NEC EXTERNAL VFO

model CQ-201

INSTRUCTION MANUAL

The different regulations, particular in the 160, 80 and 40 meter bands require the DX and Award Hunter to complete his radio amateur station's transceiver with an additional external VFO.

We, Nippon Electric Company, Tokyo, have developed with our CQ-201 a modern DIGITAL VFO, which permits the DX-specialists not only to combine the CQ-201 with our CQ transceivers, but also with other transceivers having VFO ranges from 5.0 – 5.5, 8.2 – 8.7 and 8.9 – 9.4 MHz, so that many owners of non DIGITAL equipment can modify their stations with our CQ-201 into DIGITAL readout.

Further, the CQ-201 is usable as an independent frequency counter, allowing to measure unknown frequencies from 0 up to 30 MHz, with an accuracy of 1 Hz, and for example your transmitted signal can be watched and controlled with ease.

After having purchased our CQ-201 we are sure, that you recognize the advantages of an additional DIGITAL VFO immediately, particular its Digital readout and its versality will enjoy you very often.

CONTENTS

RATINGS

VFO Specifications

Frequency Range: (Output)	5.0 ~ 5.5 MHz; CQ-110E, VFO A 8.2 ~ 8.7 MHz; VFO B 8.9 ~ 9.4 MHz; VFO C
Output Voltage:	2Vp-p
Output Impedance:	50 ~ 100 ohms
Frequency Display:	Direct read.
Frequency Stability:	2 kHz (20°C) after warming up 100 Hz/30min.
f-CAL:	>2 KHz

Counter Unit Specifications

Measurement Frequency Coverage:	10 Hz ~ 30 MHz
Input Level:	0.1V(p-p) 100 KHz > 1V(p-p) 100 KHz <

Handling Instruction of CQ-201 EXT VFO

1. Field of Application of CQ-201

This EXTERIAL VFO CQ-201 may be used as not only exclusive external VFO but also a frequency counter for providing a frequency up to 30 MHz and further as external VFO having VFO output 5.0 to 5.5 MHz, 8.2 to 8.7 MHz and 8.9 to 9.4 MHz and being connected to a transmitter or receiver using these frequency ranges.

2. DESCRIPTION OF THE PANEL

2-1. Front Panel

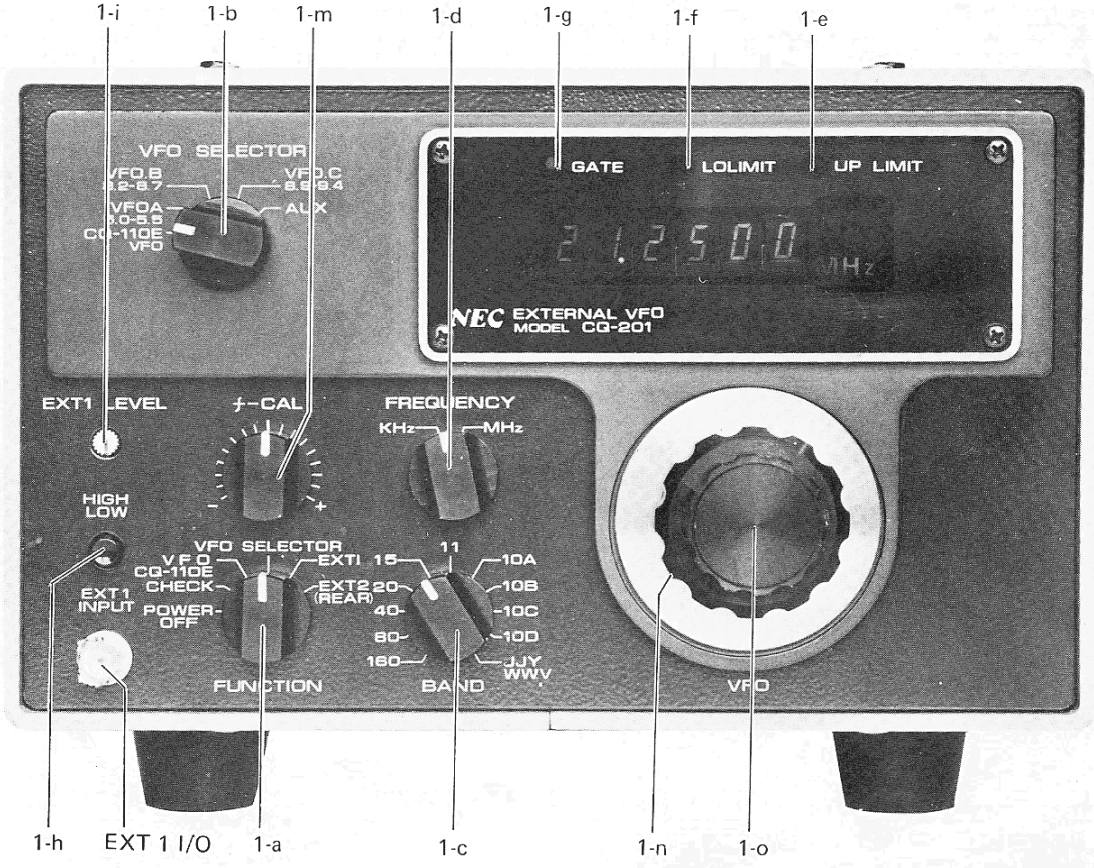


Fig. 1 Function of Front Panel

a. FUNCTION

POWER OFF:

This shows a position in which a power supply is turned off.

CHECK:

This is used for correcting the operation of the counter frequency of 1 MHz may be counted 1,000 MHz may be displayed at the display part.

CQ-110E VFO

In this position the unit operates as EXTERNAL VFO for CQ-110E. The frequency counter indicates direct output frequency, there for to read the frequency by changing band selector switch to appropriate frequency band.

VFO SELECTOR:

This is a position in which VFO of CQ-201 is operated as CQ-110E/VFOA/VFOB/VFOC/AUX. When the VFO SELECTOR switch is set to the desired position, a required output may be obtained at the specified terminal. And the output may be displayed in the counter.

EXT1:

In this position the unit is operated as a frequency counter. The input terminal is EXT1 INPUT of front panel.

EXT2:

In this position the input terminal of the counter is ACC socket. As in EXT1 the unit is operated as counter.

b. VFO SELECTOR

Set the FUNCTION SW to a position of VFO SELECTOR and the desired VFO output may be taken by this VFO SELECTOR SW.

CQ-110E:

Set this when this is exclusively used for CQ-110E VFO. When BAND SW. is set to the band used, the unit may be used as a frequency direct reading unit. Output frequency is 5.0 to 5.5 MHz.

VFOA:

Output of 5.0 to 5.5 MHz is obtained. VFO output is desplayed in itself.

VFOB:

Output of 8.2 to 8.7 MHz is obtained. VFO output is displayed in itself.

VFOC:

Output of 8.9 to 9.4 MHz is obtained. VFO output is displayed in itself.

AUX:

When the frequency output other than that described above is required, another unit may be used outside the unit.

c. BAND SWITCH

When the unit is used as a frequency direct reading device in CQ-110E, set the switch in accordance with the band sued.

d. KHz, MHz SWITCH

This is a switch used for changing the digit of KHz and MHz when the unit is used as counter. The unit may be read to a digit of 1 Hz.

e. UP LIMIT

When VFO is operated and is over the variable range of 5000 KHz, this is illuminated.

g. GATE

When the gate of the counter is opened, this is illuminated.

h. HI LOW

This is a change-over switch of impedance of input of terminal of the counter.

HI . . . 10 KΩ LOW . . . 50 Ω

i. EXT1 LEVEL

This is an input attenuator of EXT1 INPUT.

m. f- CAL

This is a knob for correcting the value by using marker of CQ-110E.

n. VFO MAIN DIAL

This is a knob for tunning VFO.

o. VFO SUB DIAL

This is a knob for fine adjustment of VFO.

2-2. Back Panel

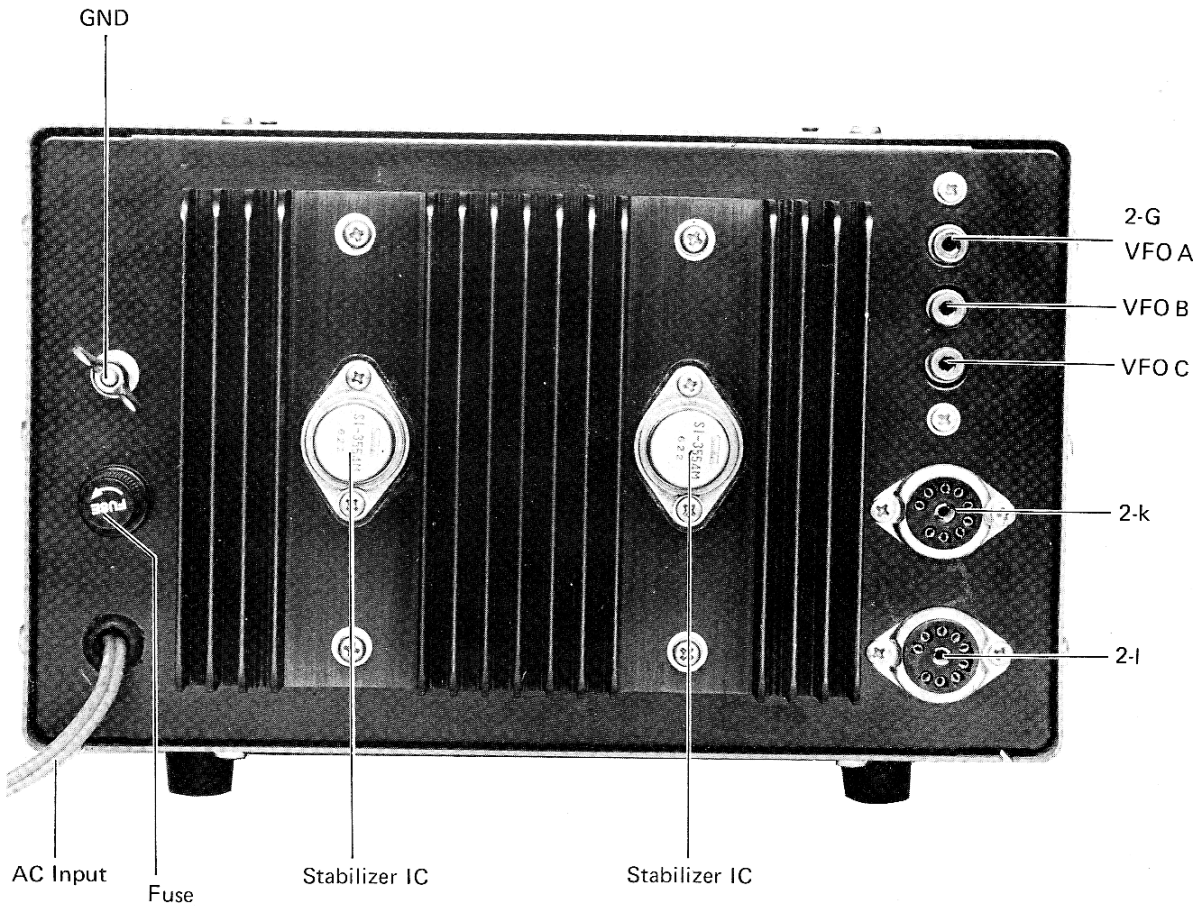


Fig. 2 Back Panel

c. VFO OUTPUT

This is a terminal of VFO output selected by VFO SELECTOR SWITCH.

VFOA:

This is an output terminal (5.0 to 5.5 MHz) of VFOA.

VFOB:

This is an output terminal (8.2 to 8.7 MHz) of VFOB.

VFOC:

This is an output terminal (8.9 to 9.4 MHz) of VFOC.

k. EXT VFO

This is operated as EXT VFO of CQ-110E by using an attached cable.

VFOA . . . . . 1, 2 pin.
VFOB . . . . . 3, 4 pin
VFOC . . . . . 5, 6 pin and 7, 8 pin

have their output terminals on this.

l. ACC Socket

l. ACC Socket

This ACC socket includes services for EXT 2 counter (P1, 2) & (P3, 4) and VFO output (P5, 6).

3. HOW TO USE CQ-201

3-1. When CQ-201 is exclusively used for CQ-110E VFO. (Fig. 3)

Fig. 3 When CQ-201 is exclusively used for CQ-110E VFO (ex; 15m Band)

a. Connect the accessory cable to No.9 pin terminal of EXT VFO (Fig. 4).

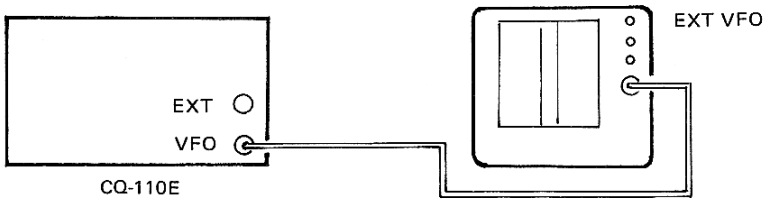


Fig. 4

b. Set the FUNCTION SW. to VFO SELECTOR.
c. Set the BNAD SW. to the required band.
d. Set the VFO SELECTOR SW. to CQ-110E.

After this connection, the unit may be used in combination with CQ-110E. Switch-over of the unit may be provided by VFO switch of CQ-110E to operate the unit as transmitter or receiver.

3-2. When CQ-201 is used as VFO A.

a. Connect the VFO connection cable to VFOA of RCA jack.
b. Set the FUNCTION SW. to VFO SELECTOR.
c. Set the VFO SELECTOR SW. to VFOA.

After this operation, the output of VFOA is displayed in itself.

Fig. 5 When CQ-201 is used as VFO A

3-3. When CQ-201 is used as VFOB. (Fig. 6)

Connect the cable to VFOB in the same way as described in 3-2, set the VFO SELECTOR SW. to VFOB.

Fig. 6 When CQ-201 is used as VFO B

3-4. When CQ-201 is used as VFOC.

Connect the cable to VFOC in the same way as described in 3-2, set the VFO SELECTOR SW. to VFOC.

3-5. When CQ-201 is used as counter.

a. Set the FUNCTION SW to either EXT1 or EXT2. An input of EXT1 is ACC socket of front panel and an input EXT2 is ACC socket of back panel.

b. The input EXT1 is changed to attenuator by EXT1 LEVEL VOL to prevent an excessive input.

c. Both EXT1 and EXT2 have an input impedance switch-over switch for HI and LOW. When it is HI, set the switch to HI position and when it is low impedance of 50 ohms, set the switch to LOW position.

d. When it is operated in counter, the counter has a switch-over circuit of digit. Set the digit in accordance with the required frequency so as to facilitate the reading of the digit.

4. CHANGING METHOD OF AC POWER SOURCE

The following sketch is the transformer facing ward, after confirming that the Power source is not connected, connect it as illustrated in the sketch. Furthermere, confirm the commercial power voltage. If mistaken, the set will be damaged seriously.

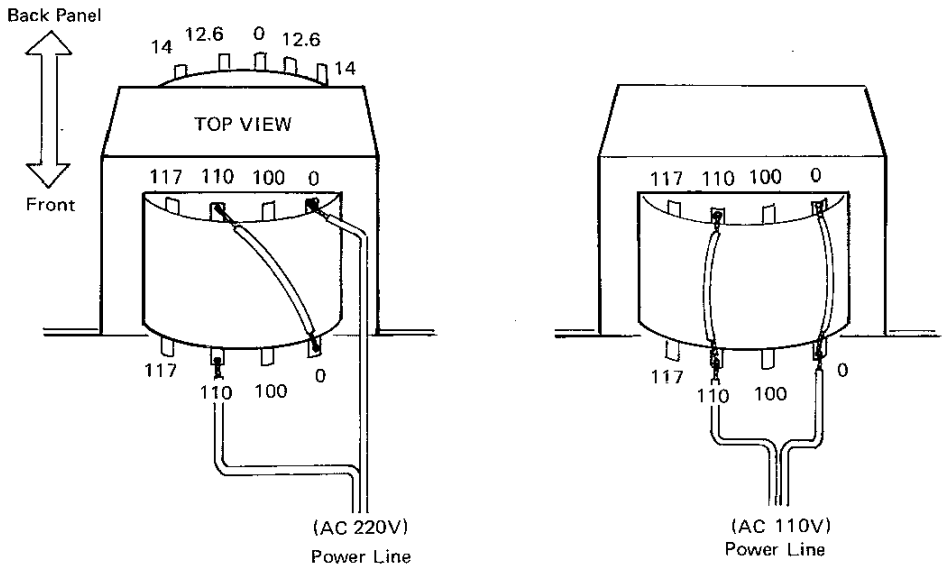


Fig. 7

5. DIGITAL FREQUENCY INDICATOR CIRCUIT

5-1. Frequency Relationship for CQ-110E

The counter is of frequency direct reading type which counts VFO frequency which is a heterodyne variable element. In all MODES, frequency can be read off directly.

The following are the frequencies of related oscillators. Output frequency f-out is given by band oscillating frequency fB and VFO oscillating frequency by fv, and intermediate frequency by fi. (Band oscillating frequency fB) – (VFO oscillating frequency fv) – Intermediate frequency fi) = Output frequency f-out.

f-out = fB -fv - fi (fi = 9.0 MHz)

Frequency is shown in the following table:

f-out		fB		fv		fi
1.9 MHz Band	=	16.0	–	5.0	–	9.0
3.5 MHz Band	=	N.A.	–	5.0	–	9.0
(irregular arrangement, causing USB, LSB reversed)						
7.0 MHz Band	=	21.5	–	5.0	–	9.0
14.0 MHz Band	=	28.5	–	5.0	–	9.0
21.0 MHz Band	=	35.5	–	5.0	–	9.0
27.0 MHz Band	=	41.5	–	5.0	–	9.0
28.0 MHz Band	=	42.5	–	5.0	–	9.0
28.5 MHz Band	=	43.0	–	5.0	–	9.0
29.0 MHz Band	=	43.5	–	5.0	–	9.0
29.5 MHz Band	=	44.0	–	5.0	–	9.0
WY. WWV Band	=	29.5	–	5.0	–	9.0

In the 14 MHz (20m) band, considering the intermediate frequency fi is 9 MHz, the band oscillator circuit (HFO) may be unnecessary, because it can be produced with 9.0 (fi) + 5.0 (fv) = 14.0 MHz. However, this causes the VFO to dial reversely, resulting in too much troubles. To avoid this reverse VFO, HFO of 28.5 MHz can be adopted. In the 3.5 MHz (80m) band, irregular arrangement is seen. As the result of — (fi - fv), the side bnad will appear reversely, but VFO runs in the normal way.

5-2. Frequency Counter Circuit

As mention above, the unit has been so designed that the heterodyne process producing SSB in fixed against the variation in oscillating frequency. Therefore, one local oscillator for the prescaler is required to cover 5 MHz – 5.5 MHz range of VFO.

In the oscillating circuit, an overtone crystal frequency of 22.500 MHz with Q8 2SC-373 is used and 17,000 MHz – 17,500 MHz which is a difference with VFO frequency is obtained. This frequency is read off at the counter.

Q6 3SK-35 is the requency mixer of VFO frequency and 22.5 MHz Q5 2SC-373 is the band pass amplifier, and assures within the VFO variable range (500 KHz). Clock oscillator is the combination of two inverters with IC25 SN-7400 and oscillate 1 MHz. This signal is the frequency divided with IC19, IC20, IC21, IC22, IC23 and IC24 (SN-7490 x 6).

They are counting down the frequency in the step down of 100 KHz, 10 KHz, 1 KHz, 100 Hz, 10 Hz, 1 Hz. These output frequencies are supplied to SN-7473 of IC26 and used as clock pulse.

The VFO output frequency passes through the band pass amplifier, and is frequency coverted and through the amplifier circuit of Q7 2SC-373, Q4, Q3, and Q2. After passing the gate circuit of IC28 SN-7404, it enters the first counter stage IC36.

Here, the digit of 10 Hz is counted and it goes up to the digit of 100 Hz of next counter stage IC18 SN-7490. In the same way, the digit is carried over from 100 Hz to 1 KHz, 10 KHz, 100 KHz.

The unit indicated the numerals above the digit of 100 Hz. Actually, 10 Hz digit is always counted in the unit to avoid flickering the 100 Hz digit.

The BCD output from respective digits enters the latch circuit of IC9 through IC12. This type of IC is for sampling hold. It holds the sample output unitl next signal arrives. Shifting of numeral indication occurs only when the sampling gate is opened, and maintain the display stably.

The display output of BCD enters "BCD to 7 segment decorder driver" IC of driving LED display. These ICs are through IC 3 – IC6 (SN-7447 x 4).

Frequency display is at the LED.

In the counter display up to the order of 100 KHz is by frequency counting, and MHz order is displayed at MATRIX CIRCUIT combined with the BAND switch.

5-3. OFF-Range Display Circuit

An off-range display circuit is included in the counter circuit as an associated circuit. As the indicating frequency band width of 500 KHz is the limit, beyond the range. In the indicator, it may shows erroneous frequency. In order to warn the band edge, the UP LIMIT lamp is lighted when it exceeds 500 KHz at upper side. LO LIMIT lamp is lighted when it is lower than zero (0) KHz at the lower side.

In the off range region of the band pass amplifier of counter circuit, a flickering may sometimes develop.. In the off range region, the display continues lighting for approx. 50 Hz, both UP and LOW lamps.

IC16 is counted more than 500 KHz, the signal will be further counted at IC32 and it goes through the latch circuit of IC33 SN-7475 and drives switching transistor 2SC-373 Q9 and the UP lamp is lighted. When the frequency goes to LO side, LO lamp is lighted by switching the transistor 2SC-373 Q10. The correct display range of the counter is expressed in the following table.

	Approx. 50 KHz		Approx. 50 KHz
160 m BAND		1500.0 – 1999.9 KHz	
80 m BAND		3500.0 – 3999.9 KHz	
40 m BAND		7000.0 – 7499.9 KHz	
20 m BAND		14000.0 – 14499.9 KHz	
15 m BAND		21000.0 – 21499.9 KHz	
11 m BAND		27000.0 – 27499.9 KHz	
10A m BAND		28000.0 – 28499.9 KHz	
10B m BAND		28500.0 – 28999.9 KHz	
10C m BAND		29000.0 – 29499.9 KHz	
10D m BAND		29500.0 – 29999.9 KHz	
JJY/WWV BAND		15000.0 – 15499.9 KHz	
	LO LAMP DISPLAY		UP LAMP DISPLAY

5-4. f-CAL Circuit

There are various oscillating circuits in the heterodyning process generate SSB. It is not pratical to oscillate all of them correct display frequency. Therefore, is is necessary to compensate the error in one of these frequencies, for the calibration. This circuit can be adjusted with variable capacitance diode associated to the crystal oscillating circuit of Q8.

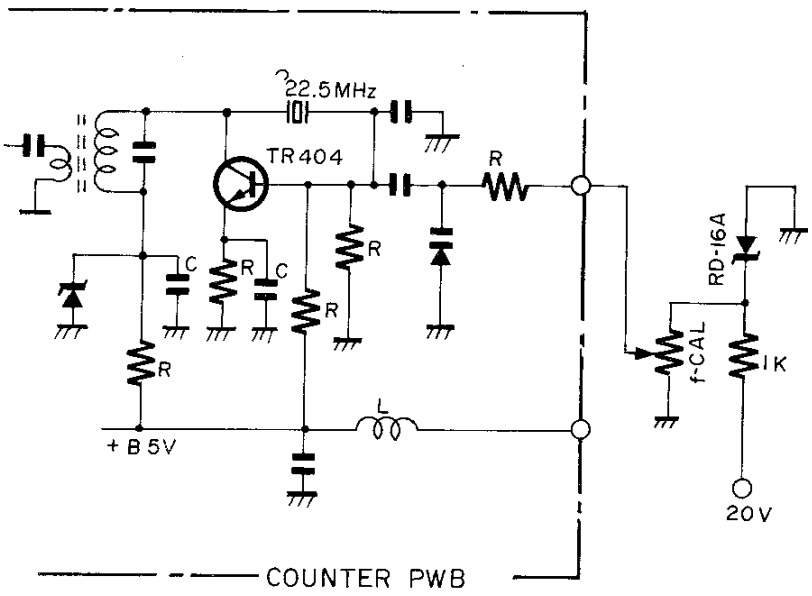


Fig. 8 f-CAL Circuit Diagram

5-5. Counter Circuit

The Counter of this unit is so designed as to function as a 6-digit counter in case of using as a measuring equipment. The Clock Signal oscillated by IC25, demultiplied by IC23 for 'MHz' indications and by IC24 for 'KHz' indications, is driven into Gate Circuit, by which the reading of Counter is operated.

An EFT is employed in Input Stage of Amplifier of Counter Circuit, to realize good Frequency Characteristics, Stability and consequently Measurement Sensitivity. Signal is driven into Gate circuit via Q4, Q3 and Q2.

Counter Circuit functions as mentioned in the afore-going clause, and in addition, more numbers of measurement digit is enabled by driving Digit Signal from IC16 SN-7490 into IC15, and thence into IC14 and IC13. IC8 and 7 rea for latching of 5th and 6th digit respectively.

When operated as Measurement Counter Circuit, Band Switch Circuit and (0.5) Start Circuit get open, and have nothing to do with the operation.

5-6. Gate Indication Circuit

With use of the highest digit Output (IC13) of Counter Circuit, the operation during "KHz" and "MHz" is indicated with an LED. It operates as switching the Output of IC13 by driving Q1 2SC372 with use of IC25 SN-7400.

5-7. VFO Circuit

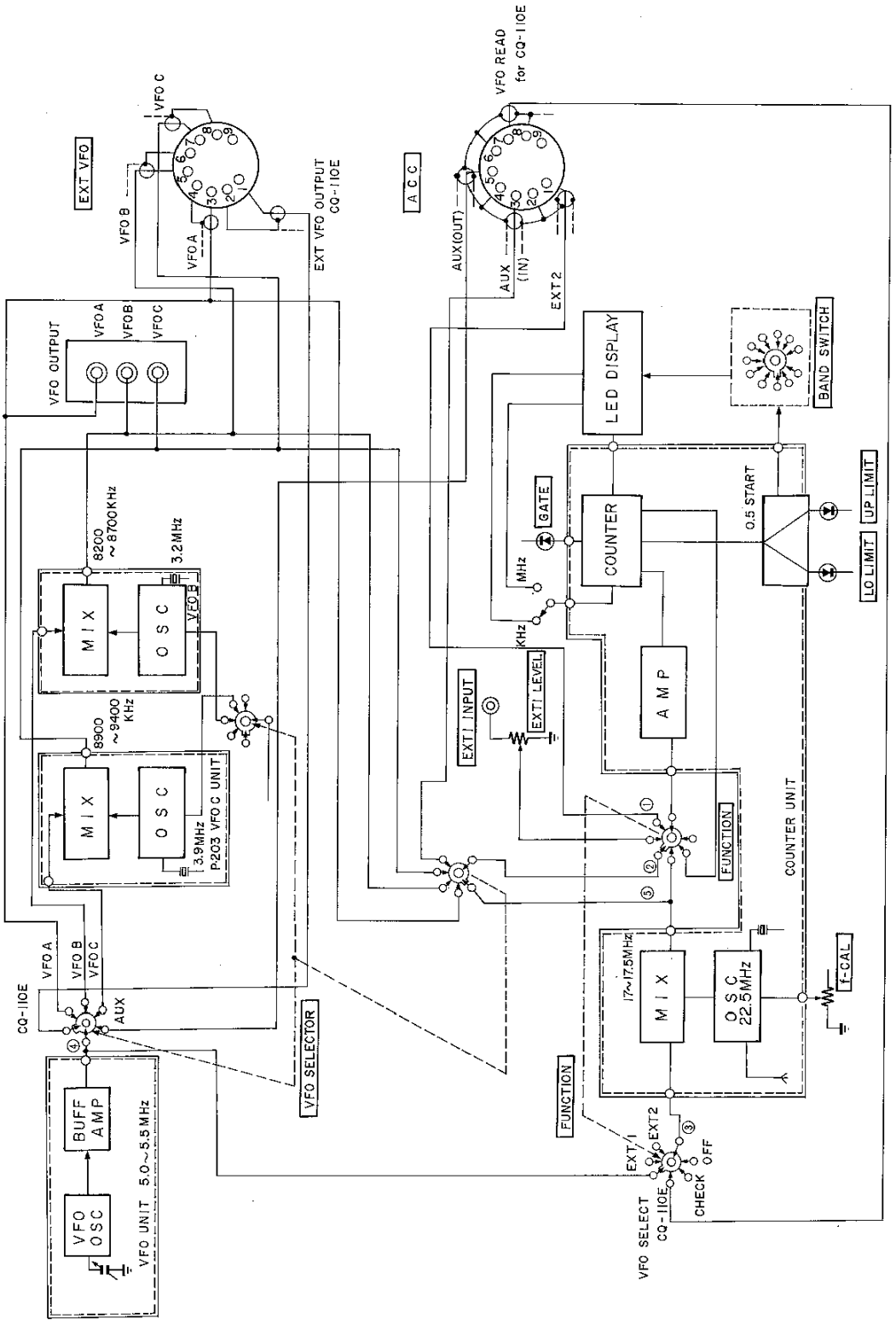
A stable circuit is realized by emplying 2SK41E (Q501) for VFO Oscillation and adopting type enviromental Capacitors and Resistors which are stable against variation of temperature. Furtheromore, to minmize the warming up time, and NEC proper 'temperature-sensitive' type oven is installed in the unit for higher characteristics. Output, leading through Q502 Q503 Buffer Circuits and thence Low-pass Filter, reaches 5 MHz.

5-8. VFOB (C) Mix Unit Circuit

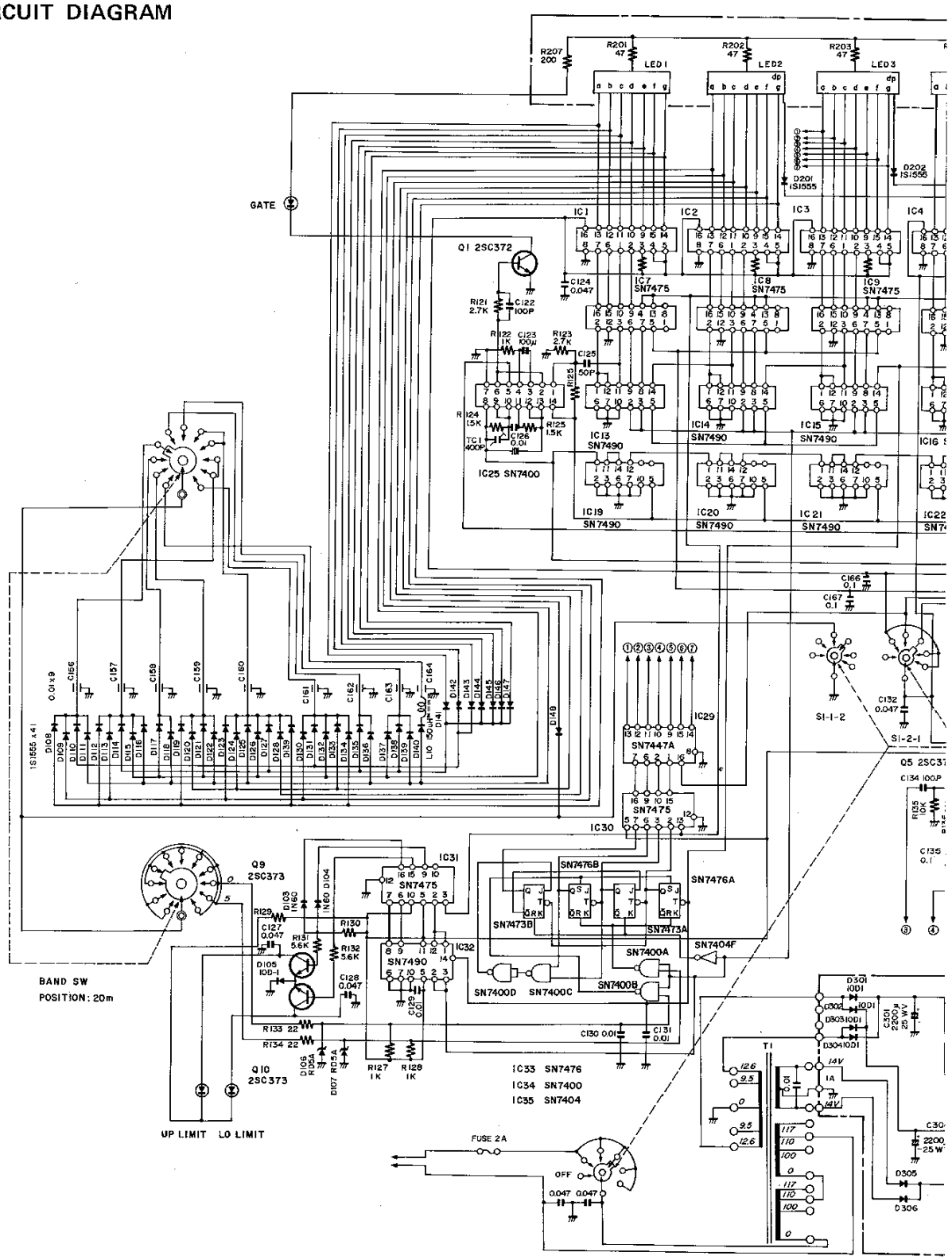
It is a circuit to pick up Output 8.2 MHz (8.9 MHz) by mixing VFO Output 5 MHz with 3.2 MHz (3.9 MHz). By using Q405 (Q605) 2SC372 as OSC Stage and Q401 (Q601) 3SK35BL as MIX Stage, it leads through 3-stage Band-pass Filter Circuit to eliminate spurious radiation. Level can be controled adjusted with VR401 (VR601), to obtain the suitable level for each unit.

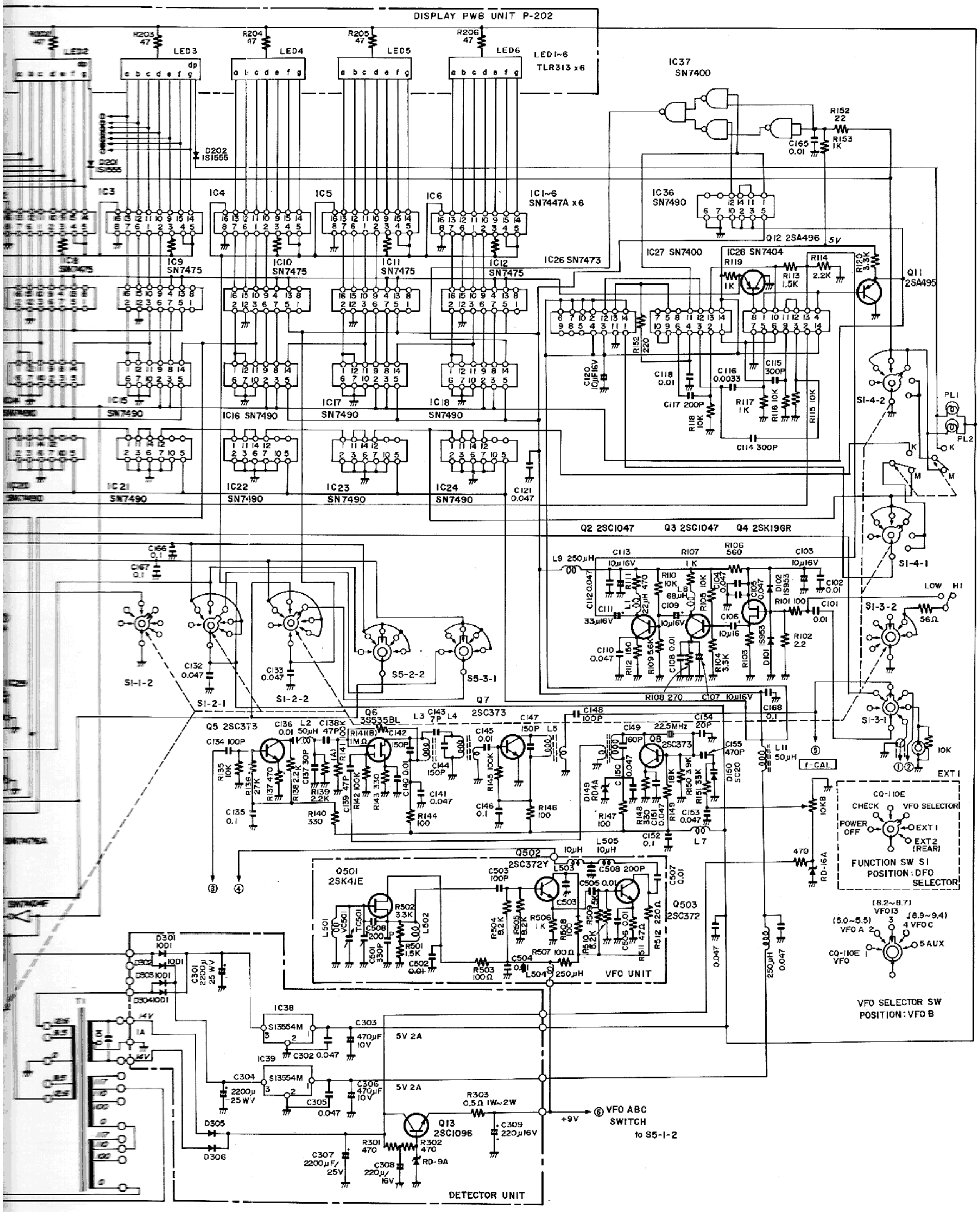
The frequency of VFO Am B and C gets into the circuit as counter and directly indicated, which you are requested to vonvert for practical use.

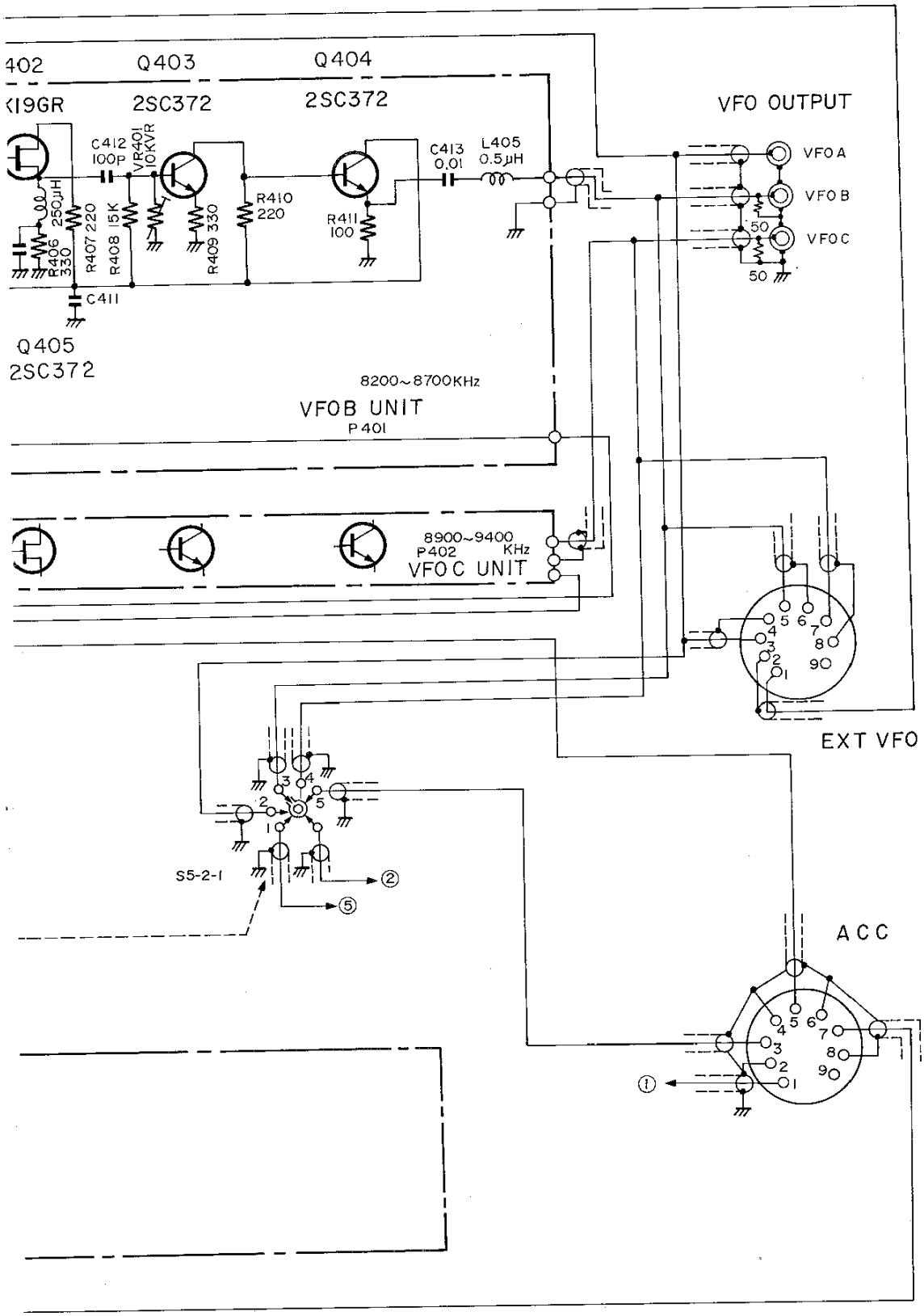
BLOCK DIAGRAM

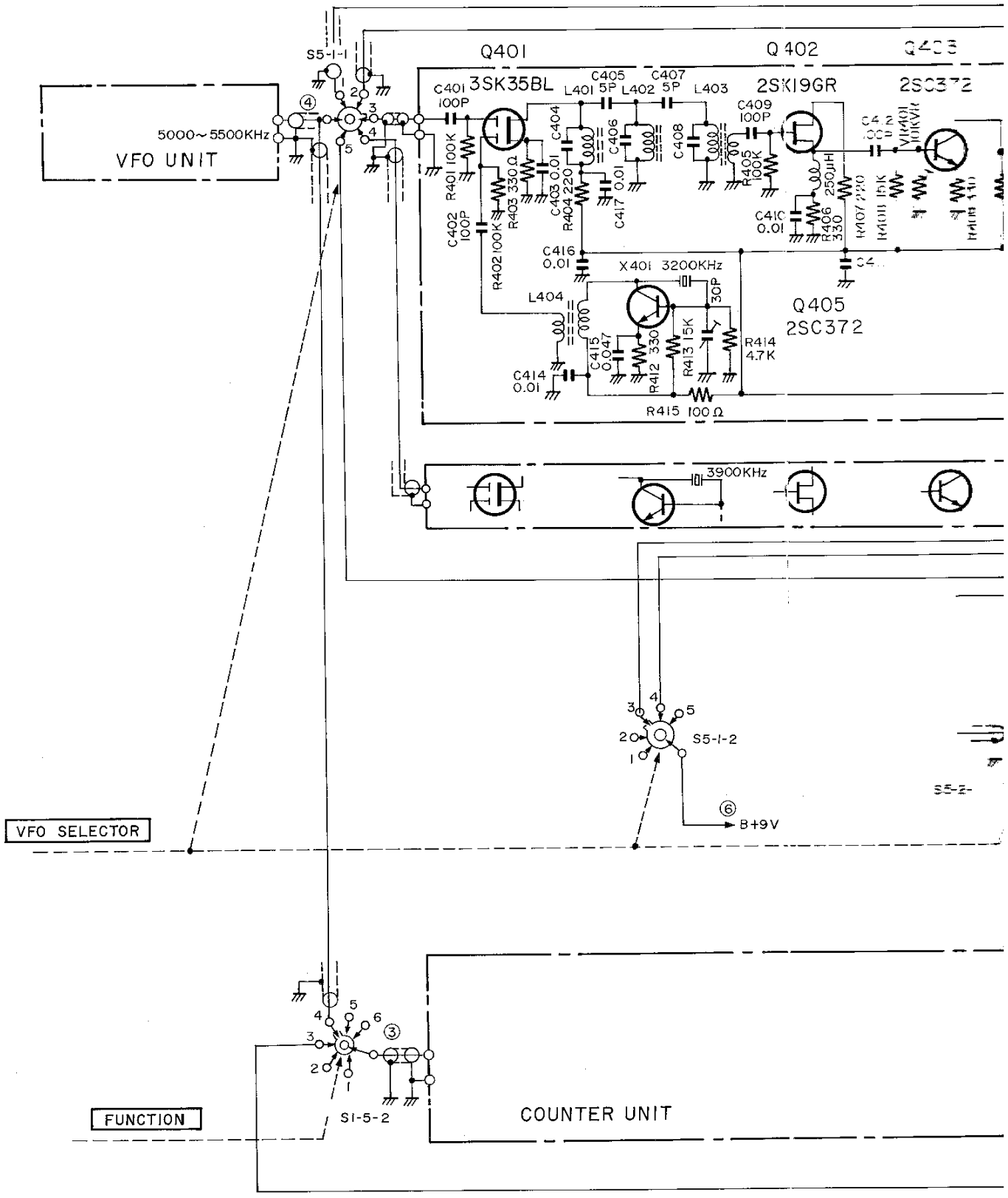


CIRCUIT DIAGRAM




DISPLAY PWB UNIT P-202
LED1~6
TLR313 x6
IC37
SN7400
IC36
SN7490
IC1~6
SN7447A x6
IC9
SN7475
IC10
SN7475
IC11
SN7475
IC12
SN7475
IC26 SN7473
IC27 SN7400
IC28 SN7404
Q12 2SA496
Q11
2SA495
IC15
SN7490
IC16 SN7490
IC17
SN7490
IC18
SN7490
IC21
SN7490
IC22
SN7490
IC23
SN7490
IC24
SN7490
Q2 2SC1047
Q3 2SC1047
Q4 2SK19GR
S1-4-2
S1-4-1
S1-3-2
S1-3-1
LOW
HI
PL1
PL2
S1-1-2
S1-2-1
S1-2-2
S5-2-2
S5-3-1
Q5 2SC373
Q6
3SK35BL
Q7
2SC373
Q8
2SC373
f-CAL
EXT1
CQ-110E
CHECK
VFO SELECTOR
POWER OFF
EXT 1
EXT2 (REAR)
FUNCTION SW S1
POSITION: DFO SELECTOR
Q501
2SK41E
Q502
2SC372Y
Q503
2SC372
VFO UNIT
VFO13
VFO A
VFO C
5 AUX
CQ-110E VFO
VFO SELECTOR SW
POSITION: VFO B
IC38
S13554M
IC39
S13554M
5V 2A
Q13
2SC1096
VFO ABC SWITCH
to S5-1-2
+9V
DETECTOR UNIT


402
Q403
Q404
KI9GR
2SC372
2SC372
VFO OUTPUT
C412
100P
VR401
10KVR
C413
0.01
L405
0.5μH
VFO A
VFO B
VFO C
50
50
R410
220
R411
100
R406
330
R407 220
R408 15K
R409 330
250μH
C411
Q405
2SC372
8200~8700KHz
VFOB UNIT
P401
8900~9400
KHz
P402
VFO C UNIT
EXT VFO
S5-2-1
ACC


Q401
Q402
3SK35BL
2SK19GR
2SC372
Q405
2SC372
VFO UNIT
5000~5500KHz
X401 3200KHz
3900KHz
S5-1-1
S5-1-2
VFO SELECTOR
B+9V
FUNCTION
S1-5-2
COUNTER UNIT

CQ-201 PARTS LIST
Semiconductors, Coils, Trans., Switch and etc.

Description		Parts Code No.	Symbol No.
Tunig Knob (A)		23452561	
Knob Plate		23452581	
Tuning Knob (B)		23452571	
Nob		23452001	
Rotary Switch 5-10-6		65901041	S-1
Rotary Switch 3-6-5		65901042	S-5
Rotary Switch 4-2		65901043	S-2
Push Switch UEG-42		56904020	S-3
Pin Plug Jack		70901009	
9 Pin Socket		70901009	
Power Sup. Heatthink		23511441	
Rotary Switch 2-2-11		65901044	S-4
Power Trans.		45910026	T-1
LED TLR-101R		36904006	
Volume 10K, B		41039005	
Volume 50K, B		41039008	
BNC Connector		70905145	
IC SI-3554M		37901026	IC-38, 39
IC SN-7447A		37903004	IC-1, 2, 3, 4, 5, 6, 29
IC SN-7475		37903007	IC-7, 8, 9, 10, 11, 12, 30, 31
IC SN-7490		37903009	IC13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 32, 36
IC SN-7400		37903001	IC-25, 27, 34, 37
IC SN-7473		37903005	IC-26
IC SN-7404		37903010	IC28, 35
IC SN-7476		37903008	IC-33
Transistor	2SC373	35941700	Q-1, 5, 7, 8, 9, 10
Transistor	2SA495	35003018	Q-11
Transistor	2SA496	35900200	Q12
Transistor	2SC1047		Q-2, 3
Transistor	2SC372Y	35941600	Q-403, 404, 405, 502, 503, 603, 604, 605
Transistor	2SA495Y	35003025	TR1
Transistor	2SC1096L	35944212	Q-310
FET	2SK19GR	35120327	Q-4, 402, 602
FET	3SK35BL	35995028	Q-6, 401, 601
FET	2SK41NP,E	35990305	Q-501
TR	2SD235Y	35063325	TR2

Description		Parts Code No.	Symbol No.
Diode	1S953	36001522	D-101, 102
Diode	1N60	36002012	D-103, 104
Diode	1S1555	36001005	D-108 ~ 148, 201, 202
Diode	10D-1	36107011	D-105, 301 ~ 306
Diode	RD-5A	36003018	D-106, 107
Diode	RD-4A	36003501	D-149
Diode	SC-20	36904007	D-150
Diode	RD-16A	35003513	D-308
LED	TLR-313	36904018	D-203 ~ 209
VC 30PF		c44025001	VC501
10P Connector	AO-701B	70905050	PC-101, 103, 301, 302
Connector	225J-22821-487	70905146	PC104
X-Tal	1000 KHz	64920539	X-1
X-Tal	22.5 MHz	64920538	X-2
X-Tal	3200 KHz	64920608	X-401
X-Tal	3900 KHz	64920609	X-601
Filter Coil	50μH	61904237	L2
RF Coil (A)	16.75 MHz	61904225	L3, 4
RF Coil (B)	16.75 MHz	61904226	L5
RF Coil	22.5 MHz	61904227	L6
Filter Coil		61021002	L7
Coil	22μH		L1
Coil	68μH		L8
Filter Coil	S251K (271K)		L9
Filter Coil	S151K	61052031	L10
Filter Coil	50μH, 1A		L11
Filter Coil	S221K	61052033	L406, 502, 606
VFO Coil		61904197	L501
Filter Coil	10μF		L503, 505
IFT	8.45 MHz	61904308	L401, 402, 403
IFT	9.15 MHz	61904310	L601, 602. 603
OSC Coil	3.2 MHz	61904309	L404
OSC Coil	3.9 MHz	61904311	L604
Semi Fix VR	10K B	41950080	VR401, 601
Posista	PTHU331N	36901019	PHT-1
RWH20V15KH		40920036	R5

Resistors & Capacitors

Description	Pars Code No.	Description	Pars Code No.
RC½GF 1KK, A	40003537	CM92C1H470K. A	42407021
RC½GF 1.5KK, A	40003539	CK45F1H104Z. A	42110937
RC½GF 3.3KK, A	40003543	CC45SH1H300J. A	42333034
RC½GF 8.2KK, A	40003548	CC45SL1H470J. A	42301037
RC½GF 15KK, A	40003551	CC45SH1H151J. A	42333051
RC½GF 470HK, A	40003533	CC94SH1H070J. A	42306010
RC½GF 100KK, A	40003561	CC45SH1H101J. A	42333047
RC½GF 330HK, A	40003531	CC94SH1H181J. A	42306043
RC½GF 4.7K, A	40003545	CM92C1H200J. A	42407130
RC½GF½ 56Hk, A	40003522	CM92CH1H471J. A	42407145
RC¼GF 100HK, A	40002525	CK45F1H103ZA	42110925
RC¼GF 1KK, A	40002537	CC45CH101J. A	42332045
RC¼GF 33KK, A	40002555	CM92C1H331J. A	42407160
RC¼GF 10KK, A	40002549	CE04C1A471	43011019
RC¼GF 560HK, A	40002534	CE04C1C221	43011033
RC¼GF 270HK, A	40002530	CE04C1E100	43011043
RC¼GF 5.6KK, A	40002546	CM92C1H221J. A	42407157
RC¼GF 470HK, A	40002533	CC45CH1H050D. A	42332010
RC¼GF 150HK, A	40002527	CC45TJ1H050D. A	42930023
RC¼GF 1.5kK, A	40002539	CC45PG1H101J. A	42336084
RC¼GF 2.2KK, A	40002541	CC45CG1H101J. A	42332081
RC¼GF 3.3KK, A	40002543		
RC¼GF 2.7KK, A	40002542		
RC¼GF 220HK, A	40002529		
RC¼GF 22HK, A	40002517		
RC¼GF 27KK, A	40002554		
RC¼GF 330KH, A	40002531		
RC¼GF 100KK, A	40002561		
RC¼GF 18KK, A	40002552		
RC¼GF 3.9KK, A	40002544		
RC½GF 47KH, A	40003521		
RC½GF 220HK, A	40003529		
RC½GF 100KH, A	40003525		
CK94YZ1.4KV103PAU	42058525		
CK94YZ2H108P	42011525		
CK45B1H103K. A	42130725		
CE04C1C100	43011028		
CK45F1H473Z. A	42110933		
CE04C1C330	43011030		
CQ93P1H301J. A	42970031		
CQ93P1H201J. A	42970134		
CM92C1H101K. A	42407025		
CE04C1C101	43011032		

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