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Royce 1-653B Service Manual

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1-653B

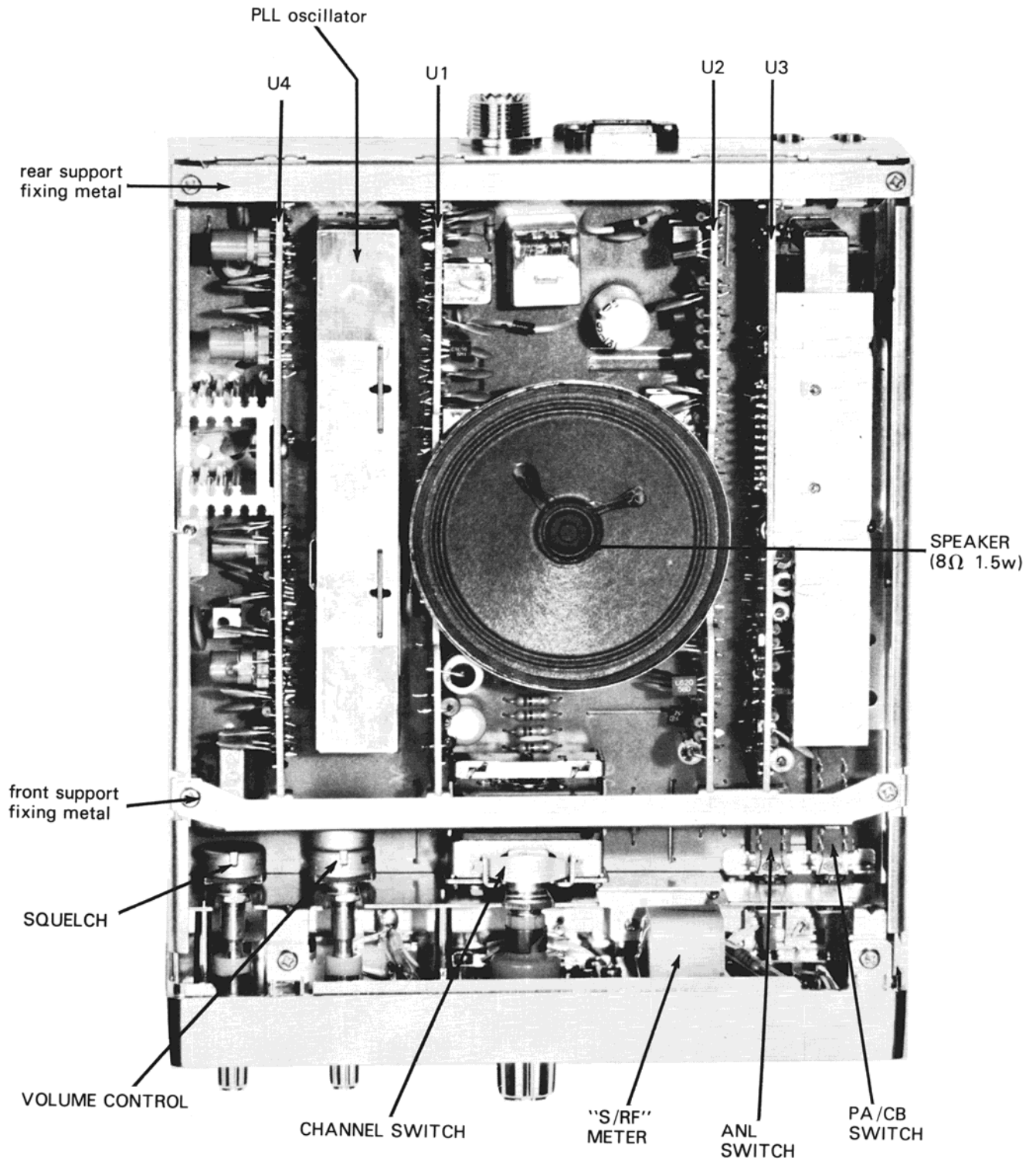


Fig 1

1-653B

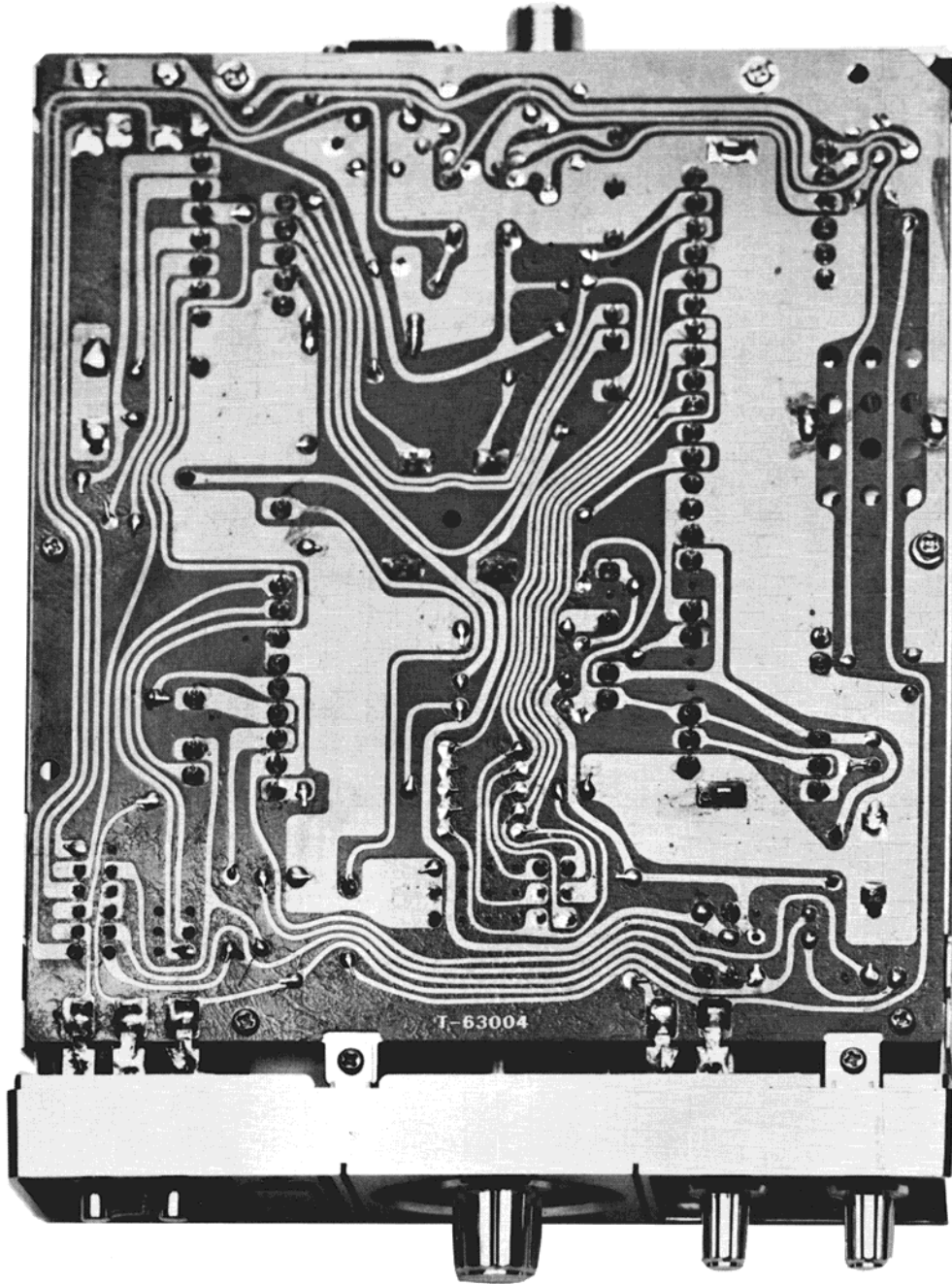
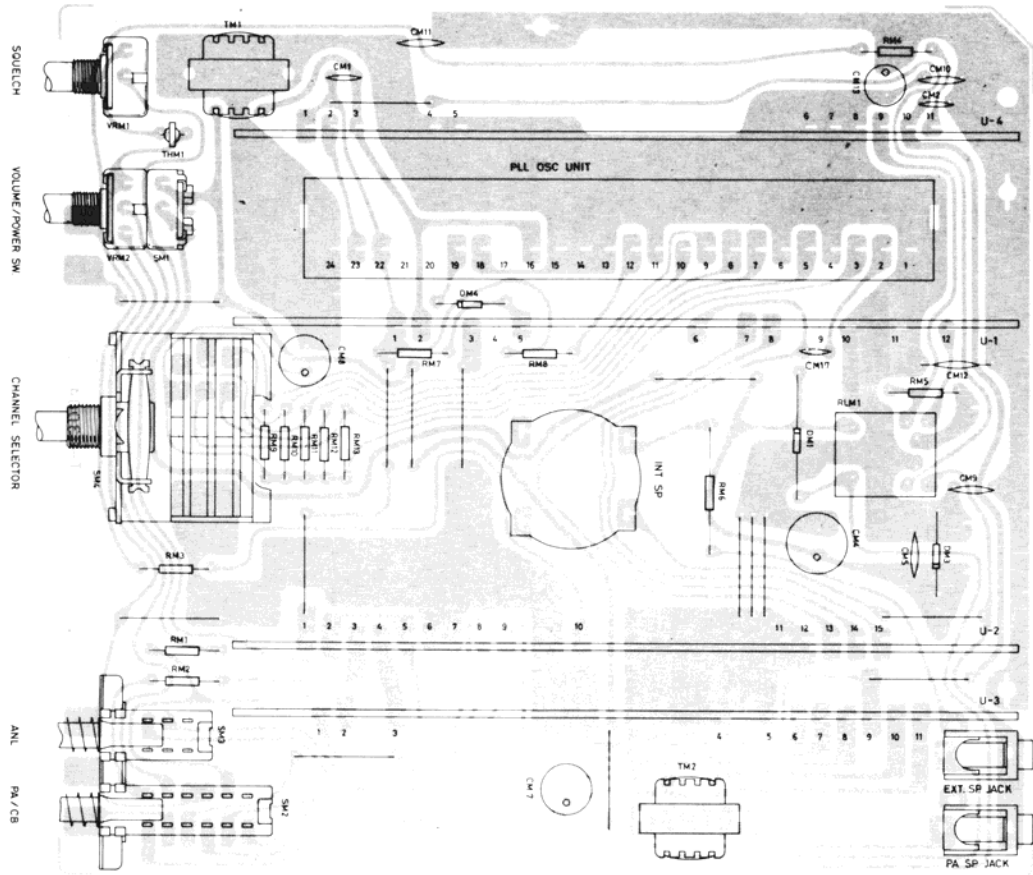
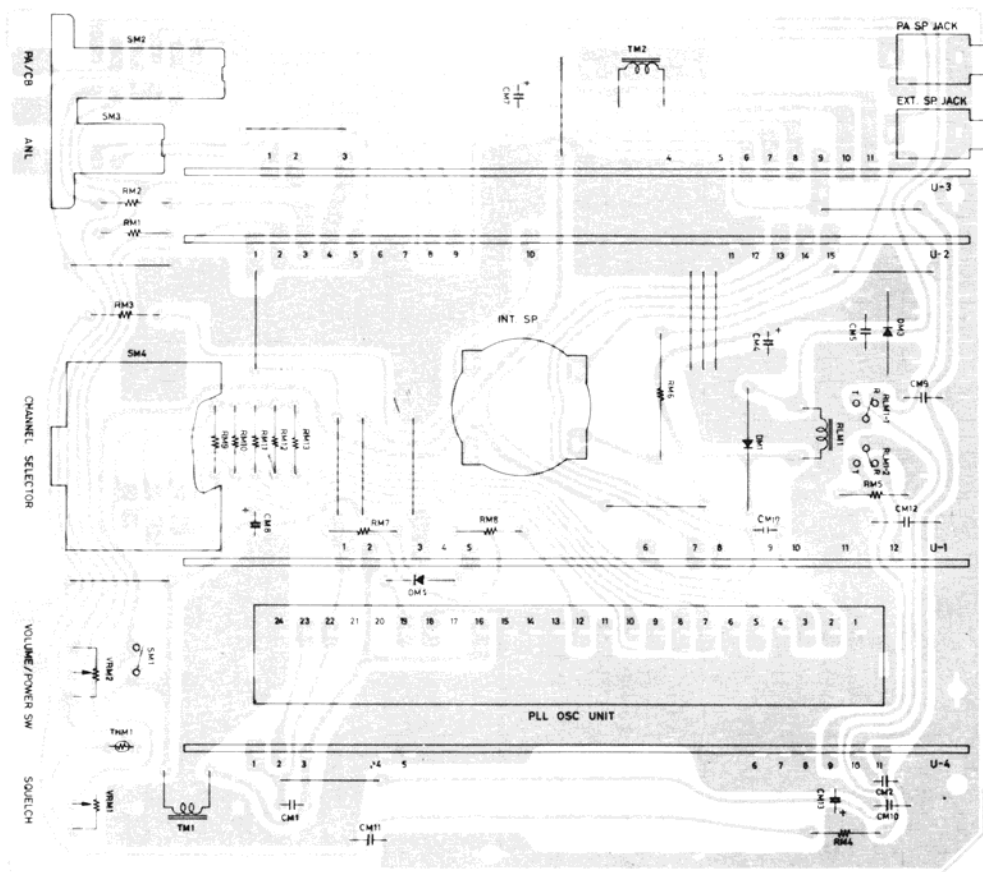


Fig 2

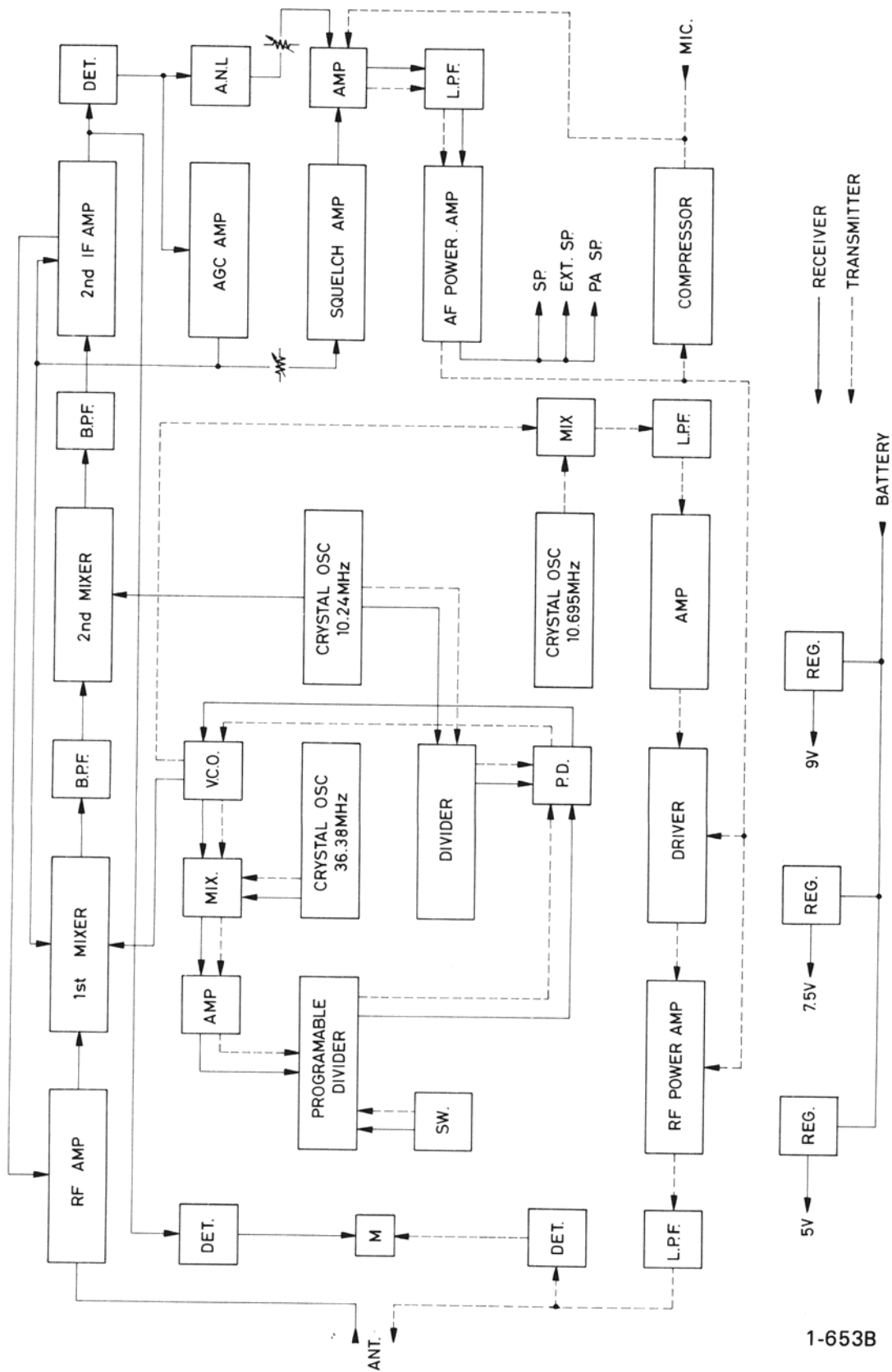
TOP VIEW



BACK VIEW



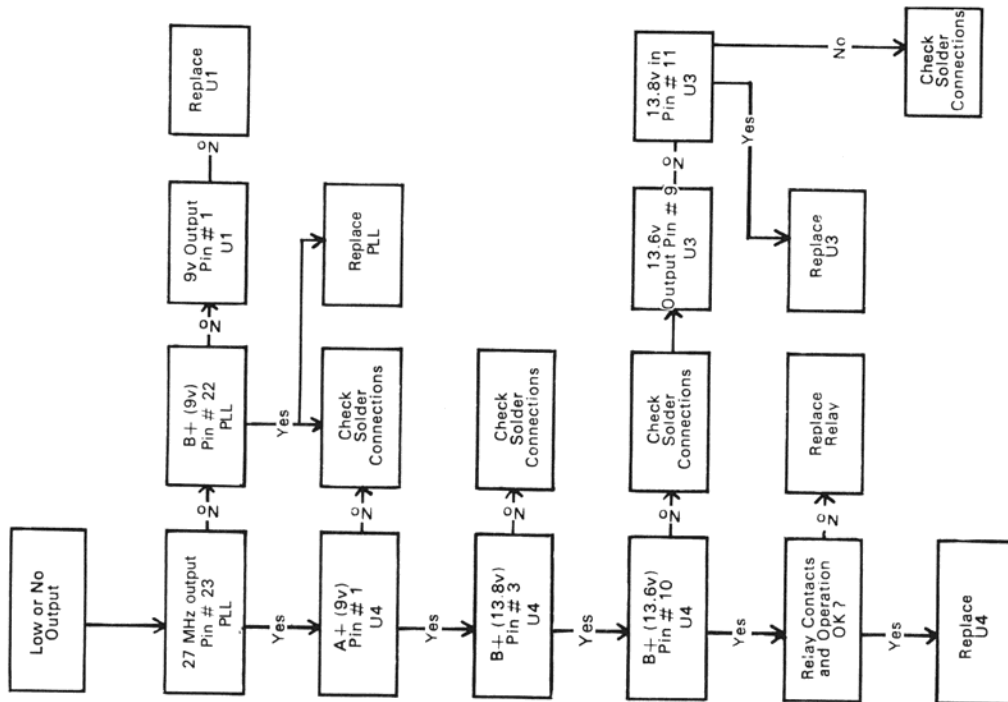
BLOCK DIAGRAM



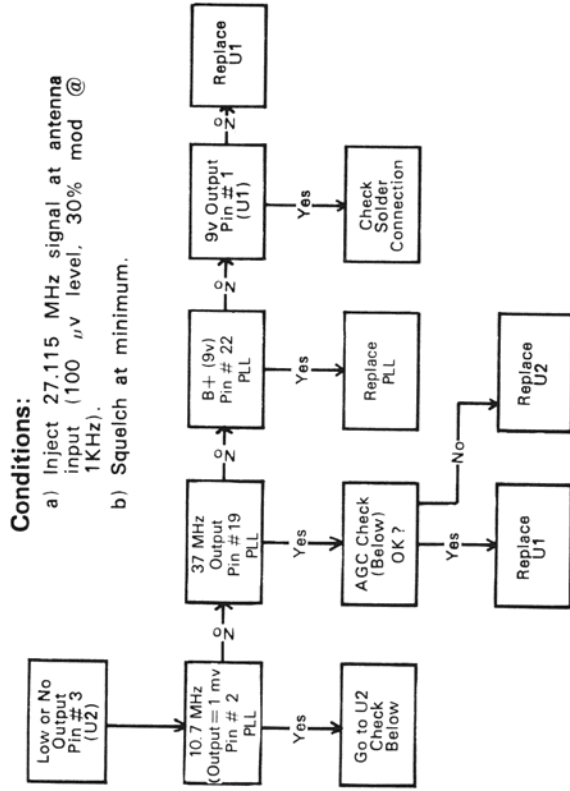
1-653B

TROUBLE-SHOOTING CHART

Transmitter



Receiver



Conditions:

- a) Inject 27.115 MHz signal at antenna input (100 μ v level, 30% mod @ 1KHz).
- b) Squelch at minimum.

AGC CHECK

Conditions:

- a) Inject 455 KHz (1mv) at pin 15 (U2), 30% mod @ 1KHz.
- b) Squelch at minimum.
 - 1) Disconnect pin 6 (U1), then apply power.
 - 2) Inject signal as per conditions above.
 - 3) Measure AGC voltage at pin 13 (U2) for the following generator settings:

P13v

1mv	.45
100 μ v	.54
10 μ v	1.25

1-653B MAIN CHASSIS PARTS LIST

Description	Part #
Semiconductors	
DM1 10D-1	
DM3 10D-1	
DM4 152075K	
LEDPI L.E.D. (tx)	1-001
CONTROLS	
VRM1 Squelch Control 10K ohm	4-210
VRM2 Volume Control 50K ohm	4-112
SM2 PA-CB switch	
SM3 ANL switch	
CASE PARTS	
Main Case	3-144
Front Panel	
Meter Fixing Metal	
Channel Lamp Fixing Metal	
Module Front Support Metal	6-104
Module Rear Support Metal	6-105
Speaker Extension	5-115
Mic Jack	5-501
Antenna Jack	5-502
Ext. Speaker/PA Jack	5-503
Mounting Bracket	3-412
Mic Hanger	3-428
Wingbolt (Large)	3-437
Wingbolt (Small)	3-436
D.C. Input Jack	5-505
Channel Knob and Disc	3-331
Channel Indicator Disc	3-355
Volume/Squelch Knob	3-312
PA/CB/ANL Knob	
COILS — INDUCTORS	
TM1 Choke	2-0031
TM2 Choke	2-0031
CAPACITORS	
CM1 .01 μ F	
CM2 .022 μ F	
CM4 1,000 μ F	
CM5 .039 μ F	
CM7 220 μ F 16v	
CM8 220 μ F 16v	
CM9-12 .039 μ F	
CM13 47 μ F 16v	
CM17 22pF	
RESISTORS	
RM1 4.7K	
RM2 47K	
RM3 3.9K	
RM4 15K	
RM5 330 Ω	
RM6 8.2 Ω 2w	
RM7 2.2K	
RM8 6.8K	

Description

Part #

RESISTORS

RM9-13 10K
RP1 2.2K (on front panel)
RP2 150Ω (on front panel)
THMI TD-5-165 (thermister)

MISCELLANEOUS

Speaker5-103
RLM Relay4-607
Channel/Meter Lamp5-301
S/RF Meter5-216

GENERAL SPECIFICATIONS

- | | |
|--|---|
| 1. Semiconductors | : 25 transistors, 21 diodes, 4 integrated circuits, and 1 thermistor. |
| 2. Self-Contained Speaker | : 3 inch, 8 ohm voice coil. |
| 3. Microphone | : Dynamic microphone with push-to-talk switch, 500 ohms. |
| 4. Controls, Indicators and Connectors | : Volume control with power on-off switch |
| | : Variable Squelch Control. |
| | : Channel Selector. |
| | : Illuminated Channel Indicator. |
| | : Pushbutton A.N.L. |
| | : Pushbutton PA-CB. |
| | : Coaxial type antenna connector. |
| | : External Speaker Jack. |
| | : Public Address Speaker Jack. |
| | : Microphone Connector. |
| 5. Power Supply | : 13.8 Volts DC (positive or negative ground). |
| 6. Cabinet Description | : Plastic front with chrome plating and vinyl coated metal cabinet. |
| 7. Dimensions | : 8-7/8" D × 7" W × 2-1/4" H. |

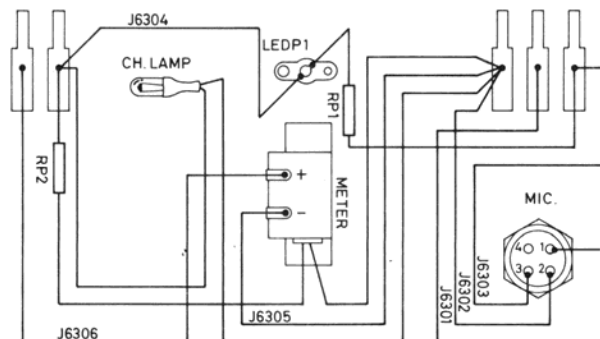
RECEIVER

- | | |
|---|----------------------------------|
| 1. Frequency Range (MHz) | : 26.965-27.255 |
| 2. Sensitivity | : 0.5uV for 10db S+N/N |
| 3. Selectivity | 5KHz minimum at 6db down |
| 4. Adj. Channel Rejection | : More than 60db. |
| 5. Audio Power output at 8 ohms | : More than 4W at 10% distortion |
| 6. Audio fidelity (1KHz=0db, 6db down) | : 400Hz-2,000Hz |
| 7. A.G.C. figure of merit (Input 94db for 10db range) | : More than 80db |
| 8. Squelch sensitivity (Threshold) | : Less than 0.5uV |
| 9. Spurious Rejection | : More than 45db |

TRANSMITTER

- | | |
|--------------------------|------------------|
| 1. Frequency Range (MHz) | : 26.965— 27.255 |
| 2. RF Output Power | : 4W average |
| 3. Modulation Capability | : 100% |
| 4. Spurious Suppression | : More than 50db |
| 5. Frequency Tolerance | : ± 0.005% |

WIRING DIAGRAM



1-653B SERVICE NOTES

1. After localizing a defective module, it will be necessary to remove the module front support metal before the module can be extracted (see Figure 1).
2. Take particular care in desoldering and resoldering on the main chassis. Engineering tests indicate an average of five solderings before damage results to the foil patterns.
3. If it becomes necessary to remove boards U1 or U2, it is also necessary to remove the entire speaker assembly on some models.
4. The PLL oscillator module is not designed as a field-serviceable unit. Parts will not be made available, so please do not attempt repair. Return defective modules for replacement.