handic®

SERVICE MANUAL
FOR
handic® 605 DL/1605 DL
CITIZEN'S BAND TRANSCEIVER
MOBILE TYPE
6 CHANNELS 5 WATT

handic bolagen
Telex 2558 Telephone 031-450180
Box 156 S-42122 V. Frölunda, Sweden

CONTENTS

SPECIFICATIONS

Description	Nominal spec.
1605DL	
Frequency range	27.005 – 27.135 MHz
Operating voltage	13.2 V DC ± 15%
Total DC input	2 watts at 13.2 V
RF output	0.5 watts at 13.2 V
605DL	
Frequency range	26.965 – 27.225 MHz
Operating voltage	13.8 V DC ± 15%
DC input	5 watts (Swedish model)
RF output	4 watts (U.S. model)
Frequency tolerance	Less than ± 0.003%
Modulation	AM below 100%
Sensitivity	0.7 μV at 10 dB (S+N)/N @50mW
Selectivity	–60 dB at ± 10 kHz
Adjacent channel rejection	–60 dB
Intermediate frequency	455 kHz
Signal to noise ratio	45 dB at 1 mV input
Squelch sensitivity	
Threshold	Less than 1 μV
Tight	50 μV to 1 mV
Audio output	
10% THD	2.2 watts (8 Ω)
Max.	3.5 watts (8 Ω)
Semiconductors	1 Integrated circuit, 12 Transistors, 13 Diodes, 1 Thermistor and 2 Zener diodes
Microphone	Dynamic type with PTT switch (**h a n d i c** 44)
Controls	Volume with power switch, squelch and channel selector
Jacks	External speaker, selective call and antenna
Speaker	8 Ω, 57 mm., Dynamic type
DC power cable length	More than 3 feet with in-line fuse
Size	42(H) x 116(W) x 166(D) mm.

DISASSEMBLY INSTRUCTION

Removal of the cabinet:

1. Remove the car mounting bracket screws Ⓐ (one from each side of the unit) and remove the Mounting Bracket as shown.
2. Remove two screws Ⓑ and pull out the chassis as shown.

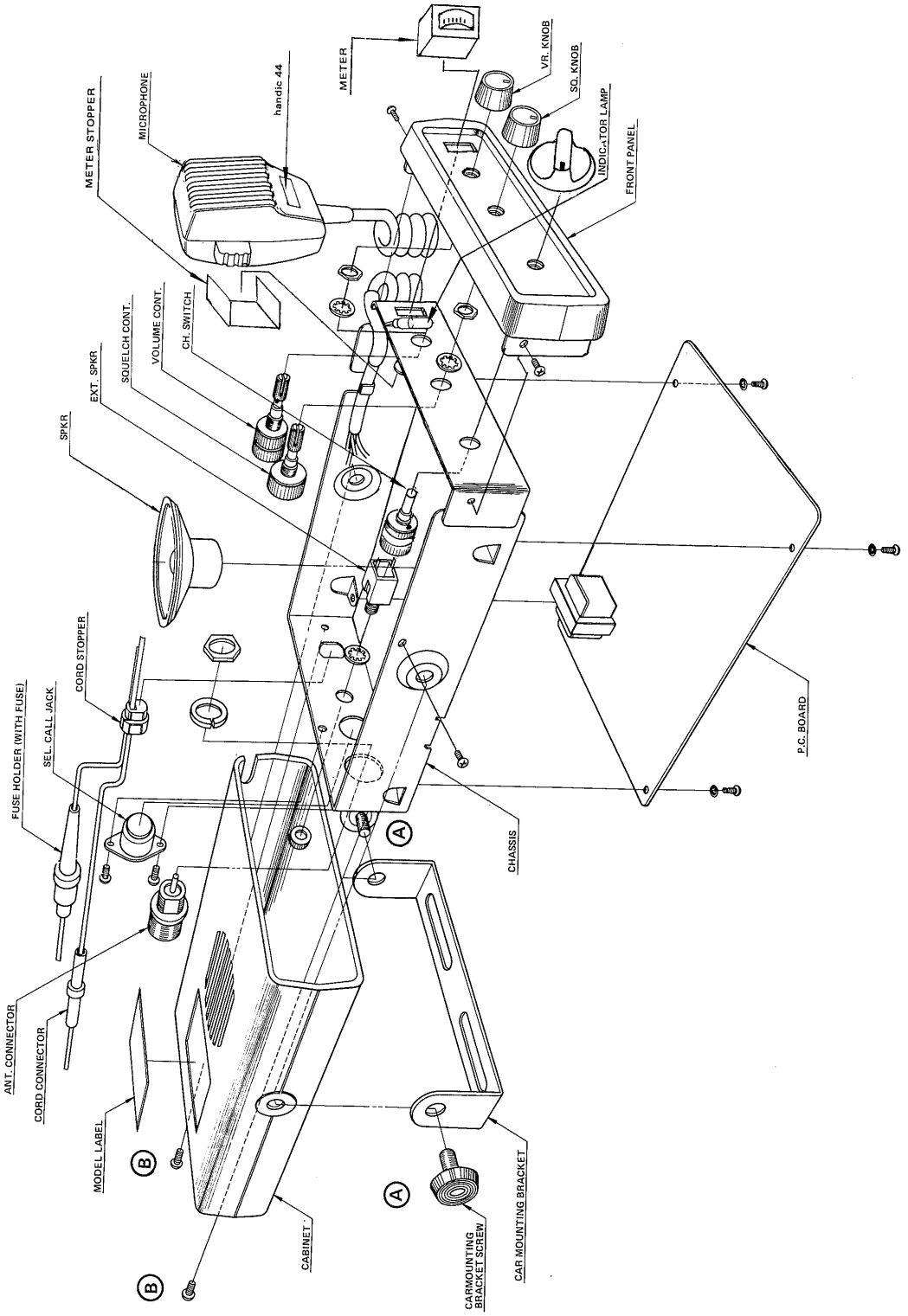


Fig. 1

CRYSTAL INSTALLATION

Channel 15 (27.135 MHz) is supplied with the unit. Other channels can be operated by installing suitable crystals in the internal crystal sockets. Crystal sockets are located inside the case, on the printed circuit board. Push out the chassis as shown in the figure below. Plug crystals into the sockets on the printed circuit board. Plug Transmit(TX) crystals into TX sockets and Receiver(RX) crystals into RX sockets. Do NOT interchange or mix RX and TX crystals. Do always have a matched pair in the crystal sockets.

Order crystals from **h a n d i c,** stating channel number and frequency. **h a n d i c** is not responsible for poor operation when crystals of another manufacturer are used.

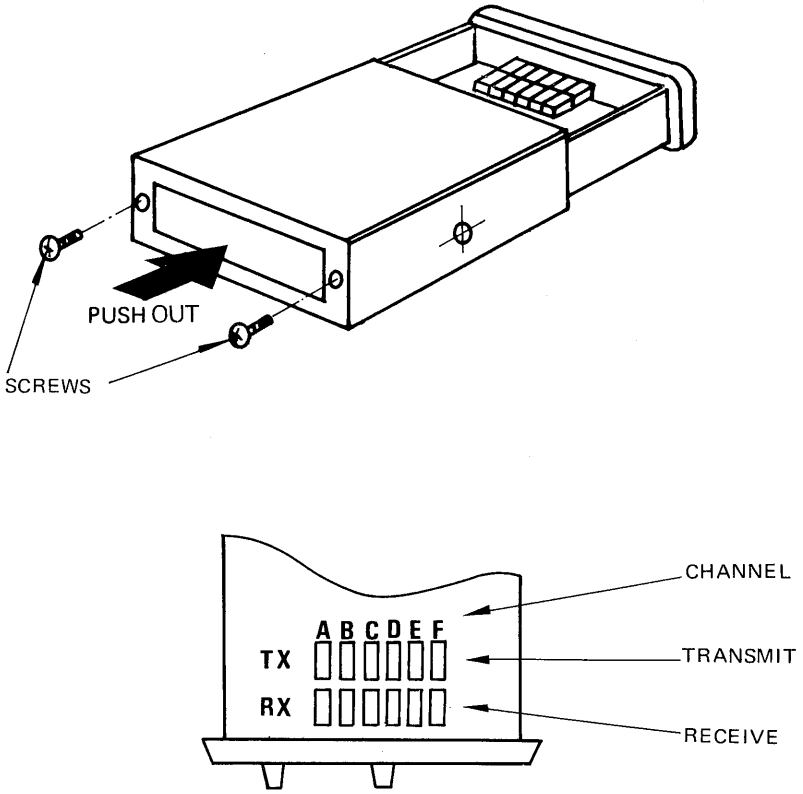


Fig. 2

SELECTIVE CALL

Selective call 6 P DIN jack is provided on the back of the cabinet.

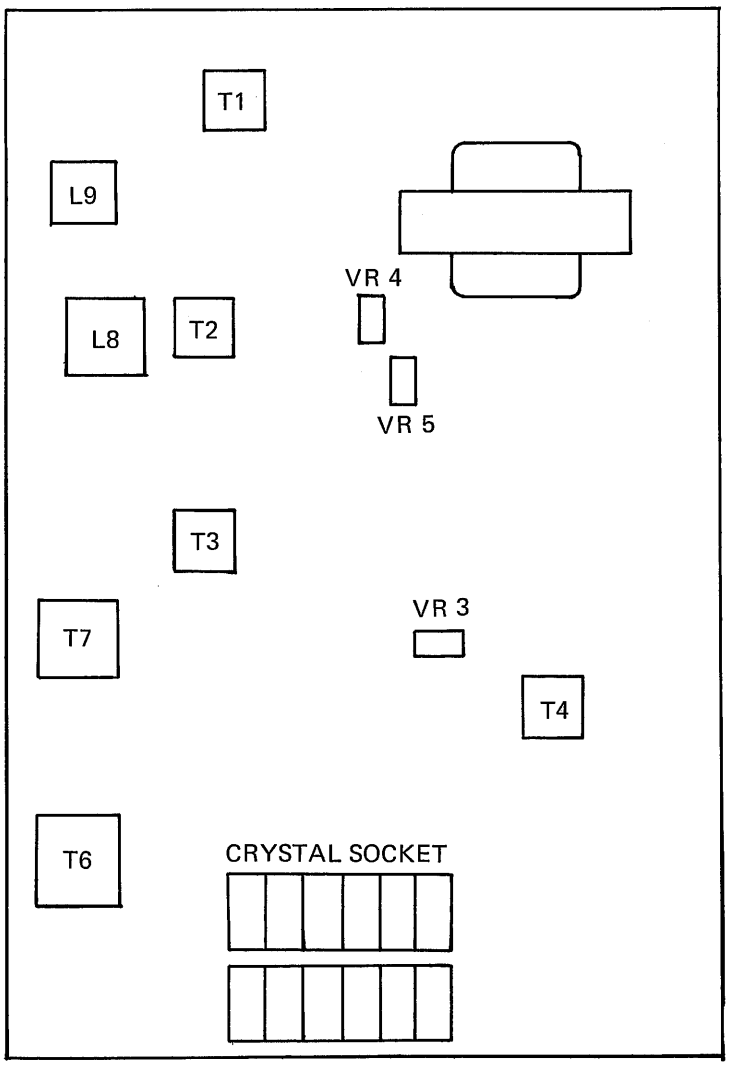
This jack is matched for **h a n d i c** S-10 and S-12 selective call units.

GENERAL ALIGNMENT INSTRUCTIONS

Test equipment required

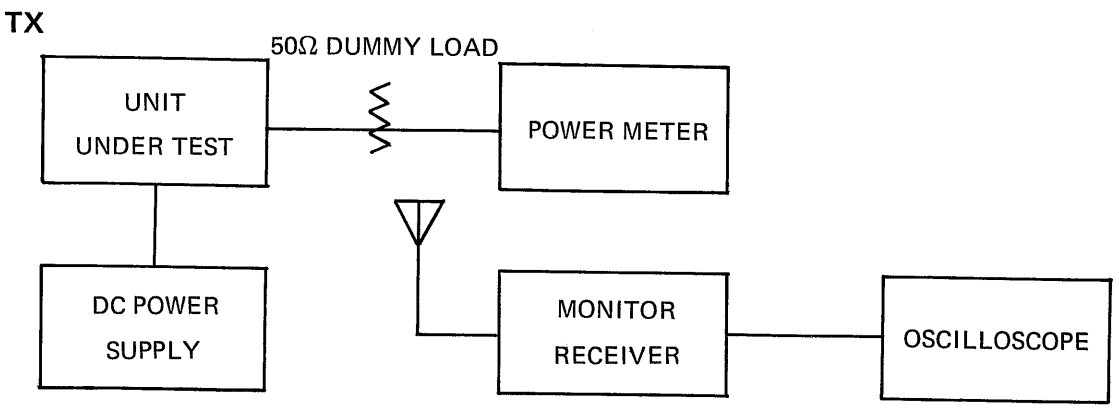
1. RF standard signal generator (S.S.G.)
2. AF signal generator
3. V.T.V.M. (AC)
4. V.T.V.M. (DC)
5. RF power meter
6. Oscilloscope
7. Frequency counter
8. Monitor receiver
9. 1 A DC ammeter
10. 8 Ω dummy load

ALIGNMENT POSITIONS



TRANSMITTER SECTION ALIGNMENT CHART

STEP	CONTROL SETTING	TEST EQUIPMENT CONNECTION	POWER SUPPLY VOLTAGE	ADJUST	REMARKS
1	CH: A position 27.135 MHz	Power meter (50 Ω): to ANT. jack 1A ammeter: in series with lead between modulation winding of T5 and collector of Q12 Oscilloscope: to monitor receiver	Supply voltage: 13.8 volts for handic 605 13.2 volts for handic 1605		
2	Press the P.T.T. SW	"	"	T6, 7	Max. power output
3	"	"	"	L8, 9	Peak on the power meter and dip on the ammeter to get max. output at ANT. jack
4	"	Power meter (50 Ω): to ANT. Jack 1A ammeter: in series with lead between modulation winding of T5 and collector of Q12	Vary supply voltage from 15 to 10 volts	T6	If no output, adjust T6 to assure output at both voltage extremes.
5	"	Audio frequency generator: to TP3 MOD. 50% + 20 dB FREQ. 2.5kHz	Reset the supply voltage	VR4	Check modulation MOD. 90 – 100% (But not so that over modulation occurs)
6	Repeat steps 2 to 4 if necessary				
7	Press the P.T.T. SW	Power meter (50 Ω)		VR5	4 reading on the meter

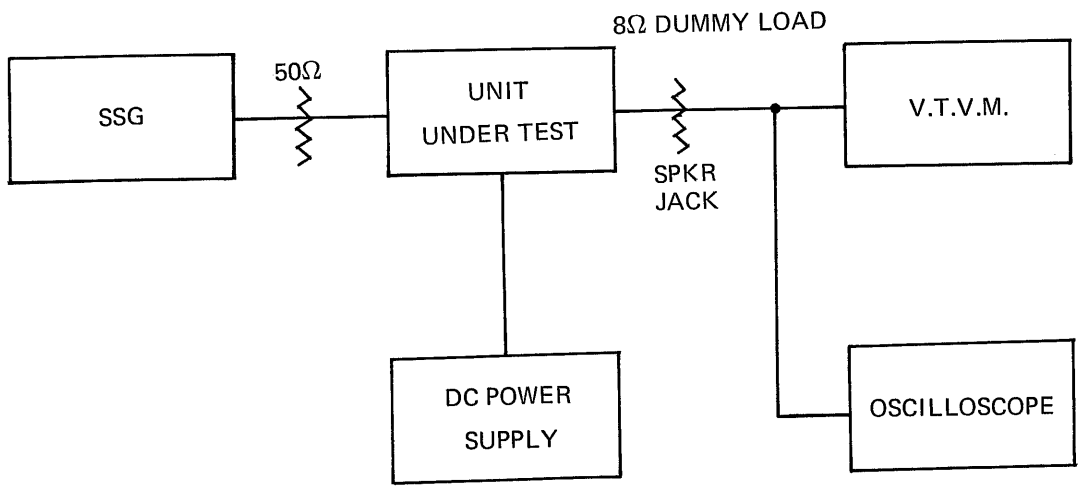


RECEIVER SECTION ALIGNMENT CHART

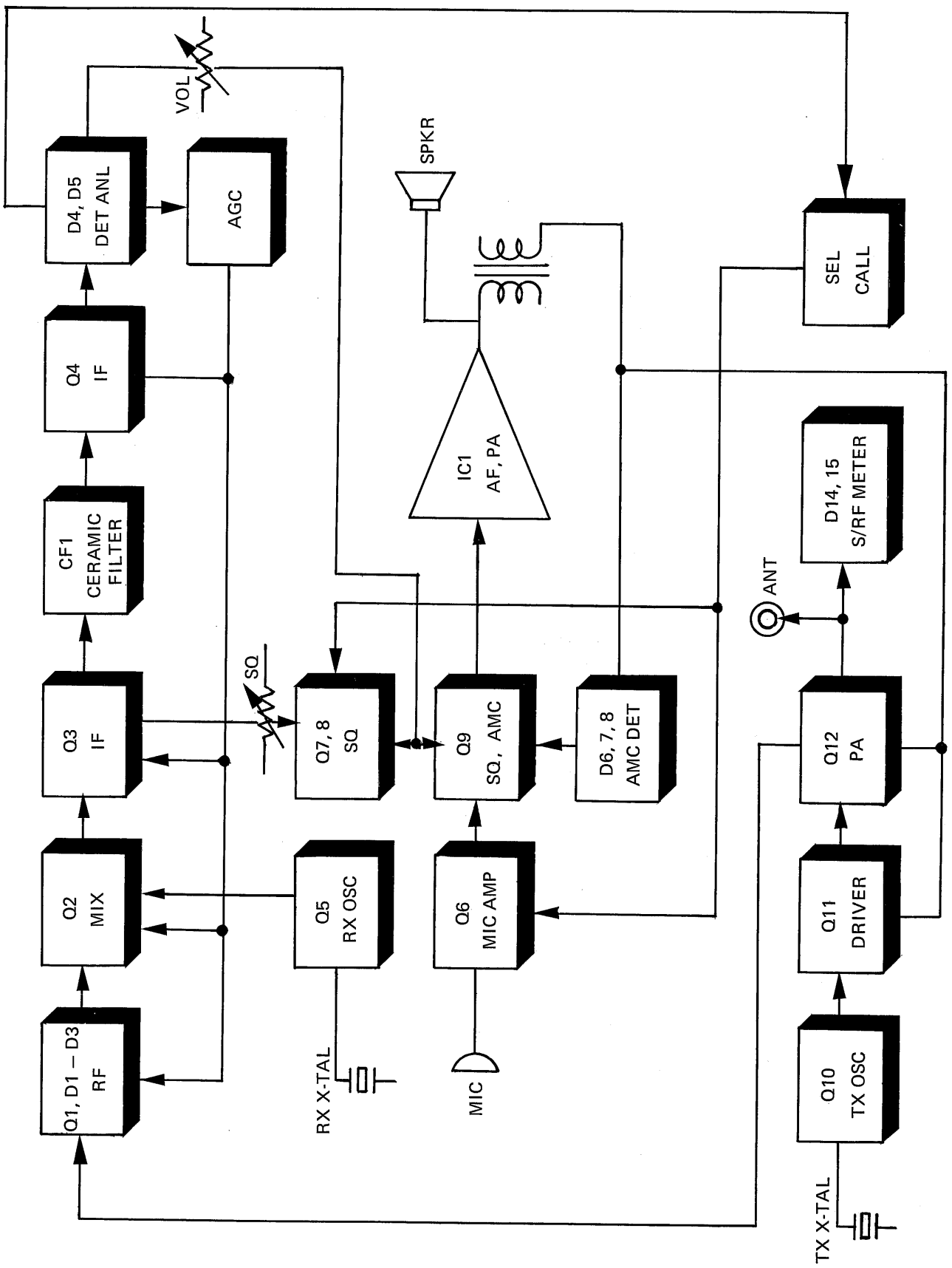
STEP	CONTROL SETTING	TEST EQUIPMENT CONNECTION	SIGNAL GENERATOR SETTING	ADJUST	REMARKS
1	Volume control: Fully clockwise SQ. control: Max. counter-clockwise CH.: A position 27.135 MHz	V.T.V.M.: Parallel with 8Ω dummy load connected to EXT. SPKR Jack Signal generator: through 100 pF to the base of Q2	Freq.: 455 kHz Mod.: 1 kHz 30%	T3 T4	Max. output on V.T.V.M.
2	"	V.T.V.M.: Parallel with 8Ω dummy load connected to EXT. SPKR Jack Signal generator: to ANT. Jack	Freq.: 27.135 MHz Mod.: 1 kHz	T1, 2	Max. S/N and max. output on V.T.V.M.
3	Volume control: Adjust for desired audio level SQ. control: Fully clockwise	V.T.V.M.: Parallel with 8Ω dummy load connected to EXT. SPKR Jack Signal generator: to ANT. Jack	Freq.: 27.135 MHz Mod.: 1 kHz 30% Output: 500 μV	VR3	Adjust so squelch just opens

Note: Keep the input signal from S.S.G. as low as possible during all alignment.

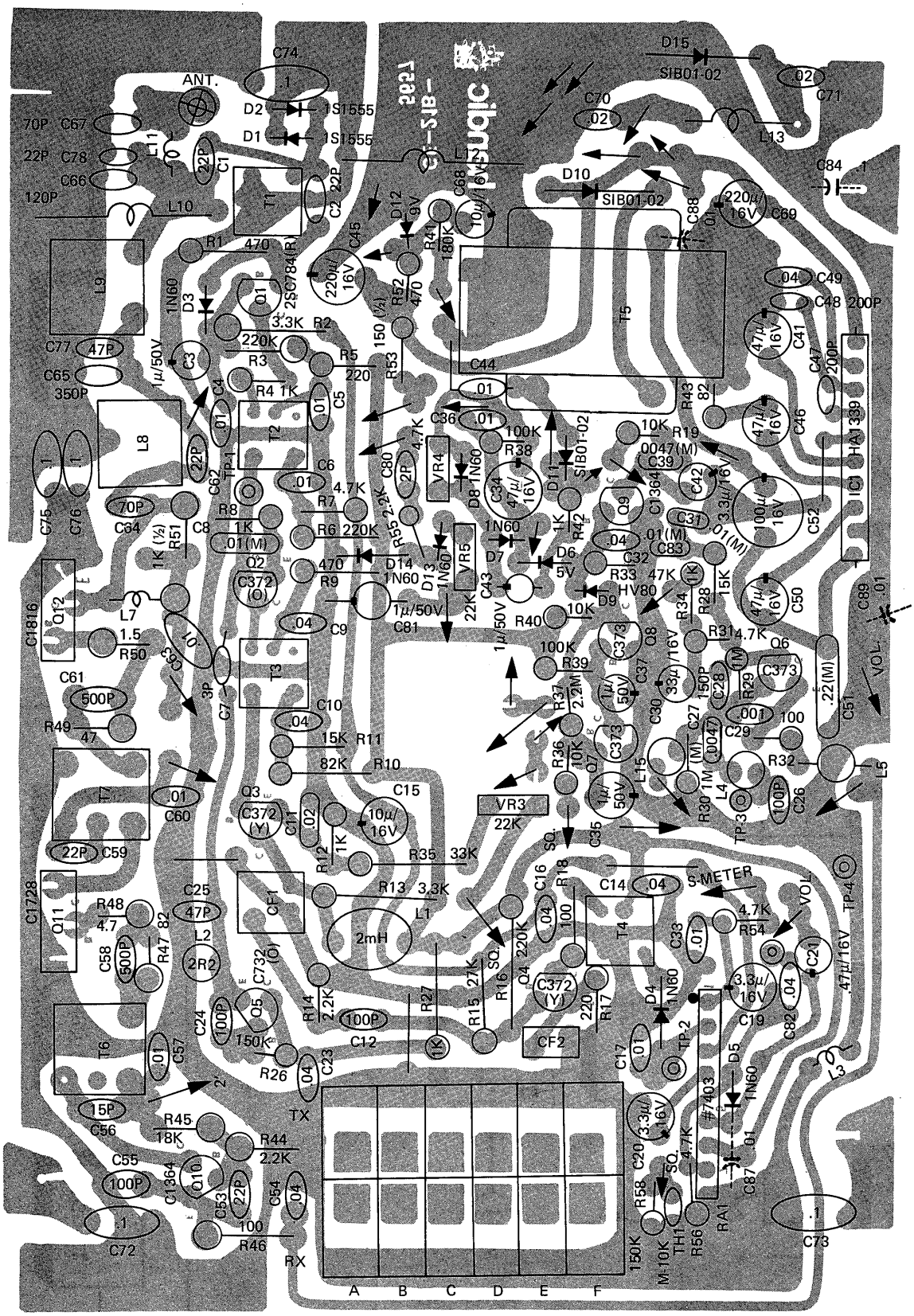
RX



BLOCK DIAGRAM

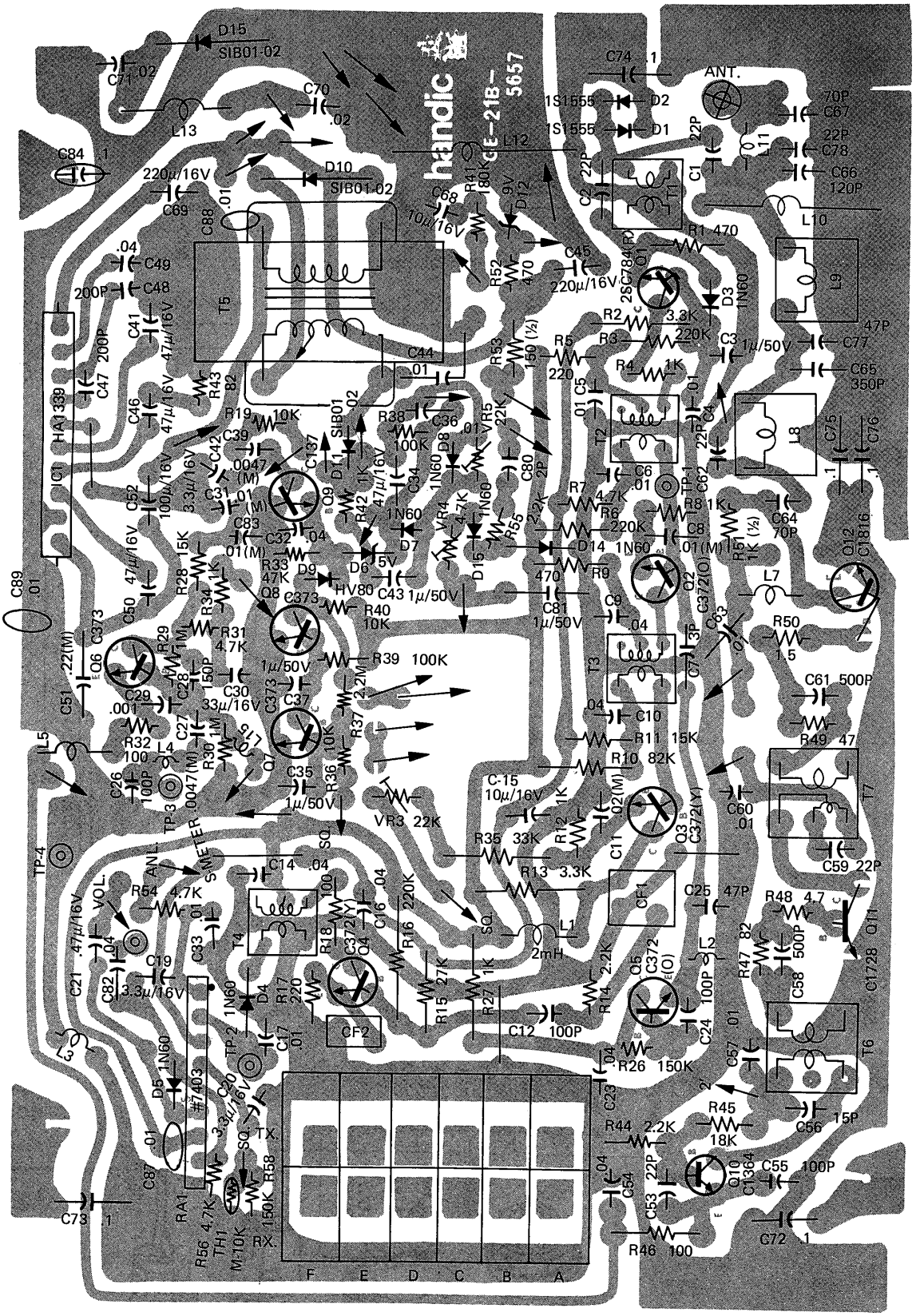


PRINTED CIRCUIT BOARD TOP VIEW



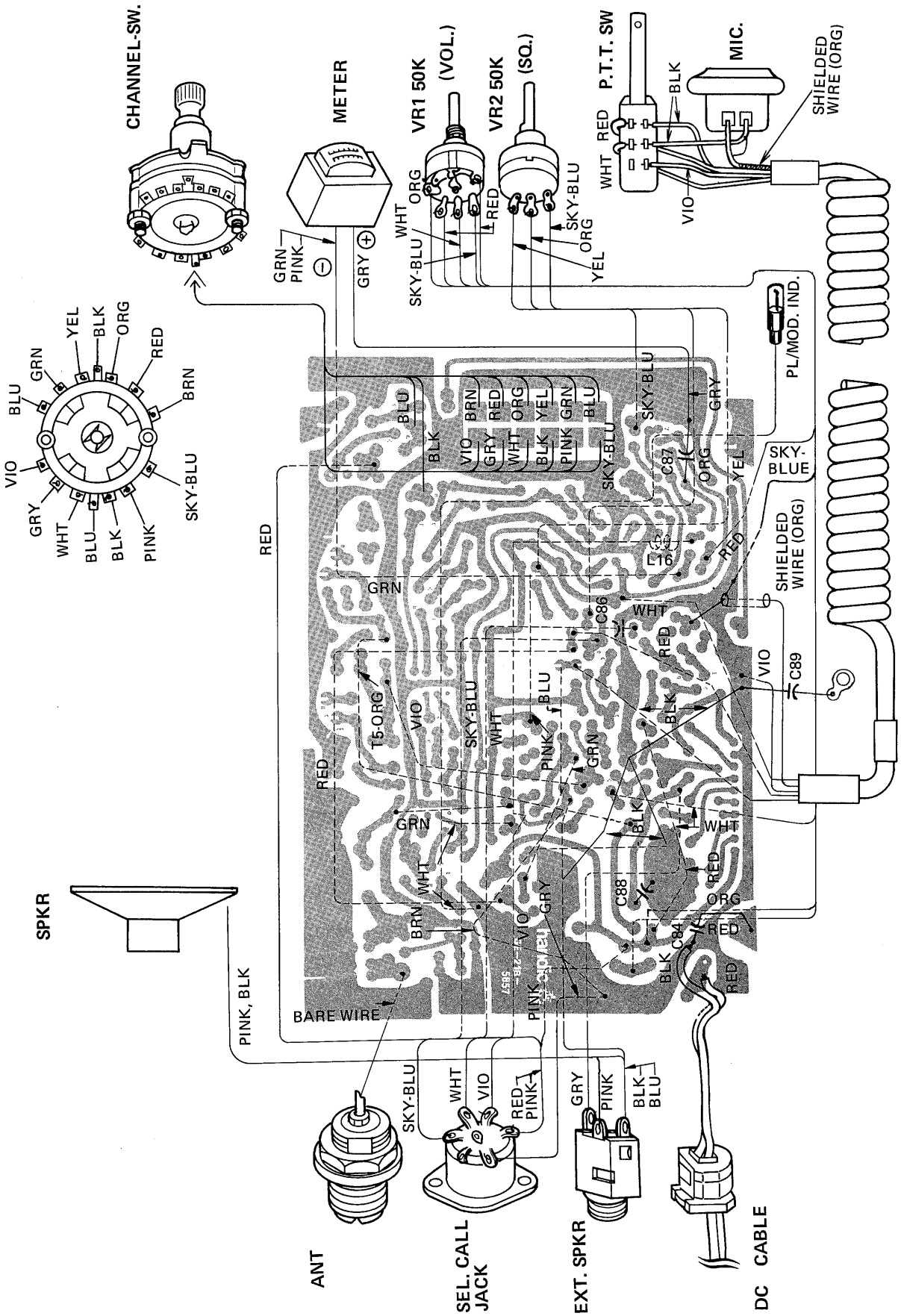
NOTE: Refer to the Parts list for handic 1605DL.

PRINTED CIRCUIT BOARD BOTTOM VIEW



NOTE: Refer to the Parts list for handic 1605DL.

WIRING DIAGRAM



TROUBLE SHOOTING

Symptom	Possible cause
1) Pilot lamp does not light and set does not operate when power is on.	A) Faulty power cord. B) Defective power switch SW3. C) Fuse blown. D) Defective diode D13.
2) Fuse blows when power switch is on.	A) Defective electrolytic capacitor. B) Defective audio power amplifier Integrated circuit IC 1 C) Defective TX final transistor Q11 or Q12
3) Pilot lamp does not light.	A) Defective pilot lamp or resistor R53. B) Open circuit in the B+ Circuit.
4) Pilot lamp comes on but no sound on any channel.	A) Faulty EXT. speaker jack. B) Poor crystal socket contact or crystal loose in socket. C) Weak crystal.
5) Transmitter does not operate or no modulation.	A) Faulty P.T.T. switch. B) Defective microphone cartridge. C) Faulty transistor Q10, 11 or Q12. D) Faulty microphone cord. E) Defective T5 transformer modulation winding. F) Defective resistor R47, 49 or R50. G) Faulty transistor Q6.
6) Squelch control does not operate.	A) Defective transistor Q7, Q8 or Q9. B) Faulty VR2 or VR3.

PARTS LIST

Ref. No.	Description				handic Stock Number	MFR'S Parts Number
	CAPACITORS					
C1	Ceramic	22pF	50WV	±5%	990253	FC-50
C2	Ceramic	22pF	50WV	±5%	990253	FC-50
C3	Electrolytic	1μF	50WV	−10 − +75%	990008	CE04W1H010E
C4	Ceramic	0.01μF	25WV	−20 − +80%	990477	MC-70
C5	Ceramic	0.01μF	25WV	−20 − +80%	990477	MC-70
C6	Ceramic	0.01μF	25WV	−20 − +80%	990477	MC-70
C7	Ceramic	3PF	50WV	±0.5%		FC-50
C8	Mylar	0.01μF	25WV	±20%	990099	
C9	Ceramic	0.04μF	25WV	−20 − +80%	990491	MC-100
C10	Ceramic	0.04μF	25WV	−20 − +80%	990491	MC-100
C11	Mylar	0.02μF	25WV	±20%	990106	
C12	Ceramic	200pF	50WV	±10%	990295	FC-70
C13	Not used					
C14	Ceramic	0.04μF	25WV	−20 − +80%	990491	MC-100
C15	Electrolytic	10μF	16WV	−10 − +80%	990036	CE04W1C100C
C16	Ceramic	0.04μF	25WV	−20 − +80%	990491	MC-100
C17	Ceramic	0.01μF	25WV	−20 − +80%	990477	MC-70
C18	Not used					
C19	Electrolytic	3.3μF	16WV	−10 − +75%	990554	CE04W1C3R3C
C20	Electrolytic	3.3μF	16WV	−10 − +75%	990554	CE04W1C3R3C
C21	Electrolytic	0.47μF	50WV	−10 − +75%	990001	CE04W1HR47A
C22	Not used					
C23	Ceramic	0.04μF	25WV	−20 − +80%	990491	MC-100
C24	Ceramic	100pF	50WV	±10%	990295	FC-70
C25	Ceramic	* 47pF	50WV	±10%	990274	FC-60
C26	Ceramic	100pF	50WV	±10%	990295	FC-70
C27	Mylar	0.0047μF	50WV	±20%		
C28	Ceramic	150P	50WV	±20%	990309	FC-80
C29	Ceramic	0.001μF	50WV	±10%	990463	MC-60
C30	Electrolytic	33μF	16WV	−10 − +80%		CE04W1C-330C
C31	Mylar	0.01μF	25WV	±20%	990099	
C32	Ceremic	0.04μF	25WV	−20 − +80%	990491	MC-100
C33	Ceramic	0.01μF	25WV	−20 − +80%	990477	MC-70
C34	Electrolytic	47μF	16WV	−10 − +50%	990043	CE04W1C470B
C35	Electrolytic	1μF	50WV	−10 − +75%	990008	CE04W1H010E
C36	Ceramic	0.01μF	25WV	−20 − +80%	990477	MC-70
C37	Electrolytic	1μF	50WV	−10 − +75%	990008	CE04W1H010E
C38	Not used					
C39	Mylar	0.0047μF	50WV	±20%		
C40	Not used					
C41	Electrolytic	* 47μF	16WV	−10 − +50%	990043	CE04W1C470B
C42	Electrolytic	3.3μF	16WV	−10 − +75%	990554	CE04W1C3R3C
C43	Electrolytic	1μF	50WV	−10 − +75%	990008	CE04W1H010E
C44	Ceramic	0.01μF	25WV	−20 − +80%	990477	MC-70
C45	Electrolytic	220μF	16WV	−10 − +50%	990057	CE04W1C221E
C46	Electrolytic	47μF	16WV	−10 − +50%	990043	CE04W1C470B
C47	Ceramic	200pF	50WV	±20%		FC-80
C48	Ceramic	200pF	50WV	±20%		FC-80
C49	Ceramic	0.04μF	25WV	−20 − +80%	990491	MC-100
C50	Electrolytic	47μF	16WV	−10 − +50%	990043	CE04W1C470B

* Not in 1605DL

Ref. No.	Description				handic Stock Number	MFR'S Parts Number
C51	Mylar	0.22μF	50WV	±20%		
C52	Electrolytic	100μF	16WV	−10 − +50%	990050	CE04W1C101F
C53	Ceramic	22pF	50WV	±5%	990253	FC-50
C54	Ceramic	0.04μF	25WV	−20 − +80%	990491	MC-100
C55	Ceramic	100pF	50WV	±10%	990295	FC-70
C56	Ceramic	15pF	50WV	±10%	990246	FC-50
C57	Ceramic	0.01μF	25WV	−20 − +80%	990477	MC-70
C58	Ceramic	500pF	50WV	±10%	990365	FC-100
C59	Ceramic	*22pF	50WV	±5%	990253	FC-50
C60	Ceramic	0.01μF	25WV	−20 − +80%	990477	MC-70
C61	Ceramic	500pF	50WV	±10%	990365	FC-100
C62	Ceramic	22pF	50WV	±10%	990253	FC-50
C63	Ceramic	0.01μF	25WV	−20 − +80%	990477	MC-70
C64	Ceramic	70pF	50WV	±10%	990288	FC-70
C65	Ceramic	*350pF	50WV	±20%	990358	FC-100
C66	Ceramic	*120pF	50WV	±20%		FC-80
C67	Ceramic	*70pF	50WV	±10%	990288	FC-70
C68	Electrolytic	10μF	16WV	−10 − +50%	990036	CE04W1C100C
C69	Electrolytic	220μF	16WV	−10 − +50%	990057	CE04W1C221E
C70	Ceramic	0.02μF	25WV	−20 − +80%	990484	MC-75
C71	Ceramic	0.02μF	25WV	−20 − +80%	990484	MC-75
C72	Ceramic	0.1μF	25WV	−20 − +80%	990498	MMC-135
C73	Ceramic	0.1μF	25WV	−20 − +80%	990498	MMC-135
C74	Ceramic	0.1μF	25WV	−20 − +80%	990498	MMC-135
C75	Ceramic	0.1μF	25WV	−20 − +80%	990498	MMC-135
C76	Ceramic	0.1μF	25WV	−20 − +80%	990498	MMC-135
C77	Ceramic	*47pF	50WV	±10%	990274	FC-60
C78	Ceramic	22pF	50WV	±5%	990253	FC-50
C79	Not used					
C80	Ceramic	2pF	50WV	±0.5pF	990211	FC-50
C81	Electrolytic	1μF	50WV	−10 − +75%	990008	CE04†1H010E
C82	Ceramic	0.04μF	25WV	−20 − +80%	990491	MC-100
C83	Mylar	0.01μF	25WV	±20%	990099	
C84	Ceramic	*0.1μF	25WV	−20 − +80%	990498	MMC-135
C85	Not used					
C86	Mylar	0.0047μF	50WV	±20%		
C87	Ceramic	0.01μF	25WV	−20 − +80%	990477	MC-70
C88	Ceramic	0.01μF	25WV	−20 − +80%	990477	MC-70
C89	Ceramic	0.01μF	25WV	−20 − +80%	990477	MC-70
	RESISTORS					
R1	Carbon film	470	1/4W	±5%	951477	14VJ-471
R2	Carbon film	3.3K	1/4W	±5%	951617	14VJ-332
R3	Carbon film	220K	1/4W	±5%	951925	14VJ-224
R4	Carbon film	1K	1/4W	±5%	951533	14VJ-102
R5	Carbon film	220	1/4W	±5%	951421	14VJ-221
R6	Carbon film	220K	1/4W	±5%	951925	14VJ-224
R7	Carbon film	4.7K	1/4W	±5%	951645	14VJ-472
R8	Carbon film	1K	1/4W	±5%	951533	14VJ-102
R9	Carbon film	470	1/4W	±5%	951477	14VJ-471
R10	Carbon film	82K	1/4W	±5%	951855	14VJ-823

*Not in 1605DL

Ref No.	Description				handic Stock Number	MFR'S Parts Number
R11	Carbon film	15K	1/4W	±5%	951729	14VJ-153
R12	Carbon film	1K	1/4W	±5%	951533	14VJ-102
R13	Carbon film	3.3K	1/4W	±5%	951617	14VJ-332
R14	Carbon film	2.2K	1/4W	±5%	951589	14VJ-222
R15	Carbon film	27K	1/4W	±5%	951771	14VJ-273
R16	Carbon film	220K	1/4W	±5%	951925	14VJ-224
R17	Carbon film	220	1/4W	±5%	951421	14VJ-221
R18	Carbon film	100	1/4W	±5%	951365	14VJ-101
R19	Carbon film	10K	1/4W	±5%	951701	14VJ-103
R20	Resistor arrey	1K	1/4W	±5%		7403
R21	Resistor arrey	10K	1/4W	±5%		
R22	Resistor arrey	33K	1/4W	±5%		
R23	Resistor arrey	33K	1/4W	±5%		
R24	Resistor arrey	470K	1/4W	±5%		
R25	Resistor arrey	10K	1/4W	±5%		
R26	Carbon film	*150K	1/4W	±5%	951897	14VJ-154
R27	Carbon film	1K	1/4W	±5%	951533	14VJ-102
R28	Carbon film	15K	1/4W	±5%	951729	14VJ-153
R29	Carbon film	1M	1/4W	±5%	952037	14VJ-105
R30	Carbon film	1M	1/4W	±5%	952037	14VJ-105
R31	Carbon film	4.7K	1/4W	±5%	951645	14VJ-472
R32	Carbon film	100	1/4W	±5%	951365	14VJ-101
R33	Carbon film	47K	1/4W	±5%	951813	14VJ-473
R34	Carbon film	1K	1/4W	±5%	951533	14VJ-102
R35	Carbon film	33K	1/4W	±5%	951785	14VJ-333
R36	Carbon film	10K	1/4W	±5%	951701	14VJ-103
R37	Carbon film	2.2M	1/4W	±5%	952044	14VJ-225
R38	Carbon film	100K	1/4W	±5%	951869	14VJ-104
R39	Carbon film	100K	1/4W	±5%	951869	14VJ-104
R40	Carbon film	10K	1/4W	±5%	951701	14VJ-103
R41	Carbon film	180K	1/4W	±5%	951911	14VJ-184
R42	Carbon film	1K	1/4W	±5%	951533	14VJ-102
R43	Carbon film	82	1/4W	±5%	951351	14VJ-820
R44	Carbon film	2.2K	1/4W	±5%	951589	14VJ-222
R45	Carbon film	18K	1/4W	±5%	951743	14VJ-183
R46	Carbon film	100	1/4w	±5%	951365	14VJ-101
R47	Carbon film	82	1/4W	±5%	951351	14VJ-820
R48	Carbon film	4.7	1/4W	±5%	951141	14VJ-4R7
R49	Carbon film	*47	1/4W	±5%	951309	14VJ-470
R50	Carbon film	*1.5	1/4W	±5%	951057	14VJ-1R5
R51	Carbon film	1K	1/2W	±10%	954130	12TK-102
R52	Carbon film	470	1/4W	±5%	951477	14VJ-471
R53	Carbon film	150	1/2W	±10%		12TK-151
R54	Carbon film	5.6K	1/4W	±5%	951645	14VJ-472
R55	Carbon film	2.2K	1/4W	±5%	951589	14VJ-222
R56	Carbon film	4.7K	1/4W	±5%	951645	14VJ-472
R57	Not used					
R58	Carbon film	150K	1/4W	±5%	951897	14VJ-154
SEMICONDUCTORS						
Q1	Transistor	Silicon		Toshiba	992108	2SC784 (R)

* Not in 1605DL

Ref. No.	Description			handic Stock Number	MFR'S Parts Number
Q2	Transistor	Silicon	Toshiba	992052	2SC372 (O)
Q3	Transistor	Silicon	Toshiba	992059	2SC372 (Y)
Q4	Transistor	Silicon	Toshiba	992059	2SC372 (Y)
Q5	Transistor	Silicon	Toshiba	992052	2SC372 (O)
Q6	Transistor	Silicon	Toshiba	992066	2SC373
Q7	Transistor	Silicon	Toshiba	992066	2SC373
Q8	Transistor	Silicon	Toshiba	992066	2SC373
Q9	Transistor	Silicon	SONY	992129	2SC1364
Q10	Transistor	Silicon	SONY	992129	2SC1364
Q11	Transistor	Silicon	SONY		2SC1728
Q12	* Transistor	Silicon	SONY		2SC1816
D1	Diode	Silicon		992150	1S1555
D2	Diode	Silicon		992150	1S1555
D3	Diode	Germanium		992143	1N60
D4	Diode	Germanium		992143	1N60
D5	Diode	Germanium		992143	1N60
D6	Diode	Zener			EQA01-05 (S)
D7	Diode	Germanium		992143	1N60
D8	Diode	Germanium		992143	1N60
D9	Diode	Silicon		992164	HV80
D10	Diode	Silicon		992171	S1B01-02
D11	Diode	Silicon		992171	S1B01-02
D12	Diode	Zener			EQA01-09 (R)
D13	Diode	Silicon		992171	S1B01-02
D14	Diode	Germanium		992143	1N60
D15	Diode	Germanium		992143	1N60
TH-1	Thermistor			992213	M-10K
IC-1	Audio amplifier integrated circuit				HA-1339
COILS/TRANSFORMERS/FILTERS					
T1	ANT. coil			995108	74XN2229A0
T2	RF coil			995045	1624B
T3	IF coil				7MC-452203N9
T4	IF coil			995059	4202
T5	Output transformer				AE-5254B
T6	OSC coil			995122	8SNC-055
T7	Drive coil			995115	8SND-061
L1	RFC 2.2mH				EL0610-222K
L2	RFC 2.2μH			995010	LF4-2R2K
L3	RFC			995087	4LNC-092
L4	RFC 10μH			995094	LF1-100K
L5	RFC 10μH			995094	LF1-100K
L6	Not used				
L7	RFC			995017	4LNC-027
L8	T NET coil			995080	8SNF-057
L9	π NET coil			995031	10PNP-028
L10	RFC			995017	4LNC-027
L11	RFC			995087	4LNC-092

Ref No.	Description		handic Stock Number	MFR'S Parts Number
L12	RFC		995017	4LNC-027
L13	RFC			8LNC-053
L14	Not used			
L15	RFC 10μH		995094	LF1-100K
L16	RFC 10μH		995094	LF1-100K
CF-1	Ceramic filter			LF-B6
CF-2	Ceramic filter			EFA8 or BFB455L
	VOLUMES			
VR1	Volume control	50K (A)		V12M4-1S-20FH A50K
VR2	Squelch control	50K (C)		V12M-1N-20FH C50K
VR3	Potentiometer	22K		P6S2X 22K
VR4	Potentiometer	4.7K		P6S2X 4.7K
VR5	Potentiometer	22K		P6S2X 22K
	SWITCHES			
SW.1	CH. switch			S18-1-2-6-20L
SW.2	P.T.T. switch			2P-012
	CRYSTALS			
RX	Crystal	26.680 MHz		
TX	Crystal	27.135 MHz		
	MISCELLANEOUS			
	Panel			GE-21D-5616
	Escutcheon assembly			
	Cabinet		599519	GE-19B-4649
	Chassis			
	Heat sink			GE-19D-4751
	Car mounting bracket			GE-20D-5275
	Car mounting bracket screw			GE-16D-3166
	VOLUME knob		599554	GE-19D-4652
	Speaker cloth		599568	GE-19D-4662
	MIC. case		599575	GE-19D-4656
	MIC. holder			GE-18D-4452
	MIC. cord			GE-17D-3521
	MIC. knob		599603	GE-19D-4657
	MIC. label A		599610	GE-19D-4785 (A)
	MIC. label B		599617	GE-19D-4785 (B)
	MIC. switch holder		599624	GE-19D-4661
	MIC. element		599589	UD-11
	P.C. board			GE-21B-5657
	Pilot lamp 7V/50mA L = 190 mm.			
	Pilot lamp holder			LH-141
	Meter			KL-249A-27

Ref. No.	Description	handic Stock Number	MFR'S Parts Number
	ANT. connector	599428	NY-R
	DIN. jack		D6-701B-00
	Speaker jack	599652	SJ-296-1-15
	Crystal socket		SB-101B-10
	Speaker 2-1/4", 16Ω		C060A10N1311
	Fuse 2A		
	DC. cord (W/Fuse) holder		
	Cord stopper	599659	SR-3P-4
	ANT. earth lug		GE-21D-6137
	Model label (605DL)		
	IC mount bracket		GE-20D-5312
	Speaker holder		GE-19D-4607
	P.C.B. spacer		GE-19D-4789
	CH switch knob	599043	GE-19D-4631
	Poly case		GE-19B-4660

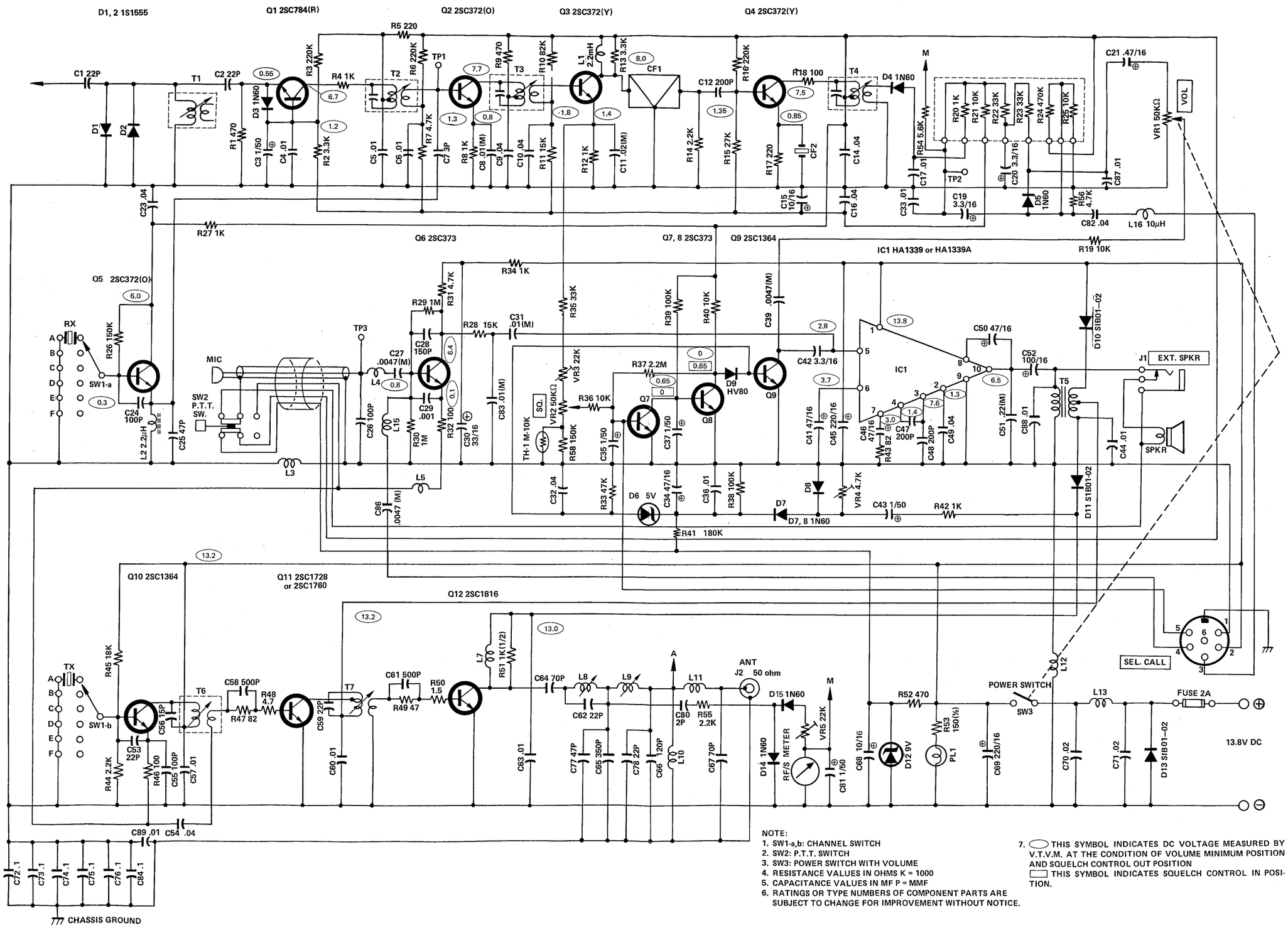
Following parts must be uesd in **handic 1605DL.**
Other parts are same as **handic 605DL.**

	Description				handic Stock Number	MFR'S Parts Number
	CAPACITORS					
C25	Ceramic	56PF	50WV	±10%		FC-70
C40	Ceramic	47PF	50WV	±20%	990274	FC-60
C59	Ceramic	15PF	50WV	±10%	990246	FC-50
C65	Ceramic	270PF	50WV	±20%	990337	FC-90
C66	Ceramic	350PF	50WV	±20%	990358	FC-100
C67	Ceramic	200PF	50WV	±20%		FC-80
C77	Not used					
C78	Not used					
C84	Ceramic	0.04μF	25WV	−20±80%	990491	MC-100
	RESISTORS					
R26	Carbon film	270K	1/4W	±5%	951925	14VJ-224
R49	Carbon film	470	1/4W	±5%	951477	14VJ-471
R50	Carbon film	33	1/4W	±5%	951309	14VJ-470
R55	Carbon film	1K	1/4W	±5%	951533	14VJ-102
	SEMICONDUCTOR					
Q12	Transistor	Silicon		MITSUBISHI	992122	2SC1017 or 2SC1018
	MISCELLANEOUS					
	Model label (1605DL)					
	Cabinet					

MFR'S Parts Number
NY-R
06-701B-00
GJ-296-1-15
GB-101B-10
C060A10N1311
GR-3P-4
GE-21D-6137
GE-20D-5312
GE-19D-4607
GE-19D-4789
GE-19D-4631
GE-19B-4660

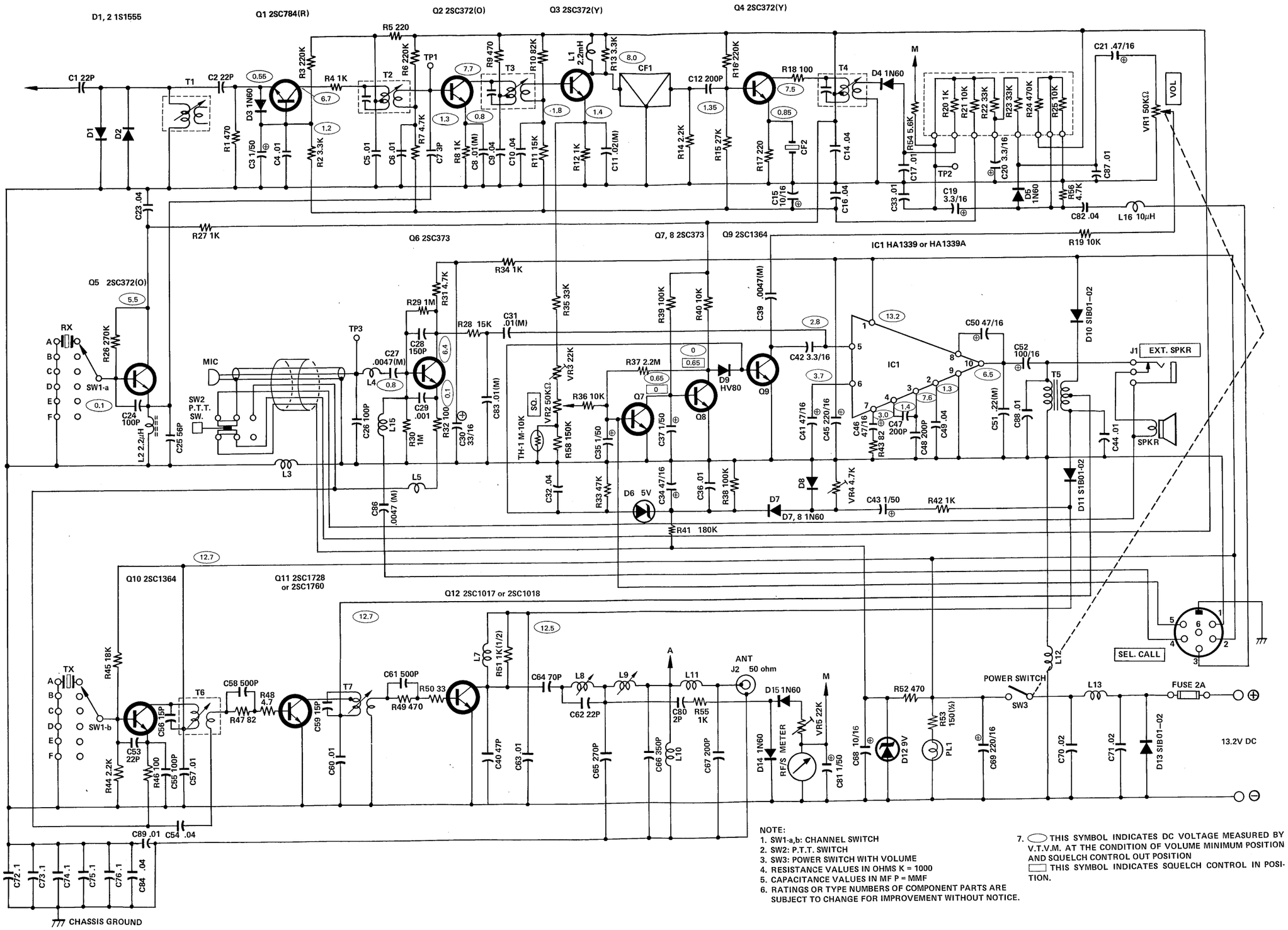
MFR'S Parts Number
FC-70
FC-60
FC-50
FC-90
FC-100
FC-80
MC-100
4VJ-224
4VJ-471
4VJ-470
4VJ-102
2SC1017 or 2SC1018

SCHEMATIC DIAGRAM 605DL



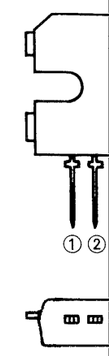
NOTE:
1. SW1-a,b: CHANNEL SWITCH
2. SW2: P.T.T. SWITCH
3. SW3: POWER SWITCH WITH VOLUME
4. RESISTANCE VALUES IN OHMS K = 1000
5. CAPACITANCE VALUES IN MF P = MMF
6. RATINGS OR TYPE NUMBERS OF COMPONENT PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT WITHOUT NOTICE.
7. ⬭ THIS SYMBOL INDICATES DC VOLTAGE MEASURED BY V.T.V.M. AT THE CONDITION OF VOLUME MINIMUM POSITION AND SQUELCH CONTROL OUT POSITION
▭ THIS SYMBOL INDICATES SQUELCH CONTROL IN POSITION.

SCHEMATIC DIAGRAM 1605DL



NOTE:
1. SW1-a,b: CHANNEL SWITCH
2. SW2: P.T.T. SWITCH
3. SW3: POWER SWITCH WITH VOLUME
4. RESISTANCE VALUES IN OHMS K = 1000
5. CAPACITANCE VALUES IN MF P = MMF
6. RATINGS OR TYPE NUMBERS OF COMPONENT PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT WITHOUT NOTICE.
7. ⬭ THIS SYMBOL INDICATES DC VOLTAGE MEASURED BY V.T.V.M. AT THE CONDITION OF VOLUME MINIMUM POSITION AND SQUELCH CONTROL OUT POSITION
▭ THIS SYMBOL INDICATES SQUELCH CONTROL IN POSITION.

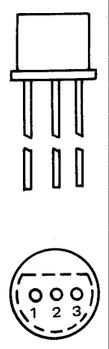
LINEAR



SEMICO

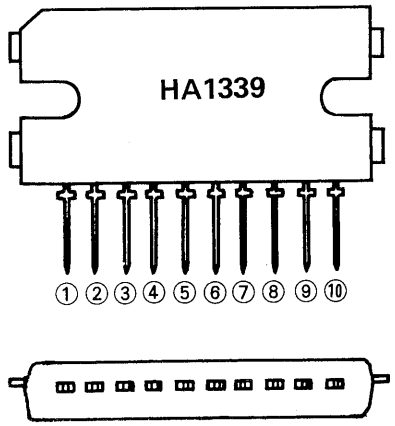
(A): 2SC37
(B): 2SC17
(C): 2SC18
(D): 2SC13
(E): 2SC10

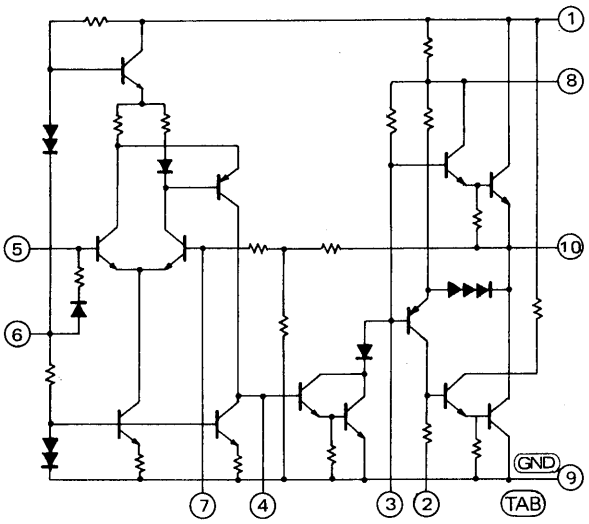
(A)



1. EMITTER
2. COLLECT
3. BASE

LINEAR INTEGRATED CIRCUIT HA1339

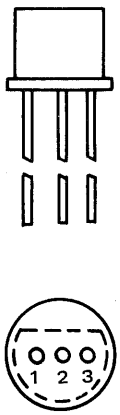




SEMICONDUCTORS LEAD IDENTIFICATIONS

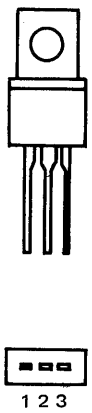
(A): 2SC372 (O), 2SC372 (Y), 2SC373, 2SC784
(B): 2SC1728
(C): 2SC1816
(D): 2SC1364
(E): 2SC1017, 2SC1018

(A)



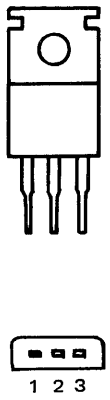
1. EMITTER
2. COLLECTOR
3. BASE

(B)



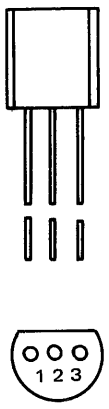
1. EMITTER
2. COLLECTOR (TAB)
3. BASE

(C)



1. BASE
2. COLLECTOR
3. EMITTER

(D)



1. EMITTER
2. COLLECTOR
3. BASE

(E)

1. COLLECTOR
2. BASE
3. EMITTER

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