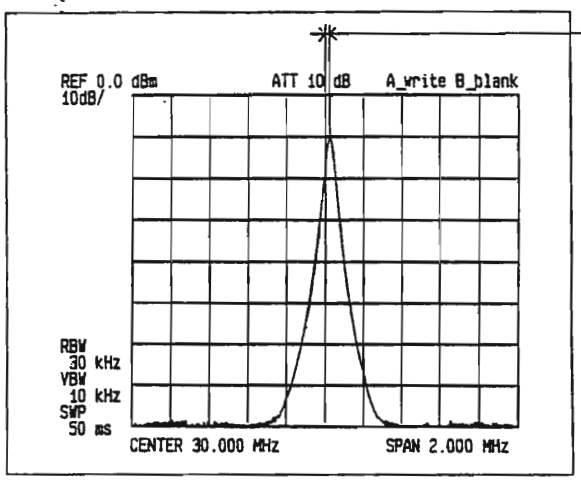


Confirm that the position of the spectrum peak is within the specification

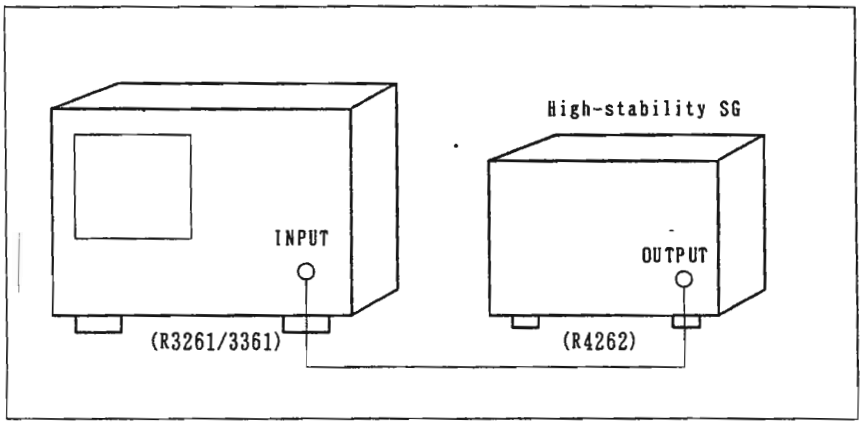
4.4.3 Testing Stability of Frequency Span

Procedure

① From the preset condition, set the spectrum analyzer as follows:

CENTER FREQ : 1GHz
FREQ SPAN : 2GHz

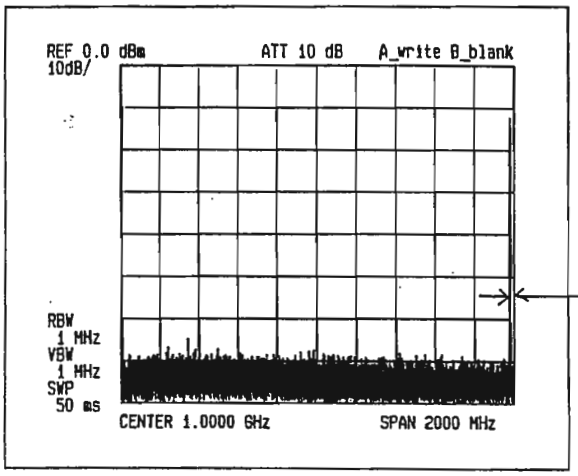
② Input to the spectrum analyzer a 2GHz, -10dBm signal from an external signal generator.



③ Adjust the CENTER FREQ so that the zero spectrum is at the left end of the scale.

④ Confirm that the difference between the 2GHz spectrum and the right scale end is within ±0.3 div. (within ±3%). If not, make adjustments according to "5.4. 1 (1) Main Span (2GHz)".

Cont'd



⑤ Set the spectrum analyzer as follows:

CENTER FREQ : 5MHz
FREQ SPAN : 10MHz

⑥ Adjust the CENTER FREQ so that the peak of the zero spectrum is at the left end of the scale.

⑦ Input a 10MHz, -10dBm signal from an external signal generator to the spectrum analyzer. Confirm that the difference between the 10MHz spectrum and the right end of the scale is within ±0.3 div. (±3%). If not, make adjustments according to "5.4.1 (2) 10MHz SPN".

⑧ Set the spectrum analyzer to the following settings:

CENTER FREQ : 1MHz
FREQ SPAN : 2MHz

Then input a 2MHz, -10dBm signal from an external signal generator to the spectrum analyzer. Confirm that the difference between the 2MHz spectrum and the right end of the scale is within ±0.5 div. (±5%). If not, make adjustments according to "5.4.1 (3) 2MHz SPAN".

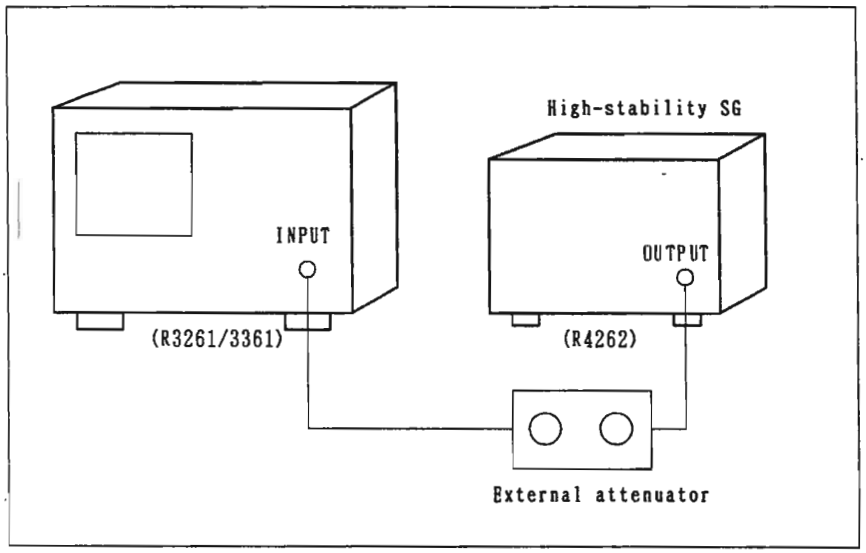
4.4.4 Testing LOG Linearity

Procedure

① From the preset condition, set the spectrum analyzer as follows:

CENTER FREQ	:	30MHz
SPAN	:	2MHz
RBW	:	300kHz
REF LEVEL	:	-10dBm
dB/div	:	1dB/div

② Connect a signal generator to the spectrum analyzer through an external attenuator.

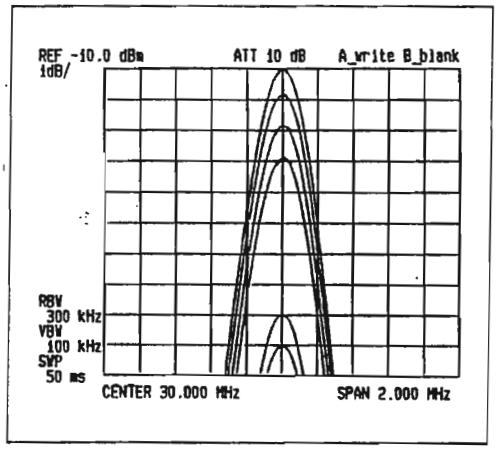


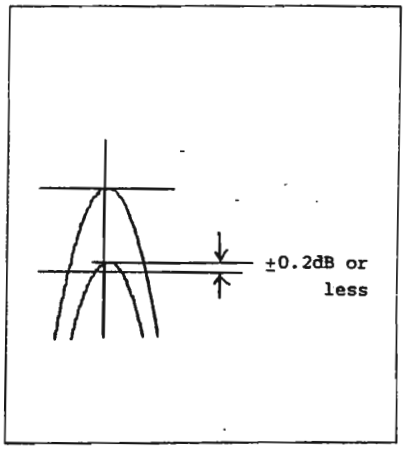
③ Input a 30MHz, - 10dBm signal from the signal generator to the spectrum analyzer.

④ Adjust the output level of the signal generator so that the spectrum peaks at -10dBm when the attenuator is set to 0dB.

⑤ Confirm that the deviation in peak level as read on the screen is within ±0.2dB (±0.2div) while the attenuator setting is incremented by 1dB.

Cont'd





⑥ Set the spectrum analyzer to the following settings:

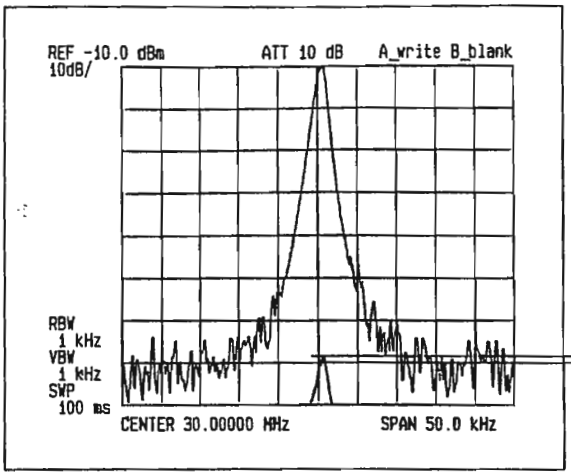
dB/div	:	10dB/
SPAN	:	50kHz
RBW	:	1kHz

⑦ Adjust the output level of the signal generator so that the spectrum peaks at -10dBm when the attenuator is set to 0dB.

⑧ Confirm that the deviation in peak level as read on the screen is within ±1dB (±0. 1 div) while the attenuator setting is incremented by 10dB.

⑨ Confirm that the spectrum peaks at -80dBm ±1. 5dB when the attenuator is set to 70dB. If not, make adjustments according to "5.4.5 (1) Adjusting LCG AMP".

Cont'd



⑩ Set the spectrum analyzer to the following settings:

CENTER FREQ	:	50MHz
FREQ SPAN	:	1kHz
RBW	:	30Hz
REF LEVEL	:	-10dBm

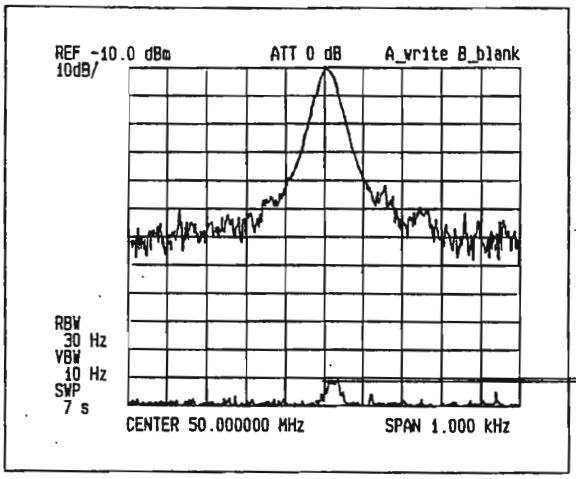
12div display

⑪ Input a 50MHz, -10dBm signal from the signal generator to the spectrum analyzer.

⑫ Adjust the output level of the signal generator so that the spectrum peaks at -10dBm when the attenuator is set to 0dB.

⑬ Confirm that the spectrum peaks at -120dBm ±2dB when the attenuator is set to 110dB.

Cont'd


REF -10.0 dBm
10dB/
ATT 0 dB
A_write B_blank
RBW
30 Hz
VBW
10 Hz
SWP
7 s
CENTER 50.000000 MHz
SPAN 1.000 kHz

±2dB or less.

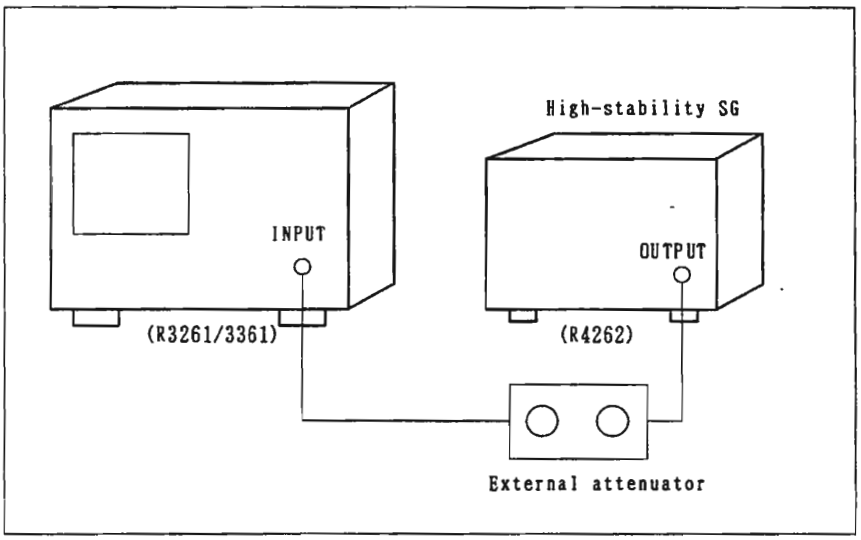
4.4.5 Testing LIN Linearity

Procedure

① Set the spectrum analyzer as follows from the preset condition.

CENTER FREQ : 30MHz
SPAN : 2MHz
RBW : 100kHz
REF LEVEL : -10dBm
LINEAR DISPLAY MODE

② Connect a signal generator to the spectrum analyzer through an external attenuator.



③ Set the signal generator so that it puts out a 30MHz, -10dBm signal.

④ Adjust the output level of the signal generator so that the spectrum peaks at the uppermost scale on the screen.

⑤ Using the marker, read the peak level of the spectrum.

⑥ Set the attenuator to 6dB, and read the peak level of the spectrum using the marker.

⑦ Obtain the LIN linearity from the values determined in steps ⑤ and ⑥ above. Confirm that the LIN linearity thus obtained is 100±5%.

LIN linearity (%) = [(value in step ⑥ - value in step ⑤/2)/value in step ⑤] ×100

If the linearity is out of specification, make adjustments according to "5.4.1 (1) Adjusting LOG AMP".

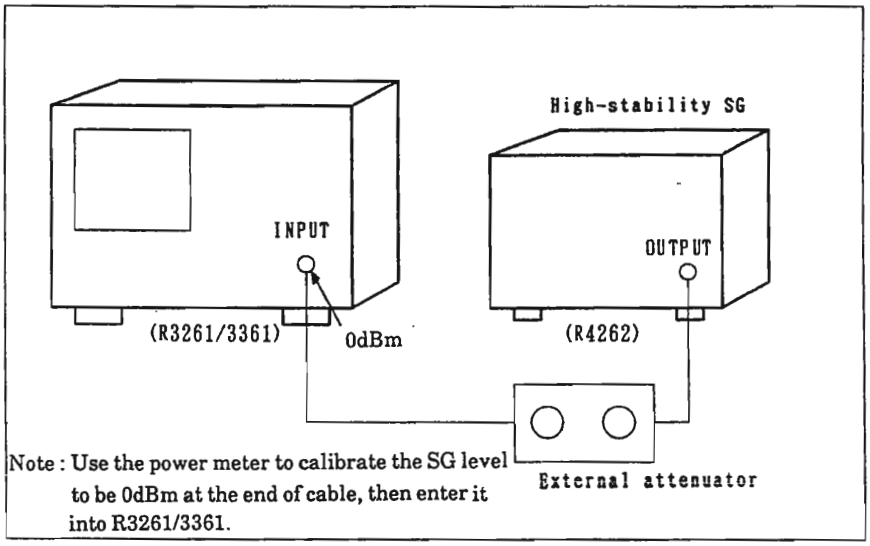
4.4.6 Testing Stability of Reference Level

Procedure

① From the preset condition, set the spectrum analyzer as follows:

CENTER FREQ	:	30MHz
FREQ SPAN	:	5kHz
ATT	:	10dB
REF LEVEL	:	0dBm

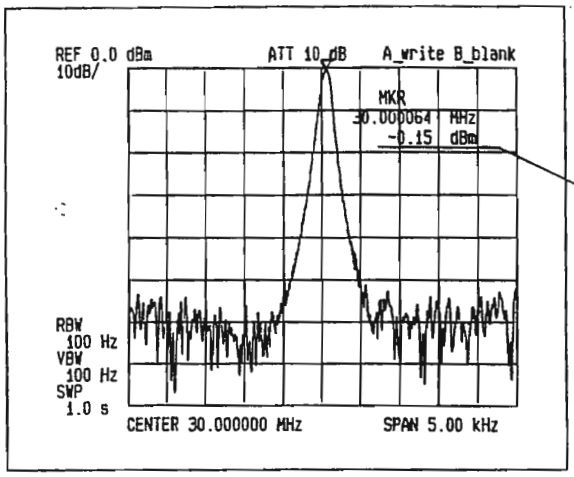
② Input a 30MHz, 0dBm signal from a signal generator through an external attenuator to the spectrum analyzer.



Note : Use the power meter to calibrate the SG level to be 0dBm at the end of cable, then enter it into R3261/3361.

③ Set the attenuator to 0dB, and read the peak level of the input waveform using the marker. Confirm that this level is within ±0.3dB of the REF LEVEL setting.

Cont'd



④ Change the REF LEVEL and attenuator settings as shown in Table 4-9 and confirm that the deviation from each setting is within ±0.3dB (±0.7dB : REF LEVEL -60dB, -70dB). If not, make adjustments according to "5.4.3 Resolution Band Switching Between".

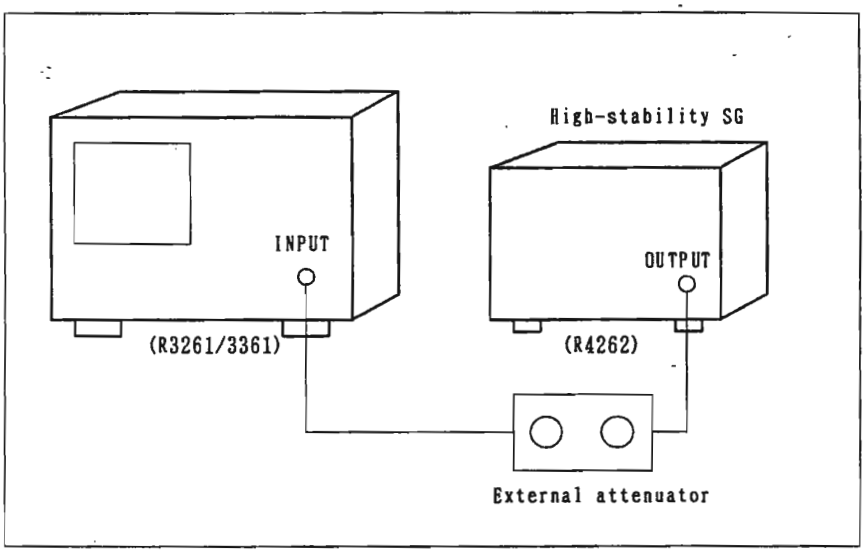
Table 4-9 REF LEVEL and External Attenuator Settings

REF LEVEL [dBm]	0	-10	-20	-30	-40	-50	-60	-70
External attenuator [dB]	0	10	20	30	40	50	60	70
Specifications [dB]	±0.3	±0.3	±0.3	±0.3	±0.3	±0.3	±0.7	±0.7

4.4.7 Testing Stability of Input Attenuator Changeover

Procedure

① Input a 50MHz, -10dBm signal from a signal generator to the spectrum analyzer through an external attenuator set to 40dB.



② From the preset condition, set the spectrum analyzer as follows:

CENTER FREQ	:	50MHz
FREQ SPAN	:	10kHz
RBW	:	3kHz
ATT	:	10dB
dB/div	:	1dB/
REF LEVEL	:	-45dBm

③ Adjust the output level of the signal generator so that the spectrum peaks at the center of the screen.

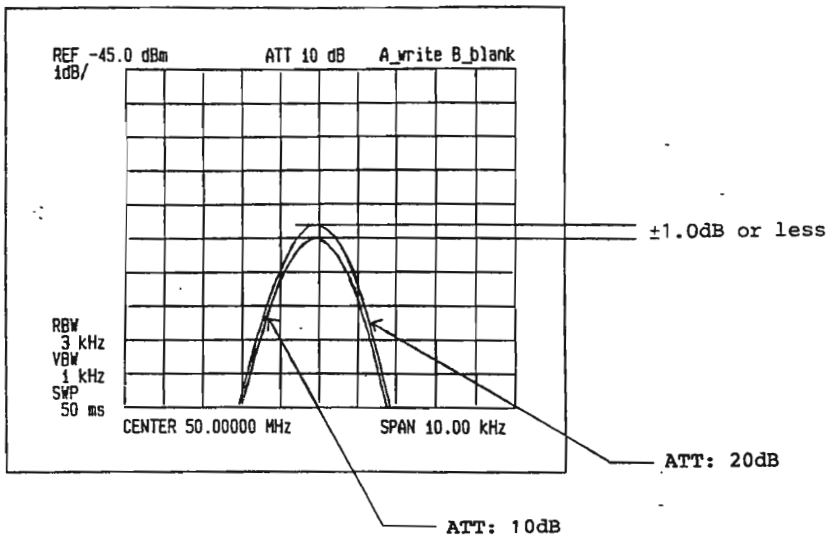
④ Set the external attenuator to 30dB, and set the spectrum analyzer to the following settings:

ATT : 20dB

REF LEVEL : -35dBm

Then confirm that the difference between the current indication and the indication for the 10dB attenuation is with ±1.0dB.

Cont'd



⑤ Change the ATT, external attenuator and REF LEVEL settings as shown in Table 4-10. Confirm that the stability of the input attenuator changeover is within ±1.0dB of the 10dB ATT setting.

Table 4 - 10 Testing Stability of Input Attenuator Changeover

ATT [dB]	10	20	30	40	50
External attenuator [dB]	40	30	20	10	0
REF LEVEL [dBm]	-45	-35	-25	-15	-5

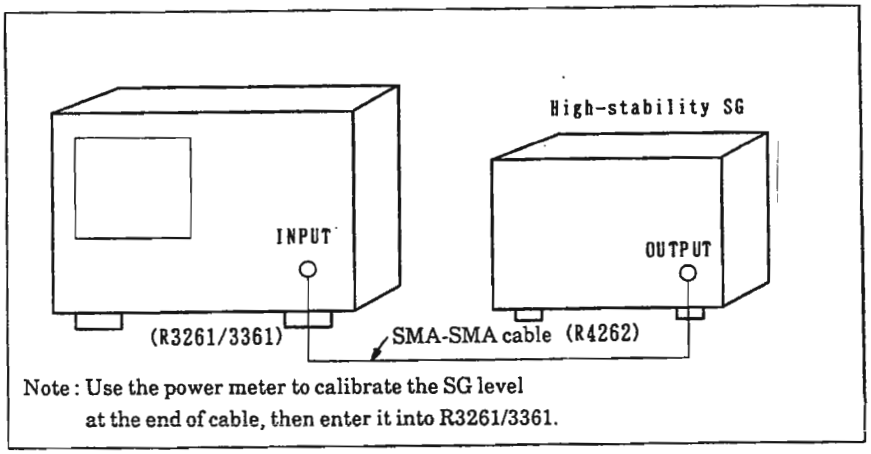
4.4.8 Testing Frequency Response

Procedure

① Set the spectrum analyzer as follows from the preset condition:

ATT	:	10dB
dB/div	:	1dB/
CENTER FREQ	:	1GHz
SPAN	:	2GHz
REF.LEVEL	:	-15dBm

② **Input a signal of -20dBm at a frequency of between 100kHz and 2GHz to the spectrum analyzer and confirm that the deviation as read on the screen for each frequency is within ±0.5dB.**



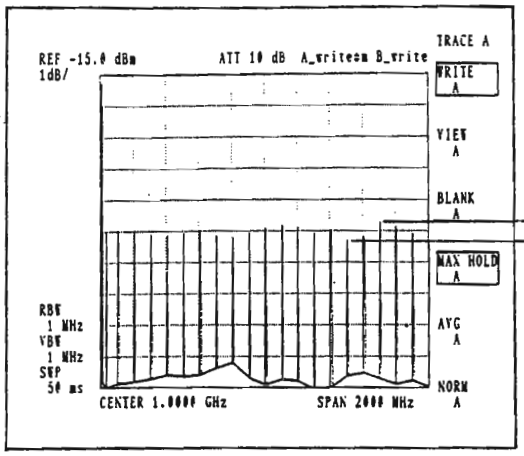
Note : Use the power meter to calibrate the SG level
at the end of cable, then enter it into R3261/3361.

③ Set the spectrum analyzer to the following settings:

START FREQ	:	0MHz
STOP FREQ	:	**3.6GHz (2.6GHz for R3261A,C/R3361A,C)**

④ **Input to the spectrum analyzer a signal of -20dBm at a frequency between 9kHz and 3.6GHz (2.6GHz for R3261A,C/R3361A,C), and confirm that the deviation as read on the screen for each frequency is within ±1dB.**

Cont'd



Confirm that the deviation for each frequency is within ±0.5dB

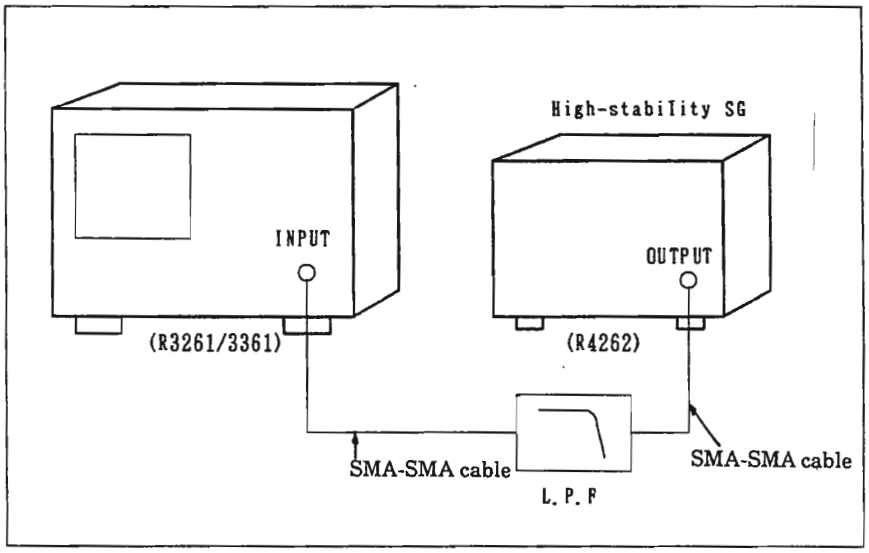
4.4.9 Testing Spurious Response

Procedure

① From the preset condition, set the spectrum analyzer as follows:

CENTER FREQ	:	500MHz
FREQ SPAN	:	1000MHz
REF LEVEL	:	-10dBm
RBW	:	1MHz
VBW	:	10kHz
ATT	:	0dB

② Input a signal of -10dBm from a low-distortion signal generator to the spectrum analyzer. A signal from a signal generator with a low-pass filter capable of reducing the level of the second harmonics by a least 60dB will also work.



③ Change the output frequency of the low-distortion signal generator from 10MHz to 500MHz and confirm that the signal level of the second harmonics is lower than that of the reference waveform by at least 50dB(equivalent to 70dB for -30dBm input).

Cont'd

④ For low-distortion signal generator frequencies of 500MHz or over, change the setting of the spectrum analyzer as shown in Table 4-11.

Table 4-11 CENTER FREQ AND SPAN for Dynamic Range Test

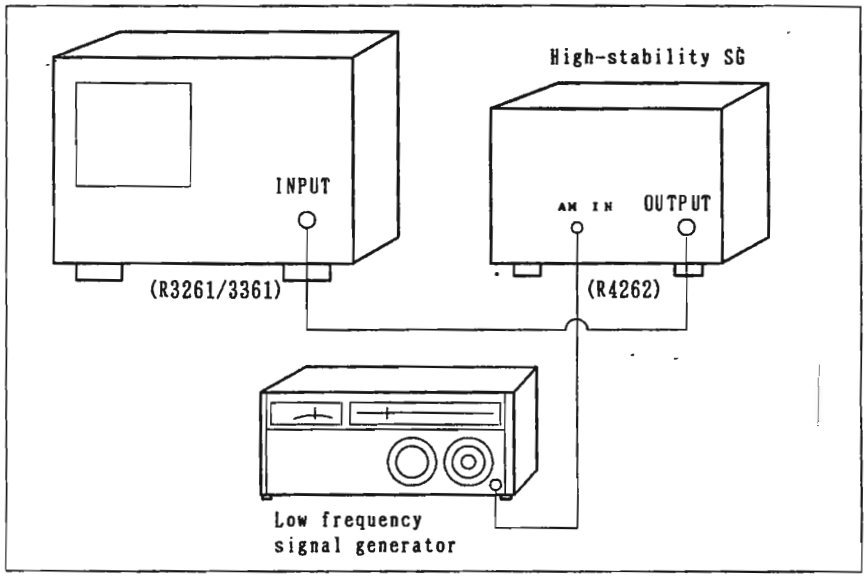
Frequency [MHz] SG	R3261A,C/B,D R3361A,C/B,D Set	
	CENTER FREQ [GHz]	SPAN [GHz]
10 to 500	0.5	1
500 to 1000	1.5	1
1000 to 1500 (1300)	2.5	1
1500 to 1800	3.3	0.6

( )·····R3261A,C/R3361A.C

4.4.10 Testing Stability of Sweep Time

Procedure

① Input a 30MHz, -5dBm, amplitude-modulated signal (100Hz, 30% modulation) from the signal generator to the spectrum analyzer.

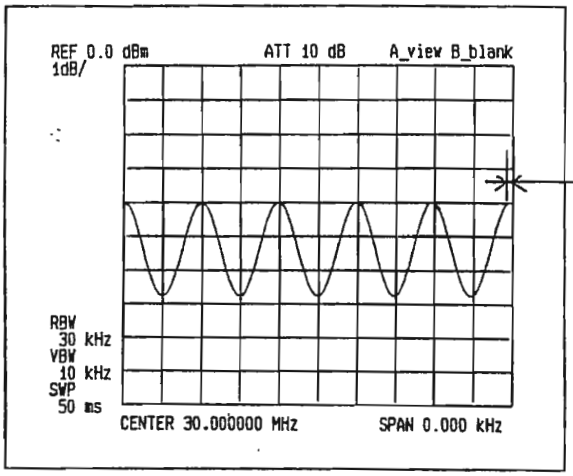


② From the preset condition, set the spectrum analyzer as follows:

CENTER FREQ	:	30MHz
SPAN	:	0kHz
RBW	:	30kHz
dB/div	:	1dB
TRIGGER	:	VIDEO
SWEEP TIME	:	50ms

③ Confirm that there are 5 cycles ±3/20 cycles (±1. 5ms, ±0.3div.) of the amplitude-modulated waveform on the screen.

Cont'd


REF 0.0 dBm
ATT 10 dB
A_view B_blank
1dB/
RBW
30 kHz
VBW
10 kHz
SWP
50 ms
CENTER 30.000000 MHz
SPAN 0.000 kHz
±1.5ms (±3%) or less

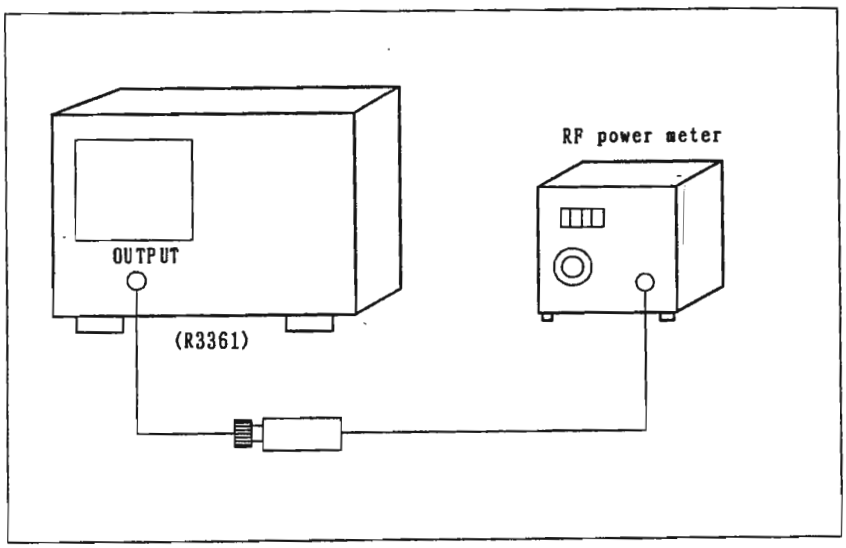
4.4.11 Testing Stability of TG Output Level (For R3361A,C/B,D only)

Procedure

① **Reset and then set the spectrum analyzer (R3361A,C/B,D only) to the following settings:**

CENTER FREQ	:	30MHz
FREQ SPAN	:	0Hz
TG	:	ON
TG LEVEL	:	-10dBm

② Connect an RF power meter to the spectrum analyzer at the TG OUTPUT to measure the TG output level. Confirm that the TG output level is -10dBm ±0.5dB. If not, make adjustments according to "5.4.6 (1) Adjusting 1dB Attenuator Output Level Stability".



4.4.12 Testing TG Frequency Response (For R3361A,C/B,D only)

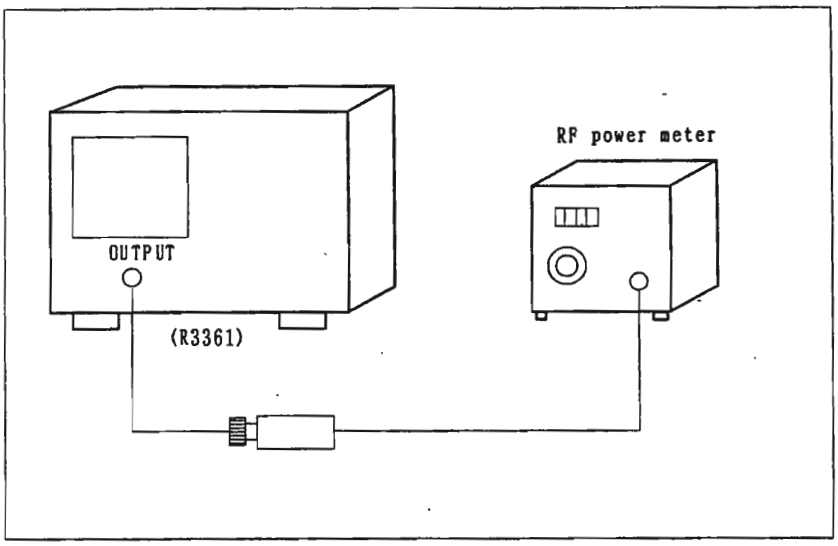
Procedure

① Reset and then set the spectrum analyzer (R3361A,C/B,D only) to the following settings:

CENTER FREQ	:	30MHz
FREQ SPAN	:	0Hz
TG	:	ON
TG LEVEL	:	-10dBm

② Connect an RF power meter with the spectrum analyzer at the TG output.

③ Confirm that the TG output level is ±0.7dB for the output level in CENTER FREQ of 30MHz when the CENTER FREQ of the R3361A,C/B,D is changed in a range of 100kHz to 1.0GHz.



④ Confirm that the TG output level is ±1.5dB for the output level in CENTER FREQ of 30MHz when the CENTER FREQ of the spectrum analyzer is changed in a range of 9kHz to 2.6GHz.

⑤ Confirm that the TG output level is ±2.0dB for the output level in CENTER FREQ of 30MHz when the CENTER FREQ of the spectrum analyzer is changed in a range of 9kHz to 3.6GHz.

4.4.13 Testing Stability of TG Output Level Changeover (For R3361A,C/B,D only)

Procedure

① Reset and then set the spectrum analyzer (R3361A,C/B,D only) to the following settings:

CENTER FREQ	:	30MHz
FREQ SPAN	:	0Hz
TG	:	ON
TG LEVEL	:	-10dBm

② Connect an RF power meter to the spectrum analyzer to measure the TG output level.

③ Set the TG LEVEL to -15dBm, and take reading on power meter.

④ Confirm that the difference between the readings of steps③ and④ above is 5dB±1dB.

⑤ For a range from 0dBm to -50dBm of the TG output level, test according to Table 4-12.

Table 4-12 Stability of TG output Level Changeover

TG LEVEL [dBm]	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50
Output level difference at -10dBm setting	+10 ±1	+5 ±1	0	-5 ±1	-10 ±1	-15 ±1	-20 ±1	-25 ±1	-30 ±1	-35 ±1	-40 ±1

⑥ Perform steps ② to ④ for 1. 5GHz and 3.0GHz center frequencies. The deviations for 1.5GHz and 3.0GHz must be within ±2dB and ±3dB respectively.

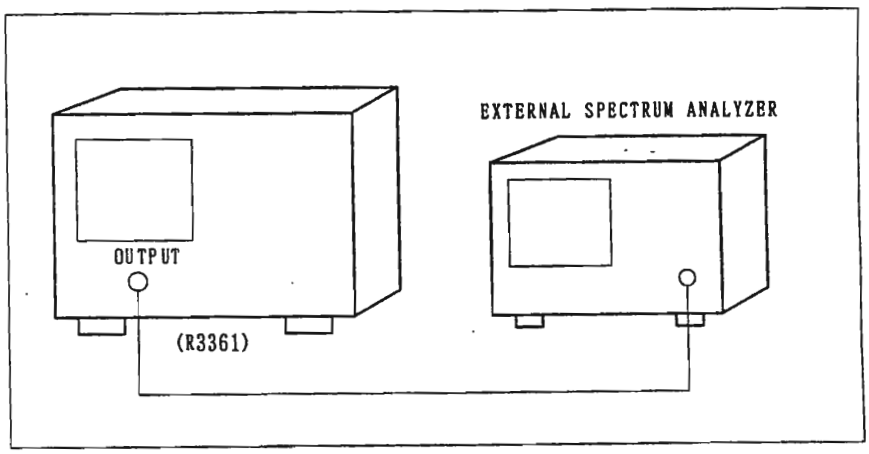
4.4.14 Testing Output Spurious (For R3361A,C/B,D only)

Procedure

① Reset and then set the spectrum analyzer (R3361A,C/B,D only) to the following settings:

CENTER FREQ	:	30MHz
FREQ SPAN	:	0Hz
TG	:	ON
TG LEVEL	:	0dBm

② Connect an external spectrum analyzer to the R3361A,C/B,D at the TG OUTPUT.



③ Change the center frequency to up to 3.6GHz for the R3361B/D, or 2.6GHz for the R3361A/C, and confirm that the harmonics spurious is lower than the basic waveform by at least -20dBc and that the non-harmonics spurious is lower by at least -30dBc.

4.4.15 Testing TG Leak (For R3361A,C/B,D only)

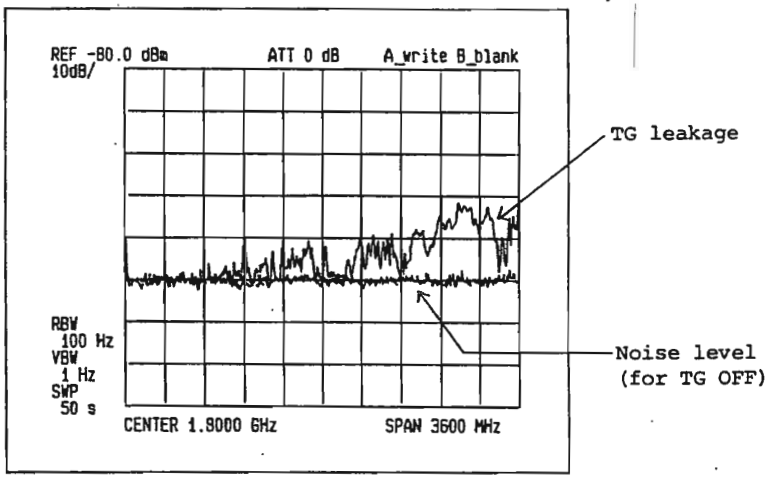
Procedure

① Reset and then set the spectrum analyzer (R3361A,C/B,D only) to the following settings:

REF LEVEL	:	-80dBm
SWP TIME	:	50sec
RBW	:	100Hz
VBW	:	1Hz
ATT	:	0dB
TG	:	ON
TG LEVEL	:	0dBm

② Execute the TG FREQ CAL (AUTO) to compensate for any tracking error. Make no connection to the INPUT or TG OUTPUT connector.

③ Confirm that TG leak is not more than -110dBm for up to 3GHz, and not more than -100dBm for up to 3.6GHz.



4.5 Test Report

The test report form for the spectrum analyzer is given below.

R3261A,C/B,D R3361A,C/B,D Test Report

Item		Specification	Measurement
1. CAL signal test			
1. CAL signal level		-20dBm±0.3dB	dBm
2. Test using CAL signals			
1. Noise side band	20kHz offset	-105dBc/Hz	dBc/Hz
2. Frequency drift		300Hz/min	
3. Stability of resolution bandwidth (3dB bandwidth)	RBW 1MHz	±20%	%
	RBW 300kHz		%
	RBW 3kHz		%
4. Resolution bandwidth selectivity (60dB : 3dB)	RBW 1MHz	15 : 1	:
	RBW 300kHz		:
	RBW 3kHz		:
5. QP bandwidth stability (6dB bandwidth)	QP 120kHz	110kHz to 130kHz	kHz
	QP 9kHz	8kHz to 10kHz	kHz
	QP 200Hz	170Hz to 220Hz	Hz
6. Marker indication stability (normal mode)	SPAN 20MHz	±1.05MHz	MHz
	SPAN 10MHz	±550kHz	kHz
	SPAN 2MHz	±160kHz	kHz
7. Marker indication stability (counter mode)	SPAN 20Hz	±1Hz	Hz
8. Average noise level		-121dBm+1.55f	dBm
9. Residual response		-100dBm	dBm
10. Switchover stability of resolution bandwidth		±0.3dB	dB

R3261A,C/B,D R3361A,C/B,D Test Report (Cont'd)

Item		Specification	Measurement
3. Test Using measuring equipment			
1. Reference oscillator stability		±2 x 10^{-8}	x10
2. Center frequency stability	SPAN 20MHz	±450kHz	kHz
	SPAN 10MHz	±250kHz	kHz
	SPAN 2MHz	±60kHz	kHz
	SPAN 1kHz	±50Hz	Hz
3. Frequency span stability	SPAN 2GHz	±3%	%
	SPAN 10MHz	±3%	%
	SPAN 2MHz	±5%	%
4. LOG linearity		±0.2dB/1dB	dB
		±1.0dB/10dB	dB
		±1.5dB/70dB	dB
		±2.0dB/110dB	dB
5. LIN linearity		±5% of Full Scale	%
6. Reference level stability	REF 0dBm to -50dBm	±0.3dB	dB
	REF -60dBm to -70dBm	±0.7dB	dB
7. Input attenuator changeover stability		±1.0dB	dB
8. Frequency response	100kHz to 2GHz	±0.5dB	dB
	9kHz to 3.6GHz	±1dB	dB
9. Spurious response	-10dBm INPUT	-50dBc	dBc
10. Sweep time stability		±3%	%
11. TG output level stability		±0.5dB	dB

R3261A,C/B,D R3361A,C/B,D Test Report (Cont'd)

Item		Specification	Measurement
12. TG output frequency response	100kHz to 1GHz	±0.7dB	dB
	9kHz to 2.6GHz	±1.5dB	dB
	9kHz to 3.6GHz	±2.0dB	dB
13. Stability of TG output level changeover	100kHz to 1GHz	±1.0dB	dB
	9kHz to 2.6GHz	±2.0dB	dB
	9kHz to 3.6GHz	±3.0dB	dB
14. Output spurious	Harmonics spurious	-20dB	dB
	Non-harmonic spurious	-30dB	dB
15. TG leakage	to 3.0GHz	-110dBm	dBm
	to 3.6GHz	-100dBm	dBm

5. ADJUSTMENTS

5.1 Measurement Standards & Support Test Equipment Performance Requirements

Minimum-Use-Specifications (MUS) are the calculated minimum performance specifications criteria needed for the Measurement Standards (MS) and Support Measuring & Test Equipment (S-M & TE) to be used for the comparison measurements required in the Adjustment Procedure (AP) process.

The MUS is developed through uncertainty analysis and is calculated through assignment of a defines and documented uncertainty/accuracy ratio or margin between the specified tolerances of the UUT and the capability (uncertainty specification) required of the measurement standards system. MUS is required to assist a measurement specialist in the evaluation of existing or selection of alternate measurement standards equipment.

CAUTION

The instructions in this AP relate specifically to the equipment and conditions listed in Section 5.2. If other equipment is substituted, the information and instructions must be interpreted and revised accordingly.

MS and S-M & TE Environmental Range :	Temperature ;	18°C to 28°C
	Relative Humidity ;	30 to 70%
MS and S-M & TE Warm-up/Stabilization Period Requirements :		2 Hours

Table 5-1 Measurement Standards (MS) Performance Requirements

Equipment Generic Name (Quantity)	Minimum Use Specifications (MUS)	Manufacturer/Model /Option Applicable
Frequency standard	Output frequency: 10 MHz Stability: 5×10^{-10}/day Output impedance: Approx. 50 Ω Output voltage: 1 Vp-p or more	TR3110
Frequency comparator	Frequency: 10 MHz 1×10^{-9} frequency detectable	
Synthesized signal generator	Frequency range: 10 MHz to 4 GHz Residual SSB phase noise: 1 kHz offset < −115 dBc/Hz 10 kHz offset < −125 dBc/Hz 100 kHz offset < −130 dBc/Hz Power level range: −100 to +10 dBm	R4262
Spectrum analyzer	Frequency range: Up to 100 MHz With built-in TG	R3361A, C/B,D
Power meter	Accuracy : ±0.02 dB Decibel relative mode	HP436A
Digital multimeter	DC voltage resolution: 5 digits or more	TR6851
Power sensor	Frequency range: 10 MHz to 18 GHz Power range: 1 μW to 100 mW	HP8481A
Impedance generator		R14602

Table 5-2 Support Measuring & Test Equipment (S-M&TE) Performance Requirements

Equipment Generic Name (Quantity)	Minimum Use Specifications (MUS)	Manufacturer /Model/Option Applicable
Cable	Length: 150 cm Connection: BNC (male) at both ends	MI-09
Cable	Frequency range: DC to 26.5 GHz Maximum SWR: <1.45 at 26.5 GHz Length: Approx. 70 cm Connector: SMA (male) at both ends	A01002
Cable	Frequency: 21.4 MHz Length: 100 cm Connector: UM (male), BNC (male)	MC-36A
Adapter	Type N (male) to SMA (female)	HRM-554S
Adapter	Type N (male) to BNC (female)	JUG-201A/U (Hirose)
Probe	Frequency: 3.5789 MHz 10:1 Impedance: 10 MHz	P6133 (Tektronix)

5.2 Preliminary Operations

WARNING

Always makes sure spectrum analyzer's power supply cord is plugged into a 3-hole grounded outlet or 2-hole outlet with grounded adapter. You can be fatally shocked if you fail to follow this rule.

Do not touch live circuits when calibrating instrument.

(1) Review this entire procedure before starting calibration procedure.

(2) Always operate the instrument on AC 100V (120V, 200V, 220V, or 240V) ±10% with a line frequency of 50Hz or 60Hz.

(3) Always confirm that the POWER switch is OFF before connecting the power cable to the AC line.

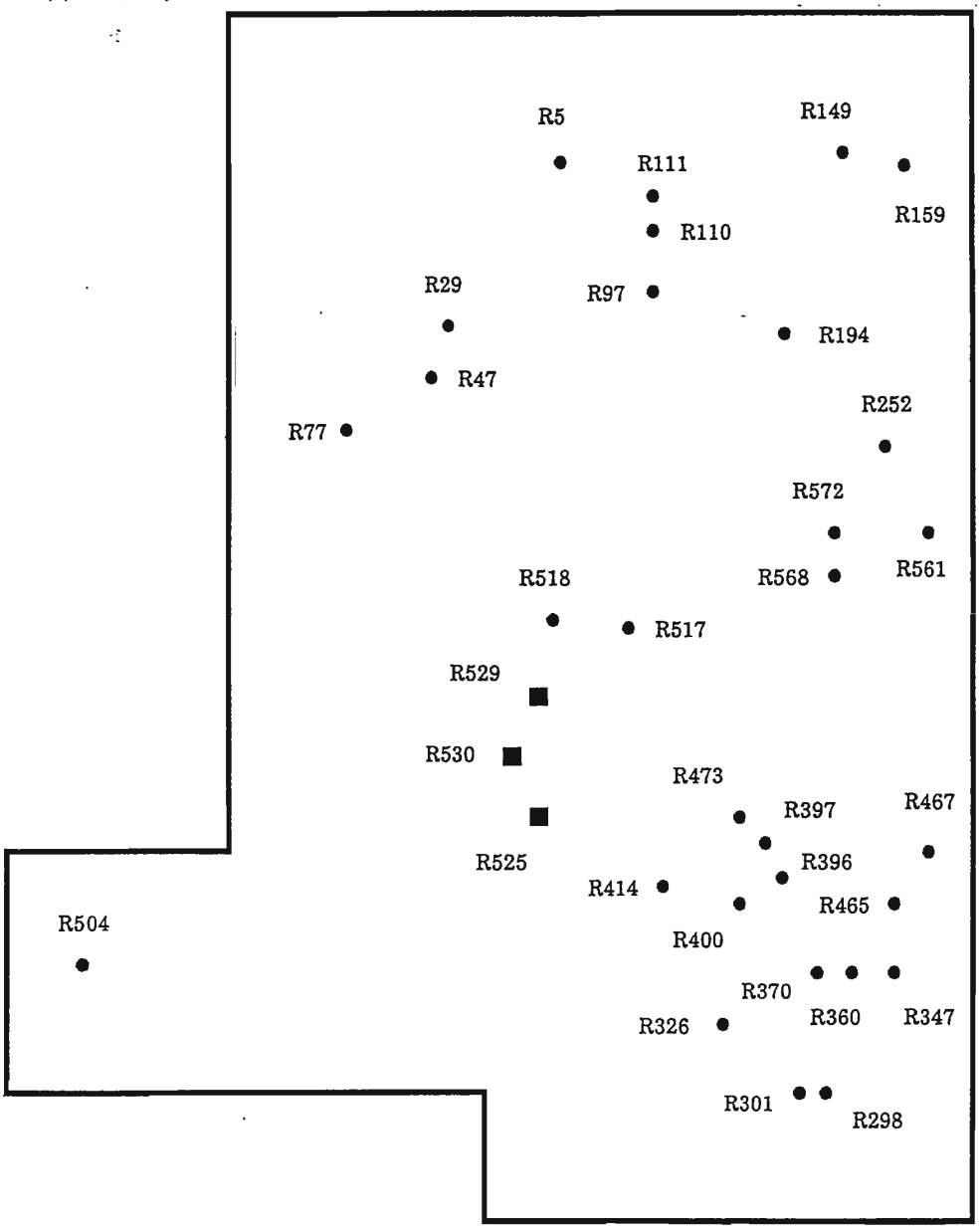
(4) Spectrum analyzer has a self-calibration function. This function compensates for adjusting shift caused by change with age of software. For calibration, turn off this function.

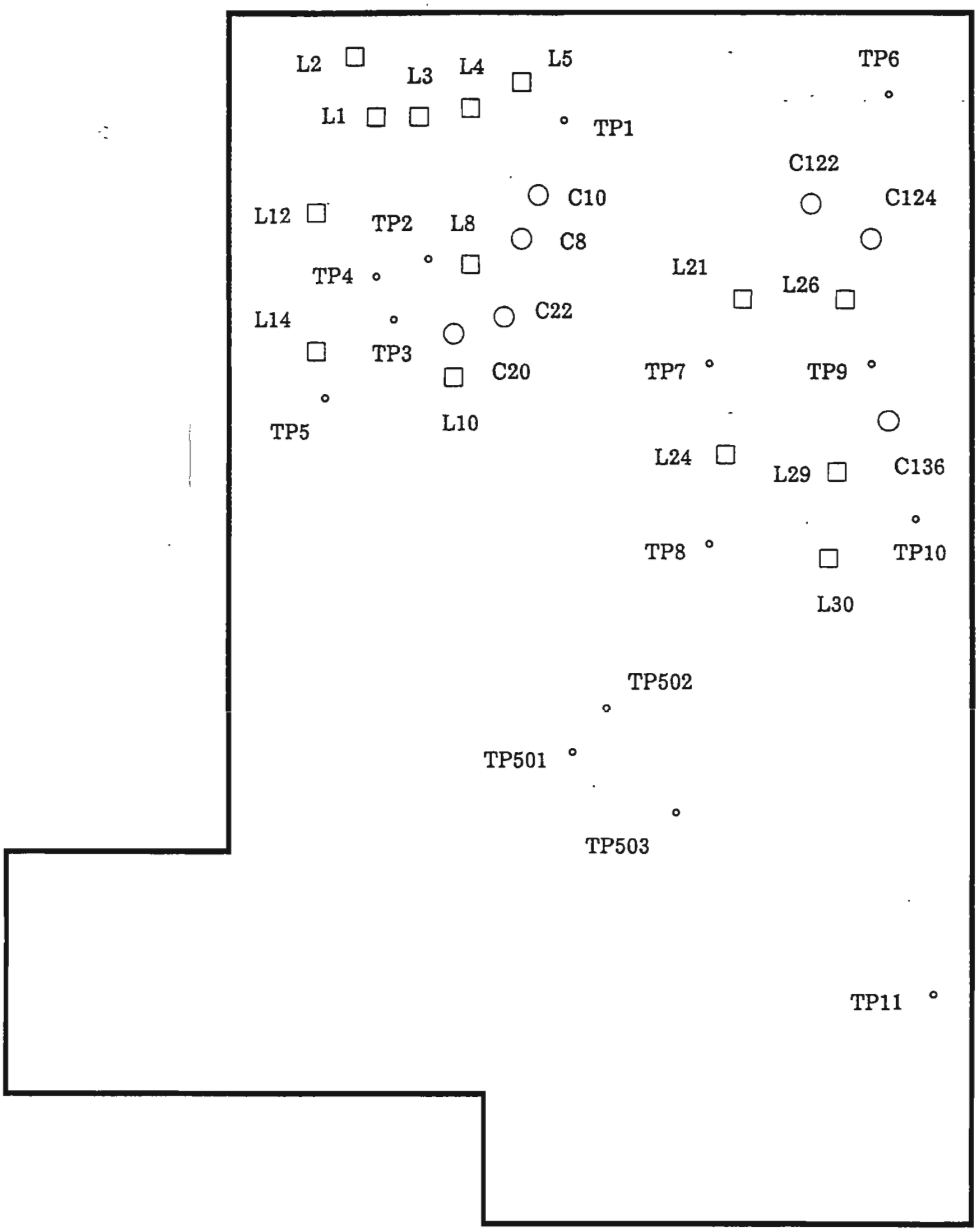
Operation Procedure : SHIFT | 7 | CAL COOR ON/OFF (SOFT KEY 6)

5.3 Calibration Process

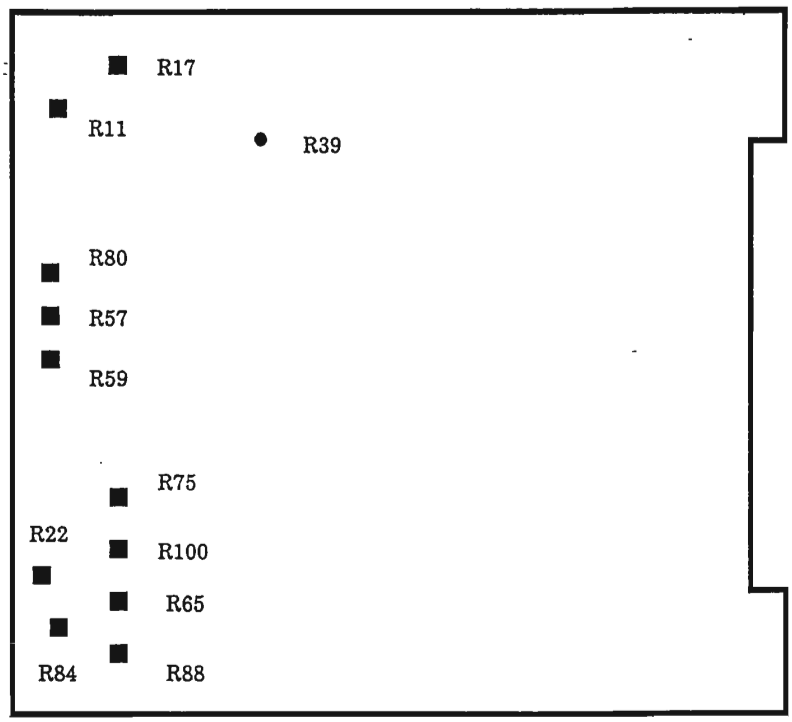
LOCATION

(1) IF (BLQ-015668)

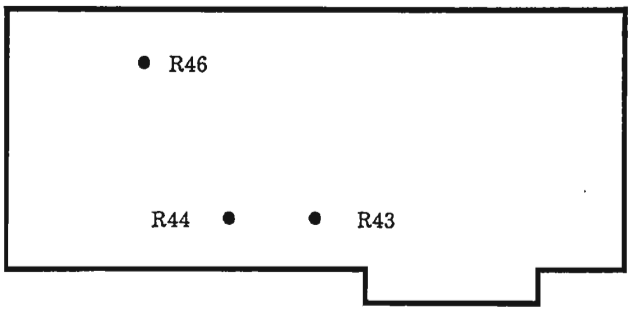



L2
L3
L4
L5
TP6
L1
TP1
C122
C10
C124
L12
TP2
L8
C8
TP4
L21
L26
L14
C22
TP3
TP7
TP9
C20
TP5
L10
L24
L29
C136
TP8
TP10
L30
TP502
TP501
TP503
TP11

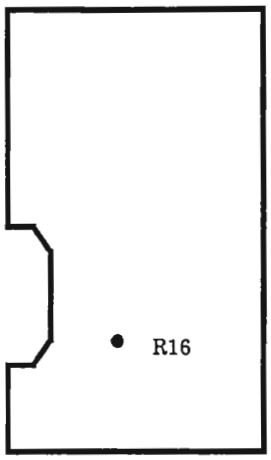
(2) RF CONT (BLL-015672)



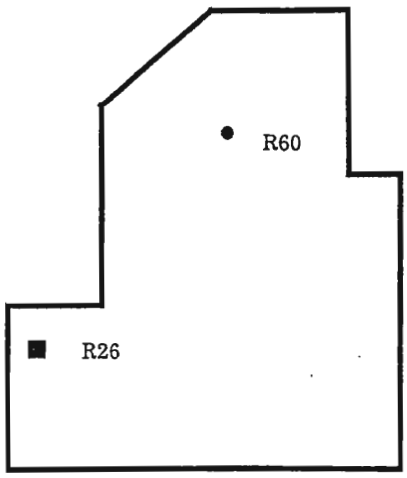
(3) ALC CONT (BLC-015680)



(4) CAL AMP (BLB-015646)



(5) YTO DRIVER (BLB-015647)



5.3.1 Center Frequency Accuracy Adjustment

(1) 10MHz Frequency Reference Adjustment

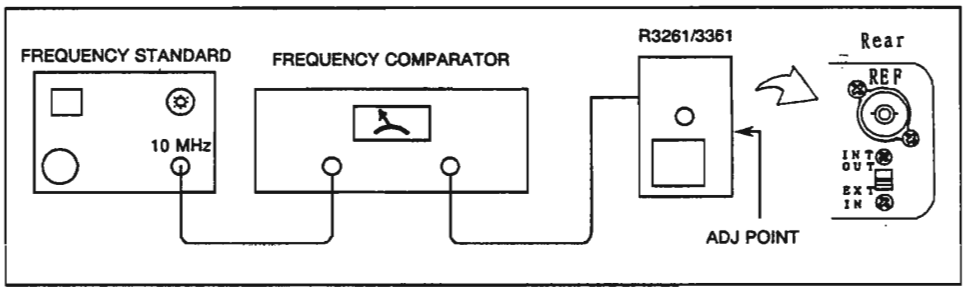
- DESCRIPTION

  Connect the signal cable between the 10MHz terminal of the Frequency Standard unit and the Frequency Comparator unit. Also, connect the cable between the 10MHz REF OUT terminal at the rear panel of R3261/3361 and the Frequency Comparator unit. Adjust the internal crystal oscillator of the R3261/3361 by comparing the signal.

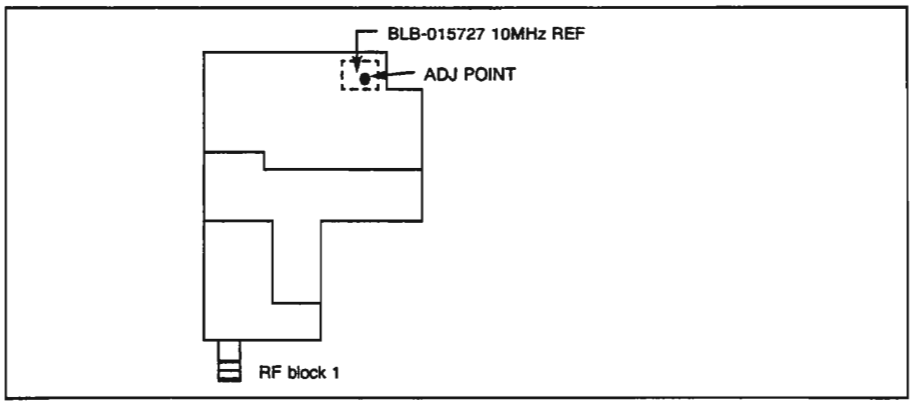
- EQUIPMENT

  Frequency Standard unit TR3110
  Frequency Comparator (supporting 10MHz, 1×10^{-9} signal detection)
  Cables ..... BNC (male), 150cm long MI-09 (TWO)

- CONNECTION



- ASSEMBLY ADJUSTED



- PROCEDURE

Note: Allow the R3261/3361 warm up for at least 30 minutes before performing this adjustment.

① Remove the lower cover of R3261/3361 and then connect the equipment as shown in the figure of CONNECTION.

② Set the 10MHz REF of the R3261/3361 to INT.
Change the rear panel S.W.

CAUTION

When the 10MHz reference is set to EXT, the crystal oscillator is not warmed up. If the reference is set to EXT, set the reference to INT and allow 30 minutes for the crystal oscillator warm up.

③ Adjust the 10MHz REF so that the indicator of frequency comparator reaches within $\pm 1 \times 10^{-8}$.

ADJ 10MHz REF (BLB-015727)

④ Attach the cover.

(2) YTO ADJUSTMENT

- DESCRIPTION

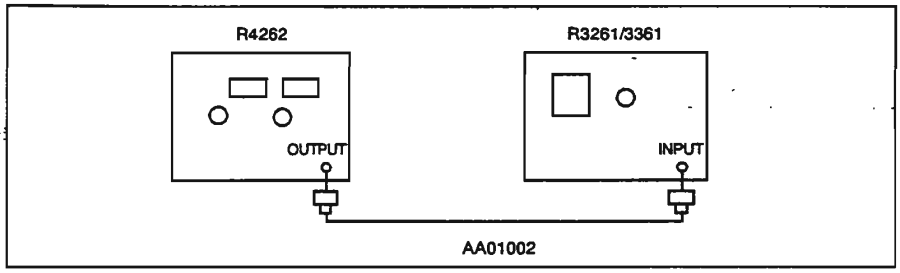
Adjust the offset tune of YTO with the center frequency set to 0Hz and 3.6GHz, respectively. The first local PLL must be turned off.

- EQUIPMENT

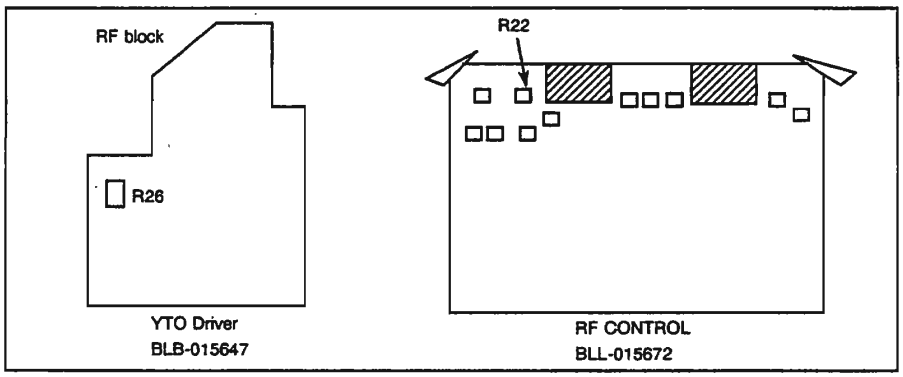
High-stability SG	(to 3.6GHz or to 2.4GHz)	R4262	
Cables	SMA (male), 70cm long	AA01002	
Adapters	N (male) to SMA (female),	HRM-554S	(TWO)

Use the adapter assembly of the impedance 75Ω for N type R3261/3361.

- CONNECTION



- ASSEMBLY ADJUSTMENT



- PROCEDURE

① Remove the cover of R3261/3361 to connect as shown in the figure of CONNECTION.

② Pull out the J3 connector on RF CONT, BLL-015672.
Short 5PIN and 6PIN in J3.

③ Power on SG and R3261/3361 and warm up them for a while.

④ Setting SG

f: 3.6GHz (B type), 2.6GHz (A type)

Po: −20dBm

⑤ Setting R3261/3361 (After pressing the [PRESET] key)

SPAN: 20MHz

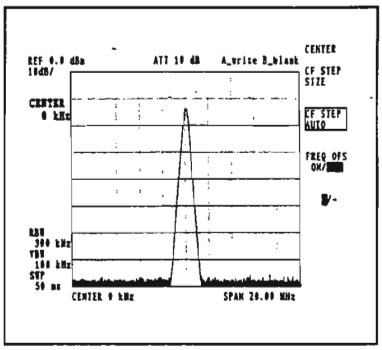
[SPAN] [2] [0] [MHz]

⑥ Set the **CENTER FREQUENCY** to 0Hz on R3261/3361.

CENT FREQ | 0 | Hz

Adjust R62 until the spectrum becomes 0Hz ±1MHz.

ADJ YTO driver (BLB-015647) R26



⑦ Set the **CENTER FREQUENCY** to 3.6GHz (for B type) and 2.6GHz (for A type), respectively, on R3261/3361.

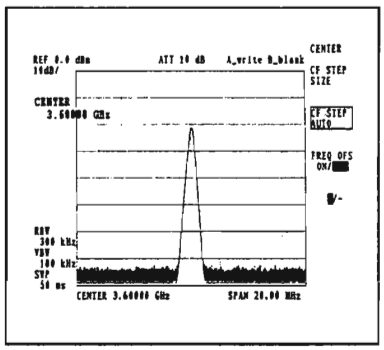
CENT FREQ | 3 | . | 6 | GHz (B type)

or

CENT FREQ | 2 | . | 6 | GHz (A type)

Adjust R80 until the frequency of SG becomes ±1MHz.

ADJ RF CONT (BLL-015672) R80



⑧ Repeat ⑥ and ⑦ until each specification is met.

⑨ Turn the power on and connect the J3 connector to the original position.

5.3.2 Frequency Span Adjustment

- DESCRIPTION

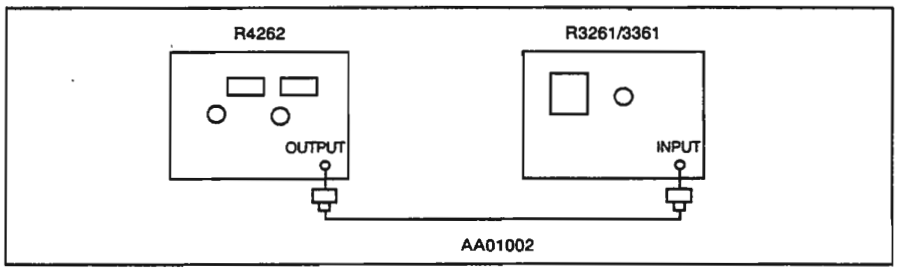
  Display two spectrums by using the SG signal and a local feed through. Adjust the MAIN SPAN and each span of 10MHz, 2MHz and Log with variable resistor.

- EQUIPMENT

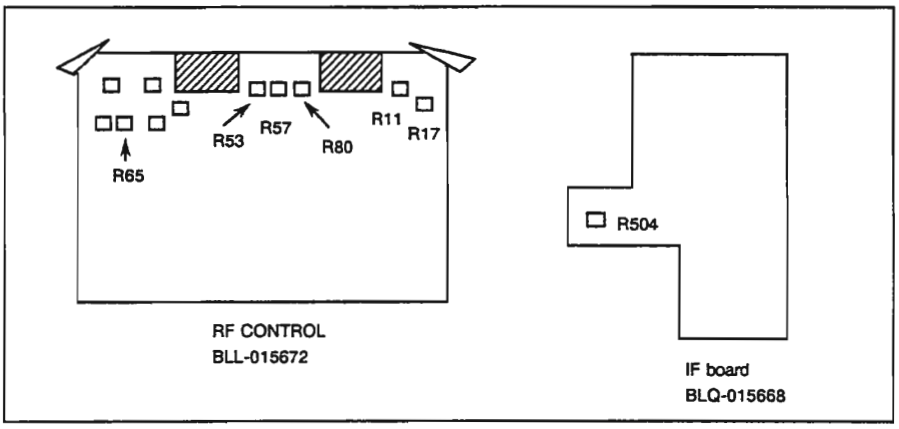
High-stability SG	(to 3.6GHz or to 2.4GHz)	R4262
Cables	SMA (male), 70cm long	AA01002
Adapters	N (male) to SMA (female),	HRM-554S (TWO)

  Use the adapter assembly of the impedance 75Ω for N type R3261/3361.

- CONNECTION



- ASSEMBLY ADJUSTMENT



(1) MAIN SPAN

- PROCEDURE

① Remove the cover and connect as shown in the figure of CONNECTION.

② Setting SG

f: 3.24GHz (B type)
2.34GHz (A type)

Po: −20dBm

Setting R3261/3361 (After pressing the PRESET key)

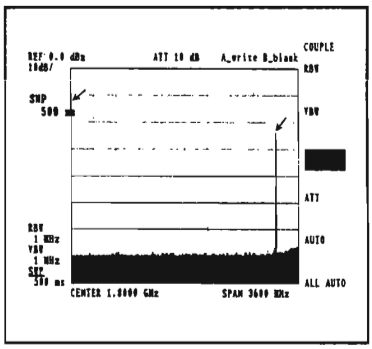
SWP: 500ms

CPL → SWP → ↑ → ↑ → ↑

③ Calibration of frequency span of R3261/3361

Adjust the local feedthrough (0Hz spectrum) with VR R504 to the scale left end. Adjust frequency span from the scale left end to 9dev with R22 adding the signal from SG.

ADJ IF board (BLQ-015668) R504 *OFFSET
RF CONTROL (BLL-015672) R22 *GAIN



(2) 10MHz SPAN

- PROCEDURE

① The connection is the same with the MAIN SPAN adjustment.

② Setting SG

f: 8MHz

Po: −20dBm

③ Setting R3261/3361 (After pressing the [PRESET] key)

CENT FREQ: 4MHz

[CENT FREQ] [4] [MHz]

SPAN: 10MHz

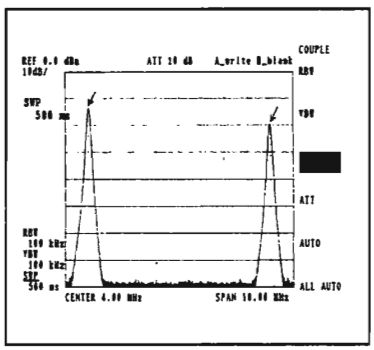
[SPAN] [1] [0] [MHz]

SWP: 500ms

[CPL] [SWP] [↑] [↑] [↑]

④ Adjust R57 so that each spectrum of 0Hz and 8MHz may be positioned on the scale that is one division away from each end of the screen on R3261/3361.

ADJ RF CONTROL R57



(3) 2MHz SPAN

- PROCEDURE

① The connection is the same with the MAIN SPAN adjustment.

② Setting SG

f: 1.6MHz
Po: −20dBm

③ Setting R3261/3361 (After pressing the [PRESET] key)

CENT FREQ: 800kHz

[CENT FREQ] [8] [0] [0] [kHz]

SPAN: 2MHz

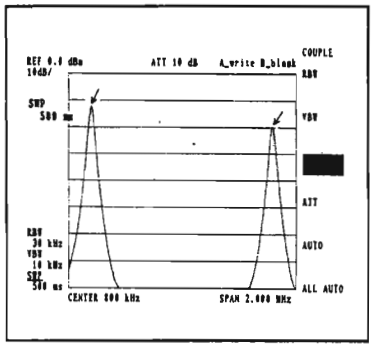
[SPAN] [2] [MHz]

SWP: 500ms

[CPL] [SWP] [↑] [↑] [↑]

④ Adjust R53 so that each spectrum of 0Hz and 1.6MHz may be positioned on the scale that is one division away from each end of the screen on R3261/3361.

ADJ RF CONTROL R53



(4) LOG SPAN

- PROCEDURE

① The connection is the same with the MAIN SPAN adjustment.

② Setting R3261/3361 (After pressing the PRESET key)

SPAN: LOG 100 MHz to 1000MHz

SPAN | LOG

Marker: PEAK SEARCH ON

PEAK | NEXT MENU | PEAK CONT ON/OFF

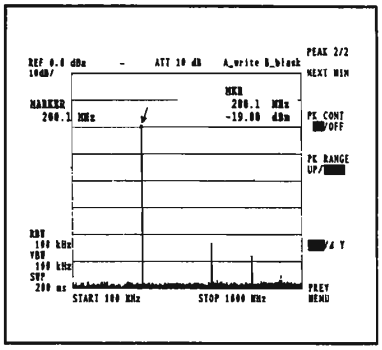
③ Setting SG

f: 200MHz

Po: −20dBm

Adjust R17 until the marker value becomes 200MHz±5MHz on R3261/3361.

ADJ RF CONTROL (BLL-015672) R17

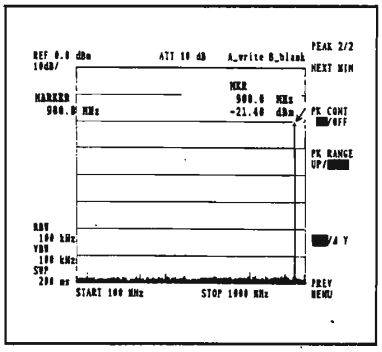


④ Changing the SG setting

f: 900MHz

Adjust R11 until the marker value becomes 900MHz±5MHz on R3261/3361.

ADJ RF CONTROL R11



⑤ Repeat ③ and ④ until each specification is met.

⑥ Reinstall the cover.

5.3.3 Resolution Bandwidth Accuracy Adjustment

- DESCRIPTION

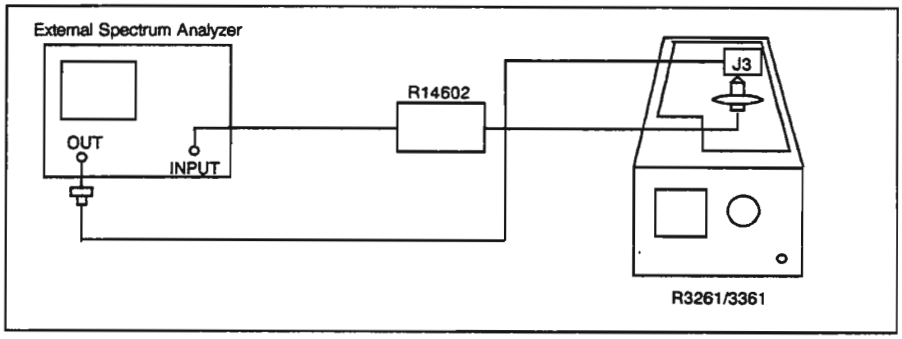
  IF filter consists of eight band-pass filters; four of them are made of L and C; others are made of a crystal filter.

  Resolution waveforms of the IF filter can be observed with a external spectrum analyzer possessing TG.

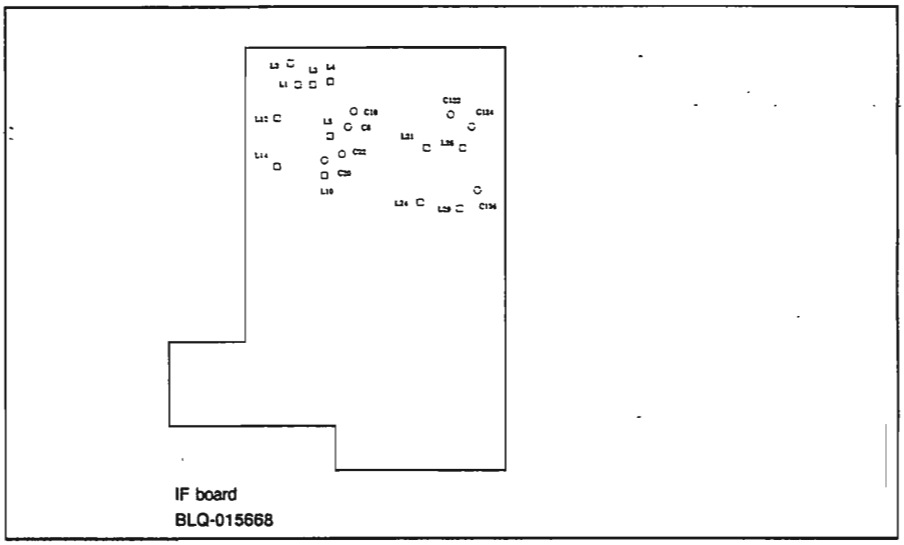
- EQUIPMENT

External Spectrum Analyzer ..	R3361A, C/B, D
Impedance converter	R14602
10MΩ Probe	P6133
Cables	UM-BNC, 100cm long MC-36A
Adapters	N (male) to BNC (female), JUG-201 A/U

- CONNECTION



- ASSEMBLY ADJUSTMENT



- PROCEDURE

① Remove the upper cover of R3261/3361 and then remove the shield case of the IF board.

② Connect TG Out of external spectrum analyzer to IF board (BLQ-015668) J3.

③ Connect the 10MΩ probe to input of the external spectrum analyzer passing the impedance converter, and set as follows:

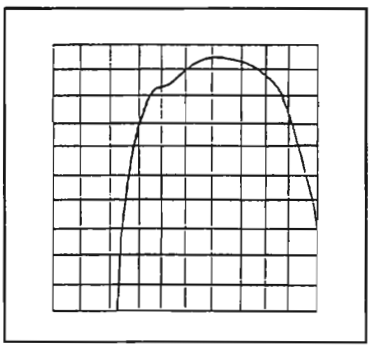
CENTER FREQ : 3.5789MHz
TG LEVEL : −20dBm

④ Setting R3261/3361 (After pressing the PRESET key)

CAL CORRECTION: OFF

SHIFT | 1 | CAL CORR ON/OFF

⑤ Connect the 10MΩ probe to IF board (BLQ-015668) TP1, and observe the form of 3.5789MHz band-pass filter. Adjust L1, L2, L3 and L4 so that the center frequency is 3.5789MHz and symmetrical.
(Refer to circuit 2/38)



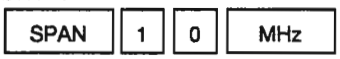
⑥ Connect 10MΩ probe to TP4. Set the external spectrum analyzer and the R3261/3361 spectrum analyzer as follows:

a) External spectrum analyzer
FREQ SPAN: 200kHz

b) R3261/3361

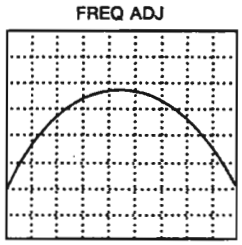
RBW: 10kHz

SPAN: 10MHz



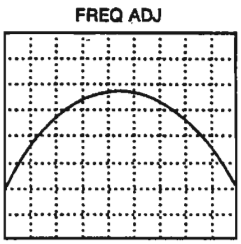
⑦ Adjust so that the peak of TP4 waveform is 3.5789MHz.

ADJ IF board (BLQ-015668) L12 (circuit 4/38)



⑧ Connect 10MΩ probe to TP5, adjust so that the peak of TP5 waveform is 3.5789MHz.

ADJ IF board L14 (circuit 4/38)



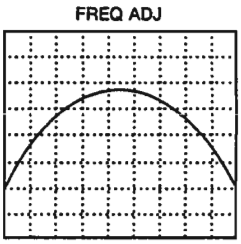
⑨ Connect 10MΩ probe to TP2. Set the spectrum analyzer as follows:

R3261/3361
RBW: 3kHz

CPL	RBW	3	kHz

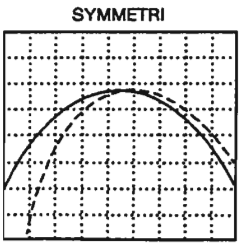
⑩ Adjust so that peak of TP2 waveform is 3.5789MHz.

ADJ IF board L8 (circuit 3/38)



Also adjust so that the waveform is symmetrical.

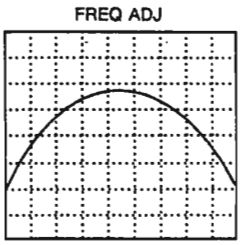
ADJ IF board C8 (circuit 3/38)



Repeat the adjustment several times till both are satisfied.

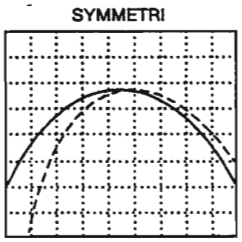
⑪ Connect the 10MΩ probe to TP3 and adjust so that peak of TP3 waveform is 3.5789MHz.

ADJ IF board L10 (circuit 3/38)



Also adjust so that the waveform is symmetrical.

ADJ IF board C20 (circuit 3/38)



Repeat the adjustment several times till both are satisfied.

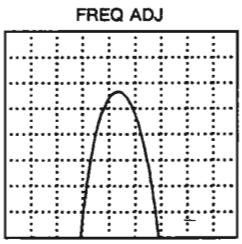
⑫ Connect the 10MΩ probe to TP2. Set the spectrum analyzer as follows:

R3261/3361
RBW: 30Hz

3	0	Hz

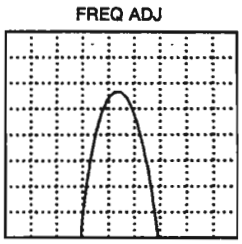
Adjust so that peak of TP2 waveform is 3.5789MHz.

ADJ IF board C10 (circuit 3/38)



⑬ Connect the 10MΩ probe to TP3 and adjust so that peak of TP3 waveform is 3.5789MHz.

ADJ IF board C22 (circuit 3/38)



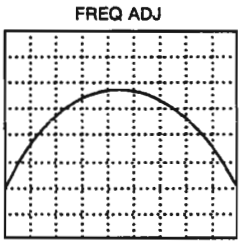
⑭ Connect the 10MΩ probe to TP7. Set the spectrum analyzer as follows:

R3261/3361
RBW: 10kHz

1	0	kHz

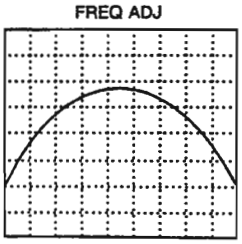
Adjust so that the peak of TP7 waveform is 3.5789MHz.

ADJ IF board L21 (circuit 10/38)



⑮ Connect 10MΩ probe to TP8 and adjust so that the peak of TP8 waveform is 3.5789MHz.

ADJ IF board L24 (circuit 10/38)



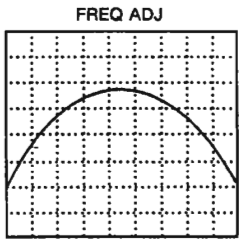
⑯ Connect 10MΩ probe to TP9. Set the spectrum analyzer as follows:

R3261/3361
RBW: 3kHz

3	kHz

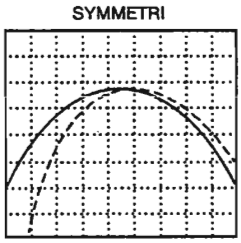
⑰ Adjust so that the peak of TP9 waveform is 3.5789MHz.

ADJ IF board L26 (circuit 11/38)



Also adjust so that the waveform is symmetrical.

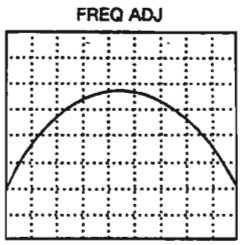
ADJ IF board C124 (circuit 11/38)



Repeat the adjustment several times till both are satisfied.

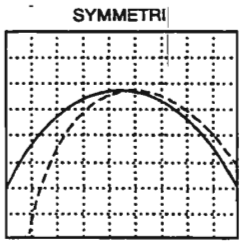
⑱ Connect 10MΩ probe to TP10 and adjust so that peak of TP10 waveform is 3.5789MHz.

ADJ IF board L29 (circuit 11/38)



Also adjust so that the waveform is symmetrical.

ADJ IF board C136 (circuit 11/38)



Repeat the adjustment several times till both are satisfied.

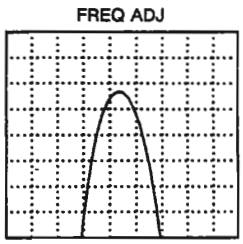
⑲ Connect the 10MΩ probe to TP9. Set the spectrum analyzer as follows:

R3261/3361
RBW: 30Hz

3	0	Hz

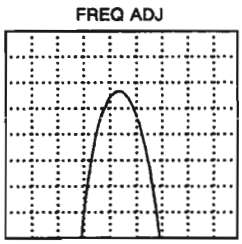
Adjust so that peak of TP9 waveform is 3.5789MHz.

ADJ IF board C122 (circuit 11/38)



⑳ Connect the 10MΩ probe to TP10, and adjust so that peak of TP3 waveform is 3.5789MHz.

ADJ IF board C124 (circuit 11/38)



㉑ Remove the input cable connected to the external spectrum analyzer and then connect the J3 connector to the original position.

5.3.4 Resolution Band Width Switching Between Adjustment

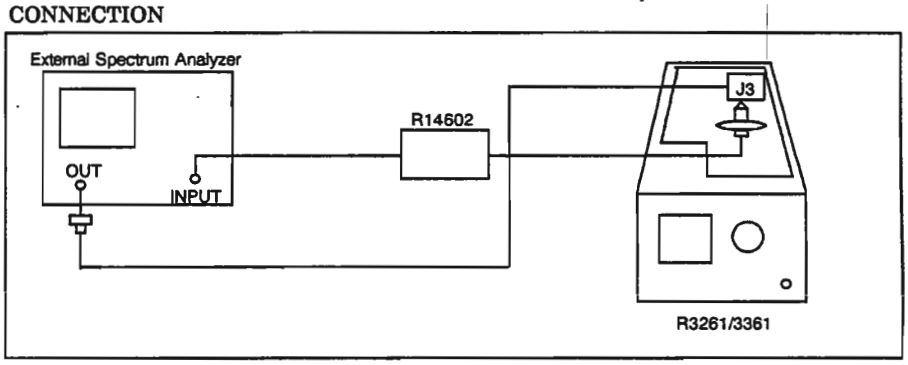
- DESCRIPTION

  One IF filter in two IF filter group is adjusted with another spectrum analyzer with TG function. Another IF filter group is adjusted with the screen of R3261/3361. Each RBW of 10kHz, 3kHz and 30Hz is adjusted based on RBW of 300kHz.

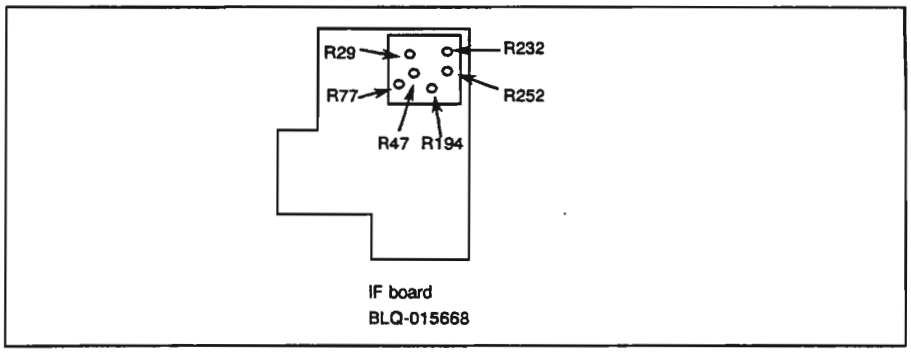
- EQUIPMENT

External Spectrum Analyzer ..	R3361A, C/B, D	
Impedance converter	R14602	
10MΩ Probe	P6133	
Cables	UM-BNC, 100cm long	MC-36A
Adapters	N (male) to BNC (female),	JUG-201 A/U

- CONNECTION



- ASSEMBLY ADJUSTMENT



(1) IF-1

① Remove the upper cover of R3261/3361 and then remove the shield case of the IF board.

② Connect TG out of external spectrum analyzer to IF board (BLQ-015668) J3.

③ Connect the 10MΩ probe to input of the external spectrum analyzer passing the impedance converter, and set as follows:

CENTER FREQ:	3.5789MHz
TG LEVEL:	−20dBm
SPAN:	200kHz
RBW:	100kHz
dB/div:	0.1dB/div

④ Setting R3261/3361 (After pressing the [PRESET] key)

CAL CORRECTION: OFF

[SHIFT] [1] [CAL CORR ON/OFF]

RBW: 300kHz

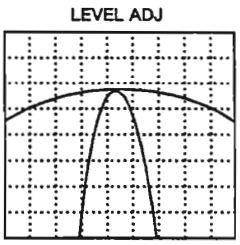
[CPL] [RBW] [3] [0] [0] [kHz]

⑤ Connect the 10MΩ probe to IF board (BLQ-015668) TP5 and read the peak value of waveform.

⑥ Set the spectrum analyzer as follows:

R3261/3361
RBW: 10kHz

[1] [0] [kHz]



Adjust so that the peak level of the filter is the same as that of RBW at 300kHz above.

ADJ IF board(BLQ-015668) R77 (Refer to circuit 4/38)

⑦ Connect 10MΩ probe to TP5 and set the external spectrum analyzer and the spectrum analyzer as follows:

a) External spectrum analyzer

SPAN: 5kHz

b) R3261/3361

RBW: 3 kHz

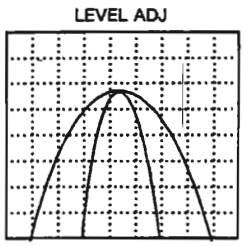
3	kHz

Read the peak value of waveform.

⑧ Set the spectrum analyzer as follows:

R3261/3361
RBW: 30Hz

3	0	Hz



Adjust so that the peak level of the filter is the same as that of RBW at 3kHz above.

ADJ IF board R29 (circuit 3/38)

⑨ Set the external spectrum analyzer and the spectrum analyzer as follows:

a) External spectrum analyzer

SPAN: 100kHz

b) R3261/3361

RBW: 300kHz

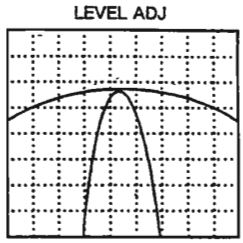
3	0	0	kHz

Read the peak value of waveform.

⑩ Set the spectrum analyzer as follows:

R3261/3361
RBW: 3kHz

3	kHz



Adjust so that the peak level is the same as that of RBW at 300kHz above.

ADJ IF board R47 (circuit 3/38)

⑪ Remove the input cable connected to the external spectrum analyzer and then connect the J3 connector to the original position.

(2) IF-2

① Remove the upper cover of R3261/3361 and then remove the shield case of the IF board.

② Setting R3261/3361 (After pressing the [PRESET] key)

CENTER FREQ: 30MHz

[CENTER FREQ] [3] [0] [MHz]

SPAN: 200kHz

[SPAN] [2] [0] [0] [kHz]

RBW: 300kHz

[CPL] [RBW] [3] [0] [0] [kHz]

REF LEVEL: −19.5dBm

[REF LEVEL] [1] [9] [.] [5] [−dBm]

dB/div 0.1dB/

[dB/div] [↓] [↓] [↓] [↓] [↓] [↓]

CAL SIGNAL: ON

[SHIFT] [1] [CAL SIG ON/OFF]

CAL CORRECTION: OFF

[CAL CORR ON/OFF]

Read the peak level of waveform.

③ Set the spectrum analyzer as follows:

R3261/3361
RBW: 10kHz

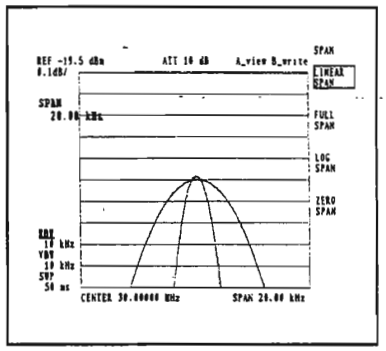
[CPL] [RBW] [1] [0] [kHz]

SPAN: 20kHz

[SPAN] [2] [0] [kHz]

Adjust so that the peak level of filter is the same as that of RBW at 300kHz above.

ADJ IF board R194 (circuit 10/38)



④ Set the spectrum analyzer as follows:

R3261/3361
RBW: 3kHz

[CPL] [RBW] [3] [kHz]

SPAN: 5kHz

[SPAN] [5] [kHz]

Read the peak level of waveform.

⑤ Set the spectrum analyzer as follows:

R3261/3361
RBW: 30Hz

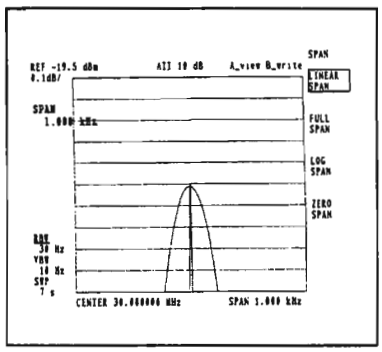
[CPL] [RBW] [3] [0] [Hz]

SPAN: 1kHz

[SPAN] [1] [kHz]

Adjust so that the peak level of filter is the same as that of RBW at 3kHz above.

ADJ IF board R232 (circuit 11/38)



⑥ Set the spectrum analyzer as follows:

R3261/3361
RBW: 300kHz

CPL	RBW	3	0	0	kHz

SPAN: 200kHz

SPAN	2	0	0	kHz

Read the peak level of waveform.

⑦ Set the spectrum analyzer as follows:

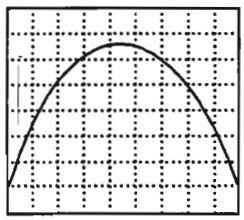
R3261/3361
RBW: 3kHz

CPL	RBW	3	kHz

SPAN: 5kHz

SPAN	5	kHz

MAX ADJ

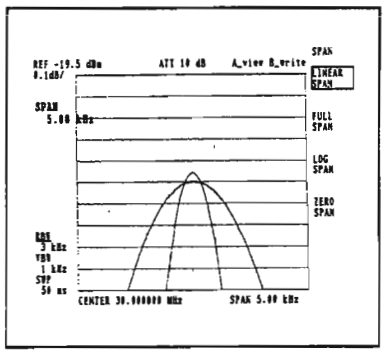


Adjust to maximize the peak of waveform filter.

ADJ IF board L30 (circuit 12/38)

⑧ Adjust so that the peak level of filter is the same as that of RBW at 300kHz above.

ADJ IF board R252 (circuit 11/38)



⑨ Reinstall the shield case and then reinstall the upper cover of R3261/3361.

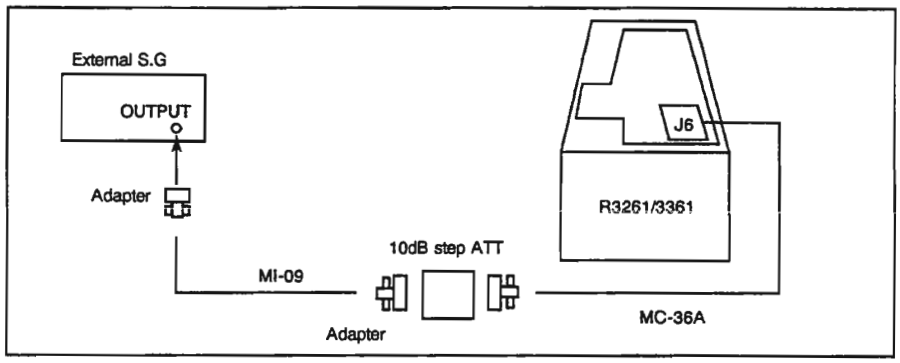
5.3.5 LOG/LINEAR Amplifier Linearity Adjustment

- DESCRIPTION
  The LOG/LIN GAIN, OFFSET, MAG AMP, QP DET value can be adjust by changing the variable resistor values.

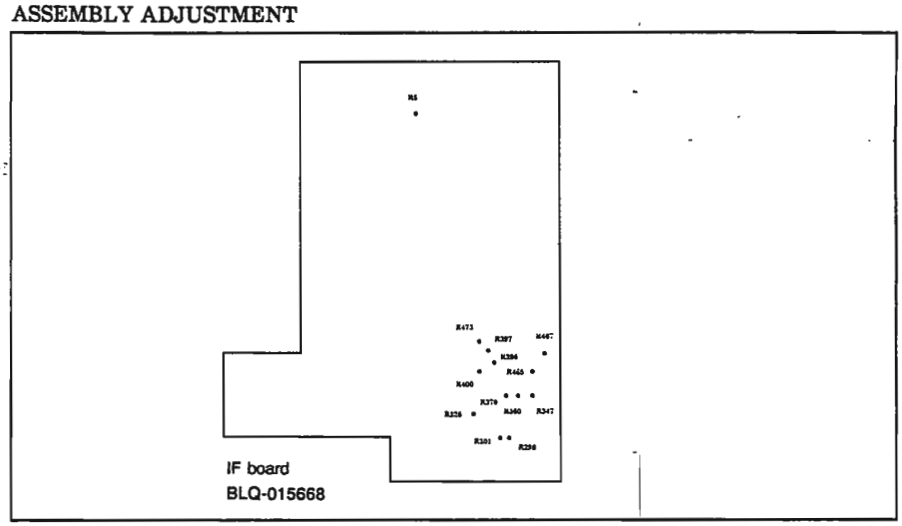
- EQUIPMENT

High stability SG	R4262	
10dB step ATT (0dB to 70dB)		
Power meter	HP436A	
Power sensor (3.5789MHz)	HP8481A	
Digital multimeter	TR6851	
Cables	BNC (male), 150cm long	MI-09
	UM-BNC, 100cm long	MC-36A
Adapters	N (male) to BNC (female),	JUG-201 A/U (Three)

- CONNECTION



- ASSEMBLY ADJUSTMENT



① Remove the top cover of the R3261/3361, and connect the signal generator as shown in the figure of CONNECTION.

Note: Before connecting, set the signal generator to 3.5789MHz, and calibrate with the power meter so that the signal generator inputs −1dBm into J6. (Set the 10dB step attenuator to 0dB.)

SG
f: 3.5789MHz
Po: −20dBm

② Setting R3261/3361: (**LINER MODE**) (After pressing the [PRESET] key)

SPAN: 0Hz
[SPAN] [ZERO SPAN]

CAL CORRECTION: OFF
[SHIFT] [1] [CAL CORR ON/OFF]

REF LEVEL: LINER
[REF] [LINER]

RBW: 3kHz
[CPL] [RBW] [3] [kHz]

③ Set the 10dB step attenuator to 80dB, and adjust the volume control until the voltage of TP11 becomes 0 to 1mV. (TP503 is grounded.)

ADJ IF board (BLQ-015668) R326

④ Set the 10dB step attenuator to 30dB, and measure the voltage of U54 5-pin with the digital multimeter (Data ①). Next, adjust the volume control until the voltage of TP12 becomes Data ① ±1mV.

ADJ IF board R465

⑤ Adjust the volume control until the voltage of U52 6-pin becomes 40.0 to 40.5mV.

ADJ IF board R473

⑥ Set the 10dB step attenuator to 0dB, and adjust the volume control until the voltage of TP11 becomes 4V ±3mV.

ADJ IF board R298

⑦ Setting the R3261/3361: **(LOG MODE)**

REF LEVEL: LOG

REF | Log/div

⑧ Set the 10dB step attenuator to 0dB, and adjust the volume control until the voltage of JP2 becomes 4V ±3mV.

ADJ IF board R301

⑨ Set the 10dB step attenuator to 70dB, and adjust the volume control until the voltage of JP2 becomes 0.5V ±3mV.

ADJ IF board R347

⑩ Repeat steps ⑧ and ⑨ until the conditions therein are satisfied.

⑪ Set the 10dB step attenuator to 0dB. (dB/div ADJ)

⑫ Change the scale unit to 1dB/div, and adjust the volume control until the voltage of JP2 becomes 4V ±3mV.

1dB/div

REF | dB/div | ↓ | ↓ | ↓

ADJ IF board R360

⑬ Change the scale unit to 10dB/div, and adjust the volume control until the voltage of JP2 becomes 4V ±3mV.

10dB/div

REF | dB/div | ↑ | ↑ | ↑

ADJ IF board R370

⑭ Repeat steps ⑫ and ⑬ until the conditions therein are satisfied.

⑮ Setting the R3261/3361: (**QP MODE ADJ**)

QP: ON

SHIFT | 4 | QP ON/OFF

⑯ Set the 10dB step attenuator to 0dB, and adjust the volume control until the voltage of JP2 becomes 4V ±3mV.

ADJ IF board R397

⑰ Set the 10dB step attenuator to 30dB, and adjust the volume control until the voltage of JP2 becomes 2.48V ±10mV.

ADJ IF board R400

⑱ Repeat steps ⑯ and ⑰ until the conditions therein are satisfied.

⑲ Disconnect the input cable from J6, and reestablish the connection in its former state. Set the signal output level from the signal generator to −5dBm, and connect the input cable to J3 on the IF board. Set the 10dB step attenuator to 0dB.

SG setting
Po: −5dBm

⑳ See that the R3261/3361 outputs the marker onto the scale, and adjust the signal output level from the signal generator until the marker level becomes 0dBm.

Marker: ON

㉑ Set the 10dB step attenuator to 40dB, and adjust the volume control until the marker indicates −40dBm ±0.5dB.

ADJ IF board R467

㉒ Set the 10dB step attenuator to 70dB, and adjust the volume control until the marker indicates −40dBm ±0.5dB.

ADJ IF board R467

㉓ Repeat steps ㉑ and ㉒ until the conditions therein are satisfied.

㉔ Setting R3261/3361: **(IF GAIN ADJ)** (After pressing the [PRESET] key)

SPAN: 0Hz
[SPAN] [ZERO SPAN]

CAL CORRECTION: OFF
[SHIFT] [1] [CAL CORR ON/OFF]

RBW: 300kHz
[CPL] [RBW] [3] [0] [0] [kHz]

Marker: [ON]

dB/div: 1dB/div
[REF] [dB/div] [↓] [↓] [↓]

㉕ Calibrate the signal level so that a −5dBm signal is input from the signal generator into J3. Input the signal from the signal generator into J3 again.

㉖ Adjust the volume control until the marker level becomes 0dBm ±0.5dB.

ADJ IF board R5

㉗ Disconnect the input cable from J3, and reestablish the connection in its former state.

5.3.6 Reference Level Adjustment

(1) STEP AMP

- DESCRIPTION

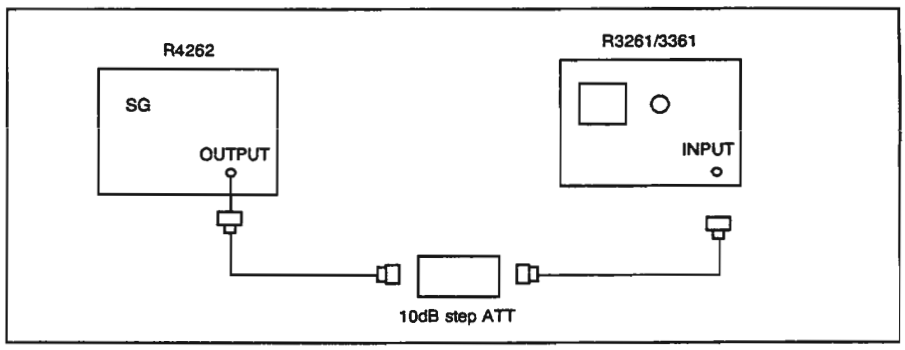
  The IF step amp consists of five amps: one that can be changed between 10dB and 20dB, and four 20dB amps. The gain of these amps can be adjusted using the volume control. For adjustment, the reference signal and a signal differing from the reference signal by 10dB or 20dB are used. The difference between these two signal levels must have first been calibrated.

- EQUIPMENT

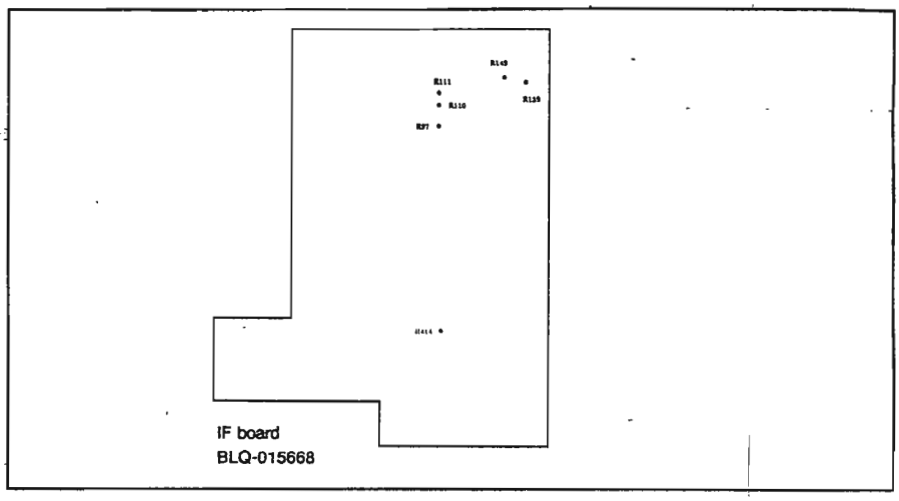
  High stability SG R4262
  10dB step ATT (0dB to 70dB)
  Cables ..... SMA, 70cm long A01002
  Adapters ..... N (male) to SMA (female), HRM-554S (Four)

  Use the adapter assembly of the impedance 75Ω for N type R3261/3361.

- CONNECTION



- ASSEMBLY ADJUSTMENT



① Remove the top cover of the R3261/3361, and connect the signal generator as shown in the figure of CONNECTION.

② Turn on the power, and allow a warmup period of at least 30 minutes.

③ Setting R3261/3361 (After pressing the [PRESET] key)

CAL CORRECTION: OFF

[SHIFT] [1] [CAL CORR OFF]

CENT FREQ: 30MHz

[CENT FREQ] [3] [0] [MHz]

SPAN: 50kHz

[SPAN] [5] [0] [kHz]

RBW: 3kHz

[CPL] [3] [kHz]

dB/div: 0.2dB

[REF] [dB/div] [↓] [↓] [↓] [↓] [↓]

Marker: PEAK SEARCH (CONT)

[PEAK] [NEXT MENU] [PEAK CONT ON/OFF]

④ SG Setting

f: 30MHz

Po: −1dBm

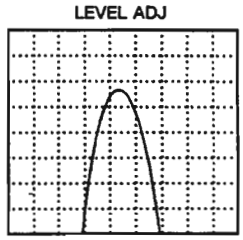
⑤ Adjust the marker value of R3261/3361 by changing the signal level of SG for −1dBm.

⑥ Set the 10dB step attenuator and the reference level to 10dB and −10dBm, respectively. Adjust the volume control until the marker level becomes −11dBm ± 0.05dB.

REF LEVEL: −10dBm

[REF] [↓]

ADJ IF board R111



⑦ Change the reference level and the setting of the 10dB step attenuator as shown in the table, and adjust the volume control in the same manner as ⑥ above.

REF [↓] 10dB down

[↑] 10dB up

REF LEVEL	10dB step ATT	VR for ADJ	ADJ Spec
−10dBm	10dB	R 111	−11dBm ± 0.03dB
−20dBm	20dB	R 97	−21dBm ± 0.03dB
−40dBm	40dB	R 110	−41dBm ± 0.03dB
−50dBm	50dB	R 149	−51dBm ± 0.03dB
−70dBm※	70dB	R 159	−71dBm ± 0.03dB

※ REF LEVEL −70dBm setting

[SHIFT] [BS]

[1] [REF] [0] [0] [0] [6] [Hz]

[1] [5] [Hz] [RETURN]

⑧ 120dB display adjustment

REF | 0 | +dBm

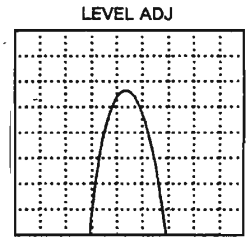
8div/12div

10dB step ATT 0dB

Adjust until the signal output level from the signal generator becomes 0dBm on the R3261/3361.

⑨ Set the 10dB step attenuator to 60dB, and adjust until the marker level becomes −60dBm ±1.6dB.

ADJ IF board R414



(2) RF Total Gain Adjustment

- DESCRIPTION

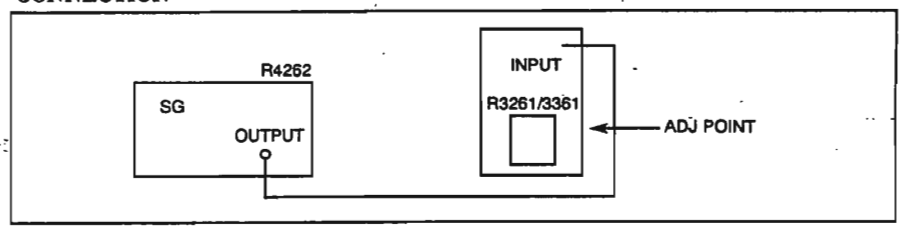
RF Total Gain of R3261/3361 and internal Calibration signal are adjusted, using the external signals of 30MHz and −20dBm from the signal generator as a reference.

- EQUIPMENT

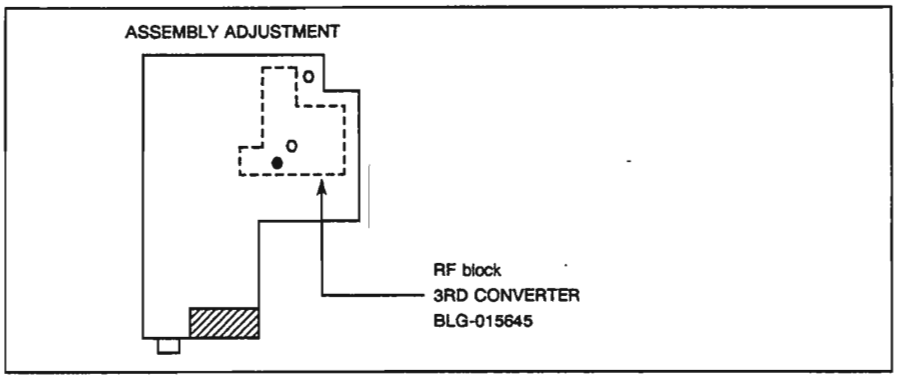
High stability SG	R4262		
Power meter	HP436A		
Power sensor	HP8481A		
Cables	SMA,	70cm long	A01002
Adapters	N (male) to SMA (female),		HRM-554S (TWO)

Use the adapter assembly of the impedance 75Ω for N type R3261/3361.

- CONNECTION



- ASSEMBLY ADJUSTMENT



① Remove the bottom cover of the R3261/3361, and input the following signals from the signal generator (after first calibrating them with the power meter).

SG
f: 30MHz
Po: −20dBm

② Setting R3261/3361 (After pressing the [PRESET] key)

CENT FREQ: 30MHz

[CENT FREQ] [3] [0] [MHz]

SPAN: 500kHz

[SPAN] [5] [0] [0] [kHz]

RBW: 300kHz

[CPL] [RBW] [3] [0] [0] [kHz]

REF LEVEL: −15dBm

[REF] [1] [5] [−dBm]

dB/div: 1dB/div

[dB/div] [↓] [↓] [↓]

CAL CORRECTION: OFF

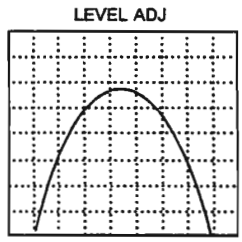
[REF] [1] [CAL CORR ON/OFF]

MARKER: PEAK SEARCH (CONT)

[PEAK] [NEXT MENU] [PEAK CONT ON/OFF]

③ Adjust the volume control until the marker level becomes −20dBm ±0.1dB.

ADJ 3RD CONV R28



④ Calibration Amp Adjustment
Disconnect the input cable from the signal generator, calibrate the following signals with the power meter, and input them to the R3261/3361 again.

SG
f: 30MHz
Po: −30dBm

Uncover the shield case of the calibration amp block.

⑤ Setting the R3261/3361:

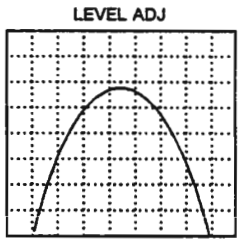
REF LEVEL: −25dBm

[REF] [↓]

Measure the signal level from the signal generator with the marker. (Data ①)

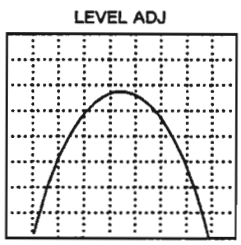
⑥ Turn the calibration amp on, and set the calibration signal level to −30dBm. Then adjust the volume control until the marker level becomes Data ① ±0.05dBm.

[SHIFT] [1] [CAL STG ON/OFF] [3] [0] [−dBm]
ADJ CAL AMP R18



⑦ Set the calibration signal level to −20dBm, and adjust the volume control until the marker level becomes 20dBm ±0.05dB.

[2] [0] [−dBm]
ADJ CAL AMP R16



⑧ Put the bottom cover of the R3261/3361 back in place.

5.3.7 TG Output Level Accuracy

- DESCRIPTION

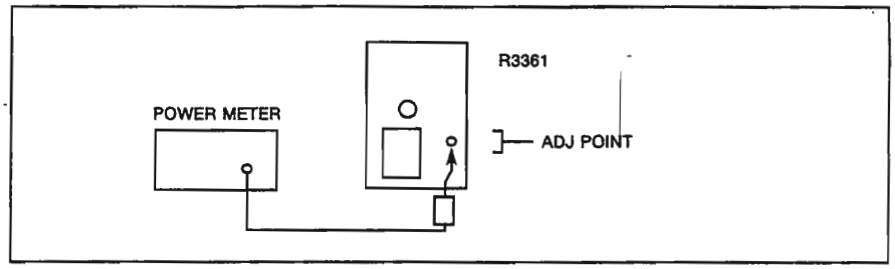
  Set the TG output level to 30MHz, measure the output with the power meter, and adjust the measurement using the volume control.

- EQUIPMENT

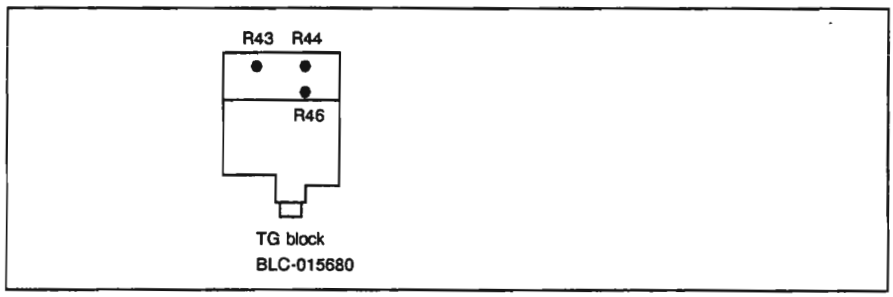
  Power meter ..... HP 436A
  Power sensor ..... HP 8481A

  Use the adapter assembly of the impedance 75Ω for N type R3261/3361.

- CONNECTION



- ASSEMBLY ADJUSTMENT



① Setting R3261/3361 (After pressing the PRESET key)

CENT FREQ: 30MHz

CENT FREQ | 3 | 0 | MHz

SPAN: 0Hz

SPAN | ZERO SPAN

TG: ON

TG

CAL CORRECTION: OFF

SHIFT | 1 | CAL CORR ON/OFF

② Remove the bottom cover of the R3261/3361, and connect the power meter as shown in the figure of CONNECTION.

③ Adjust the two volume controls so that the variable range on the power meter becomes 4dB ±0.1dB when the output level of the TG block is changed from −14dBm to −10dBm.

LEVEL 

ADJ ALC CONT (BLC-015680) R43, R46

④ Set the output level of the TG block to −10dBm, and adjust with the volume control until the power meter reads −10dBm ± −0.1dB.

TG LEVEL: −10dBm

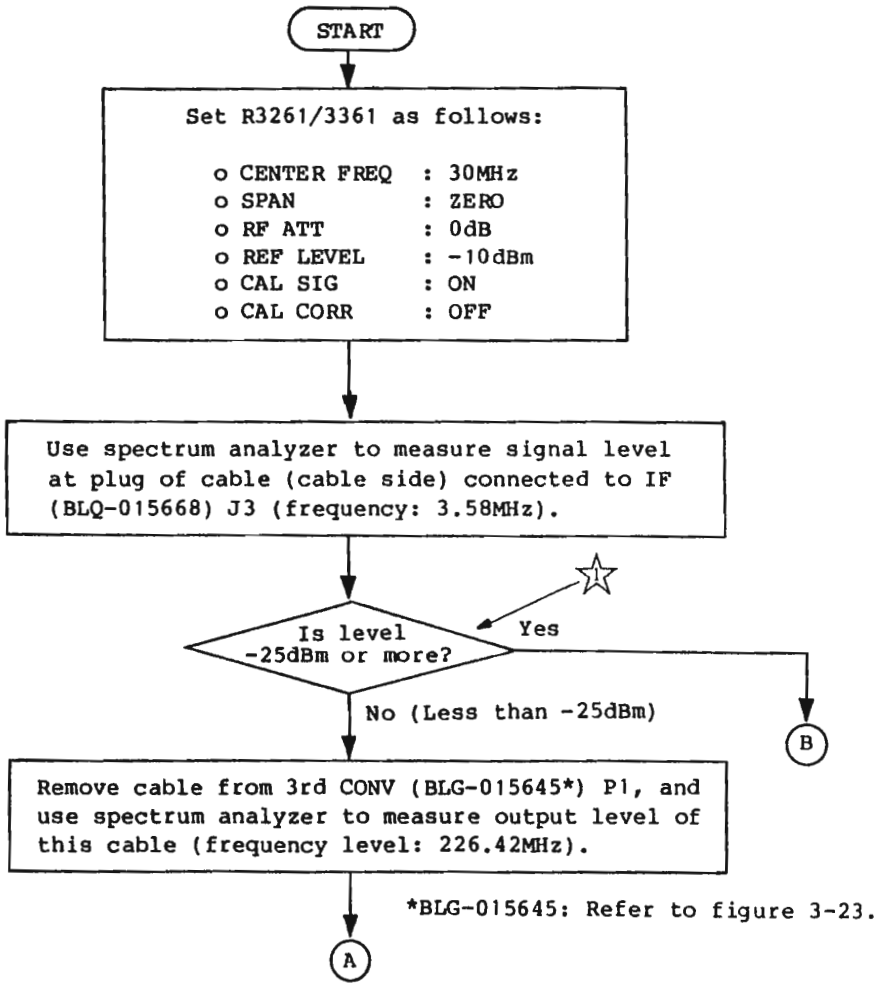
1 | 0 | −dBm

ADJ ALC CONT R44

6. MAINTENANCE (TROUBLESHOOTING)

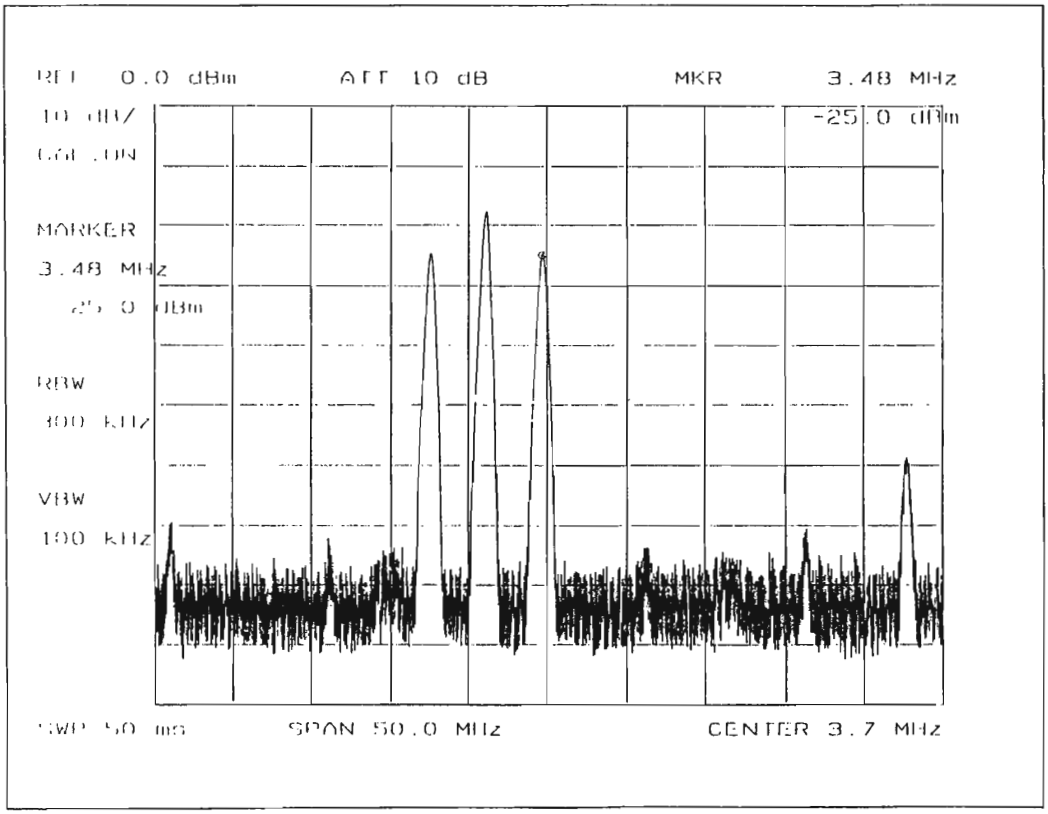
6.1 Level Down

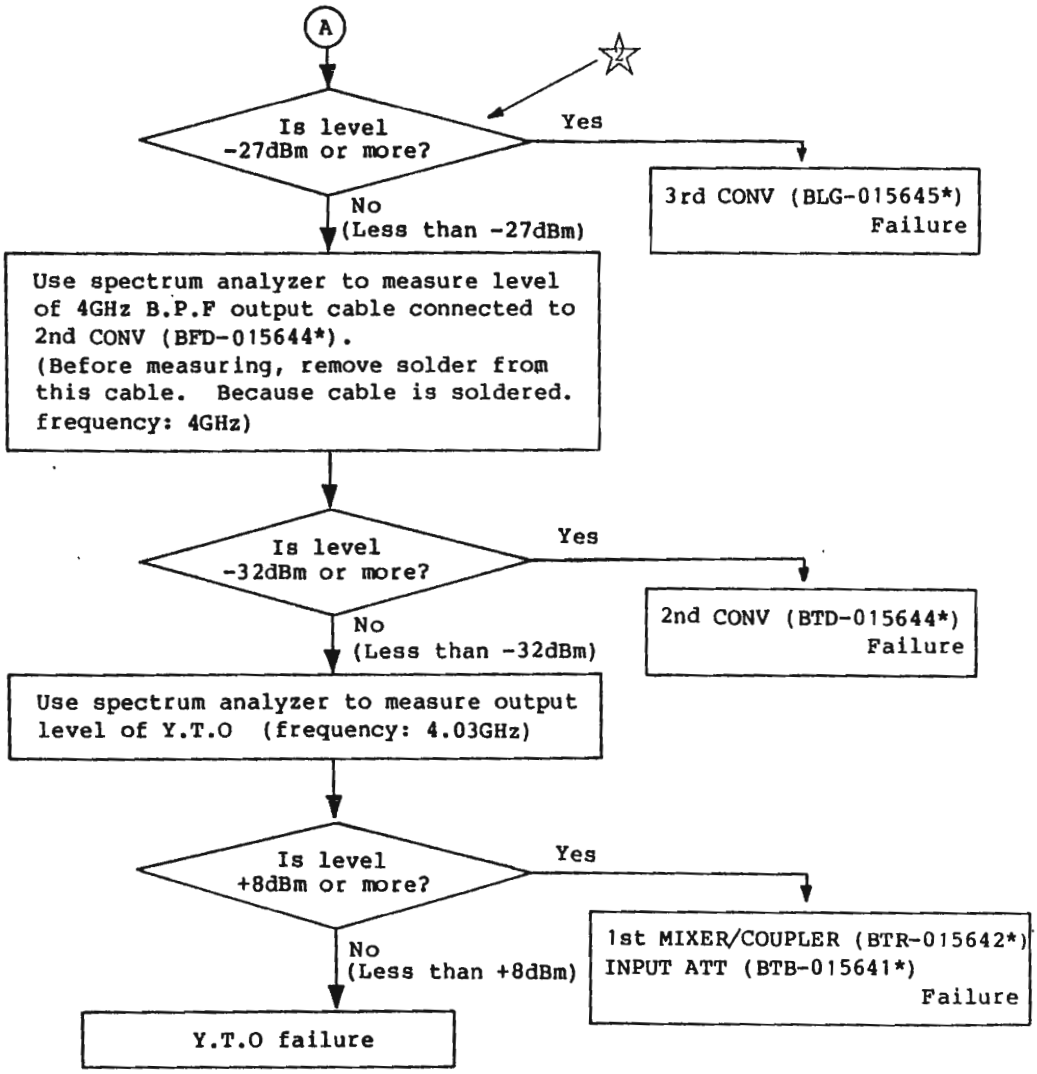
Event : Level is low when CAL signal is displayed.
Level is low when external signal is input.



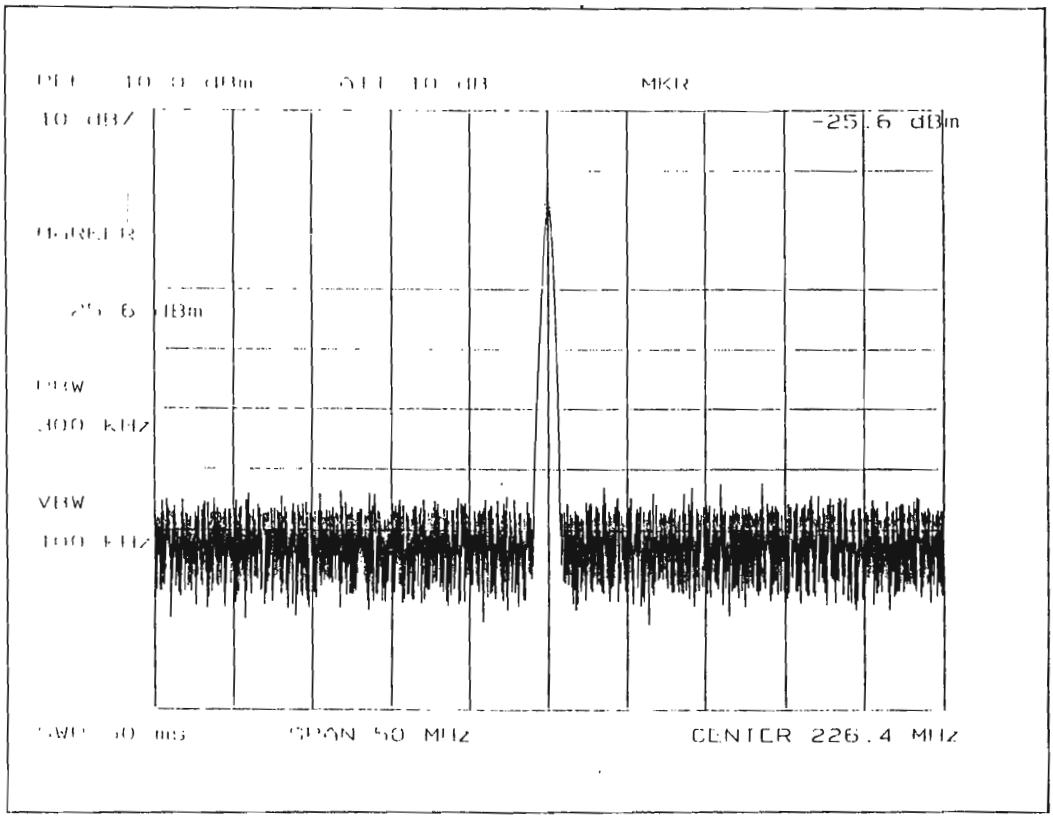
*BLG-015645: Refer to figure 3-23.

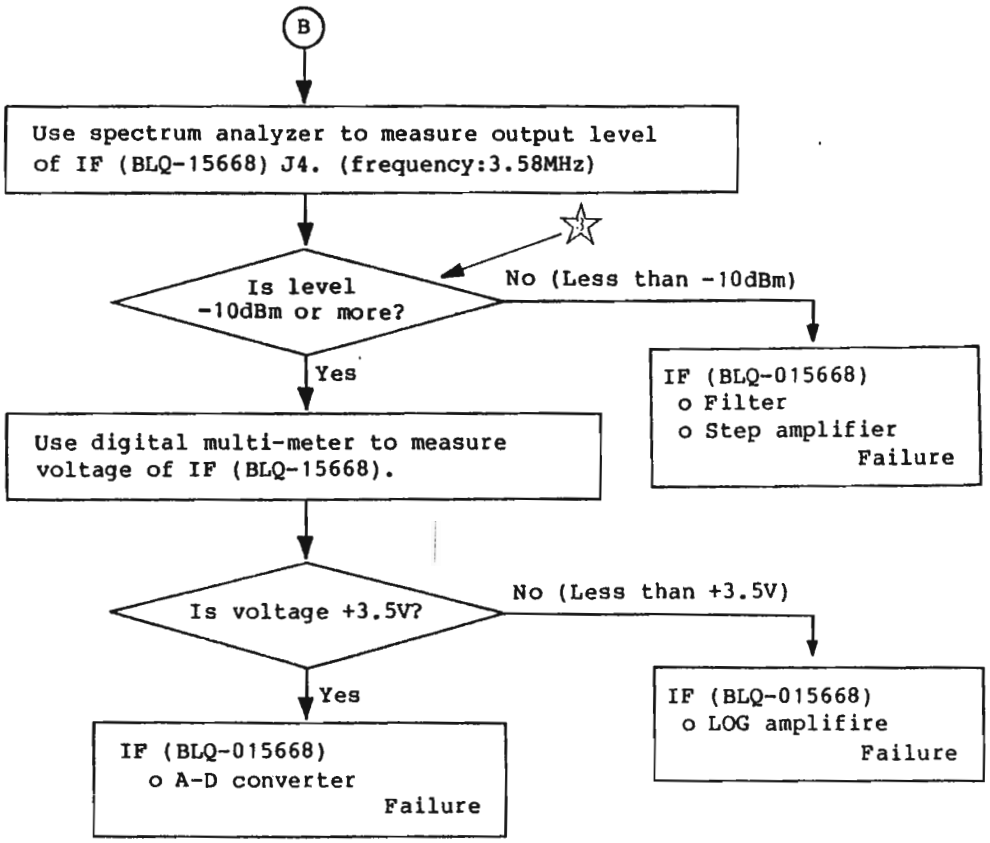
☆

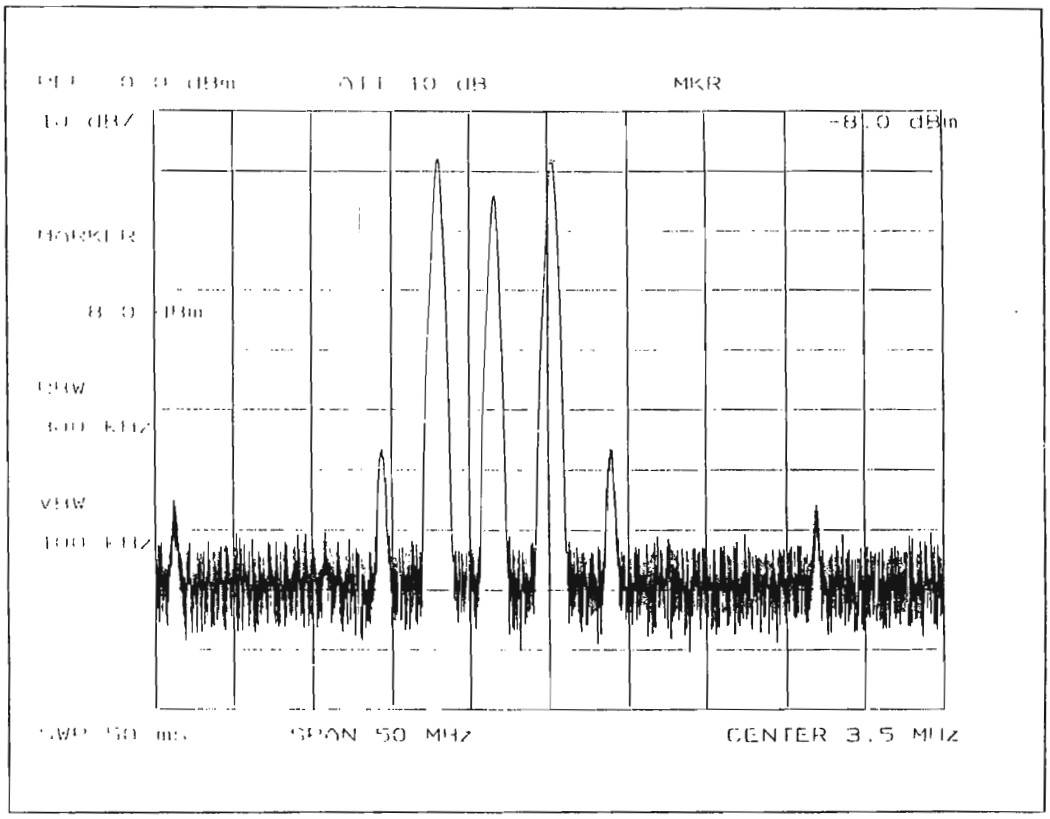

REF 0.0 dBm
ATT 10 dB
MKR 3.48 MHz
10 dB/
-25.0 dBm
MARKER
3.48 MHz
RBW
300 kHz
VBW
100 kHz
SPAN 50.0 MHz
CENTER 3.7 MHz



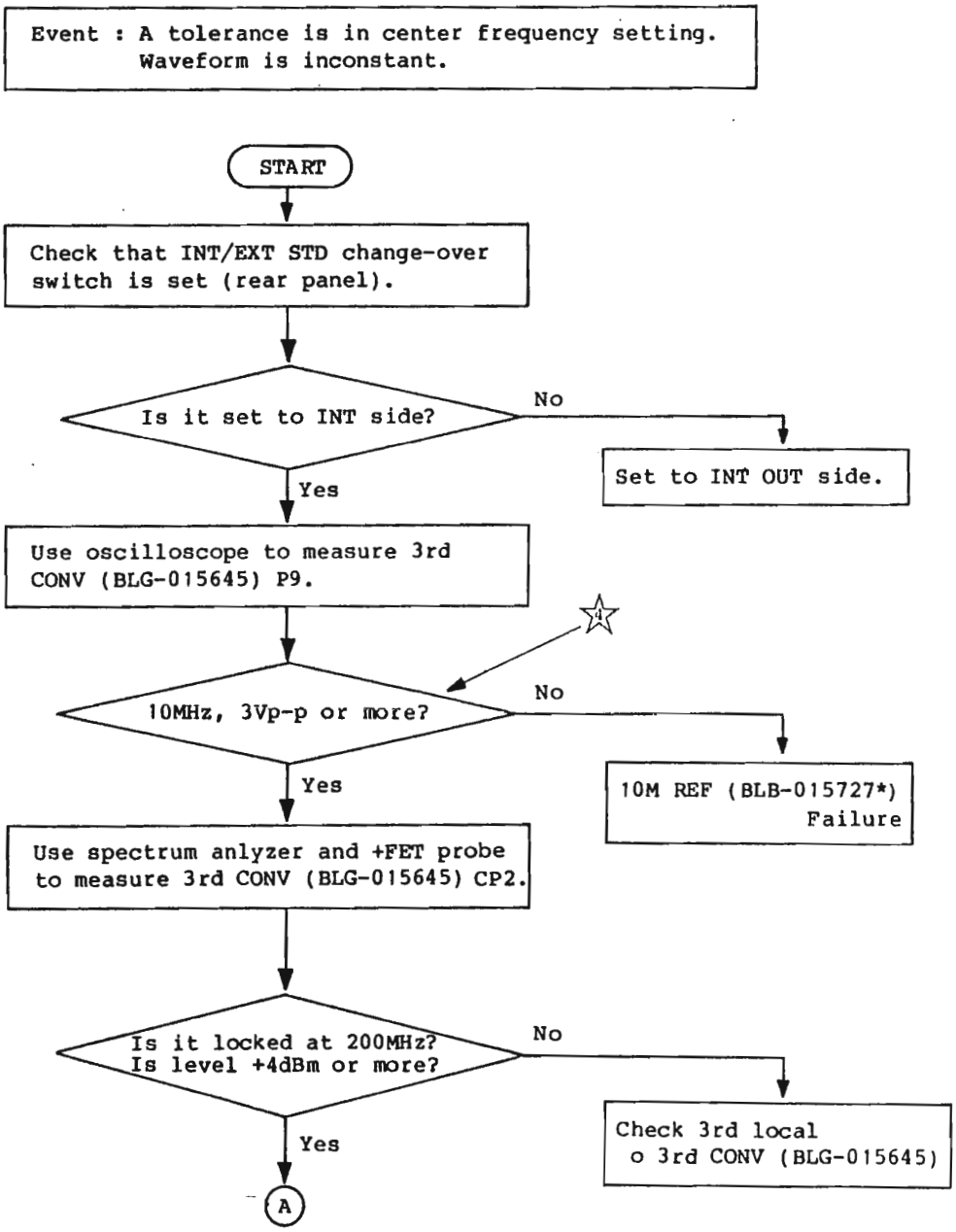
*BFD-015644, BLG-015645, BTR-015642, BTB-015641:
Refer to figure 3-23.


MKR
-25.6 dBm
10 dB/
CENTER 226.4 MHz


B
Use spectrum analyzer to measure output level of IF (BLQ-15668) J4. (frequency:3.58MHz)
Is level -10dBm or more?
No (Less than -10dBm)
Yes
IF (BLQ-015668)
o Filter
o Step amplifier
Failure
Use digital multi-meter to measure voltage of IF (BLQ-15668).
Is voltage +3.5V?
No (Less than +3.5V)
Yes
IF (BLQ-015668)
o LOG amplifire
Failure
IF (BLQ-015668)
o A-D converter
Failure

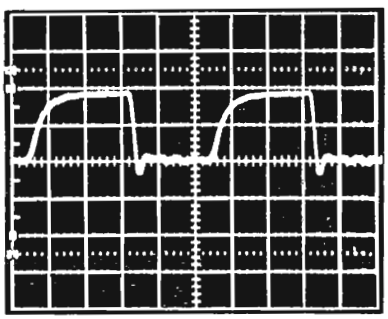

ATT 10 dB
MKR
-8.0 dBm
SPAN 50 MHz
CENTER 3.5 MHz

6.2 Unlock



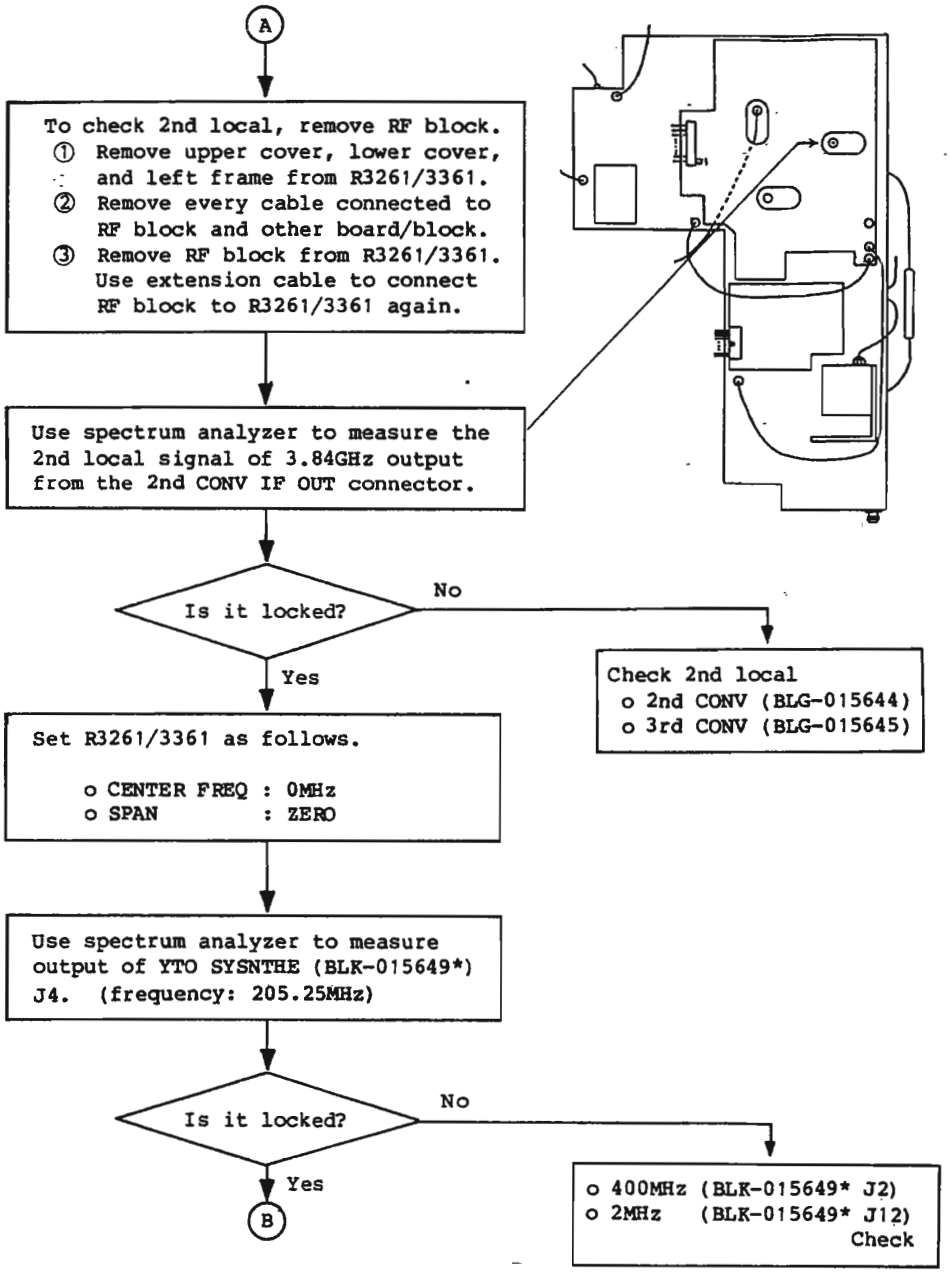
*BLB-015727: Refer to figure 3-23.

☆

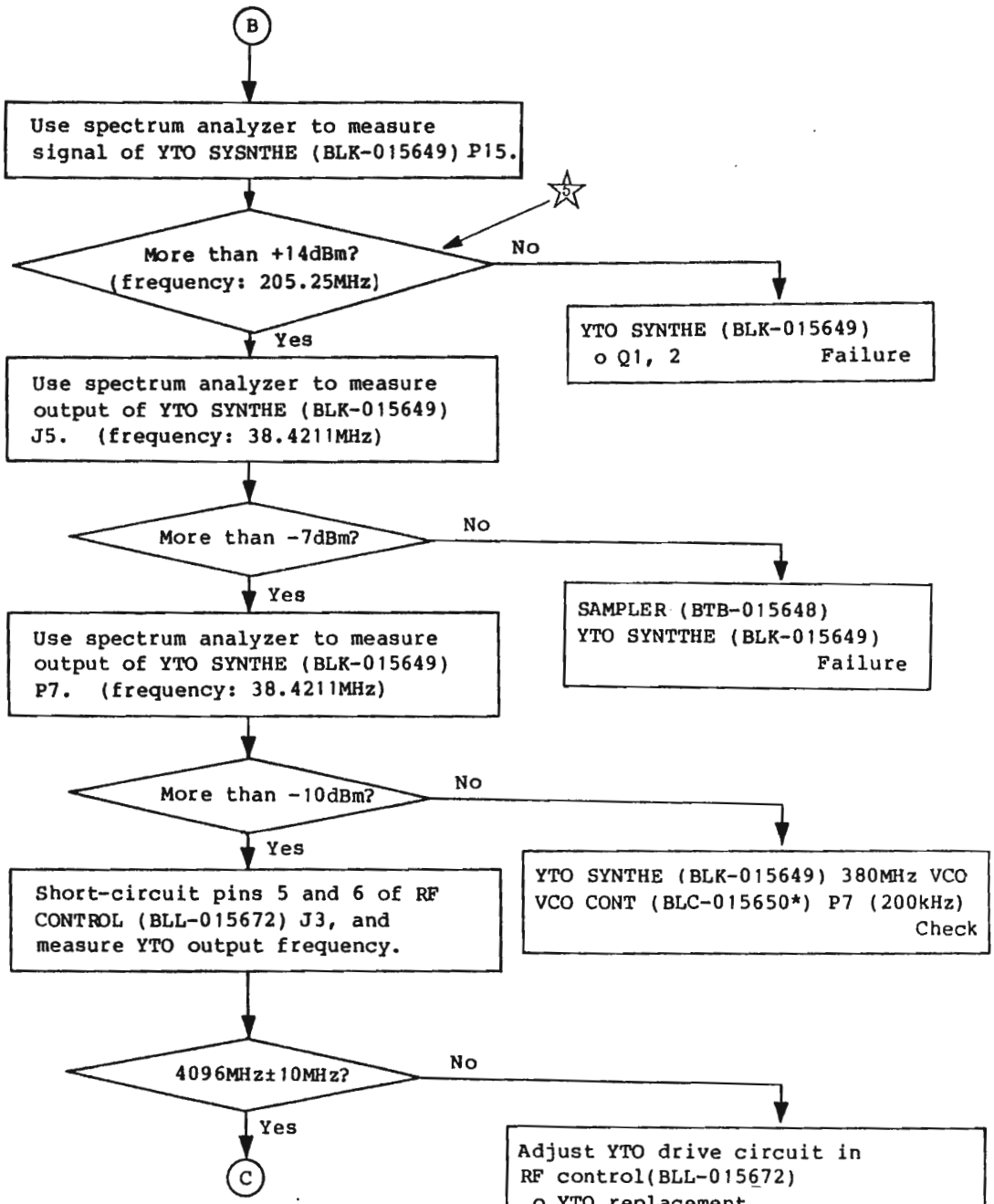


2V/Div

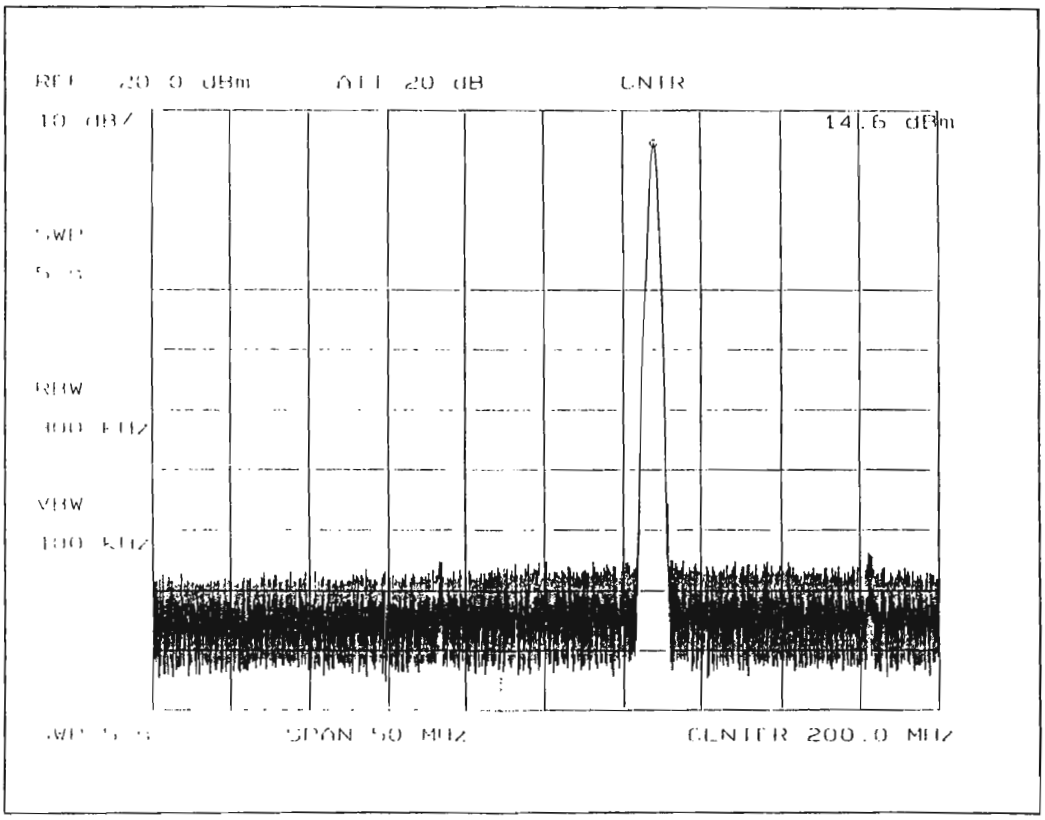
0.02µs/Div

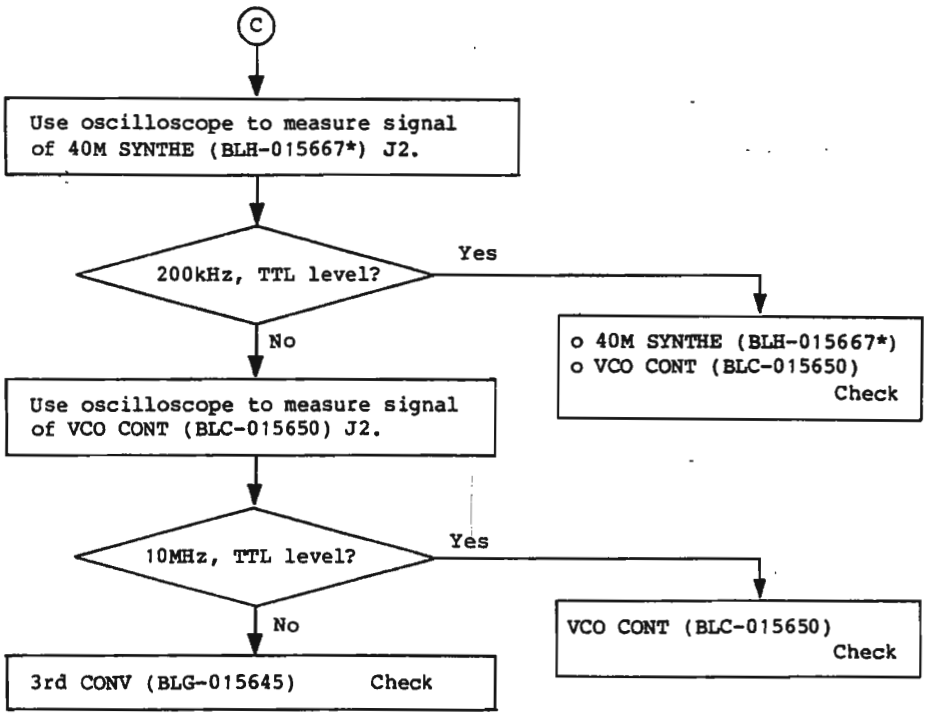


*BLK-015649: Refer to figure 3-23.



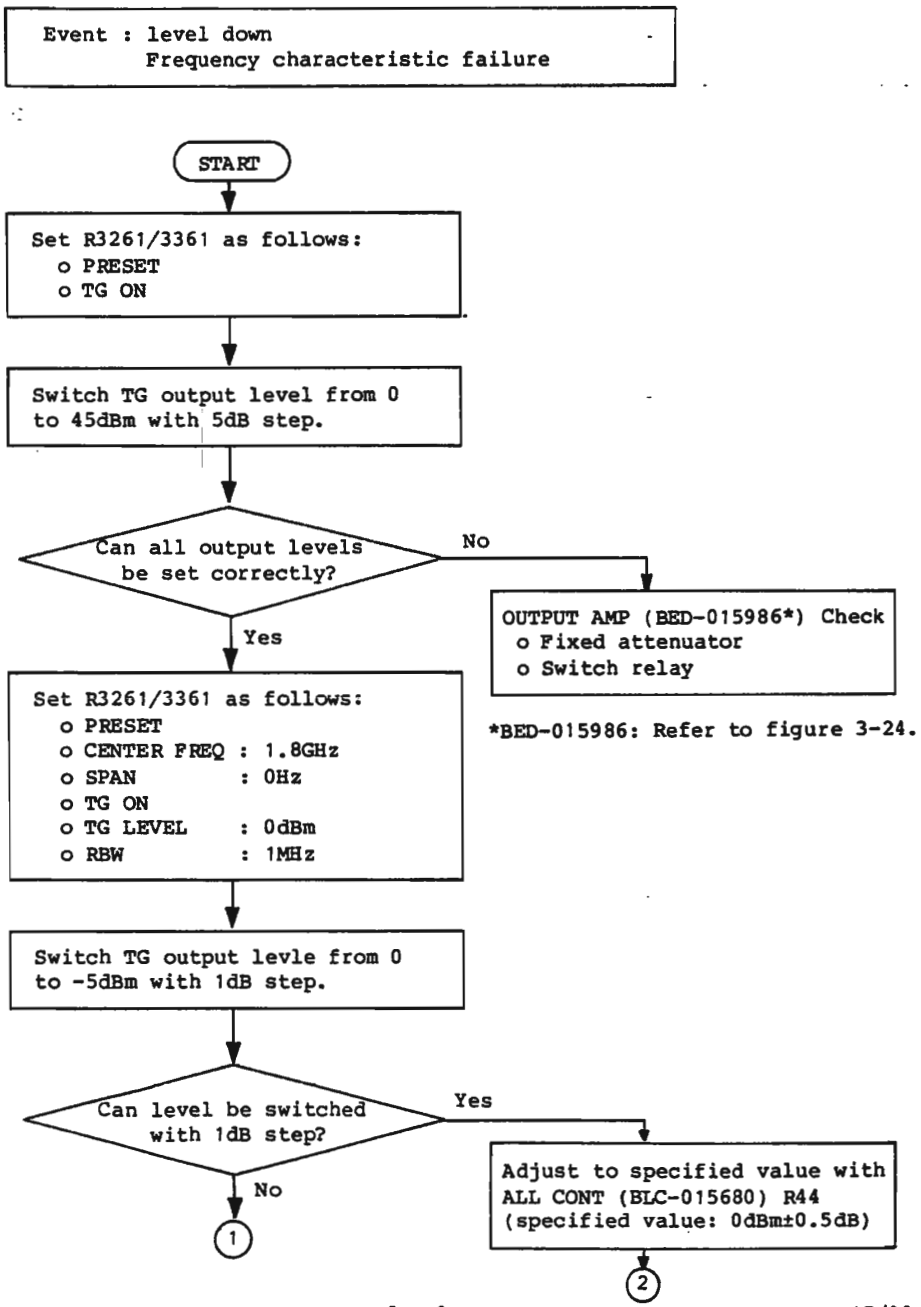
*BLC-015650: Refer to figure 3-23.


14.6 dBm
CENTER 200.0 MHz

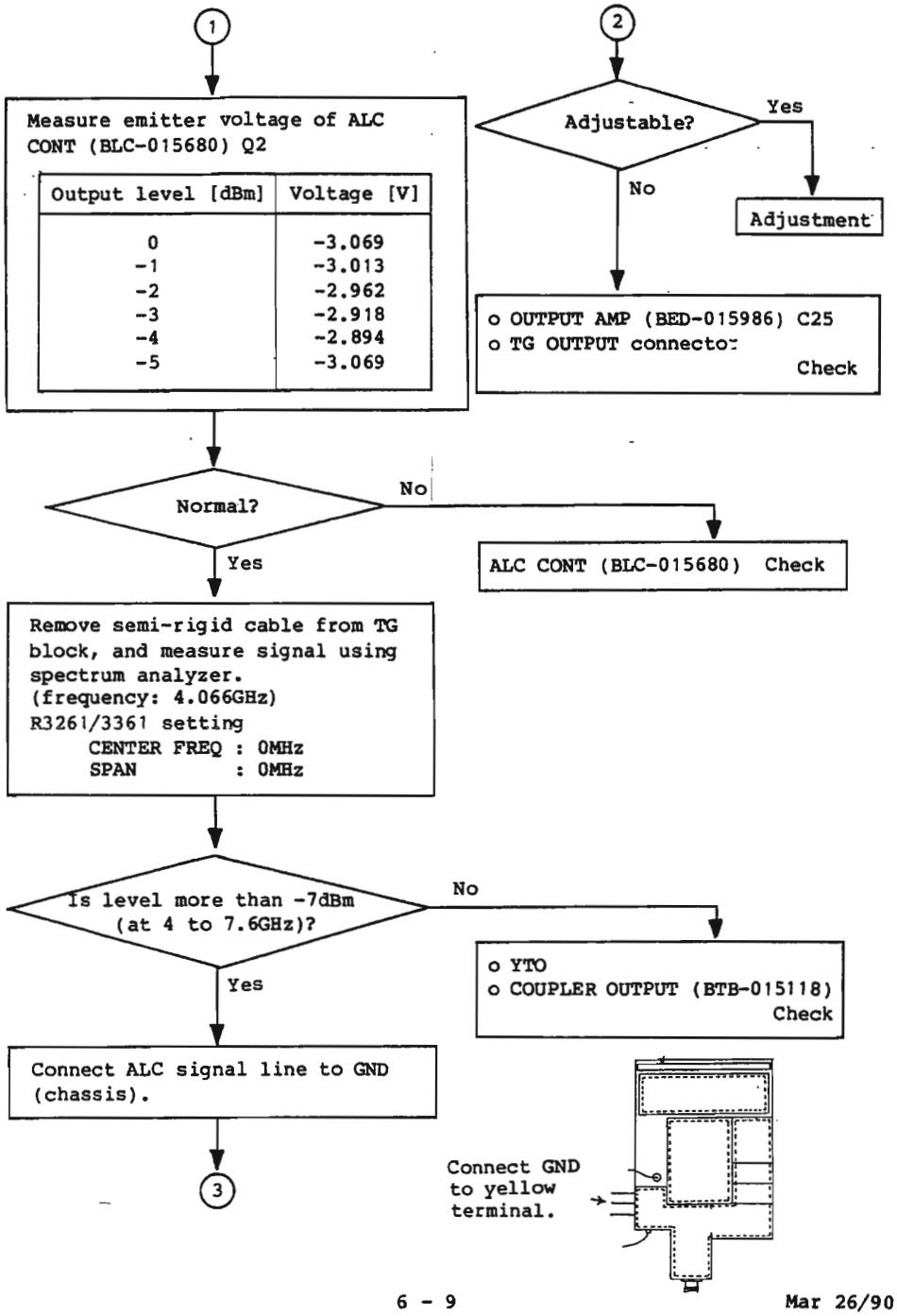


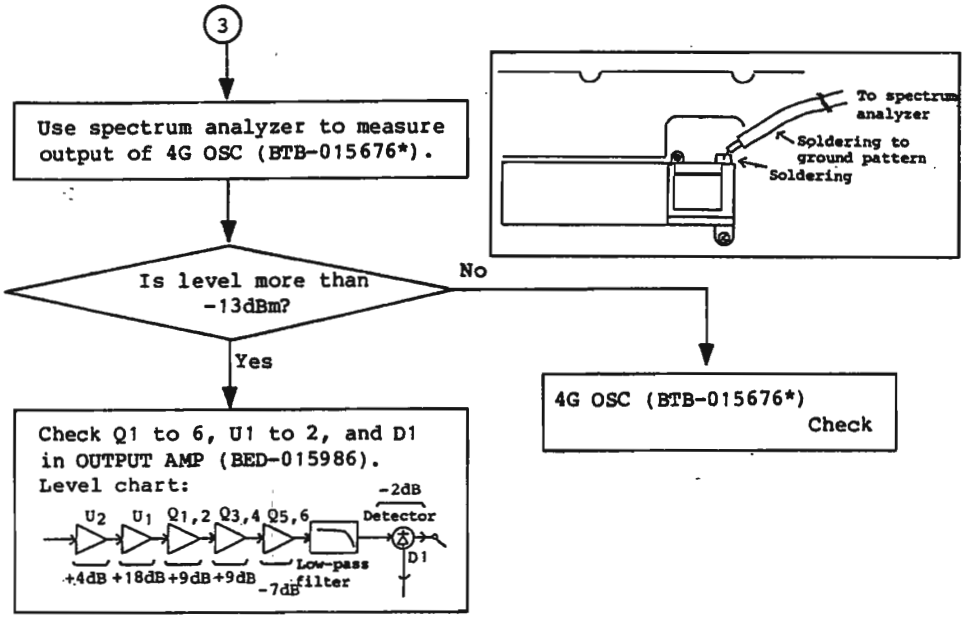
*BLH-015667: Refer to figure 3-23.

6.3 TG Failure



*BED-015986: Refer to figure 3-24.


1
Measure emitter voltage of ALC CONT (BLC-015680) Q2
Output level [dBm] | Voltage [V]
0 | -3.069
-1 | -3.013
-2 | -2.962
-3 | -2.918
-4 | -2.894
-5 | -3.069
Normal?
No
ALC CONT (BLC-015680) Check
Yes
Remove semi-rigid cable from TG block, and measure signal using spectrum analyzer.
(frequency: 4.066GHz)
R3261/3361 setting
CENTER FREQ : 0MHz
SPAN : 0MHz
Is level more than -7dBm (at 4 to 7.6GHz)?
No
o YTO
o COUPLER OUTPUT (BTB-015118) Check
Yes
Connect ALC signal line to GND (chassis).
3
2
Adjustable?
Yes
Adjustment
No
o OUTPUT AMP (BED-015986) C25
o TG OUTPUT connector Check
Connect GND to yellow terminal.



*BTB-015676: Refer to figure 3-24.

6.4 Power Supply

Replace the power supply unit if does not work correctly.

Procedure

① Replace the power supply unit. (See Figure 6-3.)

② Check that the voltage check points (+15V, -15V, +5.2V and +12V) shown in Figure 6-1 are within the following tolerances:

+15V --- ±5%
-15V --- ±5%
+5.2V --- ±3%
+12V --- ±5%

③ Make the adjustments described in 5.4.1 "Frequency Span".

④ Make the adjustments described in 5.4.5 "LOG/LINEAR Amplifier Linearity".

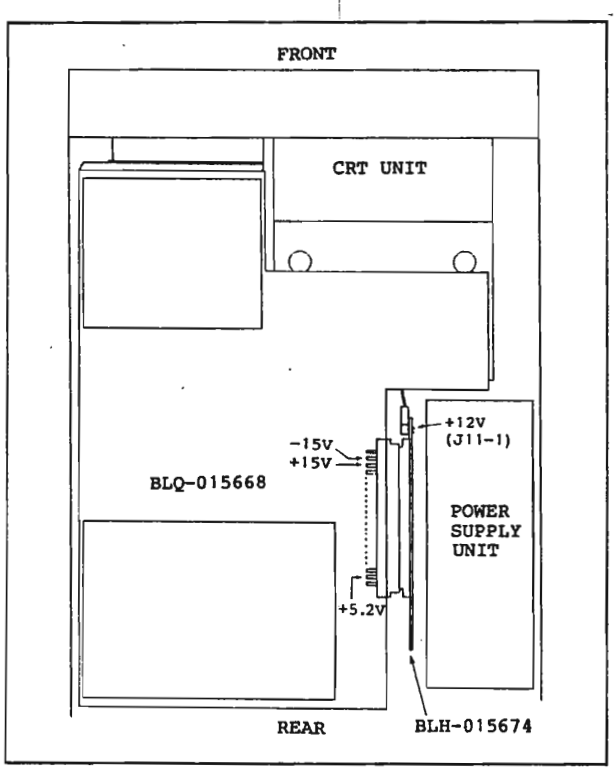


Figure 6-1 Voltage Check Points

6.5 CRT Unit

Replace the CRT unit if it does not work correctly.

Procedure

① Replace the CRT unit. (See Figure 6-3.)

② Set the intensity to the maximum value with INTENSITY.

③ Adjust the intensity with "SUB BRIGHT" (See Figure 6-2.) so that the back raster appears faintly.

④ Adjust "CONTRAST" to strengthen the contrast (See Figure 6-2.) as far as the pattern is not distorted remarkably and can be focused.

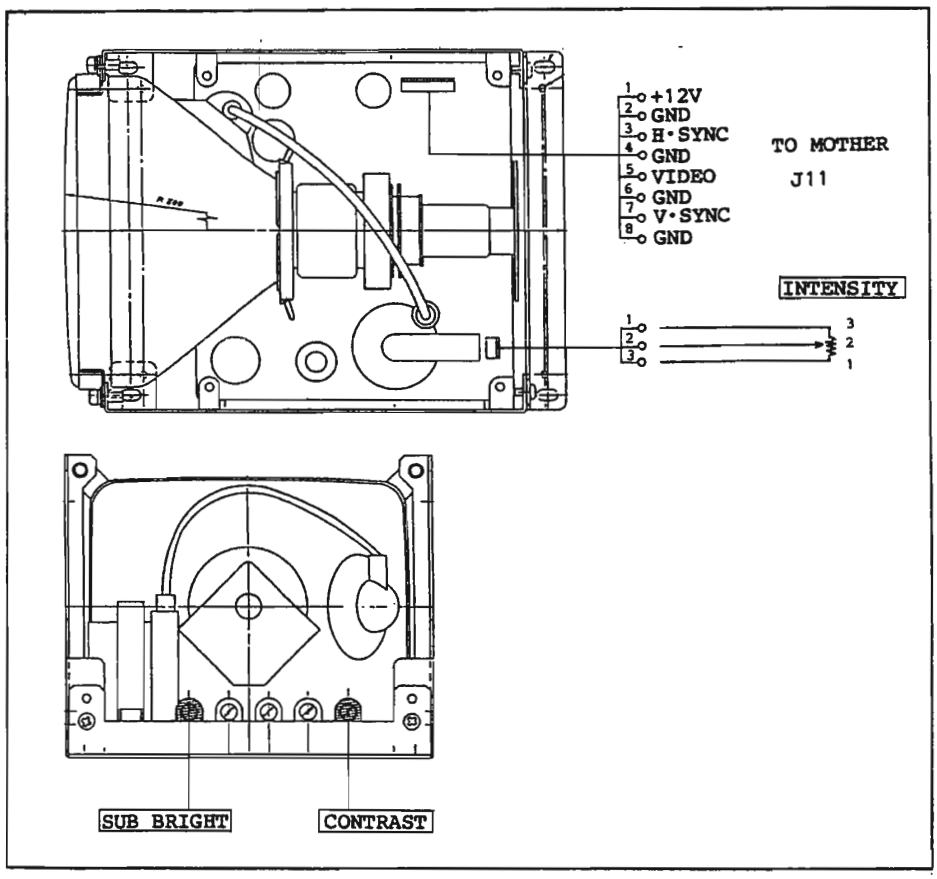
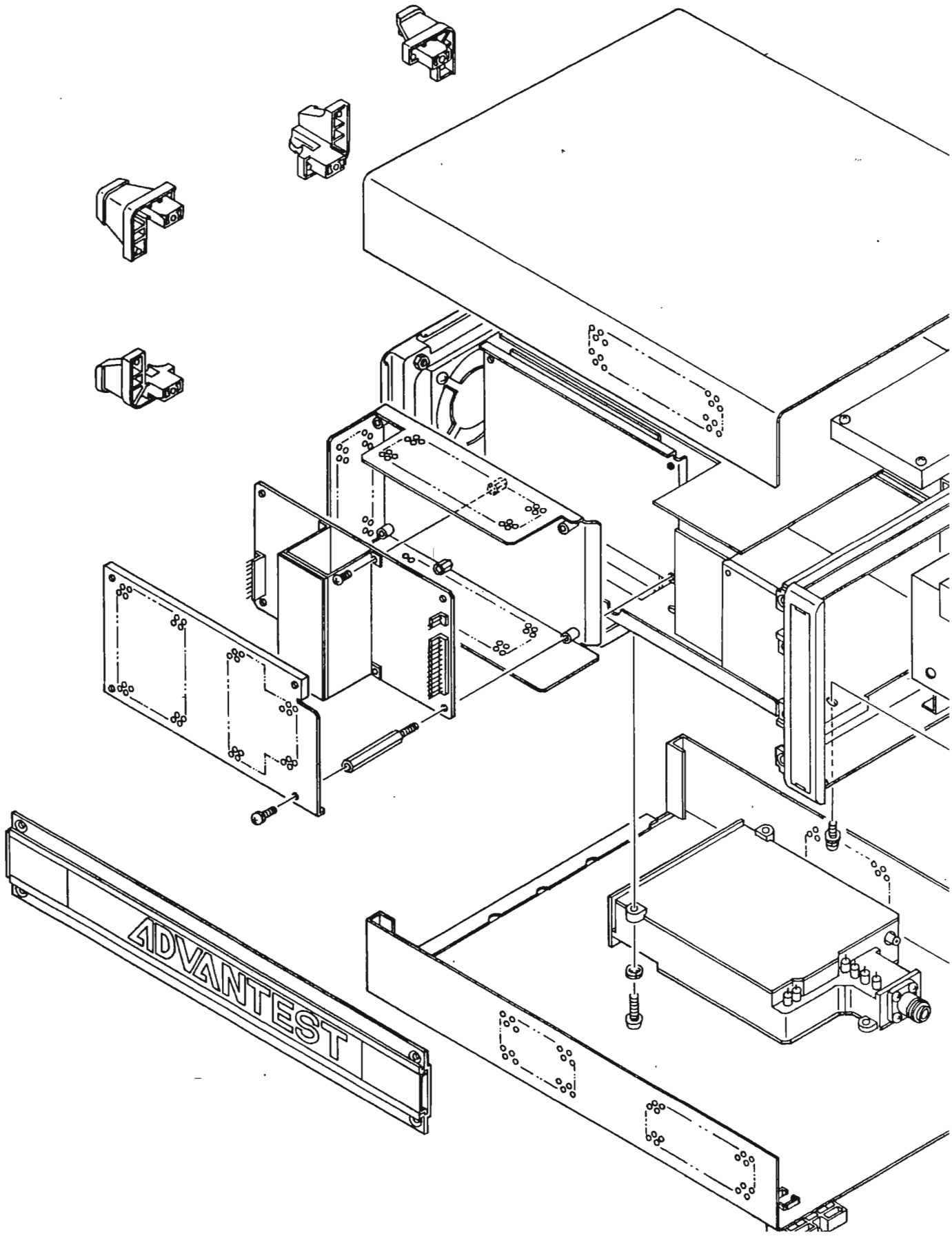


Figure 6-2 Fine Adjustment of The CRT Unit


ADVANTEST

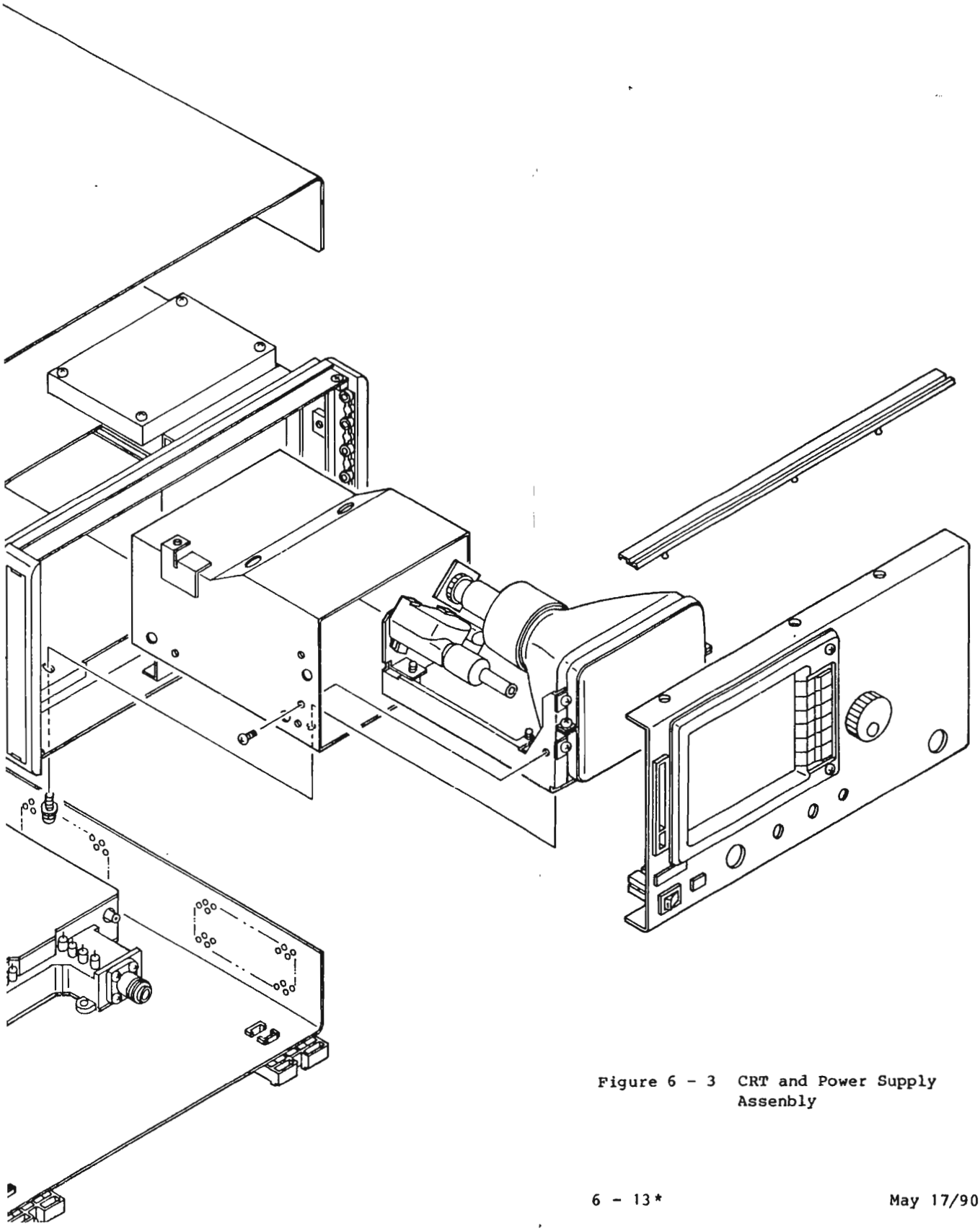


Figure 6 - 3 CRT and Power Supply Assenbly

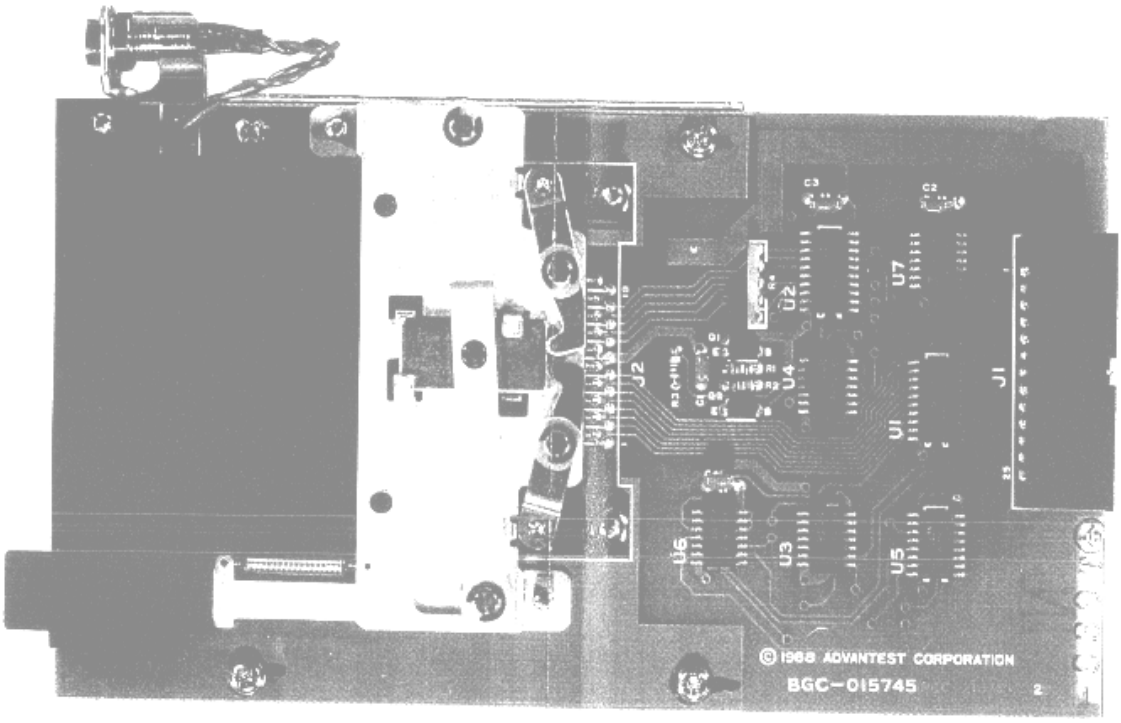
7. REPLACEABLE ELECTRICAL PARTS, CIRCUIT DIAGRAMS AND LOCATION

Table 7-1 Contents for Chapter 7

	BOARD NAME	PCB ASSEMBLY	PARTS LIST	CIRCUIT LAYOUT	PARTS LOCATION	CIRCUIT DIAGRAM
	IC CARD	BGC-015745	7-2	-	7-3	7-4 to 7-5
	CONTROL	BLQ-015670	7-7 to 7-8	-	7-9	7-10 to 7-26
	RF CONTROL	BLL-015672	7-27 to 7-30	7-31	7-32	7-33 to 7-34
	IF SECTION	BLQ-015668	7-35 to 7-54	7-55	7-56	7-57 to 7-94
	CPU	BLQ-015669	7-95 to 7-98	-	7-99	7-100 to 7-132
	TG KEY	BLB-015775	7-133	-	-	7-135
	KEY	BLG-015673	7-137	-	7-139	7-140 to 7-141
RF	RF BLOCK	WBL-3261RF	7-143	7-145	7-146	7-149
		WBL-3361RF	7-144	7-147	7-148	
	CAL AMP	BLB-015646	7-151	7-145	7-146	7-153
	YTO DRIVER	BLB-015647	7-155 to 7-156	7-157	7-158	7-159 to 7-160
	10MHz REF.	BLB-015727	7-161	7-147	7-148	7-163
	SAMPLER	BTB-016118	7-165	7-145	7-146	7-167 to 7-168
	VCO CONT	BLC-015650	7-169 to 7-170	7-145	7-146	7-171
	3RD CONV	BLG-015645	7-173 to 7-180	7-145	7-146	7-181 to 7-183
	YTO SYNTHE	BLK-015649	7-185 to 7-192	7-145	7-146	7-193 to 7-196
	INPUT ATT	BTB-015641	7-197	7-145	7-146	7-199
	1ST MIXER	BTB-015642	7-201	7-145	7-146	7-203
	2ND CONV	BTD-015644	7-205 to 7-207	7-145	7-146	7-209 to 7-210
TG	TG BLOCK	WBL-3361TG	7-211	7-213 7-215	7-214 7-216	7-217
	OUTPUT AMP	BED-015986	7-219 to 7-221	7-215	7-216	7-223
	TG SAMPLER	BLB-015987	7-225	7-213	7-214	7-227
	ALC CONT.	BLC-015680	7-229 to 7-230	7-215	7-216	7-231
	T.G CONT.	BLC-015681	7-233	7-235	-	7-236
	TG PLL	BLD-015988	7-237 to 7-238	7-213	7-214	7-239
	4GHZ OSC	BTB-015676	7-241	7-215	7-216	7-243
	TG MIX-1	BTB-015722	7-245	7-213	7-214	7-247
	TG MIX-2	BTB-015723	7-249	7-213	7-214	7-251
	MOTHER	BLH-015674	7-253	-	-	7-255 to 7-256
	BATT. HOLDER	BLB-016053	7-257	-	-	7-259

R3261/3361
IC CARD
BLQ-015745 (1/1)

Parts No.	Advantest Stock No.	Description	Note
C1-4	CSM-AGR1U50V	FXD CER 0.1µF +80%, -20% 50V	
C5	CSM-AGR1U50V	FXD CER 0.1µF +80%, -20% 50V	
D1	NLD-000001	LED	
J1	JCR-AF026PX02	CONNECTOR	
J2	SEE-MZE8101AAA	CONNECTOR	
Q1	STP-2SA642-33	TRANSISTOR PNP	
Q2	STN-RN1002	TRANSISTOR NPN	
R1	RCB-AG56K	FXD CAR 56KΩ ±5% 1/8W	
R2	RCB-AG560	FXD CAR 560Ω ±5% 1/8W	
R3	RCB-AG1K	FXD CAR 1KΩ ±5% 1/8W	
R4	RAY-AL100K4	FXD RA 100KΩ ±5%	
U1	SIM-74HC245S	OCTAL BUS TRANSCEIVERS	
U2	SIM-74HC541S	OCTAL BUFFERS & LINE DRIVERS	
U3	SIM-74HC74S	DUAL D FLIP-FLOPS WITH RESET & CLEAR	
U4	SIM-74HC10S	TRIPLE 3-INPUT POSITIVE-NAD	
U5	SIT-74LS375S	4-BIT BISTABLE LATCHES	
U6	SIM-74HC02S	QUAD 2-INPUT POSITIVE NOR	
U7	SIM-74HC04S	HEX INVERTERS	

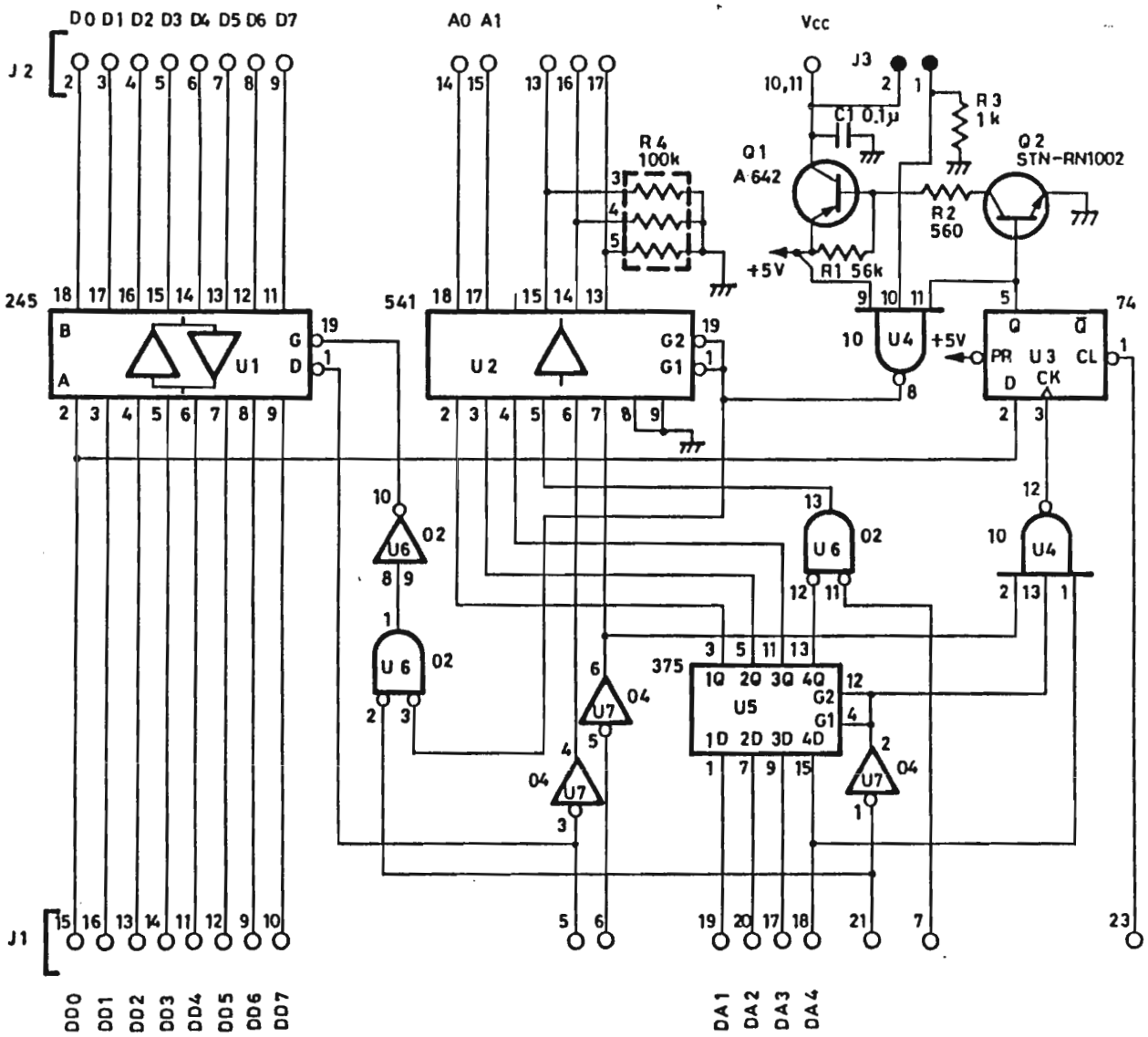


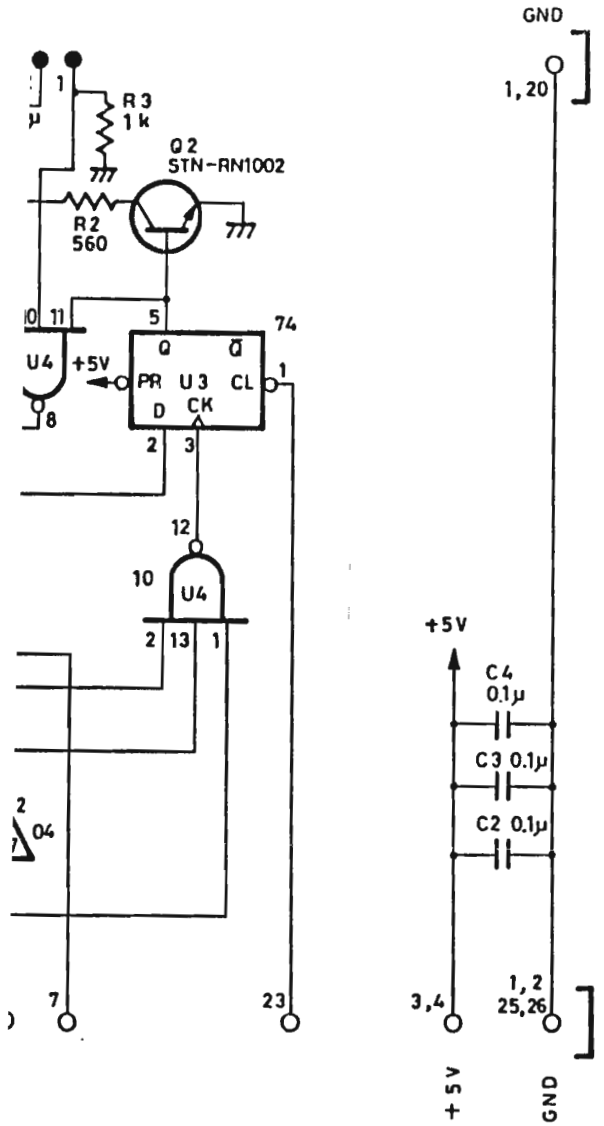
PARTS LOCATION
IC CARD
BGC-015745

1. DIAGRAMS ILLUSTRATION

1-1 SYMBOLS REFERENCE DESIGNATORS

1) IC PIN NAME (PIN-NAME OF NEGATIVE LOGIC ARE DISPLAYED BY SMALL LETTER)


D0 D1 D2 D3 D4 D5 D6 D7
A0 A1
Vcc
J2
J3
J1
245
541
74
375
U1
U2
U3
U4
U5
U6
U7
R1 56k
R2 560
R3 1k
R4 100k
C1 0.1µ
Q1 A 642
Q2 STN-RN1002
+5V
DD0 DD1 DD2 DD3 DD4 DD5 DD6 DD7
DA1 DA2 DA3 DA4



R3261/3361 IC CARD
BGC-015745 2/2

R3261/3361
CONTROL
BLQ-015670 (1/2)

Parts No.	Advantest Stock No.	Description					Note
B1	DEE-001129	BUZZER					
C1	CCK-BX10U25V	FXD	ELECT	10μF	±20%	25V	
C3	CCK-BX100U35V	FXD	ELECT	100μF	±20%	35V	
C5	CCK-BX10U25V	FXD	ELECT	10μF	±20%	25V	
C7	CSM-AGR1U50V	FXD	CER	0.1μF	±20%	50V	
C27	CCK-BX10U16V	FXD	ELECT	10μF	±20%	16V	
C28	CSM-AGR1U50V	FXD	CER	0.1μF	±20%	50V	
C30	CCK-BX10U16V	FXD	ELECT	10μF	±20%	16V	
C31	CSM-AGR1U50V	FXD	CER	0.1μF	±20%	50V	
C35	CCK-BX10U16V	FXD	ELECT	10μF	±20%	16V	
C36	CSM-AGR1U50V	FXD	CER	0.1μF	±20%	50V	
D1	SDZ-H3-8	ZENER DIODE					
D2	NLD-000016	LED					
J1	JCS-BQ096PX01	CONNECTOR					
J2	JCR-AF026PX02	CONNECTOR					
J3	JCP-AA012PX07	CONNECTOR					
J4	JCR-AF034PX02	CONNECTOR					
L1	LCL-C00010	COIL		180μH	±10%		
L2	LCL-T00084A	COIL		(CUSTOM DEVICE)			
L3	LCL-C00010	COIL		180μH	±10%		
Q1	STN-2SC1815	TRANSISTOR		NPN			
R1	RAY-TL1K4	FXD	RA	1kΩ×4	±5%	1/8W	
R2	RCB-AG1R5K	FXD	CAR	1.5kΩ	±5%	1/8W	
R3	RCB-AG10K	FXD	CAR	10kΩ	±5%	1/8W	
R4	RCB-AG1K	FXD	CAR	1kΩ	±5%	1/8W	
R6	RAY-TL3R9K8	FXD	RA	3.9kΩ×8	±5%	1/8W	
R12	RAY-BGX0015	FXD	RA		±20%		
R14	RCB-AG6R8K	FXD	CAR	6.8kΩ	±5%	1/8W	
R15	RCB-AG3R3K	FXD	CAR	3.3kΩ	±5%	1/8W	
R16	RCB-AG1K	FXD	CAR	1kΩ	±5%	1/8W	
U1	SIM-74HC244	OCTAL BUFFERS					
U3	SIM-74HC652	OCTAL BUS TRANCEIVERS & REGISTERS					
U5	SIT-75188	QUAD LINE DRIVER					
U6	SIM-74HC125	QUAD BUS BUFFER GATES					
U7	SIM-74HC04	HEX INVERTERS					
U8	SIM-74HC74	DUAL D FLIP-FLOPS WITH PRESET & CLEAR					
U10	SIM-74HC139	DUAL 2 TO 4-LINE DECODERS					
U11	SIM-74HC138	3 TO 8-LINE DECODERS					
U13	SIM-74HC00	QUAD 2 INPUT POSI-NAND GATES					
U14	SIM-74HC32	QUAD 2 INPUT POSI-OR GATES					