ALIGNMENT INSTRUCTIONS

CAUTION: Use isolation transformer or observe polarity when connecting test equipment.
Maintain line voltage at 120V AC. Allow a 15-minute warm-up period.
Adjustments made with 13.8-volt DC input.
Connect low sides of test equipment to ground unless specified otherwise.
Connect 50-ohm dummy load or antenna before keying transmitter.
Suggested Alignment Tools: GC ELECTRONICS:

L27, L30, L32 5009
L1 thru L8, L16, L17, L24, L37, L39..... 9440
CT1 thru CT7 5000

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of RF VTVM to TP6.	Ch. 1, AM Clarifier - Mid Range	L24	Adjust for maximum.
Input of DC meter to TP7.	Ch. 1,	L17	Adjust for 2.0 volts.
Input of RF VTVM to TP8.	Ch. 19	L16	Adjust for maximum.
Input of frequency counter to TP8.	Ch. 19	CT6	Adjust for 34.9850MHz ± 20Hz.
Input of frequency counter to TP8.	Ch. 19, USB	CT4	Adjust for 34.9875MHz ± 20Hz.
Input of frequency counter to TP8.	Ch. 19, LSB	CT5	Adjust for 34.9825MHz ±20Hz.
Input of frequency counter to TP8.	Ch. 19, LSB, Xmit	VR9	Adjust for 34.9825MHz ± 20Hz.
Input of frequency counter to TP9.	Ch. 19, USB	CT2	Adjust for 7.8025MHz +5Hz -0Hz.
Input of frequency counter to TP9.	Ch. 19, LSB	CT3	Adjust for 7.7975 +0Hz -5Hz.

RECEIVER ALIGNMENT

Connect an AC VTVM or AF wattmeter across speaker voice coil.
Adjust volume control to obtain a suitable indication.

SSB

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna jack. 27.186MHz, no modulation. Output .25uV.	Ch. 19, USB RF Gain - Max Clarifier - Mid Range Volume - Max.	L8, L7, L6, L5, L4, L3	Adjust for maximum output.
Output of signal generator thru .01uF to antenna jack. 27.186MHz, no modulation. Output .25uV.	Ch. 19	CT1	Adjust for .5 watts audio.

RECEIVER ALIGNMENT

Connect an AC VTVM or AF wattmeter across speaker voice coil.
Adjust volume control to obtain a suitable indication.

AM

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna jack. 23.5MHz, no modulation. Output 200uV. Input of RF VTVM to TP5.	Ch. 19, AM RF Gain - Max. NB-On	L1, L2	Adjust for maximum.

PRESIDENT WASHINGTON

RECEIVER ADJUSTMENTS

Connect an AC VTVM or AF wattmeter across speaker voice coil.
Adjust volume control to obtain a suitable indication.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna jack. 27.186MHz, no modulation. Output 250uV.	Ch. 19, USB RF Gain - Max Volume - Max	VR2	RF GAIN RANGE Adjust VR2 for .5 volts audio.
Output of signal generator thru .01uF to antenna jack. 27.186MHz, no modulation. Output 100uV.	Ch. 19	VR1	S METER Adjust for 9 on S scale of meter.
Output of signal generator thru .01uF to antenna jack. 27.186MHz, no modulation. Output 500uV.	Ch. 19	VR3	SQUELCH RANGE Set squelch control VR404 fully clockwise. Adjust VR3 so that squelch just breaks.
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% No modulation. Output .5uV.	Ch. 19	VR5	AM BALANCE Adjust VR5 for .5 watts audio.

TRANSMITTER ALIGNMENT

Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.
NOTE: Be sure to check transmit frequency and power on all active channels after alignment of transmitter.
See Page 4 for channel frequencies.

SSB

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of 2-tone generator to Mike input. 500Hz and 2400Hz at .5 volts.	Ch. 19,USB, Mike Gain - Max.	L39, L37, L32, L30	Adjust for maximum.
Output of 2-tone generator to Mike input. 599Hz and 2400Hz at .5 volts.	Ch. 19, LSB	CT7	Adjust CT7 for 11.5 watts.

TRANSMITTER ADJUSTMENTS

Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.
NOTE: Be sure to check transmit frequency and power on all active channels after alignment of transmitter.
See Page 4 for channel frequencies.

AM

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of spectrum analyzer to antenna jack.	Ch. 19	L27	Adjust for MINIMUM at 540Hz.

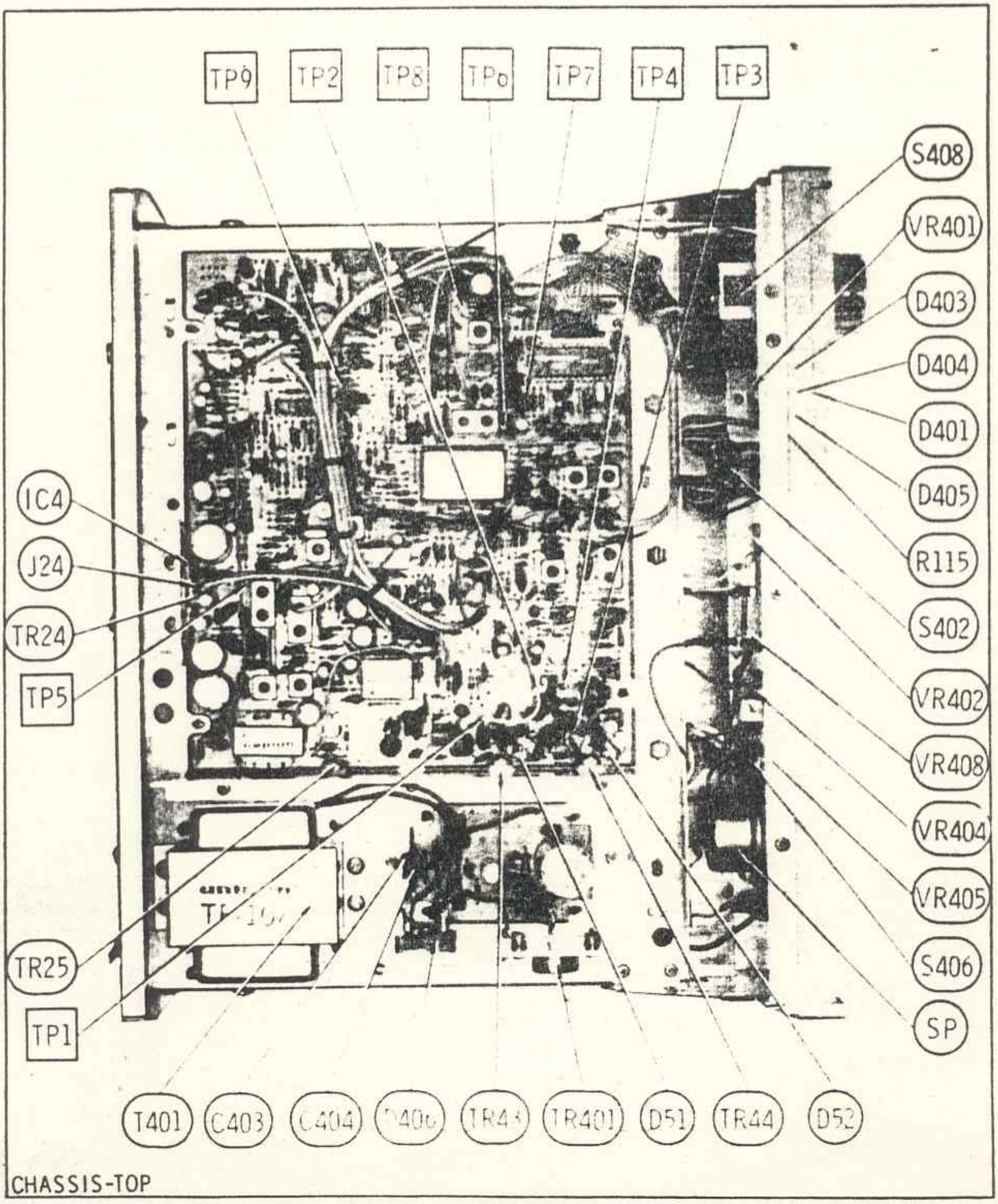
TRANSMITTER ADJUSTMENTS

Connect an RF wattmeter and 50-ohm, 25-watt dummy load to antenna connector.
NOTE: Be sure to check transmit frequency and power on all active channels after adjustment of transmitter.
See Page 4 for channel frequencies.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of DC meter to TP10.	Ch. 19	RT301	VOLT REG Voltage should not vary when keying transmitter.
DC current meter to TP3 and TP4. No modulation.	Ch. 19, USB	VR15	BIAS Adjust VR15 for 40mA ±10mA
DC current meter to TP1 and TP2. No modulation.	Ch. 19, USB	VR16	BIAS Adjust VR16 for 70mA ±10mA.
No Modulation	Ch. 19, USB	VR4	BALANCE Adjust for MINIMUM RF.

TRANSMITTER ADJUSTMENTS (Continued)

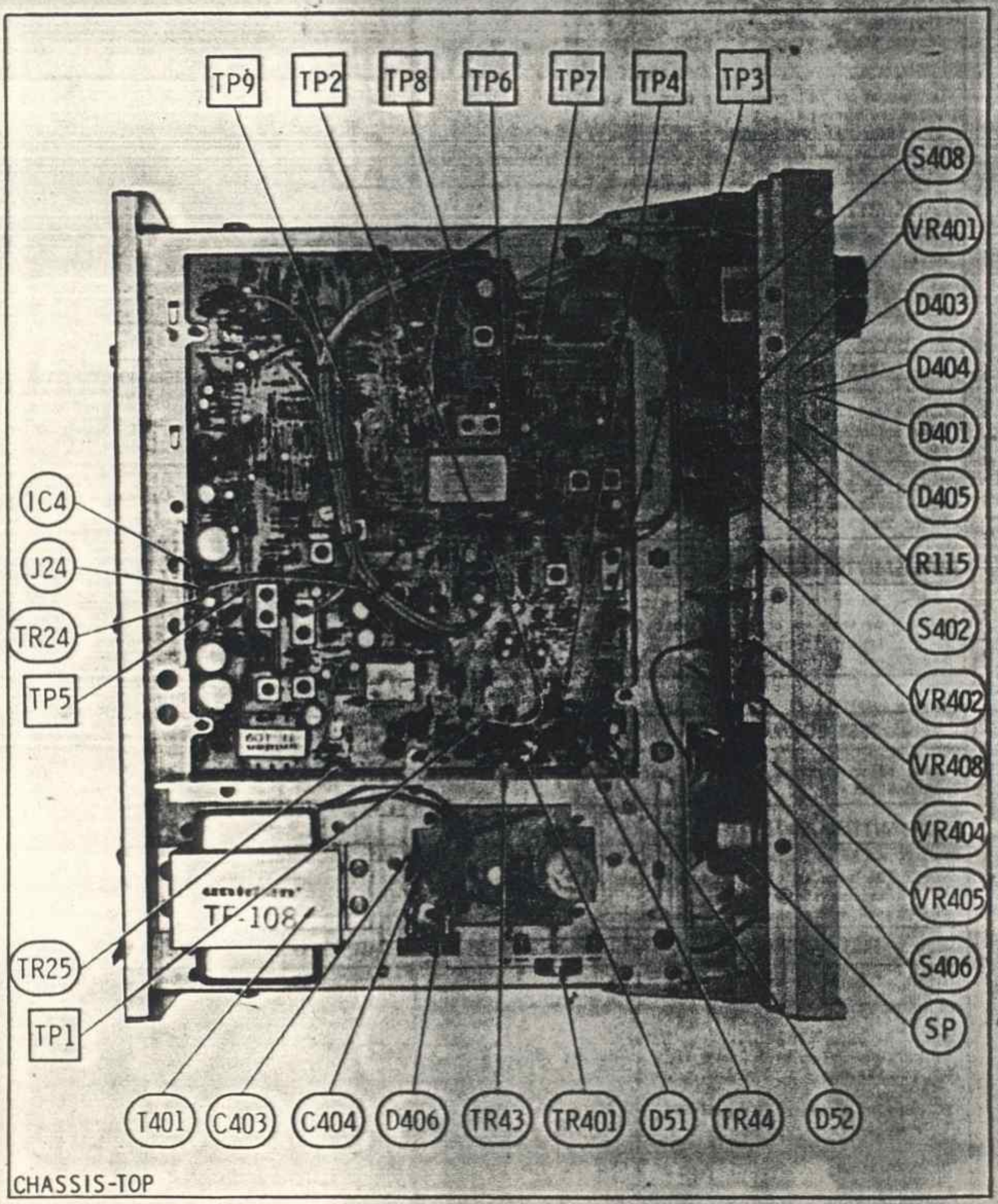
TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
No Modulation	Ch. 19, AM	VR8	AM REG Adjust VR8 for 3.8 watts.
No Modulation	Ch. 19, AM	VR12	RF PANEL METER Adjust VR12 for 3.8 watts on on RF scale of meter.
Modulation meter to antenna jack.	Ch. 19, AM. AMC-MAX	VR7	AM AMC Adjust signal for 50% modulation. Increase signal 630 times. Adjust VR7 for 95% modulation.



CHASSIS-TOP

TRANSMITTER ADJUSTMENTS (Continued)

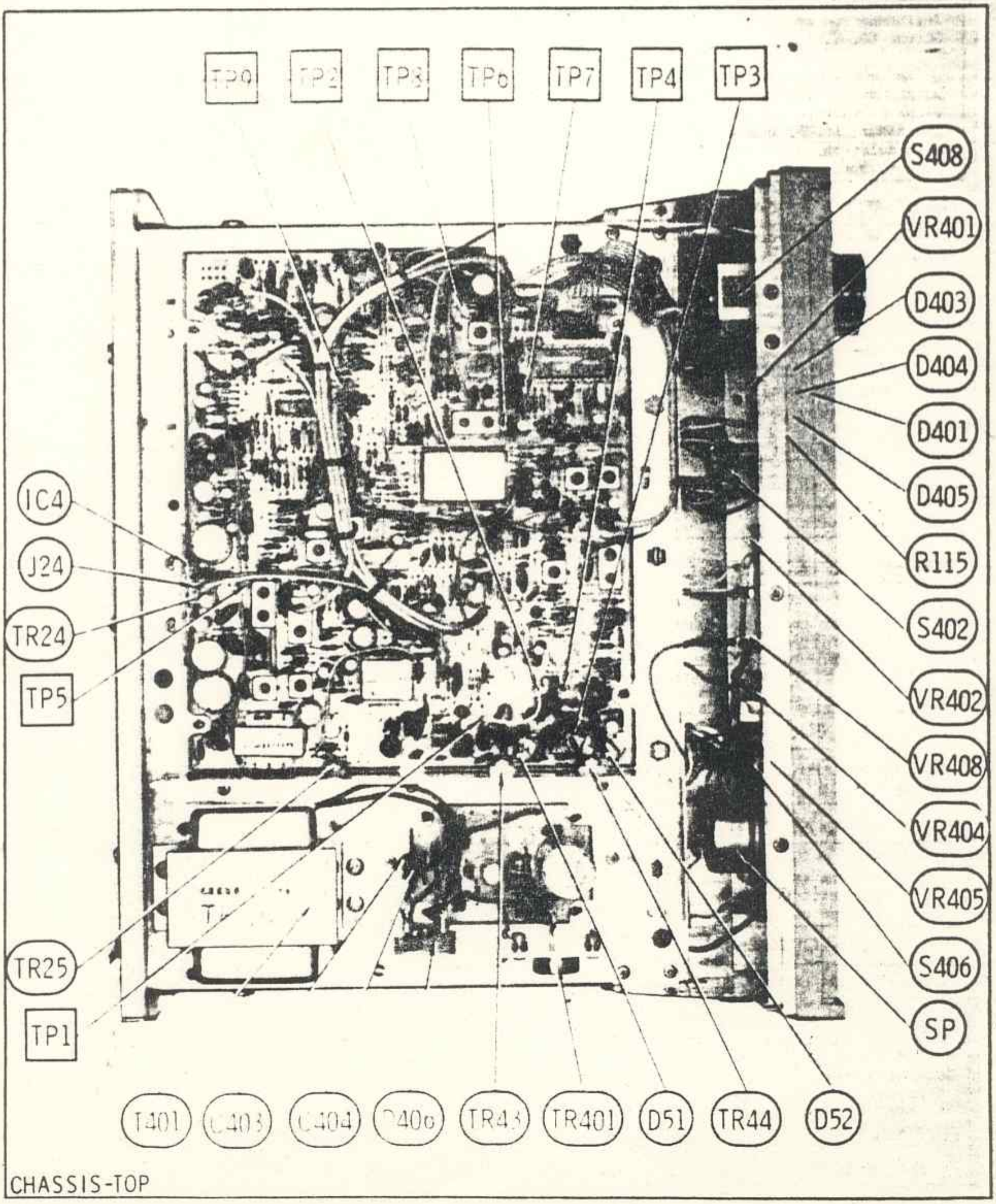
TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
No Modulation	Ch. 19, AM	VR8	AM REG Adjust VR8 for 3.8 watts.
No Modulation	Ch. 19, AM	VR12	RF PANEL METER Adjust VR12 for 3.8 watts on on RF scale of meter.
Modulation meter to antenna jack.	Ch. 19, AM. AMC-MAX	VR7	AM AMC Adjust signal for 50% modulation. Increase signal 630 times. Adjust VR7 for 95% modulation.



CHASSIS-TOP

TRANSMITTER ADJUSTMENTS (Continued)

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
No Modulation	Ch. 19, AM	VR8	AM REG Adjust VR8 for 3.8 watts.
No Modulation	Ch. 19, AM	VR12	RF PANEL METER Adjust VR12 for 3.8 watts on on RF scale of meter.
Modulation meter to antenna jack.	Ch. 19, AM. AMC-MAX	VR7	AM AMC Adjust signal for 50% modulation. Increase signal 630 times. Adjust VR7 for 95% modulation.



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CIRCUIT DIAGRAM FOR WASHINGTON

PC-196

IC1 uPC577H TR1 2SC94 TR2 2SA733 TR3 2SC945 TR6 2SC1675 TR7 2SC1675 TR8 2SC1675 TR9 2SC1675 TR10 2SC1675

TR4 2SC945 TR5 2SC1730 FET1 3SK45 TR11 2SC945 TR12 2SC945 TR13 2SC945 TR14 2SC945 FET2 JF1033 TR15 2SC945 FET3 2SK68

TR27 2SC1675 TR28 2SC1675 TR29 2SC945 IC2 MC1496A TR16 2SC945 TR17 2SA733 TR18 2SC945

FET4 3SK45 TR30 2SC1675 TR31 2SC1675 TR32 2SC945 TR33 2SC945 IC5 UHIC005 IC6 uPC78L05

TR34 2SC1675 TR35 2SC458 TR36 2SC1419 TR37 2SA719 TR38 2SC1675 TR39 2SC1675 TR40 2SC1675 IC7 uPD858C TR41 2SC945

FET5 2SK68 TR42 2SC945 TR43 2SC1307 TR44 2SC1306 TR45 2SC1973 FET6 JF1033 FET7 3SK45

TR19 2SA733 IC3 uPC592H2 TR20 2SC945 TR22 2SC945 TR21 2SC945 TR23 2SC945 IC4 uPC1156H

TR24 2SC1419 TR25 2SC1419 TR26 2SC945 TR401 2SC1618 TR301 2SC945 TR302 2SC1419

S401 NOISE BLANKER ON/OFF

S402-1 CLARIFIER VR401 20K B

S402-2 A B C

S402-3 A B C

S402-4 A B

S402-5 A B C

S402-6 A B

S404 OFF ON ANL

S405-1 CB PA SP

S405-2 PA CB

S405-3 PA

S406 POWER

S408 CH SW

D401 TLR321

M401 S/RF POWER

VR402 100K B RF GAIN

VR403 100K B SQUELCH

VR404 100K B

VR405 50K B MIC GAIN

VR406 50K B VOLUME

VR1 100K B RF GAIN

VR2 500K B RF GAIN

VR3 100K B AF GAIN

VR4 100K B AM-AMC

VR5 100K B TX METER

VR6 10K B AM TX LEVEL

VR7 100K B TX METER

J401 J402 J403 J404 J405 J406

MIC

EXT SP

SP

TX INDICATOR

METER LAMP PL401

RELAY1

FET1 3SK45

FET2 JF1033

FET3 2SK68

FET4 3SK45

FET5 2SK68

FET6 JF1033

FET7 3SK45

NOTE;
1. ALL RESISTOIS IN OHM 1/8 W UNLESS OTHERWISE NOTED.
2. ALL CAPACITORI IN MICROFARAD YA OR YB UNLESS OTHERWISE NOTED.