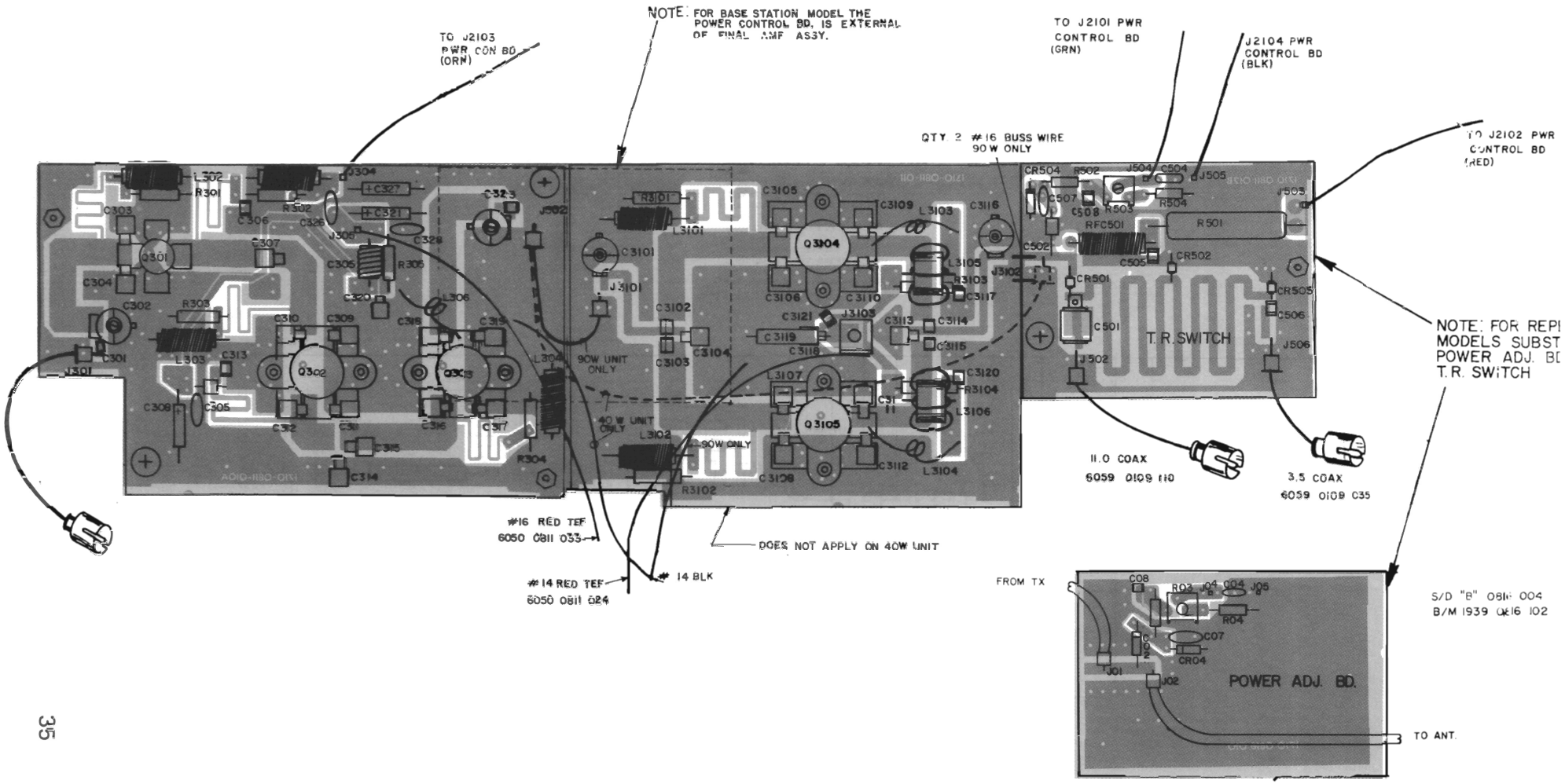
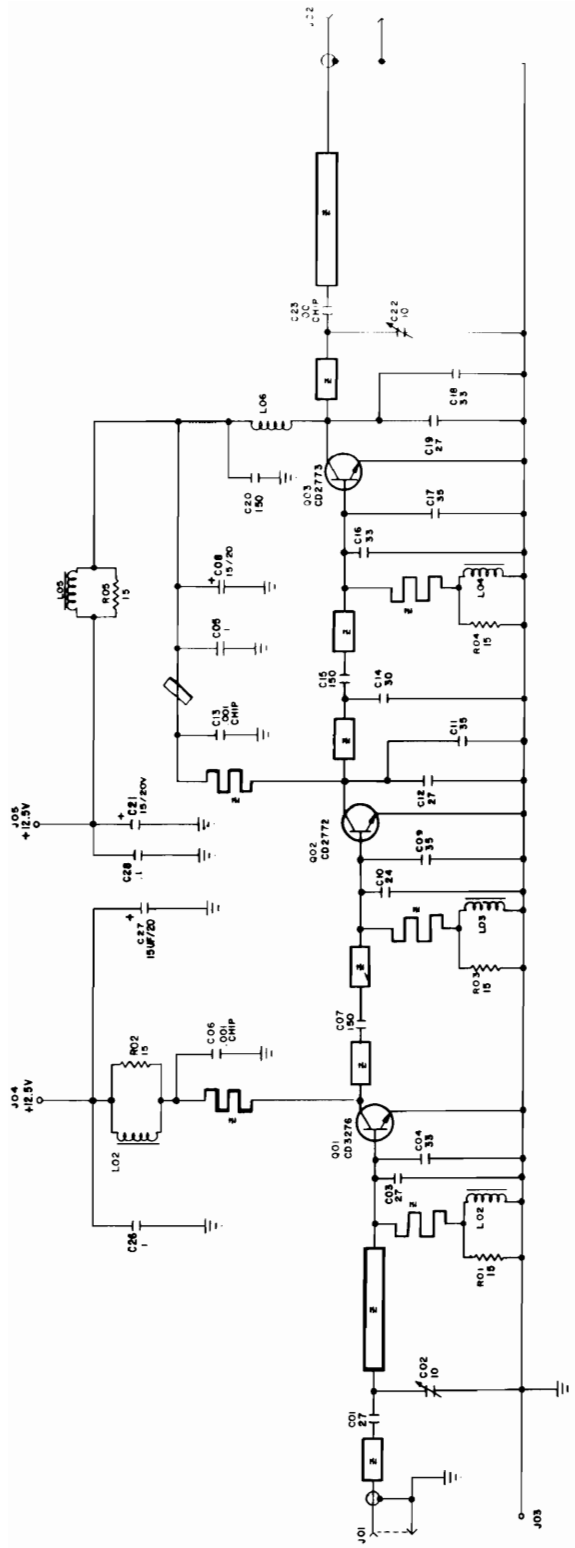
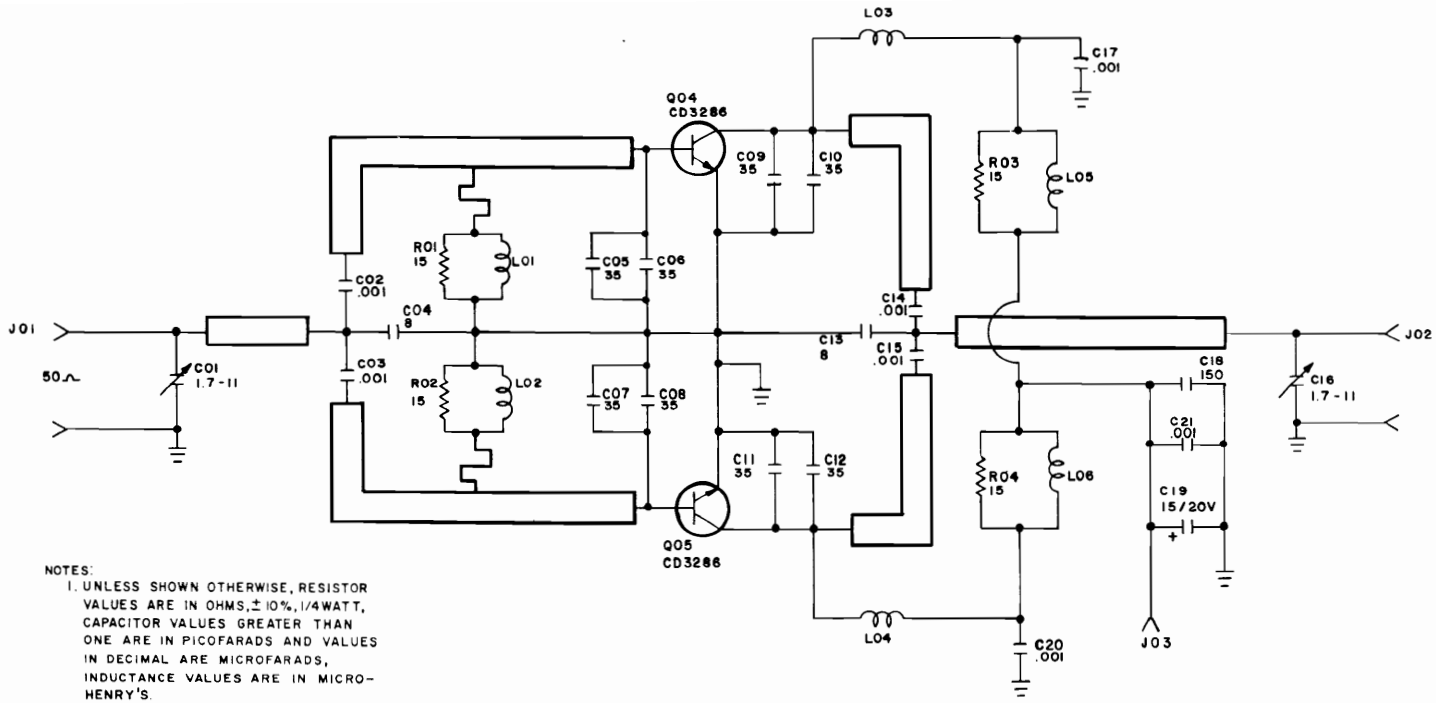


80RT40/80RT90 FINAL AMPLIFIER MODULE PARTS LOCATION



NOTES
1. UNLESS SHOWN OTHERWISE, RESISTOR VALUES ARE IN OHMS, ±10%, 1/4WATT, CAPACITOR VALUES GREATER THAN ONE ARE IN PICOFARADS AND VALUES IN DECIMAL ARE MICROFARADS, INDUCTANCE VALUES ARE IN MICRO-HENRY'S.
2. FOR COMPLETE RADIO COMPONENT REFERENCE DESIGNATION, PRECEDE NUMBERS WITH R30-.
3. R = DISTRIBUTED COMPONENT, TRANSMISSION LINE, RFC, OR CAPACITOR.

80RT40 FINAL AMPLIFIER SCHEMATIC

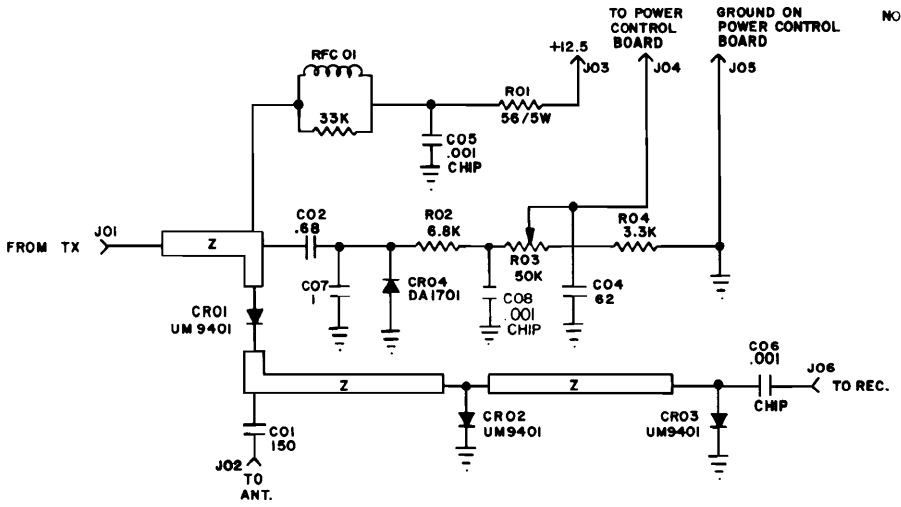


NOTES:
1. UNLESS SHOWN OTHERWISE, RESISTOR VALUES ARE IN OHMS, ± 10%, 1/4 WATT, CAPACITOR VALUES GREATER THAN ONE ARE IN PICOFARADS AND VALUES IN DECIMAL ARE MICROFARADS, INDUCTANCE VALUES ARE IN MICRO-HENRY'S.
2. FOR COMPLETE RADIO COMPONENT REFERENCE DESIGNATION, PRECEDE NUMBERS WITH 31 , e.g. R39 BECOMES R3139.

80RT90 FINAL AMPLIFIER SCHEMATIC

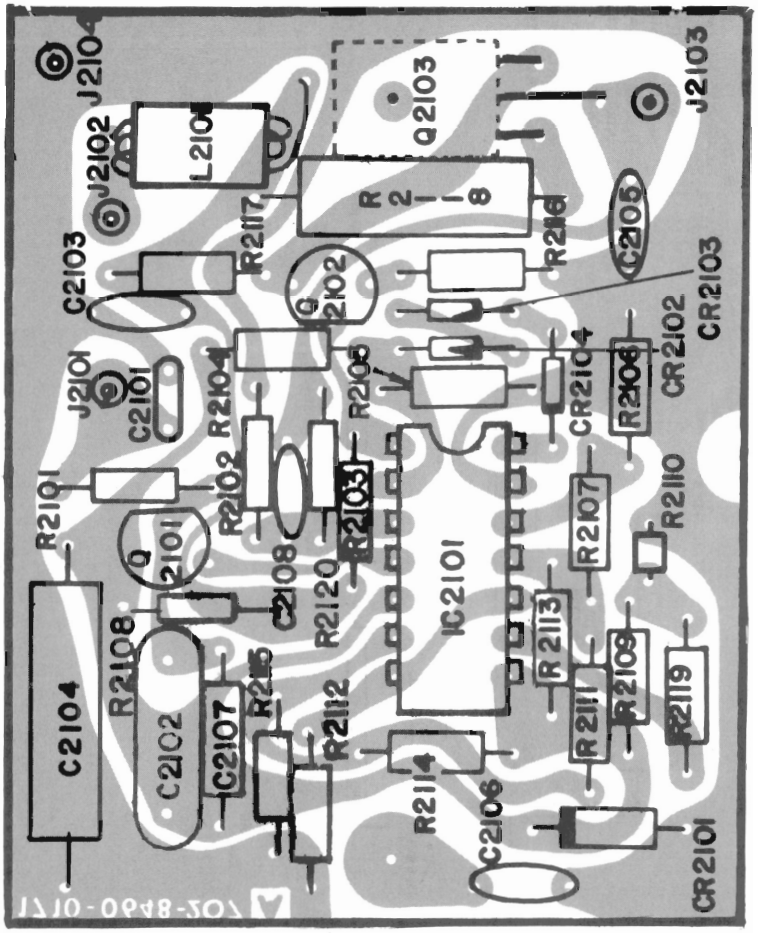
PARTS LIST

Item	Description	Part No
	T/R SWITCH **To order complete board assembly, use part number 1939-0811-105**	
C1	Capacitor, unelco minicap 150pf	1540-1503-002
C2	Capacitor, comp., 68pf	1525-6800-001
C3	Capacitor, chip., .001uf	1513-1004-009
C4	Capacitor, S.M. 62pf min	1513-6202-006
C5	Capacitor, chip .001uf	1513-1004-009
C6		
C7	Capacitor, disc. 1.0pf	1501-1001-001
R1	Resistor, 56 ohm, 5W	4714-5602-001
R2	Resistor, 6.8K	4704-6804-001
R3	Potentiometer, 50K	4735-5005-005
R4	Resistor, 3.3K	4704-3304-001
CR1 thru CR3	Diode, pin UM9401	4805-0000-003
CR4	Diode, 1N4148 or equiv.	4803-0000-004
RFC1	Choke, R.F. parasitic	1820-0811-021

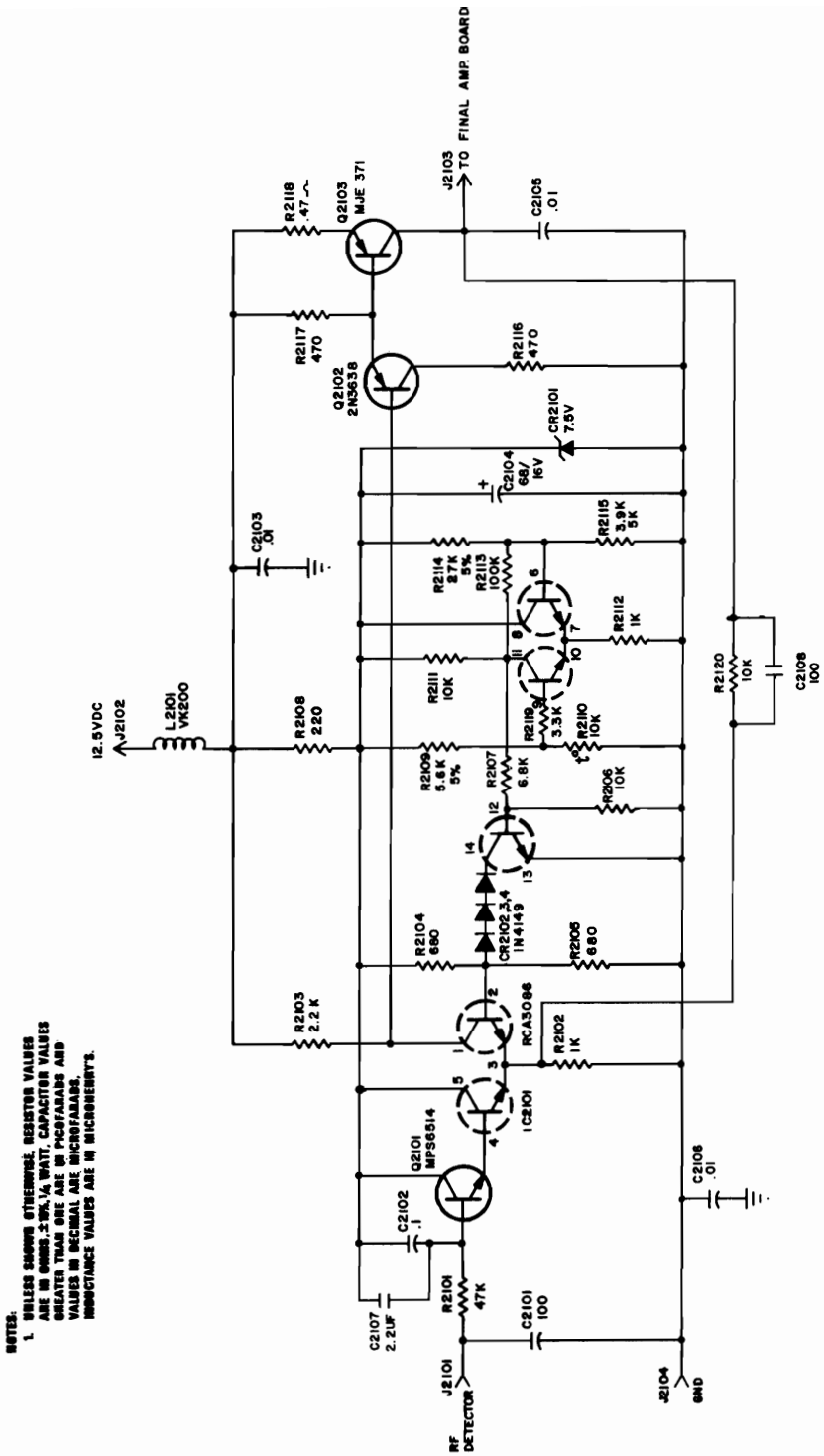


NOTES:
1. UNLESS SHOWN OTHERWISE, RESISTOR VALUES ARE IN OHMS, ± 10%, 1/4 WATT, CAPACITOR VALUES GREATER THAN ONE ARE IN PICOFARADS AND VALUES IN DECIMAL ARE MICROFARADS, INDUCTANCE VALUES ARE IN MICRO-HENRY'S.
2. FOR COMPLETE RADIO COMPONENT REFERENCE DESIGNATION, PRECEDE NUMBERS WITH 5 , e.g., R39 BECOMES R539 .

T/R SWITCH SCHEMATIC



POWER CONTROL MODULE PARTS LOCATION



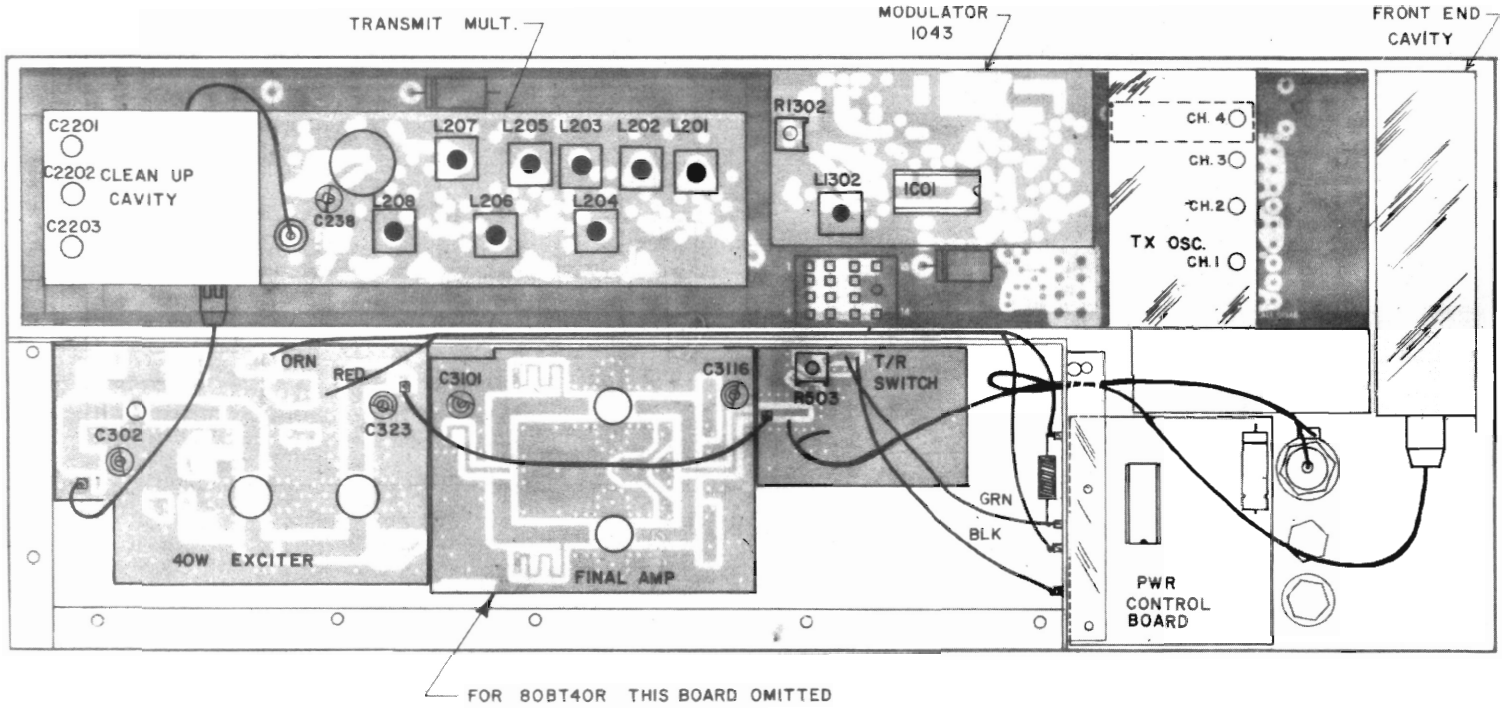
POWER CONTROL BOARD SCHEMATIC

PARTS LIST

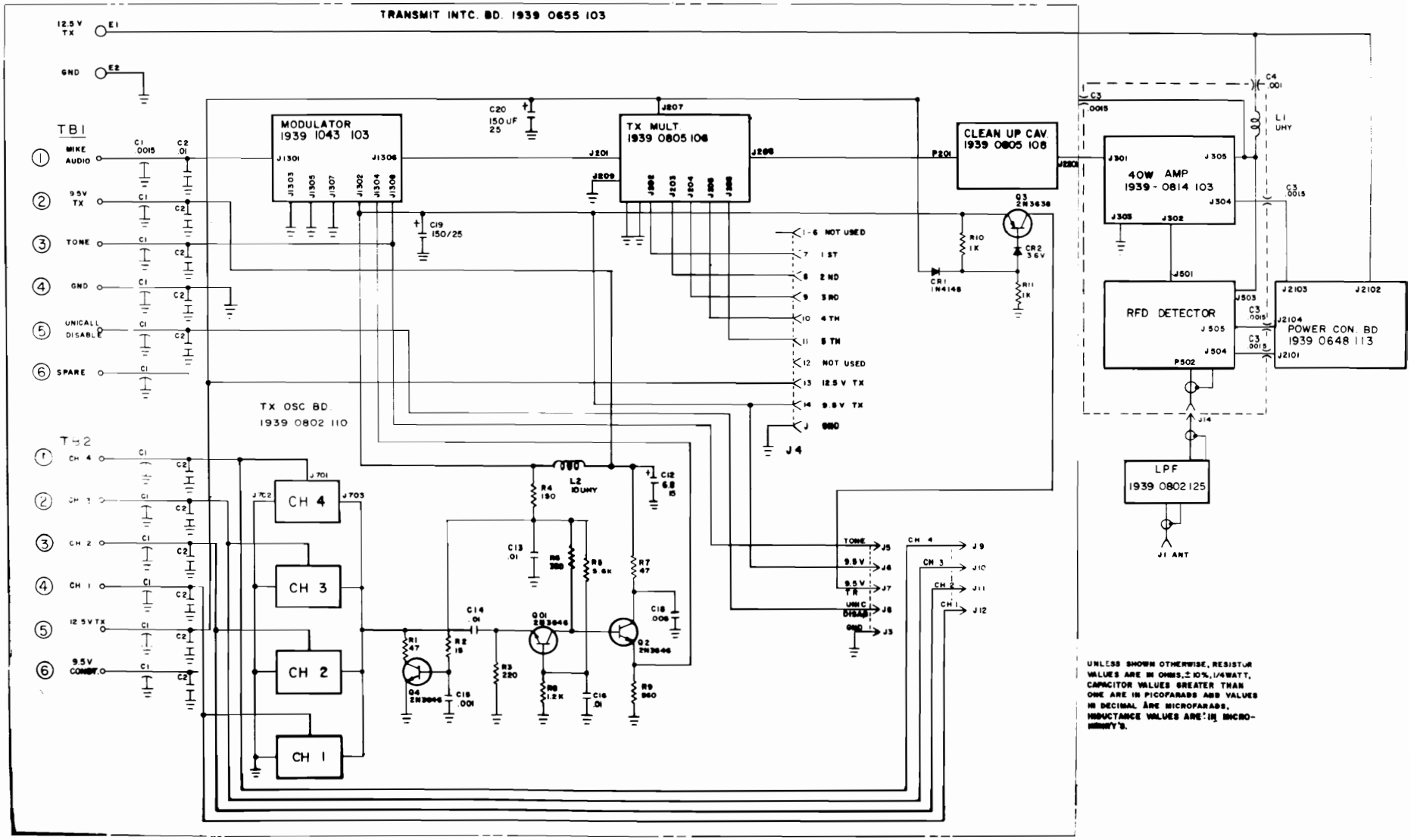
Item	Description	Part No
	POWER CONTROL BOARD **To order complete board assembly, use part number 1838-0048-129**	
C2101	Capacitor, S.M. (mini) 100pf	1513-1003-008
C2102	Capacitor, F.F. .1uf	1529-1008-001
C2103	Capacitor, Disc. .01	1502-1005-004
C2104	Capacitor, Elect. 68/16V	1518-6808-018
C2105	Capacitor, Disc. .01	1502-1005-004
C2106		
C2107	Capacitor, Tan. 2.2uf	1532-2207-015
C2108	Capacitor, Disc. cer. 100pf.	1502-1003-001
L2101	RF Choke VK-200	1827-0000-002
Q2101	Transistor, MPS6514	4811-0000-012
Q2102	Transistor, MPS3638	4810-0000-018
Q2103	Transistor, MJE371	4811-0000-031
R2101	Resistor, 47K	4704-4705-001
R2102	Resistor, 1K	4704-1004-001
R2103	Resistor, 2.2K	4704-2204-001
R2104	Resistor, 680 ohm	4704-6803-001
R2105		
R2106	Resistor, 10K	4704-1005-001
R2107	Resistor, 6.8K	4704-6804-001
R2108	Resistor, 220	4704-2203-001
R2109	Resistor, 5.6K ¼W, ± 5%	4704-5604-002
R2111	Resistor, 10K	4704-1005-001
R2112	Resistor, 1K	4704-1004-001
R2113	Resistor, 100K	4704-1006-001
R2114	Resistor, 27K, ¼W, ± 5%	4704-2705-001
R2115	Resistor, 3.9K, ¼W, ± 5%	4704-3904-002
R2116	Resistor, 470 ohm	4704-4703-001
R2117		
R2118	Resistor, 47 ohm 2W, ± 10%	4713-4700-001
R2119	Resistor, 3.3K	4704-3304-001
R2120	Resistor, 10K	4704-1005-001
CR2102 thru CR2104	Diode, silicon 1N4149	4803-0000-027
IC2101	Integraged CKT RCA3086	4850-0000-010

PARTS LIST

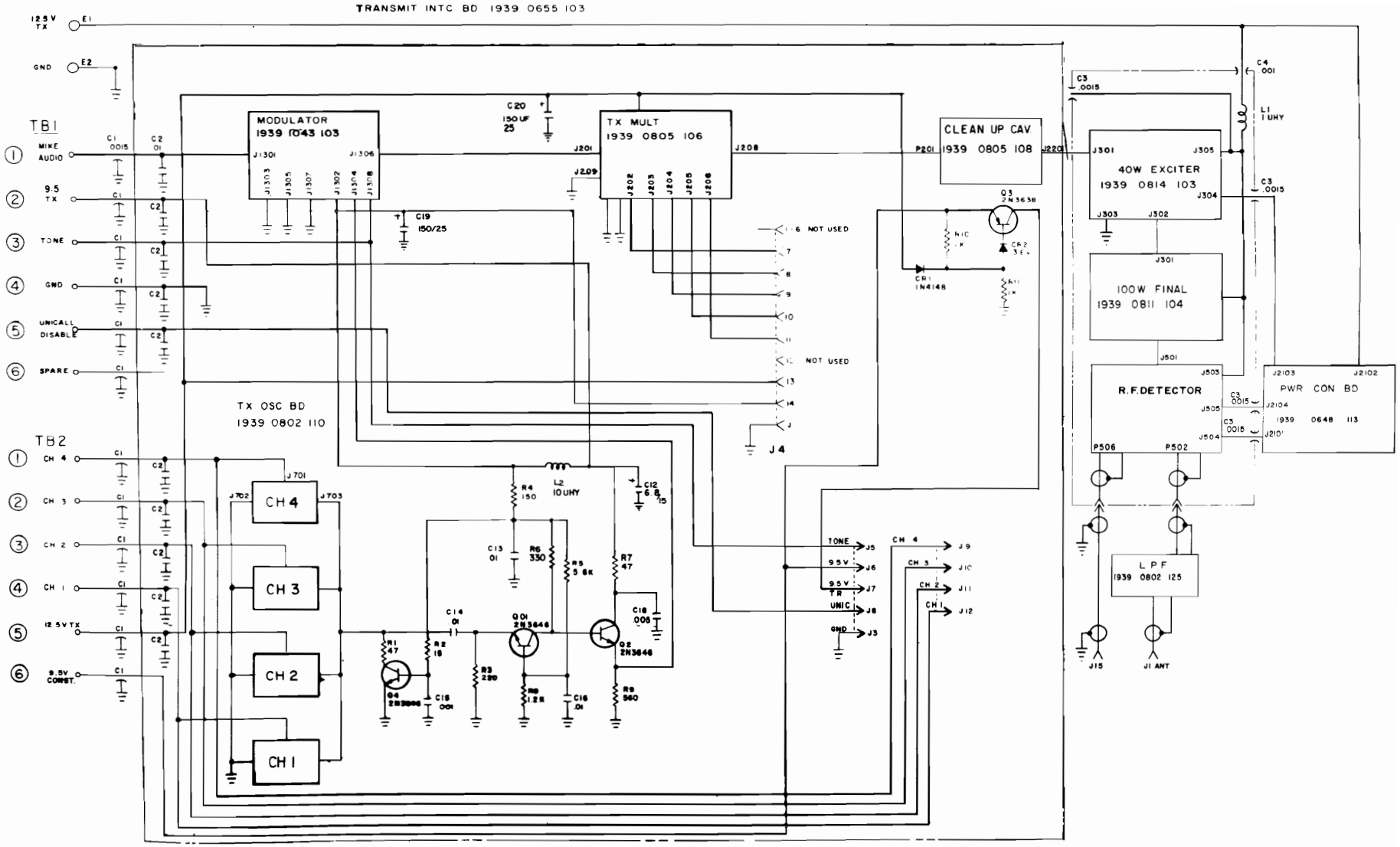
Item	Description	Part No
	A MASTER To order complete board assembly, use part number 1939-0810-101	
	Mounting tabs	1404-0654-033
	Plate trim	1404-0654-038
	Oscillator cover	1412-0654-034
	Final cover	1412-0810-020
	Choke, 1 UHY	1810-0642-335
	Modulator assembly	1939-0643-106
	Power control board	1939-0648-113
	Master interconnect assembly	1939-0655-103
	Feed through plate assembly	1939-0655-107
*Note 3	Transmit oscillator	1939-0802-110
	Low pass filter assembly	1939-0802-125
	Transmit multiplier assembly	1939-0805-106
	Clean up filter assembly	1939-0805-108
	Oscillator insulator	3107-0654-026
*	1 per channel, specify frequency	



80BT40/90R MODULE PARTS LOCATION



80BT40R SCHEMATIC



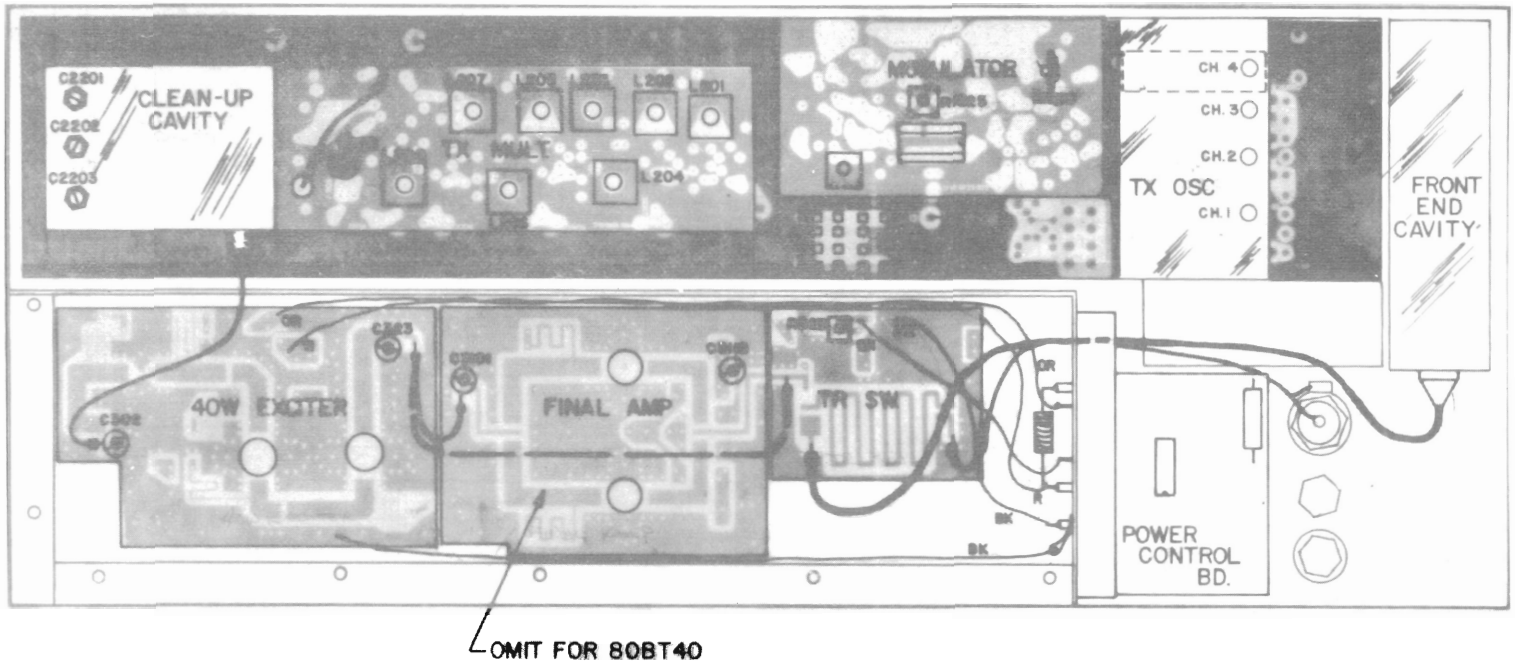
80BT90R SCHEMATIC

PARTS LIST

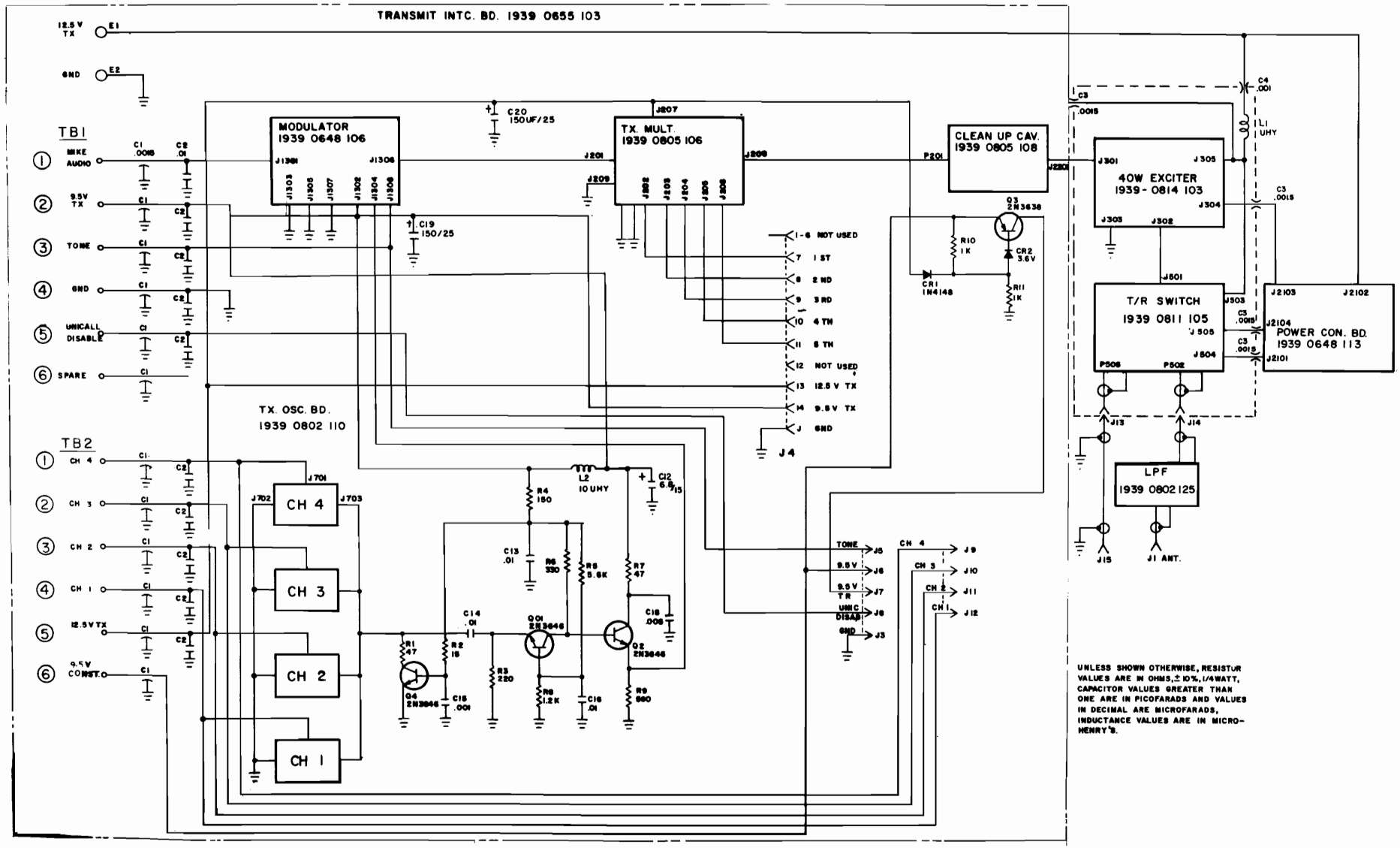
Item	Description	Part No
	D MODULATOR, REPEATER To order complete board assembly, use part number 1939-1043-103	
C1307	Capacitor .01uf	1529-1005-001
C1308	Capacitor 2.2uf 15V	1532-2207-026
C1309		
C1310	Capacitor .01uf	1529-1005-001
C1311	Capacitor .047uf 50V 5%	1537-4705-001
C1312	Capacitor 0.1uf 50V 5%	1537-1006-001
C1313	Capacitor 820pf 5%	1513-8203-001
C1314	Capacitor .047uf 50V 5%	1537-4705-001
C1315	Capacitor 6.8uf NP	1536-6807-015
C1316	Capacitor .001	1506-1004-001
C1317		
C1318	Capacitor 47pf 5%	1513-4702-001
C1319	Capacitor .005	1510-5004-001
C1320		
C1321	Capacitor .01 Stable	1526-1005-001
C1322	Capacitor 62pf	1513-6202-001
C1323	Capacitor .001	1506-1004-001
C1324	Capacitor 33uf 10V	1532-3308-010
C1325	Capacitor 33pf	1513-3302-001
C1326	Capacitor .01uf	1529-1005-001
C1327	Capacitor .005	1510-5004-001
C1328	Capacitor 22pf	1513-2202-001
C1329	Capacitor .005	1510-5004-001
C1330		
C1331	Capacitor 6.8pf s/m 5%	1513-6801-005
C1332	Capacitor 27pf	1513-2702-001
C1333	Capacitor .005	1510-5004-001
C1335	Capacitor .0015	1510-1504-003
C1336	Capacitor 47pf 5%	1513-4702-001
L1302	Coil	1805-0645-073
Q1307 thru Q1311	Transistor 2N3646	4811-0000-041
R1304	Resistor 3.3K	4704-3304-001
R1305	Resistor 33K	4704-3305-001
R1306	Resistor 4.7K	4704-4704-001
R1307	Resistor 68K	4704-6805-001
R1308	Resistor 4.7K	4704-4704-001
R1309	Resistor 15K	4704-1505-001
R1310	Resistor 10K ¼W 5%	4704-1005-002
R1311		
R1312	Resistor 68K	4704-6805-001
R1313	Resistor 1.6K ¼W 5%	4704-1604-002
R1314	Resistor 1K ¼W 5%	4704-1004-002
R1315	Resistor 16K ¼W 5%	4704-1605-002
R1316	Resistor 3.9K ¼W 5%	4704-3904-002
R1317	Resistor 2.7K	4704-2704-001
R1318	Resistor 10K ¼W 5%	4704-1005-002
R1319		
R1320	Potentiometer 5K	4735-5004-003

PARTS LIST

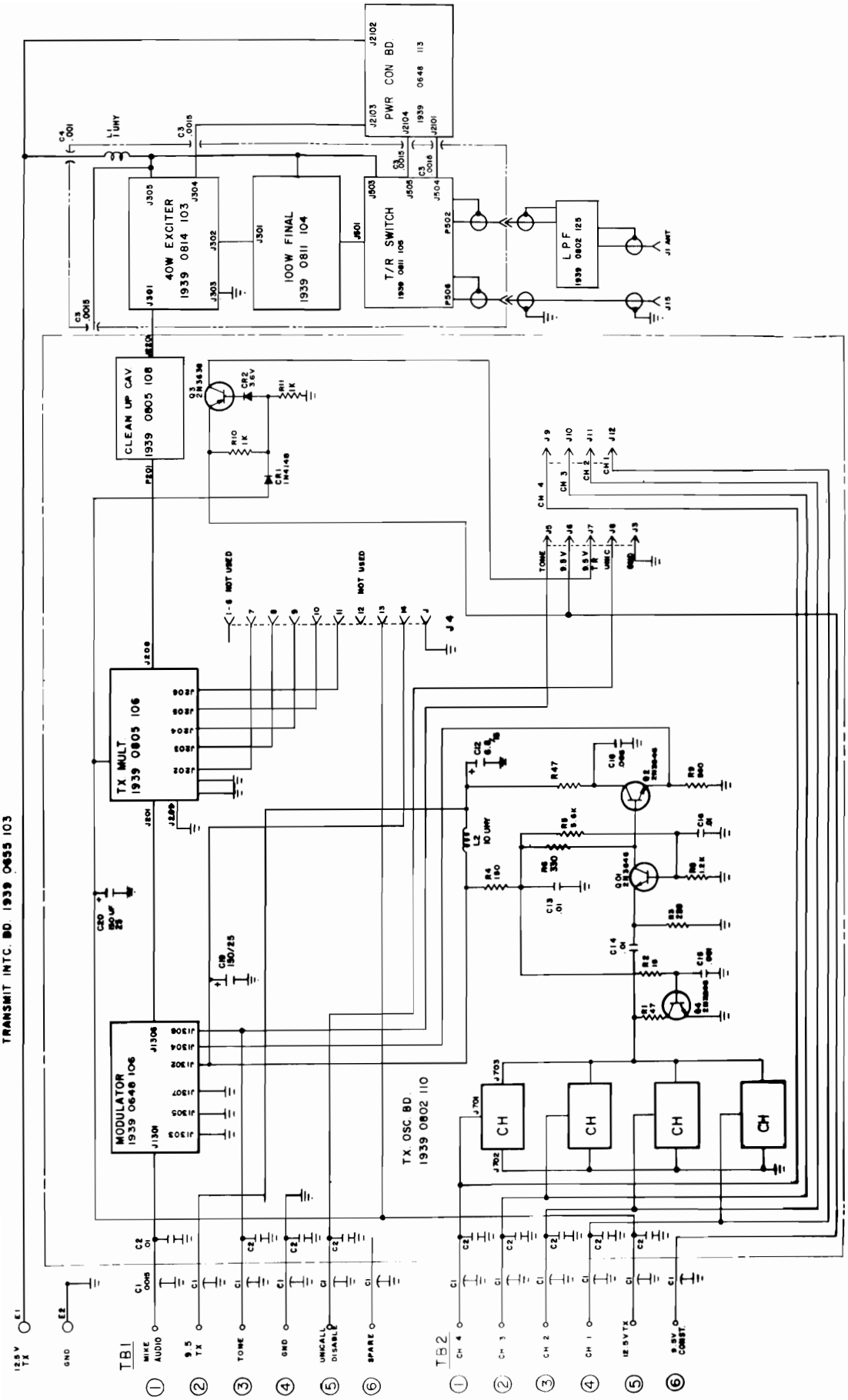
Item	Description	Part No
R1321	Resistor 22K	4704 2205 001
R1322	Resistor 10K ¼W 5%	4704 1005 002
thru R1325		
R1326	Resistor 2.2K	4704 2204 001
R1327	Resistor 10K ¼W 5%	4704 1005 002
R1328	Resistor 680 ohm	4704 6803 001
R1329	Resistor 100 ohm	4704 1003 001
R1330	Resistor 10K ¼W 5%	4704 1005 002
R1331	Resistor 100 ohm	4704 1003 001
R1332	Resistor 2.2K	4704 2204 001
R1333	Resistor 1K ¼W 5%	4704 1004 002
R1334	Resistor 100 ohm	4704 1003 001
R1335		
R1336	Resistor 2.2K	4704 2204 001
R1337	Resistor 1K ¼W 5%	4704 1004 002
R1338		
R1339	Resistor 2.2K	4704 2204 001
R1340	Resistor 47 ohm	4704 4702 001
R1341	Resistor 470 ohm	4704 4703 001
R1342	Resistor 220 ohm	4704 2203 001
R1343	Resistor 100 ohm	4704 1003 001
R1344	Resistor 5.6K	4704 5604 001
R1345	Resistor 1K ¼W 5%	4704 1004 002
R1346	Resistor 100 ohm	4704 1003 001
R1347	Resistor 1.5K	4704 1504 001
R1349	Resistor 1K ¼W 5%	4704 1004 002
CR1302	Diode MSD6150	4803 0645 077
CR1303	Diode MBD101	4806 0645 075
CR1304	Diode 1N4149	4803 0000 027
CR1305		
IC1301	Socket IC14 Pin	2136 0000 002
IC1301	IC MC1733CL	4850 0645 074



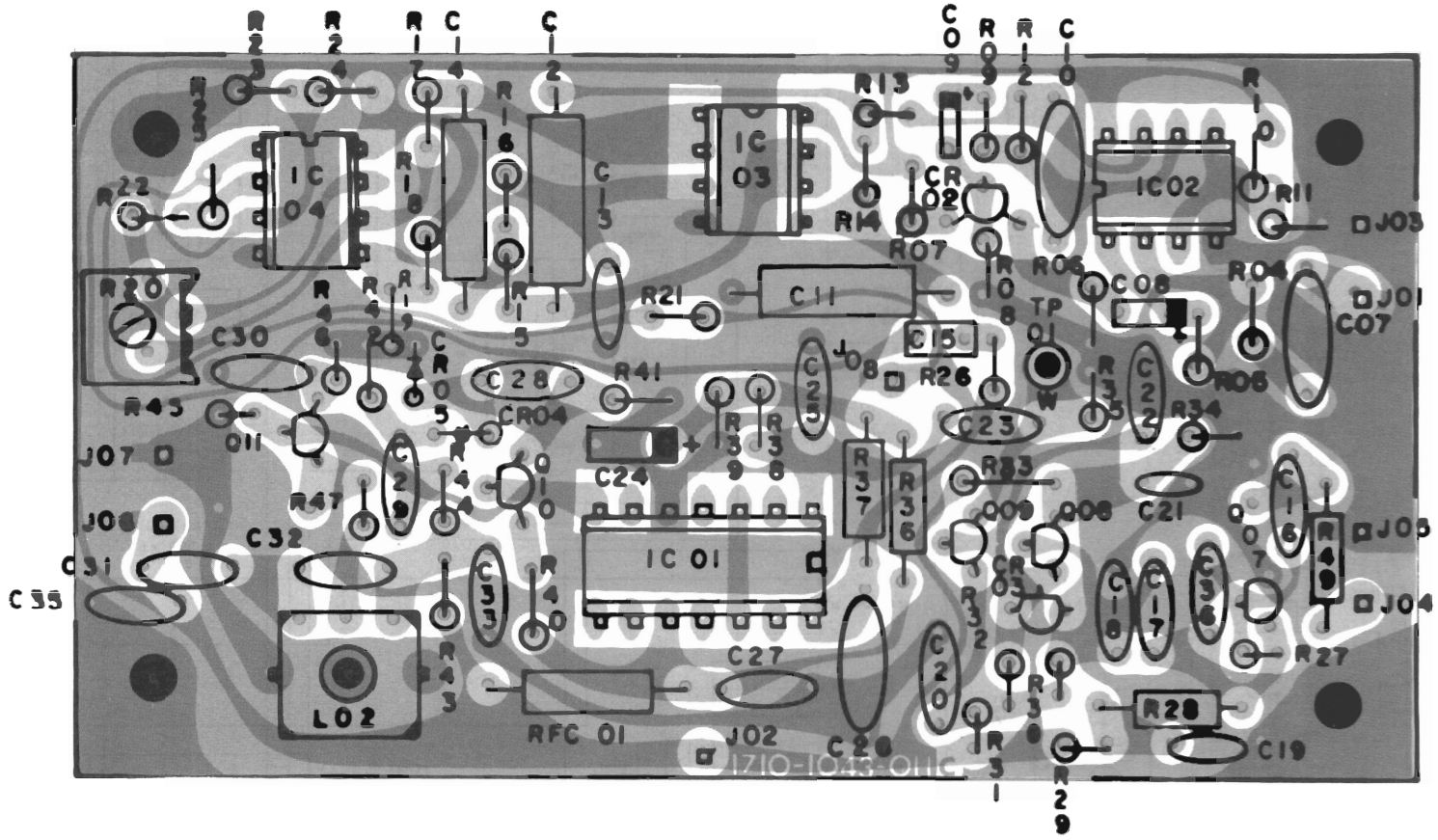
80BT40/90 MODULE PARTS LOCATION



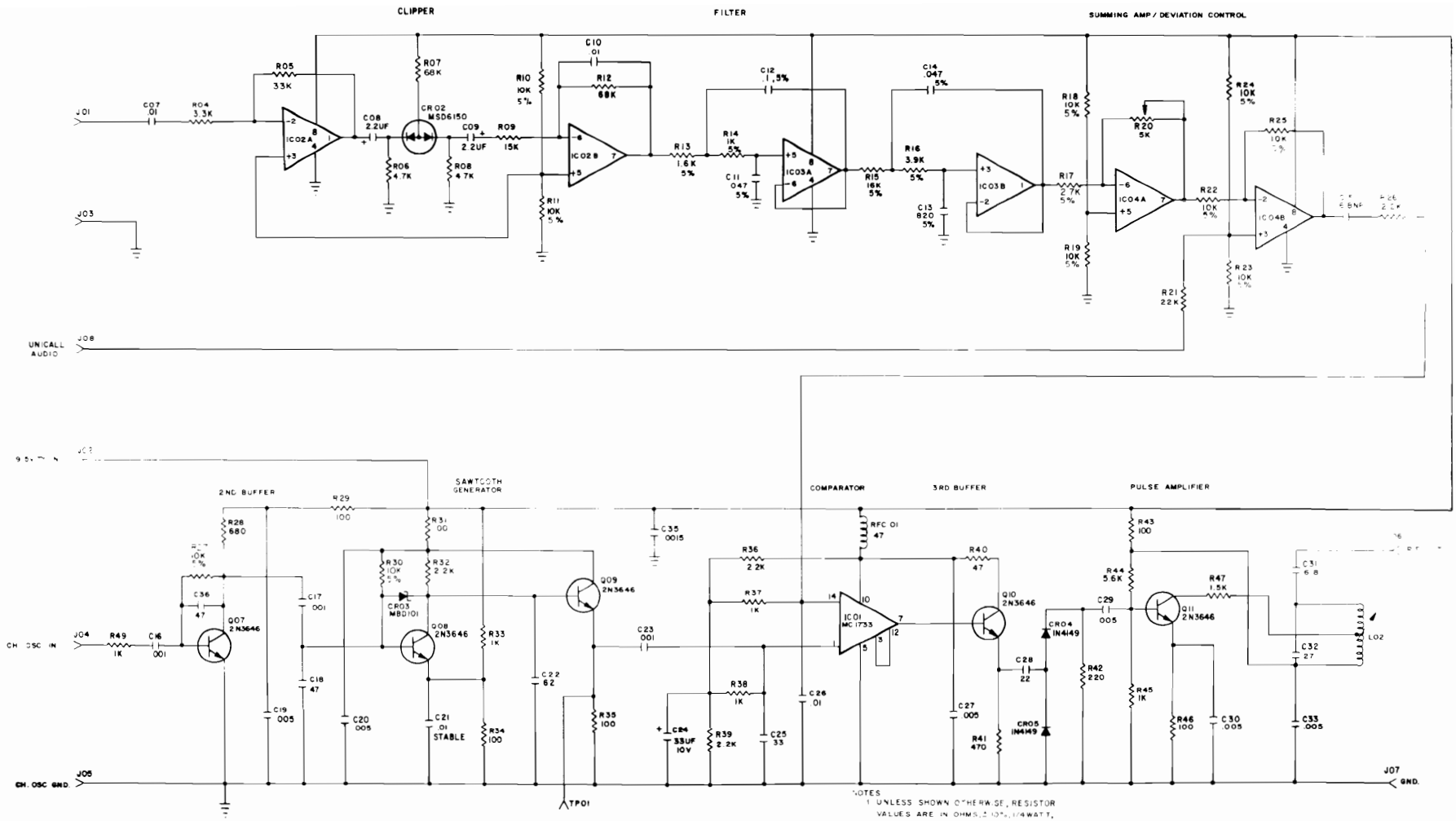
80BT40 SCHEMATIC



80BT90 SCHEMATIC



REPEATER MODULATOR MODULE PARTS LOCATION



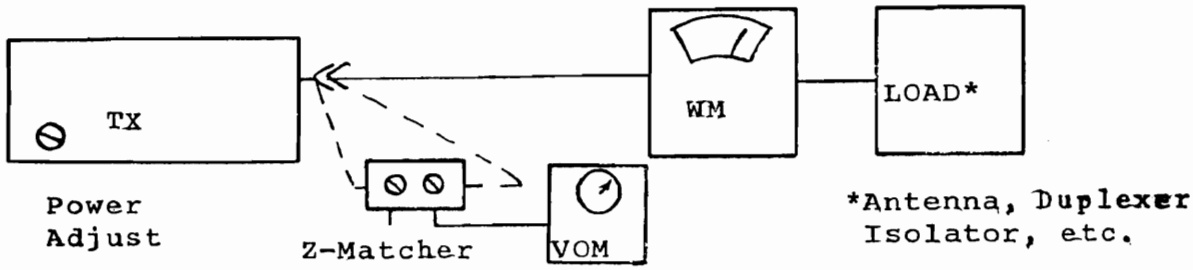
REPEATER MODULATOR SCHEMATIC

TUNING INSTRUCTIONS

Z-MATCHER

THIS IMPEDANCE - MATCHING NETWORK IS INTENDED FOR USE WITH ANY TRANSMITTER WITHIN THE DESIGN FREQUENCIES OF THE DEVICE. ITS PURPOSE IS TO ALLOW THE TRANSMITTER TO OPERATE AT MAXIMUM EFFICIENCY. THIS IS ACHIEVED BY MATCHING THE SOURCE IMPEDANCE (TRANSMITTER OUTPUT IMPEDANCE) TO THE LOAD IMPEDANCE (ANTENNA, DUPLEXER, ISOLATOR, ETC.)

TUNING IS MOST EASILY ACCOMPLISHED IN THE FOLLOWING MANNER: (SEE BLOCK DIAGRAM BELOW)



1. CONNECT TRANSMITTER WITH 50 OHM COAXIAL CABLE TO WATTMETER AND LOAD.
2. KEY TRANSMITTER AND ADJUST POWER ADJUSTMENT CONTROL ON TRANSMITTER TO APPROXIMATELY 80% OF DESIRED POWER LEVEL.
3. INSERT Z-MATCHER INTO TRANSMISSION LINE, AS CLOSE AS POSSIBLE TO TRANSMITTER. CONNECT A VOM WITH LOW D.C. SCALE TO THE FEED THRU CAPACITOR ON THE Z-MATCHER (NEGATIVE GROUND).
4. KEY TRANSMITTER AND ADJUST THE TWO TUNING CAPACITORS ON THE Z-MATCHER ALTERNATELY SO AS TO MAXIMIZE OUTPUT POWER. NOTE THAT THE WATTMETER AND VOM PEAK AT THE SAME TIME.
5. WHEN THE Z-MATCHER TUNING IS OPTIMIZED, READJUST THE TRANSMITTER POWER CONTROL (LOCATED IN THE FINAL POWER AMPLIFIER) TO THE DESIRED OUTPUT POWER LEVEL. NOTE THE VOLTAGE READING

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ON THE VOLTMETER AND RECORD THIS READING VERSUS THE WATTMETER READING.

6. REMOVE THE WATTMETER FROM THE SYSTEM AND READJUST THE Z-MATCHER FOR OPTIMUM POWER OUT USING THE VOLTMETER ATTACHED TO Z-MATCHER.
7. THE TRANSMITTER WILL NOW BE OPERATING AT MAXIMUM EFFICIENCY. PROOF OF THIS IS SEEN BY MONITORING P.A. VOLTAGE AND CURRENT BEFORE AND AFTER INSTALLATION AND TUNING OF Z-MATCHER.

NOTE: SOME SYSTEMS MAY BE CONNECTED IN SUCH A MANNER THAT LITTLE OR NO INCREASE IN EFFICIENCY CAN BE ACHIEVED. IN SUCH CASES, INSERT A SMALL AMOUNT OF TRANSMISSION LINE (APPROXIMATELY ONE-QUARTER WAVELENGTH) BETWEEN THE Z-MATCHER AND THE LOAD, THEN REPEAT STEPS 4 THROUGH 7 ABOVE.