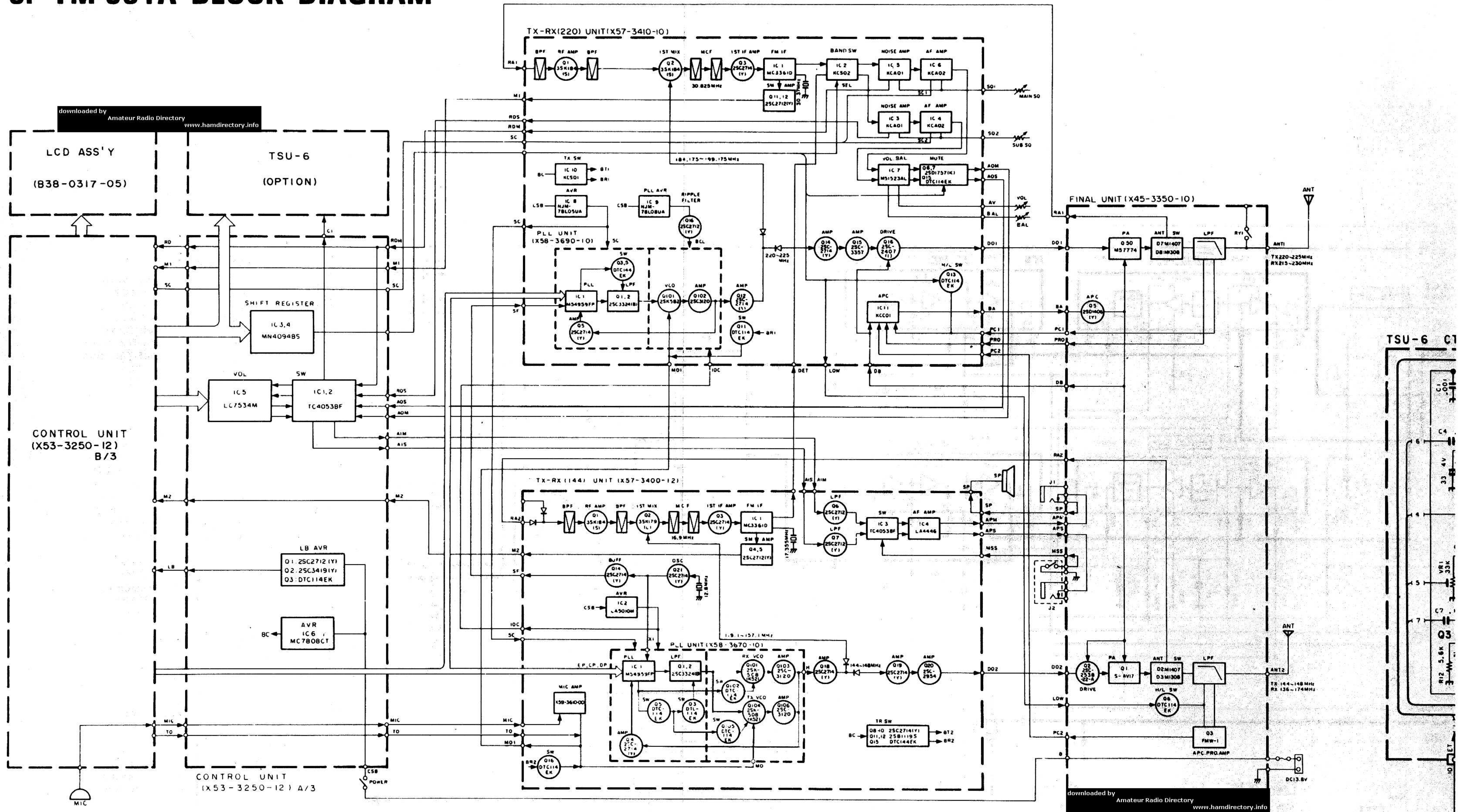
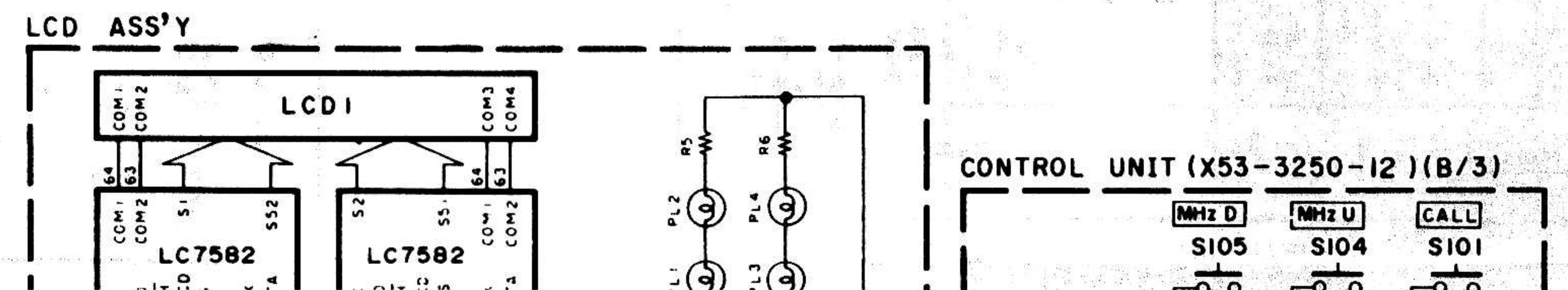


5. TM-631A BLOCK DIAGRAM



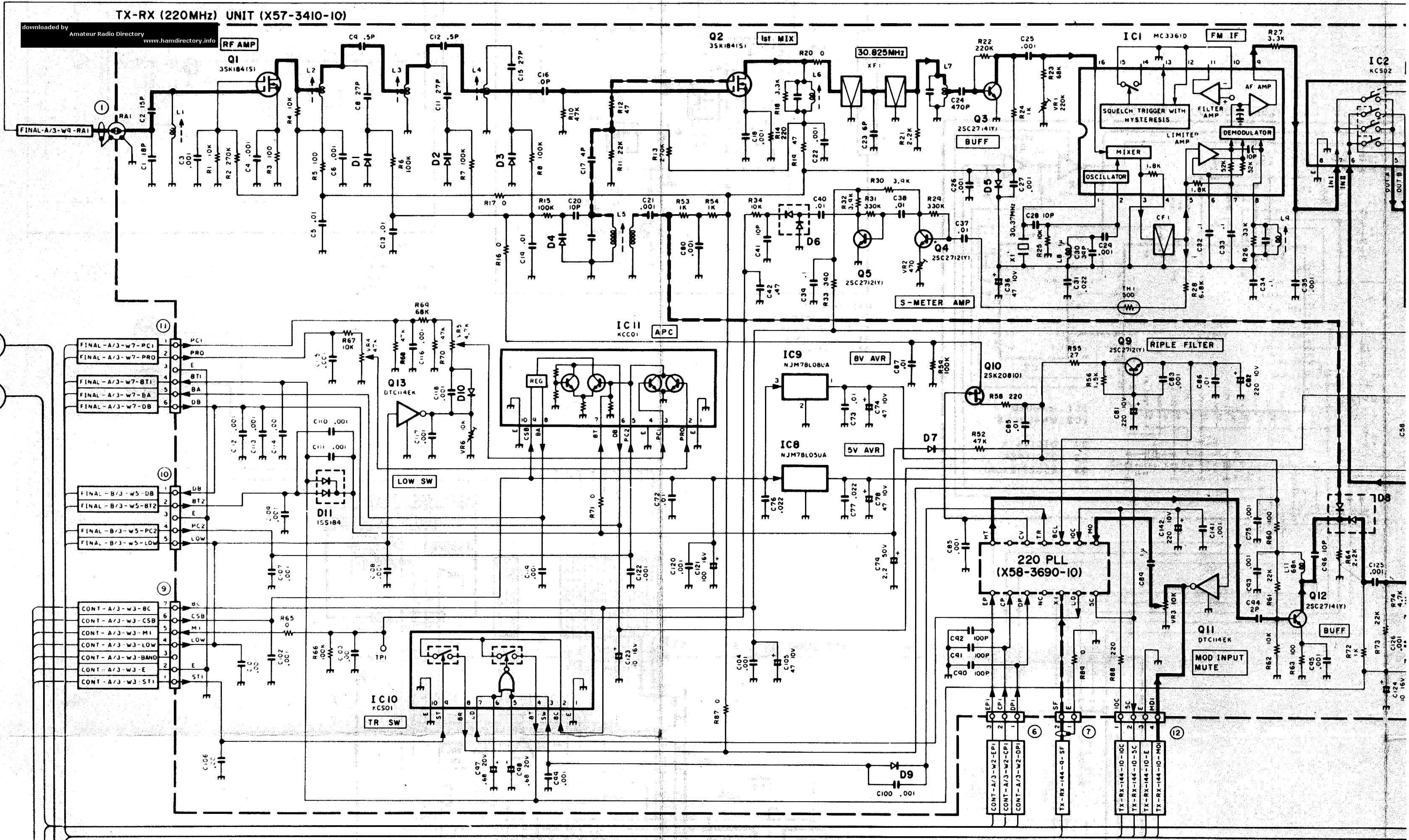
5. TM-631A SCHEMATIC DIAGRAM



TM631A ①

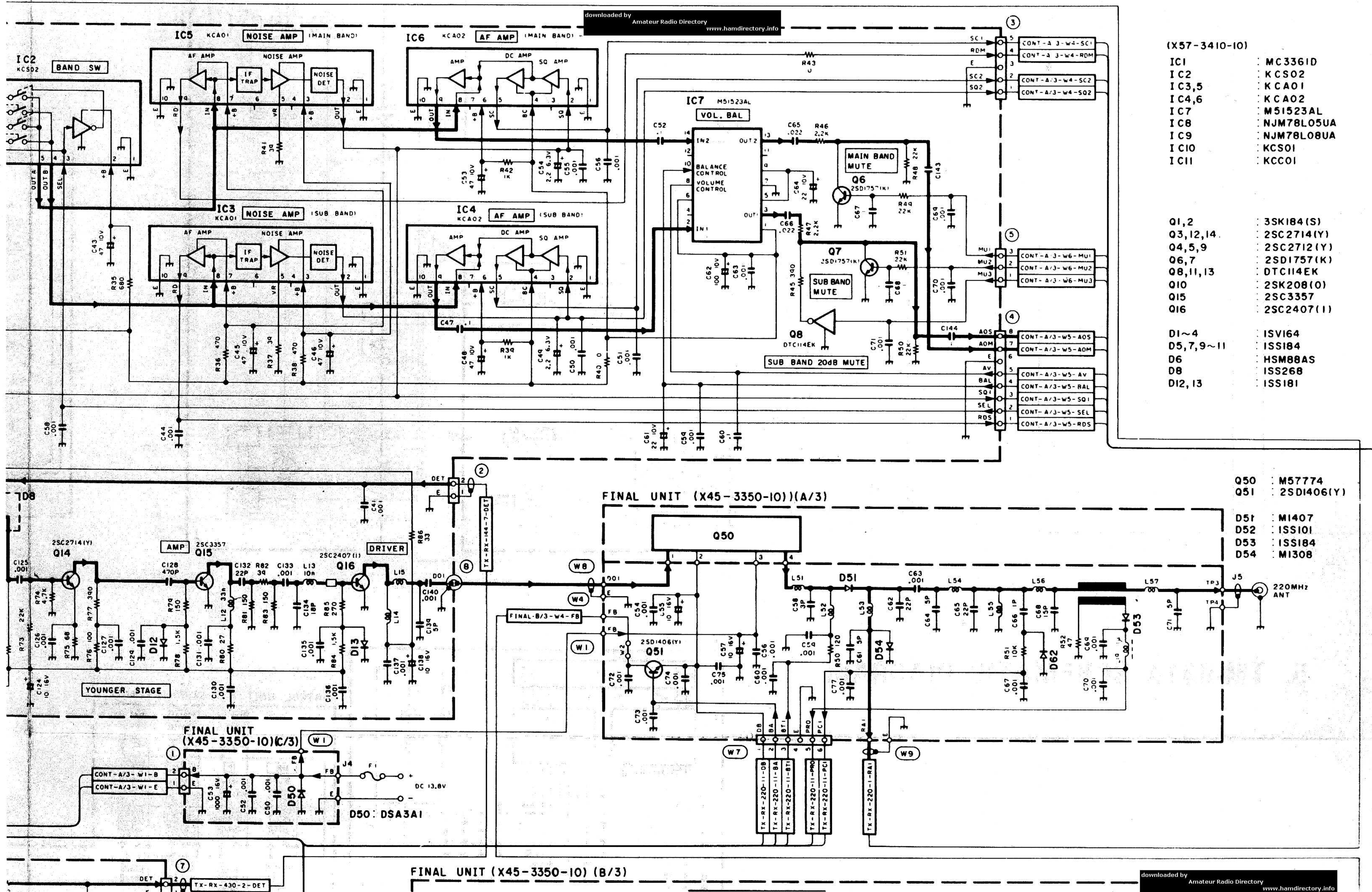
TX-RX (220MHz) UNIT (X57-3410-10)

downloaded by
Amateur Radio Directory
www.hamdirectory.info



TX-RX (144MHz) UNIT (X57-3400-12)

downloaded by
Amateur Radio Directory
www.hamdirectory.info



- (X57-3410-10)
- | | |
|-------|------------|
| IC1 | MC3361D |
| IC2 | KCS02 |
| IC3,5 | KCA01 |
| IC4,6 | KCA02 |
| IC7 | M51523AL |
| IC8 | NJM78L05UA |
| IC9 | NJM78L08UA |
| IC10 | KCS01 |
| IC11 | KCC01 |
-
- | | |
|----------|------------|
| Q1,2 | 3SK184(S) |
| Q3,12,14 | 2SC2714(Y) |
| Q4,5,9 | 2SC2712(Y) |
| Q6,7 | 2SD1757(K) |
| Q8,11,13 | DTC114EK |
| Q10 | 2SK208(O) |
| Q15 | 2SC3357 |
| Q16 | 2SC2407(I) |
-
- | | |
|-----------|---------|
| D1~4 | ISVI64 |
| D5,7,9~11 | ISS184 |
| D6 | HSM88AS |
| D8 | ISS268 |
| D12,13 | ISS181 |

- | | |
|-----|------------|
| Q50 | M57774 |
| Q51 | 2SD1406(Y) |
-
- | | |
|-----|--------|
| D51 | MI407 |
| D52 | ISS101 |
| D53 | ISS184 |
| D54 | MI308 |

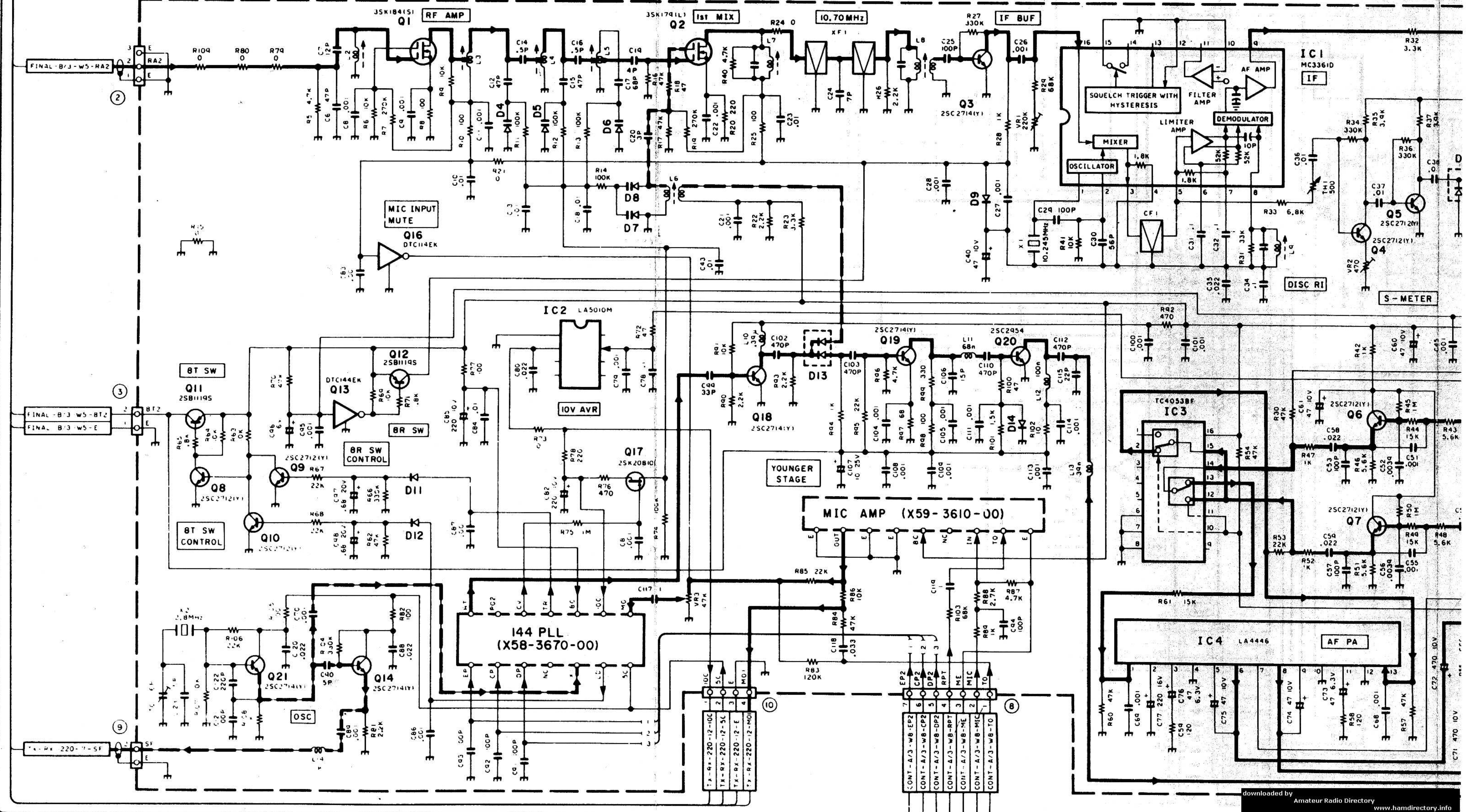
downloaded by
Amateur Radio Directory
www.hamdirectory.info

downloaded by
Amateur Radio Directory
www.hamdirectory.info

downloaded by Amateur Radio Directory
www.hamdirectory.info

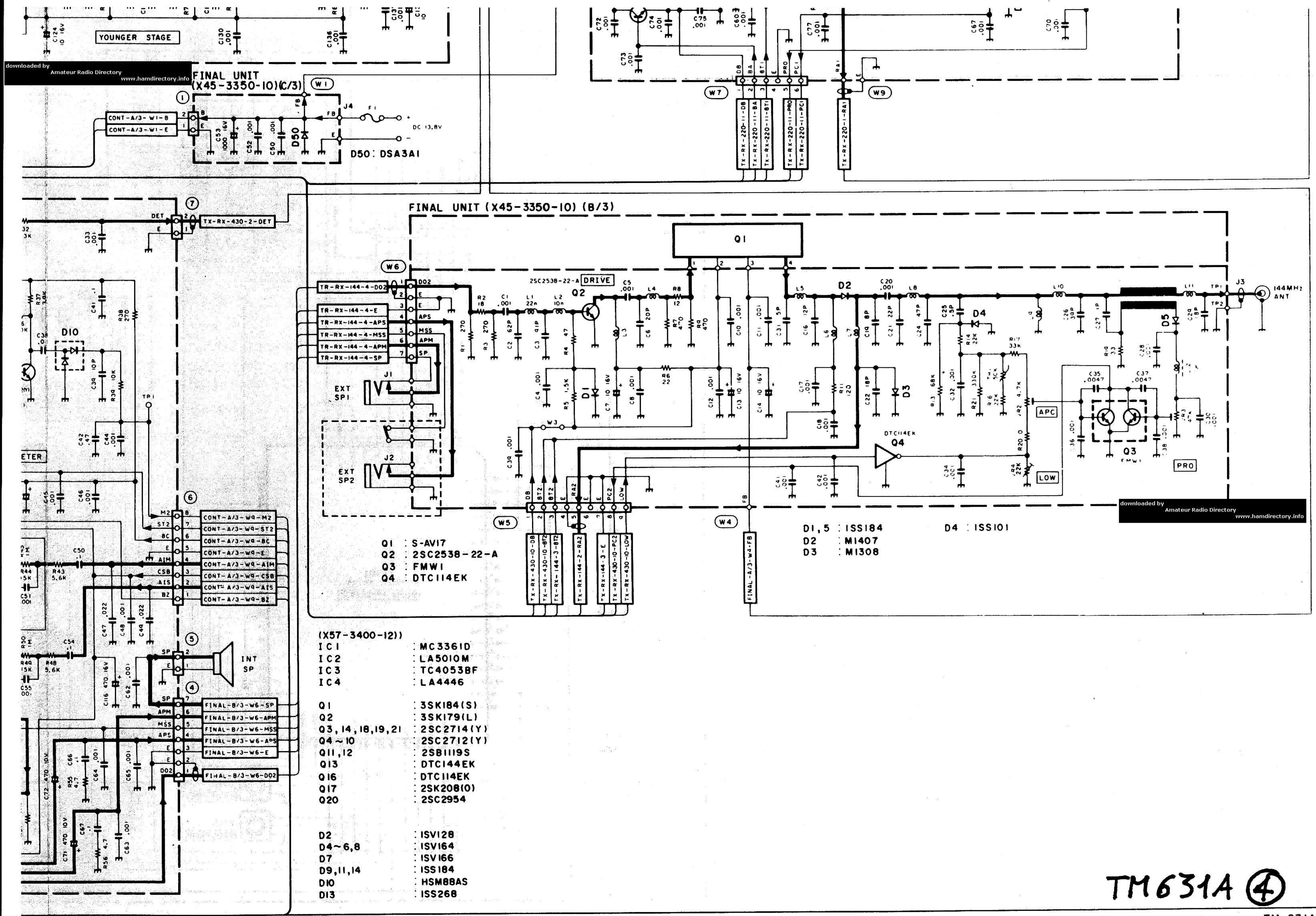
C
D
E
F
G
H

TX-RX (144MHz) UNIT (X57-3400-12)



downloaded by Amateur Radio Directory
www.hamdirectory.info

TM 631A ③



- Q1 : S-AV17
 Q2 : 2SC2538-22-A
 Q3 : FMW1
 Q4 : DTC114EK

- D1, 5 : ISS184
 D2 : M1407
 D3 : M1308
 D4 : ISS101

- (X57-3400-12)
 IC1 : MC3361D
 IC2 : LA5010M
 IC3 : TC4053BF
 IC4 : LA4446

- Q1 : 3SK184(S)
 Q2 : 3SK179(L)
 Q3, 14, 18, 19, 21 : 2SC2714(Y)
 Q4 ~ 10 : 2SC2712(Y)
 Q11, 12 : 2SB1119S
 Q13 : DTC114EK
 Q16 : DTC114EK
 Q17 : 2SK208(O)
 Q20 : 2SC2954

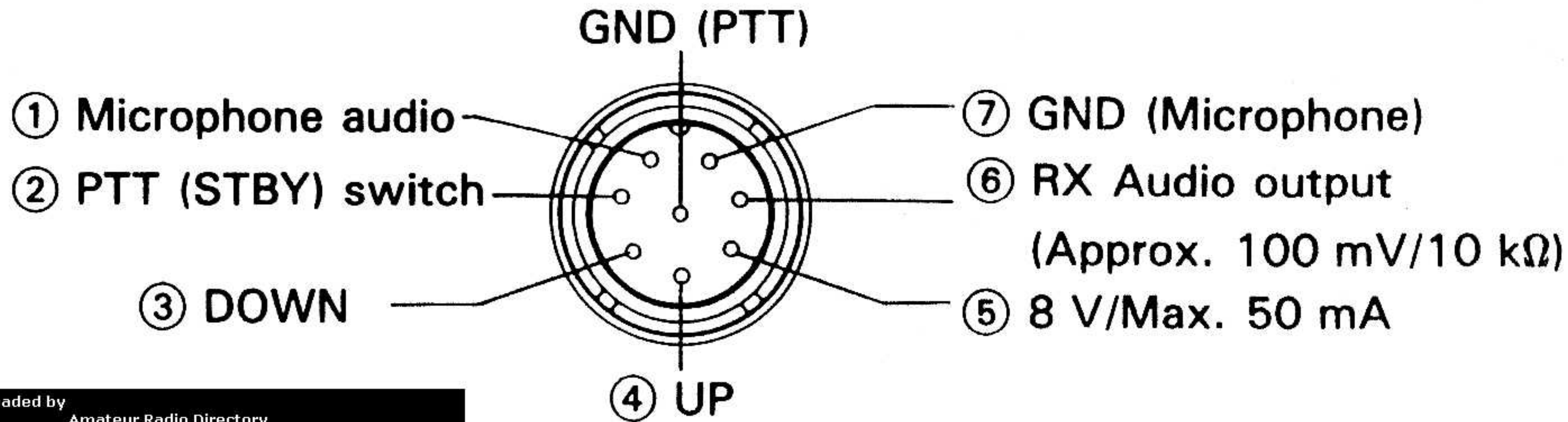
- D2 : ISV128
 D4 ~ 6, 8 : ISV164
 D7 : ISV166
 D9, 11, 14 : ISS184
 D10 : HSM88AS
 D13 : ISS268

TM631A ④

Note: Circuit is subject to change without notice due to advancements in technology.

⑦ Microphone connector

Plug the standard or optional microphone into this jack.



Front view

2. SPECIFICATIONS AND ACCESSORIES

2-1. SPECIFICATIONS

downloaded by
Amateur Radio Directory
www.hamdirectory.info

Specifications		Model	TM-731A	TM-731E	TM-631A		
			U.S.A. version	Other markets version			
General	Frequency range		144 to 148 MHz 438 to 450 MHz	144 to 148 MHz 430 to 440 MHz	144 to 146 MHz 430 to 440 MHz	144 to 148 MHz 220 to 225 MHz	
	Mode		F3E (FM)				
	Antenna impedance		50 ohms				
	Power requirements		13.8 VDC \pm 15%				
	Ground		Negative				
	Current drain	Transmit mode		Less than 11 A			
		Receive mode with no signal		Less than 0.6 A			
	Operating temperature		-20°C to +60°C (-4°F to +140°F)				
	Dimensions (W x H x D) (Projections included)		150 x 50 x 219 mm (5.9" x 2" x 8.6")				
	Weight		1.8 kg (3.97 lbs)				
Transmitter	Output power*	HI	144 MHz: 50 W, 220 MHz: 25 W, 430/440 MHz: 35 W				
		LOW	5 W				
	Modulation		Reactance modulation				
	Spurious radiation		Less than -60 dB				
	Maximum frequency deviation		\pm 5 kHz				
	Audio distortion (at 60% modulation)		Less than 3% (300 to 3000 Hz)				
Microphone impedance		500 to 600 ohms					
Receiver	Circuitry		Double conversion superheterodyne				
	Intermediate frequency	U.S.A. version	144 MHz: 16.9 MHz/455 kHz, 220 MHz: 30.825 MHz/455 kHz, 440 MHz: 21.6 MHz/455 kHz				
		Other market	144 MHz: 10.7 MHz/455 kHz, 430 MHz: 30.825 MHz/455 kHz				
	Sensitivity(12 dB SINAD)		144 MHz: Less than 0.2 μ V, 220 MHz: Less than 0.18 μ V, 430/440 MHz: Less than 0.16 μ V				
	Selectivity		-6 dB: More than 12 kHz, -60 dB: Less than 24 kHz				
	Spurious response		Better than 60 dB				
	Squelch sensitivity		Less than 0.09 μ V				
	Output		More than 2 W across 8 ohms load (5% distortion)				
External speaker impedance		8 ohms					

downloaded by
Amateur Radio Directory
www.hamdirectory.info

Notes:

1. Circuit and ratings are subject to change without notice due to advancement in technology.
2. *Recommended duty cycle:
1 minute Transmission, 3 minutes Reception