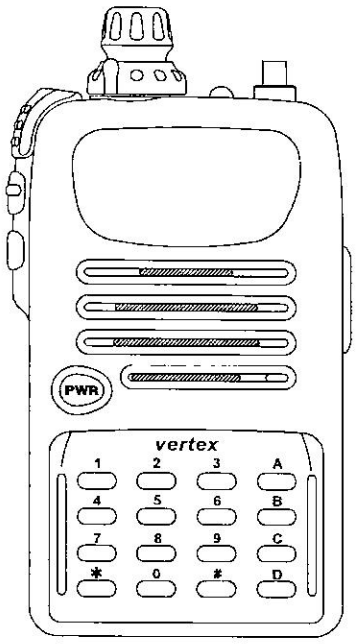
vertex®

VX-10

VHF Band Service Manual



Shown with optional FTT-15 installed

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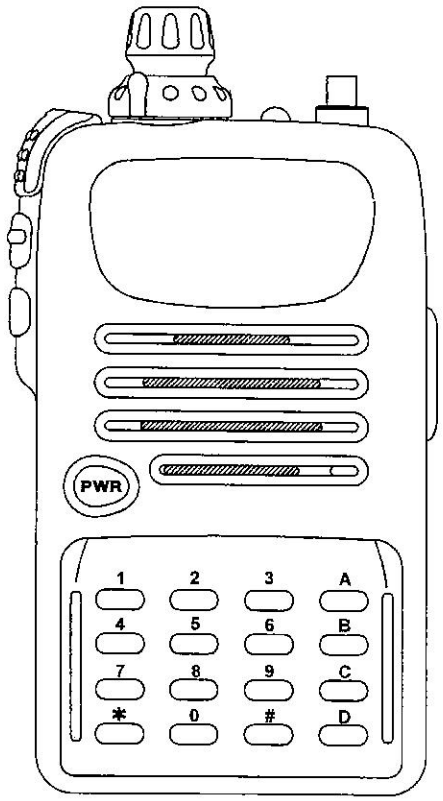
VX-10
VHF Band Service Manual



Shown with optional FTT-15 installed

The Yaesu VX-10 is a compact hand portable transceiver for the VHF land mobile bands that offers the convenience of small size, light weight, and simple operation. The VX-10 can be simply programmed by your Yaesu Dealer with up to 40 (FTT-14) or 102 (FTT-15) channels for both single and split frequency operation. The VX-10 provides up to 5 watts of RF output power and includes a flexible quick-connect antenna.

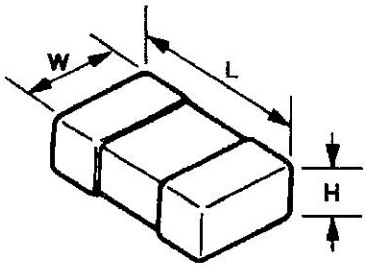
The transceiver and Ni-Cd battery packs are constructed of thick high impact polycarbonate plastic, with special attention paid by the designers to tight sealing and ruggedness, assuring years of reliable operation even in harsh environments.

The following pages describe the operation, features and accessories of the VX-10. With proper care and operation, the transceiver will provide many years of reliable communications.

Chip Component Information

The diagrams below indicate some of the distinguishing features of common chip components .

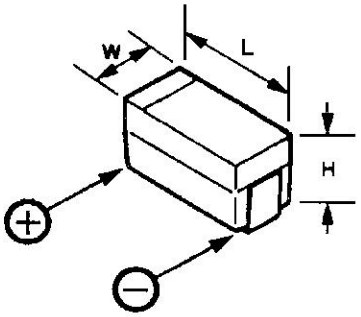
Capacitors



(Unit: mm)

Type	L	W	H
2125	2.0	1.25	0.35 ~ 0.5
1608	1.6	0.8	0.65 ~ 0.95
1005	1.0	0.5	0.45 ~ 0.55

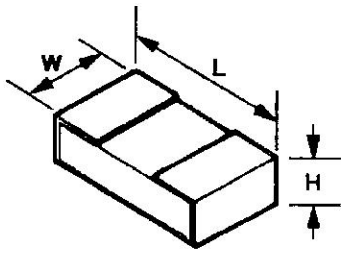
Tantalum Capacitors



(Unit: mm)

Type	L	W	H
P	2.0	1.25	1.2
A	3.2	1.6	1.6
B	3.4	2.8	1.9
C	5.8	3.2	2.3

Resistors



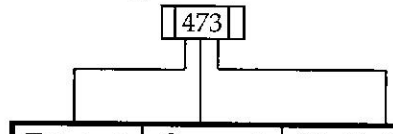
Indicated Letters

1 2 3 4 5 6 7 8 9 0 .

(Unit: mm)

Type	L	W	H
1/10	2.0	1.25	0.5
1/16	1.6	0.8	0.45
1/16S	1.0	0.5	0.35

Marking* 100, 222, 473...



Ten unit	One unit	Multiplier code
0	0	10^0
1	1	10^1
2	2	10^2
3	3	10^3
4	4	10^4
5	5	10^5
6	6	10^6
7	7	10^7
8	8	10^8
9	9	10^9

Examples: 100=10Ω
222=2.2kΩ
473=47kΩ

Chip Component Information

Replacing Chip Components

Chip components are installed at the factory by a series of robots. The first one places a small spot of adhesive resin at the location where each part is to be installed, and later robots handle and place parts using vacuum suction.

For single sided boards, solder paste is applied and the board is then baked to harden the resin and flow the solder. For double sided boards, no solder paste is applied, but the board is baked (or exposed to ultra-violet light) to cure the resin before dip soldering.

In our laboratories and service shops, small quantities of chip components are mounted manually by applying a spot of resin, placing with tweezers, and then soldering by very small dual streams of hot air (without physical contact during soldering). We remove parts by first removing solder using a vacuum suction iron, which applies a light steady vacuum at the iron tip, and then breaking the adhesive with tweezers.

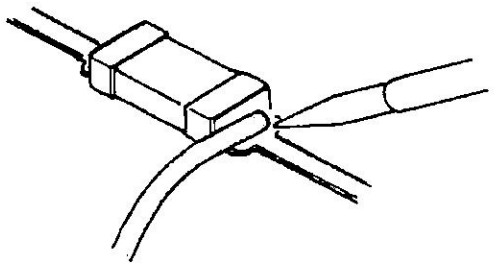
The special vacuum/desoldering equipment is recommended if you expect to do a lot of chip replacements. Otherwise, it is usually possible to remove and replace chip components with only a tapered, temperature-controlled soldering iron, a set of tweezers and braided copper solder wick. Soldering iron temperature should be below 280°C (536°F).

Precautions for Chip Replacement

- ○ Do not disconnect a chip forcefully, or the foil pattern may peel off the board.
- ○ Never re-use a chip component. Dispose of all removed chip components immediately to avoid mixing with new parts.
- ○ Limit soldering time to 3 seconds or less to avoid damaging the component and board.

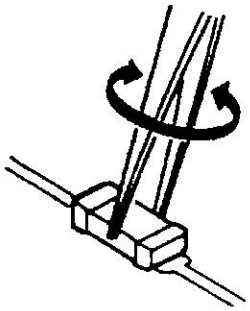
Removing Chip Components

❒ Remove the solder at each joint, one joint at a time, using solder wick whetted with nonacidic fluxes as shown below. Avoid applying pressure, and do not attempt to remove tinning from the chip's electrode.



❒ Grasp the chip on both sides with tweezers, and gently twist the tweezers back and forth (to break the adhesive bond) while alternately heating each electrode. Be careful to avoid peeling the foil traces from the board.
Dispose of the chip when removed.

❒ After removing the chip, use the copper braid and soldering iron to wick away any excess solder and smooth the land for installation of the replacement part.

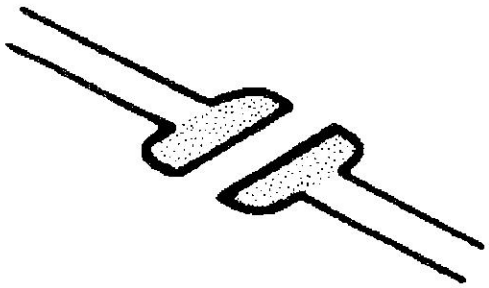


Chip Component Information

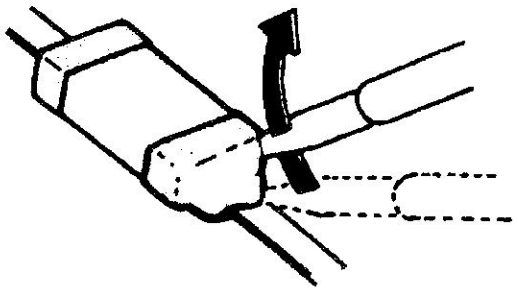
Installing a Replacement Chip

As the value of some chip components is not indicated on the body of the chip, be careful to get the right part for replacement.

❒ Apply a small amount of solder to the land on one side where the chip is to be installed. Avoid too much solder, which may cause bridging (shorting to other parts).

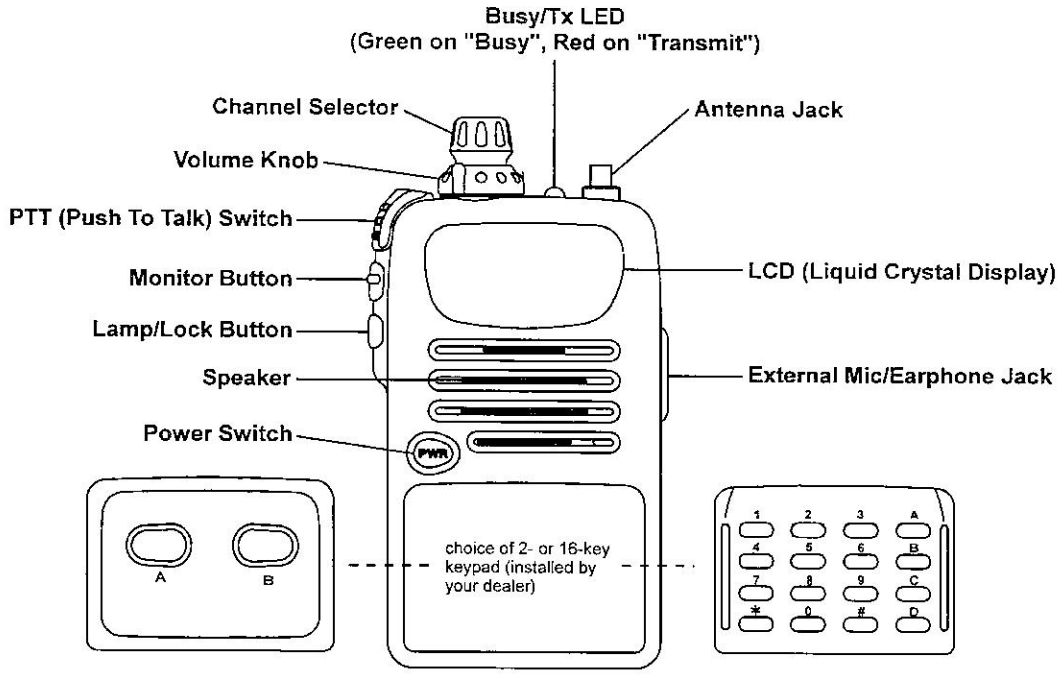


❒ Hold the chip with tweezers in the desired position, and apply the soldering iron with a motion line as indicated by the arrow in the diagram below. Do not apply heat for more than 3 seconds.



❒ Remove the tweezers and solder the elec trode on the other side in the manner just described.

Controls & Connectors

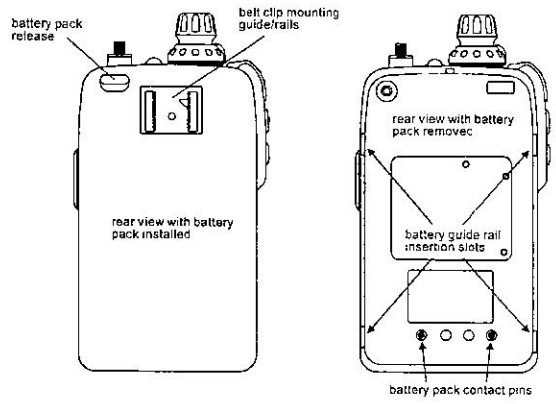


Before You Begin

Battery Installation and Removal

Refer to the illustration below showing the rear panel of the VX-10 and its battery pack.

❒ Lay the battery pack loosely onto the rear panel of the transceiver, and carefully mate the four small alignment tabs on the battery with their corresponding insertion slots on the transceiver case. Proper alignment occurs with the battery pack offset about ½" from the top of the case.



❒ Guide the pack into the slots with a slight inward pressure, then slide the battery pack upward, until it locks in place with a "Click".

❒ To remove the battery, turn the radio off and remove any protective cases. Press in the Battery Release button (behind the Antenna jack) while sliding the battery down ½". Then lift the battery away.

Do not attempt to open any of the rechargeable Ni-Cd packs, as they could explode if accidentally short-circuited.

Low Battery Indication

❒ As the battery discharges during use, the voltage gradually becomes lower. When the battery voltage reaches 6.0 Volts, the battery pack should be recharged and another battery should be installed in its place. The "▭" icon will blink in the display when battery voltage is low.

❒ Avoid recharging Ni-Cd batteries often with little use between charges, as this can degrade the charge capacity. Yaesu recommends that you carry an extra, fully-charged pack with you so the operational battery may be utilized until depletion (this "Deep Cycling" promotes better long-term battery capacity).

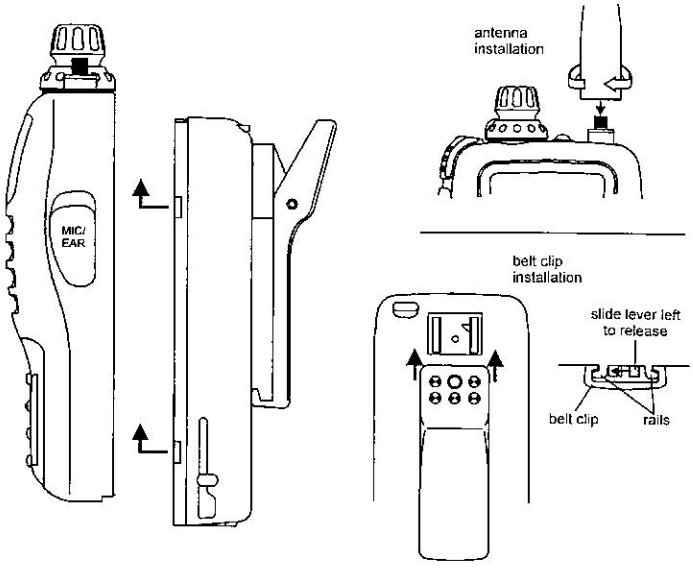
Operation

Before You Begin

❒ Install a charged battery pack onto the transceiver, as described previously.

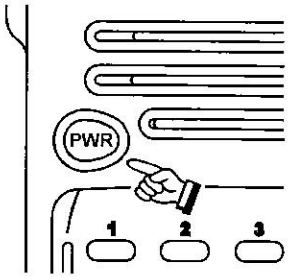
❒ Screw the supplied antenna onto the Antenna jack. Never operate this transceiver without an antenna connected.

❒ If you have a Speaker/Mic, we recommend that it not be connected until you are familiar with the basic operation of the VX-10.

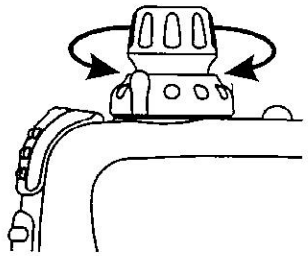


Operating the VX-10

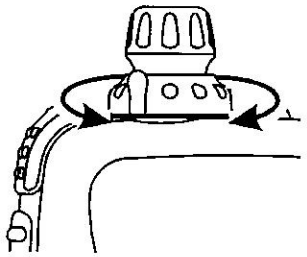
❒ To turn the radio on, push and hold in the orange [**PWR**] button for ½ second.



❒ Turn the top panel Channel Selector to choose the desired operating channel. A channel number or channel name will appear on the LCD.



❒ Rotate the lower, outer ring of the Channel Selector knob to set the Volume level. If no signals are being received, you can preset the Volume level on background noise by the following procedure.

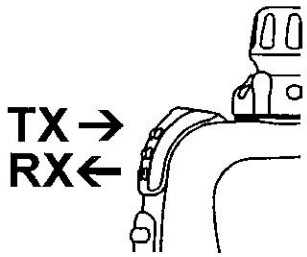


① Press the Monitor button (the middle button on the left side) *once* to activate the "🔊" icon, then press *and hold in* the Monitor Button for one second to open the Squelch manually.

② Rotate the Volume control for a comfortable Volume level on the noise.

③ Press the Monitor button once again to reactivate the Squelch.

❒ To transmit, press and hold in the [**PTT**] switch. Speak into the microphone area of the front panel grille (lower right-hand corner) in a normal voice. To return to the Receive mode, release the [**PTT**] switch.



❒ If a Speaker/Mic is available, it may be plugged into its jack on the right side of the transceiver. Hold the speaker grille up next to your ear in the Receive mode. To transmit,

press the Speaker/Mic's [**PTT**] switch, just as you would on the main transceiver body.

❒ Press one of the "Soft Keys" ("A" or "B" in the Two-Key transceiver version, or "A" ~ "D" on the 16-Key version), or press downward momentarily on the Channel Selector knob, to activate one of the "Pre-Programmed Functions" which may have been provided at the time of programming by the Dealer. See the "**Appendix**" for a listing of available features.

Appendix

A. Pre-Programmed Functions

One or more of the following functions may have been activated by your Dealer at the time of programming of the radio. The functions will have been assigned to the "A" and "B" keys in the Two-Channel transceiver version, the "A" through "D" keys on the Four-Channel version, and/or the Channel Selector Knob (hereafter referred to as "The Knob").

- *Scanning* <<**This section subject to changere USR SCAN**>>

  Scanning rapidly steps through each of your assigned channels, looking for incoming calls. If a call is detected, Scanning stops on that channel, then resumes a few seconds after the incoming transmission ends.

  Two Scanning modes are available: "User" Scan and "Dealer" Scan. The "USR SCAN" display means that the User can edit the channel scan list, while "DLR SCAN" means that only the Dealer can edit the scan list.

  To start Scanning, momentarily press the assigned button (A, B, C, or D) or the Knob. To cancel Scanning, press the same button.

- *Dual Watch*

  Dual Watch automatically checks for activity on a priority channel, while operating on another channel ("Priority" is assigned to the *first channel* of the currently-selected *Group*). A small "***DW***" is displayed at the top of the LCD when Dual Watch is active.

  To start Dual Watch operation, press the Dealer-designated button (A, B, C, or D) or the Knob momentarily. About every 1½ seconds, the receiver will briefly check the Priority channel, looking for an incoming call.

  When a signal is received on the Priority channel, Dual Watch will pause and the channel number or name tag for the Priority channel will be displayed. Dual Watch will resume after the station on the Priority channel stops transmitting.

  To cancel Dual Watch, press the Dealer-designated button (A, B, C, or D) or the Knob momentarily again.

- *LOW Transmit Power*

  Pressing the Dealer-designated button switches the radio's transmitter to a "Low Power" mode, thus allowing greater battery life.

  The "L" icon will be illuminated in this case.

- *Talk Around*

  In *duplex* channel systems (separate receive and transmit frequencies, utilizing a "repeater" station), Talk-Around allows you to bypass the repeater station and talk *directly* to a station that is nearby. This feature has no effect when operating on "simplex" channels, where the receive and transmit frequencies are the same).

- *Channel Group Selection*

  The VX-10 is capable of separating its 102 memory channels into any of nine groups. There is no limit to the number of channels in each group.

  Pressing the assigned button (A, B, C, or D) or the Knob allows the operator to toggle between the available groups. Channels *within* the selected group may then be selected using the Channel Selector Knob.

- *TX Save Off*

  This feature, if selected, disables the Transmit Battery Saver, which reduces transmit power when a very strong signal from an apparently nearby station is being received.

  Press the assigned button (A, B, C, or D) or the Knob to disable the Transmit Battery Saver, if you are operating in a location where high power is almost always needed.

- *Set Function (Menu)*

  The "Set Function" allows the user to customize certain performance parameters as needed.

- *Squelch Call (16-Key Pad Type Only)*

  This feature allows the user to change the 3-digit Squelch Call code, used to call other similarly-equipped stations.

  Press the assigned button (A, B, C, or D) or the Knob, followed by the three digits of the Squelch Call code of the station you wish to call. Three tones will be heard after the last key is pressed (the code will now be transmitted). The receiver squelch of the other station will be opened, and you can commence talking.

B. Set Function (Menu)

The user-accessible "Set Function" allows the operator to customize certain performance features of the VX-10.

Two methods of activating the Set Function are available:

① If the Dealer has assigned "Set Function Access" to one of the "Pre-Programmed Function" keys, pressing the assigned key (A, B, C, or D) will activate the feature.

② If the Dealer has assigned "Set Function Access" to the Channel Selector Knob, pressing downward on the Knob will activate the Set Function.

Once the Set Function is active, the following procedure is used to recall the desired Menu item for editing:

❒ One the Set Function is activated, rotate the Channel Selector Knob to step through each of the available 16 functions; once the desired function is found (see the Table below), push the **[A]** button to view the current setting of that function.

❒ Rotate the Channel Selector Knob to select a different setting (or to enable/disable it), then press the **[B]** button to save the new setting.

❒ Press the assigned button (A, B, C, or D) or the Channel Selector Knob to exit the Set Function mode.

Knob/Button	Function
[A] button	Scanning
	Dual Watch
	Low Transmit Power
	Talk Around
	Channel Group
	Code Squelch Call
	TX Save Off
	Set-Function
[B] button	Scanning
	Dual Watch
	Low Transmit Power
	Talk Around
	Channel Group
	Code Squelch Call
	TX Save Off
	Set-Function
[C] button (on 16-key version)	Scanning
	Dual Watch
	Low Transmit Power
	Talk Around
	Channel Group
	Code Squelch Call
	TX Save Off
	Set-Function
[D] button (on 16-key version)	Scanning
	Dual Watch
	Low Transmit Power
	Talk Around
	Channel Group
	Code Squelch Call
	TX Save Off
	Set-Function
Knob	Scanning
	Dual Watch
	Low Transmit Power
	Talk Around
	Channel Group
	Code Squelch Call
	TX Save Off
	Set-Function

Set Function List

The table below outlines the various functions that are available for user editing via the Set Function (described above).

Display	Description	Selections
S01 SQL	Squelch Level	Level 0* ~ 12
		*0 = SQL open
S02 LIST	Scan Mode	Dealer/User
S03 BEEP	Keypad Beeper	On/Off
S04 BELL	CTCSS/DCS Bell	On/Off
S05 LITE	TX/BUSY LED	On/Off
S06 LOCK	Locks Controls	Key, PTT, or Knob
S07 TAG	Channel Name Tag	On/Off
S08 GRP	Channel Groups	Groups 1 ~ 9
S09 SCAN	Scan Mode	On/Off
S10 DW	Dual Watch	On/Off
S11 TXPO	Transmitter Power	High/Low
S12 TA	Talk Around	On/Off
S13 ENCR	Encryption	On/Off
Display	Description	Selections
S14 TEL	Telephone Number	
	Memory Recall	Channel 1 ~ 10, Off
S15 TSAV	Transmit Battery Saver	On/Off
S16 DTMF	DTMF Code	
	Memory Select	Channel 1 ~ 10

C. ARTS (Auto Range Transpond System)

This system is designed to inform you when you *and another ARTS-equipped station* are within communication range. If you move out of range for more than two minutes, your radio senses that no signal has been received, a ringing beeper sounds, and " ⊗ " appears on the LCD. If you subsequently move back into range, as soon as the other station transmits, your radio's beeper will sound, and " ⊙ " will appear.

During ARTS operation, your radio automatically transmits for about 1 second every 25 seconds (the interval is programmed by the Dealer) in an attempt to "shake hands" with the other station.

D. DTMF ANI System

This system is a standard ANI (Automatic Numeric Identification) sequence that may be programmed, by the Dealer, to be sent whenever the PTT switch is pressed or released.

E. DTMF Paging System

This system allows paging and selective calling, using transmitted DTMF (Dual Tone, Multi-Frequency) sequences. Your receiver remains silent until it receives DTMF digits that match those stored in a special "DTMF Code" memory in your transceiver. The squelch then opens so the caller is heard, and an alert ringer sounds.

When a "DTMF Paging" call opens your radio's squelch, you can begin your operation as usual. DTMF Paging "hangs" open for about three seconds after the received carrier drops, to give you time to respond; thereafter, it resets the system.

Each time you transmit, you will hear DTMF tones; remember to pause a moment before speaking, as the code is being sent on *your* signal at the beginning of each transmission. You will not hear the other station's DTMF tones the first time you receive a call, as your squelch does not open until after the tones are decoded. Afterwards, however, you will hear the DTMF tones so long as your radio's squelch remains open.

F. Alpha-Numeric Channel Names ("Channel Nametags")

The Dealer may program Alpha-Numeric designators to each channel, to aid in the user's recognition of each channel. These "Channel Nametags" may be activated, in lieu of the standard "CHAN 1" type display.

To enable or disable the Channel Nametags:

- ❒ Enter the Set Function, and select Menu item S07 ("TAG").
- ❒ Push the [A] button momentarily to view the current selection.
- ❒ Now rotate the Channel Selector knob to change the setting to the desired state (Tags *On* or *Off*).
- ❒ Press the [B] button to save the new setting, then press downward on the Channel Selector knob momentarily to exit the Set Function.

Specifications

General

Frequency range:	134 ~ 160, 148 ~ 174 MHz
Number of channels:	40 (FTT-14) or 102 (FTT-15)
Channel spacing:	12.5/25/30 kHz
Battery voltage:	7.2 V DC
Temperature range:	- 30 °C to + 60 °C
Case size (WHD):	57 × 99 × 46 mm (w/FNB-V47)
Weight (approx.):	380 grams with FNB-V47, antenna, belt clip

Receiver

Circuit type:	Double-conversion superheterodyne
IFs:	17.70 MHz & 450 kHz
12-dB SINAD Sensitivity:	< 0.2 μV
Squelch Sensitivity:	< 0.25 μV
Selectivity:	< 60 dB (12.5 kHz), < 70dB (25/30 kHz)
Intermodulation:	> 70 dB
Spurious rejection:	> 70 dB
Image rejection:	> 70 dB
Channel frequency spread:	26 MHz
AF output:	0.5 W @ 4 Ω (±5% THD)

Transmitter

Power output:	5.0/2.5/1.0/0.1 W (Selectable, 0.1 W to 5.0 W Adjustable)
Frequency stability:	better than ±5 ppm
Modulation system:	Direct FM
Maximum deviation:	(±2.5 kHz or) ±5 kHz
FM Noise (@ 1 kHz):	better than -40 dB
Spurious emissions:	> 65 dB below carrier
AF distortion (@ 1 kHz):	< 5%
Microphone type:	2-kΩ condenser

Specifications are subject to change without notice.
Frequency ranges and channel spacing vary according to transceiver version; check with your dealer.

Notes:

Transceiver Disassembly

The VX-10 must be partially disassembled to perform a complete alignment.

Case Removal

Before beginning, turn the radio off, remove the knob, and the battery pack.

❒ Lay the transceiver on a flat surface covered with a soft cloth to protect the front case from marring, then remove the two rear-panel case screws (Fig. 1).

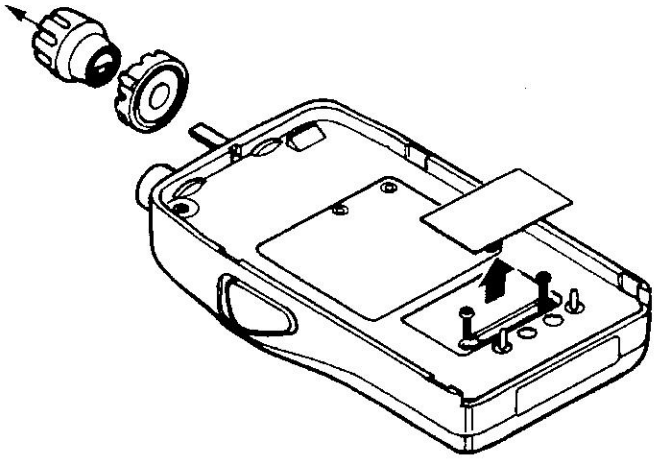


Figure 1.

❒ Remove the keypad unit from the front panel by using your fingernails to grasp both side of the unit and lift it free (Fig. 2).

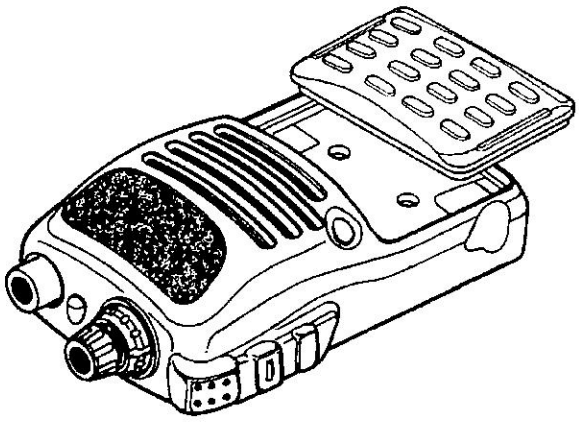


Figure 2.

❒ Grasp the transceiver with both hands, then gently remove the internal assembly from the case using by pressing on it gently with even pressure from both thumbs, then sliding out from the case at an angle (Fig. 3).

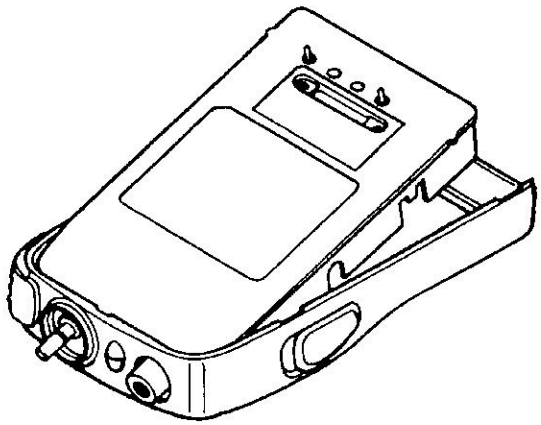


Figure 3.

❒ Remove the small silicone LED lens from the case by pressing on it from the inside.

This provides access to all user-serviceable adjustments, further disassembly is not recommended.

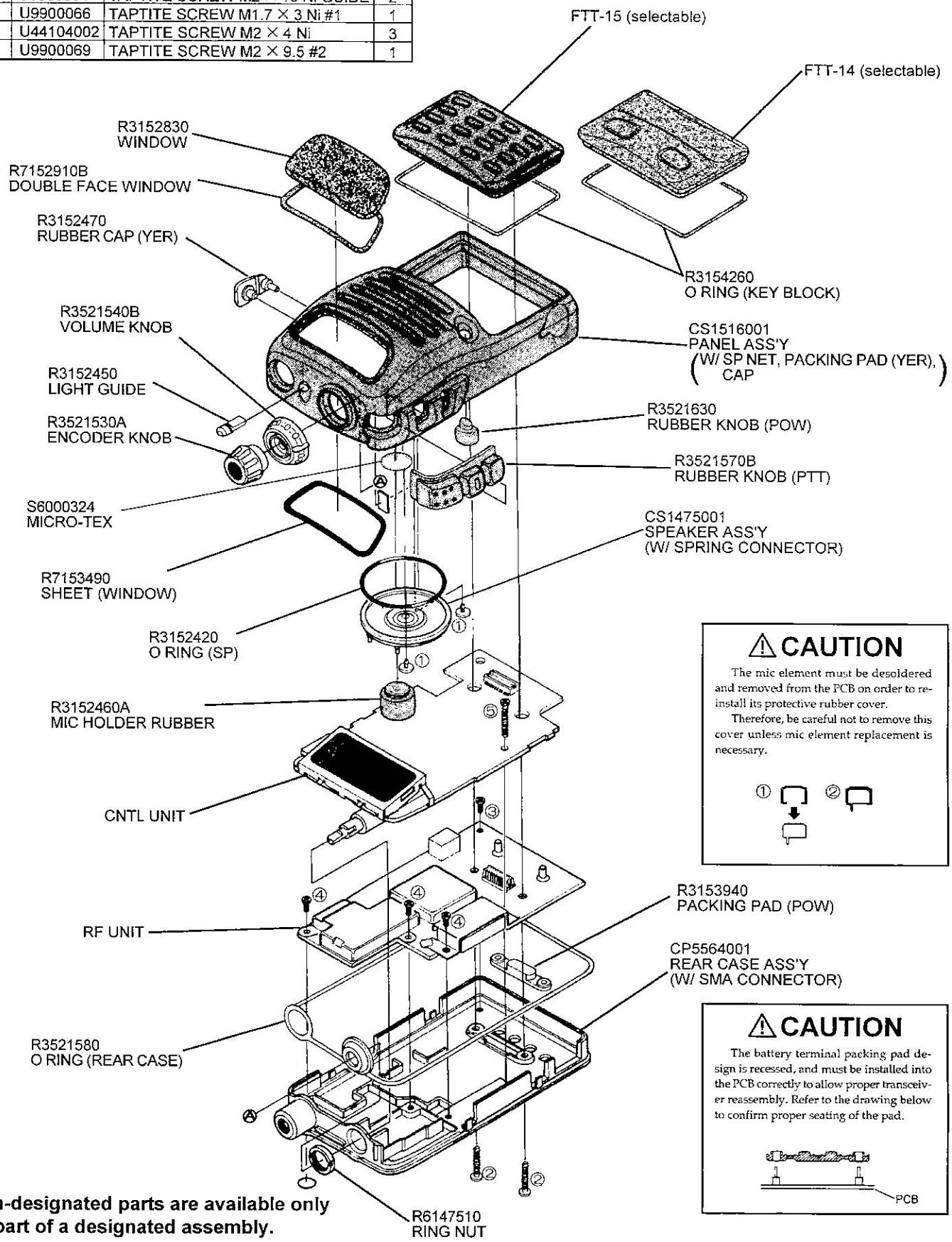
Refer repairs to your nearest Yaesu-authorized service center.

❒ Reassemble the unit in reverse order. When re-inserting the internal unit and keypad into the case, ensure their rubber gaskets are not pinched, and rest firmly within the ridge encircling their frame and transceiver case.

Notes:

Exploded View & Miscellaneous Parts

REF.	YAESU P/N	Description	Qty.
①	U9900063	TAPTITE SCREW 2 × 3.3 Ni	2
②	U9900064	TAPTITE SCREW M2 × 10 Ni GUIDE	2
③	U9900066	TAPTITE SCREW M1.7 × 3 Ni #1	1
④	U44104002	TAPTITE SCREW M2 × 4 Ni	3
⑤	U9900069	TAPTITE SCREW M2 × 9.5 #2	1



⚠CAUTION

The mic element must be desoldered and removed from the PCB on order to re-install its protective rubber cover.

Therefore, be careful not to remove this cover unless mic element replacement is necessary.

⚠CAUTION

The battery terminal packing pad design is recessed, and must be installed into the PCB correctly to allow proper transceiver reassembly. Refer to the drawing below to confirm proper seating of the pad.

Non-designated parts are available only as part of a designated assembly.

Exploded View & Miscellaneous Parts

Notes:

Receive Signal Path

Incoming RF from the antenna jack is delivered to the RF Unit and passes through a low-pass filter and high-pass filter consisting of coils L1006, L1007, L1008, L1010, L1011 & L1012, capacitors C1033, C1034, C1046, C1047, C1048, C1049, C1050, C1064, C1076, C1077, C1081 & C1082 and antenna switching diode D1008 (**RLS135**).

Signals within the frequency range of the transceiver are then amplified by Q1019 (**2SC5226-4/5**) and enter a varactor-tuned band-pass filter consisting of coils L1015, L1016 & L1017, capacitors C1017, C1087, C1089, C1090, C1091, C1099, C1100, C1108, C1111, C1112, C1113, C1158, C1162 & C1166, and diodes D1012, D1013 & D1014 (all **HVU350**) before first mixing by Q1026 (**SGM2016M**).

Buffered output from the VCO is amplified by Q1001 (**2SC5226-4/5**) to providea pure first local signal between 116.3 and 156.3 MHz for injection to the first mixer Q1026 (**SGM2016M**). The 17.7 MHz first mixer product then passes through monolithic crystal filters XF1001, XF1002 (**17T12B5**, 7.5 kHz BW) to strip away all but the desired signal, which is then amplified by Q1028 (**2SC4215Y**).

The amplified first IF signal is applied to FM IF subsystem IC Q1020 (**TA31136FN**), which contains the second mixer, second local oscillator, limiter amplifier, noise amplifier, and S-meter amplifier.

A second local signal is generated by PLL reference/second local oscillator Q1018 (**2SC2620QB**) from the 17.25 MHz crystal X1001 to produce the 450 kHz second IF when mixed with the first IF signal within Q1020.

The second IF then passes through the ceramic filter CF1001 to strip away unwanted mixer products, and is applied to the limiter amplifier in Q1020, which removes amplitude variations in the 450 kHz IF, before detection of the speech by the ceramic discriminator CD1001 (**CDBM450C24T**).

Detected audio from Q1020 is applied to one of the user selected Key Unit for de-emphasis and band-pass filtering (see the Key Unit Circuit Description), and then past the volume control to the audio power amplifier Q2021 (**TDA7233D**) on the CNTL Unit, providing up to 0.5 Watts to the optional headphone jack or 4-Ω loudspeaker.

Squelch Control

The squelch circuitry consists of a noise amplifier & band-pass filter within Q1020, and noise detector D1018 (**DA221**) on the CNTL Unit.

When no carrier is received, noise at the output of the detector stage in Q1020 is amplified and band-pass filtered by the noise amplifier section of Q1020 and the network between pins 7 and 8, and then rectified by D1018.

The resulting DC squelch control voltage is passed to pin 96 of the microprocessor Q2001. If no carrier is received, this signal causes pins 43 and 55 of Q2001 to go low. Pin 43 signals Q2018 (**IMD10A**) and Q2020 (**UMH3N**) to disable the supply voltage to the audio amplifier Q2021, while pin 55 makes Q2008 (**FMG2**) hold the green (Busy) half of the LED off, when these pins are low.

Thus, the microprocessor blocks output from the audio amplifier, and silences the receiver while no signal is being received, and during transmission.

When a carrier appears at the discriminator,

noise is removed from the output, causing pin 96 of Q2001 to go high and the microprocessor to turn onthe busy LED via Q2008.

The microprocessor then checks the CTCSS chip on the Key Unit, the DTMF decoder chip and the CDCSS code for CTCSS or CDCSS or DTMF code squelch information, if enabled, respectively. If not transmitting and tone squelch or CDCSS is not activated, or if the received tone or code matches that programmed, the microprocessor stops scanning, if active, and allows audio to pass through the audio amplifier Q2021 (**TDA7233D**) to the loudspeaker by enabling the supply voltage to it via Q2018 and Q2020.

Transmit Signal Path

Speech input from the microphone is delivered to the CNTL Unit, where itis amplified by Q2025-4 (**NJM2902V**), then applied to one of the user selected Key Unit for pre-emphasis (see the Key Unit Circuit Description).

The pre-emphasized audio then returns to the CNTL UNIT, to provide IDC (Instantaneous Deviation Control), and the splutter filter which filters the speech signal to remove any high frequency components that might result in overdeviation.

The processed audio is then mixed with a CTCSS tone generated by the microprocessor Q2001 and delivered to D1001 (**1SS314**) for frequency modulating the PLL carrier up to ± 5 kHz from the unmodulated carrier at the transmitting frequency.

If an external microphone is used, PTT switching is controlled by Q2022 (**UMZ2N**), which signals the microprocessor when the impedance at the microphone jack drops.

If a CDCSS code is enabled for transmission, the code is generated by the microprocessor Q2001 and delivered to D1017 (**HVU202A**) for CDCSS modulating.

If DTMF is enabled for transmission, the tone is generated by the microprocessor Q2001 and applied to the splutter filter section in place of speech audio. Also, the tone is amplified for monitoring in the loudspeaker.

The modulated signal from the VCO Q1002 (**2SC5231C8/C9**) is buffered by Q1003 (**2SC5231C8/C9**) and amplified by Q1001 (**2SC5226-4/5**). The low-level transmit signal is then applied to the PA module Q1005 for final amplification up to 5 watts output power.

The transmit signal then passes through the antenna switch D1006 (**RLS135**) and is low-pass filtered to suppress away harmonic spurious radiation before delivery to the antenna.

Automatic Transmit Power Control

RF power output from the final amplifier is sampled by C1026, C1027 and is rectified by D1004 (**1SS321**). The resulting DC is fed back through Q1004 (**NJM2904V**) to the PA module, and thus the power output.

The microprocessor selects either high or one of three low power levels.

Transmit Inhibit

When the transmit PLL is unlocked, pin 2 of PLL chip Q1015 goes to a logic low. The resulting DC unlock control voltage is passed to pin 98 of the microprocessor Q2001. While the transmit PLL is unlocked, pin 47 of Q2001 remains low, which then turns off the Automatic Power Controller Q1014 and Q1004 (**UMC5N**, **NJM2904V**) to disable the supply voltage to the transmitter RF amplifier Q1005, disabling the transmitter.

Spurious Suppression

Generation of spurious products by the transmitter is minimized by the fundamental carrier frequency being equal to the final transmitting frequency, modulated directly in the transmit VCO. Additional harmonic suppression is provided by a low-pass filter consisting of L1006, L1007 & L1008 and C1033, C1034, C1046, C1048, C1049 & C1050, resulting in more than 60 dB of harmonic suppression prior to delivery to the antenna.

PLL Frequency Synthesizer

PLL circuitry on the RF Unit consists of VCO Q1002 (**2SC5231C8/C9**) and VCO buffers Q1003 (**2SC5231C8/C9**), Q1006 (**2SC4245**); PLL subsystem IC Q1015 (**MC145192F**), which contains a reference divider, serial-to-parallel data latch, programmable divider, phase comparator, charge pump, and a power saver circuit.

Stability is maintained by a regulated 3 V supply via Q2014 (**2SB1132Q**) on the CNTL Unit to Q1018, temperature compensating thermistor and capacitors associated with the 17.25 MHz frequency reference crystal X1001.

While receiving, VCO Q1002 oscillates between 116.3 and 156.3 MHz accordingto the transceiver version and the programmed receiving frequency. The VCO output is buffered by Q1003, Q1006 and applied to the prescaler section of Q1015. There the VCO signal is divided by 64 or 65, according to a control signal from the data latch section of Q1015, before being applied to the programmable divider section of Q1015.

The data latch section of Q1015 also receives serial dividing data from the microprocessor Q2001 on the CNTL Unit, which causes the predivided VCO signal to be further divided in the programmable divider section, depending upon the desired receive frequency, so as to produce a 5 kHz or 6.25 kHz derivative of the current VCO frequency.

Meanwhile, the reference divider section of Q1015 divides the 17.25 MHz crystal reference from the reference oscillator Q1018, by 3450 (or 2760) to produce the 5 kHz (or 6.25 kHz) loop reference (respectively).

The 5 kHz (or 6.25 kHz) signal from the programmable divider (derived from the VCO) and that derived from the reference oscillator are applied to the phase detector section of Q1015, which produces a pulsed output with pulse duration depending on the phase difference between the input signals.

This pulse train is filtered to DC and returned to the varactor D1003 (**HVU350**). Changes in the level of the DC voltage applied to the varactor, affect the reactance in the tank circuit of the VCO, changing the oscillating frequency of the VCO according to the phase difference between the signals derived from the VCO and the crystal reference oscillator.

The VCO is thus phase-locked to the crystal reference oscillator. The output of the VCO Q1002, after buffering by Q1003 and amplification by Q1001, is applied to the first mixer, as described previously.

For transmission, the VCO Q1002 oscillates between 134 and 174 MHz according to the model version and programmed transmit frequency. The remainder of the PLL circuitry is shared with the receiver. However, the dividing data from the microprocessor is such that the VCO frequency is at the actual transmit frequency (rather than offset for IFs, as in the receiving case). Also, the

VCO is modulated by the speech audio applied to D1001 (**1SS314**), asdescribed previously.

Receive and transmit buses select which VCO is made active by Q1008 (**DTC143ZE**).

FET Q1013 (**2SK880GR**) buffers the VCV line for application to the tracking band-pass filters in the receiver front end.

When the power saving feature is active, the microprocessor periodically signals the PLL IC to conserve power and shortens lock-up time.

Miscellaneous Circuits

Push-To-Talk Transmit Activation

The PTT switch on the microphone is connected to pin 100 of microprocessor Q2001, so that when the PTT switch is closed, pin 47 of Q2001 goes high. This signals the microprocessor to activate the TX/RX controller Q1022 (**UMH5N**), which then disables the receiver by disabling the 3 V supply bus at Q1021 (**UN911H**) to the front-end, FM IF subsystem IC Q1020 and receiver VCO circuitry.

At the same time, Q1016 (**XP1501**), Q1017 (**2SB1132Q**) activates the transmit 3 V supply line to enable the transmitter.

KEY Unit

2CE-Key Unit

The 2CE-Key Unit circuit consists of de-emphasis, pre-emphasis, band-pass filter, CTCSS decoder within Q3101 (**AK2341**) and EEPROM Q3103 (**S-29430AFE**).

While receiving, detected audio from Q1020 is de-emphasized by the Q3101 de-emphasis section and then band-pass filtered by the Q3101 band-pass filter section.

The processed receiver audio is then delivered to the CNTL Unit.

Detected audio from Q1020 is also delivered to the CTCSS decoder within Q3101. The microprocessor checks the CTCSS chip Q3101 for CTCSS squelch information.

For transmission, speech audio from Q2025-4 is delivered to the Q3101 pre-emphasis section for pre-emphasis.

The processed speech audio is then delivered to the CNTL Unit.

EEPROM Q3103 extends the memory channels from 40 to 102.

16CEP-Key Unit

The 16CEP-Key Unit circuit consists of de-emphasis, pre-emphasis, band-passfilter, voice band inverter, CTCSS decoder within Q3201 (**AK2342A**) and EEPROM Q3203 (**S-29430AFE**).

While receiving, detected audio from Q1020 is de-emphasized and amplified by the Q3201 de-emphasis amplifier section, and then band-pass filtered by the Q3201 band-pass filter section. If the audio is scrambled by inverting the voice band, it then passes through the voice band inverter section within Q3201 to recover clear speech.

The processed receiver audio is then delivered to the CNTL Unit.

Detected audio from Q1020 is also delivered to the CTCSS decoder within Q3201. The microprocessor checks the CTCSS chip Q3201 for CTCSS squelch information.

For transmission, speech audio from Q2025-4 is delivered to the Q3201 pre-emphasis amplifier section for pre-emphasis and amplification. If privacy during communications is desired, it then passes through the voice band inverter section within Q3201 for voice scrambling.

The processed speech audio is then delivered

to the CNTL Unit.

EEPROM Q3203 extends the memory channels from 40 to 102.

16CDEV-Key Unit

The 16CDEV-Key Unit circuit consists of de-emphasis, pre-emphasis, band-pass filter, voice band inverter, CTCSS decoder within Q3301 (**AK2342A**), sub-CPU Q3304 (**M38802M2**), EEPROM Q3303 (**S-29430AFE**) and voice memory Q3307 (**ISD1020AGL**).

While receiving, detected audio from Q1020 is de-emphasized and amplified by the Q3301 de-emphasis amplifier section, and then band-pass filtered by the Q3301 band-pass filter section. If the audio is scrambled by inverting the voice band, it then passes through the voice band inverter section within Q3301 to recover clear speech.

The processed receiver audio is then delivered to the CNTL Unit.

Detected audio from Q1020 is also delivered to the CTCSS decoder within Q3301 and voice memory Q3307. The microprocessor checks the CTCSS chip Q3301 for CTCSS squelch information.

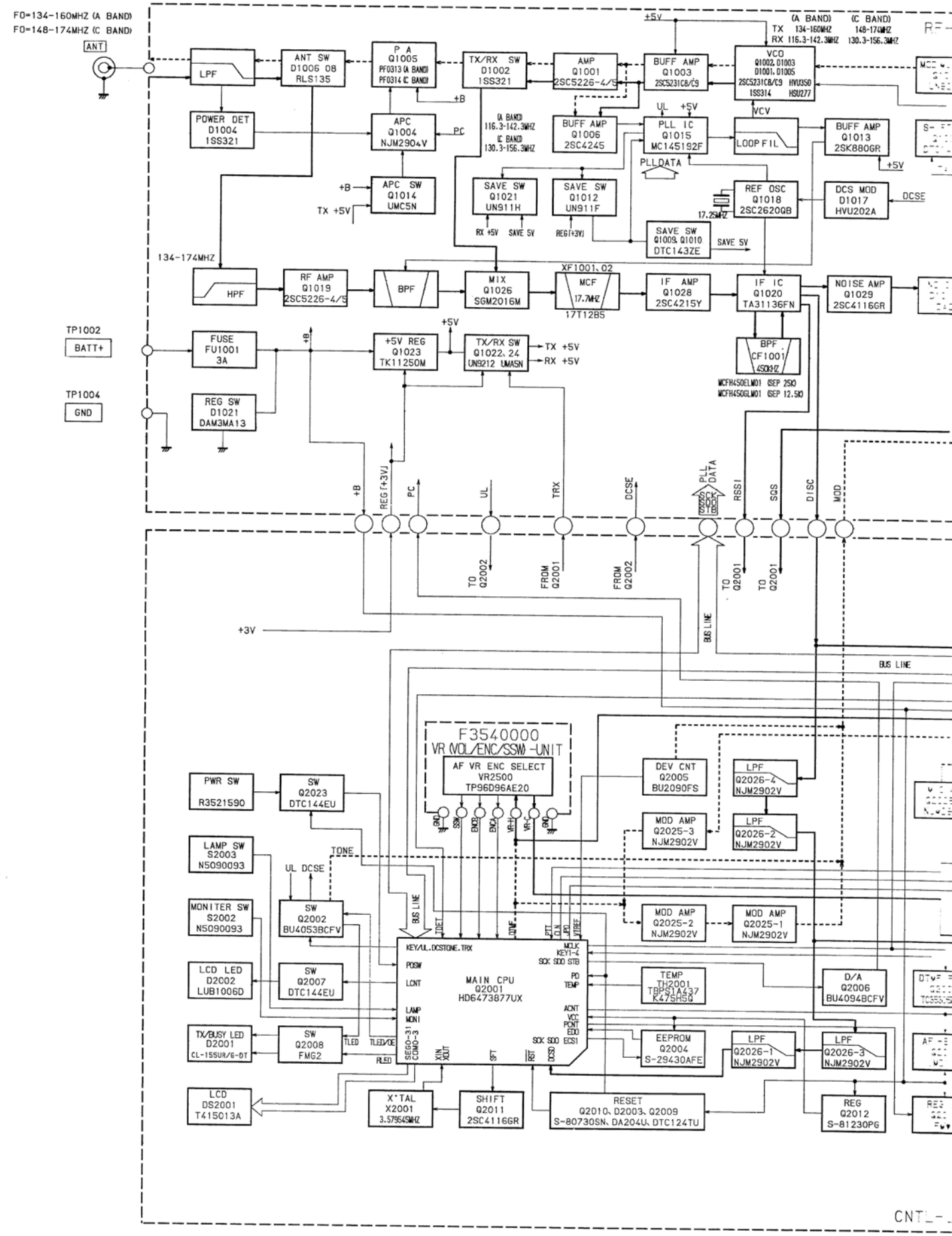
For transmission, speech audio from Q2025-4 is delivered to the Q3301 pre-emphasis amplifier section for pre-emphasis and amplification. If privacy during communications is desired, it then passes through the voice band inverter section within Q3301 for voice scrambling.

The processed speech audio is then delivered to the CNTL Unit.

The voice memory chip Q3307 memorizes speech audio or receive audio from the CNTL Unit, which controlled by the sub-CPU.

EEPROM Q3303 extends the memory channels from 40 to 102.

Notes: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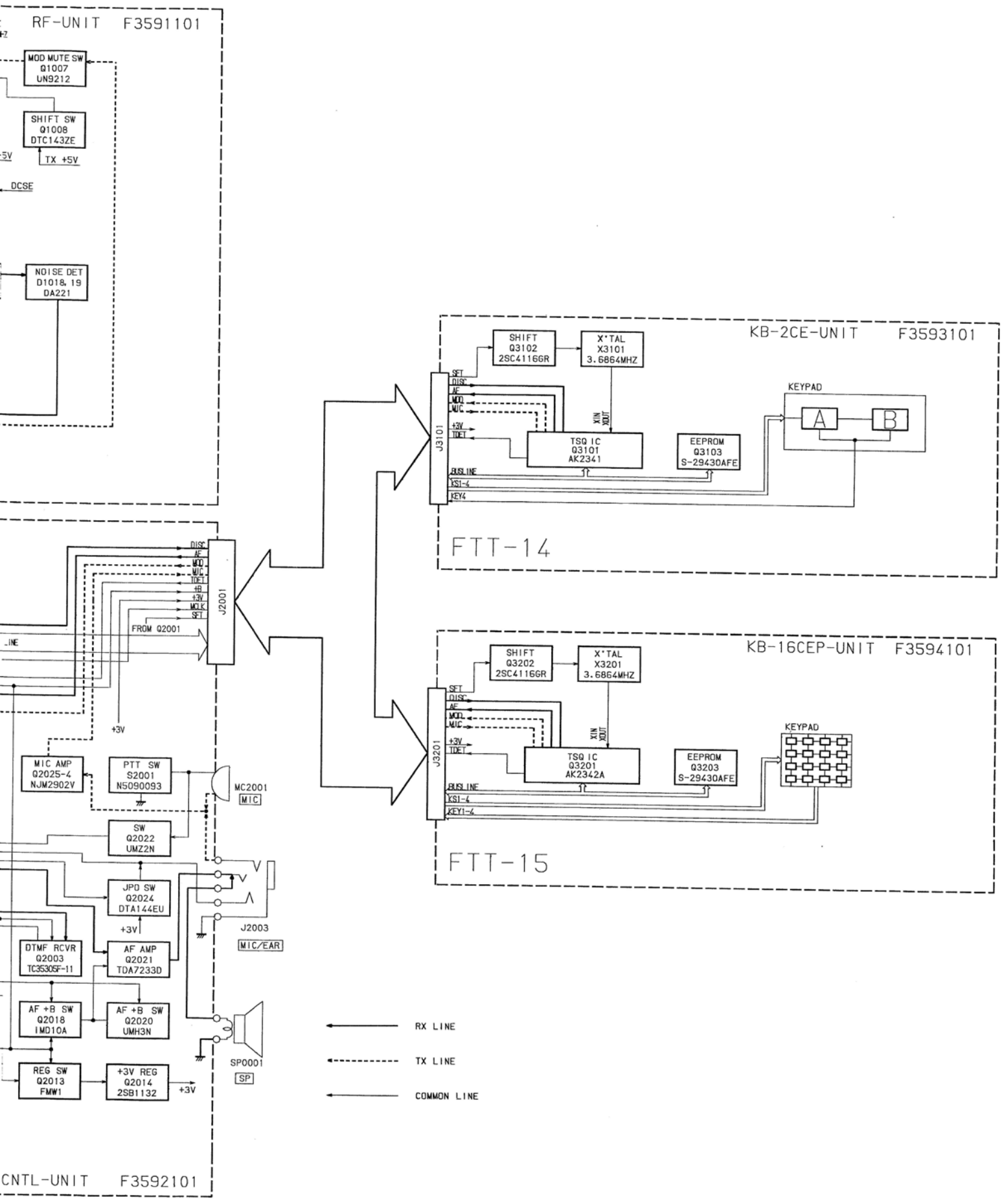
F0=148-174MHZ (C BAND)
ANT
LPF
ANT SW D1006 08 RLS135
P A Q1005 PF0313 (A BAND) PF0314 (C BAND)
TX/RX SW D1002 1SS321
AMP Q1001 2SC5226-4/5
BUFF AMP Q1003 2SC5231C8/C9
VCO Q1002, D1003 D1001, D1005 2SC5231C8/C9 HVU350 1SS314 HSU277
(A BAND) (C BAND)
TX 134-160MHZ 148-174MHZ
RX 116.3-142.3MHZ 130.3-156.3MHZ
+5V
+B
PC
POWER DET D1004 1SS321
APC Q1004 NJM2904V
APC SW Q1014 UMC5N
TX +5V
(A BAND) 116.3-142.3MHZ
(C BAND) 130.3-156.3MHZ
BUFF AMP Q1006 2SC4245
PLL IC Q1015 MC145192F
UL +5V
VCV
LOOP FIL
BUFF AMP Q1013 2SK880GR
PLLDATA
SAVE SW Q1021 UN911H
SAVE SW Q1012 UN911F
RX +5V SAVE 5V
REG(+3V)
REF OSC Q1018 2SC2620QB
17.25MHZ
DCS MOD D1017 HVU202A
DCSE
SAVE SW Q1009, Q1010 DTC143ZE
SAVE 5V
134-174MHZ
HPF
RF AMP Q1019 2SC5226-4/5
BPF
MIX Q1026 SGM2016M
XF1001, 02 MCF 17.7MHZ 17T12B5
IF AMP Q1028 2SC4215Y
IF IC Q1020 TA31136FN
NOISE AMP Q1029 2SC4116GR
TP1002
BATT+
TP1004
GND
FUSE FU1001 3A
+5V REG Q1023 TK11250M
TX/RX SW Q1022, 24 UN9212 UMA5N
TX +5V
RX +5V
REG SW D1021 DAM3MA13
BPF CF1001 450KHZ
MCFH450ELM01 (SEP 25K)
MCFH450GLM01 (SEP 12.5K)
REG(+3V)
PC
UL
TRX
DCSE
PLL DATA
SCK SDO STB
RSSI
SQS
DISC
MOD
TO Q2002
FROM Q2001
FROM Q2002
TO Q2001
TO Q2001
+3V
BUS LINE
F3540000
VR (VOL/ENC/SSW) -UNIT
AF VR ENC SELECT VR2500 TP96D96AE20
GND
SSW
ENC3
ENC2
VR-H
VR-L
GND
PWR SW R3521590
SW Q2023 DTC144EU
LAMP SW S2003 N5090093
TONE
UL DCSE
MONITER SW S2002 N5090093
SW Q2002 BU4053BCFV
LCD LED D2002 LUB1006D
SW Q2007 DTC144EU
TX/BUSY LED D2001 CL-155UR/6-DT
SW Q2008 FMG2
TLED
TLED/OE
RLED
LCD DS2001 T415013A
KEY/UL.DCSTONE.TRX
POSW
LCNT
LAMP MONI
SEG0-31 COM0-3
MAIN CPU Q2001 HD6473877UX
XIN XOUT
SFT
RST
DCSO
MCLK KEY1-4 SCK SDO STB
PO TEMP
ACNT VCC PCNT EDO SCK SDO ECS1
X'TAL X2001 3.579545MHZ
SHIFT Q2011 2SC4116GR
RESET Q2010, Q2003, Q2009 S-80730SN, DA204U, DTC124TU
DEV CNT Q2005 BU2090FS
MOD AMP Q2025-3 NJM2902V
MOD AMP Q2025-2 NJM2902V
MOD AMP Q2025-2 NJM2902V
MOD AMP Q2025-1 NJM2902V
LPF Q2026-4 NJM2902V
LPF Q2026-2 NJM2902V
TEMP TH2001 TBPS1A437 K47SH50
EEPROM Q2004 S-29430AFE
LPF Q2026-1 NJM2902V
LPF Q2026-3 NJM2902V
D/A Q2006 BU4094BCFV
REG Q2012 S-81230PG
CNTL-


RF-UNIT F3591101
MOD MUTE SW
Q1007
UN9212
SHIFT SW
Q1008
DTC143ZE
TX +5V
DCSE
NOISE DET
D1018, 19
DA221
KB-2CE-UNIT F3593101
SHIFT
Q3102
2SC4116GR
X'TAL
X3101
3.6864MHZ
KEYPAD
A
B
J3101
TSQ IC
Q3101
AK2341
EEPROM
Q3103
S-29430AFE
BUSLINE
KEY4
FTT-14
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TSQ IC
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AK2342A
EEPROM
Q3203
S-29430AFE
BUSLINE
KEY1-4
FTT-15
J2001
FROM Q2001
+3V
MIC AMP
Q2025-4
NJM2902V
PTT SW
S2001
N5090093
MC2001
MIC
SW
Q2022
UMZ2N
JPO SW
Q2024
DTA144EU
J2003
MIC/EAR
DTMF RCVR
Q2003
TC35305F-11
AF AMP
Q2021
TDA7233D
AF +B SW
Q2018
IMD10A
AF +B SW
Q2020
UMH3N
SP0001
SP
REG SW
Q2013
FMW1
+3V REG
Q2014
2SB1132
CNTL-UNIT F3592101
RX LINE
TX LINE
COMMON LINE

Block Diagram

Notes:

The VX-10 is carefully aligned at the factory for the specified performance across the frequency range specified for each version. Realignment should therefore not be necessary except in the event of a component failure, or altering version type. All component replacement and service should be performed only by an authorized Yaesu representative, or the warranty policy may be void.

The following procedures cover the sometimes critical and tedious adjustments that are not normally required once the transceiver has left the factory. However, if damage occurs and some parts subsequently are replaced, realignment may be required. If a sudden problem occurs during normal operation, it is likely due to component failure; realignment should not be done until after the faulty component has been replaced.

We recommend that servicing be performed only by authorized Yaesu service technicians who are experienced with the circuitry and fully equipped for repair and alignment. Therefore, if a fault is suspected, contact the dealer from whom the transceiver was purchased for instructions regarding repair. Authorized Yaesu service technicians realign all circuits and make complete performance checks to ensure compliance with factory specifications after replacing any faulty components.

Those who do undertake any of the following alignments are cautioned to proceed at their own risk. Problems caused by unauthorized attempts at realignment are not covered by the warranty policy. Also, Yaesu reserves the right to change circuits and alignment procedures in the interest of improved performance, without notifying owners.

Under no circumstances should any alignment be attempted unless the normal function and operation of the transceiver are clearly understood, the cause of the malfunction has been clearly pinpointed and any faulty components replaced, and realignment determined to be absolutely necessary.

The following test equipment (and thorough familiarity with its correct use) is necessary for complete realignment. Correction of problems caused by misalignment resulting from use of improper test equipment is not covered under the warranty policy. While most steps do not require all of the equipment listed, the interactions of some adjustments may require that more complex adjustments be performed afterwards.

Do not attempt to perform only a single step unless it is clearly isolated electrically from all other steps. Have all test equipment ready before beginning, and follow all of the steps in a section in the order presented.

Required Test Equipment

- ❒ RF Signal Generator with calibrated output level at 200 MHz
- ❒ Deviation Meter (linear detector)
- ❒ In-line Wattmeter with 5 % accuracy at 200 MHz
- ❒ 50-Ω RF Dummy Load with power rating 10 W at 200 MHz
- ❒ 4-Ω AF Dummy Load
- ❒ Regulated DC Power Supply adjustable from 3 to 15 VDC, 2 A
- ❒ Frequency Counter with 0.2 ppm accuracy at 200 MHz
- ❒ AF Signal Generator
- ❒ AC Voltmeter
- ❒ DC Voltmeter (high impedance)
- ❒ VHF Sampling Coupler
- ❒ SINAD Meter

Alignment

Alignment Preparation & Precautions

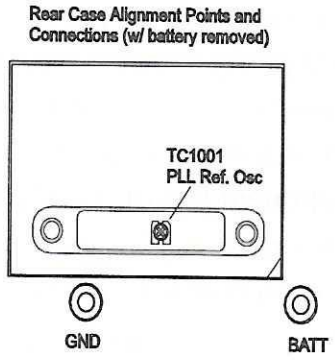
A 50-Ω RF dummy load and in-line wattmeter must be connected to the main antenna jack in all procedures that call for transmission, except where specified otherwise. Correct alignment is not possible with an antenna.

After completing one step, read the following step to determine whether thesame test equipment will be required. If not, remove the test equipment (except dummy load and wattmeter, if connected) before proceeding.

Correct alignment requires that the ambient temperature be the same as thatof the transceiver and test equipment, and that this temperature be held constant between 20 and 30 °C (68 ~ 86 °F). When the transceiver is brought into the shop from hot or cold air, it should be allowed time to come to room temperature before alignment.

Whenever possible, alignments should be made with oscillator shields and circuit boards firmly affixed in place.

Also, the test equipment must be thoroughly warmed up before beginning.

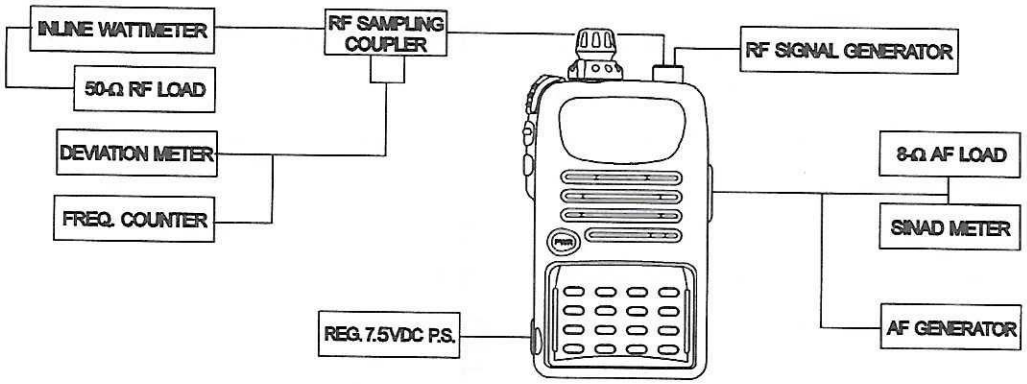


Note: Signal levels in dB referred to in the alignment procedure are based on 0 dBμ = 0.5 μV.

Set up the test equipment as shown for transceiver alignment, apply 7.5 VDC power to the transceiver. Refer to the drawings above for Alignment Points.

PLL Reference Frequency

❒ With the wattmeter, dummy load and frequency counter connected to the antenna jack, and while tuned to the center of the band, key the transmitterand adjust **TC1001** on the RF UNIT, if necessary, so the counter frequency is within 100 Hz of the displayed frequency on the VX-10.



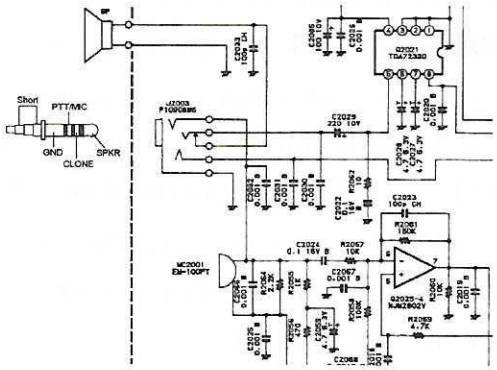
Internal System Alignment Routine

The remainder of the alignment uses a routine programmed in the transceiver.

This routine simplifies many previously complex discrete component settings and adjustments with digitally-controlled settings via front panel buttons and LCD indications.

Transceiver adjustments include:

- ○ Squelch Hysteresis Adjustment
- ○ Squelch Threshold & Tight Adjustment
- ○ RSSI Squelch Tight & TX Save Adjustment
- ○ Power Output Adjustment (Hi / L3 / L2 / L1)
- ○ TX Deviation Adjustment (MAX / CTCSS / DCS)



To begin, set the transceiver to the band center, then turn the transceiver off. Next, short the jumper between **CLN** line and GND on the **SPKR/MIC** jack (shown above), and press and hold the **DIAL** knob, **PTT** and **LAMP** together while powering the radio again. The display now shows the first setting. Note that the first two settings are not adjustable and are left as set fromthe factory.

In the alignment, each adjustment is selected by rotating the **DIAL** knob.

Alignment is performed by pressing the **A** key, then injecting a signal of the required frequency and level.

Pressing the **B** key after a level setting or adjustment is made stores the entry. To exit the alignment routine, press the **DIAL** knob. After performing the system alignment in its entirety, individual settings can be returned to and adjusted should the need arise.

Squelch Hysteresis (HSSQ)

❒ Select the squelch hysteresis level by the **DIAL**, then press the **B** key to save the entry and rotate the **DIAL** for the next setting.

Squelch Preset Threshold (THSQ)

❒ Inject a -13 dBμV RF signal (Standard MOD.), then press the **B** key to save the squelch threshold level and rotate the **DIAL** for the next setting.

Squelch Preset Tight (TISQ)

❒ Inject a -3 dBμV RF signal (Standard MOD.), then press the **B** key to save the squelch tight level and rotate the **DIAL** for the next setting.

Squelch Tight RSSI (TIRS)

❒ Inject a 0 dBμV RF signal (Standard MOD.), then press the **B** key to save the squelch tight RSSI level and rotate the **DIAL** for the next setting.

TX Save RSSI (TSRS)

❒ Inject a 15 dBμV RF signal (Standard MOD.), then press the **B** key to save the TX save RSSI level and rotate the **DIAL** for the next setting.

High TX Power (HIPO)

❒ Transmit and adjust the output power level for 5 W by the **DIAL**. After transmitting stops, press the **B** key to save the entry and move on.

L3 TX Power (L3PO)

❒ Transmit and adjust the output power level for 2.5 W by the **DIAL**. After transmitting stops, press the **B** key to save the entry and move on.

L2 TX Power (L2PO)

❒ Transmit and adjust the output power level for 1 W by the **DIAL**. After transmitting stops, press the **B** key to save the entry and move on.

L1 TX Power (L1PO)

❒ Transmit and adjust the output power level for 0.1 W by the **DIAL**. After transmitting stops, press the **B** key to save the entry and move on.

MAX Deviation (MAX)

❒ Inject a 1 kHz, 80mV$_{rms}$ tone to the MIC jack. Then, transmit and adjust the MAX deviation level for ±3.9 kHz ~ ±4.2 kHz (for 25 kHz separation) or ±1.8 kHz ~ ±2.1 kHz (for 12.5 kHz separation) by the **DIAL**. After transmitting stops, press the **B** key to save the entry and move on.

CTCSS Deviation (TONE)

❒ Exit the alignment routine, next select CTCSS programmed channel. Then, press and hold the **DIAL** knob, **PTT** and **LAMP** together while powering the radio again. Transmit and adjust the CTCSS deviation level for ±0.4 kHz ~ ±0.8 kHz (for 25 kHz separation) or ±0.2 kHz ~ ±0.6 kHz (for 12.5 kHz separation) by the **DIAL**. After transmitting stops, press the **B** key to save the entry and move on.

DCS Deviation (DCS)

❒ Exit the alignment routine, next select DCS programmed channel. Then, press and hold the **DIAL** knob, **PTT** and **LAMP** together while powering the radio again. Transmit and adjust the DCS deviation level for ±0.6 kHz ~ ±1.0 kHz (for 25 kHz separation) or ±0.3 kHz ~ ±0.7 kHz (for 12.5 kHz separation) by the **DIAL**. After transmitting stops, press the **B** key to save the entry and move on.

This completes the internal alignment routine, to save all settings and exit, press the **DIAL** knob.

Resetting the CPU

If you are unable to gain control of the transceiver (or if you want to clear all memories and settings to their factory defaults), press down and hold both the knob, and the center **MON** button while also holding the **PWR** button for ½ second to turn the transceiver on.

Location	Parts Type	Nomenclature	Application
Q1001	Transistor	2SC5226-4/5	BUFF
Q1002	Transistor	2SC5231C8/C9	VCO
Q1003	Transistor	2SC5231C8/C9	VCO
Q1004	Dual OP-AMP	NJM2904V	APC
Q1005	Hybrid RF Module	PF0313 (TYP A) PF0134 (TYP C)	PA
Q1006	Transistor	2SC4245	BUFF
Q1007	Transistor	UN9212	TX/RX SW
Q1008	Transistor	DTC143ZE	TX/RX SW
Q1009	Transistor	DTC143ZE	TX/RX SW
Q1010	Transistor	DTC143ZE	TX/RX SW
Q1011	Transistor	2SC4116GR	TX/RX SW
Q1012	Transistor	UN911F	SAVE
Q1013	FET	2SK880GR	LPF TUNE
Q1014	Dual Transistor	UMC5N	TX/RX SW
Q1015	IC	MC145192	PLL IC
Q1016	Dual Transistor	XP1501	TX/RX SW
Q1017	Transistor	2SB1132Q	TX/RX SW
Q1018	Transistor	2SC2620QBTR	REF OSC
Q1019	Transistor	2SC5226-4/5	RX AMP
Q1020	IC	TA31136FN	FM DET
Q1021	Transistor	UN911H	TX/RX SW
Q1022	Dual Transistor	UMH5N	TX/RX SW
Q1023	IC	TK11250MTR	REG
Q1024	Dual Transistor	UMA5N	TX/RX SW
Q1025	Not Used	-	-
Q1026	FET	SGM2016M	MIX
Q1027	Not Used	-	-
Q1028	Transistor	2SC4215Y	BUFF
Q1029	Transistor	2SC4116GR	NOISE AMP
D1001	Diode	1SS314	REG
D1002	Dual Diode	1SS321	TX/RX SW
D1003	Varactor Diode	HVU350	MOD
D1004	Dual Diode	1SS321	APC DET
D1005	Diode	HSU277	VCO
D1006	Diode	RLS135	ANT SW
D1007	Zener Diode	RD6.8UMB21B	REG
D1008	Diode	RLS135	ANT SW
D1009	Dual Diode	MA111	DELAY
D1010	Dual Diode	1SS302	ANT SW
D1011	Diode	1SS353	DELAY
D1012	Varactor Diode	HVU350	LPF TUNE
D1013	Varactor Diode	HVU350	LPF TUNE
D1014	Varactor Diode	HVU350	LPF TUNE
D1015	Diode	1SS353	TEMP CNTL
D1016	Varactor Diode	HVU350	REG
D1017	Diode	HVU202A	REG
D1018	Dual Diode	DA221	SQL SENS
D1019	Dual Diode	DA221	SQL SENS
D1020	Not Used	-	-
D1021	Zener Diode	DAM3MA15	REG
D1022	Not Used	-	-
D1023	Not Used	-	-
D1024	Dual Diode	1SS302	REG

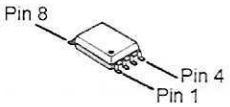
Component Applications

Location	Parts Type	Nomenclature	Application
Q2001	IC	HD6473877UX	CPU
Q2002	IC	BU4053BCFV	SW
Q2003	IC	TC35305F	DTMF DET
Q2004	IC	S-29430AFE	EEPROM
Q2005	IC	BU2090FS	D/A
Q2006	IC	BU4094BCFV	D/A
Q2007	Transistor	DTC144EU	LED SW
Q2008	Transistor	UMG2N	LED SW
Q2009	Transistor	DTC124TU	SW
Q2010	IC	S-80730SN	REG
Q2011	Transistor	2SC4116GR	SHIFT
Q2012	IC	S-81230PG	REG
Q2013	Transistor	FMW1	REG SW
Q2014	Transistor	2SB1132Q	SW
Q2015	Transistor	DTC144EU	SW
Q2016	Transistor	2SA1586Y	SW
Q2017	Not Used	-	-
Q2018	Transistor	IMD10A	AF SW
Q2019	Not Used	-	-
Q2020	Transistor	UMH3N	AF SW
Q2021	IC	TDA7233D	RESET
Q2022	Transistor	UMZ2N	PTT
Q2023	Transistor	DTC144EU	POW DOWN
Q2024	Transistor	DTA144EU	SW
Q2025	IC	NJM2902V	MIC AMP
Q2026	IC	NJM2902V	MIC AMP
D2001	LED	CL-155UR/G	LUMP
D2002	LED	LUB1006D	LUMP
D2003	Diode	DA204U	REG
D2004	Diode	MA721(TX)	REG
D2005	Diode	HZU4ALL	REG
D2006	Diode	DA204U	DET
D2007	Diode	DA204U	FEED BACK

Location	Parts Type	Nomenclature	Application
Q3101	IC	AK2341	CTCSS
Q3102	Transistor	2SC4116GR	CLOCK SHIFT
D3101	Diode	IMN10	SW

Location	Parts Type	Nomenclature	Application
Q3201	IC	AK2342A	CTCSS
Q3202	Transistor	2SC4116GR	CLOCK SHIFT
Q3203	IC	S-29430AFE	EEPROM
D3201	Diode	IMN10	SW
D3202	Diode	IMN10	SW
D3203	Diode	1SS353	SW

NJM2904V Dual Single-Supply Operational Amplifier
RF Unit (Q1004)

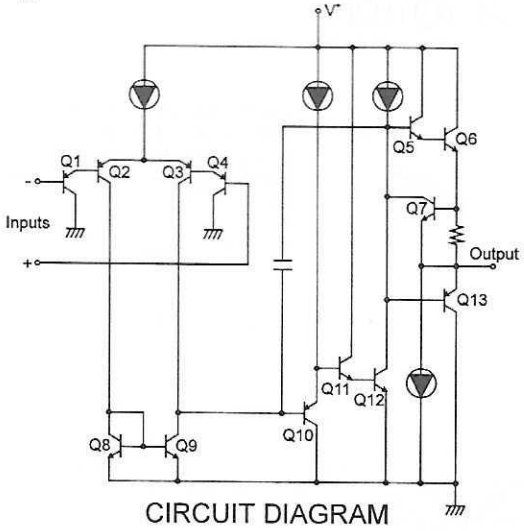


Pin 1: A Output
Pin 2: A -Input
Pin 3: A +Input
Pin 4: GND
Pin 5: B +Input
Pin 6: B -Input
Pin 7: B Output
Pin 8: V+

PIN ASSIGNMENT

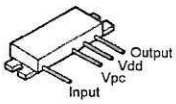
MAXIMUM RATINGS

Rating, Symbol	Value
DC Supply Voltage, V^+	32V (V^+/V^-±16V)
Input Voltage, V_{IC}	-0.3V to +32V
Power Dissipation, P_D	300mW
Operating Temperature, T_{opr}	-40°C to +85°C
Storage Temperature, T_{stg}	-50°C to +125°C



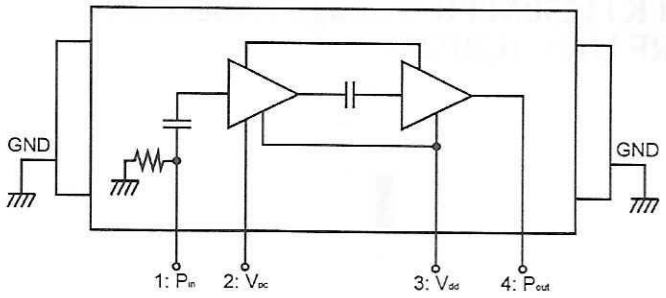
CIRCUIT DIAGRAM

PF0313 (TYP A)
PF0314 (TYP C) VHF Power Amplifier
RF Unit (Q1005)



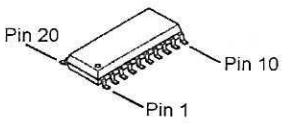
MAXIMUM RATINGS

Rating, Symbol	Value
Supply Voltage, V_{dd}	17V
Supply Current, I_{dd}	3A
PC Voltage, V_{pc}	7V
Input Power, P_{in}	100mW
Operating Case Temp., $T_{C(OP)}$	-30°C to +100°C
Storage Temperature, T_{stg}	-40°C to +110°C



CIRCUIT DIAGRAM

MC145192FR 1.1 GHz PLL Frequency Synthesizer (include 64/65 prescaler)
RF Unit (Q1015)

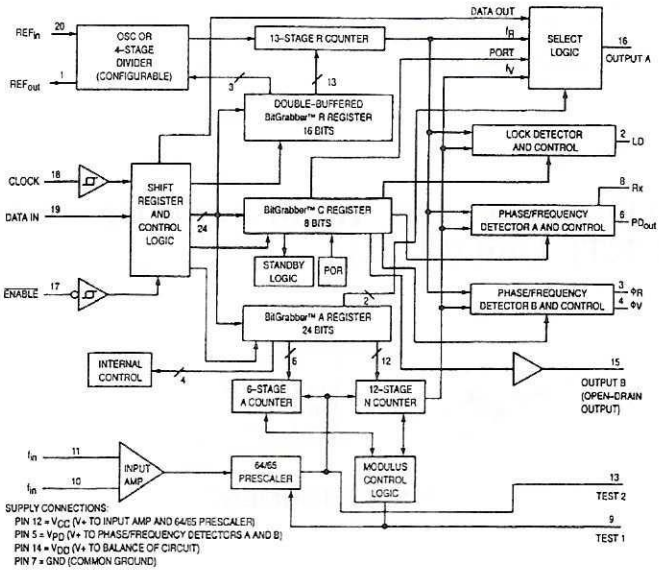


Pin 1: REF_{out}
Pin 2: LD
Pin 3: φR
Pin 4: φV
Pin 5: V_{PD}
Pin 6: PD_{out}
Pin 7: GND
Pin 8: R_X
Pin 9: TEST 1
Pin 10: $\overline{f_{in}}$
Pin 11: f_{in}
Pin 12: V_{CC}
Pin 13: TEST 2
Pin 14: V_{DD}
Pin 15: OUTPUT B
Pin 16: OUTPUT A
Pin 17: $\overline{ENABLE}$
Pin 18: CLOCK
Pin 19: DATA IN
Pin 20: REF_{in}

PIN ASSIGNMENT

MAXIMUM RATINGS

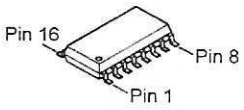
Rating, Symbol	Value
DC Supply Voltage, V_{CC}, V_{DD}	-0.5V to +6.0V
DC Supply Voltage, V_{PD}	V_{DD}-0.5V to +6.0V
DC Input Voltage, V_{in}	-0.5V to V_{DD}+6.0V
DC Output Voltage,	
expect Output B, PD_{out}, φR, φV	-0.5V to V_{DD}+0.5V
Output B, PD_{out}, φR, φV	-0.5V to V_{PD}+0.5V
DC Input Current, per Pin (Includes V_{PD}), I_{in}, I_{PD}	±10mA
DC Output Current, per Pin, I_{out}	±20mA
DC Supply Current, V_{DD} and GND Pins, I_{DD}	±30mA
Power Dissipation, per Packing, P_D	300mW
Storage Temperature, T_{stg}	-65°C to +150°C



BLOCK DIAGRAM

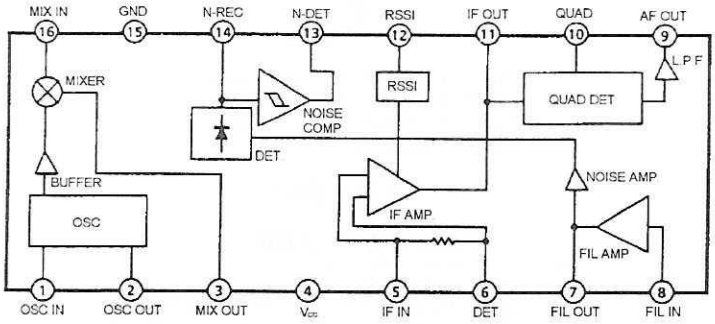
IC Data

TA31136FN FM Detector IC
RF Unit (Q1020)



Pin 1: OSC IN	Pin 9: AF OUT
Pin 2: OSC OUT	Pin 10: QUAD
Pin 3: MIX OUT	Pin 11: IF OUT
Pin 4: V_{CC}	Pin 12: RSSI
Pin 5: IF IN	Pin 13: N-DET
Pin 6: DEC	Pin 14: N-REC
Pin 7: FIL OUT	Pin 15: GND
Pin 8: FIL IN	Pin 16: MIX IN

PIN ASSIGNMENT

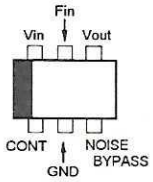


BLOCK DIAGRAM

MAXIMUM RATINGS

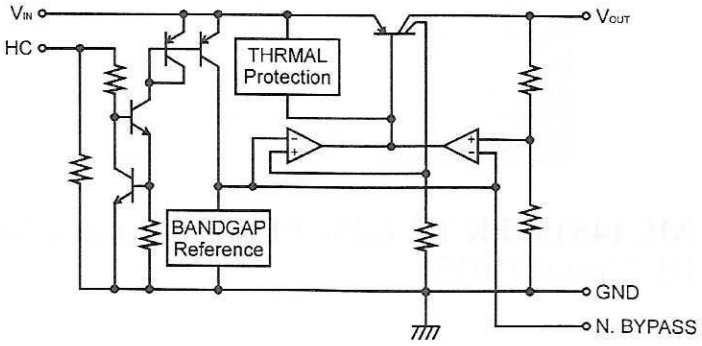
Rating, Symbol	Value
DC Supply Voltage, V_{CC}	7V
Power Dissipation, P_D	560mW
Operating Temperature, T_{OP}	-30°C to +85°C
Storage Temperature, T_{stg}	-50°C to +150°C

TK11250MTR Voltage Detector IC
RF Unit (Q1023)



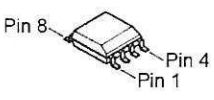
MAXIMUM RATINGS

Rating, Symbol	Value
Maximum DC Supply Voltage, $V_{CC\,MAX}$	16V
Operating DC Supply Voltage, V_{OP}	1.8V to 15V
Supply Current, $I_{O\,MAX}$	300mW
Power Dissipation, P_D	7V
Operating Temperature, T_{OP}	-30°C to +80°C
Storage Temperature, T_{stg}	-55°C to +150°C



CIRCUIT DIAGRAM

TDA7233D 1-W Audio Amplifier with Mute
CNTL Unit (Q2021)



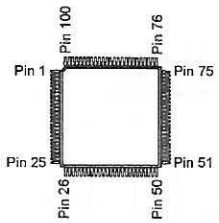
Pin 1: GND	Pin 5: OUTPUT
Pin 2: MUTE	Pin 6: SVR
Pin 3: GND	Pin 7: - INPUT
Pin 4: +VS	Pin 8: + INPUT

PIN ASSIGNMENT

MAXIMUM RATINGS

Rating, Symbol	Value
DC Supply Voltage, V^+	32V (V^+/V^-±16V)
Input Voltage, V_{IC}	-0.3V to +32V
Power Dissipation, P_D	300mW
Operating Temperature, T_{opr}	-40°C to +85°C
Storage Temperature, T_{stg}	-50°C to +125°C

HD6473877UX Microprocessor
CNTL Unit (Q2001)

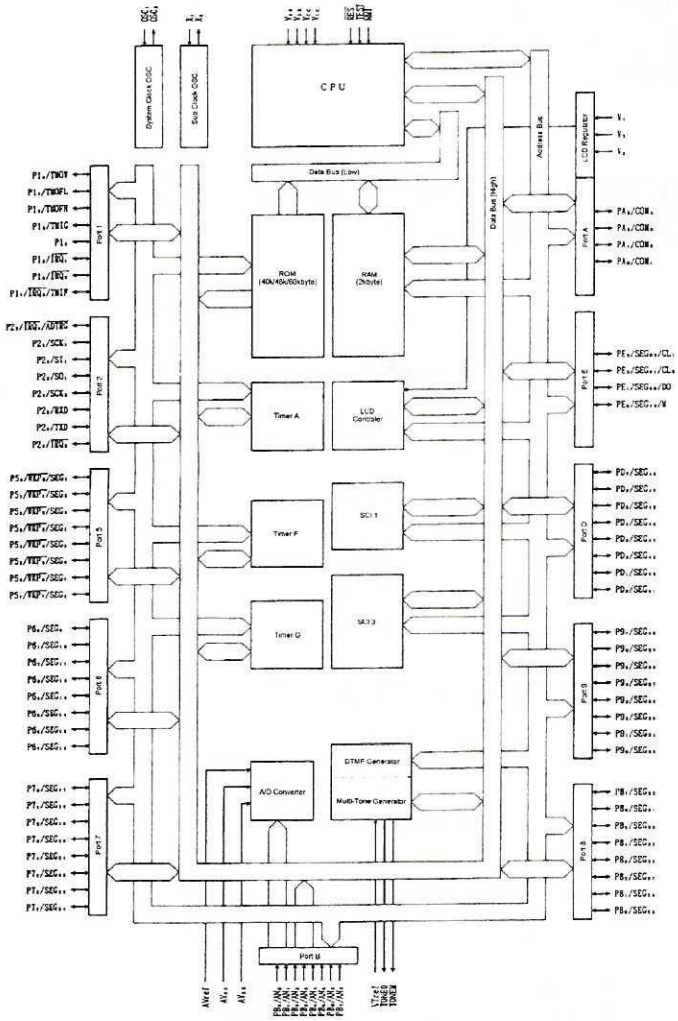


Pin 1: PB_0/AN_0
Pin 2: AV_{SS}
Pin 3: TEST
Pin 4: X_2
Pin 5: X_1
Pin 6: V_{SS}
Pin 7: OSC_1
Pin 8: OSC_2
Pin 9: RES
Pin 10: NMI
Pin 11: $P2_0/IRQ_4/ADTRG$
Pin 12: $P2_1/SCK_1$
Pin 13: $P2_2/SI_1$
Pin 14: $P2_3/SO_1$
Pin 15: $P2_4/SCK_3$
Pin 16: $P2_5/RXD$
Pin 17: $P2_6/TXD$
Pin 18: $P2_7/IRQ_0$
Pin 19: $P1_7/IRQ_3/TMIF$
Pin 20: $P1_6/IRQ_2$
Pin 21: $P1_5/IRQ_1$
Pin 22: $P1_4$
Pin 23: $P1_3/TMIG$
Pin 24: $P1_2/TMOFH$
Pin 25: $P1_1/TMOFL$
Pin 26: $P1_0/TMOW$
Pin 27: V_{SS}
Pin 28: V_3
Pin 29: V_2
Pin 30: V_1
Pin 31: V_{CC}
Pin 32: PA_3/COM_4
Pin 33: PA_2/COM_3
Pin 34: PA_1/COM_2
Pin 35: PA_0/COM_1
Pin 36: $P5_0/WKP_0/SEG_1$
Pin 37: $P5_1/WKP_1/SEG_2$
Pin 38: $P5_2/WKP_2/SEG_3$
Pin 39: $P5_3/WKP_3/SEG_4$
Pin 40: $P5_4/WKP_4/SEG_5$
Pin 41 $P5_5/WKP_5/SEG_6$
Pin 42: $P5_6/WKP_6/SEG_7$
Pin 43: $P5_7/WKP_7/SEG_8$
Pin 44: $P6_0/SEG_9$
Pin 45: $P6_1/SEG_{10}$
Pin 46: $P6_2/SEG_{11}$
Pin 47: $P6_3/SEG_{12}$
Pin 48: $P6_4/SEG_{13}$
Pin 49: $P6_5/SEG_{14}$
Pin 50: $P6_6/SEG_{15}$
Pin 51: $P6_7/SEG_{16}$
Pin 52: $P7_0/SEG_{17}$
Pin 53: $P7_1/SEG_{18}$
Pin 54: $P7_2/SEG_{19}$
Pin 55: $P7_3/SEG_{20}$
Pin 56: $P7_4/SEG_{21}$
Pin 57: $P7_5/SEG_{22}$
Pin 58: $P7_6/SEG_{23}$
Pin 59: $P7_7/SEG_{24}$
Pin 60: $P8_0/SEG_{25}$
Pin 61: $P8_1/SEG_{26}$
Pin 62: $P8_2/SEG_{27}$
Pin 63: $P8_3/SEG_{28}$
Pin 64: $P8_4/SEG_{29}$
Pin 65: $P8_5/SEG_{30}$
Pin 66: $P8_6/SEG_{31}$
Pin 67: $P8_7/SEG_{32}$
Pin 68: $P9_0/SEG_{33}$
Pin 69: $P9_1/SEG_{34}$
Pin 70: $P9_2/SEG_{35}$
Pin 71: $P9_3/SEG_{36}$
Pin 72: $P9_4/SEG_{37}$
Pin 73: $P9_5/SEG_{38}$
Pin 74: $P9_6/SEG_{39}$
Pin 75: $P9_7/SEG_{40}$
Pin 76: V_{CC}
Pin 77: PD_0/SEG_{41}
Pin 78: PD_1/SEG_{42}
Pin 79: PD_2/SEG_{43}
Pin 80: PD_3/SEG_{44}
Pin 81: PD_4/SEG_{45}
Pin 82: PD_5/SEG_{46}
Pin 83: PD_6/SEG_{47}
Pin 84: PD_7/SEG_{48}
Pin 85: $PE_0/SEG_{49}/M$
Pin 86: $PE_1/SEG_{50}/DO$
Pin 87: $PE_2/SEG_{51}/CL_2$
Pin 88: $PE_3/SEG_{52}/CL_1$
Pin 89: AV_{CC}
Pin 90: TONEM
Pin 91: TONED
Pin 92: VT_{ref}
Pin 93: AV_{ref}
Pin 94: PB_7/AN_7
Pin 95: PB_6/AN_6
Pin 96: PB_5/AN_5
Pin 97: PB_4/AN_4
Pin 98: PB_3/AN_3
Pin 99: PB_2/AN_2
Pin 100: PB_1/AN_1

PIN ASSIGNMENT

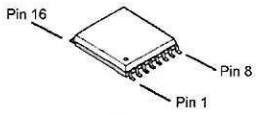
MAXIMUM RATINGS

Rating, Symbol	Value
DC Supply Voltage, V_{CC}	-0.3V to +7.0V
DC Supply Voltage, AV_{CC}	-0.3V to +7.0V
AV_{ref}	-0.3V to AV_{CC}+0.3V
Reference Level DC Voltage, VT_{ref}	-0.3V to V_{CC}+0.3V
Program DC Voltage, V_{PP}	-0.3V to +13.0V
DC Input Voltage, V_{IN} (without B port)	-0.3V to V_{CC}+0.3V
AV_{IN} (only B port)	-0.3V to AV_{CC}+0.3V
Operating Temperature Range, T_{OPR}	-20°C to +75°C
Storage Temperature Range, T_{STG}	-55°C to +125°C



BLOCK DIAGRAM

BU4053BCFV Analog Multiplexers/Demultiplexers
CNTL Unit (Q2002)



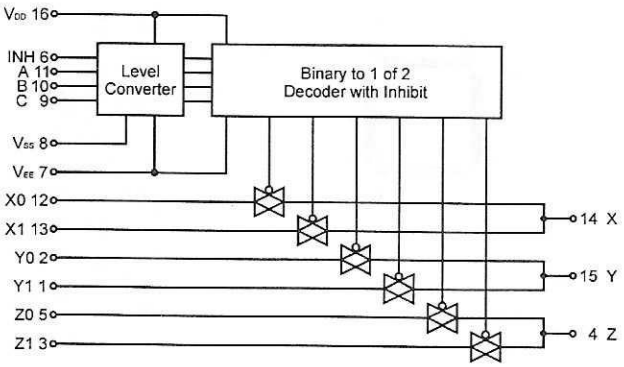
Pin 1: Y1	Pin 5: Z0	Pin 9: C	Pin 13: X1
Pin 2: Y0	Pin 6: INH	Pin 10: B	Pin 14: X
Pin 3: Z1	Pin 7: V_{EE}	Pin 11: A	Pin 15: Y
Pin 4: Z	Pin 8: V_{SS}	Pin 12: X0	Pin 16: V_{DD}

PIN ASSIGNMENT

TRUTH TABLE

INH	A	B	C	ON SWITCH
L	L	L	L	X0 Y0 Z0
L	H	L	L	X1 Y0 Z0
L	L	H	L	X0 Y1 Z0
L	H	H	L	X1 Y1 Z0
L	L	L	H	X0 Y0 Z1
L	H	L	H	X1 Y0 Z1
L	L	H	H	X0 Y1 Z1
L	H	H	H	X1 Y1 Z1
H	X	X	X	NONE

X: Don't Care

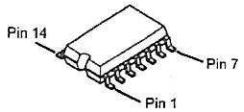


BLOCK DIAGRAM

MAXIMUM RATINGS

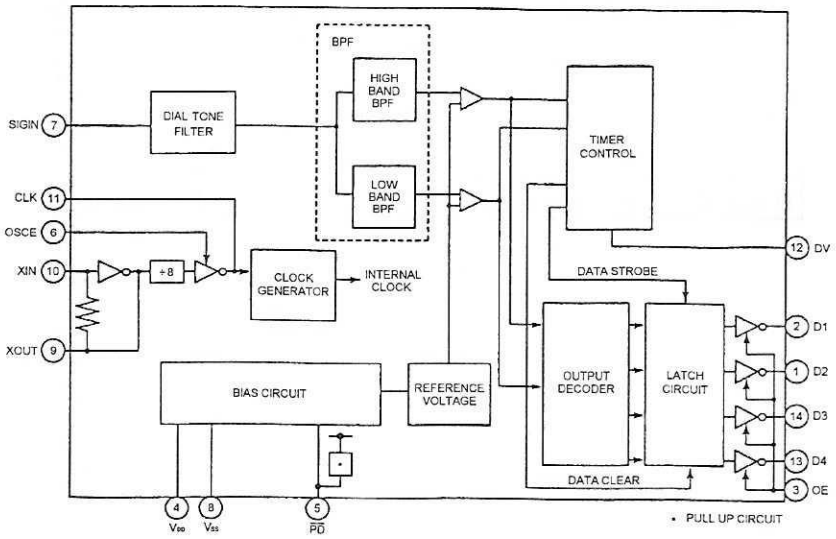
Rating, Symbol	Value
DC Supply Voltage, V_{DD}	18V
Input Voltage, V_{IN}	-0.3V to V_{DD}+0.3V
Power Dissipation, P_d	350mW
Operating Temperature, T_{opr}	-40°C to +85°C
Storage Temperature, T_{stg}	-55°C to +150°C

TC35305F DTMF Receiver
CNTL Unit (Q2003)



Pin 1: D2	Pin 8: V_{SS}
Pin 2: D1	Pin 9: XOUT
Pin 3: OE	Pin 10: XIN
Pin 4: V_{DD}	Pin 11: CLK
Pin 5: -PD	Pin 12: DV
Pin 6: OSCE	Pin 13: D4
Pin 7: SIGIN	Pin 14: D3

PIN ASSIGNMENT



BLOCK DIAGRAM

MAXIMUM RATINGS

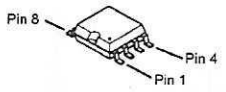
Rating, Symbol	Value
DC Supply Voltage, V_{DD}	V_{SS}-0.5V to V_{SS}+7.0V
Input Voltage, V_{IN}	V_{SS}-0.5V to V_{SS}+0.5V
V_{SIN}*	V_{SS}-10.0V to V_{DD}+0.5V
Output Voltage, V_{OUT}	V_{SS}-0.5V to V_{DD}+0.5V
Input Current, I_{IN}	-10mA to +10mA
Power Dissipation, P_D	180mW
Operating Temperature, T_{opr}	-20°C to +60°C
Storage Temperature, T_{stg}	-60°C to +150°C

DTMF BYNARY CODE TABLE

FL	FH	Digit	OE	DV	L (Binary Code)			
					D4	D3	D2	D1
697	1209	1	H	H	L	L	L	H
697	1336	2	H	H	L	L	H	L
697	1477	3	H	H	L	L	H	H
770	1209	4	H	H	L	H	L	L
770	1336	5	H	H	L	H	L	H
770	1477	6	H	H	L	H	H	L
852	1209	7	H	H	L	H	H	H
852	1336	8	H	H	H	L	L	L
852	1477	9	H	H	H	L	L	H
941	1336	0	H	H	H	L	H	L
941	1209	*	H	H	H	L	H	H
941	1477	#	H	H	H	H	L	L
697	1633	A	H	H	H	H	L	H
770	1633	B	H	H	H	H	H	L
852	1633	C	H	H	H	H	H	H
941	1633	D	H	H	L	L	L	L
-	-	-	H	L	L	L	L	L
-	-	Any	L	-	Z	Z	Z	Z

Z: High Impedance

S-29430AFE CMOS Serial E²PROM
CNTL Unit (Q2004)
FTT-15 (Q3203)

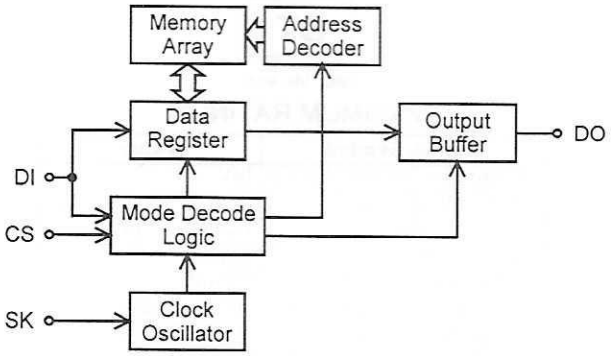


Pin 1: CH Pin 5: GND
Pin 2: SK Pin 6: TEST
Pin 3: DI Pin 7: NC
Pin 4: DO Pin 8: V_{CC}

PIN ASSIGNMENT

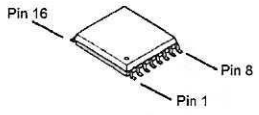
MAXIMUM RATINGS

Rating, Symbol	Value
DC Supply Voltage, V_{CC}	-0.3V to +7.0V
Input Voltage, V_{IN}	-0.3V to V_{CC}+0.3V
Output Voltage, V_{OUT}	-0.3V to V_{CC}
Operating Temperature, T_{bias}	-50°C to +95°C
Storage Temperature, T_{stg}	-65°C to +150°C



BLOCK DIAGRAM

BU2090FS 12-Bit Serial In/Parallel Out Driver
CNTL Unit (Q2005)

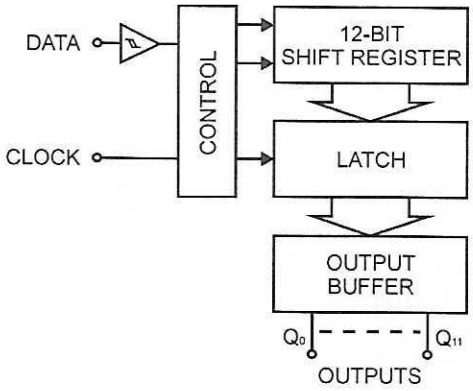


Pin 1: V_{SS} Pin 9: Q5
Pin 2: DATA Pin 10: Q6
Pin 3: CLOCK Pin 11: Q7
Pin 4: Q0 Pin 12: Q8
Pin 5: Q1 Pin 13: Q9
Pin 6: Q2 Pin 14: Q10
Pin 7: Q3 Pin 15: Q11
Pin 8: Q4 Pin 16: V_{DD}

PIN ASSIGNMENT

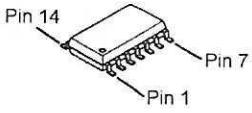
MAXIMUM RATINGS

Rating, Symbol	Value
DC Supply Voltage, V_{DD}	-0.3V to +7.0V
Input Voltage, V_{IN}	V_{SS}-0.3V to V_{DD}+0.3V
Output Voltage, V_O	V_{SS} to +25.0V
Operating Temperature, T_{opr}	-25°C to +75°C
Storage Temperature, T_{stg}	-55°C to +125°C



BLOCK DIAGRAM

BU4094BCFV 8-Bit Bus-Compatible Shift/Store Register
CNTL Unit (Q2006)

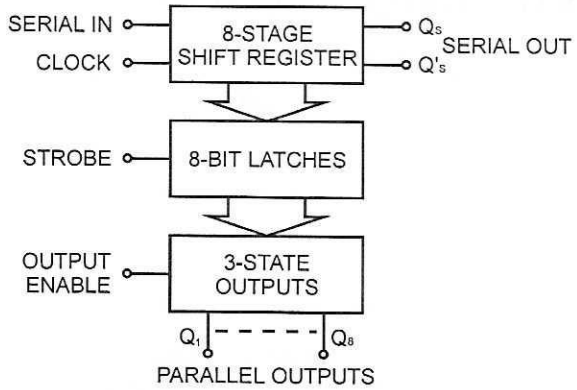


Pin 1: STROBE Pin 5: Q_2 Pin 9: Q_S Pin 13: Q_6
Pin 2: SERIAL IN Pin 6: Q_3 Pin 10: Q'_S Pin 14: Q_5
Pin 3: CLOCK Pin 7: Q_4 Pin 11: Q_8 Pin 15: OUTPUT ENABLE
Pin 4: Q_1 Pin 8: V_{SS} Pin 12: Q_7 Pin 16: V_{DD}

PIN ASSIGNMENT

MAXIMUM RATINGS

Rating, Symbol	Value
DC Supply Voltage, V_{DD}	-0.3V to +18V
Input Voltage, V_{IC}	-0.3V to V_{DD}+0.3V
Power Dissipation, P_d	500mW
Operating Temperature, T_{opr}	-40°C to +85°C
Storage Temperature, T_{stg}	-55°C to +150°C



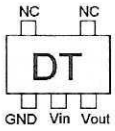
BLOCK DIAGRAM

TRUTH TABLE

Clock	Output Enable	Strobe	Serial Input	Parallel Output		Serial Output	
				Q_1	Q_n	Q_S	Q'_S
↑	H	H	H	L	Q_{n-1}	Q_7	NC
↑	H	H	L	H	Q_{n-1}	Q_7	NC
↑	H	L	X	NC	NC	Q_7	NC
↑	L	X	X	Z	Z	Q_7	NC
↓	H	X	X	NC	NC	NC	Q_S
↓	L	X	X	Z	Z	NC	Q_S

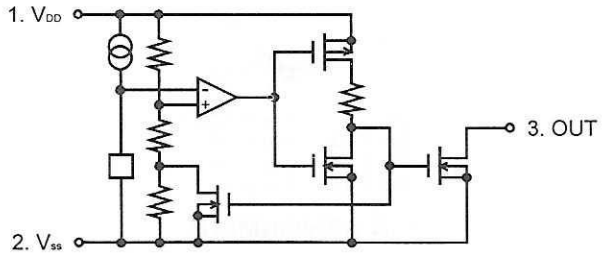
X: Don't Care Z: High Impedance NC: No Change

S-80730SN Voltage Detector IC
CNTL Unit (Q2010)



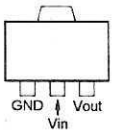
MAXIMUM RATINGS

Rating, Symbol	Value
DC Supply Voltage, V_{DD}-V_{SS}	18V
Input Voltage, V_{IN}	V_{SS}-0.3V to V_{DD}+0.3V
Output Voltage, V_{OUT}	V_{SS}-0.3V to 18V
Output Current, I_{OUT}	50mA
Power Dissipation, P_d	500mW
Operating Temperature, T_{opr}	-30°C to +80°C
Storage Temperature, T_{stg}	-40°C to +125°C



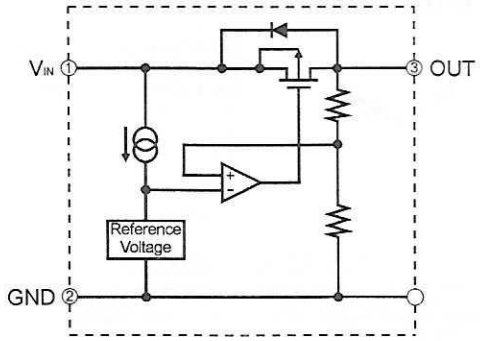
CIRCUIT DIAGRAM

S-81230PG Voltage Detector IC
CNTL Unit (Q2012)



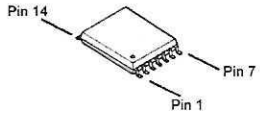
MAXIMUM RATINGS

Rating, Symbol	Value
Input Voltage, V_{IN}, $V_{OUT} \leq 2.6V$	12V
$V_{OUT} \geq 2.7V$	18V
Output Voltage, V_{OUT}	V_{IN}-0.3V~V_{SS}-0.3V
Output Current, I_{OUT}	100mA
Power Dissipation, P_d	400mW
Operating Temperature, T_{opr}	-40°C to +85°C
Storage Temperature, T_{stg}	-40°C to +125°C



CIRCUIT DIAGRAM

NJM2902V Quad Single-Supply Operational Amplifier
CNTL Unit (Q2025,Q2026)

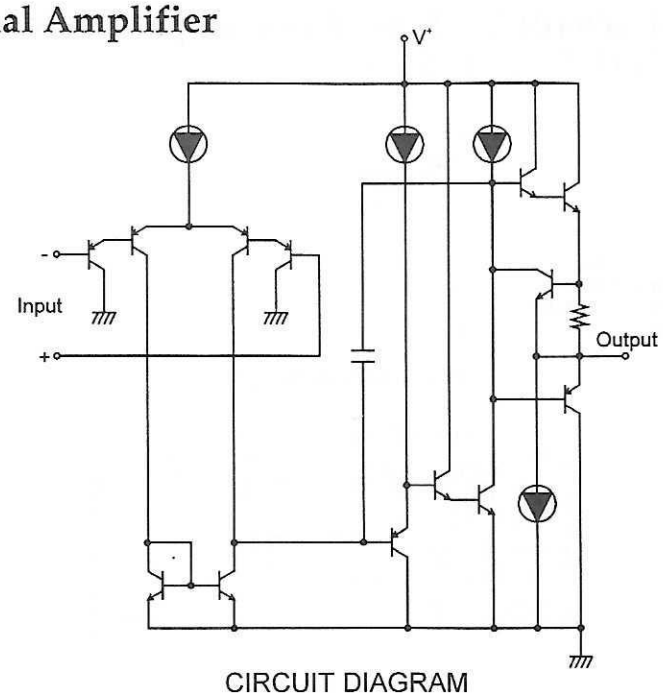


Pin 1: A Output
Pin 2: A -Input
Pin 3: A +Input
Pin 4: GND
Pin 5: B +Input
Pin 6: B -Input
Pin 7: B Output
Pin 8: V+

PIN ASSIGNMENT

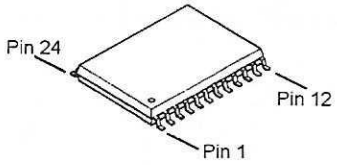
MAXIMUM RATINGS

Rating, Symbol	Value
DC Supply Voltage, V^+	32V (V^+/V^-±16V)
Input Voltage, V_{IC}	-0.3V to +32V
Power Dissipation, P_D	300mW
Operating Temperature, T_{opr}	-40°C to +85°C
Storage Temperature, T_{stg}	-50°C to +125°C



CIRCUIT DIAGRAM

AK2341 CTCSS Encoder/Decoder
FTT-14 (Q3101)



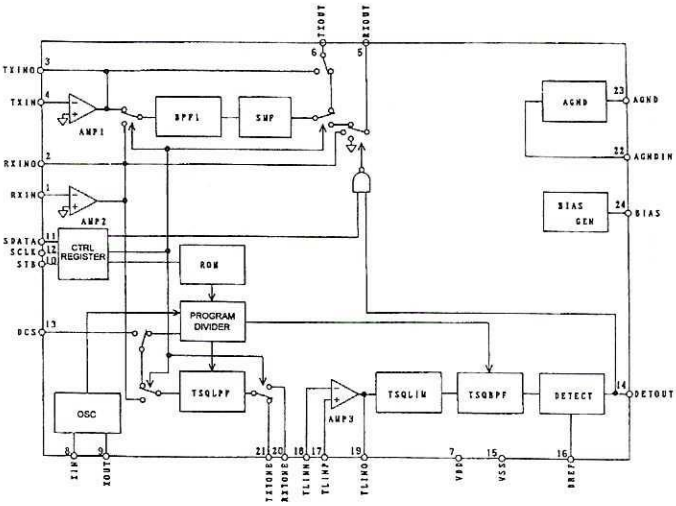
Pin 1: RXIN	Pin 7: V_{DD}	Pin 13: DCS	Pin 19: TLINO
Pin 2: RXINO	Pin 8: XIN	Pin 14: DETOUT	Pin 20: RXOTNE
Pin 3: TXINO	Pin 9: XOUT	Pin 15: V_{SS}	Pin 21: TXTONE
Pin 4: TXIN	Pin 10: STB	Pin 16: DREF	Pin 22: AGNDIN
Pin 5: RXOUT	Pin 11: SDATA	Pin 17: TLINP	Pin 23: AGND
Pin 6: TXOUT	Pin 12: SCLK	Pin 18: TLINN	Pin 24: BIAS

PIN ASSIGNMENT

MAXIMUM RATINGS

Rating, Symbol	Value
DC Supply Voltage, V_{DD}	-0.3V to 7.0V
Input Current, I_{IN}	-10mA to +10mA
Analog Input Voltage, V_{AIN}	-0.3V to V_{DD}+0.3V
Digital Input Voltage, V_{DIN}	-0.3V to V_{DD}+0.3V
V_{DINO}*	-0.3V to 7.0V
Storage Temperature, T_{stg}	-55°C to +130°C

*: only DETOUT and COMPO pins

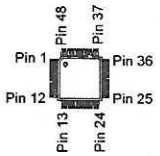


BLOCK DIAGRAM

Programming Table

Address		Data						Tone Frequency	TSQ BPF
SA1	SA0	SD5	SD4	SD3	SD2	SD1	SD0	(Hz)	Q
1	1	0	0	0	0	0	1	67.0	L
		0	0	0	0	1	0	71.9	L
		0	0	0	0	1	1	77.0	L
		0	0	0	1	0	0	82.5	L
		0	0	0	1	0	1	88.5	L
		0	0	0	1	1	0	94.8	H
		0	0	0	1	1	1	100.0	H
		0	0	1	0	0	0	103.5	H
		0	0	1	0	0	1	107.2	H
		0	0	1	0	1	0	110.9	H
		0	0	1	0	1	1	114.8	H
		0	0	1	1	0	0	118.8	H
		0	0	1	1	0	1	123.0	H
		0	0	1	1	1	0	127.3	H
		0	0	1	1	1	1	131.8	H
		0	1	0	0	0	0	136.5	H
		0	1	0	0	0	1	141.3	H
		0	1	0	0	1	0	146.2	H
		0	1	0	0	1	1	151.4	H
		0	1	0	1	0	0	156.7	H
		0	1	0	1	0	1	162.2	H
		0	1	0	1	1	0	167.9	H
		0	1	0	1	1	1	173.8	H
		0	1	1	0	0	0	179.9	H
		0	1	1	0	0	1	186.2	H
		0	1	1	0	1	0	192.8	H
		0	1	1	0	1	1	203.5	H
		0	1	1	1	0	0	210.7	H
		0	1	1	1	0	1	218.1	H
		0	1	1	1	1	0	225.7	H
		0	1	1	1	1	1	233.6	H
		1	0	0	0	0	0	241.8	H
		1	0	0	0	0	1	250.3	H
		1	0	0	0	1	0	67.0	H
		1	0	0	0	1	1	71.9	H
		1	0	0	1	0	0	74.4	H
		1	0	0	1	0	1	77.0	H
		1	0	0	1	1	0	79.7	H
		1	0	0	1	1	1	82.5	H
		1	0	1	0	0	0	85.4	H
		1	0	1	0	0	1	88.5	H
		1	0	1	0	1	0	91.5	H
		1	0	1	0	1	1	97.4	H
		1	0	1	1	0	0	69.4	H
		1	0	1	1	0	1	159.8	H
		1	0	1	1	1	0	165.5	H
		1	0	1	1	1	1	171.3	H
		1	1	0	0	0	0	177.3	H
		1	1	0	0	0	1	183.5	H
		1	1	0	0	1	0	189.9	H
		1	1	0	0	1	1	196.6	H
		1	1	0	1	0	0	199.5	H
		1	1	0	1	0	1	206.5	H
		1	1	0	1	1	0	229.1	H
		1	1	0	1	1	1	254.1	H
		1	1	1	0	0	0	only DCS TX	–

AK2342A CTCSS Encoder/Decoder
FTT-15 (Q3201)



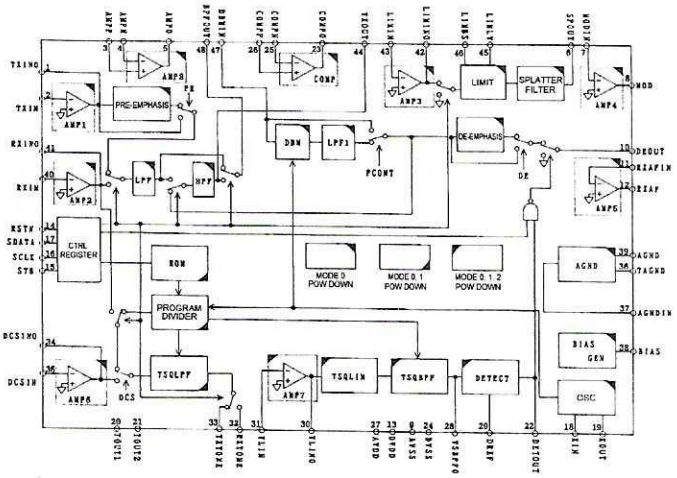
Pin 1: TXINO	Pin 13: DVDD	Pin 25: COMPN	Pin 37: AGNDIN
Pin 2: TXIN	Pin 14: RSTN	Pin 26: COMPP	Pin 38: BIAS
Pin 3: AMPP	Pin 15: STB	Pin 27: AVDD	Pin 39: AGND
Pin 4: AMPN	Pin 16: SCLK	Pin 28: TSBPFO	Pin 40: RXIN
Pin 5: AMPO	Pin 17: SDATA	Pin 29: DREF	Pin 41: RXINO
Pin 6: SPOUT	Pin 18: XIN	Pin 30: TLINO	Pin 42: LIMINO
Pin 7: MODIN	Pin 19: XOUT	Pin 31: TLIN	Pin 43: LIMIN
Pin 8: MOD	Pin 20: TOUT1	Pin 32: RXTONE	Pin 44: TXOUT
Pin 9: AVSS	Pin 21: TOUT2	Pin 33: TXTONE	Pin 45: LIMLV
Pin 10: DEOUT	Pin 22: DETOUT	Pin 34: DCSINO	Pin 46: LIMBS
Pin 11: RXAFIN	Pin 23: COMPO	Pin 35: DCSIN	Pin 47: DBMIN
Pin 12: RXAF	Pin 24: DVSS	Pin 36: TAGND	Pin 48: BPFOUT

PIN ASSIGNMENT

MAXIMUM RATINGS

Rating, Symbol	Value
DC Supply Voltage, V_{DD}	-0.3V to 7.0V
Input Current, I_{IN}	-10mA to +10mA
Analog Input Voltage, V_{AIN}	-0.3V to V_{DD}+0.3V
Digital Input Voltage, V_{DIN}	-0.3V to V_{DD}+0.3V
V_{DINO}*	-0.3V to 7.0V
Storage Temperature, T_{stg}	-55°C to +130°C

★: only DETOUT and COMPO pins

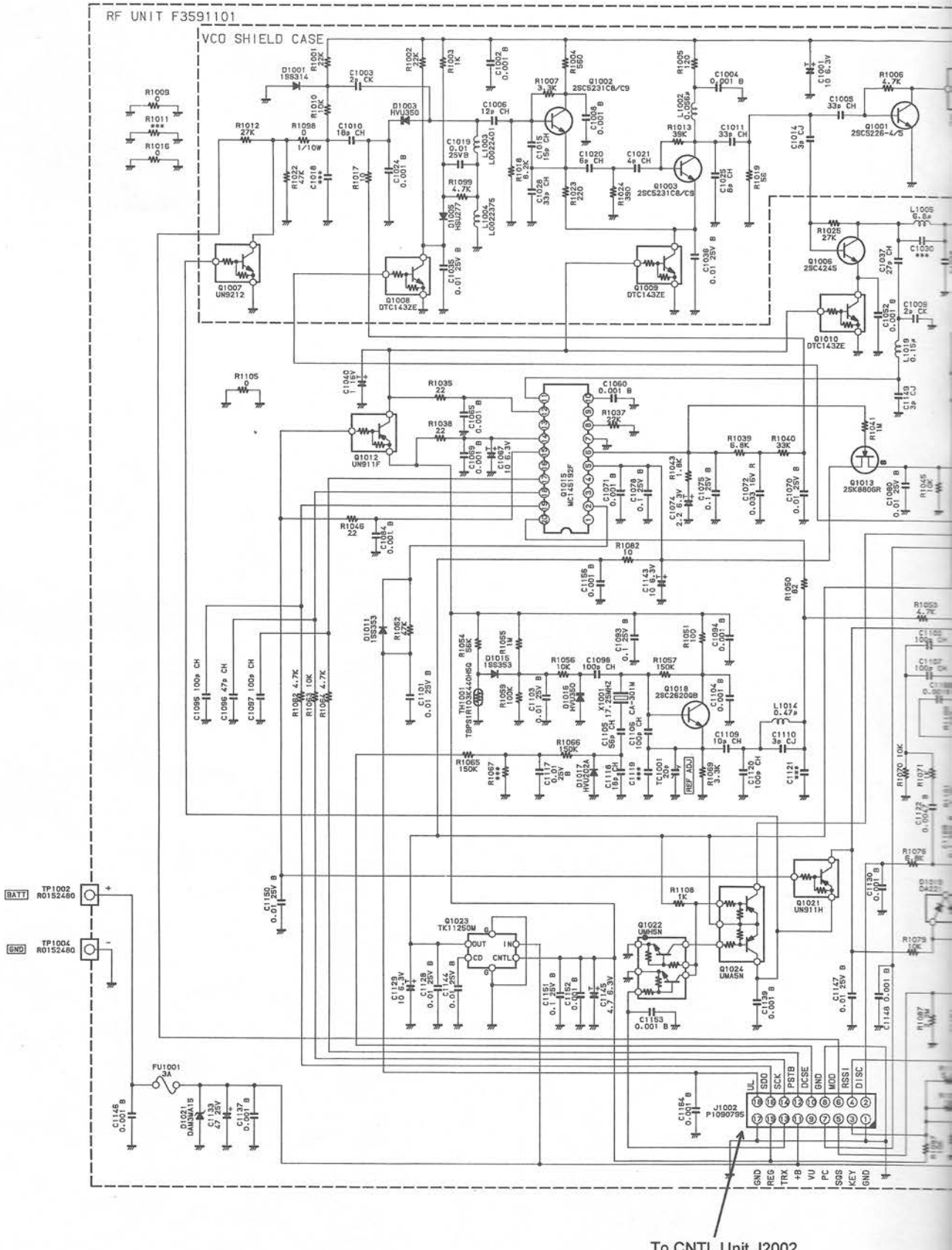


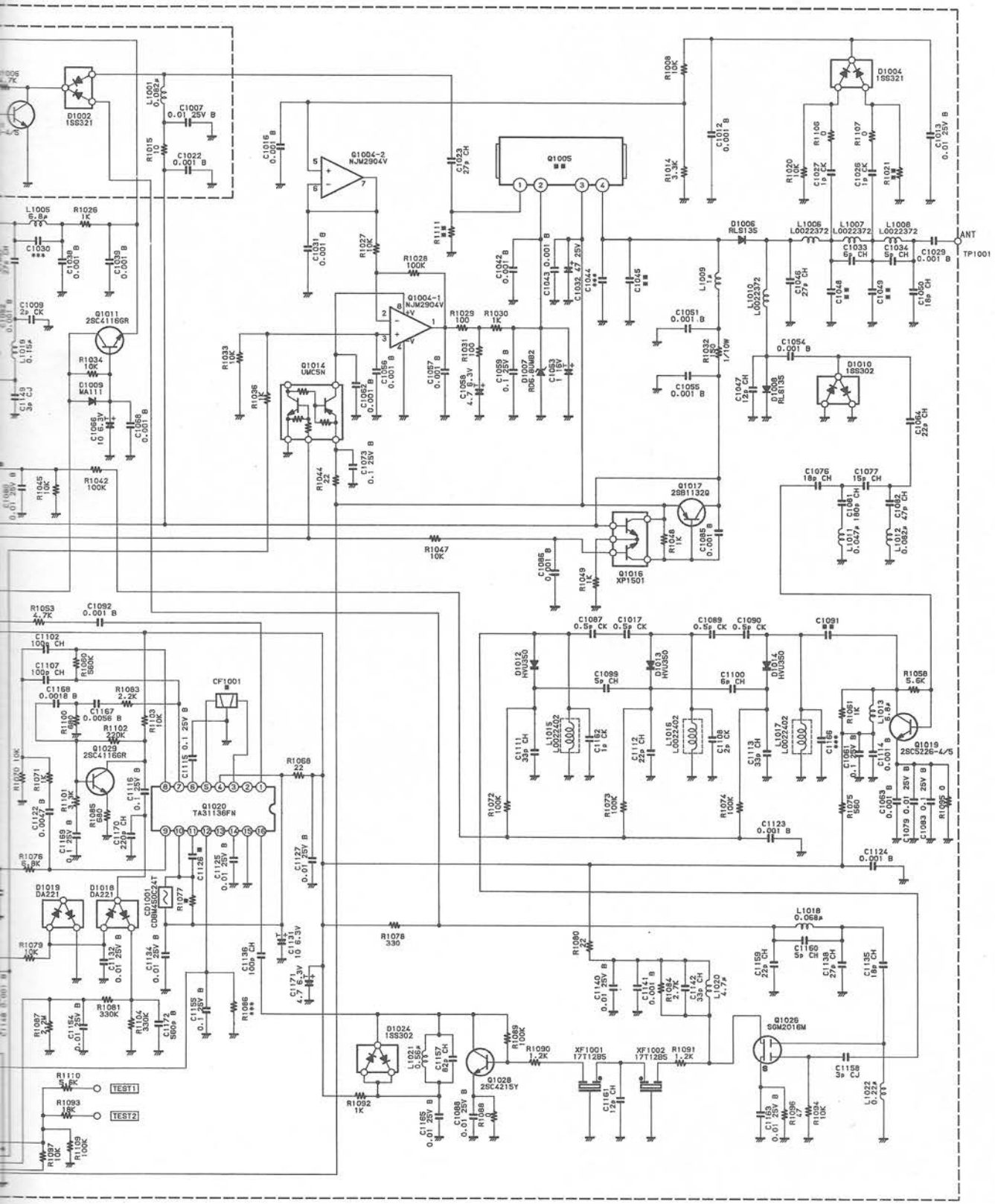
BLOCK DIAGRAM

Programming Table

Address		Data						Tone Frequency	TSQ BPF
SA1	SA0	SD5	SD4	SD3	SD2	SD1	SD0	(Hz)	Q
1	1	0	0	0	0	0	1	67.0	L
		0	0	0	0	1	0	71.9	L
		0	0	0	0	1	1	77.0	L
		0	0	0	1	0	0	82.5	L
		0	0	0	1	0	1	88.5	L
		0	0	0	1	1	0	94.8	H
		0	0	0	1	1	1	100.0	H
		0	0	1	0	0	0	103.5	H
		0	0	1	0	0	1	107.2	H
		0	0	1	0	1	0	110.9	H
		0	0	1	0	1	1	114.8	H
		0	0	1	1	0	0	118.8	H
		0	0	1	1	0	1	123.0	H
		0	0	1	1	1	0	127.3	H
		0	0	1	1	1	1	131.8	H
		0	1	0	0	0	0	136.5	H
		0	1	0	0	0	1	141.3	H
		0	1	0	0	1	0	146.2	H
		0	1	0	0	1	1	151.4	H
		0	1	0	1	0	0	156.7	H
		0	1	0	1	0	1	162.2	H
		0	1	0	1	1	0	167.9	H
		0	1	0	1	1	1	173.8	H
		0	1	1	0	0	0	179.9	H
		0	1	1	0	0	1	186.2	H
		0	1	1	0	1	0	192.8	H
		0	1	1	0	1	1	203.5	H
		0	1	1	1	0	0	210.7	H
		0	1	1	1	0	1	218.1	H
		0	1	1	1	1	0	225.7	H
		0	1	1	1	1	1	233.6	H
		1	0	0	0	0	0	241.8	H
		1	0	0	0	0	1	250.3	H
		1	0	0	0	1	0	67.0	H
		1	0	0	0	1	1	71.9	H
		1	0	0	1	0	0	74.4	H
		1	0	0	1	0	1	77.0	H
		1	0	0	1	1	0	79.7	H
		1	0	0	1	1	1	82.5	H
		1	0	1	0	0	0	85.4	H
		1	0	1	0	0	1	88.5	H
		1	0	1	0	1	0	91.5	H
		1	0	1	0	1	1	97.4	H
		1	0	1	1	0	0	69.4	H
		1	0	1	1	0	1	159.8	H
		1	0	1	1	1	0	165.5	H
		1	0	1	1	1	1	171.3	H
		1	1	0	0	0	0	177.3	H
		1	1	0	0	0	1	183.5	H
		1	1	0	0	1	0	189.9	H
		1	1	0	0	1	1	196.6	H
		1	1	0	1	0	0	199.5	H
		1	1	0	1	0	1	206.5	H
		1	1	0	1	1	0	229.1	H
		1	1	0	1	1	1	254.1	H
		1	1	1	0	0	0	only DCS TX	–
Reset		1	1	1	1	1	1	OFF	–

Circuit Diagram



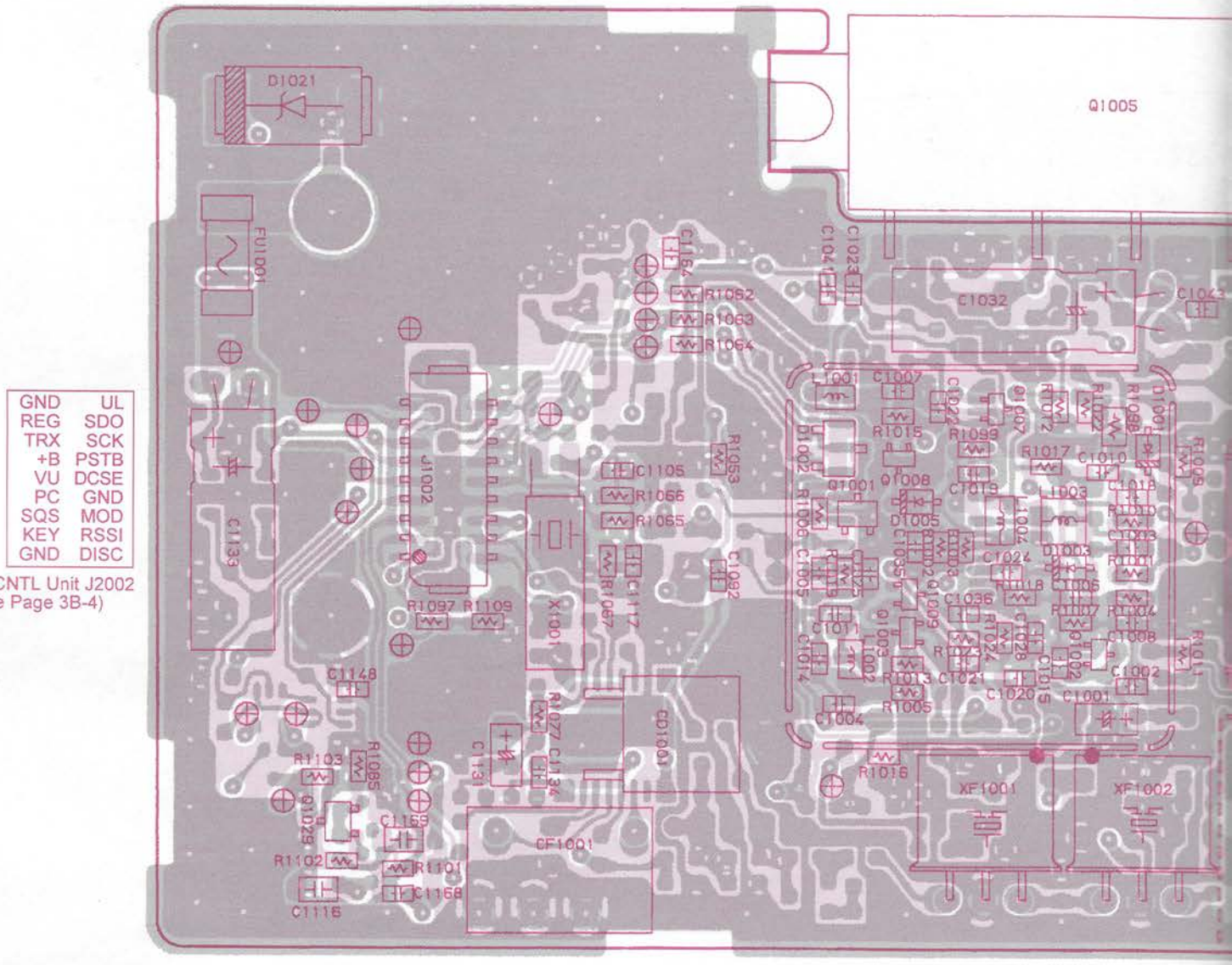


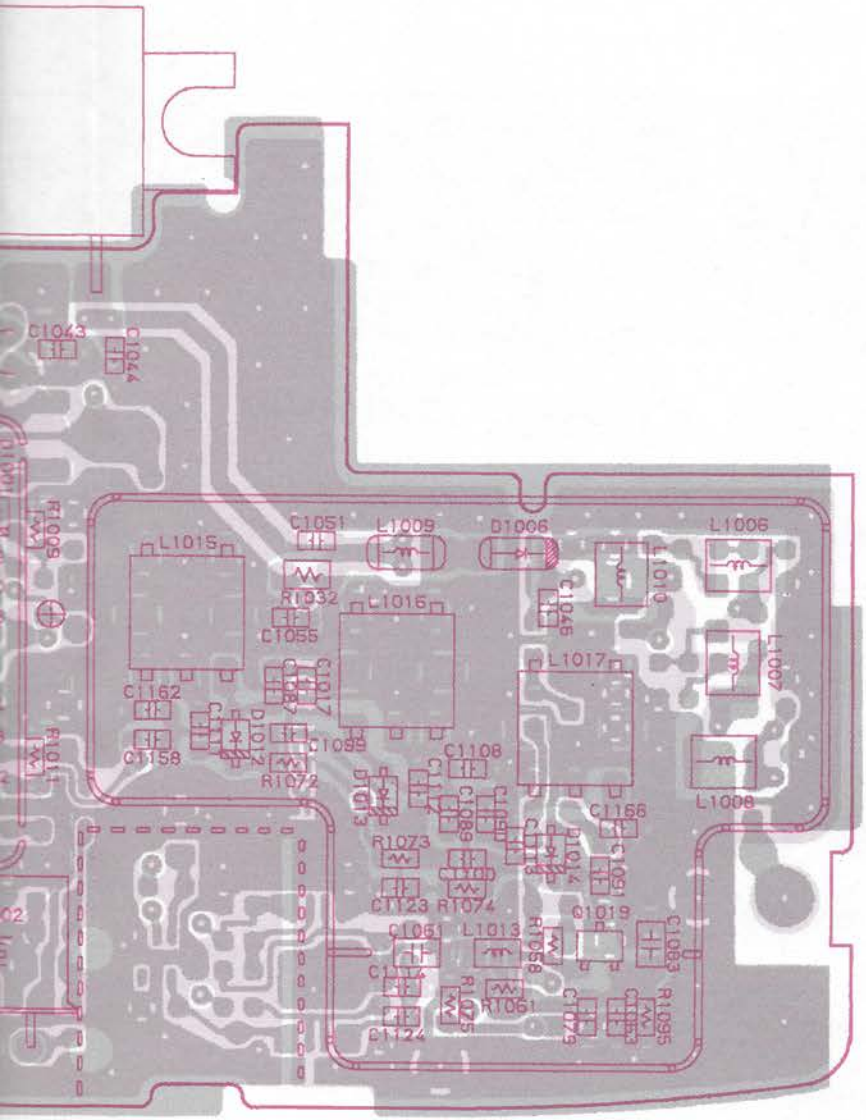
■■	C1045	C1048	C1049	Q1005	C1091	R1111	R1021
TYP A BAND	***	22P	27P	PF0313	4P	***	33K
TYP C BAND	3P	27P	18P	PF0314	2P	220	68K

■	R1077	C1126	CF1001
SEP 25K	1K	68P	MCFH450ELM01
SEP 12.5K	1.8K	82P	MCFH450GLM01

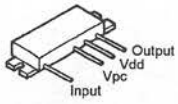
NOTE:
RESISTOR VALUES ARE IN Ω,1/16W :
CAPACITOR VALUES ARE IN μF, 50V :
(T) CAPACITOR VALUES ARE TANTALUM :
INDUCTOR VALUES ARE IN H
UNLESS OTHERWISE NOTED.

Parts Layout

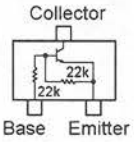




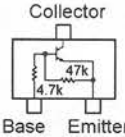
Component Side



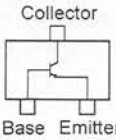
PF0313 (TYP A)
PF0314 (TYP C)
(Q1005)



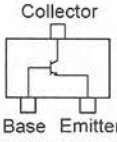
UN9212 (8B)
(Q1007)



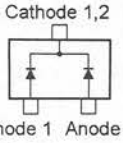
DTC143ZE (E23)
(Q1008,1009)



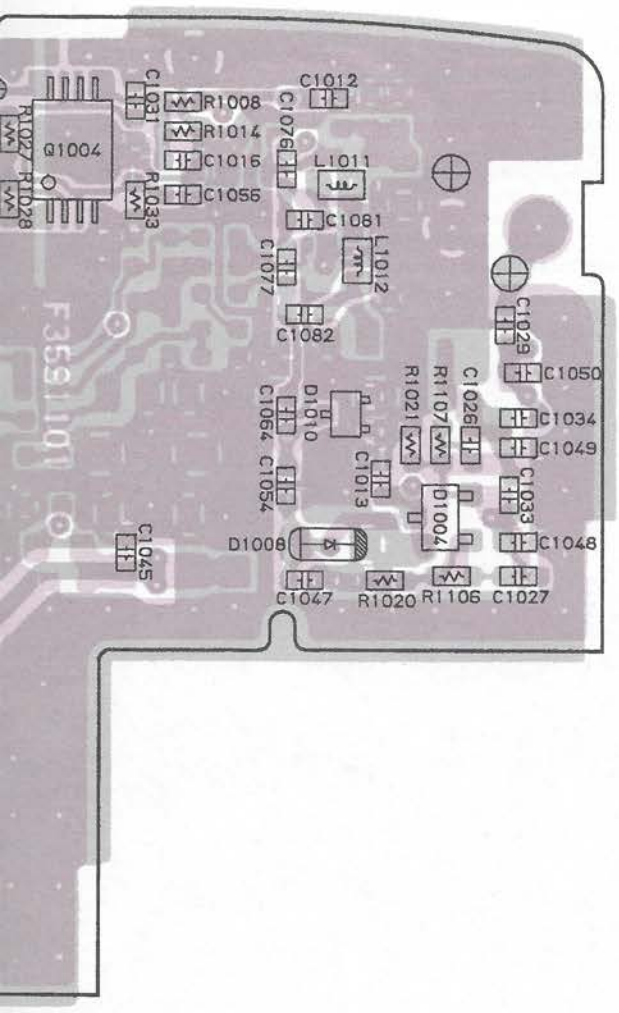
2SC5226 (R22)
(Q1001,1019)
2SC5231 (C9)
(Q1002,1003)



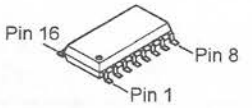
2SC4116GR (LG)
(Q1029)



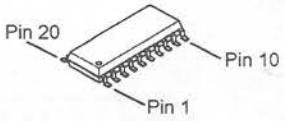
1SS321 (F9)
(D1002)



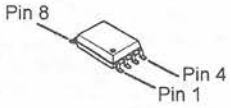
Chip Side



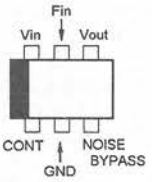
TA31136FN
(Q1020)



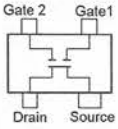
MC145192FR2
(Q1015)



NJM2904V
(Q1004)



TK11250MTR (P5)
(Q1023)



SGM2016M (M-)
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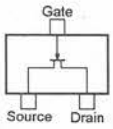
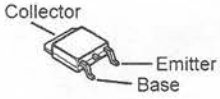
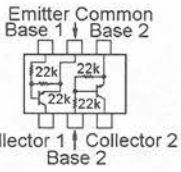


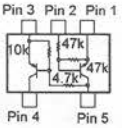
2SK880GR (XG)
(Q1013)



2SB1132Q (BA)
(Q1017)



UMH5N (H5)
(Q1022)



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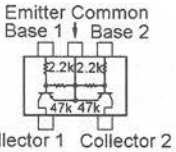
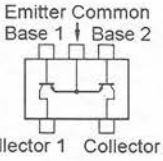
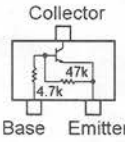
(Q1014)



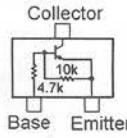
UMA5N (A5)
(Q1024)



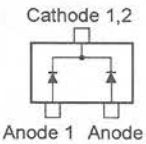
XP1501 (5R)
(Q1016)



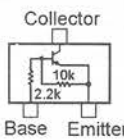
DTC143ZE (E23)
(Q1010)



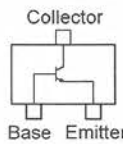
UN911F (6O)
(Q1012)



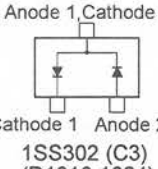
1SS321 (F9)
(D1004)



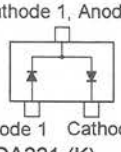
UN911H (6P)
(Q1021)



2SC2620QBTR (QB)
(Q1018)
2SC4116GR (LG)
(Q1011)
2SC4215Y (QY)
(Q1028)
2SC4245 (HB)
(Q1006)

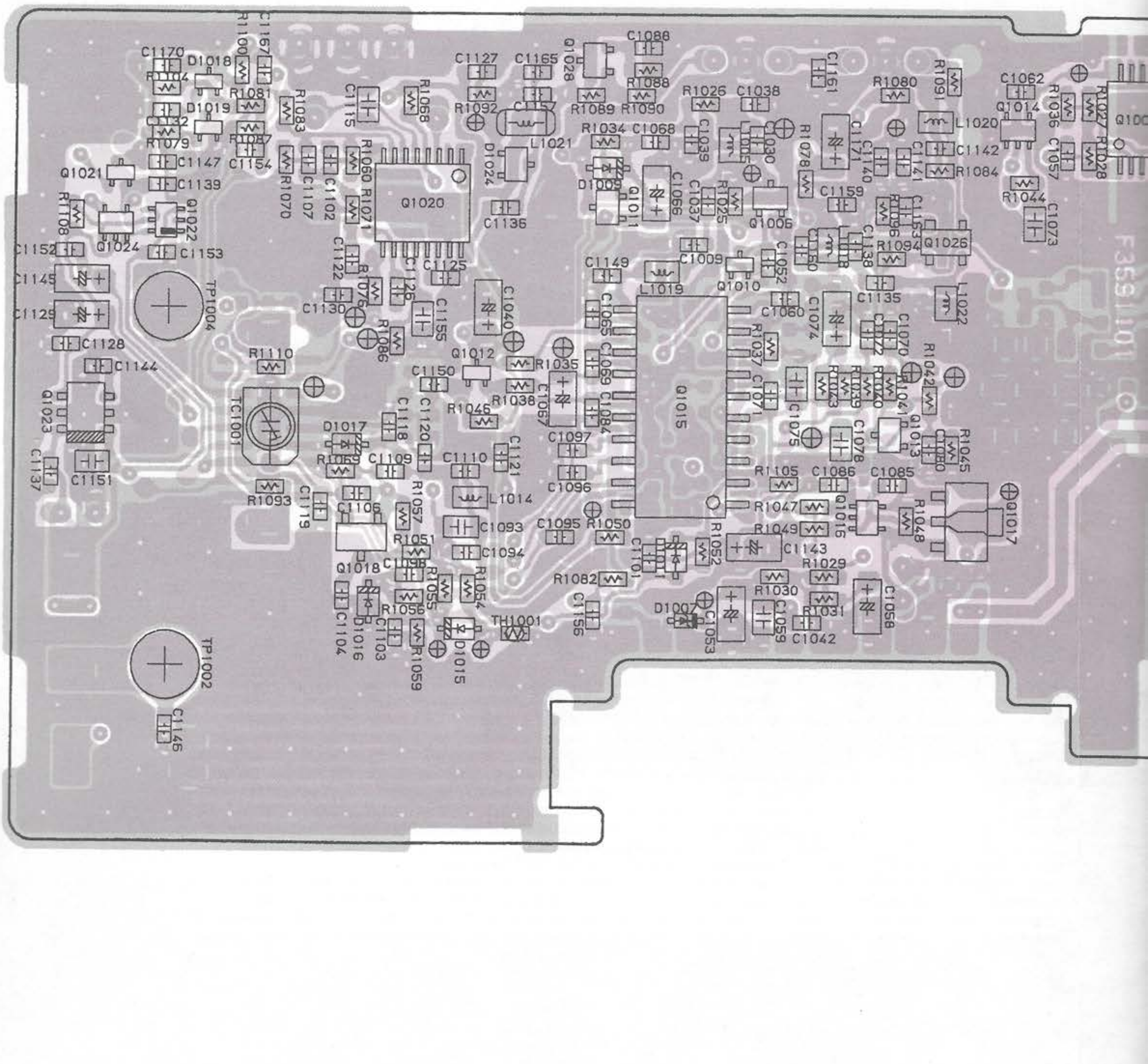


1SS302 (C3)
(D1010,1024)



DA221 (K)
(D1018,1019)

RF Unit


Q1020
Q1015
Q1021
Q1022
Q1023
Q1024
Q1012
Q1018
Q1010
Q1006
Q1011
Q1016
Q1017
Q1013
Q1026
Q1014
Q1028
TP1004
TP1002
TC1001
TH1001
L1021
L1019
L1014
L1020
L1022
D1017
D1016
D1015
D1018
D1019
D1024
D1009
D1007
C1170
C1147
C1139
C1153
C1152
C1145
C1129
C1128
C1144
C1137
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C1088
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C1159
C1149
C1009
C1060
C1135
C1062
C1142
C1150
C1097
C1096
C1095
C1110
C1093
C1094
C1143
C1042
C1086
C1085
R1110
R1093
R1046
R1035
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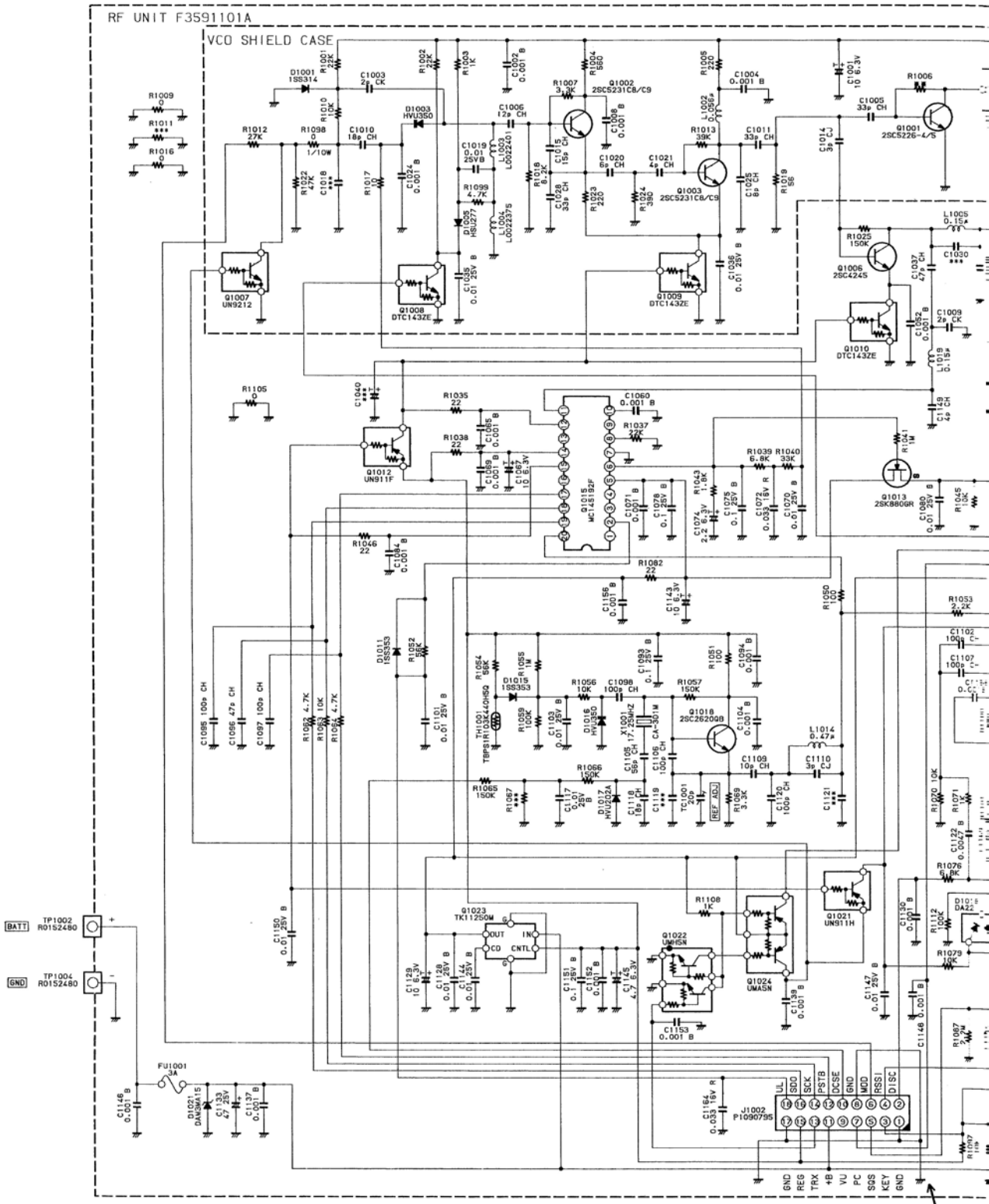
R1050
R1082
R1047
R1049
R1029
R1030
R1031
R1105
R1080
R1084
R1044
R1026
R1034
R1089
R1090
R1092
R1081
R1079
R1094
F359

Circuit Diagram



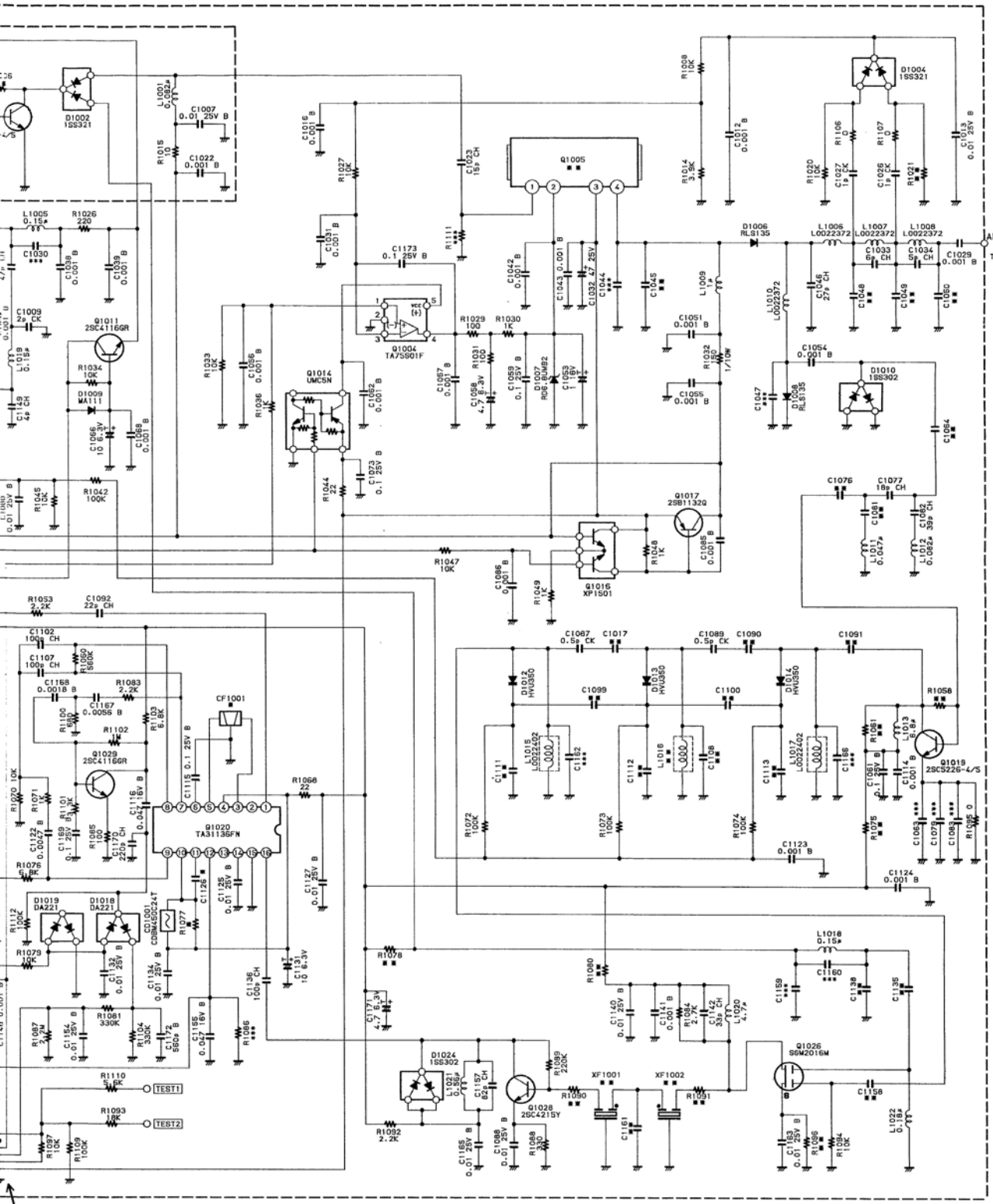
※※	A-BAND	C-BAND
C1017	0.5p	0.5p
C1045	***	3p
C1048	22p	27p
C1049	27p	18p
C1050	18p	10p
C1064	22p	22p
C1076	0.001u	0.001u
C1081	150p	150p
C1090	0.5p	0.5p

※※	A-BAND	C-BAND
C1091	4p	2p
C1099	5p	3p
C1100	5p	2p
C1108	2p	2p
C1111	33p	15p
C1112	22p	22p
C1113	33p	33p
C1135	9p	5p
C1138	7p	9p

※※	A-BAND	C-BAND
C1158	3p	4p
C1161	12p	12p
L1016	L0022402	L0022402
Q1005	PF0313	PF0314
R1006	18k	18k
R1021	33k	33k
R1058	120k	120k
R1061	270	270
R1075	220	220

※※	A-BAND	C-BAND
R1078	680	680
R1080	100	100
R1090	1.2k	1.2k
R1091	1.2k	1.2k
R1096	270	270
XF1001	17T12B5	17T12B5
XF1002	17T12B5	17T12B5

To CN
(See P



※	SEPARATION	
	12.5 kHz	25 kHz
CF1001	MCFH450GLM01	MCFH450ELM01
C1126	82p	68p
R1077	1.8k	1k

NOTE:
RESISTOR VALUES ARE IN Ω. 1/16W :
CAPACITOR VALUES ARE IN μF. 50V :
(T) CAPACITOR VALUES ARE TANTALUM :
INDUCTOR VALUES ARE IN H
UNLESS OTHERWISE NOTED.

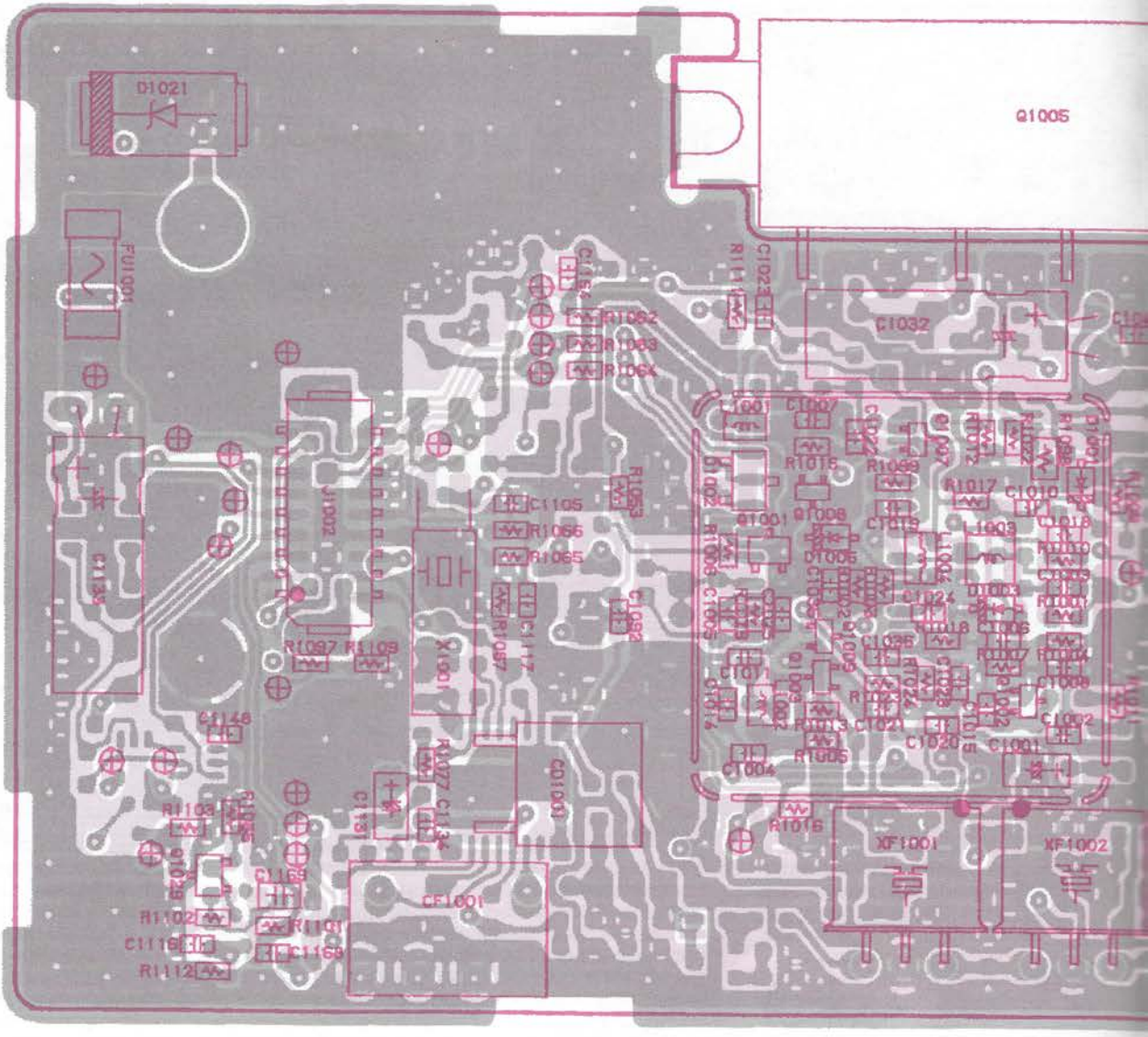
To CNTL Unit J2002
(See Page 3B-1, 3B-5)

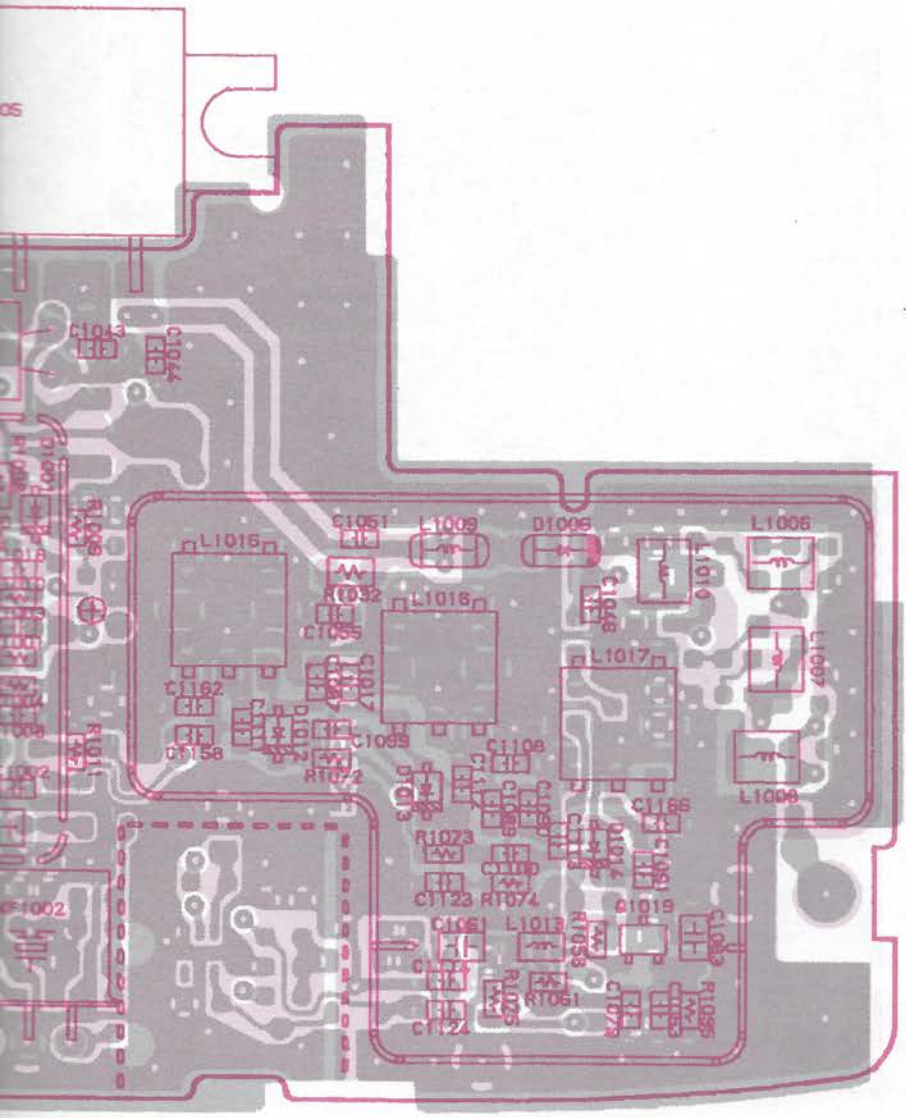
Notes:

Parts Layout

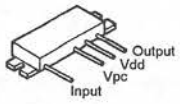
GND	UL
REG	SDO
TRX	SCK
+B	PSTB
VU	DCSE
PC	GND
SQS	MOD
KEY	RSSI
GND	DISC

To CNTL Unit J2002
(See Page 3B-3,3B-8)

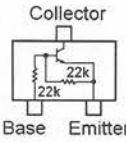




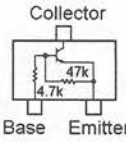
Component Side



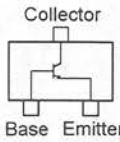
PF0313 (TYP A)
PF0314 (TYP C)
(Q1005)



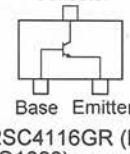
UN9212 (8B)
(Q1007)



DTC143ZE (E23)
(Q1008,1009)



2SC5226 (R22)
(Q1001,1019)
2SC5231 (C9)
(Q1002,1003)



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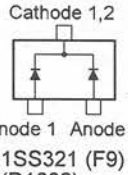
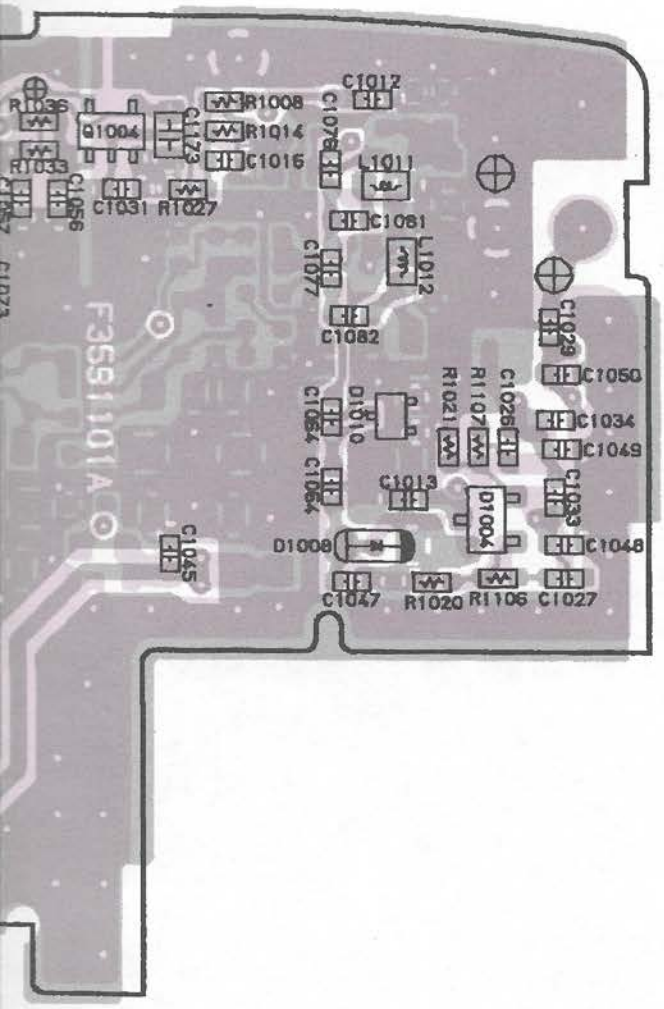
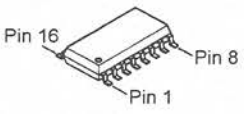
(Q1029)



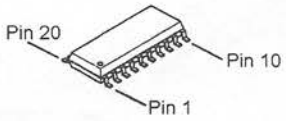
1SS321 (F9)
(D1002)



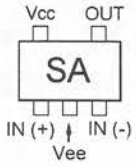
Chip Side



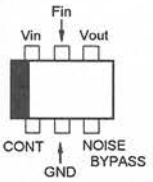
TA31136FN
(Q1020)



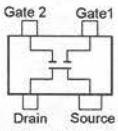
MC145192FR2
(Q1015)



TA75S01F (SA)
(Q1004)



TK11250MTR (P5)
(Q1023)



SGM2016M (M-)
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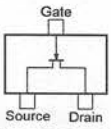

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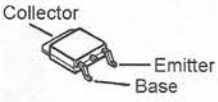
(Q1013)



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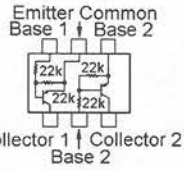
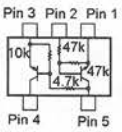
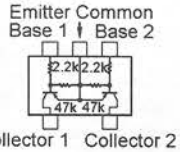
(Q1017)



UMH5N (H5)
(Q1022)



UMC5N (C5)
(Q1014)



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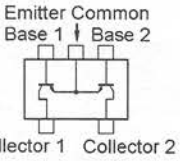
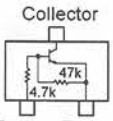
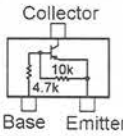
(Q1024)



XP1501 (5R)
(Q1016)



DTC143ZE (E23)
(Q1010)



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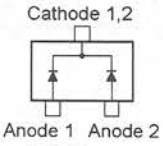
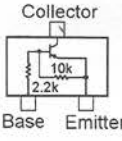
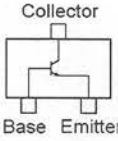
(Q1012)



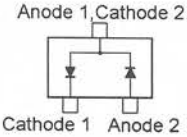
1SS321 (F9)
(D1004)



UN911H (6P)
(Q1021)



2SC2620QBTR (QB)
(Q1018)
2SC4116GR (LG)
(Q1011)
2SC4215Y (QY)
(Q1028)
2SC4245 (HB)
(Q1006)



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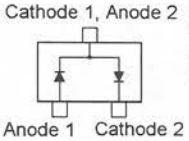
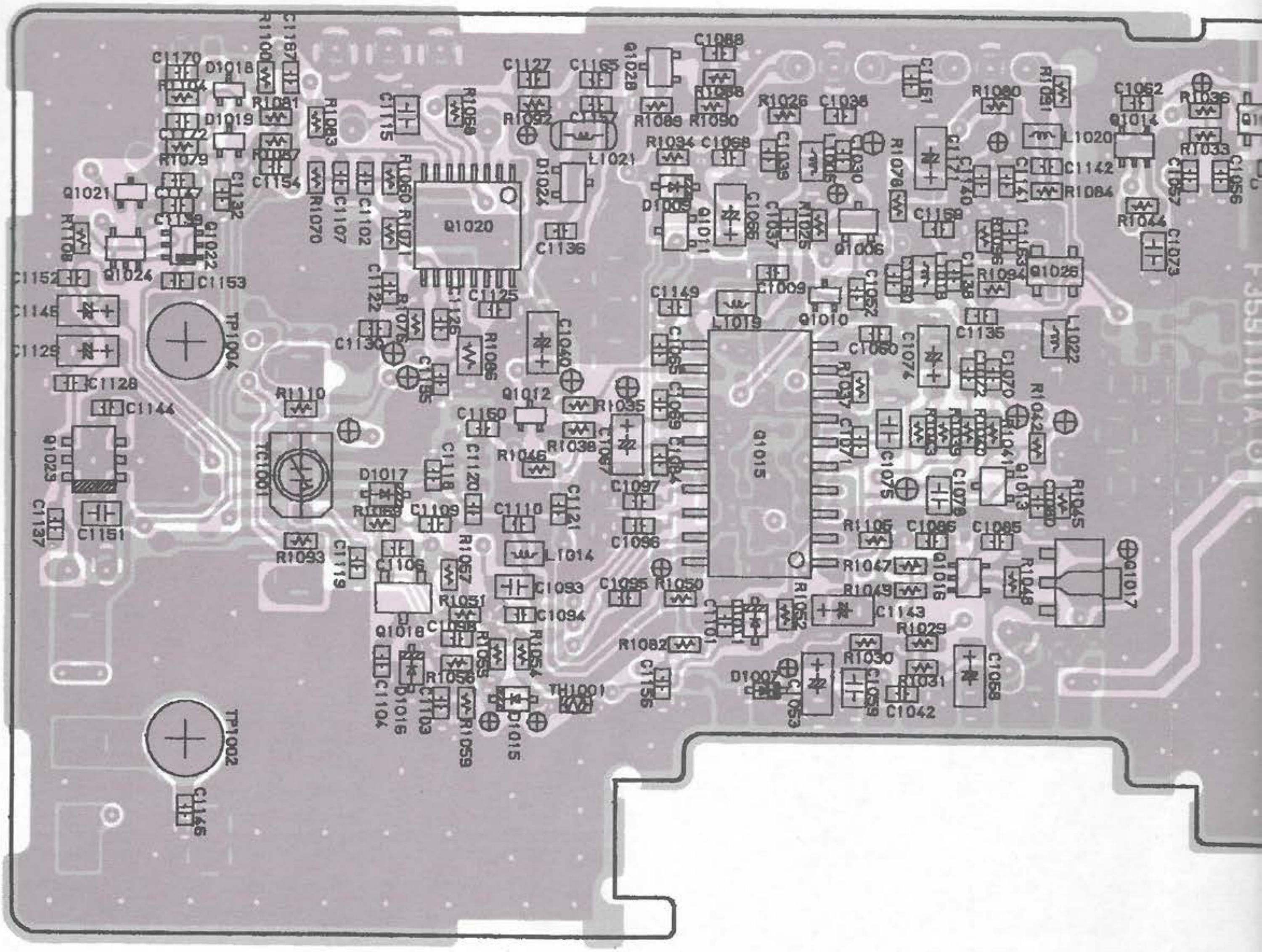
(D1010,1024)



DA221 (K)
(D1018,1019)

RF Unit (Lot. 5~)



C1170
D1018
R1100
C1187
C1127
C1165
Q1026
C1088
C1151
R1080
R1081
C1062
R1036
D1019
R1081
R1083
C1115
R1069
R1062
R1088
R1089
R1090
R1026
C1036
Q1014
L1020
R1033
R1079
Q1021
C1154
R1070
C1107
C1102
Q1020
L1021
D1024
R1034
C1068
D1005
Q1011
C1066
C1037
C1025
Q1006
C1168
C1142
R1084
R1044
C1073
C1132
R1108
Q1022
Q1024
C1152
C1153
C1136
C1149
C1009
L1019
Q1010
R1094
Q1026
C1135
L1022
C1145
C1129
TP1004
C1122
C1125
C1130
R1086
C1040
C1060
C1074
C1128
C1144
R1110
Q1012
C1150
R1035
R1038
C1067
Q1015
C1075
C1079
Q1013
R1045
Q1023
TC1001
D1017
C1118
C1120
R1046
C1097
C1137
C1151
C1109
C1110
C1121
C1096
R1105
C1086
C1085
R1093
C1119
C1106
R1057
L1014
R1047
Q1016
Q1017
R1051
C1093
C1095
R1050
R1049
C1143
Q1018
C1094
R1082
R1029
R1030
R1031
C1042
C1058
R1058
R1054
TH1001
C1156
D1007
C1053
C1059
C1104
D1016
C1103
R1059
D1015
TP1002
C1146

Parts List

REF.	DESCRIPTION	VALUE	WV	TOL.	MFGR'S DESIG	YAESU P/N	VERS.	LOT.	LAY ADR
		*** RF UNIT ***							
	PCB with Components					CA1571001	TYP A, SEP 25		
	PCB with Components					CA1571002	TYP C, SEP 25		
	PCB with Components					CA1571003	TYP A, SEP 12.5		
	PCB with Components					CA1571004	TYP C, SEP 12.5		
	Printed Circuit Board					F3591101			
	Printed Circuit Board					F3591101A		5-	
C 1001	TANTALUM CHIP CAP.	10uF		6.3V	TEMSVA0J106M-8R	K78080027			
C 1002	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1003	CHIP CAP.	2pF	CK	50V	GRM39CK020C50PT	K22174203			
C 1004	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1005	CHIP CAP.	33pF	CH	50V	GRM39CH330J50PT	K22174223			
C 1006	CHIP CAP.	12pF	CH	50V	GRM39CH120J50PT	K22174213			
C 1007	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1008	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1009	CHIP CAP.	2pF	CK	50V	GRM39CK020C50PT	K22174203			
C 1010	CHIP CAP.	18pF	CH	50V	GRM39CH180J50PT	K22174217			
C 1011	CHIP CAP.	33pF	CH	50V	GRM39CH330J50PT	K22174223			
C 1012	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1013	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1014	CHIP CAP.	3pF	CJ	50V	GRM39CJ030C50PT	K22174204			
C 1015	CHIP CAP.	15pF	CH	50V	GRM39CH150J50PT	K22174215			
C 1016	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1017	CHIP CAP.	0.5pF	CK	50V	GRM39CK0R5C50PT	K22174201			
C 1019	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1020	CHIP CAP.	6pF	CH	50V	GRM39CH060D50PT	K22174207			
C 1021	CHIP CAP.	4pF	CH	50V	GRM39CH040C50PT	K22174205			
C 1022	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1023	CHIP CAP.	27pF	CH	50V	GRM39CH270J50PT	K22174221			
C 1023	CHIP CAP.	15pF	CH	50V	GRM39CH150J50PT	K22174215		2-	
C 1024	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1025	CHIP CAP.	8pF	CH	50V	GRM39CH080D50PT	K22174209			
C 1026	CHIP CAP.	1pF	CK	50V	GRM39CK010C50PT	K22174202			
C 1027	CHIP CAP.	1pF	CK	50V	GRM39CK010C50PT	K22174202			
C 1028	CHIP CAP.	33pF	CH	50V	GRM39CH330J50PT	K22174223			
C 1029	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1031	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1032	AL.ELECTRO.CAP.	47uF		25V	UVR1E470MDA6	K40149046			
C 1033	CHIP CAP.	6pF	CH	50V	GRM39CH060D50PT	K22174207			
C 1034	CHIP CAP.	5pF	CH	50V	GRM39CH050C50PT	K22174206			
C 1035	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1036	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1037	CHIP CAP.	27pF	CH	50V	GRM39CH270J50PT	K22174221			
C 1037	CHIP CAP.	47pF	CH	50V	GRM39CH470J50PT	K22174227		2-	
C 1038	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1039	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1042	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1043	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1045	CHIP CAP.	3pF	CJ	50V	GRM39CJ030C50PT	K22174204	TYP C		
C 1046	CHIP CAP.	27pF	CH	50V	GRM39CH270J50PT	K22174221			
C 1047	CHIP CAP.	12pF	CH	50V	GRM39CH120J50PT	K22174213		-1	
C 1048	CHIP CAP.	22pF	CH	50V	GRM39CH220J50PT	K22174219	TYP A		
C 1048	CHIP CAP.	27pF	CH	50V	GRM39CH270J50PT	K22174221	TYP C		
C 1049	CHIP CAP.	27pF	CH	50V	GRM39CH270J50PT	K22174221	TYP A		
C 1049	CHIP CAP.	18pF	CH	50V	GRM39CH180J50PT	K22174217	TYP C		
C 1050	CHIP CAP.	18pF	CH	50V	GRM39CH180J50PT	K22174217			
C 1051	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1052	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1053	TANTALUM CHIP CAP.	1uF		16V	TESVA1C105M1-8R	K78120009			
C 1054	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1055	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1056	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1057	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1058	TANTALUM CHIP CAP.	4.7uF		6.3V	TEMSVA0J475M-8R	K78080017			
C 1059	CHIP CAP.	0.1uF	B	25V	GRM40B104M25PT	K22140811			
C 1060	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1061	CHIP CAP.	0.1uF	B	25V	GRM40B104M25PT	K22140811			
C 1062	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1063	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1064	CHIP CAP.	22pF	CH	50V	GRM39CH220J50PT	K22174219			
C 1065	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1066	TANTALUM CHIP CAP.	10uF		6.3V	TEMSVA0J106M-8R	K78080027			

REF.	DESCRIPTION	VALUE	WV	TOL.	MFGR'S DESIG	YAESU P/N	VERS.	LOT.	LAY ADR
C 1067	TANTALUM CHIP CAP.	10uF		6.3V	TEMSVA0J106M-8R	K78080027			
C 1068	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1069	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1070	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1071	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1072	CHIP CAP.	0.033uF	R	16V	GRM39R333K16PT	K22124801			
C 1073	CHIP CAP.	0.1uF	B	25V	GRM40B104M25PT	K22140811			
C 1074	TANTALUM CHIP CAP.	2.2uF		6.3V	TESVA0J225M1-8R	K78080009			
C 1075	CHIP CAP.	0.1uF	B	25V	GRM40B104M25PT	K22140811			
C 1076	CHIP CAP.	18pF	CH	50V	GRM39CH180J50PT	K22174217			
C 1076	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809		2-	
C 1077	CHIP CAP.	15pF	CH	50V	GRM39CH150J50PT	K22174215			
C 1077	CHIP CAP.	18pF	CH	50V	GRM39CH180J50PT	K22174217		2-	
C 1078	CHIP CAP.	0.1uF	B	25V	GRM40B104M25PT	K22140811			
C 1079	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1080	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1081	CHIP CAP.	180pF	CH	50V	GRM39CH181J50PT	K22174241			
C 1081	CHIP CAP.	150pF	CH	50V	GRM39CH151J50PT	K22174239		2-	
C 1082	CHIP CAP.	47pF	CH	50V	GRM39CH470J50PT	K22174227			
C 1082	CHIP CAP.	39pF	CH	50V	GRM39CH390J50PT	K22174225		2-	
C 1083	CHIP CAP.	0.1uF	B	25V	GRM40B104M25PT	K22140811			
C 1084	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1085	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1086	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1087	CHIP CAP.	0.5pF	CK	50V	GRM39CK0R5C50PT	K22174201			
C 1088	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1089	CHIP CAP.	0.5pF	CK	50V	GRM39CK0R5C50PT	K22174201			
C 1090	CHIP CAP.	0.5pF	CK	50V	GRM39CK0R5C50PT	K22174201			
C 1091	CHIP CAP.	4pF	CH	50V	GRM39CH040C50PT	K22174205	TYP A		
C 1091	CHIP CAP.	2pF	CK	50V	GRM39CK020C50PT	K22174203	TYP C		
C 1092	CHIP CAP.	22pF	CH	50V	GRM39CH220J50PT	K22174219			
C 1093	CHIP CAP.	0.1uF	B	25V	GRM40B104M25PT	K22140811			
C 1094	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1095	CHIP CAP.	100pF	CH	50V	GRM39CH101J50PT	K22174235			
C 1096	CHIP CAP.	47pF	CH	50V	GRM39CH470J50PT	K22174227			
C 1097	CHIP CAP.	100pF	CH	50V	GRM39CH101J50PT	K22174235			
C 1098	CHIP CAP.	100pF	CH	50V	GRM39CH101J50PT	K22174235			
C 1099	CHIP CAP.	5pF	CH	50V	GRM39CH050C50PT	K22174206			
C 1099	CHIP CAP.	5pF	CH	50V	GRM39CH050C50PT	K22174206	TYP A	2-	
C 1099	CHIP CAP.	3pF	CJ	50V	GRM39CJ030C50PT	K22174204	TYP C	2-	
C 1100	CHIP CAP.	6pF	CH	50V	GRM39CH060D50PT	K22174207			
C 1100	CHIP CAP.	5pF	CH	50V	GRM39CH050C50PT	K22174206	TYP A	2-	
C 1100	CHIP CAP.	2pF	CK	50V	GRM39CK020C50PT	K22174203	TYP C	2-	
C 1101	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1102	CHIP CAP.	100pF	CH	50V	GRM39CH101J50PT	K22174235			
C 1103	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1104	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1105	CHIP CAP.	56pF	CH	50V	GRM39CH560J50PT	K22174229			
C 1106	CHIP CAP.	100pF	CH	50V	GRM39CH101J50PT	K22174235			
C 1107	CHIP CAP.	100pF	CH	50V	GRM39CH101J50PT	K22174235			
C 1108	CHIP CAP.	2pF	CK	50V	GRM39CK020C50PT	K22174203			
C 1109	CHIP CAP.	10pF	CH	50V	GRM39CH100D50PT	K22174211			
C 1110	CHIP CAP.	3pF	CJ	50V	GRM39CJ030C50PT	K22174204			
C 1111	CHIP CAP.	33pF	CH	50V	GRM39CH330J50PT	K22174223			
C 1111	CHIP CAP.	33pF	CH	50V	GRM39CH330J50PT	K22174223	TYP A	2-	
C 1111	CHIP CAP.	15pF	CH	50V	GRM39CH150J50PT	K22174215	TYP C	2-	
C 1112	CHIP CAP.	22pF	CH	50V	GRM39CH220J50PT	K22174219			
C 1113	CHIP CAP.	33pF	CH	50V	GRM39CH330J50PT	K22174223			
C 1114	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1115	CHIP CAP.	0.1uF	B	25V	GRM40B104M25PT	K22140811			
C 1116	CHIP CAP.	0.047uF	B	50V	GRM39B473K16PT	K22124804			
C 1116	CHIP CAP.	0.047uF	B	50V	GRM40B473M50PT	K22170823		2-	
C 1116	CHIP CAP.	0.047uF	B	50V	GRM39B473K16PT	K22124804		5-	
C 1117	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1118	CHIP CAP.	18pF	CH	50V	GRM39CH180J50PT	K22174217			
C 1120	CHIP CAP.	100pF	CH	50V	GRM39CH101J50PT	K22174235			
C 1122	CHIP CAP.	0.0047uF	B	50V	GRM39B472M50PT	K22174817			
C 1123	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1124	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1125	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1126	CHIP CAP.	82pF	CH	50V	GRM39CH820J50PT	K22174233	SEP 12.5		
C 1126	CHIP CAP.	68pF	CH	50V	GRM39CH680J50PT	K22174231	SEP 25		
C 1127	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			

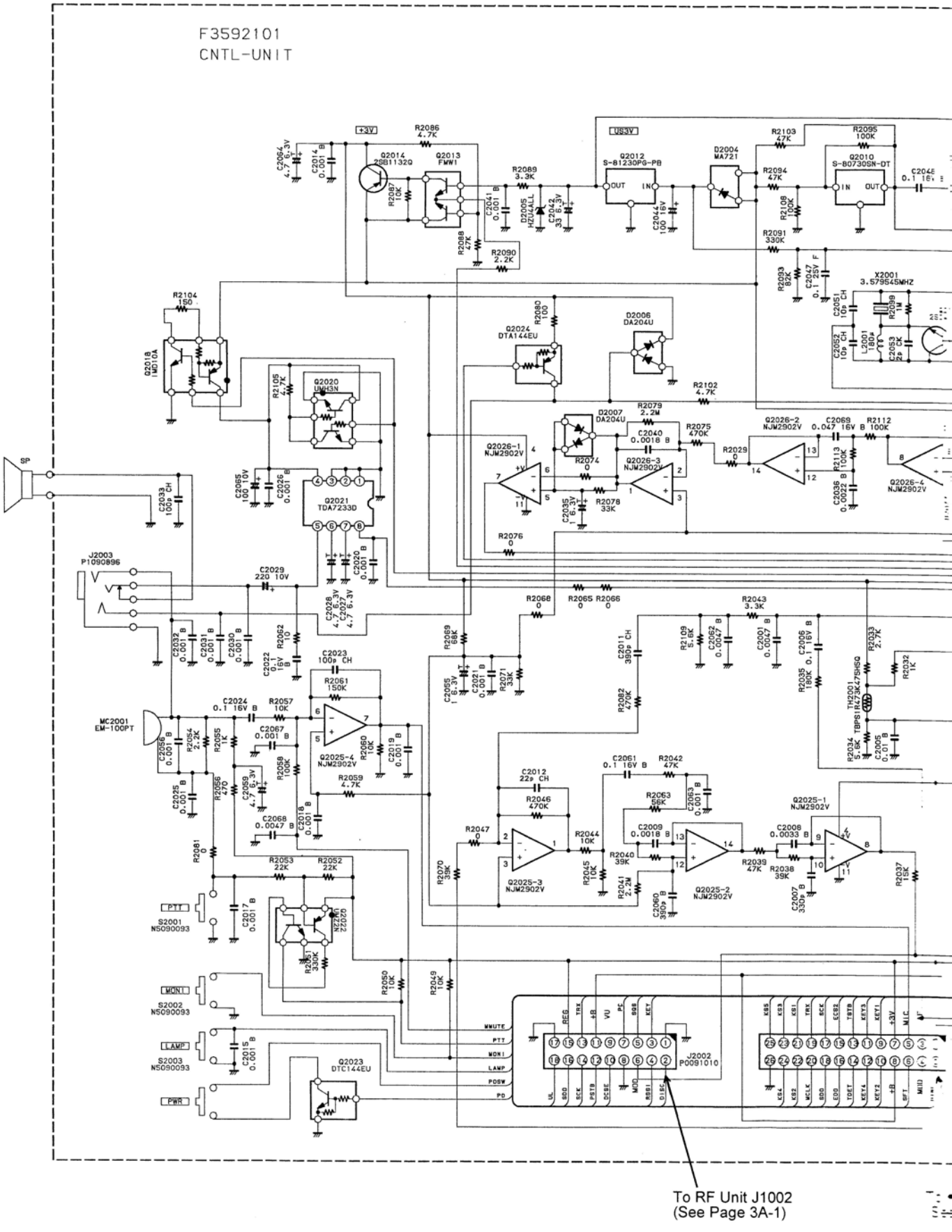
REF.	DESCRIPTION	VALUE	WV	TOL.	MFGR'S DESIG	YAESU P/N	VERS.	LOT.	LAY ADR
C 1128	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1129	TANTALUM CHIP CAP.	10uF		6.3V	TEMSVA0J106M-8R	K78080027			
C 1130	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1131	TANTALUM CHIP CAP.	10uF		6.3V	TEMSVA0J106M-8R	K78080027			
C 1132	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1133	AL.ELECTRO.CAP.	47uF		25V	UVR1E470MDA6 47UF	K40149046			
C 1134	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1135	CHIP CAP.	18pF	CH	50V	GRM39CH180J50PT	K22174217			
C 1135	CHIP CAP.	9pF	CH	50V	GRM39CH090D50PT	K22174210		2-	
C 1135	CHIP CAP.	9pF	CH	50V	GRM39CH090D50PT	K22174210	TYP A	4-	
C 1135	CHIP CAP.	5pF	CH	50V	GRM39CH050D50PT	K22174206	TYP C	4-	
C 1136	CHIP CAP.	100pF	CH	50V	GRM39CH101J50PT	K22174235			
C 1137	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1138	CHIP CAP.	27pF	CH	50V	GRM39CH270J50PT	K22174221			
C 1138	CHIP CAP.	7pF	CH	50V	GRM39CH070J50PT	K22174208		2-	
C 1138	CHIP CAP.	7pF	CH	50V	GRM39CH070J50PT	K22174208	TYP A	4-	
C 1138	CHIP CAP.	9pF	CH	50V	GRM39CH090D50PT	K22174210	TYP C	4-	
C 1139	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1140	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1141	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1142	CHIP CAP.	33pF	CH	50V	GRM39CH330J50PT	K22174223			
C 1143	TANTALUM CHIP CAP.	10uF		6.3V	TEMSVA0J106M-8R	K78080027			
C 1144	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1145	TANTALUM CHIP CAP.	4.7uF		6.3V	TEMSVA0J475M-8R	K78080017			
C 1146	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1147	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1148	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1149	CHIP CAP.	3pF	CJ	50V	GRM39CJ030C50PT	K22174204			
C 1149	CHIP CAP.	4pF	CH	50V	GRM39CH040C50PT	K22174205		2-	
C 1150	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1151	CHIP CAP.	0.1uF	B	25V	GRM40B104M25PT	K22140811			
C 1152	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1153	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1154	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1155	CHIP CAP.	0.047uF	B	50V	GRM40B473M50PT	K22170823			
C 1155	CHIP CAP.	0.047uF	B	50V	GRM39B473K16PT	K22124804		3-	
C 1156	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 1157	CHIP CAP.	82pF	CH	50V	GRM39CH820J50PT	K22174233			
C 1158	CHIP CAP.	3pF	CJ	50V	GRM39CJ030C50PT	K22174204			
C 1158	CHIP CAP.	3pF	CJ	50V	GRM39CJ030C50PT	K22174204	TYP A	2-	
C 1158	CHIP CAP.	4pF	CH	50V	GRM39CH040C50PT	K22174205	TYP C	2-	
C 1159	CHIP CAP.	22pF	CH	50V	GRM39CH220J50PT	K22174219		-1	
C 1160	CHIP CAP.	5pF	CH	50V	GRM39CH050C50PT	K22174206		-1	
C 1161	CHIP CAP.	12pF	CH	50V	GRM39CH120J50PT	K22174213			
C 1162	CHIP CAP.	1pF	CK	50V	GRM39CK010C50PT	K22174202		-1	
C 1163	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1164	CHIP CAP.	0.033uF	R	16V	GRM39R333K16PT	K22124801			
C 1165	CHIP CAP.	0.01uF	B	25V	GRM39B103K25PT	K22144803			
C 1167	CHIP CAP.	0.0056uF	B	50V	GRM39B562M50PT	K22174818			
C 1168	CHIP CAP.	0.0018uF	B	50V	GRM39B182M50PT	K22174812			
C 1169	CHIP CAP.	0.1uF	B	25V	GRM40B104M25PT	K22140811			
C 1170	CHIP CAP.	220pF	CH	50V	GRM39CH221J50PT	K22174243			
C 1171	TANTALUM CHIP CAP.	4.7uF		6.3V	TEMSVA0J475M-8R	K78080017			
C 1172	CHIP CAP.	560pF	B	50V	GRM39B561M50PT	K22174806			
C 1173	CHIP CAP.	0.1uF	B	25V	GRM40B104M25PT	K22140811		5-	
CD1001	CERAMIC DISC				CDBM450C24T	H7901060			
CF1001	CERAMIC FILTER				MCFH450GLM01	H3900463	SEP 12.5		
CF1001	CERAMIC FILTER				MCFH450ELM01	H3900461	SEP 25		
D 1001	DIODE				1SS314 TPH3	G2070122			
D 1002	DIODE				1SS321 TE85R	G2070076			
D 1003	DIODE				HVU350-TR	G2070380			
D 1004	DIODE				1SS321 TE85R	G2070076			
D 1005	DIODE				HSU277	G2070118			
D 1006	DIODE				RLS135 TE-11	G2070128			
D 1007	DIODE				RD6.8UMB2-T1B	G2070438			
D 1008	DIODE				RLS135 TE-11	G2070128			
D 1009	DIODE				MA111-(TX)	G2070338			
D 1010	DIODE				1SS302 TE85R	G2070088			
D 1011	DIODE				1SS353 TE-17	G2070394			

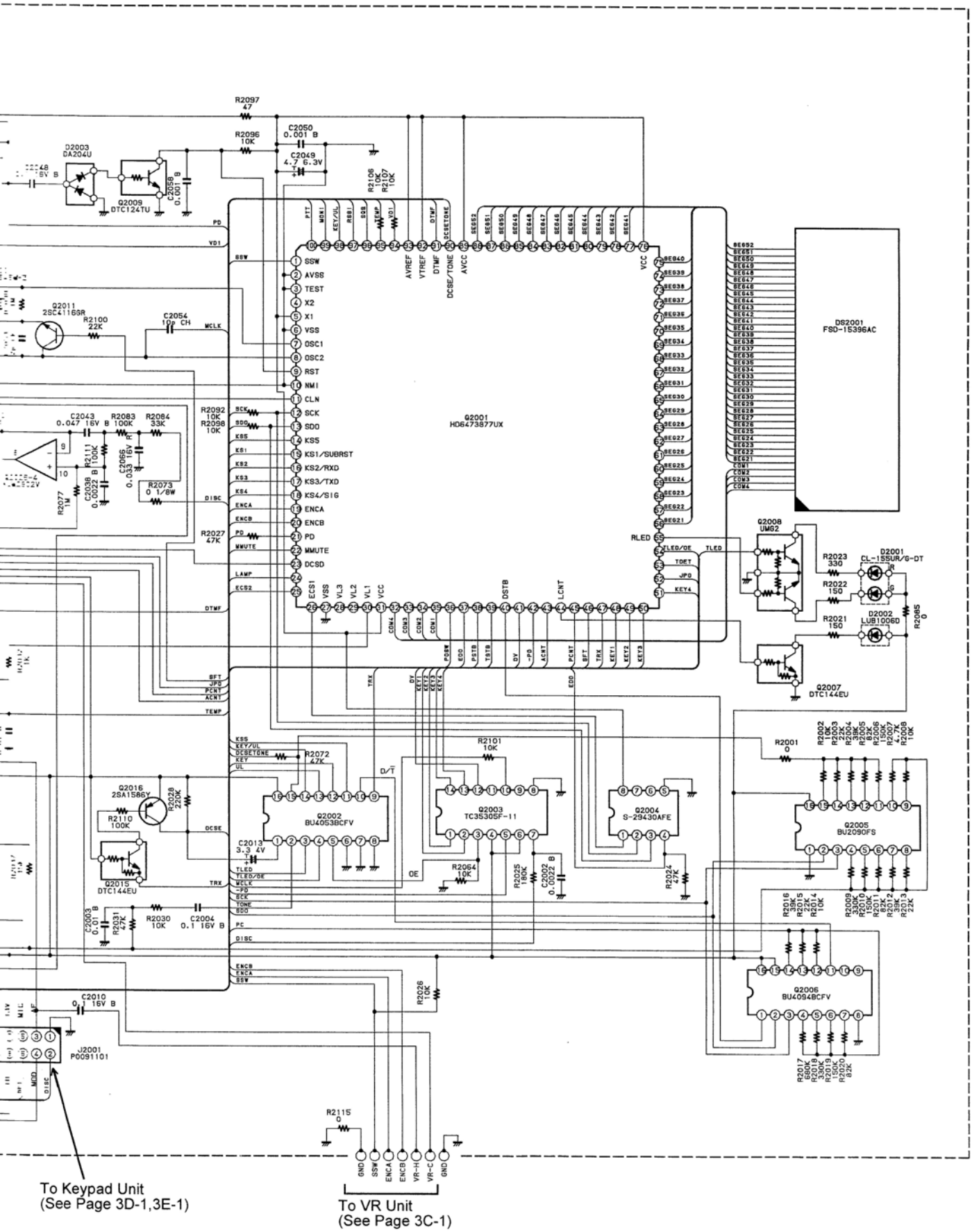
REF.	DESCRIPTION	VALUE	WV	TOL.	MFGR'S DESIG	YAESU P/N	VERS.	LOT.	LAY ADR
D 1012	DIODE				HVU350-TR	G2070380			
D 1013	DIODE				HVU350-TR	G2070380			
D 1014	DIODE				HVU350-TR	G2070380			
D 1015	DIODE				1SS353 TE-17	G2070394			
D 1016	DIODE				HVU350-TR	G2070380			
D 1017	DIODE				HVU202A-TR	G2070332			
D 1018	DIODE				DA221 TL	G2070178			
D 1019	DIODE				DA221 TL	G2070178			
D 1021	DIODE				DAM3MA15	G2070456			
D 1024	DIODE				1SS302 TE85R	G2070088			
FU1001	CHIP FUSE				451003	Q0000052			
J 1002	CONNECTOR				CPB8518-0151	P1090795			
L 1001	M.RFC	0.082uH			HK2125 82NK-T	L1690388			
L 1002	M.RFC	0.056uH			HK2125 56NK-T	L1690386			
L 1003	COIL				E2 0.25-1.9-6.5-L	L0022401			
L 1004	COIL				E2 0.3-0.9-6T-R	L0022375			
L 1005	M.RFC	6.8uH			LK2125 6R8K-T	L1690329			
L 1005	M.RFC	0.15uH			LK2125 R15K-T	L1690309		2-	
L 1006	COIL				E2 0.3-1.7-7T-L	L0022372			
L 1007	COIL				E2 0.3-1.7-7T-L	L0022372			
L 1008	COIL				E2 0.3-1.7-7T-L	L0022372			
L 1009	M.RFC	1uH			LER015T1R0M	L1690119			
L 1010	COIL				E2 0.3-1.7-7T-L	L0022372			
L 1011	M.RFC	0.047uH			HK2125 47NK-T	L1690385			
L 1012	M.RFC	0.082uH			HK2125 82NK-T	L1690388			
L 1013	M.RFC	6.8uH			LK2125 6R8K-T	L1690329			
L 1014	M.RFC	0.47uH			LK2125 R47K-T	L1690315			
L 1015	COIL				5JKH 146M	L0022402			
L 1016	COIL				5JKH 146M	L0022402			
L 1017	COIL				5JKH 146M	L0022402			
L 1018	M.RFC	0.068uH			HK2125 68NK-T	L1690387			
L 1018	M.RFC	0.15uH			LK2125 R15K-T	L1690309		2-	
L 1019	M.RFC	0.15uH			LK2125 R15K-T	L1690309			
L 1020	M.RFC	4.7uH			LK2125 4R7K-T	L1690327			
L 1021	M.RFC	0.56uH			LER015TR56M	L1690116			
L 1022	M.RFC	0.22uH			LK2125 R22K-T	L1690311			
L 1022	M.RFC	0.18uH			LK2125 R18K-T	L1690310		2-	
Q 1001	TRANSISTOR				2SC5226-4/5-TL	G3352268Z			
Q 1002	TRANSISTOR				2SC5231C8/C9-TL	G3352318Z			
Q 1003	TRANSISTOR				2SC5231C8/C9-TL	G3352318Z			
Q 1004	IC				NJM2904V-TE1	G1091677			
Q 1004	IC				TA75S01F TE85R	G1091593		5-	
Q 1005	IC				PF0313	G1092218	TYP A		
Q 1005	IC				PF0314	G1092199	TYP C		
Q 1006	TRANSISTOR				2SC4245 TE85R	G3342457			
Q 1007	TRANSISTOR				UN9212-(TX)	G3070152			
Q 1008	TRANSISTOR				DTC143ZE TL	G3070102			
Q 1009	TRANSISTOR				DTC143ZE TL	G3070102			
Q 1010	TRANSISTOR				DTC143ZE TL	G3070102			
Q 1011	TRANSISTOR				2SC4116GR TE85R	G3341167G			
Q 1012	TRANSISTOR				UN911F-(TX)	G3070150			
Q 1013	FET				2SK880GR TE85R	G3808807G			
Q 1014	TRANSISTOR				UMC5N TL	G3070137			
Q 1015	IC				MC145192FR2	G1092017			
Q 1016	TRANSISTOR				XP1501-(TX)	G3070143			
Q 1017	TRANSISTOR				2SB1132 T100 Q	G3211327Q			
Q 1018	TRANSISTOR				2SC2620QBTR	G3326207B			
Q 1019	TRANSISTOR				2SC5226-4/5-TL	G3352268Z			
Q 1020	IC				TA31136FN(EL)	G1091605			
Q 1021	TRANSISTOR				UN911H-(TX)	G3070151			
Q 1022	TRANSISTOR				UMH5N TL	G3070139			
Q 1023	IC				TK11250MTR	G1091537			
Q 1024	TRANSISTOR				UMA5N TL	G3070138			
Q 1026	FET				SGM2016M-T7	G4070005			
Q 1028	TRANSISTOR				2SC4215Y TE85R	G3342157Y			
Q 1029	TRANSISTOR				2SC4116GR TE85R	G3341167G			
R 1001	CHIP RES.	22K	5%	1/16W	RMC1/16 223JATP	J24185223			
R 1002	CHIP RES.	22K	5%	1/16W	RMC1/16 223JATP	J24185223			

REF.	DESCRIPTION	VALUE	WV	TOL.	MFGR'S DESIG	YAESU P/N	VERS.	LOT.	LAY ADR
R 1003	CHIP RES.	1K	5%	1/16W	RMC1/16 102JATP	J24185102			
R 1004	CHIP RES.	560	5%	1/16W	RMC1/16 561JATP	J24185561			
R 1005	CHIP RES.	120	5%	1/16W	RMC1/16 121JATP	J24185121			
R 1005	CHIP RES.	220	5%	1/16W	RMC1/16 221JATP	J24185221		2-	
R 1006	CHIP RES.	4.7K	5%	1/16W	RMC1/16 472JATP	J24185472			
R 1006	CHIP RES.	18K	5%	1/16W	RMC1/16 183JATP	J24185183	TYP A	3-	
R 1006	CHIP RES.	4.7K	5%	1/16W	RMC1/16 472JATP	J24185472	TYP C	3-	
R 1007	CHIP RES.	3.3K	5%	1/16W	RMC1/16 332JATP	J24185332			
R 1008	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 1009	CHIP RES.	0	5%	1/16W	RMC1/16 000JATP	J24185000			
R 1010	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 1012	CHIP RES.	27K	5%	1/16W	RMC1/16 273JATP	J24185273			
R 1013	CHIP RES.	39K	5%	1/16W	RMC1/16 393JATP	J24185393			
R 1014	CHIP RES.	3.3K	5%	1/16W	RMC1/16 332JATP	J24185332			
R 1014	CHIP RES.	3.9K	5%	1/16W	RMC1/16 392JATP	J24185392		5-	
R 1015	CHIP RES.	10	5%	1/16W	RMC1/16 100JATP	J24185100			
R 1016	CHIP RES.	0	5%	1/16W	RMC1/16 000JATP	J24185000			
R 1017	CHIP RES.	10	5%	1/16W	RMC1/16 100JATP	J24185100			
R 1018	CHIP RES.	8.2K	5%	1/16W	RMC1/16 822JATP	J24185822			
R 1019	CHIP RES.	56	5%	1/16W	RMC1/16 560JATP	J24185560			
R 1020	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 1021	CHIP RES.	33K	5%	1/16W	RMC1/16 333JATP	J24185333	TYP A		
R 1021	CHIP RES.	68K	5%	1/16W	RMC1/16 683JATP	J24185683	TYP C		
R 1022	CHIP RES.	47K	5%	1/16W	RMC1/16 473JATP	J24185473			
R 1023	CHIP RES.	220	5%	1/16W	RMC1/16 221JATP	J24185221			
R 1024	CHIP RES.	390	5%	1/16W	RMC1/16 391JATP	J24185391			
R 1025	CHIP RES.	27K	5%	1/16W	RMC1/16 273JATP	J24185273			
R 1025	CHIP RES.	150K	5%	1/16W	RMC1/16 154JATP	J24185154		2-	
R 1026	CHIP RES.	1K	5%	1/16W	RMC1/16 102JATP	J24185102			
R 1026	CHIP RES.	220	5%	1/16W	RMC1/16 221JATP	J24185221		2-	
R 1027	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 1028	CHIP RES.	100K	5%	1/16W	RMC1/16 104JATP	J24185104		-4	
R 1029	CHIP RES.	100	5%	1/16W	RMC1/16 101JATP	J24185101			
R 1030	CHIP RES.	1K	5%	1/16W	RMC1/16 102JATP	J24185102			
R 1031	CHIP RES.	100	5%	1/16W	RMC1/16 101JATP	J24185101			
R 1032	CHIP RES.	150	5%	1/10W	RMC1/10T 151J	J24205151			
R 1033	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 1034	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 1035	CHIP RES.	22	5%	1/16W	RMC1/16 220JATP	J24185220			
R 1036	CHIP RES.	1K	5%	1/16W	RMC1/16 102JATP	J24185102			
R 1037	CHIP RES.	22K	5%	1/16W	RMC1/16 223JATP	J24185223			
R 1038	CHIP RES.	22	5%	1/16W	RMC1/16 220JATP	J24185220			
R 1039	CHIP RES.	6.8K	5%	1/16W	RMC1/16 682JATP	J24185682			
R 1040	CHIP RES.	33K	5%	1/16W	RMC1/16 333JATP	J24185333			
R 1041	CHIP RES.	1M	5%	1/16W	RMC1/16 105JATP	J24185105			
R 1042	CHIP RES.	100K	5%	1/16W	RMC1/16 104JATP	J24185104			
R 1043	CHIP RES.	1.8K	5%	1/16W	RMC1/16 182JATP	J24185182			
R 1044	CHIP RES.	22	5%	1/16W	RMC1/16 220JATP	J24185220			
R 1045	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 1046	CHIP RES.	22	5%	1/16W	RMC1/16 220JATP	J24185220			
R 1047	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 1048	CHIP RES.	1K	5%	1/16W	RMC1/16 102JATP	J24185102			
R 1049	CHIP RES.	1K	5%	1/16W	RMC1/16 102JATP	J24185102			
R 1050	CHIP RES.	82	5%	1/16W	RMC1/16 820JATP	J24185820			
R 1050	CHIP RES.	100	5%	1/16W	RMC1/16 101JATP	J24185101		3-	
R 1051	CHIP RES.	100	5%	1/16W	RMC1/16 101JATP	J24185101			
R 1052	CHIP RES.	47K	5%	1/16W	RMC1/16 473JATP	J24185473			
R 1052	CHIP RES.	56K	5%	1/16W	RMC1/16 563JATP	J24185563		5-	
R 1053	CHIP RES.	2.2K	5%	1/16W	RMC1/16 222JATP	J24185222			
R 1054	CHIP RES.	56K	5%	1/16W	RMC1/16 563JATP	J24185563			
R 1055	CHIP RES.	1M	5%	1/16W	RMC1/16 105JATP	J24185105			
R 1056	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 1057	CHIP RES.	150K	5%	1/16W	RMC1/16 154JATP	J24185154			
R 1058	CHIP RES.	5.6K	5%	1/16W	RMC1/16 562JATP	J24185562			
R 1058	CHIP RES.	120K	5%	1/16W	RMC1/16 124JATP	J24185124		2-	
R 1059	CHIP RES.	100K	5%	1/16W	RMC1/16 104JATP	J24185104			
R 1060	CHIP RES.	560K	5%	1/16W	RMC1/16 564JATP	J24185564			
R 1061	CHIP RES.	1K	5%	1/16W	RMC1/16 102JATP	J24185102			
R 1061	CHIP RES.	270	5%	1/16W	RMC1/16 271JATP	J24185271		2-	
R 1062	CHIP RES.	4.7K	5%	1/16W	RMC1/16 472JATP	J24185472			
R 1063	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 1064	CHIP RES.	4.7K	5%	1/16W	RMC1/16 472JATP	J24185472			
R 1065	CHIP RES.	150K	5%	1/16W	RMC1/16 154JATP	J24185154			

REF.	DESCRIPTION	VALUE	WV	TOL.	MFGR'S DESIG	YAESU P/N	VERS.	LOT.	LAY ADR
R 1066	CHIP RES.	150K	5%	1/16W	RMC1/16 154JATP	J24185154			
R 1068	CHIP RES.	22	5%	1/16W	RMC1/16 220JATP	J24185220			
R 1069	CHIP RES.	3.3K	5%	1/16W	RMC1/16 332JATP	J24185332			
R 1070	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 1071	CHIP RES.	1K	5%	1/16W	RMC1/16 102JATP	J24185102			
R 1072	CHIP RES.	100K	5%	1/16W	RMC1/16 104JATP	J24185104			
R 1073	CHIP RES.	100K	5%	1/16W	RMC1/16 104JATP	J24185104			
R 1074	CHIP RES.	100K	5%	1/16W	RMC1/16 104JATP	J24185104			
R 1075	CHIP RES.	560	5%	1/16W	RMC1/16 561JATP	J24185561			
R 1075	CHIP RES.	680	5%	1/16W	RMC1/16 681JATP	J24185681		2-	
R 1075	CHIP RES.	220	5%	1/16W	RMC1/16 221JATP	J24185221		2-	
R 1076	CHIP RES.	6.8K	5%	1/16W	RMC1/16 682JATP	J24185682			
R 1077	CHIP RES.	1 8K	5%	1/16W	RMC1/16 182JATP	J24185182	SEP 12.5		
R 1077	CHIP RES.	1K	5%	1/16W	RMC1/16 102JATP	J24185102	SEP 25		
R 1078	CHIP RES.	330	5%	1/16W	RMC1/16 331JATP	J24185331			
R 1078	CHIP RES.	680	5%	1/16W	RMC1/16 681JATP	J24185681		2-	
R 1079	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 1080	CHIP RES.	22	5%	1/16W	RMC1/16 220JATP	J24185220			
R 1080	CHIP RES.	100	5%	1/16W	RMC1/16 101JATP	J24185101		2-	
R 1081	CHIP RES.	330K	5%	1/16W	RMC1/16 334JATP	J24185334			
R 1082	CHIP RES.	10	5%	1/16W	RMC1/16 100JATP	J24185100			
R 1082	CHIP RES.	22	5%	1/16W	RMC1/16 220JATP	J24185220		3-	
R 1083	CHIP RES.	2.2K	5%	1/16W	RMC1/16 222JATP	J24185222			
R 1084	CHIP RES.	2.7K	5%	1/16W	RMC1/16 272JATP	J24185272			
R 1085	CHIP RES.	220	5%	1/16W	RMC1/16 221JATP	J24185221			
R 1085	CHIP RES.	100	5%	1/16W	RMC1/16 101JATP	J24185101		2-	
R 1087	CHIP RES.	2.2M	5%	1/16W	RMC1/16 225JATP	J24185225			
R 1088	CHIP RES.	330	5%	1/16W	RMC1/16 331JATP	J24185331			
R 1089	CHIP RES.	220K	5%	1/16W	RMC1/16 224JATP	J24185224			
R 1090	CHIP RES.	1.2K	5%	1/16W	RMC1/16 122JATP	J24185122			
R 1091	CHIP RES.	1.2K	5%	1/16W	RMC1/16 122JATP	J24185122			
R 1092	CHIP RES.	2.2K	5%	1/16W	RMC1/16 222JATP	J24185222			
R 1093	CHIP RES.	18K	5%	1/16W	RMC1/16 183JATP	J24185183			
R 1094	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 1095	CHIP RES.	0	5%	1/16W	RMC1/16 000JATP	J24185000			
R 1096	CHIP RES.	47	5%	1/16W	RMC1/16 470JATP	J24185470			
R 1096	CHIP RES.	82	5%	1/16W	RMC1/16 820JATP	J24185820		2-	
R 1096	CHIP RES.	270	5%	1/16W	RMC1/16 270JATP	J24185271		3-	
R 1097	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 1098	CHIP RES.	0	5%	1/10W	RMC1/10T 000J	J24205000			
R 1099	CHIP RES.	4.7K	5%	1/16W	RMC1/16 472JATP	J24185472			
R 1100	CHIP RES.	680	5%	1/16W	RMC1/16 681JATP	J24185681			
R 1101	CHIP RES.	3.3K	5%	1/16W	RMC1/16 332JATP	J24185332			
R 1102	CHIP RES.	1M	5%	1/16W	RMC1/16 105JATP	J24185105			
R 1103	CHIP RES.	6.8K	5%	1/16W	RMC1/16 682JATP	J24185682			
R 1104	CHIP RES.	330K	5%	1/16W	RMC1/16 334JATP	J24185334			
R 1105	CHIP RES.	0	5%	1/16W	RMC1/16 000JATP	J24185000			
R 1106	CHIP RES.	0	5%	1/16W	RMC1/16 000JATP	J24185000			
R 1107	CHIP RES.	0	5%	1/16W	RMC1/16 000JATP	J24185000			
R 1108	CHIP RES.	1K	5%	1/16W	RMC1/16 102JATP	J24185102			
R 1109	CHIP RES.	100K	5%	1/16W	RMC1/16 104JATP	J24185104			
R 1110	CHIP RES.	5.6K	5%	1/16W	RMC1/16 562JATP	J24185562			
R 1111	CHIP RES.	220	5%	1/16W	RMC1/16 221JATP	J24185221	TYP C	-1	
R 1112	CHIP RES.	100K	5%	1/16W	RMC1/16 104JATP	J24185104		2-	
TC1001	TRIMMER CAP.	20pF			ECR-KN020E61X 20P	K91000213			
TH1001	THERMISTER				TBPS1R103K440H5Q	G9090067			
TP1001									
TP1002	SPRING CONNECTOR				B4152480	R0152480			
TP1004	SPRING CONNECTOR				B4152480	R0152480			
X 1001	XTAL	17.25MHz				H0103107			
XF1001	XTAL				17T12B5	H1102273			
	SHIELD CASE (VCO)					R0152350			
	CONTACT PLATE (SMA)					R0152360			
	HOLDER PLATE (PM)					R0152370			
	LEAF SPRING					R0153210			
	SHIELD CASE (F.END)					R0521550			
	PACKING (POW)					R3153940			

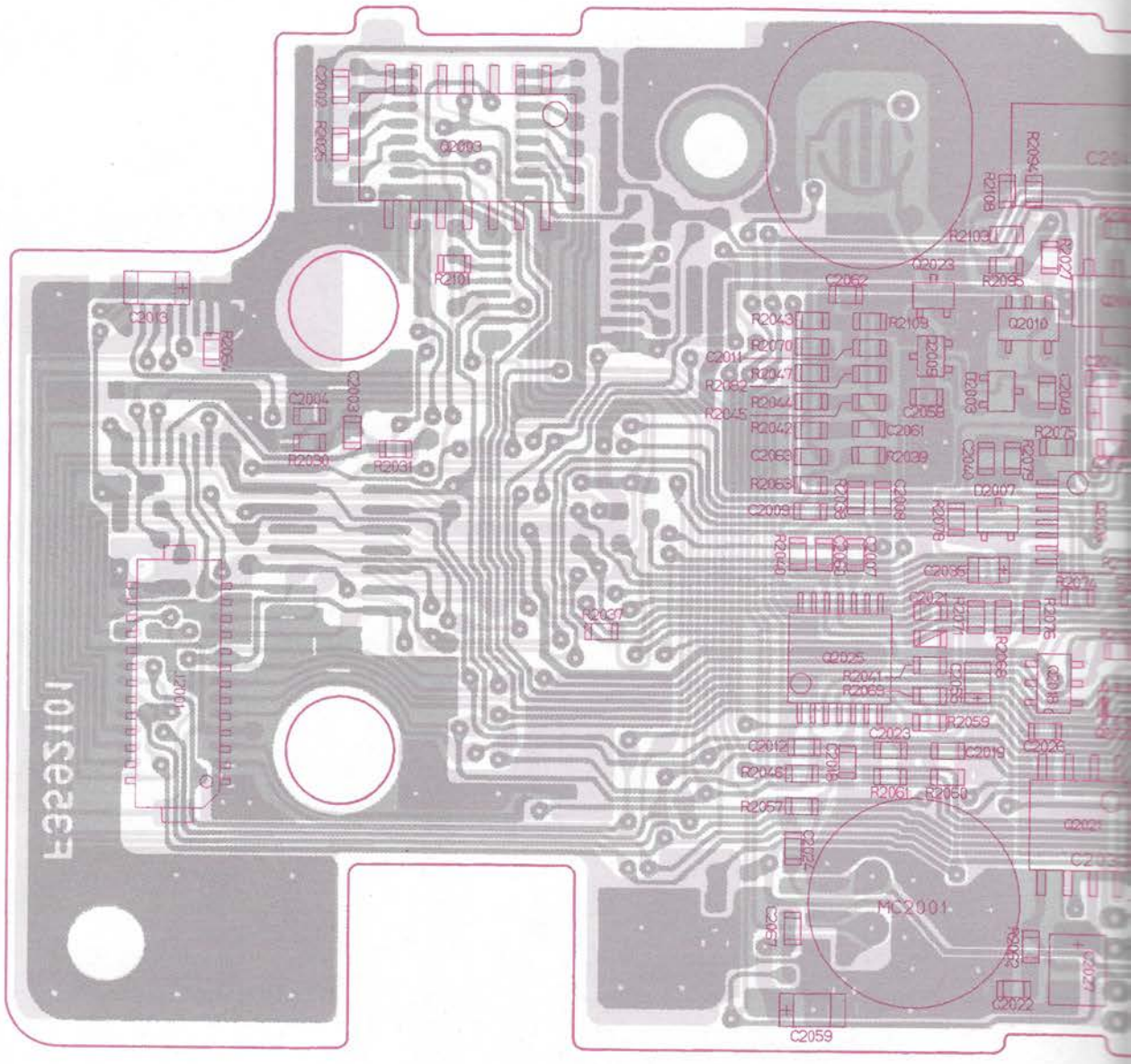
Circuit Diagram




Q2001
HD6473877UX
DS2001
FSD-15396AC
Q2002
BU4053BCFV
Q2003
TC35305F-11
Q2004
S-29430AFE
Q2005
BU2090FS
Q2006
BU4094BCFV
Q2007
DTC144EU
Q2008
UMG2
Q2009
DTC124TU
Q2011
2SC4116GR
Q2015
DTC144EU
Q2016
2SA1586Y
D2001
CL-155UR/G-DT
D2002
LUB1006D
D2003
DA204U
J2001
P0091101
To Keypad Unit
(See Page 3D-1,3E-1)
To VR Unit
(See Page 3C-1)

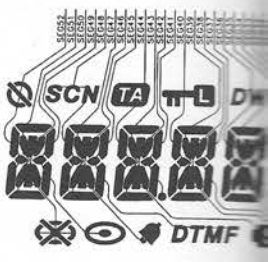
Notes:

Parts Layout

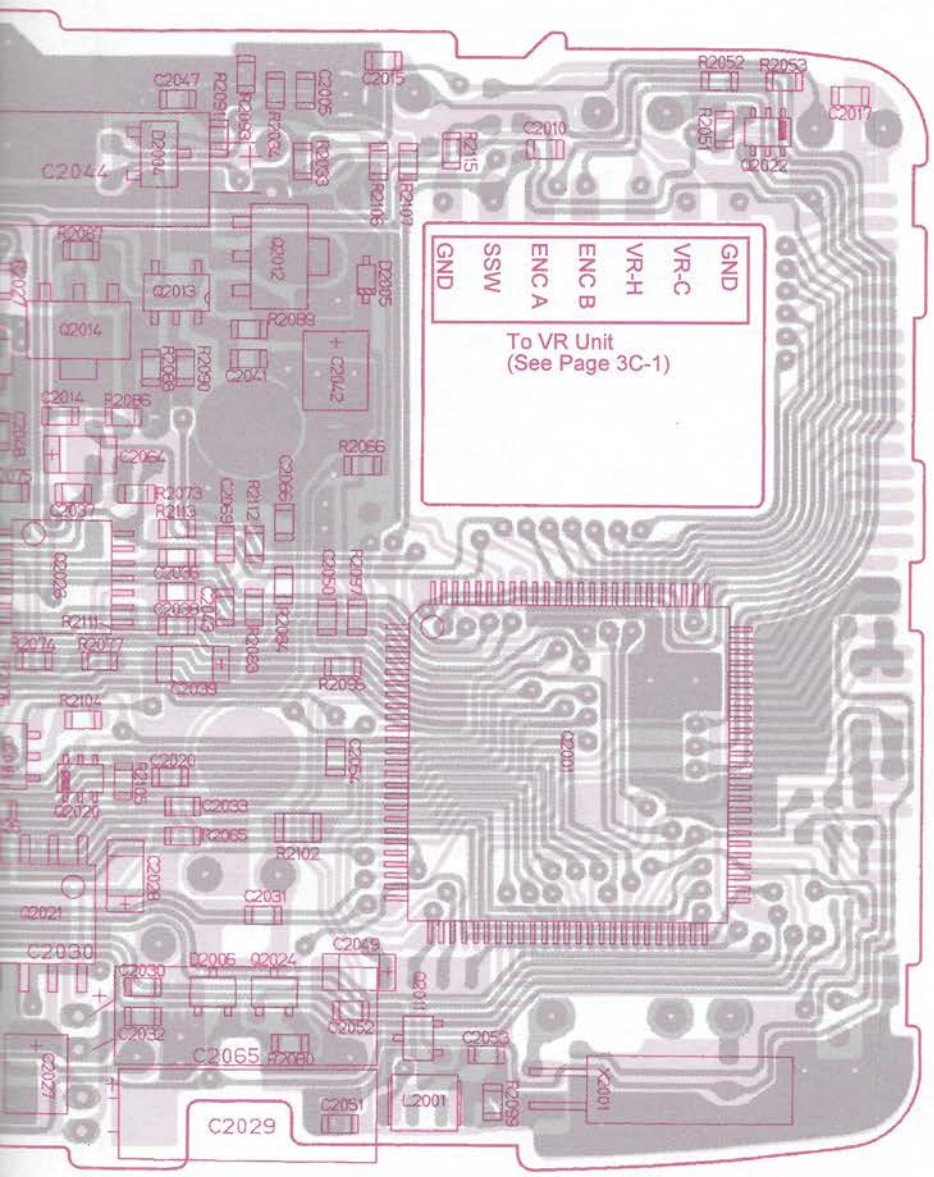


GND	KS5
KS4	KS3
KS2	KS1
MCLK	TRX
SDO	SCK
EDO	ECS2
TDET	TSTB
KEY4	KEY3
KEY2	KEY1
+B	+3V
SFT	MIC
MOD	AF
DISC	GND

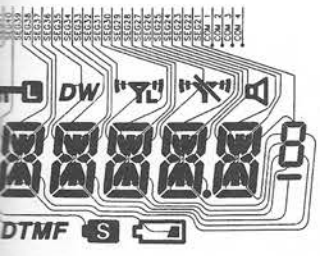
To Keypad Unit
(See Page 3D-1, 3E-1)



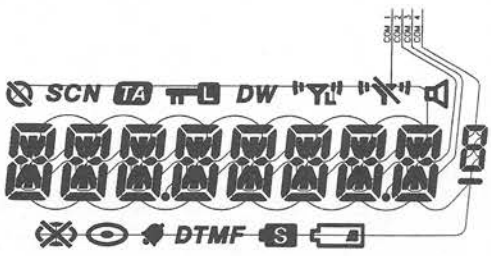
LCD Segmentation



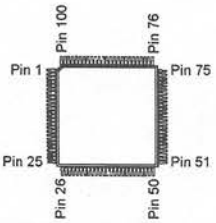
LCD Side



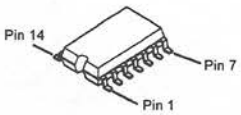
ntation Circuit Diagram



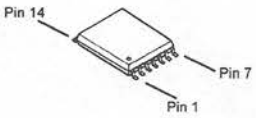
LCD Backplane Circuit Diagram



HD6473877UX
(Q2001)

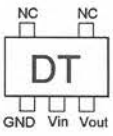


TC35305F
(Q2003)

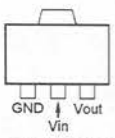


NJM2902V
(Q2025,2026)

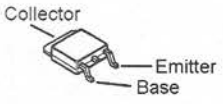
TDA7233D
(Q2021)



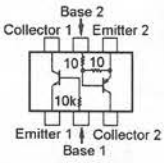
S-80730SN (DT)
(Q2010)



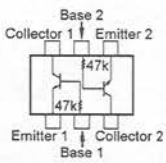
S-81230PG
(Q2012)



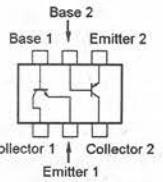
2SB1132Q (BA)
(Q2014)



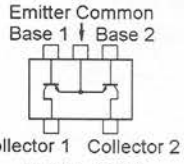
IMD10A (D10)
(Q2018)



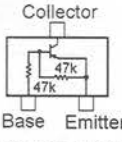
UMH3N (H3)
(Q2020)



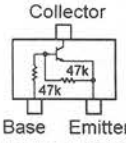
UMZ2N (Z2)
(Q2022)



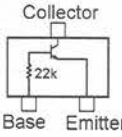
FMW1 (W1)
(Q2013)



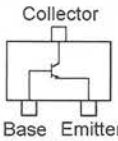
DTA144EU (16)
(Q2024)



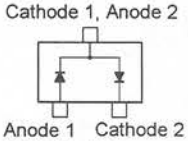
DTC144EU (26)
(Q2023)



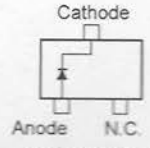
DTC124TU (05)
(Q2009)



2SC4116GR (LG)
(Q2011)



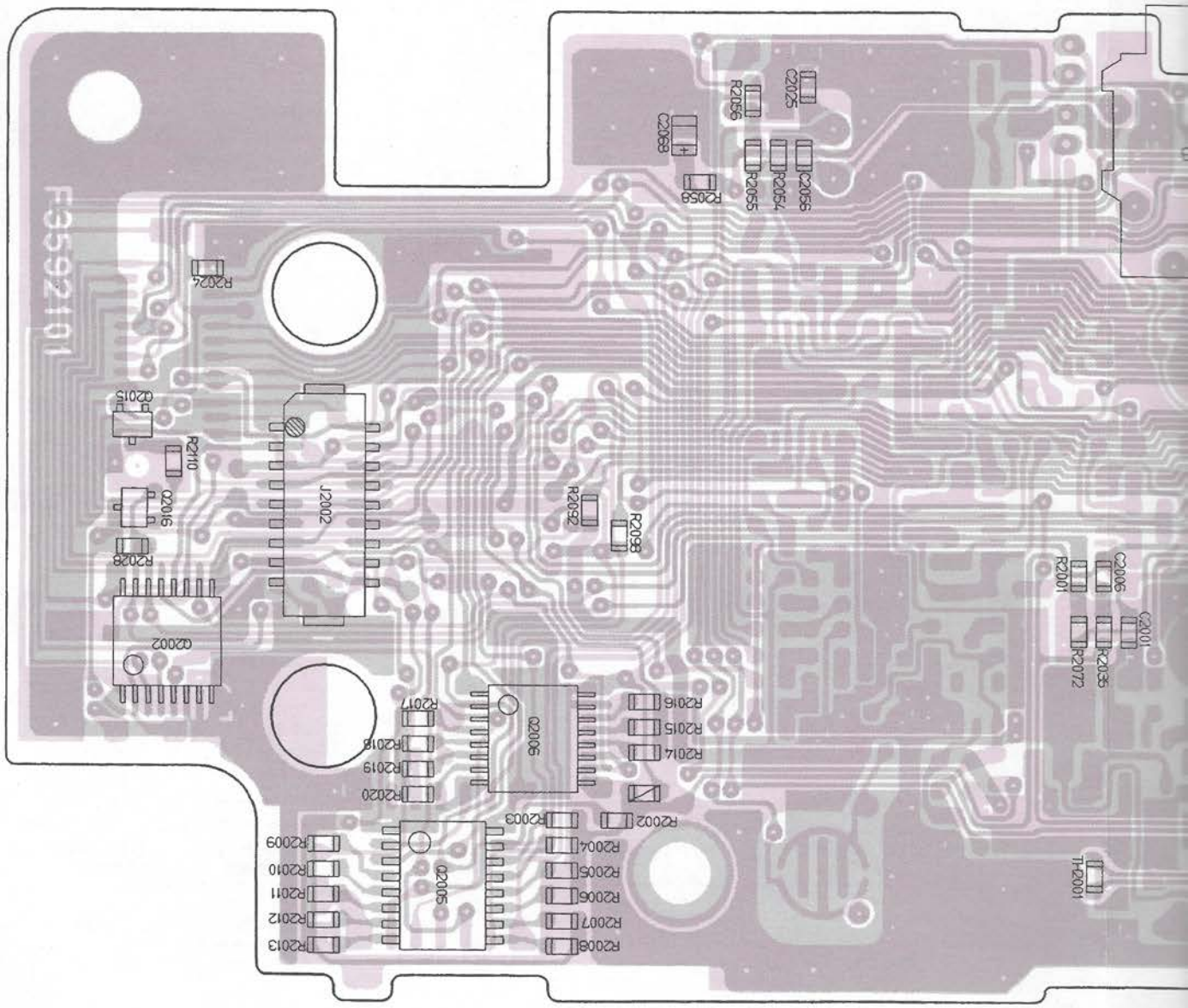
DA204U (K)
(D2003,2006,2007)

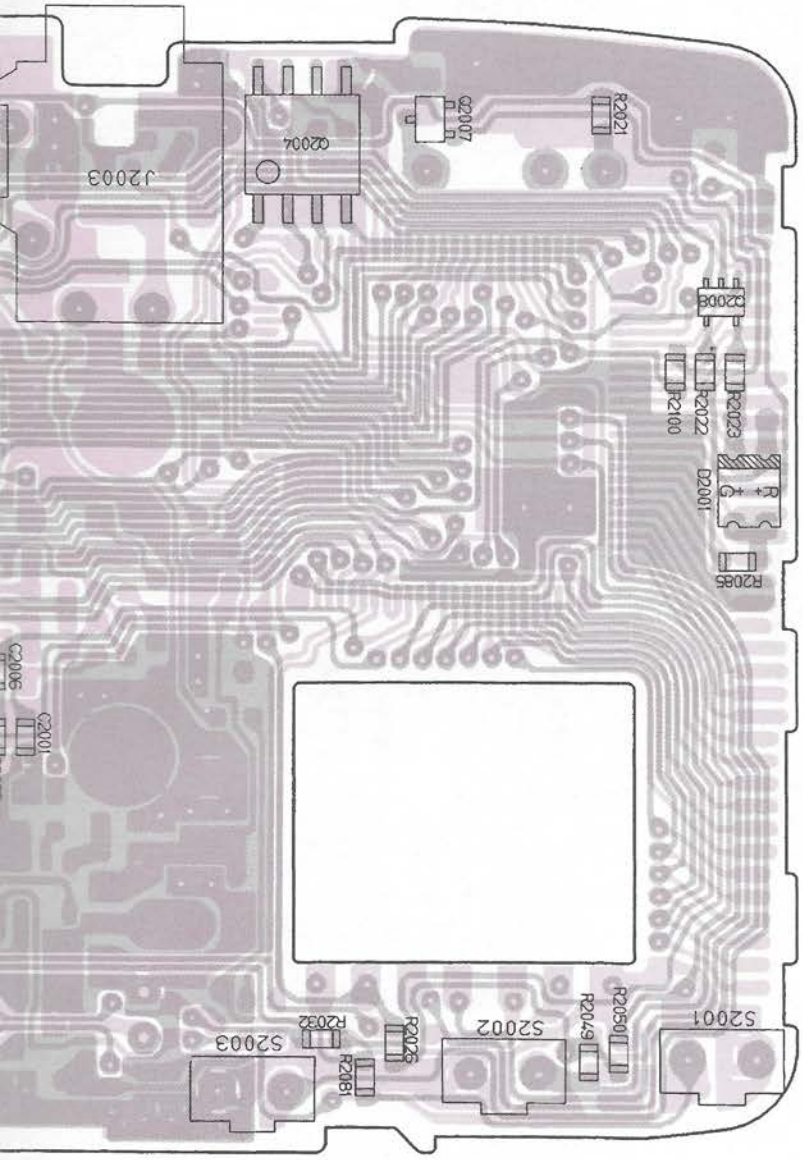


MA721 (M1M)
(D2004)

GND	DISC
KEY	RSSI
SQS	MOD
PC	GND
VU	DCSE
+B	PSTB
TRX	SCK
REG	SDO
GND	UL

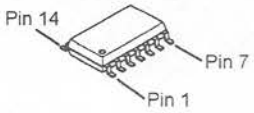
To RF Unit J1002
(See Page 3A-3)



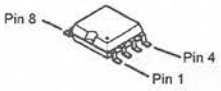


Component Side

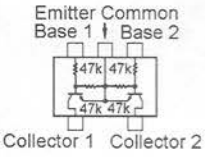
BU4053BCFV
(Q2002)
BU2090FS
(Q2005)



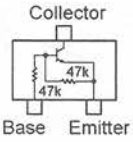
BU4094BCFV
(Q2006)



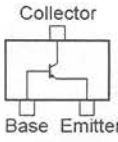
S-29430AFE
(Q2004)



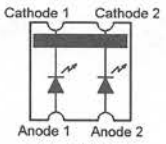
UMG2N (G2)
(Q2008)



DTC144EU (26)
(Q2007,2015)

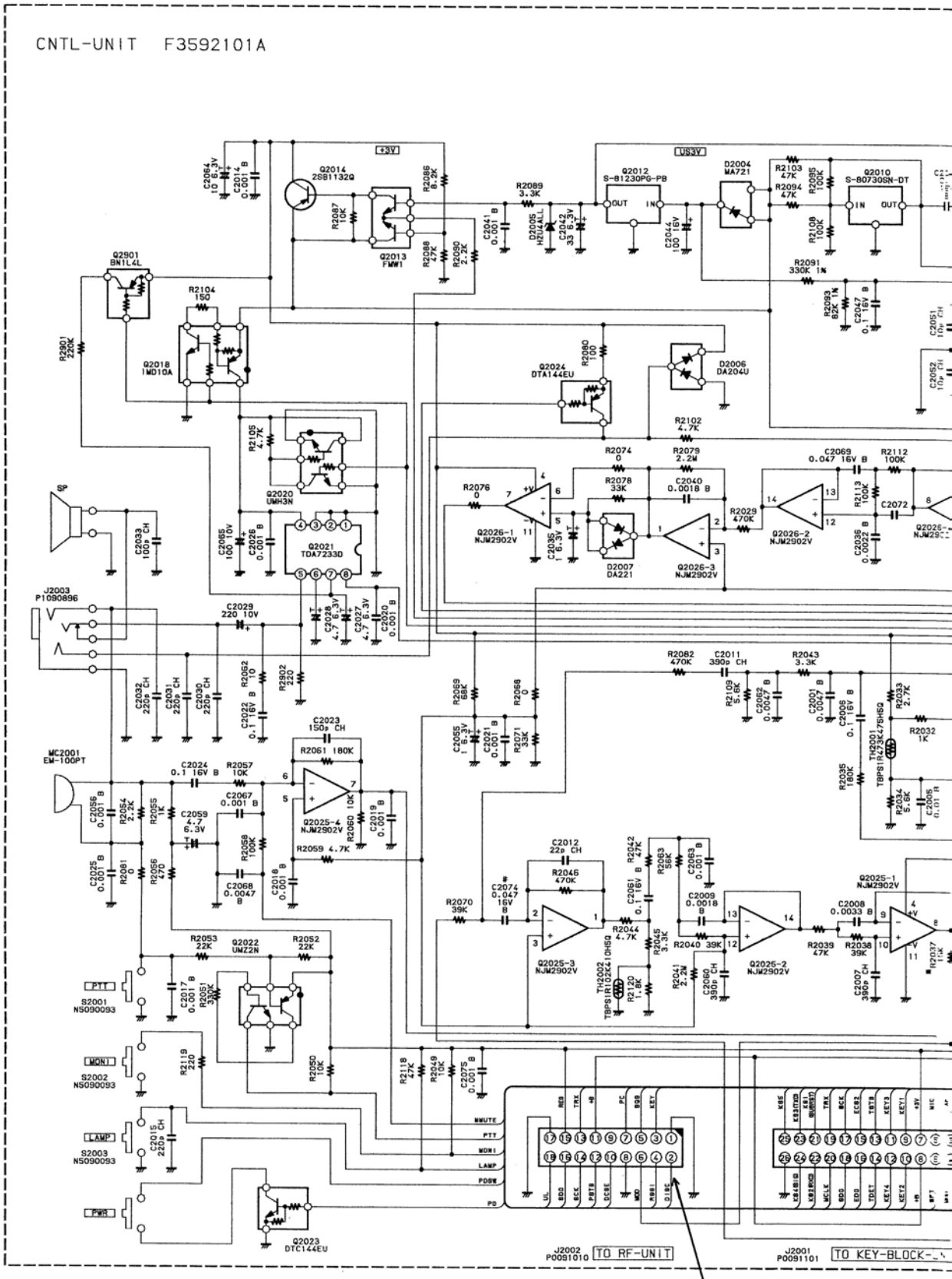


2SA1586Y (SY)
(Q2016)

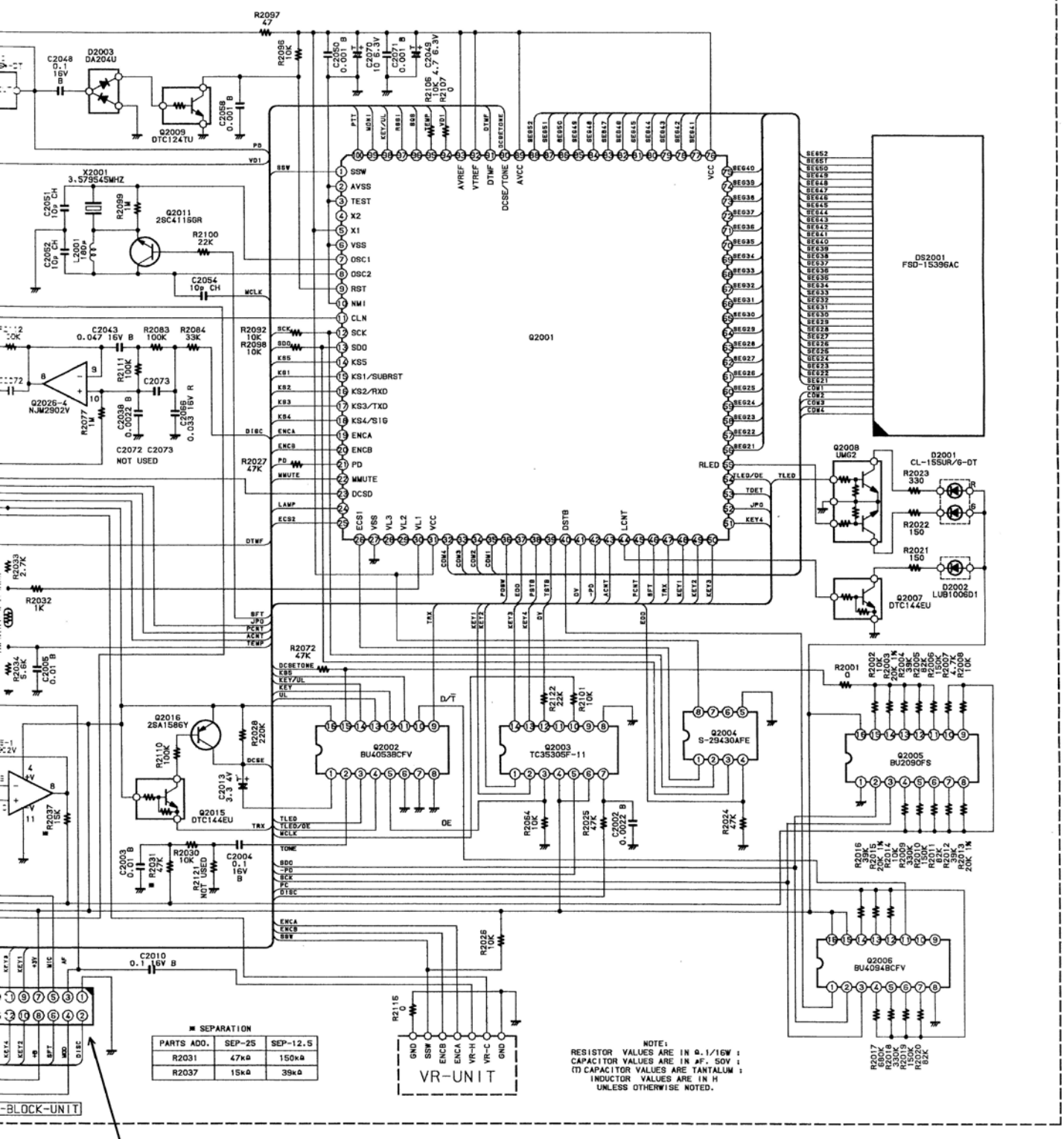


CL-155UR
(D2001)

Circuit Diagram

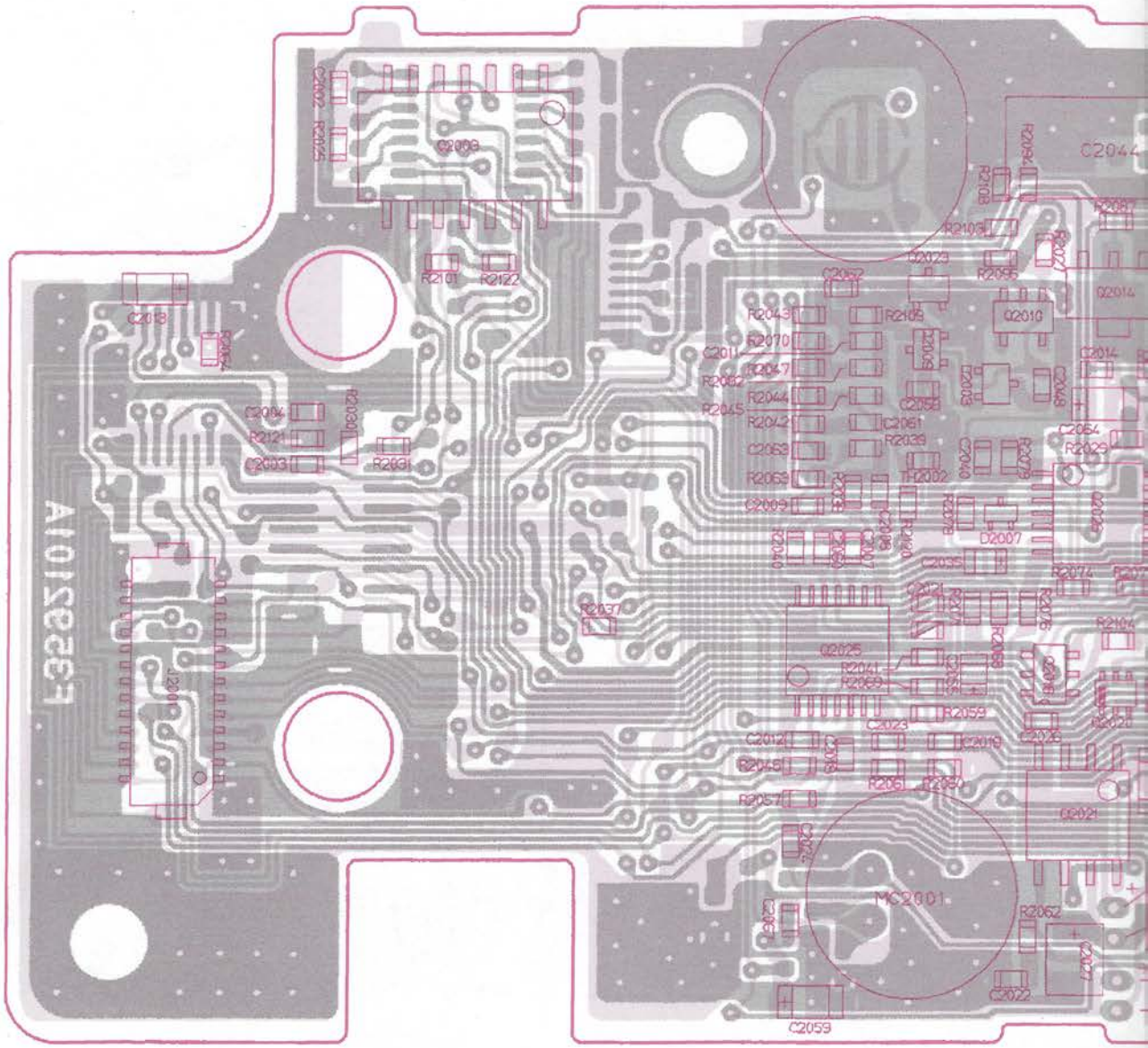


To RF Unit J1002
(See Page 3A-1, 3A-5)



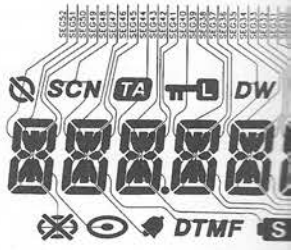
To Keypad Unit
(See Page 3D-1, 3D-3, 3E-1)

Notes:

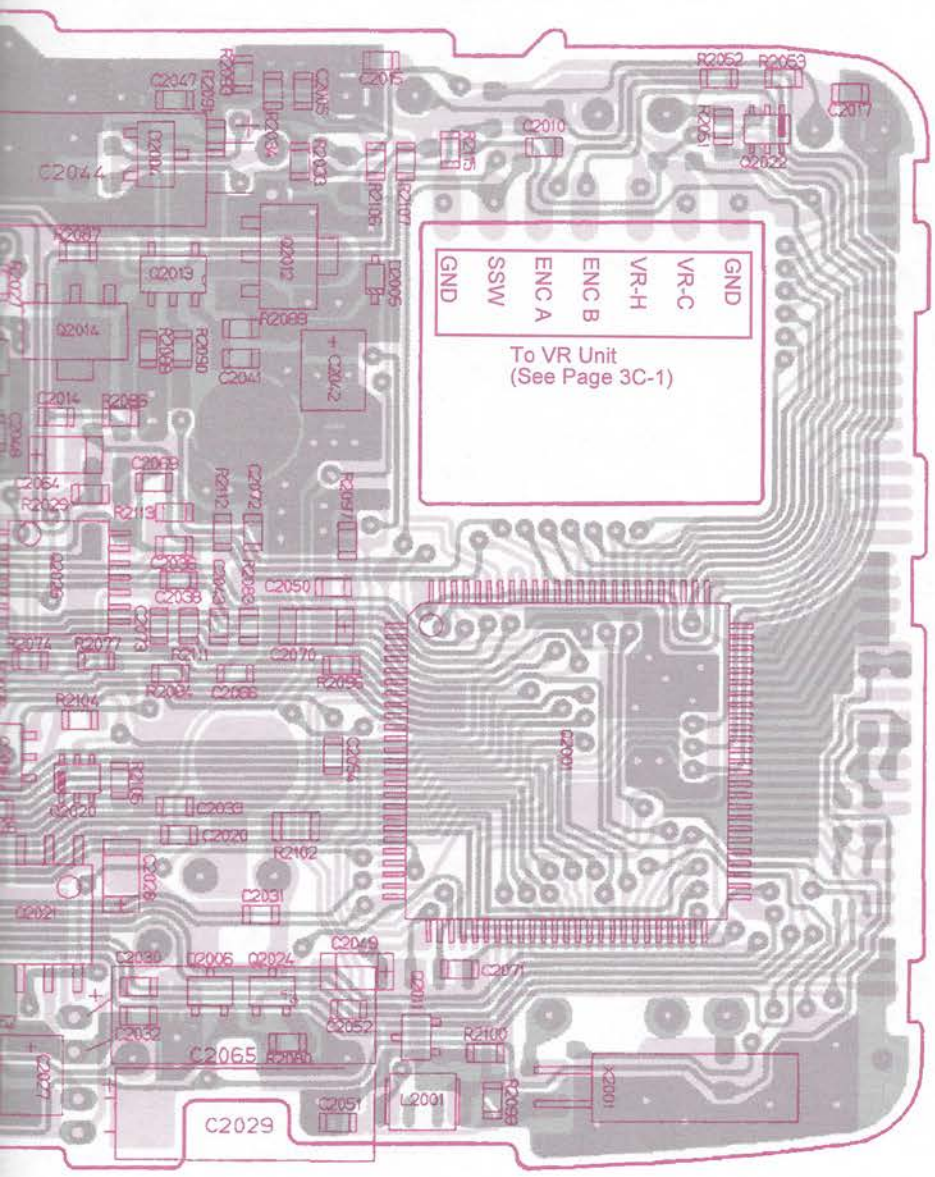


GND	KS5
KS4	KS3
KS2	KS1
MCLK	TRX
SDO	SCK
EDO	ECS2
TDET	TSTB
KEY4	KEY3
KEY2	KEY1
+B	+3V
SFT	MIC
MOD	AF
DISC	GND

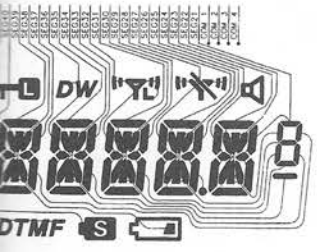
To Keypad Unit
(See Page 3D-1, 3E-1)



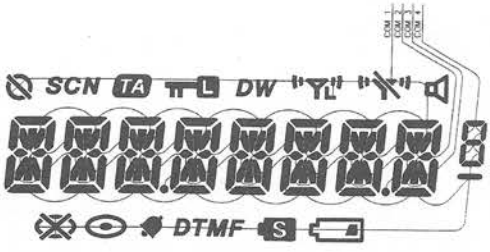
LCD Segmentation



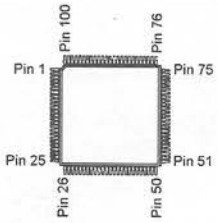
LCD Side



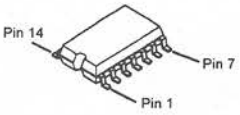
ntation Circuit Diagram



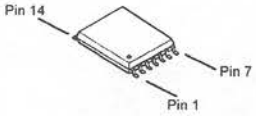
LCD Backplane Circuit Diagram



HD6473876UA
(Q2001)

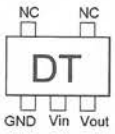


TC35305F
(Q2003)

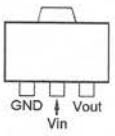


NJM2902V
(Q2025,2026)

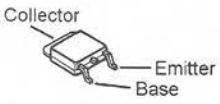
TDA7233D
(Q2021)



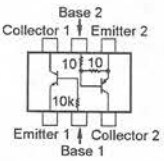
S-80730SN (DT)
(Q2010)



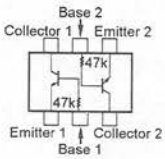
S-81230PG
(Q2012)



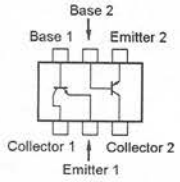
2SB1132Q (BA)
(Q2014)



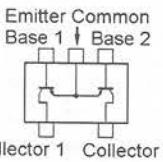
IMD10A (D10)
(Q2018)



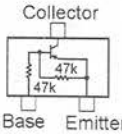
UMH3N (H3)
(Q2020)



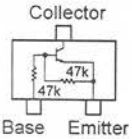
UMZ2N (Z2)
(Q2022)



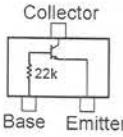
FMW1 (W1)
(Q2013)



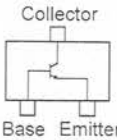
DTA144EU (16)
(Q2024)



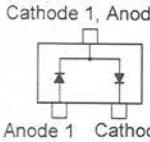
DTC144EU (26)
(Q2023)



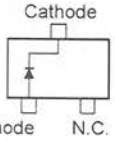
DTC124TU (05)
(Q2009)



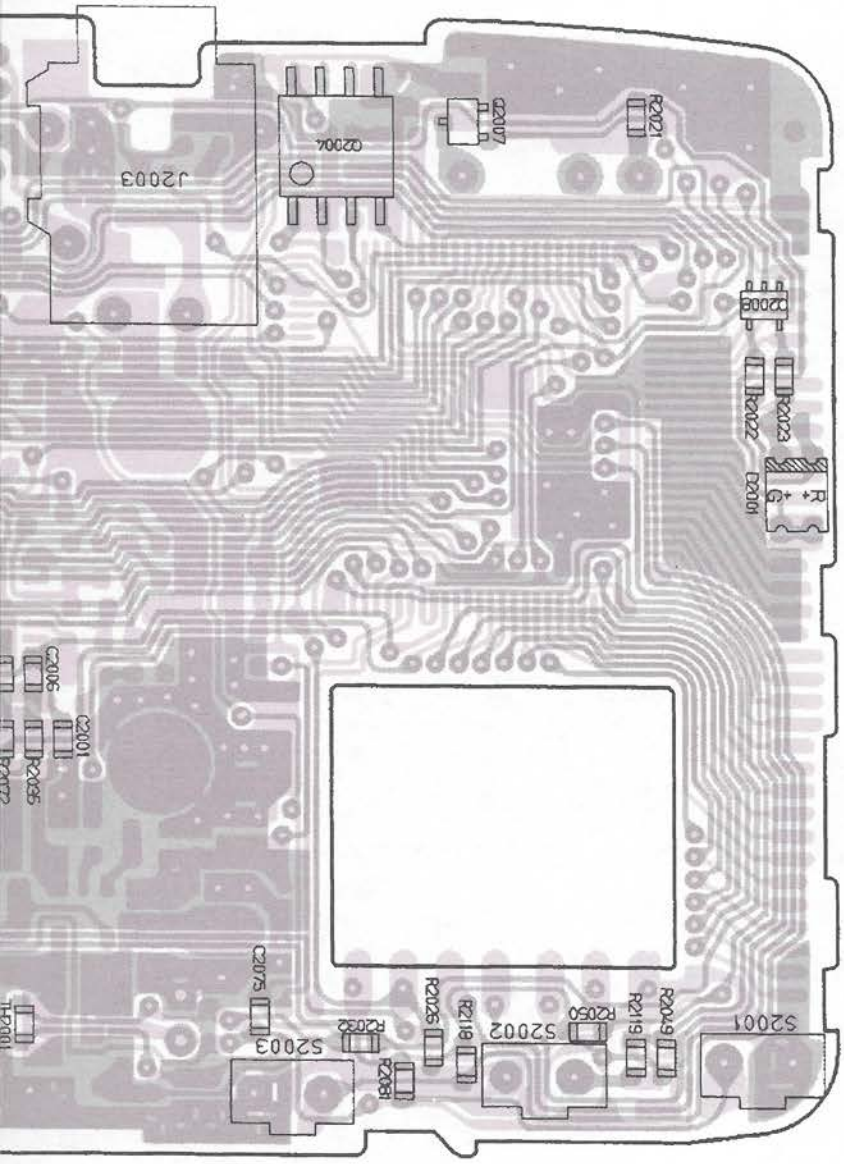
2SC4116GR (LG)
(Q2011)



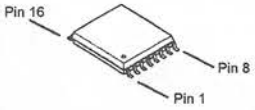
DA204U (K)
(D2003,2006,2007)
DA221 (K)
(D2007)



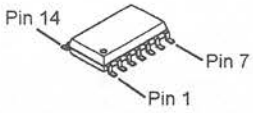
MA721 (M1M)
(D2004)



Component Side

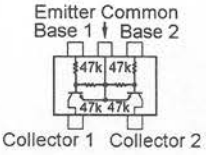


BU4053BCFV
(Q2002)
BU2090FS
(Q2005)

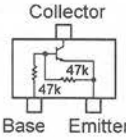


BU4094BCFV
(Q2006)

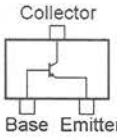
S-29430AFE
(Q2004)



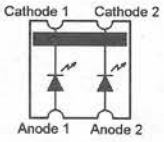
UMG2N (G2)
(Q2008)



DTC144EU (26)
(Q2007,2015)

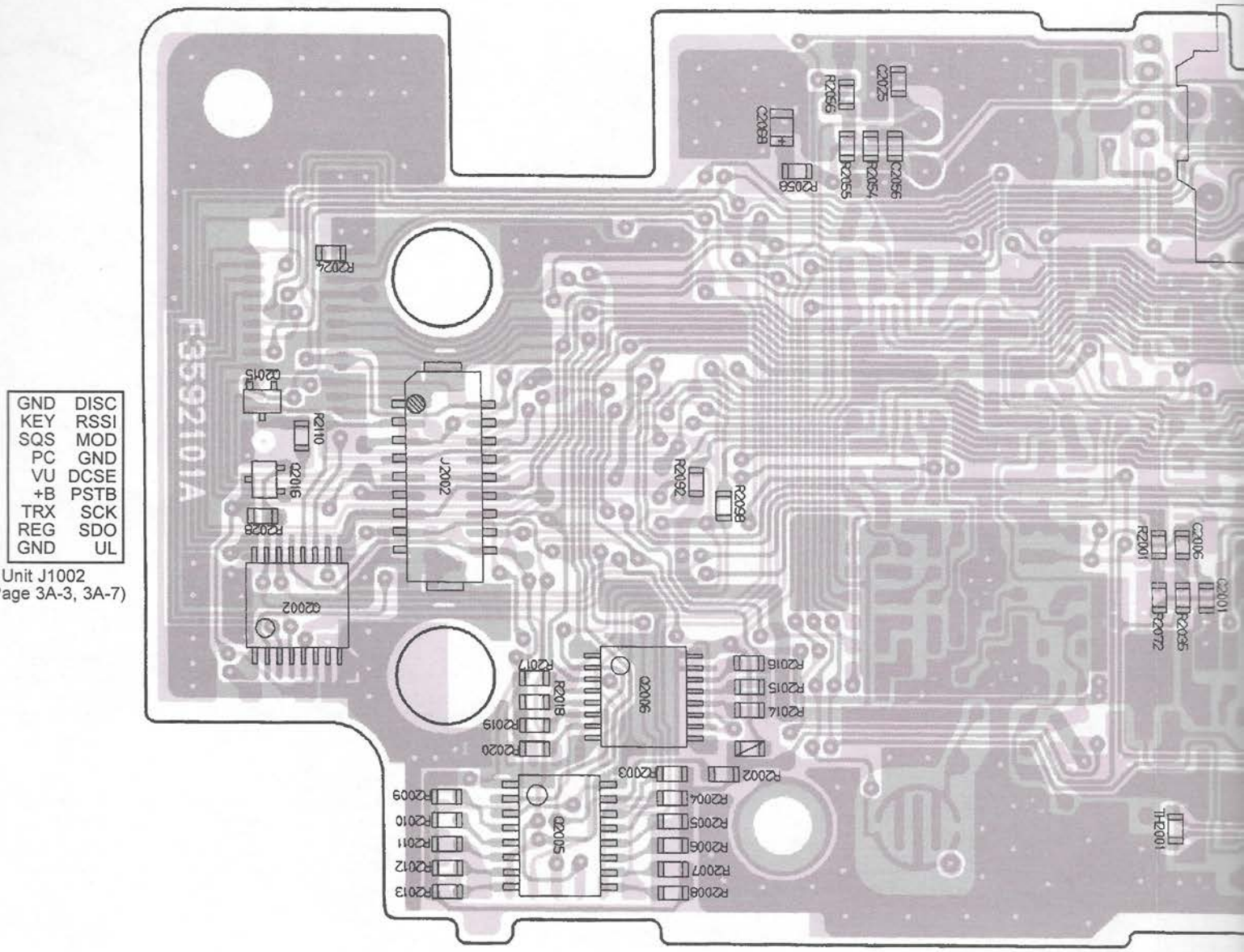


2SA1586Y (SY)
(Q2016)



CL-155UR
(D2001)

CNTL Unit (Lot. 6~)



GND	DISC
KEY	RSSI
SQS	MOD
PC	GND
VU	DCSE
+B	PSTB
TRX	SCK
REG	SDO
GND	UL

To RF Unit J1002
(See Page 3A-3, 3A-7)

Parts List

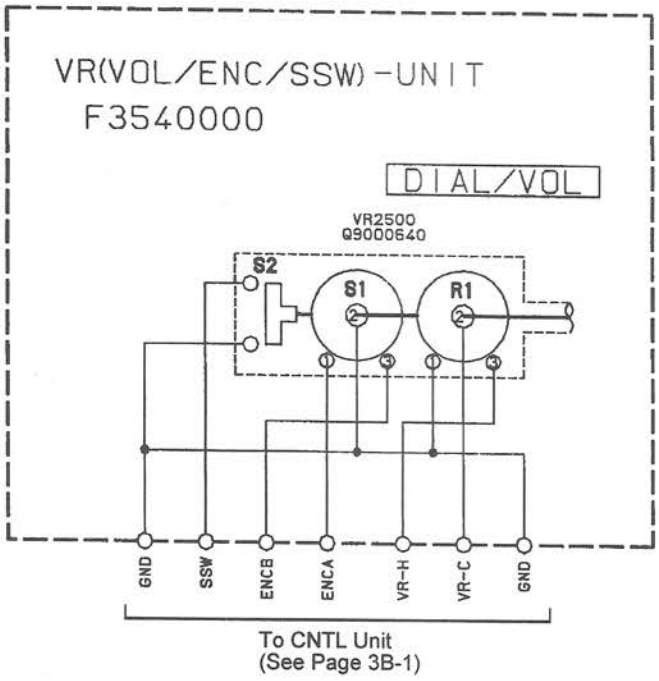
REF.	DESCRIPTION	VALUE	WV	TOL.	MFGR'S DESIG	YAESU P/N	VERS.	LOT.	LAY ADR
	*** CNTL UNIT ***								
	PCB with Components					CA1572001			
	PCB with Components					CA1572002	SEP 25	5-	
	PCB with Components					CA1572003	SEP 12.5	5-	
	Printed Circuit Board					F3592101			
	Printed Circuit Board					F3592101A		6-	
C 2001	CHIP CAP.	0.0047uF	B	50V	GRM39B472M50PT	K22174817			
C 2002	CHIP CAP.	0.0022uF	B	50V	GRM39B222M50PT	K22174813			
C 2003	CHIP CAP.	0.01uF	B	50V	GRM39B103M50PT	K22174823			
C 2004	CHIP CAP.	0.1uF	B	16V	GRM39B104K16PT	K22124805			
C 2005	CHIP CAP.	0.01uF	B	50V	GRM39B103M50PT	K22174823			
C 2006	CHIP CAP.	0.1uF	B	16V	GRM39B104K16PT	K22124805			
C 2007	CHIP CAP.	330pF	B	50V	GRM39B331M50PT	K22174803			
C 2007	CHIP CAP.	390pF	CH	50V	GRM39CH391J50PT	K22174255		6-	
C 2008	CHIP CAP.	0.0033uF	B	50V	ECUV1H332KBV	K22179620			
C 2009	CHIP CAP.	0.0018uF	B	50V	ECUV1H182KBV	K22179617			
C 2010	CHIP CAP.	0.1uF	B	16V	GRM39B104K16PT	K22124805			
C 2011	CHIP CAP.	39pF	CH	50V	GRM39CH390J50PT	K22174225			
C 2011	CHIP CAP.	390pF	CH	50V	GRM39CH391J50PT	K22174255		2-	
C 2012	CHIP CAP.	22pF	CH	50V	GRM39CH220J50PT	K22174219			
C 2013	TANTALUM CHIP CAP.	3.3uF		4V	TEMSVA20G335M-8R	K78060015			
C 2014	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 2015	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 2015	CHIP CAP.	100pF	CH	50V	GRM39CH101J50PT	K22174235		3-	
C 2017	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 2018	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 2019	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 2020	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 2021	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 2022	CHIP CAP.	0.1uF	B	16V	GRM39B104K16PT	K22124805			
C 2023	CHIP CAP.	100pF	CH	50V	GRM39CH101J50PT	K22174235			
C 2023	CHIP CAP.	220pF	CH	50V	GRM39CH221J50PT	K22174243		2-	
C 2024	CHIP CAP.	0.1uF	B	16V	GRM39B104K16PT	K22124805			
C 2025	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 2026	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 2027	TANTALUM CHIP CAP.	4.7uF		6.3V	TEMSVA0J475M-8R	K78080017			
C 2028	TANTALUM CHIP CAP.	4.7uF		6.3V	TEMSVA0J475M-8R	K78080017			
C 2029	AL.ELECTRO.CAP.	220uF		10V	CEDSM1A221M	K40109027			
C 2030	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 2031	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 2032	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 2033	CHIP CAP.	100pF	CH	50V	GRM39CH101J50PT	K22174235			
C 2035	TANTALUM CHIP CAP.	1uF		6.3V	TESVSP0J105M-8R	K78080028			
C 2036	CHIP CAP.	0.0022uF	B	50V	GRM39B222K50PT	K22174822			
C 2038	CHIP CAP.	0.0022uF	B	50V	GRM39B222K50PT	K22174822			
C 2040	CHIP CAP.	0.0018uF	B	50V	ECUV1H182KBV	K22179617			
C 2041	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 2042	TANTALUM CHIP CAP.	33uF		6.3V	TEMSVB20J336M-8R	K78080030			
C 2043	CHIP CAP.	0.047uF	B	16V	GRM39B473K16PT	K22124804			
C 2044	AL.ELECTRO.CAP.	100uF		16V	RE3-16V101M	K40129063			
C 2047	CHIP CAP.	0.1uF	F	25V	GRM39F104Z25PT	K22145001			
C 2047	CHIP CAP.	0.1uF	F	16V	GRM39B104K16PT	K22124805		5-	
C 2048	CHIP CAP.	0.1uF	B	16V	GRM39B104K16PT	K22124805			
C 2049	TANTALUM CHIP CAP.	4.7uF		6.3V	TEMSVA0J475M-8R	K78080017			
C 2050	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 2051	CHIP CAP.	10pF	CH	50V	GRM39CH100C50PT	K22174248			
C 2052	CHIP CAP.	10pF	CH	50V	GRM39CH100C50PT	K22174248			
C 2053	CHIP CAP.	2pF	CK	50V	GRM39CK020C50PT	K22174203		-2	
C 2054	CHIP CAP.	10pF	CH	50V	GRM39CH100C50PT	K22174248			
C 2055	TANTALUM CHIP CAP.	1uF		6.3V	TESVSP0J105M-8R	K78080028			
C 2056	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 2058	CHIP CAP.	0.001uF	B	50V	GRM39B102K50PT	K22174821			
C 2059	TANTALUM CHIP CAP.	4.7uF		6.3V	TEMSVA0J475M-8R	K78080017			
C 2060	CHIP CAP.	390pF	B	50V	GRM39B391M50PT	K22174804			
C 2060	CHIP CAP.	390pF	CH	50V	GRM39CH391J50PT	K22174255		6-	
C 2061	CHIP CAP.	0.1uF	B	16V	GRM39B104K16PT	K22124805			
C 2062	CHIP CAP.	0.0047uF	B	50V	GRM39B472M50PT	K22174817			

REF.	DESCRIPTION	VALUE	WV	TOL.	MFGR'S DESIG	YAESU P/N	VERS.	LOT.	LAY ADR
C 2063	CHIP CAP.	0.001uF	B	50V	GRM39B102K50PT	K22174821			
C 2064	TANTALUM CHIP CAP.	4.7uF		6.3V	TEMSVA0J475M-8R	K78080017			
C 2064	TANTALUM CHIP CAP.	10uF		6.3V	TEMSVA0J106M-8R	K78080027		6-	
C 2065	AL.ELECTRO.CAP.	100uF		10V	UVR1A101MDA6CY	K40109033			
C 2066	CHIP CAP.	0.033uF	R	16V	GRM39R333K16PT	K22124801			
C 2067	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809			
C 2068	CHIP CAP.	0.0047uF	B	50V	GRM39B472M50PT	K22174817			
C 2069	CHIP CAP.	0.047uF	B	16V	GRM39B473K16PT	K22124804			
C 2070	TANTALUM CHIP CAP.	10uF		6.3V	TEMSVA0J106M-8R	K78080027		6-	
C 2071	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809		6-	
C 2075	CHIP CAP.	0.001uF	B	50V	GRM39B102M50PT	K22174809		6-	
D 2001	LED				CL-155UR/G-D-T	G2070278			
D 2002	LED				LUB1006D	G2090619			
D 2003	DIODE				DA204U T106	G2070242			
D 2004	DIODE				MA721(TX)	G2070298			
D 2005	DIODE				HZU4ALL-TR	G2070428			
D 2006	DIODE				DA204U T106	G2070242			
D 2007	DIODE				DA204U T106	G2070242			
D 2007	DIODE				DA221	G2070178		6-	
DS2001	LCD				FSD-15396AC	G6090121			
J 2001	CONNECTOR				9820B-26Y700	P0091101			
J 2002	CONNECTOR				CPB8618-0551	P0091010			
J 2003	CONNECTOR				HSJ1594-010055	P1090896			
L 2001	M.RFC	180uH			FLC32T-181J	L1690230			
MC2001	MIC ELEMENT				EM-100PT	M3290029			
Q 2001	IC				HD6473876UA44X	G1092503			
Q 2002	IC				BU4053BCFV-E1	G1092064			
Q 2003	IC				TC35305F-11 TP2	G1091177			
Q 2004	IC				S-29430AFE-TF	G1092188			
Q 2005	IC				BU2090FS-E1	G1092187			
Q 2006	IC				BU4094BCFV-E1	G1092128			
Q 2007	TRANSISTOR				DTC144EU T107	G3070041			
Q 2008	TRANSISTOR				UMG2N TL	G3070088			
Q 2009	TRANSISTOR				DTC124TU T106	G3070065			
Q 2010	IC				S-80730SN-DT-T1	G1091875			
Q 2011	TRANSISTOR				2SC4116GR TE85R	G3341167G			
Q 2012	IC				S-81230PG-PB-T1	G1092045			
Q 2013	TRANSISTOR				FMW1 T98	G3070009			
Q 2014	TRANSISTOR				2SB1132 T100 Q	G3211327Q			
Q 2015	TRANSISTOR				DTC144EU T107	G3070041			
Q 2016	TRANSISTOR				2SA1586Y TE85R	G3115867Y			
Q 2018	TRANSISTOR				IMD10A T108	G3070159			
Q 2020	TRANSISTOR				UMH3N TN	G3070101			
Q 2021	IC				TDA7233D-TR	G1091112			
Q 2022	TRANSISTOR				UMZ2N TR	G3070117			
Q 2023	TRANSISTOR				DTC144EU T107	G3070041			
Q 2024	TRANSISTOR				DTA144EU T106	G3070079			
Q 2025	IC				NJM2902V-TE1	G1091679			
Q 2026	IC				NJM2902V-TE1	G1091679			
R 2001	CHIP RES.	0	5%	1/16W	RMC1/16 000JATP	J24185000			
R 2002	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 2003	CHIP RES.	22K	5%	1/16W	RMC1/16 223JATP	J24185223			
R 2003	CHIP RES.	20K	1%	1/16W	RMC1/16 203FTP	J24183203		4-	
R 2004	CHIP RES.	39K	5%	1/16W	RMC1/16 393JATP	J24185393			
R 2005	CHIP RES.	82K	5%	1/16W	RMC1/16 823JATP	J24185823			
R 2006	CHIP RES.	150K	5%	1/16W	RMC1/16 154JATP	J24185154			
R 2007	CHIP RES.	4.7K	5%	1/16W	RMC1/16 472JATP	J24185472			
R 2008	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 2009	CHIP RES.	330K	5%	1/16W	RMC1/16 334JATP	J24185334			
R 2010	CHIP RES.	150K	5%	1/16W	RMC1/16 154JATP	J24185154			

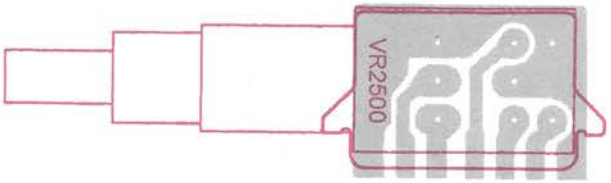
REF.	DESCRIPTION	VALUE	WV	TOL.	MFGR'S DESIG	YAESU P/N	VERS.	LOT.	LAY ADR
R 2011	CHIP RES.	82K	5%	1/16W	RMC1/16 823JATP	J24185823			
R 2012	CHIP RES.	39K	5%	1/16W	RMC1/16 393JATP	J24185393			
R 2013	CHIP RES.	22K	5%	1/16W	RMC1/16 223JATP	J24185223			
R 2013	CHIP RES.	20K	1%	1/16W	RMC1/16 203FTP	J24183203		4-	
R 2014	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 2015	CHIP RES.	22K	5%	1/16W	RMC1/16 223JATP	J24185223			
R 2015	CHIP RES.	20K	1%	1/16W	RMC1/16 203FTP	J24183203		4-	
R 2016	CHIP RES.	39K	5%	1/16W	RMC1/16 393JATP	J24185393			
R 2017	CHIP RES.	680K	5%	1/16W	RMC1/16 684JATP	J24185684			
R 2018	CHIP RES.	330K	5%	1/16W	RMC1/16 334JATP	J24185334			
R 2019	CHIP RES.	150K	5%	1/16W	RMC1/16 154JATP	J24185154			
R 2020	CHIP RES.	82K	5%	1/16W	RMC1/16 823JATP	J24185823			
R 2021	CHIP RES.	150	5%	1/16W	RMC1/16 151JATP	J24185151			
R 2022	CHIP RES.	150	5%	1/16W	RMC1/16 151JATP	J24185151			
R 2023	CHIP RES.	330	5%	1/16W	RMC1/16 331JATP	J24185331			
R 2024	CHIP RES.	47K	5%	1/16W	RMC1/16 473JATP	J24185473			
R 2025	CHIP RES.	180K	5%	1/16W	RMC1/16 184JATP	J24185184			
R 2025	CHIP RES.	47K	5%	1/16W	RMC1/16 473JATP	J24185473		4-	
R 2026	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 2027	CHIP RES.	47K	5%	1/16W	RMC1/16 473JATP	J24185473			
R 2028	CHIP RES.	220K	5%	1/16W	RMC1/16 224JATP	J24185224			
R 2029	CHIP RES.	0	5%	1/16W	RMC1/16 000JATP	J24185000			
R 2029	CHIP RES.	470K	5%	1/16W	RMC1/16 474JATP	J24185474		6-	
R 2030	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 2031	CHIP RES.	47K	5%	1/16W	RMC1/16 473JATP	J24185473			
R 2031	CHIP RES.	47K	5%	1/16W	RMC1/16 473JATP	J24185473	SEP 25	5-	
R 2031	CHIP RES.	150K	5%	1/16W	RMC1/16 154JATP	J24185154	SEP 12.5	5-	
R 2032	CHIP RES.	1K	5%	1/16W	RMC1/16 102JATP	J24185102			
R 2033	CHIP RES.	2.7K	5%	1/16W	RMC1/16 272JATP	J24185272			
R 2034	CHIP RES.	5.6K	5%	1/16W	RMC1/16 562JATP	J24185562			
R 2035	CHIP RES.	180K	5%	1/16W	RMC1/16 184JATP	J24185184			
R 2037	CHIP RES.	15K	5%	1/16W	RMC1/16 153JATP	J24185153			
R 2037	CHIP RES.	15K	5%	1/16W	RMC1/16 153JATP	J24185153	SEP 25	5-	
R 2037	CHIP RES.	39K	5%	1/16W	RMC1/16 393JATP	J24185393	SEP 12.5	5-	
R 2038	CHIP RES.	39K	5%	1/16W	RMC1/16 393JATP	J24185393			
R 2039	CHIP RES.	47K	5%	1/16W	RMC1/16 473JATP	J24185473			
R 2040	CHIP RES.	39K	5%	1/16W	RMC1/16 393JATP	J24185393			
R 2041	CHIP RES.	2.2M	5%	1/16W	RMC1/16 225JATP	J24185225			
R 2042	CHIP RES.	47K	5%	1/16W	RMC1/16 473JATP	J24185473			
R 2043	CHIP RES.	3.3K	5%	1/16W	RMC1/16 332JATP	J24185332			
R 2044	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 2045	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 2046	CHIP RES.	470K	5%	1/16W	RMC1/16 474JATP	J24185474			
R 2047	CHIP RES.	0	5%	1/16W	RMC1/16 000JATP	J24185000			
R 2049	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 2050	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 2051	CHIP RES.	330K	5%	1/16W	RMC1/16 334JATP	J24185334			
R 2052	CHIP RES.	22K	5%	1/16W	RMC1/16 223JATP	J24185223			
R 2053	CHIP RES.	22K	5%	1/16W	RMC1/16 223JATP	J24185223			
R 2054	CHIP RES.	2.2K	5%	1/16W	RMC1/16 222JATP	J24185222			
R 2055	CHIP RES.	1K	5%	1/16W	RMC1/16 102JATP	J24185102			
R 2056	CHIP RES.	470	5%	1/16W	RMC1/16 471JATP	J24185471			
R 2057	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 2058	CHIP RES.	100K	5%	1/16W	RMC1/16 104JATP	J24185104			
R 2059	CHIP RES.	4.7K	5%	1/16W	RMC1/16 472JATP	J24185472			
R 2060	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 2061	CHIP RES.	150K	5%	1/16W	RMC1/16 154JATP	J24185154			
R 2062	CHIP RES.	10	5%	1/16W	RMC1/16 100JATP	J24185100			
R 2063	CHIP RES.	56K	5%	1/16W	RMC1/16 563JATP	J24185563			
R 2064	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 2065	CHIP RES.	0	5%	1/16W	RMC1/16 000JATP	J24185000		-5	
R 2066	CHIP RES.	0	5%	1/16W	RMC1/16 000JATP	J24185000		-5	
R 2068	CHIP RES.	0	5%	1/16W	RMC1/16 000JATP	J24185000			
R 2069	CHIP RES.	68K	5%	1/16W	RMC1/16 683JATP	J24185683			
R 2070	CHIP RES.	39K	5%	1/16W	RMC1/16 393JATP	J24185393			
R 2071	CHIP RES.	33K	5%	1/16W	RMC1/16 333JATP	J24185333			
R 2072	CHIP RES.	47K	5%	1/16W	RMC1/16 473JATP	J24185473			

REF.	DESCRIPTION	VALUE	WV	TOL.	MFGR'S DESIG	YAESU P/N	VERS.	LOT.	LAY ADR
R 2073	CHIP RES.	0	5%	1/8W	RMC1/8T 000J	J24215000		-5	
R 2074	CHIP RES.	0	5%	1/16W	RMC1/16 000JATP	J24185000			
R 2075	CARBON FILM RES.	470K	5%	1/6W	RD16UJ474	J02225474		-5	
R 2076	CHIP RES.	0	5%	1/16W	RMC1/16 000JATP	J24185000			
R 2077	CHIP RES.	1M	5%	1/16W	RMC1/16 105JATP	J24185105			
R 2078	CHIP RES.	33K	5%	1/16W	RMC1/16 333JATP	J24185333			
R 2079	CHIP RES.	2.2M	5%	1/16W	RMC1/16 225JATP	J24185225			
R 2080	CHIP RES.	100	5%	1/16W	RMC1/16 101JATP	J24185101			
R 2081	CHIP RES.	0	5%	1/16W	RMC1/16 000JATP	J24185000			
R 2082	CHIP RES.	470K	5%	1/16W	RMC1/16 474JATP	J24185474			
R 2083	CHIP RES.	100K	5%	1/16W	RMC1/16 104JATP	J24185104			
R 2084	CHIP RES.	33K	5%	1/16W	RMC1/16 333JATP	J24185333			
R 2085	CHIP RES.	0	5%	1/16W	RMC1/16 000JATP	J24185000		-5	
R 2086	CHIP RES.	8.2K	5%	1/16W	RMC1/16 822JATP	J24185822			
R 2087	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 2088	CHIP RES.	47K	5%	1/16W	RMC1/16 473JATP	J24185473			
R 2089	CHIP RES.	3.3K	5%	1/16W	RMC1/16 332JATP	J24185332			
R 2090	CHIP RES.	2.2K	5%	1/16W	RMC1/16 222JATP	J24185222			
R 2091	CHIP RES.	330K	5%	1/16W	RMC1/16 334JATP	J24185334			
R 2091	CHIP RES.	330K	1%	1/16W	RMC1/16 334FTP	J24183334		5-	
R 2092	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 2093	CHIP RES.	82K	5%	1/16W	RMC1/16 823JATP	J24185823			
R 2093	CHIP RES.	82K	1%	1/16W	RMC1/16 823FTP	J24183823		5-	
R 2094	CHIP RES.	47K	5%	1/16W	RMC1/16 473JATP	J24185473			
R 2095	CHIP RES.	100K	5%	1/16W	RMC1/16 104JATP	J24185104			
R 2096	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 2097	CHIP RES.	47	5%	1/16W	RMC1/16 470JATP	J24185470			
R 2098	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 2099	CHIP RES.	1M	5%	1/16W	RMC1/16 105JATP	J24185105			
R 2100	CHIP RES.	22K	5%	1/16W	RMC1/16 223JATP	J24185223			
R 2101	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 2102	CHIP RES.	4.7K	5%	1/10W	RMC1/10T 472J	J24205472			
R 2103	CHIP RES.	47K	5%	1/16W	RMC1/16 473JATP	J24185473			
R 2104	CHIP RES.	150	5%	1/16W	RMC1/16 151JATP	J24185151			
R 2105	CHIP RES.	4.7K	5%	1/16W	RMC1/16 472JATP	J24185472			
R 2106	CHIP RES.	10K	5%	1/16W	RMC1/16 103JATP	J24185103			
R 2107	CHIP RES.	0	5%	1/16W	RMC1/16 000JATP	J24185000			
R 2108	CHIP RES.	100K	5%	1/16W	RMC1/16 104JATP	J24185104			
R 2109	CHIP RES.	5.6K	5%	1/16W	RMC1/16 562JATP	J24185562			
R 2110	CHIP RES.	100K	5%	1/16W	RMC1/16 104JATP	J24185104			
R 2111	CHIP RES.	100K	5%	1/16W	RMC1/16 104JATP	J24185104			
R 2112	CHIP RES.	100K	5%	1/16W	RMC1/16 104JATP	J24185104			
R 2113	CHIP RES.	100K	5%	1/16W	RMC1/16 104JATP	J24185104			
R 2115	CHIP RES.	0	5%	1/16W	RMC1/16 000JATP	J24185000			
R 2117	CARBON FILM RES.	47K	5%	1/6W	RD16PT473	J01225473		-5	
R 2118	CHIP RES.	47K	5%	1/16W	RMC1/16 473JATP	J24185473		6-	
R 2119	CHIP RES.	220	5%	1/16W	RMC1/16 221JATP	J24185221		6-	
R 2120	CHIP RES.	0	5%	1/16W	RMC1/16 000JATP	J24185000		6-	
R 2122	CHIP RES.	22K	5%	1/16W	RMC1/16 223JATP	J24185223		6-	
S 2001	TACT SWITCH				JPM1990-0302	N5090093			
S 2002	TACT SWITCH				JPM1990-0302	N5090093			
S 2003	TACT SWITCH				JPM1990-0302	N5090093			
TH2001	THERMISTER				TBPS1R473K475H5Q	G9090068			
X 2001	XTAL	3.579545MHz				H0103127			
	LCD HOLDER					R0521560C			
	SHIELD SHEET					R0522980			
	SHIELD SHEET					R0522980A		6-	
	HOLDER RUBBER (MIC)					R3152460A			
	STUD					R6153690			
	INTER CONNECTOR (LCD)					R7152400A			

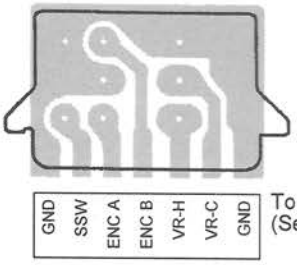
Circuit Diagram



Parts Layout



Component Side



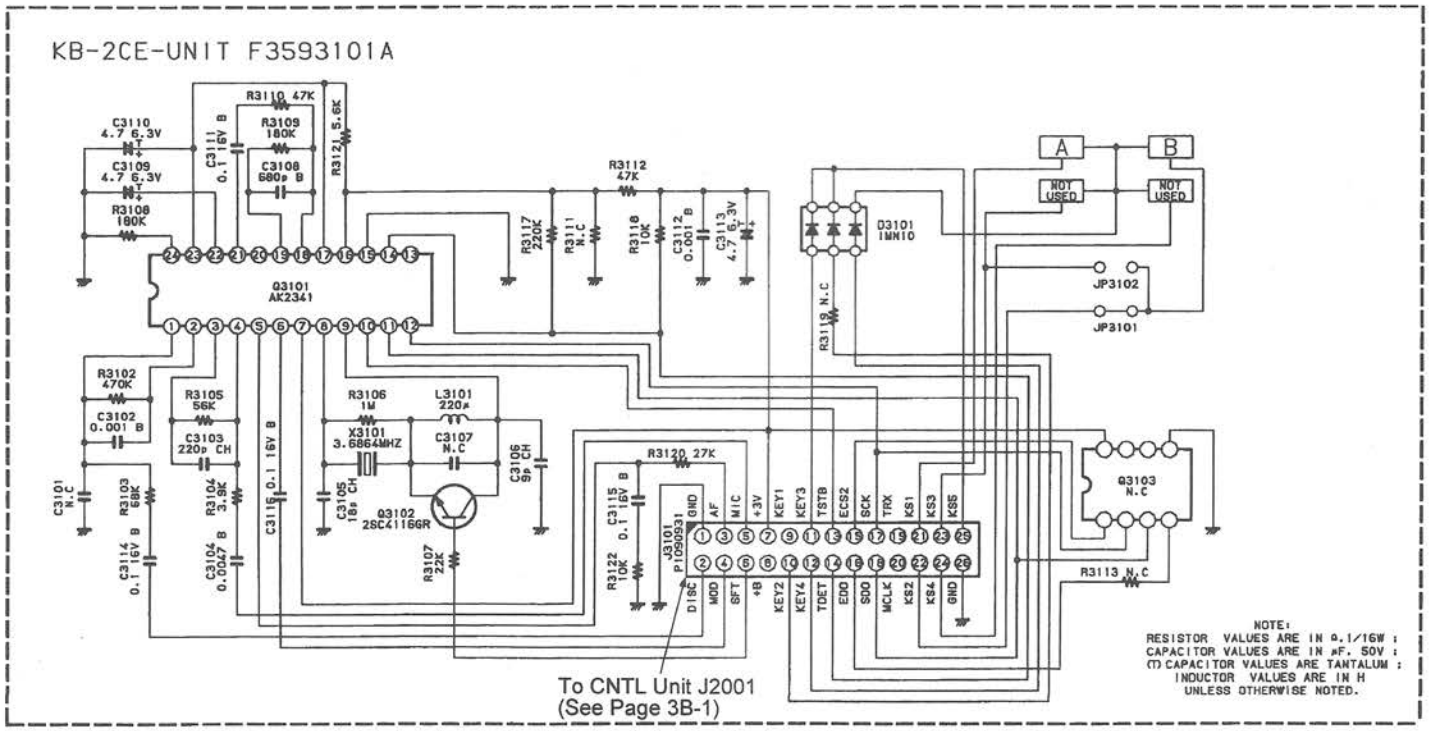
Solder Side

Parts List

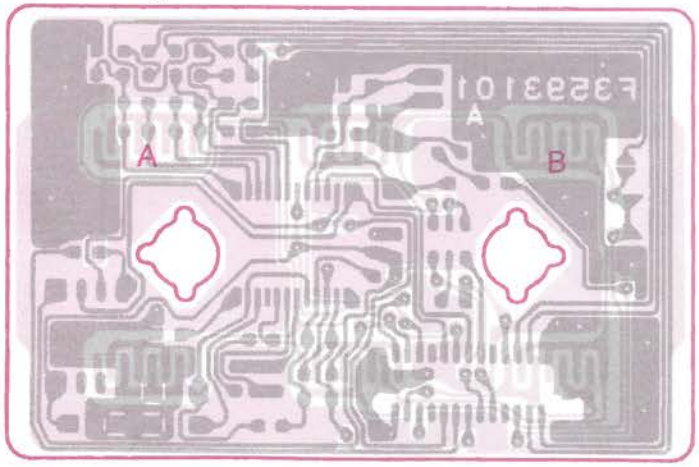
REF.	DESCRIPTION	VALUE	WV	TOL.	MFGR'S DESIG	YAESU P/N	VERS.	LOT.	LAY ADR
	*** VR UNIT ***								
	PCB with Components					CA1594001			
	Printed Circuit Board					F3540000			
VR2500	ROTARY CODE S.W.				TP96D96AE20	Q9000640			

Notes:

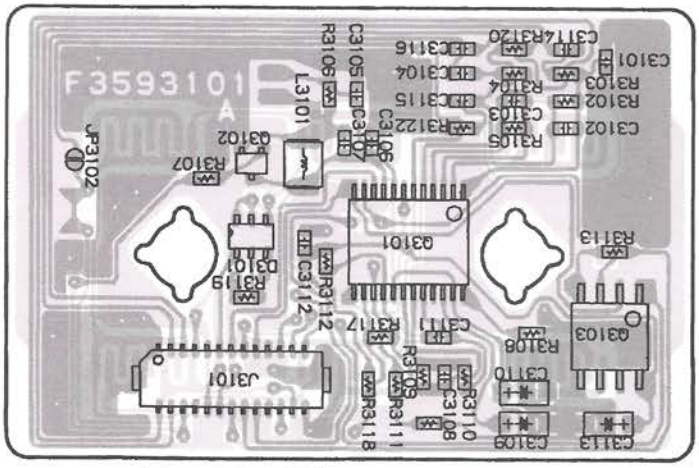
Circuit Diagram



Parts Layout



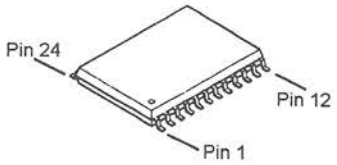
Keypad Side



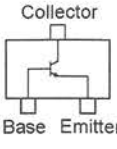
GND AF MIC +3V KEY1 KEY3 TSTB ECS2 SCK TRX KS1 KS3 KS5
DISC MOD SFT +B KEY2 KEY4 TDET EDO SDO MCLK KS2 KS4 GND

To CNTL Unit J2001 (See Page 3B-3)

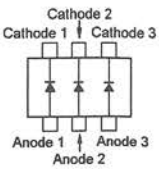
Chip Side



AK2341
(Q3101)



2SC4116GR (LG)
(Q3102)

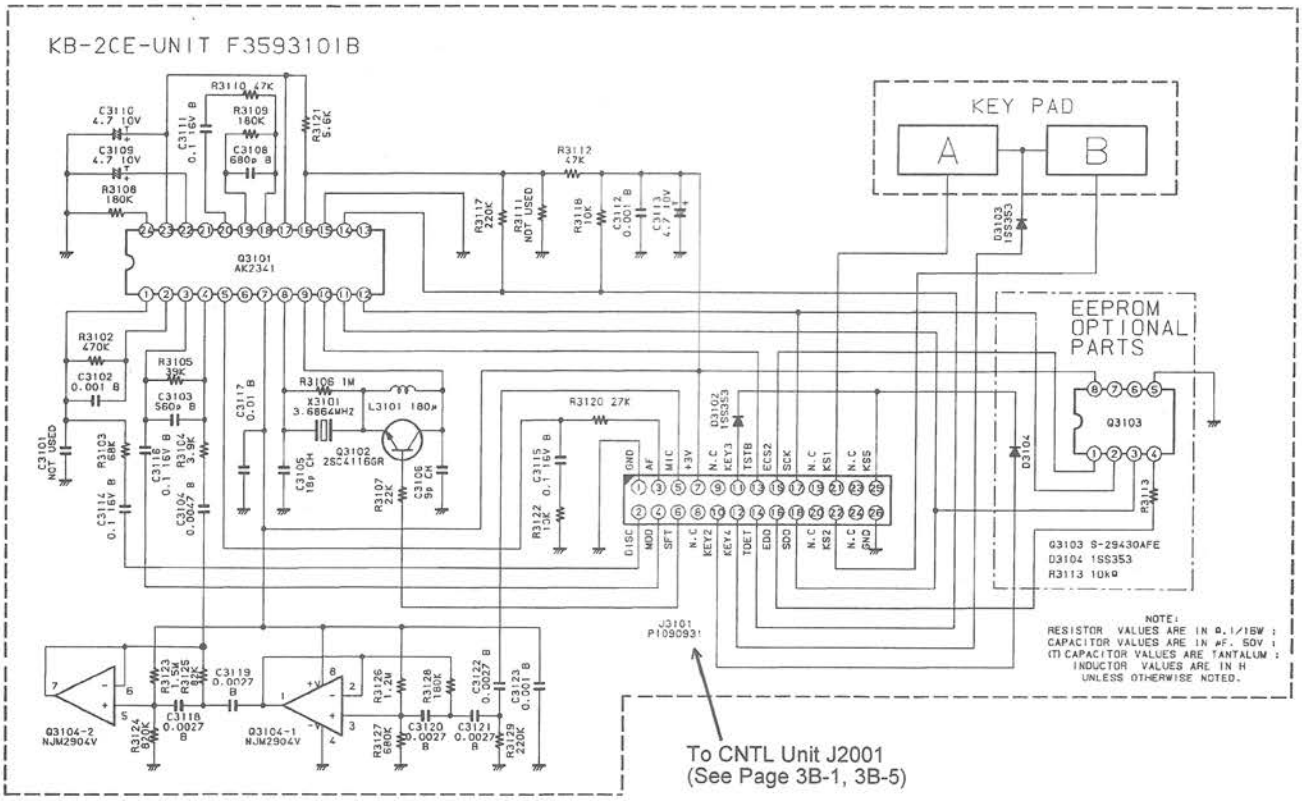


IMN10 (N10)
(D3101)

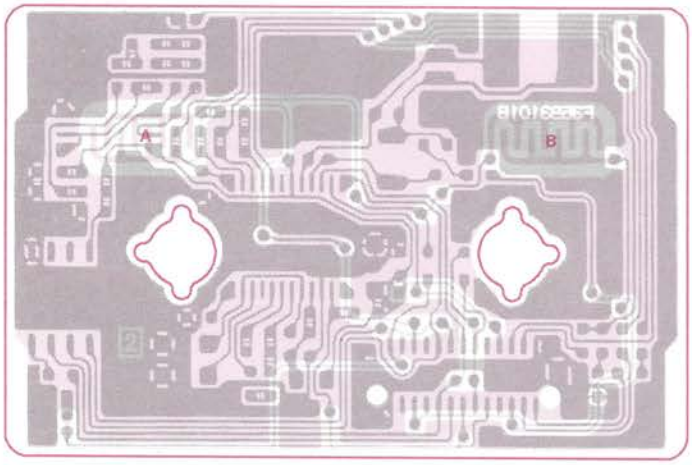
FTT-14 Keypad

Notes:

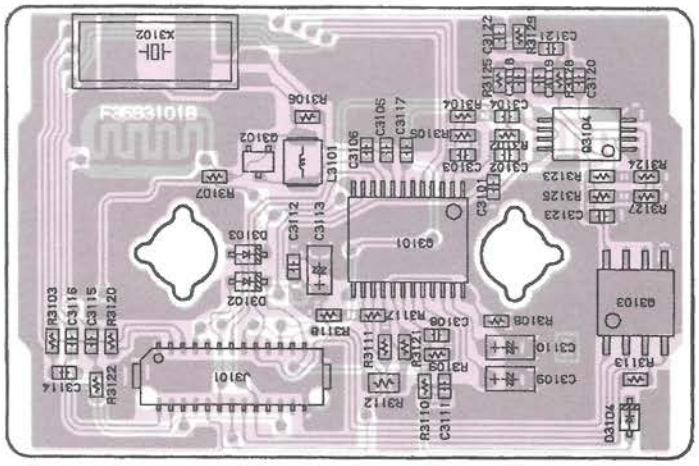
Circuit Diagram



Parts Layout



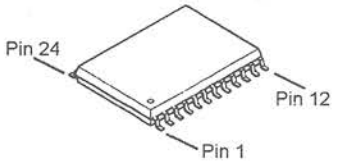
Keypad Side



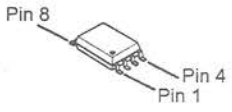
Chip Side

DISC	MOD	SFT	+B	KEY4	TDET	EDO	SDO	MCLK	KS4	GND	GND	AF	MIC	+3V	KEY1	KEY3	TSTB	ECS2	SCK	KS1	KS5		

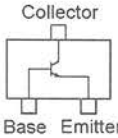
To CNTL Unit J2001
(See Page 3B-3, 3B-7)



AK2341
(Q3101)



NJM2904V
(Q3104)



2SC4116GR (LG)
(Q3102)

FTT-14 Keypad (Lot. 6~)

Notes:

Parts List

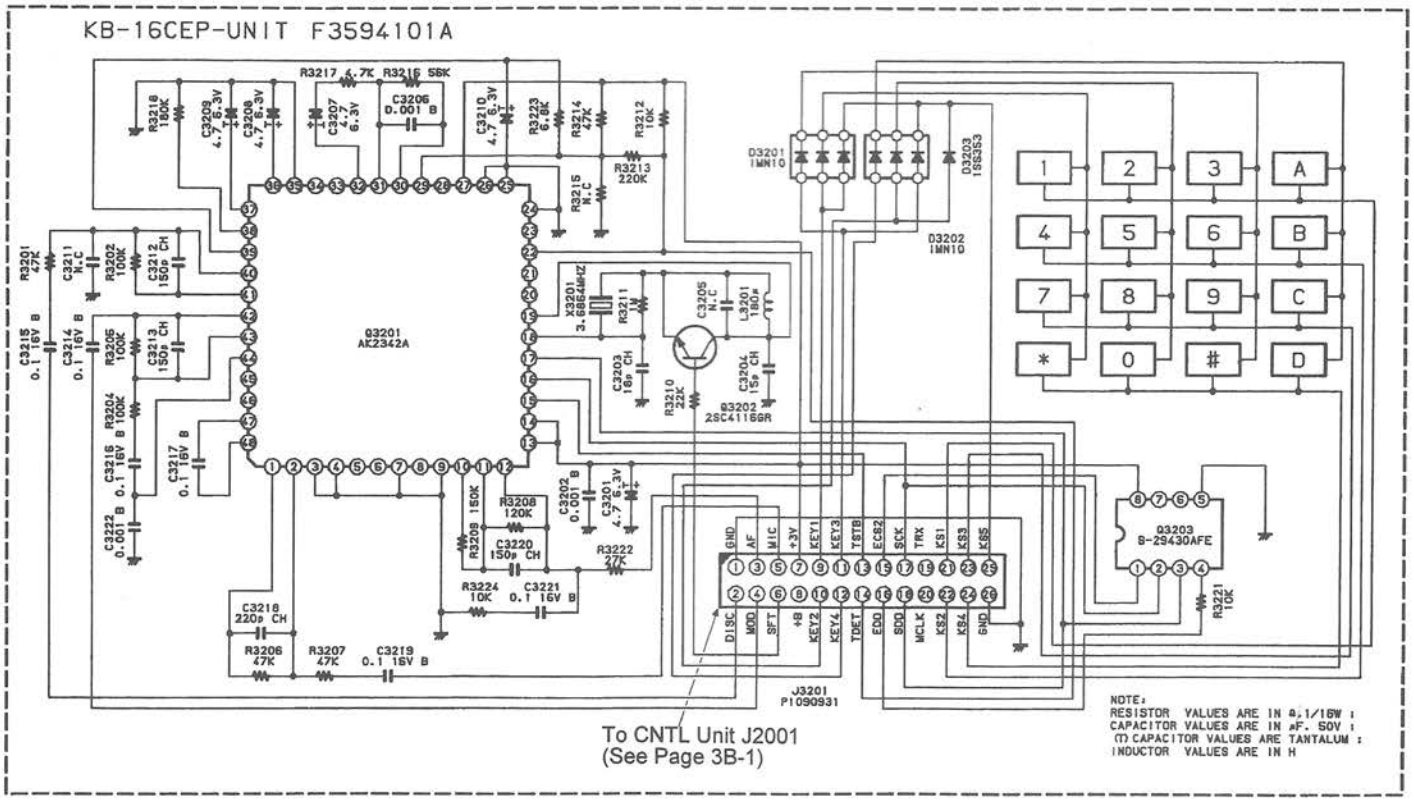
REF.	DESCRIPTION	VALUE	WV	TOL.	MFGR'S DESIG	YAESU P/N	VERS.	LOT.	LAY ADR
		*** FTT-14 ***							
	Printed Circuit Board					F3593101A			
	Printed Circuit Board					F3593101B		6-	
C 3102	CHIP CAP.	0.001uF	50V	B	GRM39B102M50PT	K22174809			
C 3102	CHIP CAP.	0.001uF	50V		ECUV1H102KBV	K22179614		6-	
C 3103	CHIP CAP.	220pF	50V	CH	GRM39CH221J50PT	K22174243			
C 3103	CHIP CAP.	470pF	50V	CH	GRM39CH471J50PT	K22174249		2-	
C 3103	CHIP CAP.	560pF	50V		ECUV1H561KBV	K22179611		6-	
C 3104	CHIP CAP.	0.0047uF	50V	B	GRM39B472M50PT	K22174817			
C 3104	CHIP CAP.	0.0047uF	50V		ECUV1H472KBV	K22179622		6-	
C 3105	CHIP CAP.	18pF	50V	CH	GRM39CH180J50PT	K22174217			
C 3105	CHIP CAP.	12pF	50V	CH	GRM39CH120J50PT	K22174213		8-	
C 3106	CHIP CAP.	9pF	50V	CH	GRM39CH090D50PT	K22174210			
C 3106	CHIP CAP.	18pF	50V	CH	GRM39CH180J50PT	K22174217		2-	
C 3106	CHIP CAP.	9pF	50V	CH	GRM39CH090D50PT	K22174210		3-	
C 3106	CHIP CAP.	12pF	50V	CH	GRM39CH120J50PT	K22174213		8-	
C 3108	CHIP CAP.	680pF	50V	B	GRM39B681M50PT	K22174807			
C 3108	CHIP CAP.	680pF	50V		ECUVH681KBV	K22179612		6-	
C 3109	TANTALUM CHIP CAP.	4.7uF	6.3V		TEMSVA0J475M-8R	K78080017			
C 3109	TANTALUM CHIP CAP.	4.7uF	6.3V		TEMSVA21A475M-8R	K78100045		6-	
C 3110	TANTALUM CHIP CAP.	4.7uF	6.3V		TEMSVA0J475M-8R	K78080017			
C 3110	TANTALUM CHIP CAP.	4.7uF	6.3V		TEMSVA21A475M-8R	K78100045		6-	
C 3111	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805			
C 3112	CHIP CAP.	0.001uF	50V	B	GRM39B102M50PT	K22174809			
C 3112	CHIP CAP.	0.001uF	50V		ECUV1H102KBV	K22179614		6-	
C 3113	TANTALUM CHIP CAP.	4.7uF	6.3V		TEMSVA0J475M-8R	K78080017			
C 3113	TANTALUM CHIP CAP.	4.7uF	6.3V		TEMSVA21A475M-8R	K78100045		6-	
C 3114	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805			
C 3115	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805			
C 3116	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805			
C 3117	CHIP CAP.	0.01uF	50V		ECUV1H103KBV	K22179626		6-	
C 3118	CHIP CAP.	0.0047uF	50V		ECUV1H272KBV	K22179619		6-	
C 3119	CHIP CAP.	0.0047uF	50V		ECUV1H272KBV	K22179619		6-	
C 3120	CHIP CAP.	0.0047uF	50V		ECUV1H272KBV	K22179619		6-	
C 3121	CHIP CAP.	0.0047uF	50V		ECUV1H272KBV	K22179619		6-	
C 3122	CHIP CAP.	0.0047uF	50V		ECUV1H272KBV	K22179619		6-	
C 3123	CHIP CAP.	0.001uF	50V		ECUV1H102KBV	K22179614		6-	
D 3101	DIODE				IMN10 T108	G2070078		-5	
D 3102	DIODE				1SS353	G2070394		6-	
D 3103	DIODE				1SS353	G2070394		6-	
J 3101	CONNECTOR				9820S-26Y913	P1090931			
L 3101	M.RFC	220uH			FLC32T-221J	L1690231			
L 3101	M.RFC	180uH			FLC32T-181J	L1690230		2-7	
Q 3101	IC				AK2341	G1091716			
Q 3102	TRANSISTOR				2SC4116GR TE85R	G3341167G		-7	
Q 3104	IC				NJM2904V-TE1	G1091677		6-	
R 3102	CHIP RES.	470K	1/16W	5%	RMC1/16 474JATP	J24185474			
R 3103	CHIP RES.	68K	1/16W	5%	RMC1/16 683JATP	J24185683			
R 3104	CHIP RES.	3.9K	1/16W	5%	RMC1/16 392JATP	J24185392			
R 3105	CHIP RES.	56K	1/16W	5%	RMC1/16 563JATP	J24185563			
R 3105	CHIP RES.	39K	1/16W	5%	RMC1/16 393JATP	J24185393		6-	
R 3106	CHIP RES.	1M	1/16W	5%	RMC1/16 105JATP	J24185105			
R 3107	CHIP RES.	22K	1/16W	5%	RMC1/16 223JATP	J24185223		-7	
R 3108	CHIP RES.	180K	1/16W	5%	RMC1/16 184JATP	J24185184			
R 3109	CHIP RES.	180K	1/16W	5%	RMC1/16 184JATP	J24185184			
R 3110	CHIP RES.	47K	1/16W	5%	RMC1/16 473JATP	J24185473			
R 3112	CHIP RES.	47K	1/16W	5%	RMC1/16 473JATP	J24185473			
R 3112	CHIP RES.	47K	1/10W	5%	RMC1/10 473J	J24205473		6-	
R 3117	CHIP RES.	220K	1/16W	5%	RMC1/16 224JATP	J24185224			
R 3118	CHIP RES.	10K	1/16W	5%	RMC1/16 103JATP	J24185103			
R 3120	CHIP RES.	27K	1/16W	5%	RMC1/16 273JATP	J24185273			
R 3121	CHIP RES.	5.6K	1/16W	5%	RMC1/16 562JATP	J24185562			

FTT-14 Keypad

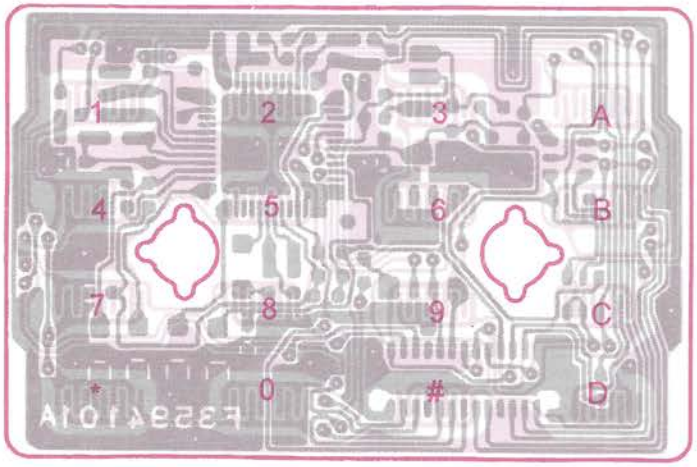
REF.	DESCRIPTION	VALUE	WV	TOL.	MFGR'S DESIG	YAESU P/N	VERS.	LOT.	LAY ADR
R 3122	CHIP RES.	10K	1/16W	5%	RMC1/16 103JATP	J24185103			
R 3123	CHIP RES.	1.5M	1/16W	5%	RMC1/16 155JATP	J24185155		6-	
R 3124	CHIP RES.	820K	1/16W	5%	RMC1/16 824JATP	J24185824		6-	
R 3125	CHIP RES.	82K	1/16W	5%	RMC1/16 823JATP	J24185823		6-	
R 3126	CHIP RES.	1.2M	1/16W	5%	RMC1/16 125JATP	J24185125		6-	
R 3127	CHIP RES.	680K	1/16W	5%	RMC1/16 684JATP	J24185684		6-	
R 3128	CHIP RES.	180K	1/16W	5%	RMC1/16 184JATP	J24185184		6-	
R 3129	CHIP RES.	220K	1/16W	5%	RMC1/16 224JATP	J24185224		6-	
R 3130	CHIP RES.	0	1/8W	5%	RMC1/8 000JATP	J24215000		8-	
X 3101	XTAL	3.6864MHz			CSA-310 3.6864MHz	H0102988		-5	
X 3102	XTAL	3.6864MHz			SX-1315 3.6864MHz	H0103153		6-	
	SHIELD SHEET (6KEY)					R0154570			
	SHIELD PLATE (6KEY)					R0523020			
	SUB PANEL (Y2N/2CE)					R3152750A	DST EXP		
	SUB PANEL (V2N/2CE)					R3152751A	DST VTX		
	O RING (KEY BLOCK)					R3154260			
	RUBBER KNOB (2KEY)					R3521680			

FTT-15 16-Button DTMF Paging Keypad w/Voice Encryption

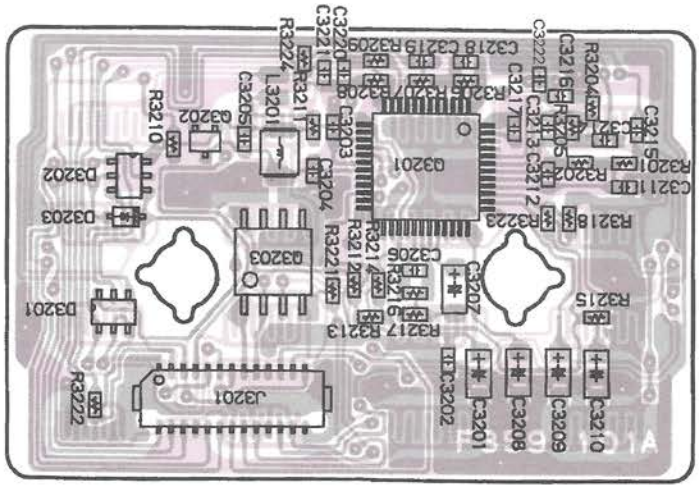
Circuit Diagram



Parts Layout



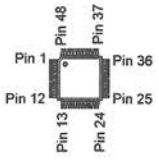
Keypad Side



DISC MOD SFT +B KEY2 KEY4 TDET EDO SDO MCLK KS2 GND
GND AF MIC +3V KEY1 KEY3 TSTB ECS2 SCK TRX KS1 KS3 KS5

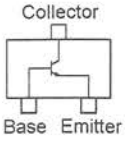
To CNTL Unit J2001
(See Page 3B-3)

Chip Side

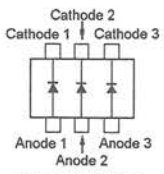


AK2342A
(Q3201)

S-29430AFE
(Q3203)



2SC4116GR (LG)
(Q3202)



IMN10 (N10)
(D3201,3202)

FTT-15 16-Button DTMF Paging Keypad w/Voice Encryption

Notes:

FTT-15 16-Button DTMF Paging Keypad w/Voice Encryption

Parts List

REF.	DESCRIPTION	VALUE	WV	TOL.	MFGR'S DESIG	YAESU P/N	VERS.	LOT.	LAY ADR
		*** FTT-15 ***							
	Printed Circuit Board					F3594101A			
C 3201	TANTALUM CHIP CAP.	4.7uF	6.3V		TEMSVA0J475M-8R	K78080017			
C 3202	CHIP CAP.	0.001uF	50V	B	GRM39B102M50PT	K22174809			
C 3203	CHIP CAP.	18pF	50V	CH	GRM39CH180J50PT	K22174217			
C 3204	CHIP CAP.	15pF	50V	CH	GRM39CH150J50PT	K22174215			
C 3206	CHIP CAP.	0.001uF	50V	B	GRM39B102M50PT	K22174809			
C 3207	TANTALUM CHIP CAP.	4.7uF	6.3V		TEMSVA0J475M-8R	K78080017			
C 3208	TANTALUM CHIP CAP.	4.7uF	6.3V		TEMSVA0J475M-8R	K78080017			
C 3209	TANTALUM CHIP CAP.	4.7uF	6.3V		TEMSVA0J475M-8R	K78080017			
C 3210	TANTALUM CHIP CAP.	4.7uF	6.3V		TEMSVA0J475M-8R	K78080017			
C 3211									
C 3212	CHIP CAP.	150pF	50V	CH	GRM39CH151J50PT	K22174239			
C 3213	CHIP CAP.	150pF	50V	CH	GRM39CH151J50PT	K22174239			
C 3214	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805			
C 3215	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805			
C 3216	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805			
C 3217	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805			
C 3218	CHIP CAP.	220pF	50V	CH	GRM39CH221J50PT	K22174243			
C 3219	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805			
C 3220	CHIP CAP.	150pF	50V	CH	GRM39CH151J50PT	K22174239			
C 3221	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805			
C 3222	CHIP CAP.	0.001uF	50V	B	GRM39B102M50PT	K22174809			
D 3201	DIODE				IMN10 T108	G2070078			
D 3202	DIODE				IMN10 T108	G2070078			
D 3203	DIODE				1SS353 TE-17	G2070394			
J 3201	CONNECTOR				9820S-26Y913	P1090931			
L 3201	M.RFC	180uH			FLC32T-181J	L1690230			
Q 3201	IC				AK2342A	G1092189			
Q 3202	TRANSISTOR				2SC4116GR TE85R	G3341167G			
Q 3203	IC				S-29430AFE-TF	G1092188			
R 3201	CHIP-RES.	47K	1/16W	5%	RMC1/16 473JATP	J24185473			
R 3202	CHIP RES.	100K	1/16W	5%	RMC1/16 104JATP	J24185104			
R 3204	CHIP RES.	100K	1/16W	5%	RMC1/16 104JATP	J24185104			
R 3205	CHIP RES.	100K	1/16W	5%	RMC1/16 104JATP	J24185104			
R 3206	CHIP RES.	47K	1/16W	5%	RMC1/16 473JATP	J24185473			
R 3207	CHIP RES.	47K	1/16W	5%	RMC1/16 473JATP	J24185473			
R 3208	CHIP RES.	120K	1/16W	5%	RMC1/16 124JATP	J24185124			
R 3209	CHIP RES.	150K	1/16W	5%	RMC1/16 154JATP	J24185154			
R 3210	CHIP RES.	22K	1/16W	5%	RMC1/16 223JATP	J24185223			
R 3211	CHIP RES.	1M	1/16W	5%	RMC1/16 105JATP	J24185105			
R 3212	CHIP RES.	10K	1/16W	5%	RMC1/16 103JATP	J24185103			
R 3213	CHIP RES.	220K	1/16W	5%	RMC1/16 224JATP	J24185224			
R 3214	CHIP RES.	47K	1/16W	5%	RMC1/16 473JATP	J24185473			
R 3216	CHIP RES.	56K	1/16W	5%	RMC1/16 563JATP	J24185563			
R 3217	CHIP RES.	4.7K	1/16W	5%	RMC1/16 472JATP	J24185472			
R 3218	CHIP RES.	180K	1/16W	5%	RMC1/16 184JATP	J24185184			
R 3221	CHIP RES.	10K	1/16W	5%	RMC1/16 103JATP	J24185103			
R 3222	CHIP RES.	27K	1/16W	5%	RMC1/16 273JATP	J24185273			
R 3223	CHIP RES.	6.8K	1/16W	5%	RMC1/16 682JATP	J24185682			
R 3224	CHIP RES.	10K	1/16W	5%	RMC1/16 103JATP	J24185103			
X 3201	XTAL	3.6864MHz				H0102988			
	SHIELD SHEET (16KEY)					R0154560			
	SHIELD PLATE (16KEY)					R0523010			
	SUB PANEL (Y16P/EC)					R3152732	DST EXP		
	SUB PANEL (V16P/EC)					R3152734	DST VTX		
	O RING (KEY BLOCK)					R3154260			
	RUBBER KNOB (16KEY)					R3521611			

Notes:

YAESU

*...leading the way.*SM

E07009002 (9611e-0A)