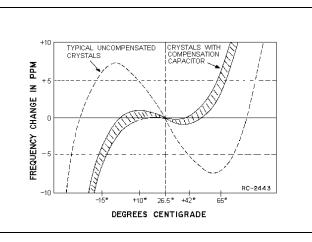


Figure 1 - Typical Crystal Characteristics

At temperatures above and below the mid-range, additional compensation must be introduced. An externally generated compensation voltage is applied to a varactor (voltage-variable capacitor) which is in parallel with the crystal.



Mountain View Road • Lynchburg, Virginia 24502

Printed in U.S.A.

Compensator Circuits

The ICOM is temperature compensated at both ends of the temperature range to provide instant frequency compensation. An equivalent ICOM circuit is shown in Figure 2.

The cold end compensation circuit does not operate at temperatures above 0°C. When the temperature drops below 0°C, the circuit is activated. As the temperature decreases, the equivalent resistance decreases and the compensation voltage increases.

The increase in compensation voltage decreases the capacity of the varactor in the oscillator, increasing the output frequency of the ICOM.

The hot end compensation circuit does not operate below 55° C. The hot end compensation circuit consists of two branches; the first branch is activated at $+55^{\circ}$ C and the second branch is activated at $+70^{\circ}$ C so that both branches are now operating. At temperatures above these activation points, the equivalent resistance decreases thereby decreasing the compensation voltage. This increases the capacitance of the varicap thus reducing the output frequency of the ICOM.

<u>SERVICE NOTE</u>: Proper ICOM operation is dependent on the closely-controlled input voltages from the l0-Volt regulator. Should the ICOM shift off frequency, check the l0-Volt regulator module or check output of the ICOM.

CAUTION

The ICOMs are individually compensated at the factory and cannot be repaired in the field. Any attempt to repair or change an ICOM frequency will void the warranty.

MULTIPLIERS & AMPLIFIERS

The output of the ICOM Y401 is coupled through a tuned circuit (L401) that is tuned to four times the crystal frequency. The output of the tuned circuit is applied to the base of the Class C doubler Q401. The tuned collector circuit (L403) of the doubler is tuned to two times the input to the base (8 X crystal).

Following the doubler is a Class A Amplifier stage, Q402. The amplified output of Q402 is applied to the base of trippler Q403. The output of Q403 is metered across the Emitter resistor R412 through a metering network consisting of R422, C415 and R421, and applied to receiver metering jack J601 through P903-14. The tuned collector circuit (Z401) of the trippler Q403 is tuned to three times the input to the base (24 X crystal).

Following the trippler Q403 is a class A Ampli-fier stage, Q404. The tuned collector circuit (Z402) is tuned to the same frequency as the input to the Base. The tuned circuits provide some selectivity in the Oscillator-Multiplier chain. The amplified output of Q404 is applied to the base of the second doubler Q405. The output of Q405 is metered through a metering network consisting of C428, C431, CR403 and R418 and applied to receiver metering jack J601 through P402. The output of the second doubler Q405 is tuned to two times the input to the base (48 X crystal), this output is applied through W401 to J302 on the RF Assembly.

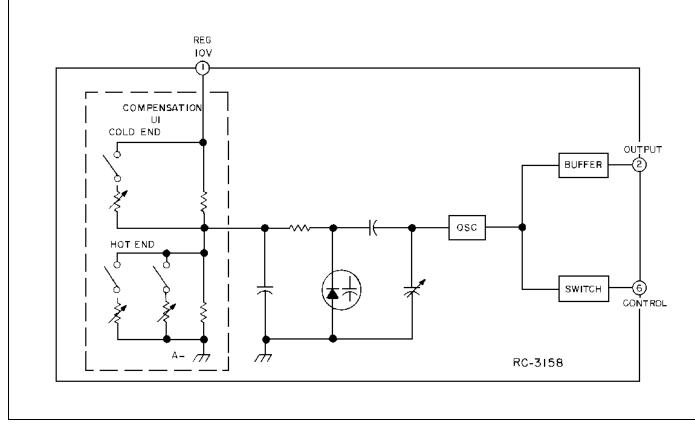


Figure 2 - Equivalent ICOM Circuit

LBI-30466

LBI-30466

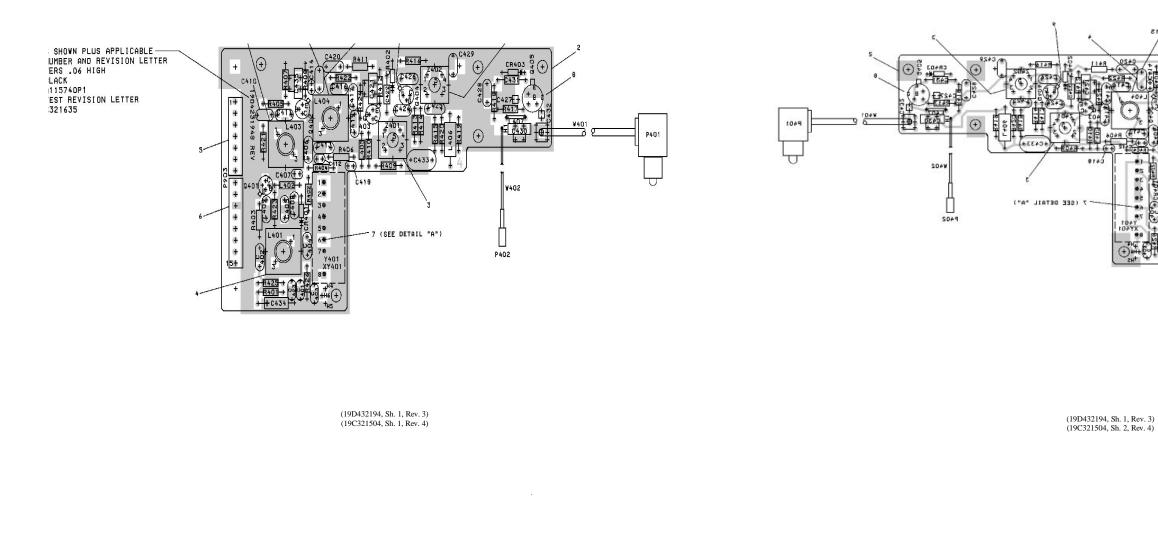
OUTLINE DIAGRAM

SOLDER SIDE

....

2143

COMPONENT SIDE



LEAD IDENTIFICATION FOR Q401

CASE

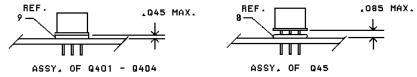
TOP VIEW

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

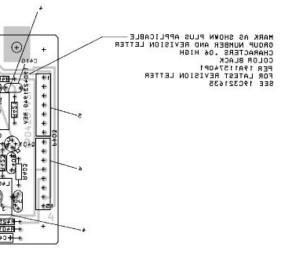
LEAD IDENTIFICATION FOR Q402 THRU Q405

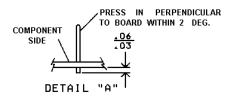
TOP VIEW

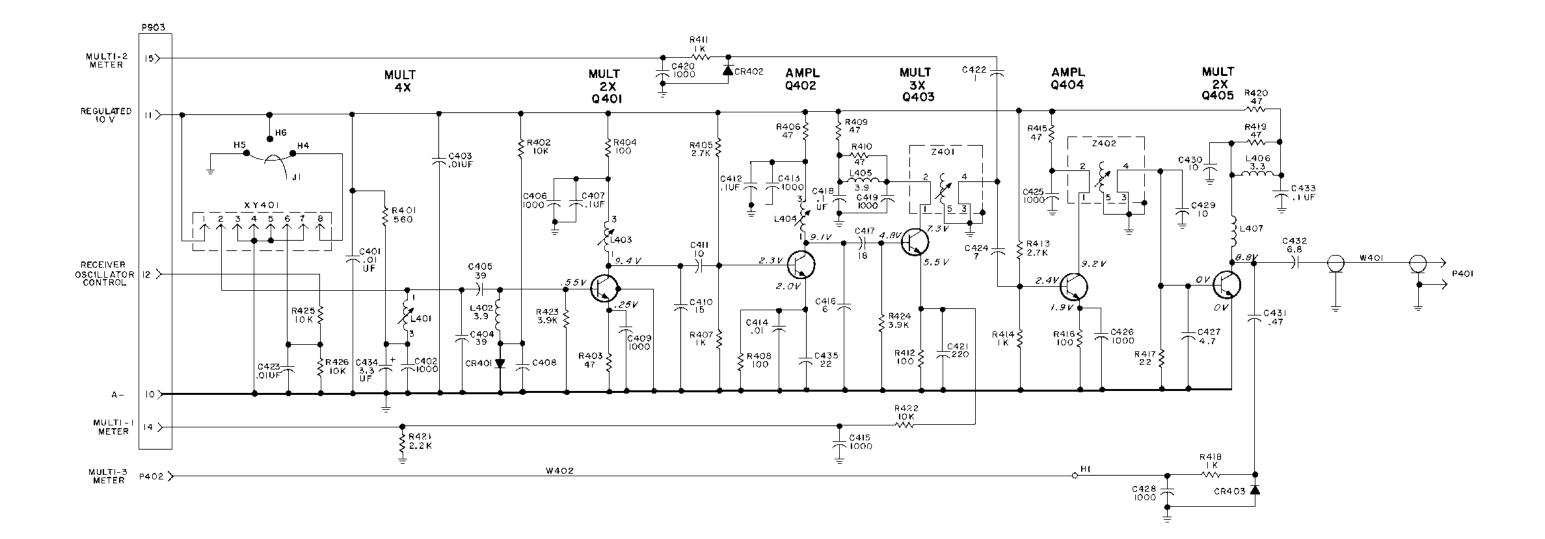
NOTE : LEAD ARRANGEMENT, AND NOT CASE SHAPE, IS DETERMINING FACTOR FOR LEAD IDENTIFICATION



LBI-30466







THIS ELEM DIAG	APPLIES TO
MODEL NO	REV LETTER
PL 19042319461	в

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, INUCTANCE VALUES IN MICROFARADS. INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH-MILLIHENRYS OR H-HENRYS.

	IN	0	RDEF	2	TO F	ETAIN	RAI	red	EQUI	PMENT
	PEF	REOR	MANC	Έ,	REPLAC	CEMENT	Г	OF	AN	4Y
1	SEF	RVICE	P,Α	RT	SHOUL	D BE	MA	DE O	NLY	WITH
	А	CON	1PON		HAV			SPEC		
	SH	OWN	ON	THE	PARTS	LIST	FOR	THAT	PAF	RT.

LBI-30466

VOLTAGE READINGS VOLTAGE READINGS ARE TYPICAL READINGS MEASURED TO SYSTEM NEGATIVE (P903 - 10) WITH TEST SET MODEL 4EX3A11 OR A 20,000 OHM - PER - VOLT METER

806-825 MHz OSCILLATOR-MULTIPLIER BOARD 19D423194G1

(19D423679. Rev. 5)

LBI-30466

LBI-30467A 806-825 MHz OSCILLATOR/MULTIPLIER BOARD 19D423194G1

Caracteristic Corrantic disc: 100 pF ±10%, 100 VDCW; sim to NWC Type JF Discap. Caracteristic 19A116655P20 Corrantic disc: 100 pF ±10%, 50 VDCW. Caracteristic 19A116655P20 Corrantic disc: 100 pF ±10%, 50 VDCW, temp coef -470 PPM. Caracteristic 101 uF ±10%, 50 VDCW, temp coef -470 PPM. Corrantic disc: 100 pF ±10%, 1000 VDCW; sim to NWC Type JF Discap. Caracteristic 101 11244P4 Corrantic disc: 100 pF ±10%, 1000 VDCW; sim to NWC Type JF Discap. Caracteristic 101 11244P4 Corrantic disc: 10 pF ±0.5 pF, 500 VDCW, temp coef 0 PPM. Call 19A116655P10J0 Corrantic disc: 10 pF ±0.5 pF, 500 VDCW, temp coef 0 PPM. Call 19A116655P10J0 Corrantic disc: 10 pF ±0.5 pF, 500 VDCW, temp coef 0 PPM. Call 19A116655P20 Corrantic disc: 10 pF ±0.5, 500 VDCW, temp coef 0 PPM. Call 19A116655P20 Corrantic disc: 100 pF ±10%, 1000 VDCW; sim to NWC Type JF Discap. Call 19A116655P20 Corrantic disc: 10 pF ±0.5, 500 VDCW, Call 19A116655P20 Corrantic disc: 10 pF ±0.5, 500 VDCW, Call 19A116655P20	SYMBOL	GE PART NO.	DESCRIPTION
C40119A10000SP7Polyster: 0.01 uF 10%, 50 VDCW.C46219A116655P20Germaic disc: 1000 pF \pm 10%, 1000 VDCW; sim to NKC Type JF Discap.C46319A116655P20Germaic disc: 1000 pF \pm 10%, 1000 VDCW; sim to NKC Type JF Discap.C46419A116655P20Germaic disc: 1000 pF \pm 10%, 1000 VDCW; sim to NKC Type JF Discap.C46519A116655P20Germaic disc: 1000 pF \pm 10%, 1000 VDCW; sim to NKC Type JF Discap.C46619A116655P20Germaic disc: 1000 pF \pm 10%, 1000 VDCW; sim to NKC Type JF Discap.C46719A116655P20Ceramic disc: 1000 pF \pm 10%, 1000 VDCW; sim to NKC Type JF Discap.C41019A116656P15J0Ceramic disc: 1000 pF \pm 10%, 1000 VDCW; sim to NKC Type JF Discap.C41119A116656P16J0Ceramic disc: 1000 pF \pm 10%, 1000 VDCW; sim to NKC Type JF Discap.C41219A116656P16J0Ceramic disc: 1000 pF \pm 10%, 1000 VDCW; sim to NKC Type JF Discap.C41319A116656P16J0Ceramic disc: 1000 pF \pm 10%, 1000 VDCW; sim to NKC Type JF Discap.C41419A116656P16J0Ceramic disc: 1000 pF \pm 10%, 1000 VDCW, temp coef 0 pFM.C41519A116656P16J0Ceramic disc: 1000 pF \pm 10%, 1000 VDCW, temp coef 0 pFM.C41619A116656P16J0Ceramic disc: 1000 pF \pm 0%, 500 VDCW.C41719A116656P16J0Ceramic disc: 1000 pF \pm 10%, 1000 VDCW; sim to NKC Type JF Discap.C41819A116656P16J0Ceramic disc: 1000 pF \pm 0%, 500 VDCW.C42119A700015P37Teflon/Mica: 220 pF \pm 5%, 500 VDCW.C42219A700015P37Teflon/Mica: 220 pF \pm 5%, 500 VDCW. <t< td=""><td></td><td></td><td></td></t<>			
Cd0219A116655P20Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RWC Type JF Discap.Cd0319A116656P39J4Ceramic disc: 30 pF ±0%, 500 VDCW.Cd0419A116656P39J4Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RWC Type JF Discap.Cd0519A116655P20Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RWC Type JF Discap.Cd0619A116655P20Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RWC Type JF Discap.Cd0719A116656P15J0Ceramic disc: 100 pF ±0.5 pF, 500 VDCW, temp coef 0 PPM.Cd1019A116656P15J0Ceramic disc: 100 pF ±0.5 pF, 500 VDCW, temp coef 0 PPM.Cd1119A116656P10J0Ceramic disc: 100 pF ±0.5, 500 VDCW, temp coef 0 PPM.Cd1219A116656P10J0Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RWC Type JF Discap.Cd1319A116655P20Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RWC Type JF Discap.Cd1419A116656P30Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RWC Type JF Discap.Cd1519A116656P43DCeramic disc: 1000 pF ±0.5, 500 VDCW, temp coef 0 PFM.Cd1619A116656P43DCeramic disc: 1000 pF ±0.5, 500 VDCW, temp coef 0 PFM.Cd1319A116656P43DCeramic disc: 1000 pF ±0.5, 500 VDCW, temp coef 0 PFM.Cd2119A10655P20Ceramic disc: 1000 pF ±0.5, 500 VDCW, temp coef 0 PFM.Cd2119A10655P20Ceramic disc: 1000 pF ±0.5, 500 VDCW.Cd2219A10605P7Ceramic disc: 1000 pF ±0.5, 500 VDCW.Cd2319A10655P20Ceramic disc: 1000 pF ±0.5, 500 VDCW.Cd2419A116655P20Ceramic disc			
RWC Type JP Discap.C40319A700005F7Polyster:0.01 uP ±10%, 50 VDCW.C40419A116656P39J4C40519A116656P39J4C40619A116656P39J4C40719A116655P20C40819A116655P20C40919A116655P20C40919A116655P20C41119A116656P13J0C41119A116656P13J0C41219A116656P13J0C41319A116656P13J0C41419A116656P13J0C41519A116656P13J0C41619A116656P13J0C41719A116656P13J0C41819A116656P13J0C41119A116656P13J0C41119A116656P13J0C41219A116656P13J0C41319A116655P20C41419A116655P20C41519A116655P20C41619A116655P13JC41719A116656P13J0C41819A116656P13J0C41919A116656P13J0C41119A116656P13J0C41119A116656P13J0C41219A116656P13J0C41319A116656P13J0C41419A116656P13J0C41519A116656P13J0C41619A116656P13J0C41719A116656P13J0C41819A116656P13J0C41919A116656P13J0C41119A116656P13J0C41119A116656P13J0C41219A100015P13C41319A116656P13J0C41419A116656P13J0C41519A116656P13J0C42619A166	C401	19A700005P7	· •
C404 and C405 19A116656F39/4 Ceramic disc: 39 pF 15%, 500 VDCW, temp coef -470 PPM. C406 19A116655F20 Ceramic disc: 1000 pF 110%, 1000 VDCW; sim to RWC Type JF Discap. C407 19A116655F20 Ceramic disc: 1000 pF 110%, 1000 VDCW; sim to RWC Type JF Discap. C410 19A116656F150 Ceramic disc: 10 pF 10.5, 500 VDCW, temp coef 0 PPM. C411 19A116656F150 Ceramic disc: 10 pF 10.5, pF, 500 VDCW, temp coef 0 PPM. C412 19A116656F150 Ceramic disc: 1000 pF 10.5, 1000 VDCW; sim to RWC Type JF Discap. C413 19A116655F20 Ceramic disc: 1000 pF 10.5, 1000 VDCW; sim to RWC Type JF Discap. C414 19A116655F20 Ceramic disc: 1000 pF 10.5, 1000 VDCW; sim to RWC Type JF Discap. C415 19A116656F18/0 Ceramic disc: 1000 pF 10.5, 1000 VDCW; temp coef 0 PFM. C416 19A116656F18/0 Ceramic disc: 1000 pF 10.5, 1000 VDCW; temp coef 0 PFM. C417 19A116656F18/0 Ceramic disc: 1000 pF 10.5, 1000 VDCW; sim to RWC Type JF Discap. C418 19A116655F20 Ceramic disc: 1000 pF 10.5, 1000 VDCW; sim to RWC Type JF Discap. C420 19A700015F13 Teflon/Mica: 220 pF 15.5, 500 VDCW. C422 19A700015F13 Teflon/Mica: 100 pF 10.5, 100 VDCW; temp coef 0 PFM. C423 <td< td=""><td>C402</td><td>19A116655P20</td><td>Ceramic disc: 1000 pF <u>+</u>10%, 1000 VDCW; sim to RMC Type JF Discap.</td></td<>	C402	19A116655P20	Ceramic disc: 1000 pF <u>+</u> 10%, 1000 VDCW; sim to RMC Type JF Discap.
and C4065 -470 PPM. C4066 19A116655P20 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RWC Type JF Discap. C407 19A116655P20 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to MWC Type JF Discap. C410 19A116655P100 Ceramic disc: 100 pF ±0.5, 500 VDCW, temp coef 0 PPM. C411 19A116656P10J0 Ceramic disc: 10 pF ±0.5, 500 VDCW, temp coef 0 PPM. C412 19A116656P10J0 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to PPM. C413 19A116655P20 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to PPM. C414 19A116655P20 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to Erie 8121 Special. C415 19A116655P20 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to Erie 8121 Special. C416 19A116656P18J0 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RWC Type JF Discap. C417 19A116656P18J0 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RWC Type JF Discap. C418 19A116655P20 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RWC Type JF Discap. C421 19A700015P37 Teflon/Mica: 220 pF ±0%, 500 VDCW. C422 19A700015P37 Teflon/Mica: 220 pF ±0%, 1000 VDCW; sim to RWC Type JF Discap. C423 19A1166	C403	19A700005P7	Polyester: 0.01 uF ±10%, 50 VDCW.
RWC Type JF Discap. C407 19A116244P4 Ceramic 0.15 uF $\pm 20\%$, 50 VDCW. C408 and add 19A116655F20 Ceramic disc: NWC Type JF Discap. C410 19A116655F20 Ceramic disc: PM. 10 pf 10.5 pF, 500 VDCW, temp coef 0 PFM. C411 19A116656F100 Ceramic disc: 0 pFM. 10 pf 10.5 pF, 500 VDCW, temp coef 0 PFM. C412 19A116254P1 Ceramic disc: 0 pFM. 1000 pF $\pm 10\%$, 1000 VDCW; sim to RMC Type JF Discap. C414 19A11625F20 Ceramic disc: 0 pFM. 1000 pF $\pm 10\%$, 1000 VDCW; sim to RMC Type JF Discap. C415 19A116655F20 Ceramic disc: 1000 pF $\pm 10\%$, 1000 VDCW; sim to RMC Type JF Discap. C416 19A116656F13/0 Ceramic disc: 1000 pF $\pm 5\%$, 500 VDCW, temp coef 0 PFM. C417 19A116656F13/0 Ceramic disc: 1000 pF $\pm 5\%$, 500 VDCW, temp coef 0 PFM. C418 19A116656F13/0 Ceramic disc: 1000 pF $\pm 5\%$, 500 VDCW. C422 19A100015P37 Teflon/Mica: 220 pF $\pm 5\%$, 500 VDCW. C423 19A10655F20 Ceramic disc: 1000 pF $\pm 10\%$, 1000 VDCW; temp coef 0 PFW. C424 19A11665F70 Ceramic disc: 1000 pF $\pm 5\%$, 500 VDCW. C425 19	and	19A116656P39J4	Ceramic disc: 39 pF ±5%, 500 VDCW, temp coef -470 PPM.
C408 add add add 19A116655P20 Ceramic disc: 1000 pF $\pm 10\%$, 1000 VDCW; sim to RWC Type JF Discap. C410 19A116656P15J0 Ceramic disc: 15 pF $\pm 5\%$, 500 VDCW, temp coef 0 pFM. C411 19A116656P10J0 Ceramic disc: 10 pF ± 0.5 pF, 500 VDCW, temp coef 0 pFM. C412 19A116244P4 Ceramic color pF ± 0.5 pF, 500 VDCW; temp coef 0 pFM. C413 19A116255P20 Ceramic color pF ± 0.5 pF, 500 VDCW; temp coef 0 kmC Type JF Discap. C414 19A116655P20 Ceramic color pF ± 0.5 pF, 500 VDCW; sim to Krie 8121 Special. C415 19A116656P500 Ceramic disc: 1000 pF ± 0.5 pF, 500 VDCW, temp coef 0 PFM. C417 19A116656P18J0 Ceramic disc: 18 pF $\pm 5\%$, 500 VDCW, temp coef 0 PFM. C418 19A116656P18J0 Ceramic disc: 1000 pF $\pm 10\%$, 1000 VDCW; sim to RWC Type JF Discap. C419 19A116656P18J0 Ceramic disc: 1000 pF $\pm 5\%$, 500 VDCW. C419 19A116655P20 Ceramic disc: 1000 pF $\pm 5\%$, 500 VDCW. C421 19A700015P37 Teflon/Mica: 220 pF $\pm 5\%$, 500 VDCW. C422 19A700015P37 Teflon/Mica: 7 pF ± 0.5 pF, 500 VDCW, temp coef 0 pFW. C423 19A700015P13 Ceramic disc: 1000 pF $\pm 10\%$, 1000 VDCW; temp coef 0 pFW. <		19A116655P20	Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RMC Type JF Discap.
C409 C410 ISA116656P15J0 Ceramic disc: IS pP ±5%, 500 VDCW, temp coef 0 C411 ISA116656P15J0 Ceramic disc: 10 pP ±0.5 pF, 500 VDCW, temp coef 0 C412 ISA116656P15J0 Ceramic disc: 10 pF ±0.5 pF, 500 VDCW, temp coef 0 C412 ISA116655P20 Ceramic 0.15 uF ±20%, 50 VDCW, temp coef 0 C413 ISA116655P20 Ceramic 1000 pF ±10%, 1000 VDCW; sim to Erie 8121 Special. C414 ISA116655P20 Ceramic disc:: 1000 pF ±10%, 1000 VDCW; sim to Erie 8121 Special. C415 ISA116655P20 Ceramic disc:: 1000 pF ±10%, 1000 VDCW; temp coef 0 PFW. C416 ISA116656P18J0 Ceramic disc:: 1000 pF ±5%, 500 VDCW, temp coef 0 PFW. C417 ISA116656P18J0 Ceramic disc:: 1000 pF ±10%, 1000 VDCW; sim to BMC Type JF Discap. C418 ISA116655P20 Ceramic disc:: 1000 pF ±5%, 500 VDCW. C420 ISA116655P20 Ceramic disc:: 1000 pF ±10%, 500 VDCW. C422 ISA700015P13 Phenolic: 1.000 pF ±5%, 500 VDCW. C423 ISA116655P20 Ceramic disc:: 1000 pF ±10%, 1000 VDCW; temp coef 0 PFW. C424 ISA116655P20 Ceramic disc:: 1000 pF ±0.5, 500 VDCW. C425	C407	19A116244P4	Ceramic: 0.15 uF ±20%, 50 VDCW.
C411 IBA116656F10J0 Ceramic disc: 10 pF 10.5 pF, 500 VDCW, temp coef 0 pPM. C412 19A1166246P4 Ceramic disc: 1000 pF 10%, 1000 VDCW; sim to RMC Type JF Discap. C414 19A116655P20 Ceramic disc: 1000 pF 10%, 1000 VDCW; sim to RMC Type JF Discap. C414 19A116655P20 Ceramic disc: 1000 pF 10%, 1000 VDCW; sim to RMC Type JF Discap. C415 19A116655P20 Ceramic disc: 1000 pF 10%, 1000 VDCW; sim to RMC Type JF Discap. C416 19A116656P130 Ceramic disc: 1000 pF ±0.5 pF, 500 VDCW, temp coef 0 PFM. C418 19A116656P130 Ceramic disc: 1000 pF ±0.5, 500 VDCW, temp coef 0 PFM. C418 19A116656P130 Ceramic disc: 1000 pF ±0.5, 500 VDCW, temp coef 0 PFM. C418 19A116655P20 Ceramic disc: 1000 pF ±0.5, 250 VDCW. C422 19A700015P37 Teflon/Mica: 220 pF ±5%, 500 VDCW. C423 19A700013P13 Phenolic: 1.00 pF ±0.5 pF, 500 VDCW, temp coef 0 PFM. C424 19A116655P20 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RMC Type JF Discap. C425 and C426 19A116655P20 Ceramic disc: 1000 pF ±0.5 pF, 500 VDCW, temp coef 0 PFM. C428 19A116655P20 Ceramic disc: 1000 pF ±0.5 pF, 500 VDCW, temp coef 0 PFM. <	and	19A116655P20	Ceramic disc: 1000 pF $\pm 10\%$, 1000 VDCW; sim to RMC Type JF Discap.
0 PPM. 0 PPM. C412 13A116244P4 Ceramic: $0.15 ext{ } $	C410	19A116656P15J0	Ceramic disc: 15 pF ±5%, 500 VDCW, temp coef 0 PPM.
C413 19A116655P20 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to MAC Type JF Discap. C414 19A116132P1 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to Erie 8121 Special. C415 19A116655P20 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to NMC Type JF Discap. C416 19A116655P20 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to NMC Type JF Discap. C417 19A116656P18J0 Ceramic disc: 1000 pF ±5%, 500 VDCW, temp coef 0 PFM. C418 19A116656P18J0 Ceramic disc: 1000 pF ±5%, 500 VDCW, temp coef 0 PFM. C419 19A116655P20 Ceramic disc: 1000 pF ±5%, 500 VDCW. C420 19A700015P37 Teflon/Mica: 220 pF ±5%, 500 VDCW. C422 19A700015P37 Teflon/Mica: 220 pF ±0%, 500 VDCW. C423 19A700015P37 Teflon/Mica: 220 pF ±0%, 500 VDCW. C424 19A116655P710 Ceramic disc: 1000 pF ±10%, 1000 VDCW; temp coef 0 PFW. C425 19A116655P710 Ceramic disc: 1000 pF ±0%, 1000 VDCW; temp coef 0 PFW. C426 19A116655P710 Ceramic disc: 1000 pF ±0%, 1000 VDCW; temp coef 0 PFW. C427 19A116655P710 Ceramic disc: 1000 pF ±0%, 1000 VDCW; temp coef 0 PFW. C428 19A116655P100 <	C411	19A116656P10J0	Ceramic disc: 10 pF ±0.5 pF, 500 VDCW, temp coef 0 PPM.
RMC Type JF Discap. C414 19A116192P1 Coramic: 0.01 uF ±20%, 50 VDCW; sim to Erie 8121 Special. C415 19A116655P20 Coramic disc: 1000 pF ±10%, 1000 VDCW; sim to RMC Type JF Discap. C416 19A116656P13J0 Ceramic disc: 6 pF ±0.5 pF, 500 VDCW, temp coef 0 PFM. C417 19A116656P18J0 Ceramic disc: 18 pF ±5%, 500 VDCW, temp coef 0 PFM. C418 19A116656P18J0 Ceramic disc: 100 pF ±5%, 500 VDCW, temp coef 0 PFM. C419 19A116655P20 Ceramic disc: 1000 pF ±0%, 1000 VDCW; sim to RMC Type JF Discap. C421 19A100015P37 Teflon/Mica: 220 pF ±5%, 250 VDCW. C422 19A700015P37 Teflon/Mica: 220 pF ±0%, 50 VDCW. C423 19A700003P7 Polyester: 0.01 uF ±10%, 50 VDCW. C424 19A116655P7J0 Ceramic disc: 1000 pF ±0.5, pF, 500 VDCW, temp coef 0 PFW. C425 19A116655P20 Ceramic disc: 1000 pF ±0.5, no VDCW, temp coef 0 PFW. C426 19A116655P100 Ceramic disc: 100 pF ±0.5, pF, 500 VDCW, temp coef 0 PFW. C426 19A116655P20 Ceramic disc: 1000 pF ±0.5, pF, 500 VDCW, temp coef 0 PFW. C427 19A116656P10J0 Ceramic disc: 10 pF ±0.5, pF, 500 VDCW, C428<	C412	19A116244P4	Ceramic: 0.15 uF ±20%, 50 VDCW.
Special. Special. C415 19A116655P20 Ceramic disc: 1000 pP ±10%, 1000 VDCW; sim to BMC Type JP Discap. C416 19A116656P130 Ceramic disc: 6 pF ±0.5 pF, 500 VDCW, temp coef 0 pPM. C417 19A116656P18J0 Ceramic disc: 18 pF ±5%, 500 VDCW, temp coef 0 pPM. C418 19A116655P20 Ceramic disc: 1000 pF ±0%, 1000 VDCW; temp coef 0 pPM. C419 19A116655P20 Ceramic disc: 1000 pF ±0%, 1000 VDCW; sim to RMC Type JP Discap. C420 19A700015P37 Teflon/Mica: 220 pF ±5%, 500 VDCW. C423 19A700015P37 Teflon/Mica: 270 pF ±5%, 500 VDCW. C424 19A700015P37 Phenolic: 1.000 pF ±0%, 500 VDCW. C423 19A700005P7 Polyester: 0.01 uF ±10%, 500 VDCW. C424 19A116655P7.00 Ceramic disc: 1000 pF ±0%, 1000 VDCW; sim to PFW. C425 19A116655P2.01 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RMC Type JF Discap. C426 19A116655P2.01 Ceramic disc: 1000 pF ±0%, 1000 VDCW; sim to PFW. C428 19A116656P1.00 Ceramic disc: 1000 pF ±0%, 500 VDCW, temp coef 0 PFW. C429 19A116656P1.00 Ceramic disc: 10 pF ±0%, 500 VDCW, temp coef 0 PFW. C431			RMC Type JF Discap.
C416 19A116656P6J0 Ceramic disc: 6 pF ± 0.5 pF, 500 VDCW, temp coef 0 pPM. C417 19A116656P18J0 Ceramic disc: 18 pF ± 53 , 500 VDCW, temp coef 0 pPM. C418 19A116656P18J0 Ceramic disc: 18 pF ± 203 , 50 VDCW. C419 19A116656P18J0 Ceramic disc: 1000 pF ± 103 , 1000 VDCW; temp coef 0 pPM. C419 19A116655P20 Ceramic disc: 1000 pF ± 103 , 1000 VDCW; sim to RMC Type JF Discap. C420 19A700015P37 Teflon/Mica: 220 pF ± 53 , 500 VDCW. C421 19A700015P37 Teflon/Mica: 220 pF ± 53 , 500 VDCW. C422 19A700005P7 Polyester: 0.01 uF ± 103 , 500 VDCW. C423 19A116655P700 Ceramic disc: 1000 pF ± 103 , 1000 VDCW; temp coef 0 PFM. C424 19A116655P20 Ceramic disc: 1000 pF ± 103 , 1000 VDCW; temp coef 0 PFM. C425 19A116655P100 Ceramic disc: 1000 pF ± 103 , 1000 VDCW; temp coef 0 PFM. C426 19A116656P10J0 Ceramic disc: 1000 pF ± 103 , 1000 VDCW; temp coef 0 PFM. C428 19A116656P10J0 Geramic disc: 1000 pF ± 0.5 pF, 500 VDCW. C429 19A116656P10J0 Metallized teflorn: 10 pF ± 0.5 pF, 500 VDCW. C430 19A116605P10J0 M	C414	19A116192P1	Special.
0 PFM. C417 19A116656P18J0 Coramic disc: 18 pF \pm 55, 500 VDCW, temp coef 0 pPM. C418 19A116656P18J0 Ceramic disc: 1000 pF \pm 05, 50 VDCW. C419 19A116655P20 Ceramic disc: 1000 pF \pm 05, 250 VDCW. C421 19A700015P37 Teflon/Mica: 220 pF \pm 55, 250 VDCW. C422 19A700015P37 Teflon/Mica: 220 pF \pm 55, 500 VDCW. C423 19A70005P7 Polyester: 0.01 W \pm 10%, 50 VDCW. C424 19A116655P7J0 Ceramic disc: 1000 pF \pm 05, 500 VDCW. C425 19A116655P20 Ceramic disc: 1000 pF \pm 10%, 1000 VDCW; sim to RMC Type JF Discap. C426 19A116655P20 Ceramic disc: 1000 pF \pm 10%, 1000 VDCW; sim to RMC Type JF Discap. C427 19A700219P18 Ceramic disc: 1000 pF \pm 0.5 pF, 500 VDCW. C428 19A116655P20 Ceramic disc: 1007 \pm 10.5 pF, 500 VDCW, temp coef 0 PPM. C429 19A116656P10J0 Ceramic disc: 10.7 \pm 0.5 pF, 500 VDCW. C431 19A116656P10J0 Ceramic: 6.8 pF \pm 0.5 100 VDCW, temp coef 0 PPM. C432 19A116050P107 Polyester: 0.1 W \pm 10%, 50 VDCW. C433 19A116050P107 Polyester: 0.1 W \pm 10%, 50 V	C415	19A116655P20	Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RMC Type JF Discap.
C418 IBA116244P4 Ceramic: 0.15 H ±20%, 50 VDCW. C419 and C420 IBA116655P20 Ceramic: 0.100 pF ±10%, 1000 VDCW; sim to RMC Type JF Discap. C421 IBA700015P37 Teflon/Mica: 220 pF ±5%, 250 VDCW. C422 IBA700015P37 Teflon/Mica: 220 pF ±5%, 500 VDCW. C422 IBA700005P7 Polyseter: 0.01 H ± ±0%, 50 VDCW. C423 IBA700005P7 Polyseter: 0.01 H ± ±0%, 50 VDCW. C424 ISA116655P7.00 Ceramic disc: 1000 pF ±0%, 1000 VDCW; temp coef 0 PFW. C425 IBA116655P7.00 Ceramic disc: 1000 pF ±0%, 1000 VDCW; temp coef 0 PFW. C426 IBA116655P2.00 Ceramic disc: 1000 pF ±0%, 1000 VDCW; temp coef 0 PFW. C428 IBA116656P1.00 Ceramic disc: 1000 PF ±0%, 1000 VDCW; temp coef 0 PFW. C429 IBA116656P1.00 Ceramic: 1.0 pF ±0%, 500 VDCW. C429 IBA116656P1.00 Ceramic: 1.0 pF ±0%, 500 VDCW. C430 IBA11665797.00 Meta11ized teflorn: 10 pF ±0%, 500 VDCW. C431 IBA116612792 Ceramic: 6.4 p	C416	19A116656P6J0	Ceramic disc: 6 pF ±0.5 pF, 500 VDCW, temp coef O PPM.
C419 and C420 18A116655F20 Ceramic disc: 1000 pP \pm 10%, 1000 VDCW; sim to RMC Type JF Discap. C421 19A700015F37 Teflon/Mics: 220 pF \pm 5%, 250 VDCW. C422 19A700015F37 Teflon/Mics: 220 pF \pm 5%, 250 VDCW. C423 19A700015F37 Teflon/Mics: 220 pF \pm 5%, 250 VDCW. C424 19A700005F7 Polyester: 0.01 uF \pm 10%, 50 VDCW. C424 19A10605F70 Ceramic disc: 7 pF \pm 0.5 pF, 500 VDCW, temp coef 0 PFW. C425 19A116655F20 Ceramic disc: 1000 pF \pm 10%, 1000 VDCW; sim to NWC Type JF Discap. C426 19A116655F20 Ceramic disc: 1000 pF \pm 10%, 1000 VDCW; sim to NWC Type JF Discap. C427 19A700219F18 Ceramic disc: 1000 pF \pm 10%, 1000 VDCW; sim to NWC Type JF Discap. C428 19A116655F100 Ceramic disc: 100 pF \pm 0.5 pF, 500 VDCW, temp coef 0 PFW. C429 19A116656F10J0 Ceramic disc: 10 pF \pm 0.5 pF, 500 VDCW, temp coef 0 PFW. C431 19A10603F9F10D Meta111zed teflon: 10 pF \pm 0.5 pF, 500 VDCW. C432 19A116080P107 Polyester: 0.1 uF \pm 0%, 50 VDCW. C433 19A116080P107 Polyester: 0.1 uF \pm 0%, 50 VDCW. C434 549626779 Tantalum: 3.3 uF \pm	C417	19A116656P18J0	Ceramic disc: 18 pF $\pm 5\%$, 500 VDCW, temp coef 0 PPM.
and C420 RMC Type JF Discap. C421 19A700015P37 Teflon/Mica: 220 pF ±5%, 250 VDCW. C422 19A700015P37 Teflon/Mica: 220 pF ±5%, 250 VDCW. C423 19A700005P7 Polyester: 0.01 uF ±10%, 50 VDCW. C424 19A116655P70 Ceramic disc: 1000 pF ±0%, 1000 VDCW, temp coef 0 PFM. C425 19A116655P20 Ceramic disc: 1000 pF ±0%, 1000 VDCW, temp coef 0 PFM. C426 19A116655P20 Ceramic disc: 1000 pF ±0%, 1000 VDCW; sim to RWC Type JF Discap. C427 19A700219P18 Ceramic disc: 1000 pF ±0%, 1000 VDCW; sim to RWC Type JF Discap. C428 19A116656P100 Ceramic disc: 1000 pF ±0%, 500 VDCW, temp coef 0 PFM. C428 19A116656P100 Ceramic disc: 10 pF ±0.5 pF, 500 VDCW, temp coef 0 PFM. C430 19A116656P100 Metallized teflon: 10 pF ±0.5 pF, 500 VDCW, C431 19A700013P9 Phenolic: 0.47 pF ±5%, 500 VDCW, C432 19A116650P10D Wetallized teflon: 10 pF ±0.5 pF, 250 VDCW. C433 19A116080P107 Polyester: 0.1 uF ±10%, 500 VDCW. C434 5496267P9 Tantalum: 3.3 uF ±20%, 15 VDCW; sim to Sprague Type 1500. C435 19A700015P12			
C422 19A700013P13 Phenolic: 1.00 pF ±5%, 500 VDCW. C423 19A700005P7 Polyester: 0.01 uF ±0%, 50 VDCW. C424 19A116655P7J0 Ceramic disc: 7 pF ±0.5 pF, 500 VDCW, temp coef 0 PFW. C425 19A116655P20 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RMC Type JF Discap. C428 19A116655P20 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RMC Type JF Discap. C428 19A116655P20 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RMC Type JF Discap. C428 19A116655P20 Ceramic disc: 1000 pF ±0.5 pF, 500 VDCW, temp coef 0 PFM. C428 19A116656P10J0 Ceramic disc: 10 pF ±0.5 pF, 500 VDCW, temp coef 0 PFM. C430 19A116656P10J0 Ceramic: 6.8 pF ±5%, 500 VDCW, temp coef 0 PFM. C431 19A116679P10D Metallized tefion: 10 pF ±0.5 pF, 250 VDCW. C432 19A11614P22 Ceramic: 5.8 pF ±5%, 100 VDCW, temp coef 0 PFM. C433 19A116080P107 Polyester: 0.1 uF ±10%, 50 VDCW. C434 549628779 Tantalum: 3.3 uF ±20%, 15 VDCW; sim to Sprague Type 1500. C435 19A700015P12 Teflon/Mica: 22 pF ±5%, 250 VDCW. C4401 19A115250P1 Silicon, fast recovery, 228 mA, 50 PTV.	and	19A116655P20	Ceramic disc: 1000 pF $\pm 10\%$, 1000 VDCW; sim to RMC Type JF Discap.
C423 19A700005P7 Polyester: 0.01 μF ±10%, 50 VDCW. C424 19A116655P7J0 Ceramic disc: 7 pF ±0.5 pF, 500 VDCW, temp coef 0 PFM. C425 19A116655P20 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RMC Type JF Discap. C428 19A116655P20 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RMC Type JF Discap. C428 19A116655P20 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RMC Type JF Discap. C428 19A116656P10J0 Ceramic disc: 100 pF ±0.5 pF, 500 VDCW, temp coef 0 PFM. C430 19A116656P10J0 Ceramic disc: 10 PF ±0.5 pF, 500 VDCW, temp coef 0 PFM. C431 19A116679P10D Metallized tefion: 10 F ±0.5 pF, 500 VDCW. C433 19A116080P107 Polyester: 0.1 uF ±10%, 50 VDCW. C434 5496287P9 Tantalum: 3.3 uF ±20%, 15 VDCW; sim to Sprague Type 1000. C435 19A700015P12 Teflon/Mica: 22 pF ±5%, 250 VDCW. DIODES AND RECTIFIERS CR401 19A1163250P1 C4402 19A116052P1 Silicon, hot carrier: Fwd drop .350 voltg max.	C421	19A700015P37	Teflon/Mica: 220 pF ±5%, 250 VDCW.
C424 19A11665SP7J0 Ceramic disc: 7 pF ±0.5 pF, 500 VDCW, temp coef 0 pPM. C425 and C428 19A11665SP20 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sin to RMC Type JF Discap. C428 19A11665SP20 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sin to RMC Type JF Discap. C428 19A11665SP20 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sin to RMC Type JF Discap. C429 19A11665SP10J0 Ceramic disc: 10 pF ±0.5 pF, 500 VDCW, temp coef 0 PPM. C430 19A116679P10D Metallized teflon: 10 pF ±0.5 pF, 300 VDCW, temp coef 0 PPM. C431 19A700013PP Phenols: 0.47 pF ±3%, 500 VDCW, temp coef 0 PPM. C433 19A116600P107 Polyseter: 0.1 uF ±10%, 50 VDCW, C434 5496267P9 Type 1500. C435 19A700013P12 Teflon/Mica: 22 pF ±5%, 250 VDCW. C435 19A700015P12 Teflon/Mica: 22 pF ±5%, 250 VDCW. C435 19A116052P1 Silicon, fast recovery, 225 mA, 50 PTV.	C422	19 A700013 P13	Phenolic: 1.00 pF ±5%, 500 VDCW.
C425 0 PFW. C425 19A116655P20 Coramic disc: 1000 pF ±10%, 1000 VDCW; sim to NWC Type JF Discop. C426 19A700219P18 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to NWC Type JF Discop. C428 19A116655P20 Ceramic disc: 1000 pF ±0.5, 100 VDCW, temp coef 0 PFW. C429 19A116656P10J0 Ceramic disc: 10 pF ±0.5, pF, 500 VDCW, temp coef 0 PFW. C430 19A116656P10J0 Metallized tefion: 10 pF ±0.5, pF, 250 VDCW. C431 19A10603P910D Metallized tefion: 10 pF ±0.5, pF, 250 VDCW. C432 19A116080P10D Phenolic: 0.47 pF ±5%, 100 VDCW, temp coef 0 PFW. C433 19A116080P107 Polyester: 0.1 uF ±10%, 50 VDCW. C434 5486267P9 Tantalum: 3.3 uF ±20%, 15 VDCW; sim to Sprague Type 1600. C435 19A700015P12 Tefion/Mica: 22 pF ±5%, 250 VDCW. C436 19A116220P1 Silicon, fast recovery, 225 mA, 50 PIV. C437 19A116052P1 Silicon, hot carrier: Fwd drop .350 voltg max.	C423	19A700005P7	Polyester: 0.01 uF ±10%, 50 VDCW.
and C426 RMC Type JF Discap. C427 19A700219918 Ceramic: 4.7 pF ±5%, 100 VDCW, temp coef 0 PPM. C428 19A116655P20 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RWC Type JF Discap. C429 19A116656P10J0 Ceramic disc: 10 pF ±0.5 pF, 500 VDCW, temp coef 0 PPM. C430 19A116679910D Metallized teflon: 10 pF ±0.5 pF, 500 VDCW. C431 19A700013PP Phenolic: 0.47 pF ±5%, 500 VDCW. C432 19A116600P107 Polyseter: 0.1 uF ±10%, 50 VDCW. C433 19A116080P107 Polyseter: 0.1 uF ±10%, 50 VDCW. C434 549528729 Tatalum: 3.3 uF ±20%, 15 VDCW; sim to Sprague Type 1500. C435 19A700015P12 Teflon/Mica: 22 pF ±5%, 250 VDCW. DIODES AND RECTIFIERS CR401 19A1163250P1 Silicon, fast recovery, 225 mA, 50 PIV. C4302 19A116052P1 Silicon, hot carrier: Fwd drop .350 voltg max.	C424	19A116656P7J0	Ceramic disc: 7 pF ±0.5 pF, 500 VDCW, temp coef 0 PPM.
C428 19A11665SP20 Ceramic disc: 1000 pF ±10%, 1000 VDCW; sim to RMC Type JF Discap. C429 19A116656P10J0 Ceramic disc: 10 pF ±0.5 pF, 500 VDCW, temp coef 0 pPM. C430 19A1166579P10D Metallized tefion: 10 pF ±0.5 pF, 500 VDCW. C431 19A700013P0 Phenolic: 0.47 pF ±5%, 500 VDCW. C432 19A11614P22 Ceramic: 6.8 pF ±5%, 100 VDCW. C433 19A116080P107 Folyester: 0.1 uF ±10%, 50 VDCW. C434 5496267P9 Tantalum: 3.3 uF ±20%, 15 VDCW; sim to Sprague Type 150D. C435 19A700015P12 Tefion/Mica: 22 pF ±5%, 250 VDCW. DIODES AND RECTIPIERS CR401 19A1162520P1 Silicon, fast recovery, 225 mA, 50 PIV. CR402 19A116052P1 Silicon, hot carrier: Fwd drop .350 volts max.	and	19A116655P20	Ceramic disc: 1000 pF $\pm 10\%$, 1000 VDCW; sim to RMC Type JF Discap.
C429 19A116656P10J0 Ceramic disc: 10 pF ±0.5 pF, 500 VDCW, temp coef 0 PPM. C430 19A116650P10D Metallized teflon: 10 pF ±0.5 pF, 530 VDCW. C431 19A700013P9 Phenolic: 0.47 pF ±5%, 500 VDCW. C432 19A11614P22 Ceramic: 6.8 pF ±5%, 100 VDCW, temp coef 0 PPM. C433 19A116080P107 Poipester: 0.1 uF ±10%, 50 VDCW. C434 5496267P9 Tantalum: 3.3 uF ±20%, 15 VDCW; sim to Sprague Type 150D. C435 19A700015P12 Teflon/Mica: 22 pF ±5%, 250 VDCW. C4401 19A115250P1 Silicon, fast recovery, 225 mA, 50 PIV. C4402 19A116052P1 Silicon, hot carrier: Fwd drop .350 volts max.	C427	19A700219P18	Ceramic: 4.7 pF ±5%, 100 VDCW, temp coef 0 PPM.
0 PPM. 0 PPM. C430 19A116679P10D Metallized teflon: 10 pF to.5 pF, 250 VDCW. C431 19A700013P0 Phenolic: 0.47 pF to.5, son VDCW. C432 19A11614P2 Coramic: 6.8 pF to.5, 100 VDCW, temp coef 0 PPM. C433 19A116080P107 Folyester: 0.1 uF th0%, 50 VDCW. C434 5496267P9 Tantalum: 3.3 uF to0%, 15 VDCW; sim to Sprague Type 150D. C435 19A700015P12 Teflon/Mica: 22 pF to%, 250 VDCW. C436 19A116250P1 Silicon, fast recovery, 225 mA, 50 PIV. CR401 19A116052P1 Silicon, hot carrier: Fwd drop .350 volts max.	C428	19A116655P20	Ceramic disc: 1000 pF \pm 10%, 1000 VDCW; sim to RMC Type JF Discap.
C431 19A700013P9 Phenolic: 0.47 PF ±5%, 500 VDCW. C432 19A116114P22 Ceramic: 6.8 pF ±5%, 100 VDCW, temp coef 0 PPM. C433 19A116080P107 Polyester: 0.1 uF ±10%, 50 VDCW. C434 5496267P9 Tantalum: 3.3 uF ±20%, 15 VDCW; sim to Sprague Type 1000. C435 19A700015P12 Teflon/Mica: 22 pF ±5%, 250 VDCW. CR401 19A115250P1 Silicon, fast recovery, 225 mA, 50 PIV. CR402 19A116052P1 Silicon, hot catrier: Fwd drop .350 voltg max.	C429	19A116656P10J0	Ceramic disc: 10 pF \pm 0.5 pF, 500 VDCW, temp coef 0 PPM.
C432 19A116114P22 Coramic: 6.8 pF ±5%, 100 VDCW, temp coef 0 PPM. C433 19A116080P107 Polyester: 0.1 uF ±10%, 50 VDCW. C434 5496267P9 Tantalum: 3.3 uF ±20%, 15 VDCW; sim to Sprague Type 1600. C435 19A700015P12 Teflon/Mica: 22 pF ±5%, 250 VDCW. C4301 19A115250P1 Silicon, fast recovery, 225 mA, 50 PIV. C4302 19A116052P1 Silicon, hot carrier: Fwd drop .350 volts max.	C430	19A116679P10D	Metallized teflon: 10 pF ± 0.5 pF, 250 VDCW.
C433 19A116080P107 Polyester: 0.1 uP ±10%, 50 VDCW. C434 5495287P9 Tantalum: 3.3 uF ±20%, 15 VDCW; sim to Sprague Type 150D. C435 19A700015P12 Teflon/Mica: 22 pF ±5%, 250 VDCW. DIODES AND RECTIFIERS CR401 19A115250P1 Silicon, fast recovery, 225 mA, 50 PIV. CR402 19A116052P1 Silicon, hot carrier: Fwd drop .350 volts max.	C431	19 A 700013P9	Phenolic: 0.47 pF ±5%, 500 VDCW.
C434 5495287P9 Tantalum: 3.3 uF ±20%, 15 VDCW; sim to Sprague Type 150D. C435 19A700015P12 Teflon/Mica: 22 pF ±5%, 250 VDCW. DIODES AND RECTIFIERS - CR401 19A115250P1 Silicon, fast recovery, 225 mA, 50 PIV. CR402 19A116052P1 Silicon, hot carrier: Fwd drop .350 volts max.	C432	19A116114P22	Ceramic: 6.8 pF ±5%, 100 VDCW, temp coef 0 PPM.
Type 160D. C435 19A700015P12 Teflon/Mica: 22 pF ±5%, 250 VDCW. DIODES AND RECTIFIERS CR401 19A115250P1 Silicon, fast recovery, 225 mA, 50 PIV. CR402 19A116052P1 Silicon, hot carrier: Fwd drop .350 volts max.	C433	19A116080P107	Polyester: 0.1 uF ±10%, 50 VDCW.
CR401 19A115250P1 Silicon, fast recovery, 225 mA, 50 PIV. CR402 19A116052P1 Silicon, hot carrier: Fwd drop .350 volts max.	C434	549626799	Tantalum: 3.3 uF <u>+</u> 20%, 15 VDCW; sim to Sprague Type 150D.
CR401 19A115250P1 Silicon, fast recovery, 225 mA, 50 PIV. CR402 19A116052P1 Silicon, hot carrier: Fwd drop .350 volts max.	C435	19 A700 015P12	Teflon/Mica: 22 pF ±5%, 250 VDCW.
CR402 19A116052P1 Silicon, hot carrier: Fwd drop .350 volts max.			DIODES AND RECTIFIERS
and			
	and	19411605221	Silicon, hot carrier: Fwd drop .350 volts max.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

SYMBOL	GE PART NO.	DESCRIPTION
L401	19C307169P201	Coil, RF: variable, wire size No. 20 AWG; sim. to Paul Smith Co. Sample No. 091774-WS-1.
L402	19A700024P20	Coil, RF: 3.9 uH ±10%.
L403	19C307169P204	Coil, RF: variable, wire size No. 20 AWG; sim. to Paul Smith Co. Sample No. 100374-DS-8.
and L404		Paul Smith Co, Sample No. 100374-DS-8.
L405	19A700024P20	Coil, RF: 3.9 uH <u>+</u> 10%.
L406	19A700000P17	Coil, RF: 3.3 uH <u>+</u> 10%; sim to Jeffers 4421-1K.
L407	19A130650P1	Coil.
		PLUGS
P401		(Part of W401).
P402		(Part of #402).
P903		Connector. Includes:
	19B219594P1	Contact, electrical: 7 pins.
	198219594P2	Contact, electrical: 8 pins.
		TRANSISTORS
Q401	19A115440P1	Silicon, NPN.
Q402	19A116201P1	Silicon, NPN.
thru Q404		
Q405	19A134237P1	Silicon, NPN.
		RESISTORS
R401	19A700106P57	Composition: 560 ohms ±5%, 1/4 w.
R402	19A700106P87	Composition: 10K ohms $\pm 5\%$, 1/4 w.
R403	19A700106P31	Composition: 47 ohms ±5%, 1/4 w.
R404	19A700106P39	Composition: 100 ohms $\pm 5\%$, 1/4 w.
R405	19 47 00106P73	Composition: 2.7K chars ±5%, 1/4 w.
R406	19A700106P31	Composition: 47 ohms ±5%, 1/4 w.
R407	19A700106P63	Composition: 1K ohms ±5%, 1/4 w.
R408	19A700106P39	Composition: 100 ohms ±5%, 1/4 w.
R409 and	19A700106P31	Composition: 47 chms ±5%, 1/4 w.
R410		
R411	19A700106P63	Composition: 1K ohms ±5%, 1/4 w.
R412	19A700106P39	Composition: 100 ohms ±5%, 1/4 w.
R413	19A700106P73	Composition: 2.7K ohms ±5%, 1/4 w.
R414	19A700106P63	Composition: 1K ohms ±5%, 1/4 w.
R415	19A700106P31	Composition: 47 ohms $\pm 5\%$, 1/4 w.
R415	19A700106P39	Composition: 100 ohms ±5%, 1/4 w.
R417	19A700106P23	Composition: 22 ohms ±5%, 1/4 w.
R418	19A700106P63	Composition: 1K ohms ±5%, 1/4 w.
R419	19A700106P31	Composition: 47 ohms ±5%, 1/4 w.
and R420		
R421	194700106P71	Composition: 2.2K ohms ±5%, 1/4 w.
R422	19A700106P87	Composition: 10K ohms ±5%, 1/4 w.
R423	19A700106P77	Composition: 3.9K ohms ±5%, 1/4 w.
and R424		
R425 and R426	194700106987	Composition: 10% ohms $\pm 5\%$, 1/4 w.
₩401	19A134357P2	Cable assembly, RF.
¥402	19412994766	Cable: approx 8-1/2 inches long.
1402	19817994100	Caule. approx 5-1/2 inches long.
	1	

PARTS LIST

SYMBOL	ge part no.	DESCRIPTION
		SOCKETS
XY401	19A116779P6	Contact, electrical: sim to Molex 08-50-0410. (Quantity 8).
		OSCILLATORS
		NOTS: When reordering specify ICOM Frequency.
		ICOM FREQ. = Operating Frequency ~45 48
¥401	19A136999G2	Internally Compensated: <u>†</u> 1 PPM, 806-825 MHz.
Z401 and Z402	19D413078G8	Helical Resonator.
		MISCELLANEOUS
	4035306P11	Washer, fiber: 1/8 dia. (Used with Q401-Q405).
	19A127060P2	Can. (Used with 2401, 2402).
	19A701544P7	Can. (Used with L504-L403).
	19A701332P4	Insulator, washer: nylon. (Used with Q405).

LBI-30466

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 the descriptions of parts affected by these revisions.

REV. A - <u>OSCILLATOR/MULTIPLIER BOARD 19D423194G1</u> To allow use of new oscillator design. Added H4, H5, and H6. REV. B - OSCILLATOR/MULTIPLIER BOARD 19D423194G1 To reduce possible receiver spurs. Added connection from XY401-3 to XY401-4.

LBI-30466

This page intentionally left blank

LBI-30466