

1. TEST EQUIPMENT

7613 Mainframe
7L18 Spectrum Analyzer
5340A Freq Counter
436A Power Meter
2nd LO Test Fixture
492 Power Supply

2. TEST EQUIPMENT HOOK UP

7613 - Vert Mode - Left
Trig Source - Left
Non-Store

7L18 - Left Side -
Log 10dB/Div
Ref Level inside +10
 outside 0 & +30
RF input from test fixture splitter (Fig. 1)

- Right Side -
Center Freq 2-182 GHz
Band 1 -
Trigger free run
Digital Storage A & B on
Time/Div 10ms
Baseline Clipper FCW
Span/Div 2MHz/Div
Phaselock Auto
Resolution Bandwidth 300KHz

5340A- Resolution Hz 10K
Sample rate 8 o'clock
Range 10Hz to 18GHz
Input from 2nd test fixture splitter (Fig. 1)

436A - Mode dBm
Cal Factor 100%
dBm lite ON

2nd LO Test Fixture - connect to splitter
 connect to power supply

Power Supply - connect to 2nd LO test fixture

2.0 to 4 GHz Splitter

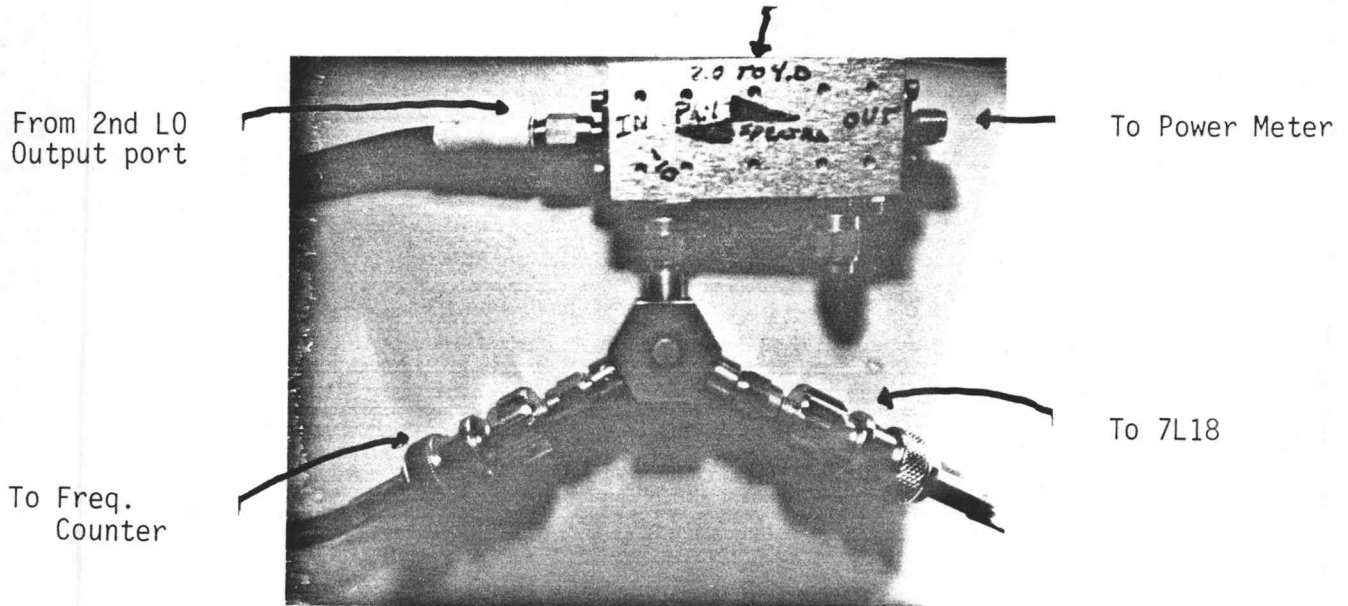


Fig. 1

3. TESTING

- A. Install 2nd LO into test fixture (Fig. 2) with top bracket toward you. You should be able to see inside top cavity, and you should be seeing Fig. 2. Hook up power cable.
- B. Hook up 2nd Converter Cable on right (+10db port) and then cable on the left (0dBm port). Turn on power on 492 power supply. The osc should start osc at some freq. W/a screwdriver and curved tweezers, hold the lock nut and turn in the tuning screw until it stops. (Fig. 2) Slowly start backing the tuning screw back out until the freq. counter does something. It should be below 2.0GHz. Keep backing it out until it reaches 2.182 GHz. Temporarily tighten this screw keeping it at the right frequency.
- C. Set the power out of the 0dBm port by tightening the 5/16" nut on the 2nd LO. This will let the center post turn free (Fig. 3). Watching the power meter turn post to 0dBm + .5dBm. Retighten 5/16" nut keeping it at 0dBm. Remove both cables from both ports and rotate 180°.
- D. Reconnect the 0dBm port up to the 2nd Converter and the splitter cable up to the +10dB port set this port to +10dBm + .5dB. Use the same procedure as above to set the power with the exception that the power must go up to at least +12.5dBm and then back it out to +10dBm.(HINT): to get more power out, turn screw in farther, if you can't get enough power out see troubleshooting hints.

Center
Frequency0dBm Power
Out+10dBm Power
Out

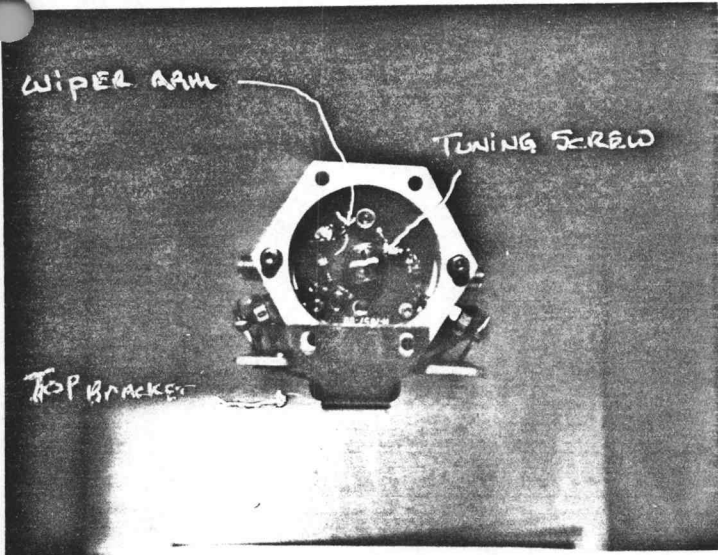


Fig. 2

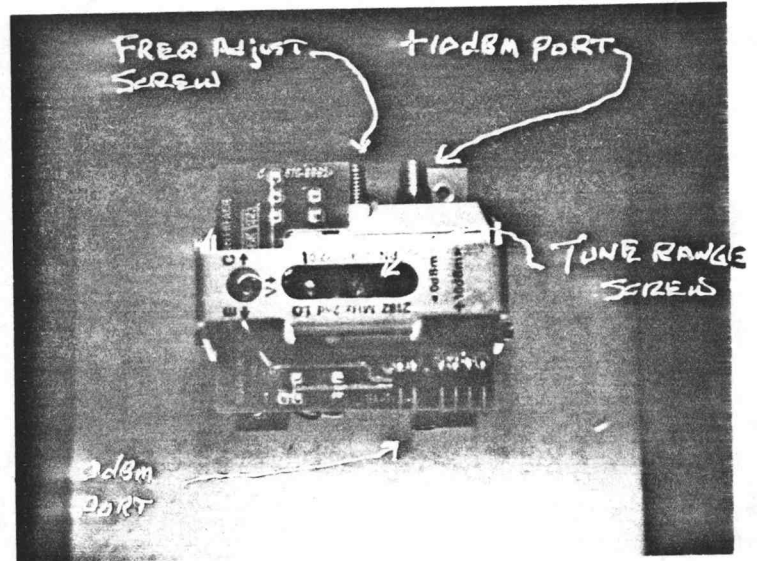


Fig. 3

E. Reset frequency back to 2.182GHz as per step B.

F. Turn on max hold 7L18 Digital Storage, flip the switch on the right side of the test fixture to the right and the signal Fig. 4 should move across the screen. (Fig. 5) The spec is 10MHz \pm 200KHz or 5 div \pm 1 minor when in 2MHz/Div. To adjust the tune range loosen nut on tune range screw(Fig. 3)

Tune Range

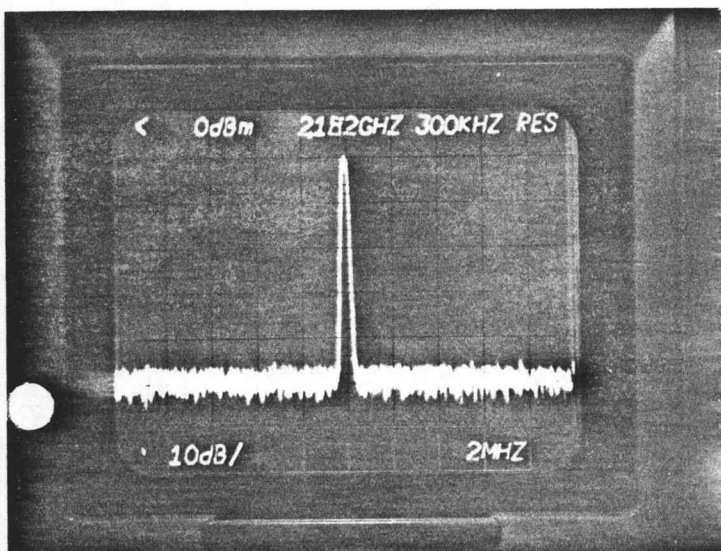


Fig. 4

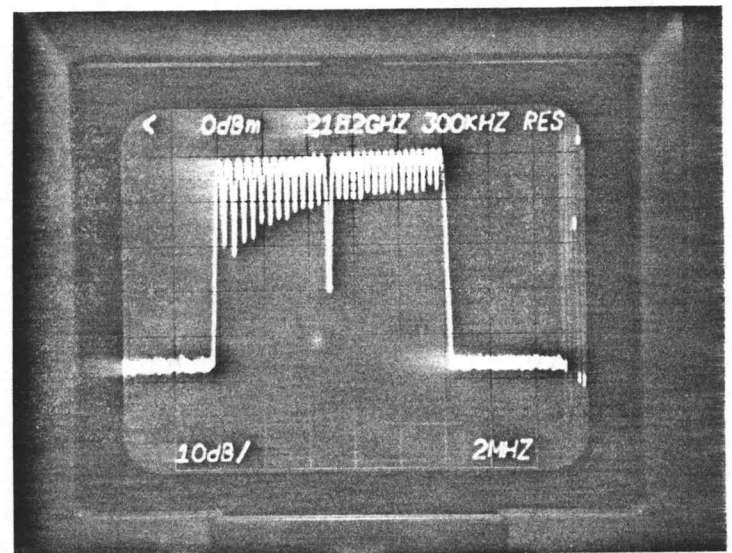


Fig. 5

Turn off the max hold & flip the switch back to center position. Next turn screw in to make it wider and out to make it narrower, keep an eye on the frequency counter. The counter will drop in frequency when you turn it in and raise in frequency when you turn it out and raise in frequency. When turning out you will get a feel for how far the frequency has to move in order to get the tune range to move.

Now reset the frequency to 2.182GHz and flip the switch and hit the max hold button if it doesn't make spec, continue with the same procedure until it does.

- Start Range
- G. With curved tweezer and screwdriver, check the start range by backing out the tuning screw (Fig. 2) and watching the freq. counter. The spec is that it must go up at least to 2.207GHz and not any further than 2.232GHz. This is 25-50MHz after you reach the point where it turns off, reset the power supply (off and on) to see if it will start there, and then continue turning tuning screw back 1/8 turn at a time to see when the osc starts back up again. This is the start range. To adjust move the wiper arm (Fig. 2) away from the back bracket. If this needs to be adjusted it will affect the power out. Reset it and check this test again.

- FM
- H. Remove screws and install cover on top, and H bracket on bottom (Fig. 6) screw down H bracket onto test fixture plate.

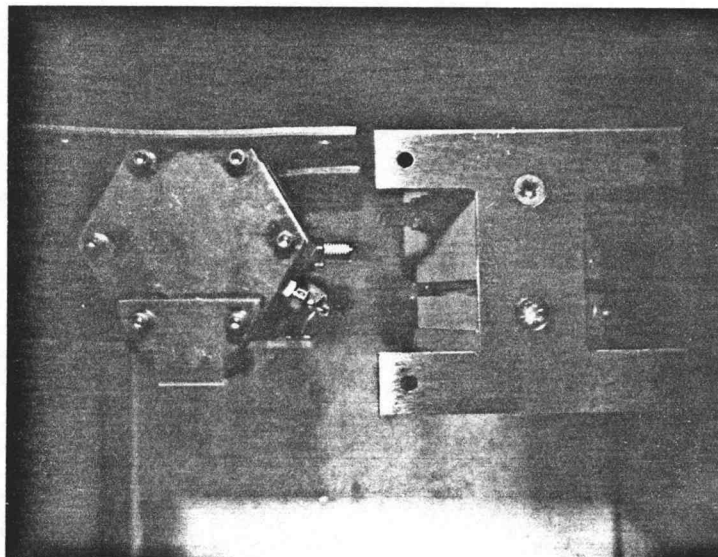


Fig. 6

- H. This is for Fig. 7 if your 2nd LO looks like this, reject it now before anymore time is wasted. It has FM.

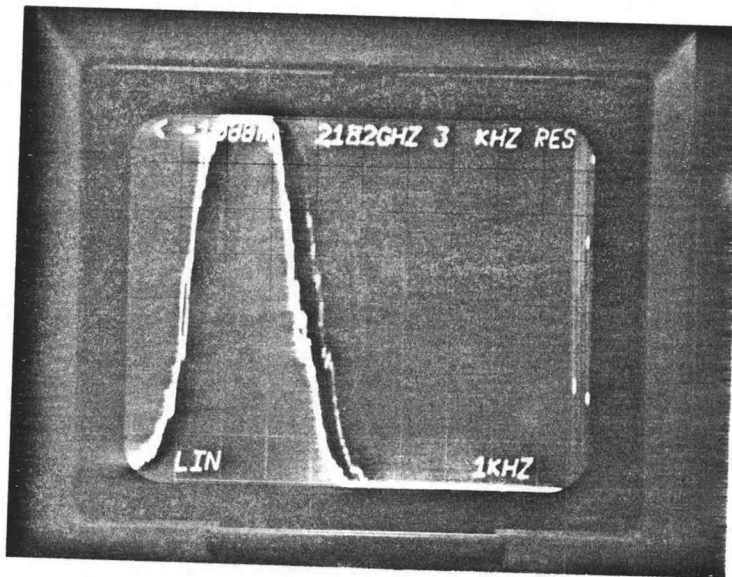


Fig. 7

In order to check FM the 7L18 must be in LIN mode 0 span and 3KHz/Div start at 2MHz/Div and span down to 100KHz/Div keeping the signal centered. Once there go to 50KHz Div (let it \emptyset lock). Now using the fine center frequency control, continue to span down keeping it centered. Go to 500Hz/Div (Fig. 8) Look at the difference between the leading edge and the trailing edge you want to span down on the leading edge at center screen.

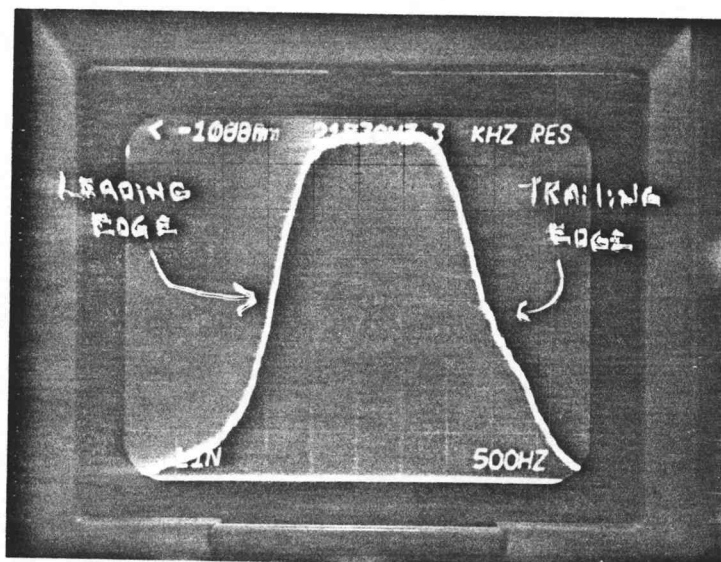


Fig. 8

Continue to 200Hz/Div (Fig. 9)

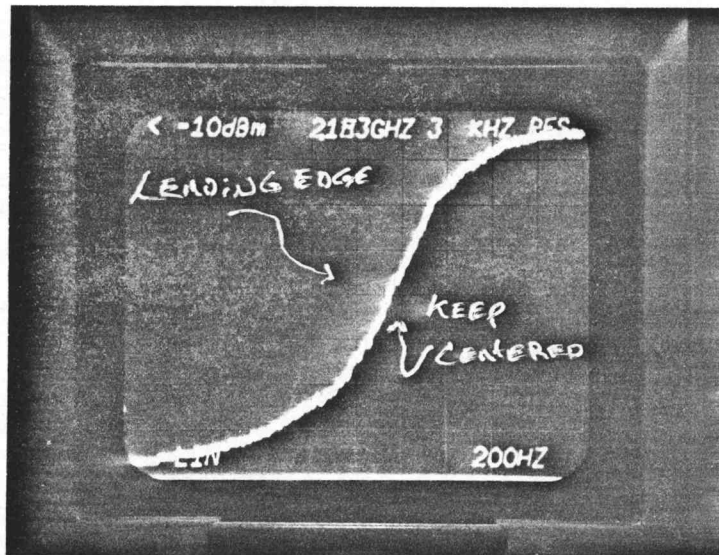


Fig. 9

Turn to 0 span and center trace in middle to CRT and 1 major div. Check for 2 minors of FM or less, if it doesn't make this spec, reject back to assembly, if it does ship it. (Fig. 10)

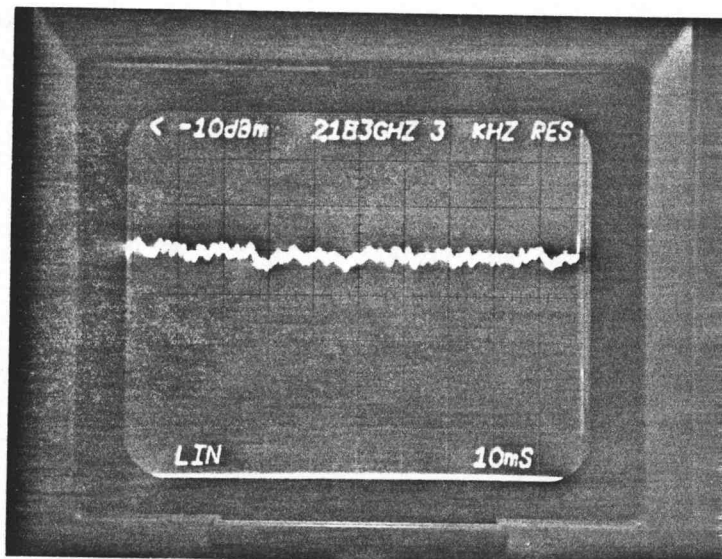


Fig. 10

4. TROUBLESHOOTING HINTS AND CAL SPECS

1. If it won't osc by turning screw all the way in and back out again, push red button top left. Test fixture if it still won't check all power supplies for shorts then transistor to see if it is being biased.
2. Power out +10dBm port. If it is turned in all of the way, reset the wiper arm until enough power does come out (Note this has a great effect on the start range). Move the arm towards the back bracket (Fig. 2).
3. If FM is found reject it could be one or more of the following:
 - a. Transistor
 - b. Capacitor feedthru
 - c. Variator Diode
 - d. Board inside
 - e. Caps on outside circuit board
 - f. Loose connection, cold solder joints

CAL SPECS

Center Frequency	2.182 GHz + 50MHz
Power out 0dBm	+ .5dBm
Power out +10dBm	+ .5dBm
Tune Range	10MHz ± 200KHz
Start Range	25 - 50 MHz
FM	≤ 25Hz