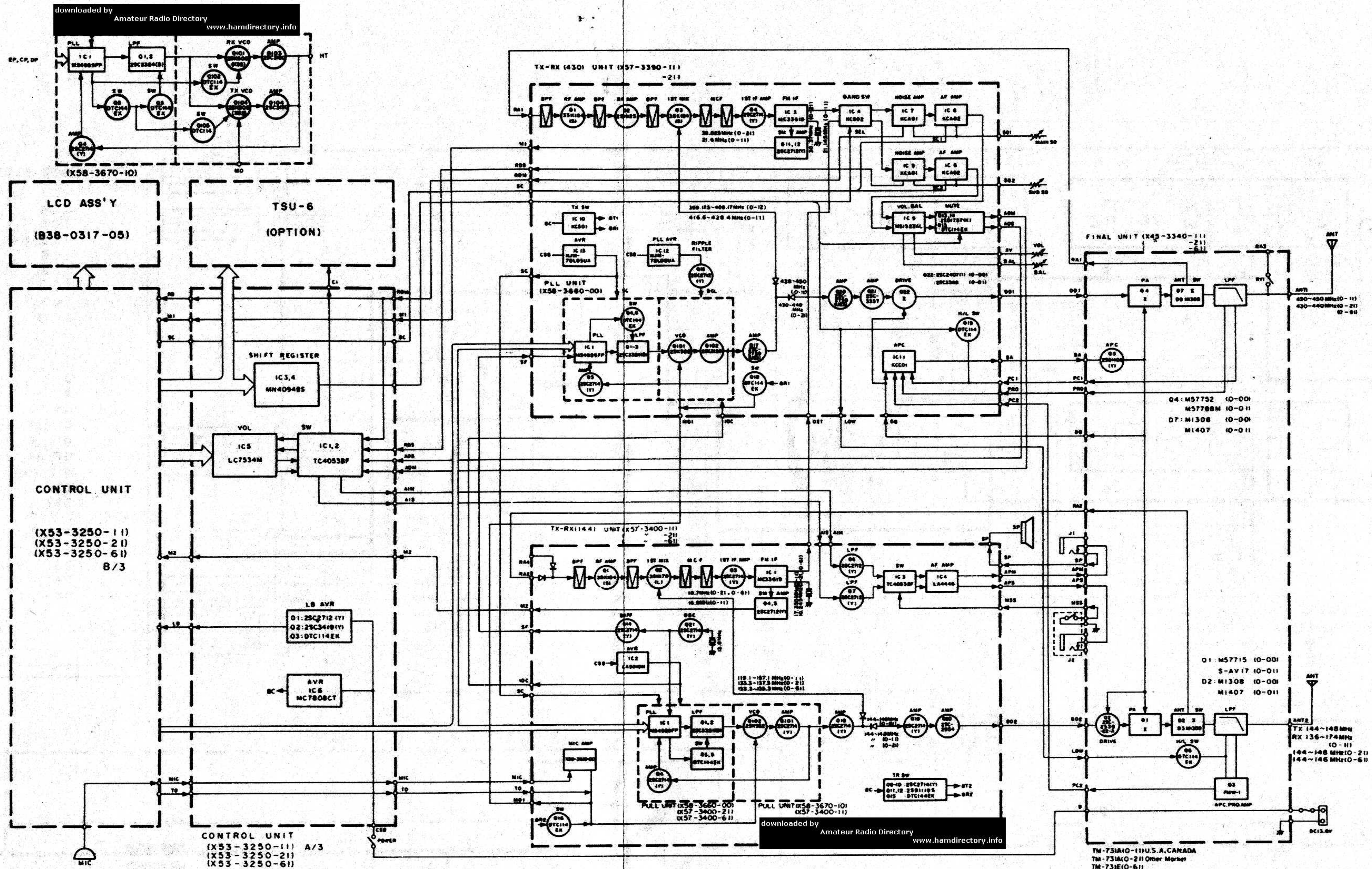
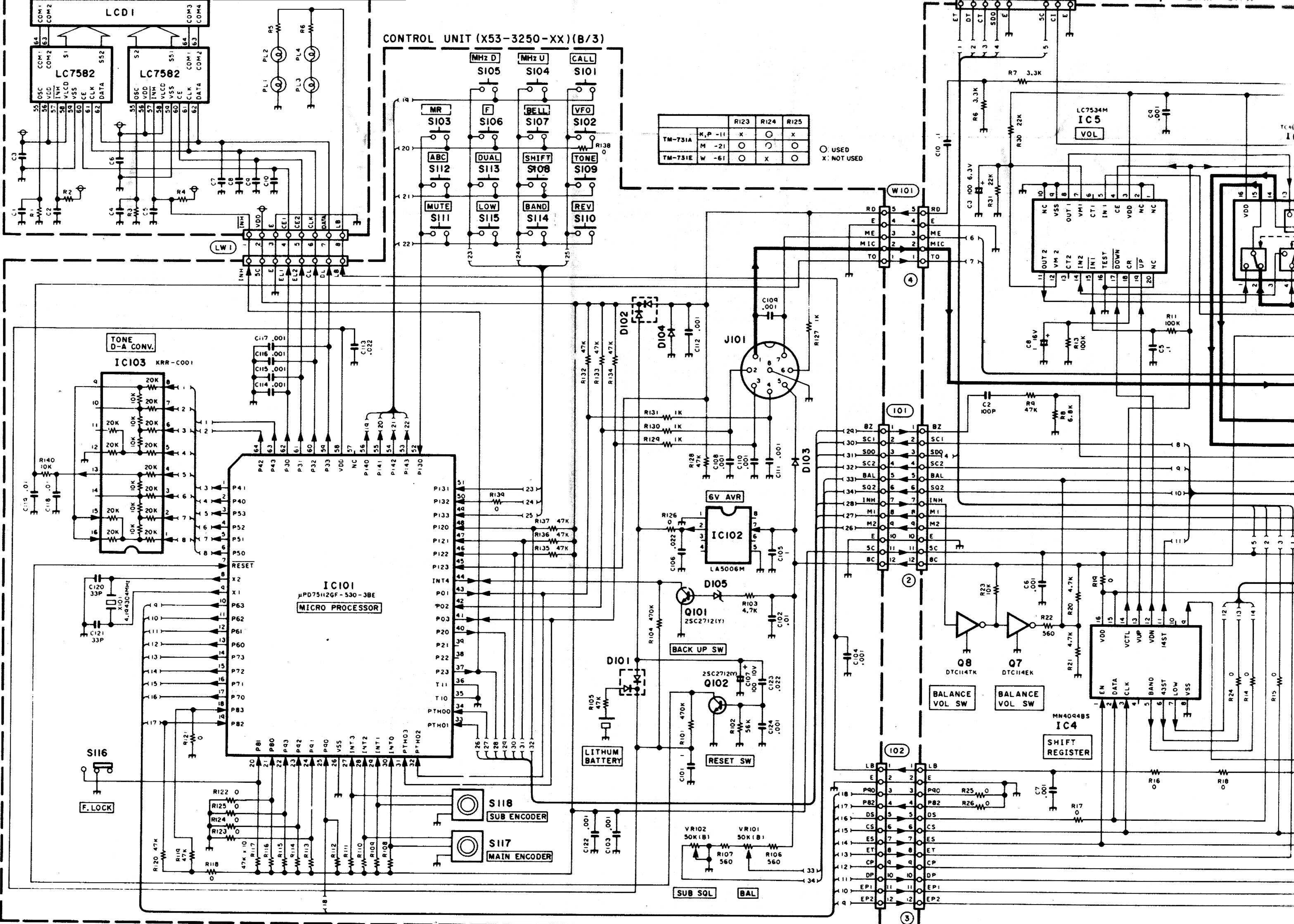


5. TM-731 BLOCK DIAGRAM





| | R123 | R124 | R125 |
|---------|----------|------|------|
| TM-731A | X, P -11 | X | X |
| | M -21 | O | O |
| TM-731E | W -61 | O | O |

O USED
X: NOT USED

IC101 : μ PD751126F-530-38E
IC102 : LA5006M
IC103 : KRR-C001

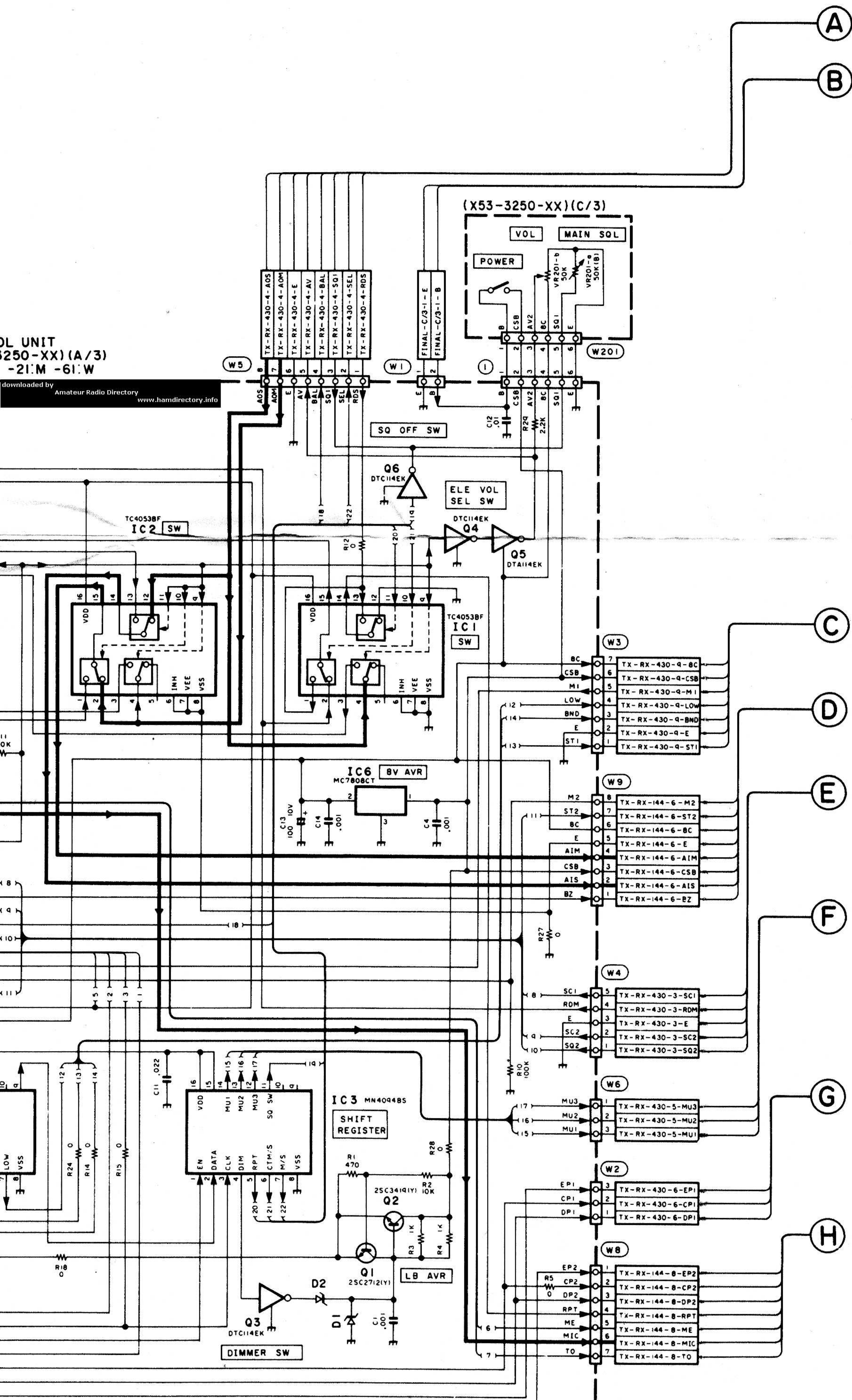
D101, 102, 104 : 1SS184
D103 : RLS-73
D105 : 02CZ7.5X

Q101, 102 : 2SC2712(Y)

IC1, 2 : TC4053BF
IC3, 4 : MN4094BS
IC5 : LC7534M
IC6 : MC7808CT
Q1 : 2SC2712(Y)
Q2 : 2SC3419(Y)
Q3, 4, 6, 7 : DTC114EK
Q5 : DTA114EK
Q8 : DTC114TK

DL UNIT
 (X53-3250-XX) (A/3)
 -21:M -61:W

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- : 2SC2712(Y)
- : 2SC3419(Y)
- : DTC114EK
- : DTA114EK
- : DTC114TK

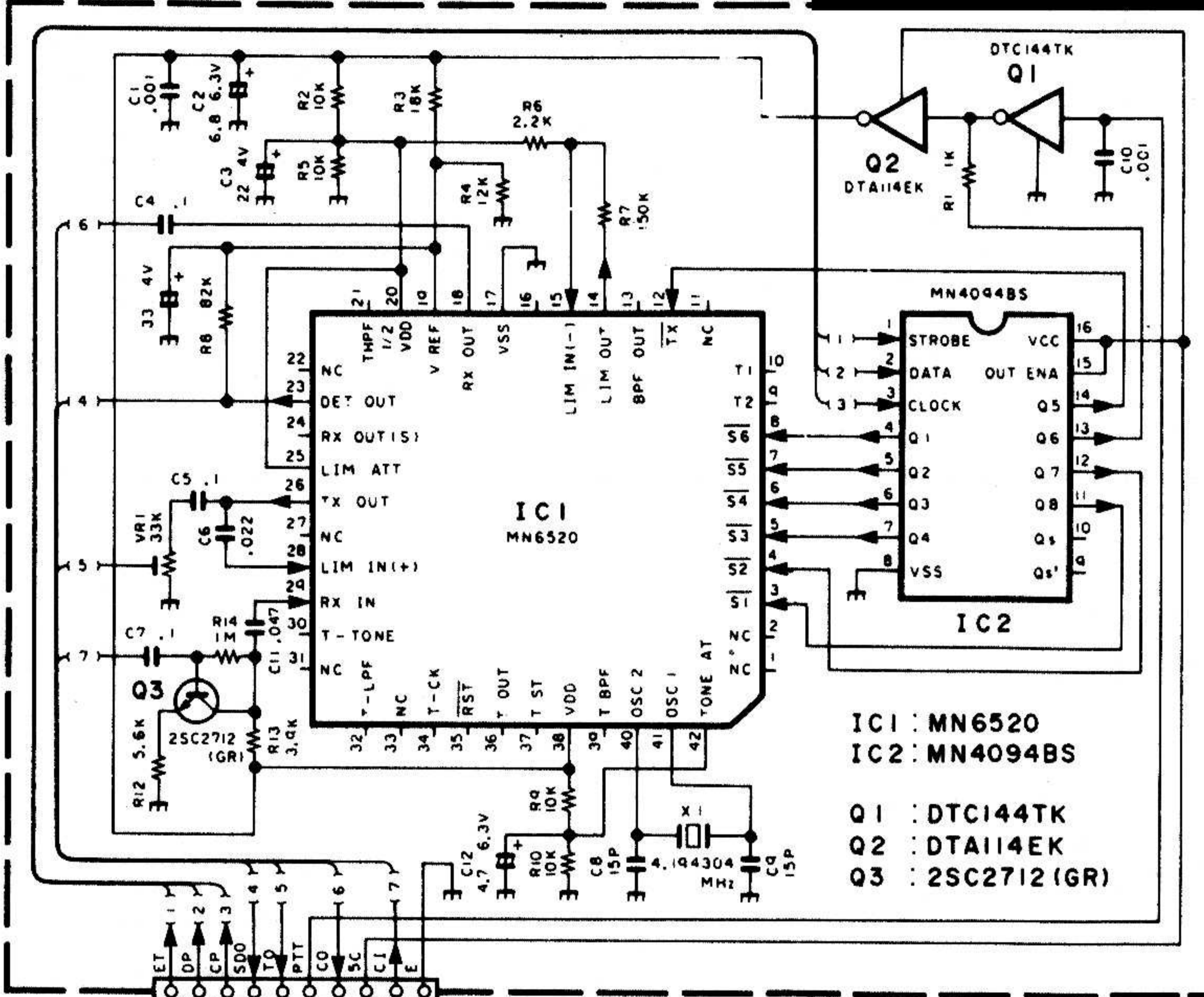
- D1 : 02CZ11Y
- D2 : 02CZ8.2Y

O : USED
 X : NOT USED

| | | R20 | R24 | R26 | R40 | R41 | R87 | R88 | C19 | C24 | C29 | C30 | C99 | 144 PLL |
|---------|---------|-----|------|------|-----|-----|------|------|-----|-----|------|------|-----|-------------|
| TM-731A | K,P -11 | 220 | 0 | 2.2K | ○ | ○ | 4.7K | 2.7K | 4P | 7P | 100P | 56P | 33P | X58-3670-10 |
| | M -21 | 47 | 1.8K | 4.7K | X | X | 4.7K | 2.7K | 15P | 5P | 34P | 100P | 5P | X58-3660-00 |
| TM-731E | W -61 | 47 | 1.8K | 4.7K | X | X | 6.8K | 0 | 15P | 5P | 34P | 100P | 5P | X58-3660-00 |

TSU-6 CTCSS UNIT (X52-3100-00) (OPTION)

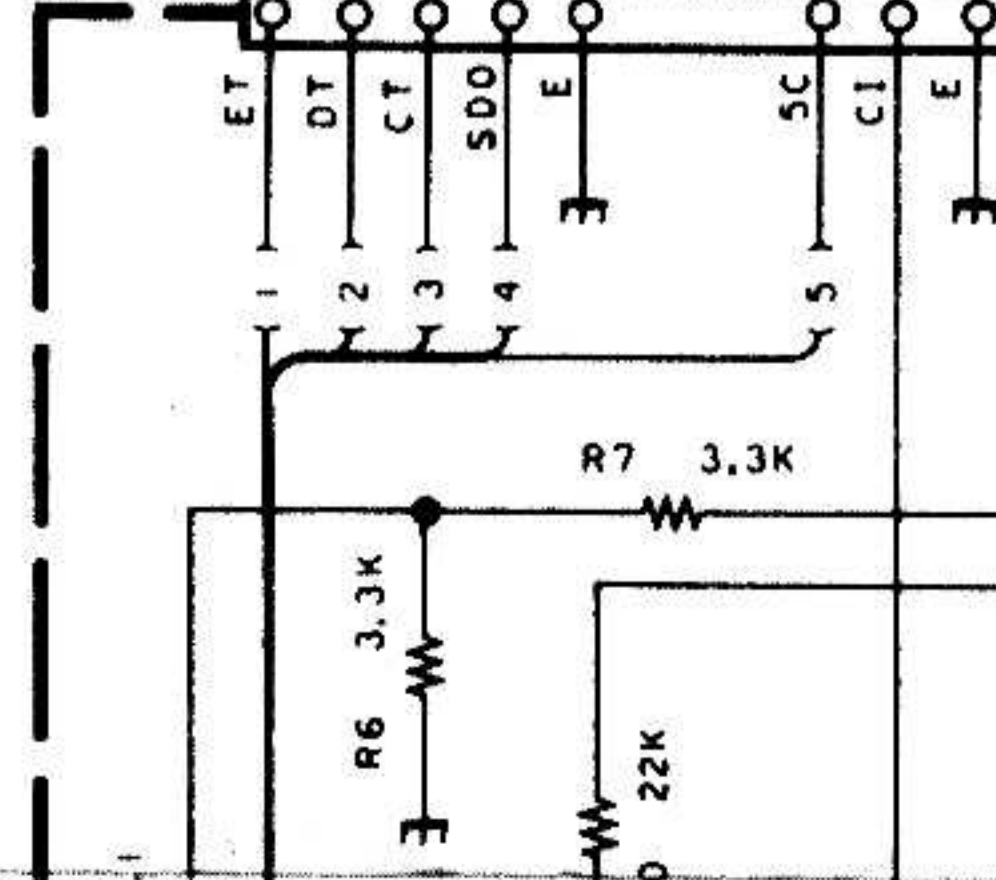
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- IC1 : MN6520
- IC2 : MN4094BS
- Q1 : DTC144TK
- Q2 : DTA114EK
- Q3 : 2SC2712 (GR)

CONTROL UNIT
(X53-3250-XX) (A/3)
-11:K,P -21:M -61:W

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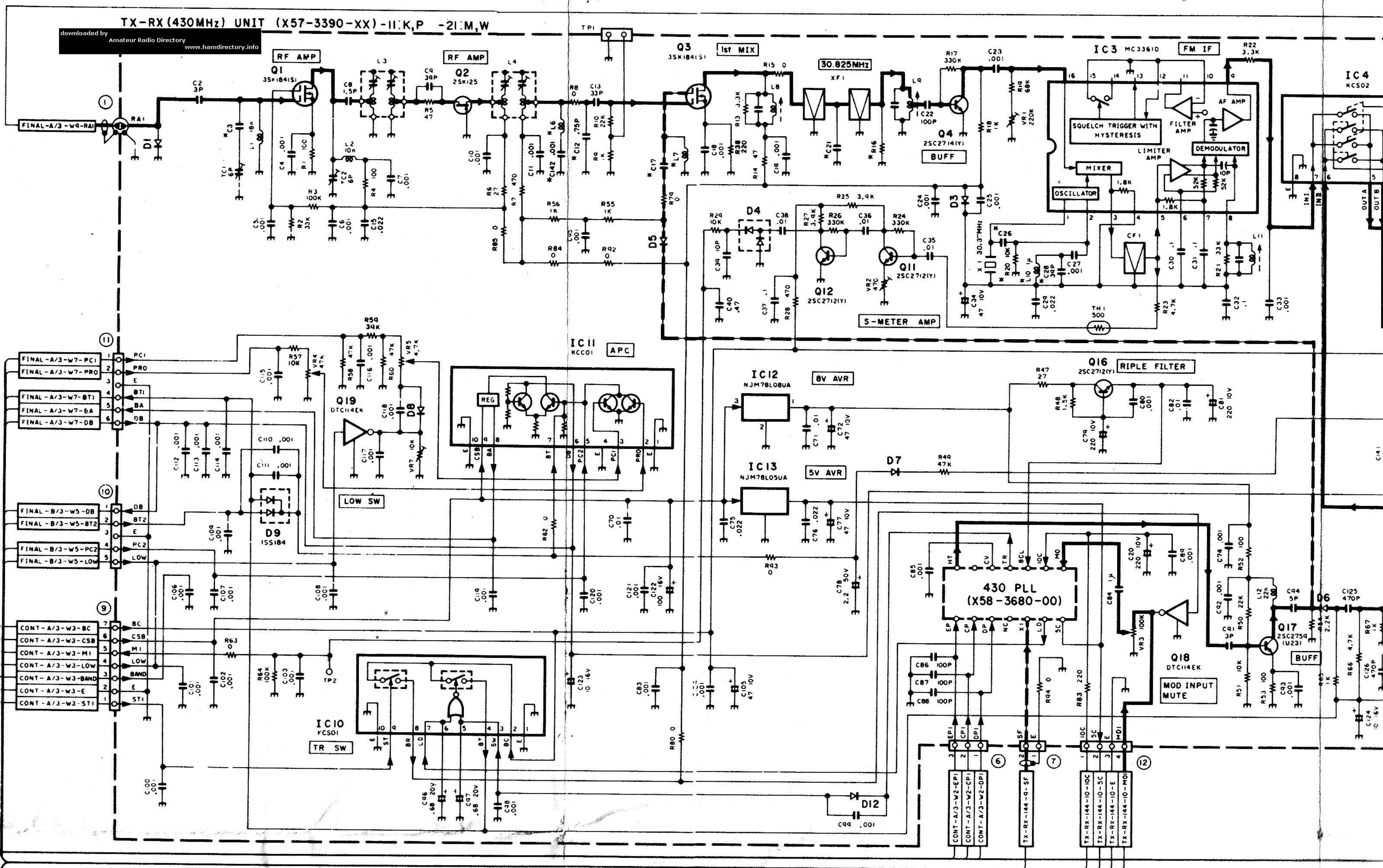


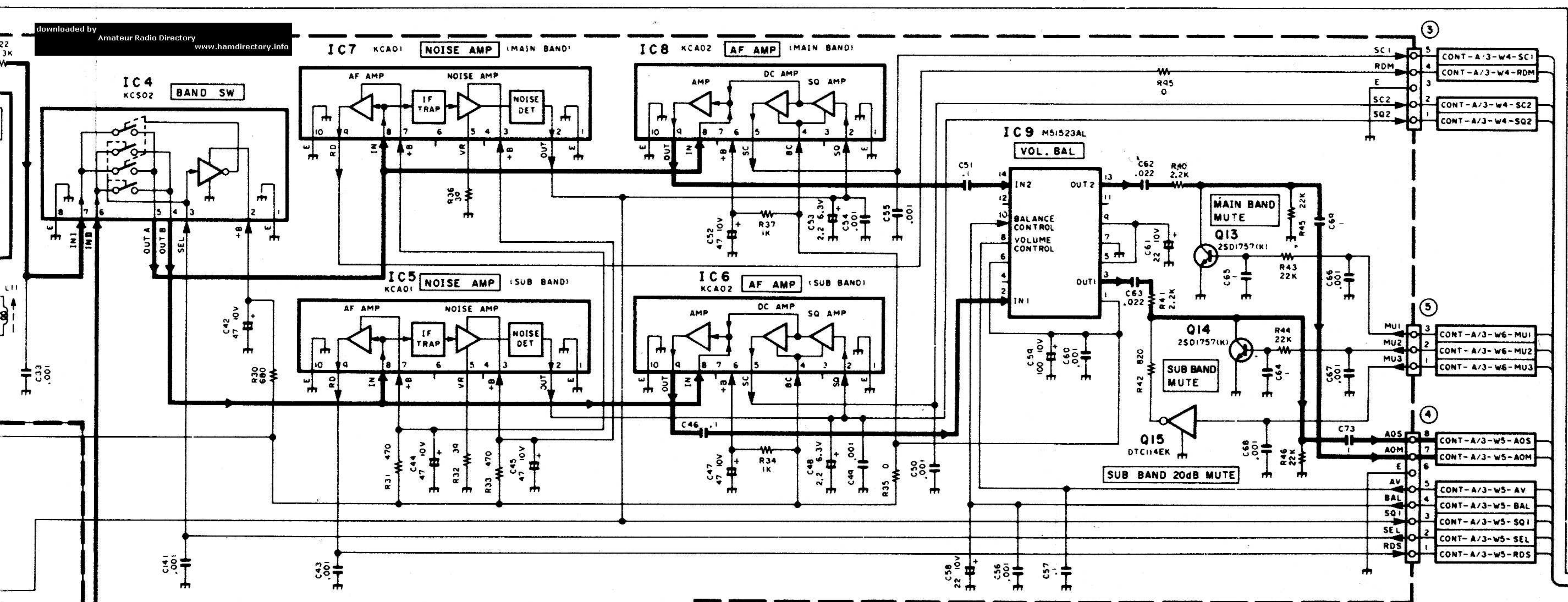
| | R123 | R124 | R125 |
|---------|------|------|------|
| K,P -11 | X | ⊖ | X |

TM-731 SCHEMATIC DIAGRAM

A

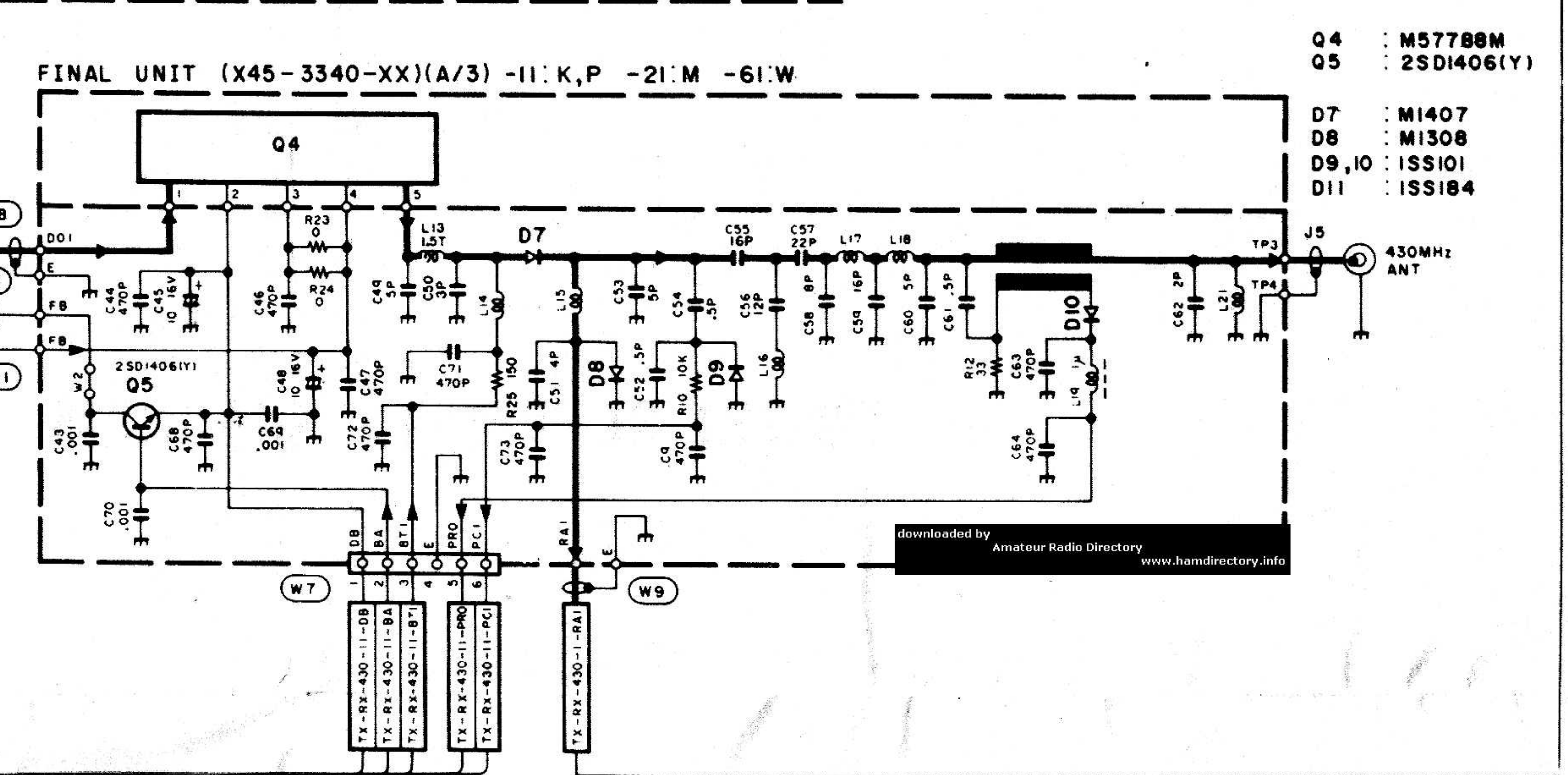
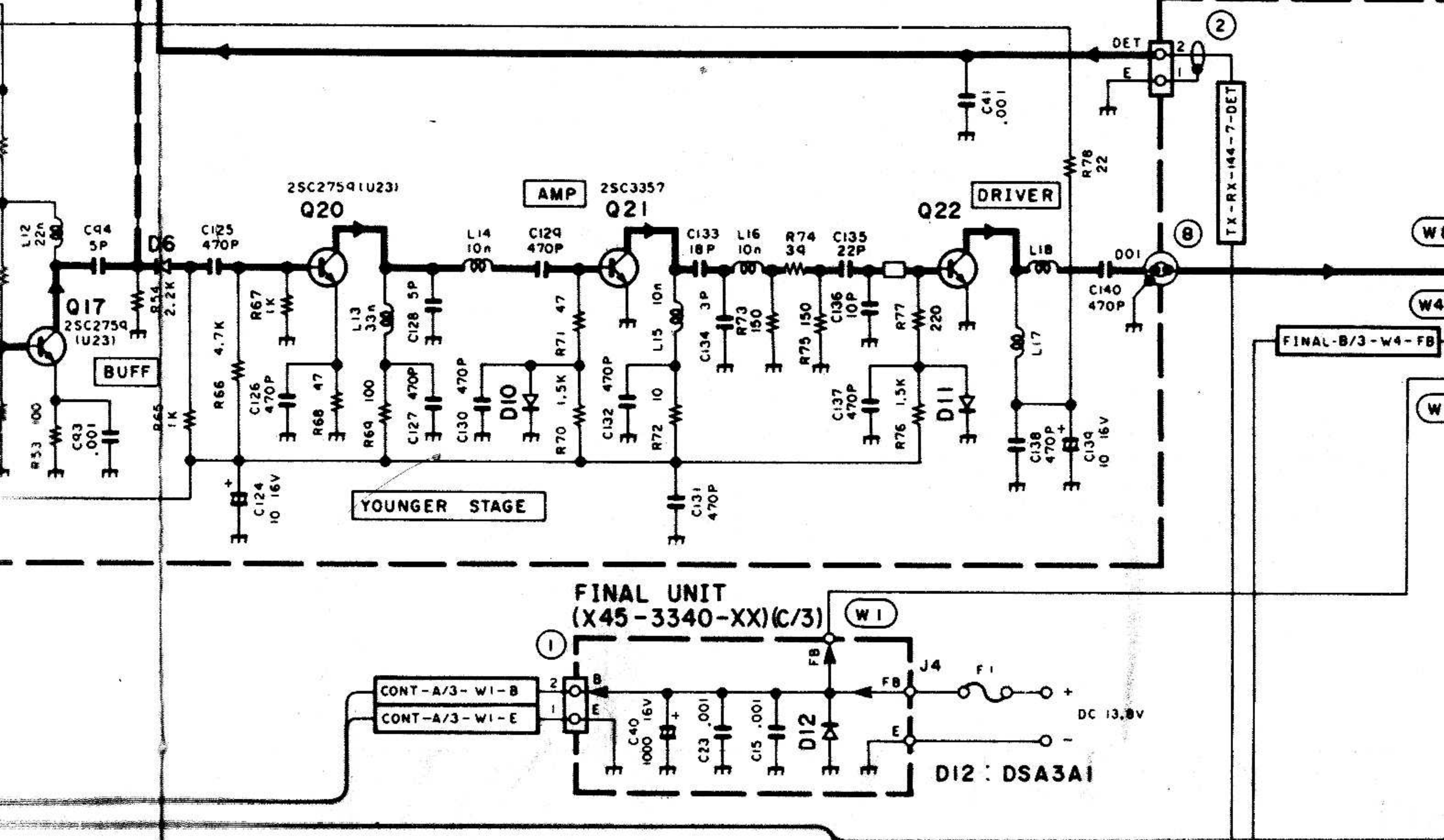
B





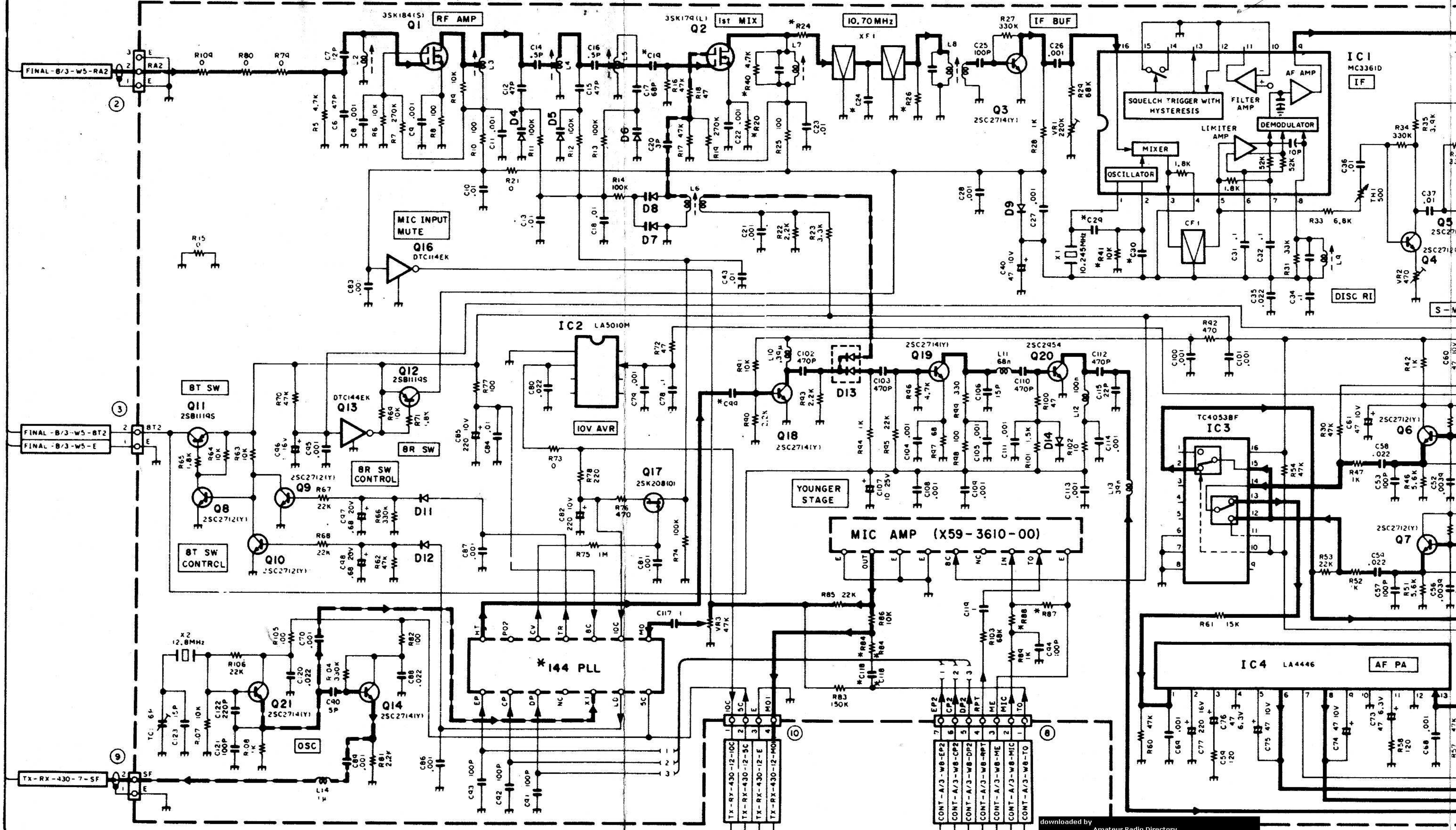
- (X57-3390-XX)
- IC 3 : MC3361D
 - IC 4 : KCS02
 - IC 5, 7 : KCA01
 - IC 6, 8 : KCA02
 - IC 9 : M51523AL
 - IC 10 : KCS01
 - IC 11 : KCC01
 - IC 12 : NJM78L08UA
 - IC 13 : NJM78L05UA

- Q1, 3 : 3SK184(S)
- Q2 : 2SK125
- Q4 : 2SC2714(Y)
- Q11, 12, 16 : 2SC2712(Y)
- Q13, 14 : 2SD1757(K)
- Q15, 18, 19 : DTC114EK
- Q17, 20 : 2SC2759(U23)
- Q21 : 2SC3357
- Q22 : 2SC3369
- D1, 13 : HSK277
- D5, 6 : ISV128
- D3, 7, 9, 12 : ISS184
- D4 : HSM86AS
- D8, 10, 11 : ISS181



- Q4 : M57788M
- Q5 : 2SD1406(Y)
- D7 : M1407
- D8 : M1308
- D9, 10 : ISS101
- D11 : ISS184

TX-RX (144MHz) UNIT (X57-3400-XX) - II .K,P -21.M -61.W



C

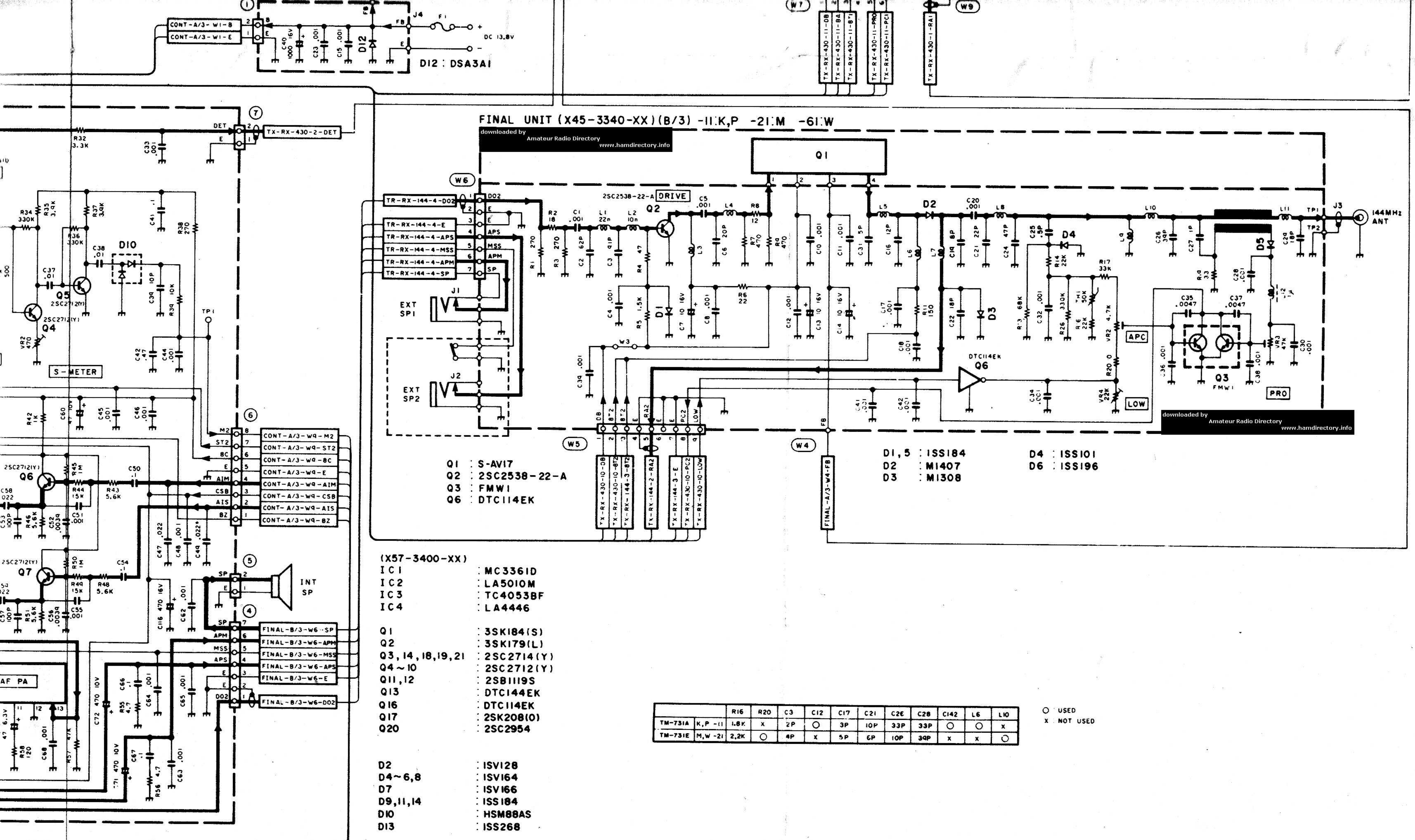
D

E

F

G

H



FINAL UNIT (X45-3340-XX) (B/3) -11:K,P -21:M -61:W

- Q1 : S-AV17
- Q2 : 2SC2538-22-A
- Q3 : FMW1
- Q6 : DTC114EK

- D1,5 : ISS184
- D2 : M1407
- D3 : M1308
- D4 : ISS101
- D6 : ISS196

- (X57-3400-XX)
- 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 : DTC144EK
- Q16 : DTC114EK
- Q17 : 2SK208(10)
- Q20 : 2SC2954

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

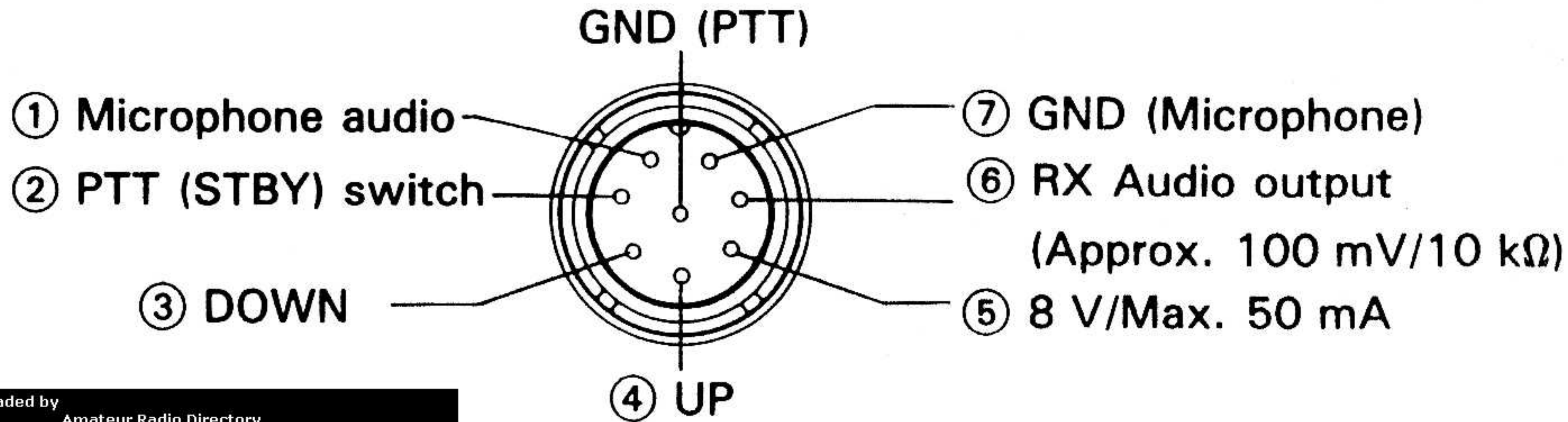
| | R16 | R20 | C3 | C12 | C17 | C21 | C2E | C28 | C142 | L6 | L10 | |
|---------|--------|------|----|-----|-----|-----|-----|-----|------|----|-----|---|
| TM-731A | K,P-11 | 1.8K | X | 2P | ○ | 3P | 10P | 33P | 33P | ○ | ○ | X |
| TM-731E | M,W-21 | 2.2K | ○ | 4P | X | 5P | 6P | 10P | 30P | X | X | ○ |

○ USED
X NOT USED

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

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| 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 | | | | | |

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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