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Craig L232 Service Manual

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SERVICE MANUAL

CRAIG®

L232

40 CHANNEL BASE STATION SSB/AM CB TRANSCEIVER



WARNING

Replacement or substitution of IC's, crystals, transistors, regulator diodes, or any other part of a specialized nature with parts other than those recommended by Craig may cause the operator to be in violation of the Type Acceptance requirements of Part 2 of the Rules.

FCC Rules require that ALL transmitter section adjustments, other than those supplied by Craig as operating controls, be made by or under the immediate supervision of the holder of an FCC First or Second Class Radio-Telephone Operator's License.

SPECIFICATIONS

GENERAL

CHANNELS	AM 40, LSB 40, USB 40
FREQUENCY RANGE	26.965 to 27.405 MHz
FREQUENCY STABILITY	+130 Hz
MICROPHONE	Dynamic type
POWER SOURCE	120 V, 60 Hz or 13.8 Vdc
CURRENT DRAIN: Transmit;	AM full modulation, 2.5 A
	SSB, 12 W PEP, 2.5 A
Receive;	Standby, 0.5 A
	Maximum audio output, 1.2 A

TRANSMITTER

RF POWER OUTPUT	AM, 4 W
	SSB, 12 W
FREQUENCY TOLERANCE	+0.003 % from -30 C to +50 C
SPURIOUS ATTENUATION	60 dB minimum
OUTPUT IMPEDANCE	50 Ohm
FILTER CIRCUIT	Crystal lattice 7.8 MHz filter
CARRIER SUPPRESSION	50 dB
UNWANTED SIDEBAND SUPPRESSION	50 dB

RECEIVER

SENSITIVITY:AM;Better than 0.5 uV for 10 dB (S+N)/N	
SSB;Better than 0.25 uV for 10 dB (S+N)/N	
BANDWIDTH	6 KHz @ -6 dB
AGC	Change in audio output less than 10 dB from 5.0 uV to 1.0 V
SQUELCH	Adjustable, threshold less than 0.5 uV Tight, more than 250 uV
POWER OUTPUT	3 W at 10 % THD
IMAGE REJECTION	Better than 70 dB
IF REJECTION	Better than 90 dB
ADJACENT CHANNEL REJECTION	Better than 55 dB
IF FREQUENCY	AM: 7.8 MHz
	SSB: 7.8 MHz
CLARIFIER RANGE	AM: +1250 Hz
	SSB: +1250 Hz
NOISE BLANKER	RF parallel gate type

P.A. SYSTEM

POWER OUTPUT	3 W
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PARTS PRICE LIST

CRAIG KEY No.	DESCRIPTION	MFR's SUGG RET. PRICE
PACKAGING		
L232001	Individual Carton	5.85
L201002	Styrofoam Set (L & R)	3.50
L132507	Microphone (Complete)	23.45
L201003	Mic Mounting Kit	1.20
L150396	Bracket, Mic Mounting	.75
-----	RH Tapp Screw M3.5x8	.25
-----	Star Washer M3.5	.25
XFU004	Spare Fuse, 4A	1.00
4101033	D.C. Power Cord w/Plug	3.50

REF. No.	CRAIG KEY No.	DESCRIPTION	MFR's SUGG RET. PRICE
CABINET & CHASSIS			
1	NSP	Cabinet Top	----
2	L103100	Wool Tack	.25
3	L232010	Assy, Front Escutcheon	21.00
4	NSP	Plate, Sw Control Index	----
5	NSP	Plate, Control Board Index	----
6	NSP	Plate, TX/RX/CH 9 Ind	----
7	L201490	Speaker Dust Cloth	.25
8	L201070	Optical Filter (Clock & Ch Display)	4.15
9	NSP	Cabinet Bottom	----

A PRODUCT OF CRAIG CORPORATION

REF. No.	CRAIG KEY No.	DESCRIPTION	MFR's SUGG RET. PRICE
CABINET & CHASSIS (continued)			
10	L201800	Front Foot	.25
11	L201801	Rear Foot	.25
12	-----	PH Tapp Screw M3x14	.25
13	-----	PH Tapp Screw M3x12	.25
14	NSP	Holder, Push Sw Assy	----
15	NSP	Holder, Slide Sw Assy	----
16	L201396	Holding Brkt, CH Select Sw	.50
17	NSP	Rear Panel	----
18	NSP	Main Chassis	----
19	NSP	Heat Sink	----
20	NSP	Heat Sink	----
21	NSP	Holder, Meter Lamp	----
22	L201395	Mtg Strap, Transformer	.25
23	NSP	Escutcheon Mtg Brkt (R)	----
24	NSP	Escutcheon Mtg Brkt (L)	----
25	L201212	Square Nut M3	.25
26	NSP	Rivet	----
27	3307079	Bushing, AC Cord	.35
28	L103026	Knob, CHANNEL SELECT	1.40
29	L103027	Knob, VOL/TON/BND/CLAR/SWR Cont	.90
30	L103028	Push Button, CLOCK SET Sw	.65
31	L105026	Knob, CH 9 SQ/RF GAIN Cont	.85
32	L105027	Knob, SQUELCH/MIC GAIN Cont	.80
33	NSP	Model No./FCC/Serial No. Plate	----
34	L232231	Spacer, PCB Mounting	.25
35	L201430	Cushion (Meter Top)	.25
36	L201431	Cushion (Meter Bottom)	.25
37	L201491	Dust Cloth, CH 9/ANL/PA Sw	.25
38	L201492	Dust Cloth, MOD/SWR/CAL Sw	.25
39	L105292	Spring Plate, SQUELCH/MIC Knob	.25
40	L105291	Spring Plate, CH 9 SQ/RF Knob	.25
41	L103291	Spring Plate, CH Select Knob	.25
42	NSP	Heat Sink	----
43	NSP	Holder (R), Clock LED PCB	----
44	NSP	Holder (L), Clock LED PCB	----
45	L201330	Headphone Jack Bushing	.25
47	L201232	Rubber Spacer, LED Mtg	.25
48	-----	Plastic PH Screw M3x6	.25
49	-----	FH Screw M3x6	.25
50	-----	PH Screw M2x4	.25
51	-----	PH Screw M2.6x4	.25
52	-----	PH Screw M2.6x6	.25
53	-----	PH Screw M2.6x10	.25
54	-----	PH Screw M3x6	.25
55	-----	PH Screw M3x10	.25
56	-----	PH Screw M4x10	.25
57	-----	PH Screw (Black) M3x8	.25
58	-----	PH Screw (Black) M5x8	.25
59	-----	PH Tapp Screw M3x6	.25
60	-----	PH Tapp Screw M3x8	.25
61	-----	PH Tapp Screw M3x6	.25
62	-----	PH Tapp Screw M3x16	.25
63	-----	Hex Nut M2.6	.25
64	-----	Hex Nut M3	.25
65	-----	Flange Nut M4	.25
66	-----	Lock Washer M2.6	.25
67	-----	Lock Washer M3	.25
68	NSP	Label, Caution	----
69	NSP	Label, Caution	----
70	NSP	Label, Caution	----
C304	-----	Capacitor, 3300uF/35V	6.30
C147	-----	Capacitor, 1000uF/25V	1.75
D63	MV13YH	Varistor	.80
D64	MV1Y	Varistor	.55
D302	S5VB/10	Diode	6.55
D401	UR202	LED, DIGITAL CH DISPLAY	9.15
D402	TLR124	LED, TX Indicator	.85
D403	TLR124	LED, CH 9 Indicator	.85
D405	TLG124A	LED, RX Indicator	1.35
D413	TLR2077	LED, DIGITAL CLOCK DISPLAY	13.30
FH002	L201380	Fuse Holder	.30
FT1	L132722	Assy, Crystal Filter	29.10
IC4	TA7222P	I.C. (AF POWER AMP)	5.65
IC5	MB3756	I.C. (VOLTAGE REGULATOR)	6.00
IC601	TM4801P	I.C. (CLOCK/LOGIC)	11.70
J401	4101034	Socket, PA Spkr Jack	1.45
J402	4101034	Socket, Ext Spkr Jack	1.45
J403	4101027	Socket, D.C. Power Connector	1.75
J404	L132607	Socket, Mic Connector	2.60
J405	L103607	Connector, Coaxial Antenna	1.80
J406	L201607	Socket, Headphone Jack	2.15
M401	L201605	Meter, RF PWR/SIGNAL	8.00
M402	L201604	Meter, MOD/SWR	8.00
PC311	L232516	PCB w/Comp., HEADPHONE JACK	2.90
PC401	L232517	PCB w/Comp., EXTERNAL SPKR	1.75
PC433	L201519	PCB w/Comp., LED CH DISPLAY	9.65
PC447	L232518	PCB w/Comp., CH SELECT SW	6.00
PC450	L232519	PCB w/Comp., MIC JACK	10.20
PC541	L201524	PCB w/Comp., LED CLOCK/LOGIC	21.00
PC547	L232520	PCB w/Comp., CH 9 SCAN	8.50
PC570	L232521	PCB w/Comp., POWER SUPPLY	16.90

REF. No.	CRAIG KEY No.	DESCRIPTION	MFR's SUGG RET. PRICE
CABINET & CHASSIS (continued)			
PC576	L232522	PCB w/Comp., LED (TX/RX/CH 9 Ind)	3.30
PC582	NSP	PCB w/Comp., MAIN	----
PC586	L232523	PCB w/Comp., D.C. FILTER	2.95
PC588	L232524	PCB Only, CLOCK PUSH SW Assy	2.00
PC589	L232525	PCB Only, SLIDE SW Assy	1.50
PL401	L201550	Pilot Lamp, RF/SIG Meter	1.60
PL402	L201550	Pilot Lamp, MOD/SWR Meter	1.60
S401	L232530	Rotary Sw, CHANNEL SELECT	10.90
S402	L201534	Push Sw, MANUAL POWER	2.60
S403	L132531	Rotary Sw, BAND SELECT	4.15
S404	L201530	Slide Sw, PA/CB SELECT	1.90
S405	L201530	Slide Sw, NB/ANL On/Off	1.90
S408	L201531	Slide Sw, MOD/CAL/SWR SELECT	2.15
S409	L201532	Slide Sw, AC/DC SELECT	2.15
S410	L201530	Slide Sw, CH 9 SCAN	1.90
S411	L201530	Slide Sw, CH 9 HOLD	1.90
S412	L201535	Push Sw, AUTO POWER SET	3.30
S413	L201535	Push Sw, CLOCK SET	3.30
S414	L201536	Push Sw, FAST SCAN	3.00
S415	L201536	Push Sw, SLOW SCAN	3.00
S416	L201536	Push Sw, HOLD	3.00
S417	L201534	Push Sw, AUTO POWER	2.60
SP401	L201702	Speaker, 16 Ohm/3W	7.70
SW181	L201533	Push Sw Assy (S402 & S412~17)	11.95
T401	L232641	POWER TRANSFORMER (TF145)	19.25
TR26	2SC1419	Transistor (REGULATOR)	2.10
TR39	2SC1306	Transistor (TX DRIVE)	3.20
TR41	2SC1969	Transistor (TX FINAL)	8.70
TR302	2SC1419	Transistor (REGULATOR)	2.10
TR303	2SD588	Transistor (REGULATOR)	5.25
TR304	2SC1419	Transistor (REG DRIVE)	2.10
VR359	L232570	Assy, Control	5.00
VR401	-----	VR 100K, SQUELCH Cont	----
VR408	-----	VR 100K, CH 9 SQ Cont	----
VR401	-----	VR 100K, SQUELCH (See VR359)	----
VR402	L132570	VR 20K, CLARIFIER Cont	1.50
VR403	L232571	VR 10K, VOLUME Cont	1.50
VR404	-----	VR 10K, RF GAIN (See VR416)	----
VR405	-----	VR 1K, MIC GAIN (See VR416)	----
VR406	L132571	VR 5K, SWR/CAL Cont	1.55
VR408	-----	VR 100K, CH 9 SQUELCH (See VR359)	----
VR409	L232571	VR 10K, TONE Cont	1.50
VR416	L132572	Assy, Control	5.00
VR404	-----	VR 10K, RF GAIN Cont	----
VR405	-----	VR 1K, MIC GAIN Cont	----
YD004	L232330	Bushing, Transistor Mtg	.25
YD048	L232331	Bushing, Transistor Mtg	.25
YY023	NSP	Clamp, Lead Wire	----
YY025	L201332	Bushing	.40
YY027	NSP	Mica Insulation	----
YY036	L132330	Bushing, Transistor Mtg	.25
YY049	L201381	Holder, Lead Wire	.25
WZ022	3307099	A.C. Power Cord w/Plug	1.50
REF. No.	CRAIG KEY No.	DESCRIPTION	MFR's SUGG RET. PRICE
COILS, TRIMMERS & XFORMERS			
CT1,2,3	L132670	Trimmer Capacitor .20pF	1.40
FT1	L132722	Assy, Crystal Filter 7.8MHz	29.10
FT2	L232722	Crystal Filter, 7.8MHz (FLO46)	5.50
L1	L132671	Trimmer (LA038)	.90
L2	L132672	Trimmer (LA179)	.90
L3	L132673	Trimmer (LA255)	.90
L4	L132674	Trimmer (LA263)	.90
L5	L132675	Trimmer (LA262)	.90
L6	L132676	Trimmer (LA257)	.90
L7	L132677	Trimmer (LA258)	.90
L8	L132678	Trimmer (LA259)	.90
L9	L132679	Trimmer (LA260)	.90
L10	L132680	Trimmer (LA261)	.90
L11	L132681	Inductor (470uH)	.65
L12	L132682	Inductor (100uH)	.65
L13	L132683	Trimmer (LA216)	.90
L14	L132684	Trimmer (LA195)	.90
L15,16	L132681	Inductor (470uH)	.65
L17	L132685	Trimmer (LA217)	.90
L18	L132686	Trimmer (LA256)	.90
L19	L132685	Trimmer (LA217)	.90
L20	L105671	Trimmer (LA218)	.95
L21,22,	L132681	Inductor (470uH)	.65
23,24	L132682	Inductor (100uH)	.65
L25	L132682	Trimmer (LA219)	.90
L26	L132687	Trimmer (LA219)	.90
L27	L132688	Trimmer (LA160)	.90
L28	L132689	Trimmer (LA220)	.90
L29	L132690	Trimmer (LA254)	.90
L30	L132691	Coil (LD096)	1.50
L31	L104675	Coil (LD087)	.50

REF. No.	CRAIG KEY No.	DESCRIPTION	MFR's SUGG RET. PRICE
COILS, TRIMMERS & XFORMERS (continued)			
L32	L132692	Coil (LD101)	.25
L33	L132693	Coil (LD098)	.40
L34	L104675	Coil (LD087)	.50
L35	L132693	Coil (LD098)	.40
L36	L132694	Trimmer (LC019)	.75
L37,38	L132695	Coil (LE051)	.25
L39	L132694	Trimmer (LC019)	.75
L40	L105670	Coil (LD113)	.25
L51,52	L105672	Coil (LD077)	.25
L401,402	L132696	Coil (LD013)	.25
L403	L132697	Coil (LD089)	.50
L404,405	L105672	Coil (LD077)	.25
L406,408	L132697	Coil (LD089)	.50
T401	L232641	POWER TRANSFORMER (TF145)	19.25

MISCELLANEOUS ELECTRICAL

F401	XFU004	Fuse, 4A	1.00
F402	XFU004	Fuse, 4A	1.00
J401	4101034	Socket, PA Spkr Jack	1.45
J402	4101034	Socket, Ext Spkr Jack	1.45
J403	4101027	Socket, D.C. Power Connector	1.75
J404	L132607	Socket, Mic Connector	2.60
J405	L103607	Connector, Coaxial Antenna	1.80
J406	L201607	Socket, Headphone Jack	2.15
M401	L201605	Meter, RF PWR/SIGNAL	8.00
M402	L201604	Meter, MOD/SWR	8.00
MIC1	L132507	Microphone (Complete)	23.45
P401	3307099	A.C. Power Plug w/Cord	1.50
P403	4101033	D.C. Power Plug w/Cord	3.50
PC311	L232516	PCB w/Comp., HEADPHONE JACK	2.90
PC401	L232517	PCB w/Comp., EXT SPKR JACK	1.75
PC433	L201519	PCB w/Comp., LED CH DISPLAY	9.65
PC447	L232518	PCB w/Comp., CH SELECT SW	6.00
PC450	L232519	PCB w/Comp., MIC JACK	10.20
PC541	L201524	PCB w/Comp., LED CLOCK/LOGIC	21.00
PC547	L232520	PCB w/Comp., CH 9 SCAN	8.50
PC570	L232521	PCB w/Comp., POWER SUPPLY	16.90
PC576	L232522	PCB w/Comp., TX/RX/CH 9 Ind LED	3.30
PC582	NSP	PCB w/Comp., MAIN	----
PC586	L232523	PCB w/Comp., D.C. FILTER	2.95
PC588	L232524	PCB Only, CLOCK PUSH SW Assy	2.00
PC589	L232525	PCB Only, SLIDE SW Assy	1.50
PL401	L201550	Pilot Lamp, RF/SIG Meter	1.60
PL402	L201550	Pilot Lamp, MOD/SWR Meter	1.60
S401	L232530	Rotary Sw, CHANNEL SELECT	10.90
S402	L201534	Push Sw, MANUAL POWER	2.60
S403	L132531	Rotary Sw, BAND SELECT	4.15
S404	L201530	Slide Sw, PA/CB SELECT	1.90
S405	L201530	Slide Sw, NB/ANL On/Off	1.90
S408	L201531	Slide Sw, MOD/CAL/SWR SELECT	2.15
S409	L201532	Slide Sw, AC/DC SELECT	2.15
S410	L201530	Slide Sw, CH 9 SCAN	1.90
S411	L201530	Slide Sw, CH 9 HOLD	1.90
SW181	L201533	Push Sw Assy, CLOCK CONTROL	11.95
S412	L201535	Push Sw, AUTO POWER SET	3.30
S413	L201535	Push Sw, CLOCK SET	3.30
S414	L201536	Push Sw, FAST SCAN	3.00
S415	L201536	Push Sw, SLOW SCAN	3.00
S416	L201536	Push Sw, HOLD	3.00
S417	L201534	Push Sw, AUTO POWER	2.60
S402	L201534	Push Sw, MANUAL POWER	2.60
SP401	L201702	Speaker, 16 Ohm/3W	7.70
SW181	L201533	Push Sw Assy, (S402&S412 17)	11.95
VR1	L105590	Semi-Fixed Res. 10K Ohm	.65
VR3	L132591	Semi-Fixed Res. 3K Ohm	.70
VR5	L105590	Semi-Fixed Res. 10K Ohm	.65
VR7	L105590	Semi-Fixed Res. 10K Ohm	.65
VR8	L104590	Semi-Fixed Res. 500 Ohm	.65
VR9	H221593	Semi-Fixed Res. 5K Ohm	.70
VR10	L132592	Semi-Fixed Res. 100K Ohm	.85
VR12	L132592	Semi-Fixed Res. 100K Ohm	.85
VR501	L232590	Semi-Fixed Res. 5K Ohm	.85
VR502	L232591	Semi-Fixed Res. 1K Ohm	.80
VR359	L232570	Assy, Control	5.00
VR401	-----	VR 100K, SQUELCH Cont	----
VR408	-----	VR 100K, CH 9 SQ Cont	----
VR401	-----	VR 100K, SQUELCH(See VR359)	----
VR402	L132570	VR 20K, CLARIFIER Cont	1.50
VR403	L232571	VR 10K, VOLUME Cont	1.50
VR404	-----	VR 10K, RF GAIN (See VR416)	----
VR405	-----	VR 1K, MIC GAIN(See VR416)	----
VR406	L132571	VR 5K, SWR/CAL Cont	1.55
VR408	-----	VR 100K, CH 9 SQ(See VR359)	----
VR409	L232571	VR 10K, TONE Cont	1.50
VR416	L132572	Assy, Control	5.00
VR404	-----	VR 10K, RF GAIN Cont	----
VR405	-----	VR 1K, MIC GAIN Cont	----
X1	L103722	Crystal, 10.240MHz	4.55
X2	L132723	Crystal, 7.8025MHz	4.55
X3	L132724	Crystal, 7.7975MHz	4.55
X4	L132725	Crystal, 11.2858MHz	4.55

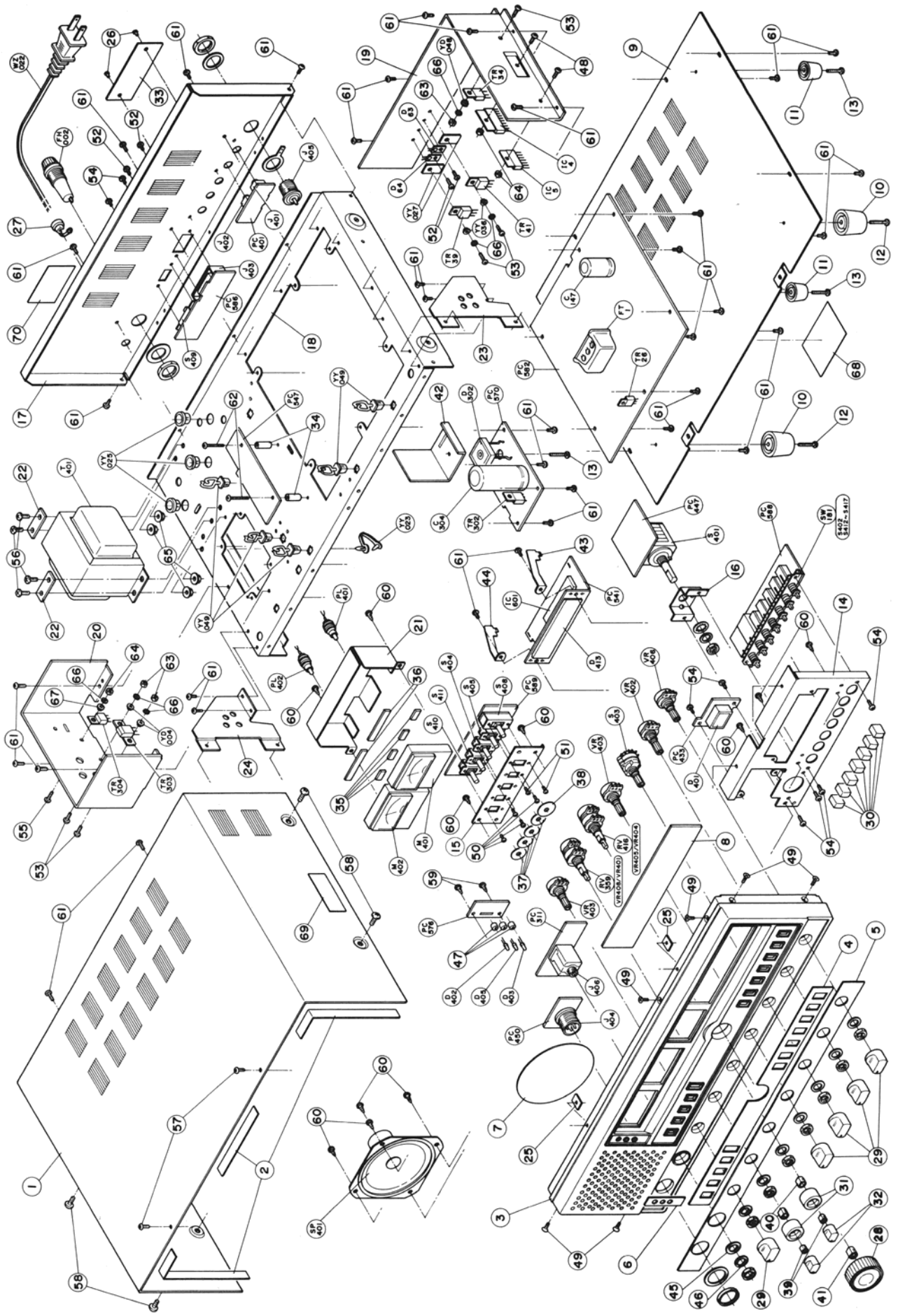
REF. No.	CRAIG KEY No.	DESCRIPTION	MFR's SUGG RET. PRICE
SEMICONDUCTORS			
D1,2,9,25,26,45,65	1N60	Diode	.95
D3,4,5,6,7,8,10,11,12,13,14,18,19,20,21,22,23,24,27,28,29,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,49,50,51,52,53,55,56,57,61,62,69,70,71,72,305,502,503,504,505,506,507,508,509,510,601	1S2075K	Diode	.35
D16,17	MC301	Diode	1.05
D30	RD5.1EB2	Zener Diode	.40
D54	1S2687D	Vari-Cap Diode	1.05
D58,59,501	1N60P	Diode	.90
D63	MV13YH	Varistor	.80
D64	MV1Y	Varistor	.55
D301	RD6.2EB3	Zener Diode	.40
D302	S5VB/10	Diode	6.55
D303	CZ092	Zener Diode	1.00
D401	UR202	LED, CHANNEL Indicator	9.15
D402	TLR124	LED, TX Indicator	.85
D403	TLR124	LED, CH 9 (AUTO) Indicator	.85
D405	TLG124A	LED, RX Indicator	1.35
D407	1N4003	Diode	.65
D413	TLR2077	LED, CLOCK DIGITAL DISPLAY	13.30
FET1,501	2SK19	FET	4.40
IC1	UHC070	I.C. (VCO)	10.90
IC2	UPD2824C	I.C. (PLL,LSI)	11.25
IC3	AN612	I.C. (BM)	5.00
IC4	TA7222P	I.C. (AF POWER AMP)	5.65
IC5	MB3756	I.C. (REG)	5.00
IC6	S042P	I.C. (MIX)	5.90
IC501	MB84011M	I.C. (CH 9 SCAN)	2.80
IC601	TM4801P	I.C. (CLOCK/LOGIC)	11.70
TR1,2,6,10,12,21,22,24,25,42	2SC710	Transistor	1.15
TR3,8,16	2SC1730	Transistor	1.10
TR4,5,11,13,15,20,27,32,33,35,37,44,301,501,502,503,601	2SC711	Transistor	.95
TR7,14,30,31,45	2SA628	Transistor	.95
TR9	2SC1674	Transistor	1.50
TR17,18	2SC673	Transistor	.50
TR19,23	2SC1675	Transistor	1.30
TR26,34,302,304	2SC1419	Transistor	2.50
TR28	2SC945	Transistor	1.00
TR29,36	2SC1312	Transistor	.95
TR38	2SC1973	Transistor	2.30
TR39	2SC1306	Transistor	3.20
TR40	2SC496	Transistor	2.10
TR41	2SC1969	Transistor	8.70
TR303	2SD588	Transistor	5.25
TR504	2SC2236	Transistor	.50

NOTE: NSP Non Serviceable Part

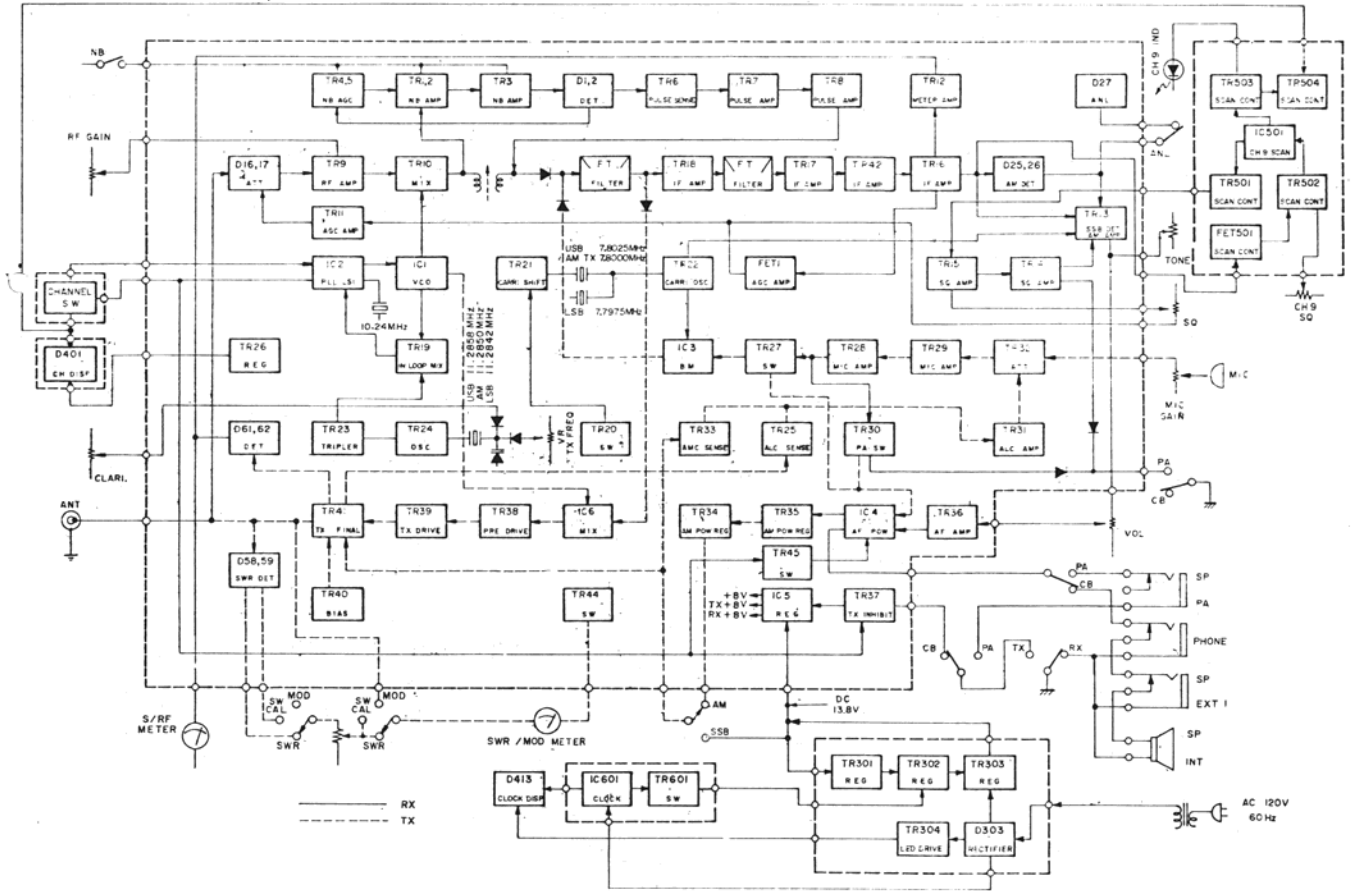
SUBJECT TO CHANGE WITHOUT NOTICE. USE ALL AVAILABLE NUMBERS AND COMPLETE DESCRIPTION WHEN ORDERING,INCLUDING MODEL NUMBER

THESE PRICES HAVE BEEN REVISED AS OF 6/20/80

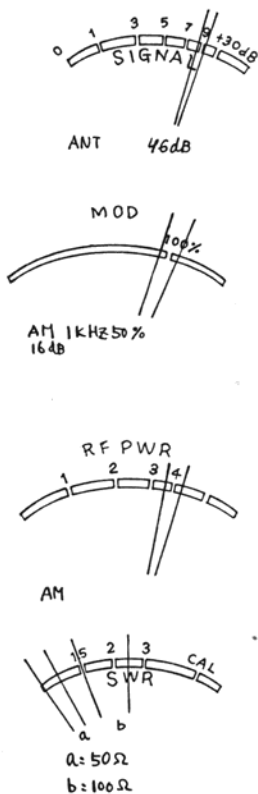
CABINET & CHASSIS



BLOCK DIAGRAM



METER ADJUSTMENTS (see Alignment Procedures)



FREQUENCIES OF LOCAL OSCILLATORS and IF STAGE IN RECEIVING MODE.

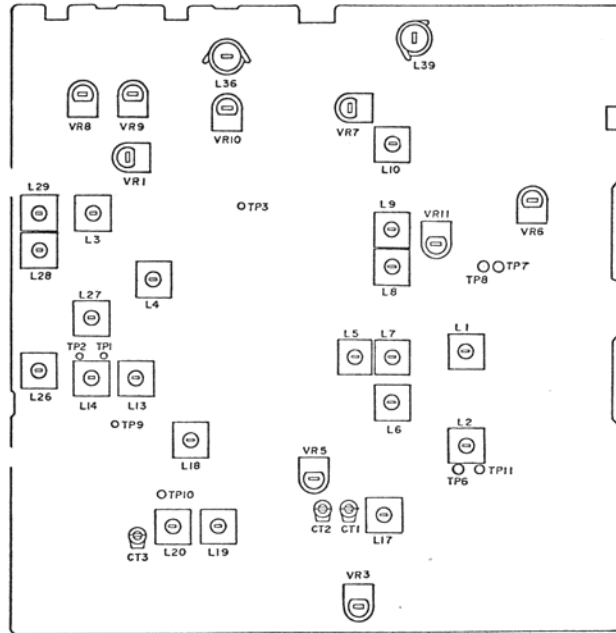
CH No.	CHANNEL FREQUENCY	DIVIDE RATIO	LOCAL OSCILLATOR FREQUENCIES			IF FREQUENCY
			AM MODE	USB MODE	LSB MODE	
1	26.965 MHz	91	34.765 MHz	34.7675 MHz	34.7625 MHz	7.8 MHz
2	.975	92	.775	.7775	.7725	7.8
3	.985	93	.785	.7875	.7825	7.8
4	27.005	95	.805	.8075	.8025	7.8
5	.015	96	.815	.8175	.8125	7.8
6	.025	97	.825	.8275	.8225	7.8
7	.035	98	.835	.8375	.8325	7.8
8	.055	100	.855	.8575	.8525	7.8
9	.065	101	.865	.8675	.8625	7.8
10	.075	102	.875	.8775	.8725	7.8
11	.085	103	.885	.8875	.8825	7.8
12	.105	105	.905	.9075	.9025	7.8
13	.115	106	.915	.9175	.9125	7.8
14	.125	107	.925	.9275	.9225	7.8
15	.135	108	.935	.9375	.9325	7.8
16	.155	110	.955	.9575	.9525	7.8
17	.165	111	.965	.9675	.9625	7.8
18	.175	112	.975	.9775	.9725	7.8
19	.185	113	.985	.9875	.9825	7.8
20	.205	115	35.005	35.0075	35.0025	7.8
21	.215	116	.015	.0175	.0125	7.8
22	.225	117	.025	.0275	.0225	7.8
23	.255	120	.055	.0575	.0525	7.8
24	.235	118	.035	.0375	.0325	7.8
25	.245	119	.045	.0475	.0425	7.8
26	.265	121	.065	.0675	.0625	7.8
27	.275	122	.075	.0775	.0725	7.8
28	.285	123	.085	.0875	.0825	7.8
29	.295	124	.095	.0975	.0925	7.8
30	.305	125	.105	.1075	.1025	7.8
31	.315	126	.115	.1175	.1125	7.8
32	.325	127	.125	.1275	.1225	7.8
33	.335	128	.135	.1375	.1325	7.8
34	.345	129	.145	.1475	.1425	7.8
35	.355	130	.155	.1575	.1525	7.8
36	.365	131	.165	.1675	.1625	7.8
37	.375	132	.175	.1775	.1725	7.8
38	.385	133	.185	.1875	.1825	7.8
39	.395	134	.195	.1975	.1925	7.8
40	.405	135	.205	.2075	.2025	7.8



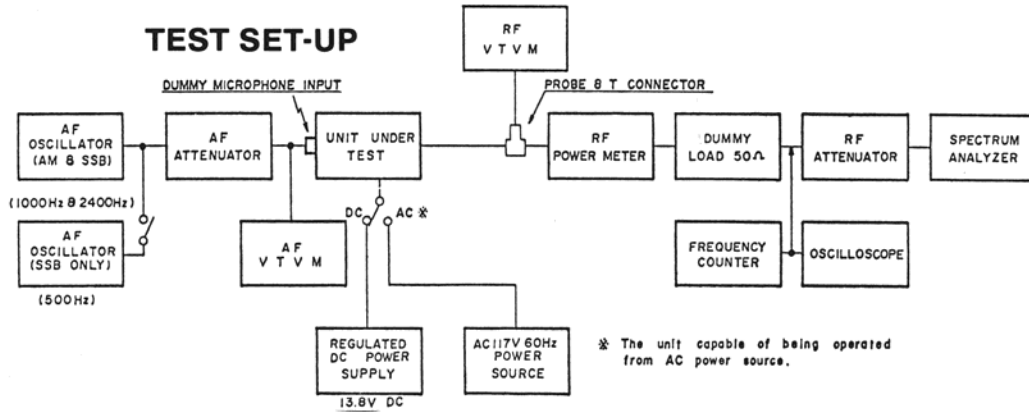
ALIGNMENT PROCEDURES

Test Equipment Required

- OSCILLOSCOPE
- D.C. VOLT METER
- VTVM
- RF WATTAGE METER
- FREQUENCY COUNTER
- 50 Ohm DUMMY ANTENNA LOAD
- SIGNAL GENERATOR
- D.C. CURRENT METER



TEST SET-UP



* The unit capable of being operated from AC power source.

STEP	SET TO	CONNECTIONS	ADJUST	ADJUST FOR
RECEIVER				
1	Channel 19. Volume;MAX. Squelch;MIN. Mode;USB NB/ANL;OFF RF GAIN;MAX. PA-CB;CB	Signal Generator To Antenna Jack (J405) at 27.185MHz w/No Modulation. Output Level; 0.25 uV.	Frequency of Signal Generator.	AF Output Signal of 1,000Hz at Clarifier Control in Middle Position.
2	Same As Step 1	Same As Step 1.	L3,4,5,6,7,8,9 & 10	Maximum AF Output Power.
3	Same As Step 1 except AM Mode.	Signal Generator To Antenna Jack (J405) at 1 KHz w/30% Modulation. Output Level; 1 uV.	L3	Maximum Indication on VTVM.
4	Same As Step 1	Signal Generator To Antenna Jack (J405) at 27.185MHz w/No Modulation. Output Level; 100 uV.	VR1	Reading of "9" on Signal Meter (M401).
5	Same As Step 1 except Squelch; MAXIMUM	Signal Generator To Antenna Jack (J405) at 27.185MHz w/No Modulation. Output Level; 1,000 uV.	VR502	Adjust VR2 Until AF Signal Observed.
6	Channel 19. Volume;MAX. Squelch;MIN. Mode;AM NB/ANL;ON RF GAIN;MAX.	Same As Step 5	L1,2	Maximum D.C. Voltage at TP8
7	Same As Step 3, Except: CH. 9 SQ;MAX. CH. 9 SCAN;ON.	Same As Step 5	VR501	Until CH, 9 SCAN Starts.

STEP	SET TO	CONNECTIONS	ADJUST	ADJUST FOR
P.L.L. CIRCUIT				
1	Channel 40. AM,RX Mode. Clarifier Cont. in middle position.	VTVM To TP10.	L18	Maximum Indication on VTVM.
2	Same As Step 1	D.C. Volt Meter To TP9.	L13	Approx. 6 V on D.C. Volt Meter.
3	Channel 19. USB,RX Mode.	VTVM To Secondary Of L14 (TP1) Local Out.	L14	Maximum Indication on VTVM.
4	Same As Step 3	Frequency Counter To Secondary Of L14 (TP1).	CT3	Reading of 34.9875MHz (± 20Hz) on Frequency Counter.
5	Channel 19. AM,RX Mode.	Same As Step 4.	L20	Same As Step 4.
6	Channel 19. LSB,RX Mode.	Same As Step 4.	L19	Same As Step 4.
7	Channel 19. LSB,TX Mode.	Same As Step 4.	VR3	Same As Step 4.
CARRIER OSCILLATOR				
1	Channel 19. USB,RX Mode.	Frequency Counter To The Base Of TR13 (TP3).	CT1	Reading of 7.8025MHz (+ 5Hz,-0Hz) on Frequency Counter.
2	Channel 19. LSB,RX Mode.	Same As Step 1.	CT2	Reading of 7.7975MHz (+0Hz,-5Hz) on Frequency Counter.
3	Channel 19. AM,TX Mode.	Same As Step 1.	L17	Reading of 7.8000MHz (± 5Hz) on Frequency Counter.
TRANSMITTER				
1	Channel 19. USB,TX Mode. No Modulation.	D.C. Current Meter To TP8.	VR8	Reading of 30 mA on Current Meter.
2	Same As Step 1	D.C. Current Meter To TP7	VR9	Reading of 60 mA on Current Meter.
3	Same As Step 1		VR5	Minimum Carrier Leakage.
4	Channel 19. LSB,TX Mode. No Modulation.		VR5	Same As Step 3.
5	Repeat Steps 3 & 4 To Obtain Approximately Equal Amount Of Carrier Leakage On Both LSB & USB Modes, While Still Maintaining Minimum Leakage On Both.			
6	Channel 19. USB,TX Mode. AF Input of 2-Tone, Approx. 500 mV to Mic Jack.	Set VR7 Fully Clockwise. VTVM To Antenna Jack (J405)	L26,27, 28,29 & 36	Maximum Indication on VTVM.
7	Same As Step 6 w/RF Output of Approx. 4 W Peak Envelope Power.	Same As Step 6.	L26,27, 28 & 29	Maximum Indication on VTVM
8	Channel 19. AM,TX Mode. AF Input of 500 mV to Mic Jack.	Same As Step 6.	L36	Maximum Indication on VTVM.
9	Same As Step 6	VTVM To Antenna Jack (J405)	VR7	RF Output Power of Approximately 11 W Peak Envelope Power.
10	Channel 19. AM,TX Mode. No Modulation.		VR6	RF Carrier Power of 3.8 W.
11	Same As Step 6		VR10	Correct Reading on Built-In Meter (M401).
12	Same As Step 6 w/Meter (M401) In SWR Position.	Same As Step 6.	VR12	Correct Reading on Built-In Meter (M401).

WIRING DIAGRAM

