



LCD-550 PAL D/K

LOW COST AGILE TELEVISION DEMODULATOR

INSTRUCTION MANUAL

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CAUTION!

USE CARE WHEN CHANGING CHANNELS OR MAKING ADJUSTMENTS TO THE LCD-550 MODULES

These units are very small and they use smaller (and more delicate) components than are normally found in larger equipment.

The DIP switch levers can be damaged by excessive force. Use a small pointed object to gently move the switch levers to the required positions.

The rotating controls can be pushed-in and broken if too much force is applied against them. When adjusting these controls, use caution and an alignment tool in good condition that is a good fit to the control slot.

INTRODUCTION

The LCD-550 is a small low cost demodulator for use in cable and off-air applications. It is designed to mount in Olson Technology's LCM-550-RKA rack mountable chassis. The demodulator is shipped as a single LCD-550 and occupies 3 slots in the LCM-550-RKA chassis.

The LCD-550 can be made into a dual demodulator assembly by removing the front panel and guide pin on the second LCD-550 and installing on top of the first demodulator.

The units have a single RCA type audio output connector. The type of signal at this connector is selected from 3 types by internal jumpers. The user can choose normal audio, multiplex audio, or subcarrier. RF Input and Video Output connectors are "F" type. See Figure 2 for connector location.

The demods have an LED that indicates low input levels. This LED also flashes with invalid tuning settings. (LED is labeled "NO VIDEO" on some early models)

INSTALLATION

Units are shipped in the + .25MHz frequency tuning mode with normal audio output. PAL versions tune by frequency only with three front panel rotary switches. If other settings are required, go to page 4 for instructions.

Slide the unit into the rack shelf, making sure that the notch on the rear of the unit engages the tab on the shelf. Install and tighten the front thumb screw.

Connect the Audio and Video Output cables and the RF Input cable. Note that the combiner on the rear of some LCM-550 rack shelves is for outputs, not inputs. It is recommended that units be added with the rack assembly powered down, but they can be added hot as long as the long ground pin makes contact first. Connect the power cable(s).

Set the tuning switches to the desired frequency. If the desired frequency ends with .00, .50, or .75MHz the mode switch must be changed. If the unit is driving an LCM-550 with normal audio, no internal adjustments will be required. See Figure 1 for front panel controls.

FRONT PANEL CONTROLS

Front panel controls should be adjusted only with plastic alignment tools. Damage may result if metal tools are used. Refer to the following figure for location of the front panel controls.

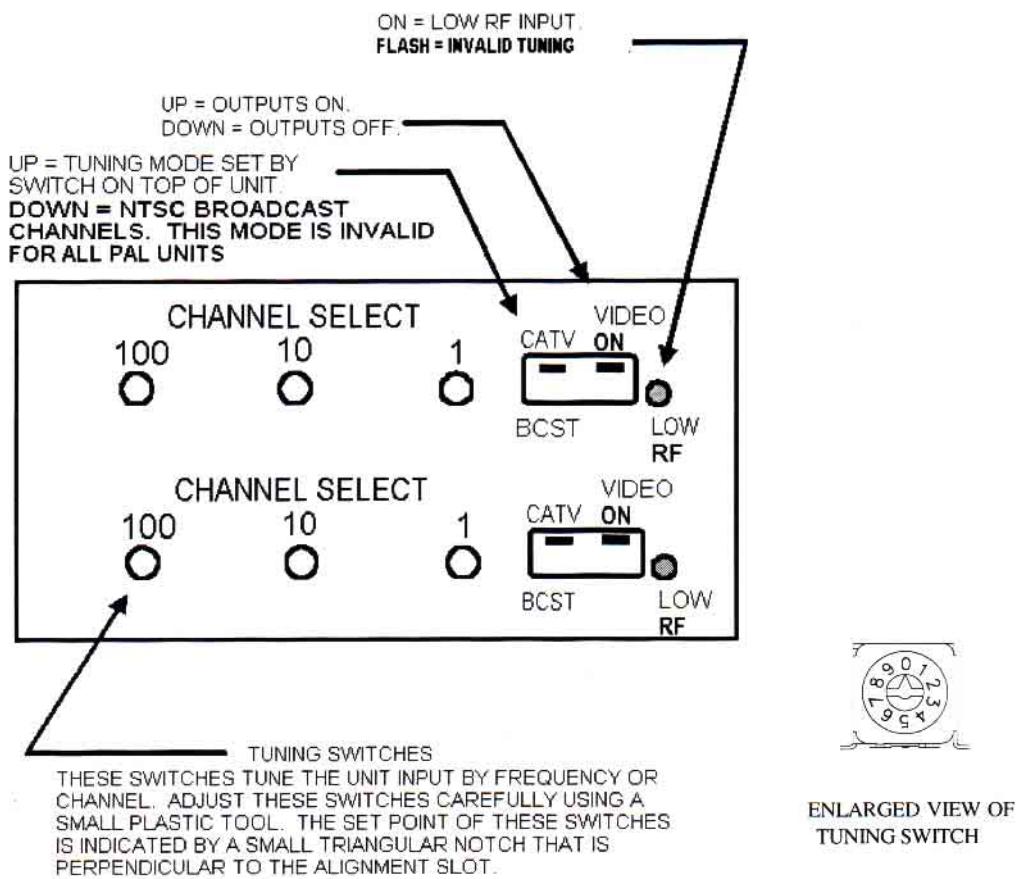


FIGURE 1

The LOW RF LED turns on with low or missing RF input. It also flashes on invalid tuning or mode settings. All outputs are squelched with low RF or invalid tuning.

The VIDEO ON dipswitch turns all outputs on and off.

The CATV-BCST dipswitch changes the tuning mode. In the CATV position the tuning mode is set by the tuning mode switch on the top of the demod. The BCST mode tunes NTSC broadcast VHF/UHF channels. This mode is invalid for all PAL units.

The channel select switches tune the RF input frequency. The set point of these switches is indicated by a small triangular notch that is perpendicular to the adjustment slot. When tuning by frequency, these switches are the frequency in MHz, with the .25MHz steps set by the tuning mode switch.

OPERATION

Most adjustments require removing the top cover. To access the bottom unit in a dual version, remove the 2 screws holding the top demod to the front panel. To access the internal adjustments, it is not necessary to remove the demod from the front panel; just remove the top cover screws. Figure 2 shows the adjustment locations. When all adjustments are complete, replace the top cover. For dual units, repeat this process for the top unit.

MODE SWITCH

This switch selects the CATV tuning mode. It is accessed through a hole in the top cover. Only positions 6-9 are valid settings on PAL units. Positions 0-2 select traditional channel plans. Positions 3-5 select EIA standard channel plans. Positions 6-9 select direct frequency tuning.

SW	OLSON TECH PLANS	SW	EIA STANDARD PLANS	SW	FREQUENCY
0	CATV	3	CATV	6	MHZ + 0
1	HRC	4	HRC	7	MHZ + .25
2	IRC	5	IRC	8	MHZ + .5
				9	MHZ + .75

INTERNAL CONTROLS

Refer to the following figure for the location of the internal controls.

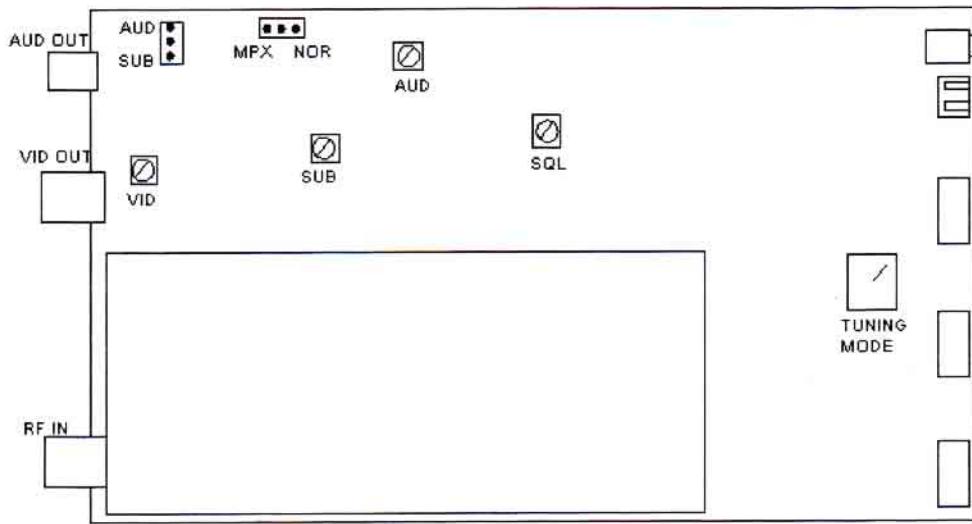


FIGURE 2

The VID pot sets the video output level. The video level should be measured into a 75ohm load.

The SUB pot sets the subcarrier output level. It does not affect the audio level.

The AUD pot sets the audio output level in both the normal and multiplex modes. It may need adjustment when changing between normal and multiplex outputs.

The SQL pot sets the low RF level where the outputs are squelched.

There are two jumpers that select the type of audio output. The AUD-SUB jumper selects between subcarrier and baseband audio outputs. If this jumper is in the AUD position, then the MPX-NOR jumper selects the type of baseband audio output.

The NOR position is normal audio output. In the MPX position, the audio de-emphasis is disabled. This is used for multiplex BTSC stereo. In the multiplex mode, the audio pre-emphasis on the associated modulator should also be disabled

AUDIO OUTPUT	AUD-SUB JUMPER	MPX-NOR JUMPER
SUBCARRIER	SUB	DON'T CARE
NORMAL AUDIO	AUD	NOR
MULTIPLEXED AUDIO	AUD	MPX

TROUBLESHOOTING

No output, low RF LED on:

- RF input low or absent.
- Incorrect tuning mode or channel.
- Check the small triangular notch for switch settings.

No output, low RF LED flashes:

- Invalid tuning. Check tuning and mode switches. PAL units tune by frequency only. Broadcast channel mode is also invalid for PAL.

Video output very high contrast and distorted:

- Video output is unterminated.

Video output washed out:

- Video output is double terminated.

Audio problems:

- Verify correct jumper settings. Pre-emphasis setting on modulator must match that of demodulator.

LCD-550 PAL D/K SPECIFICATIONS

RF Input PAL D/K 49.75 to 863.25MHz

RF Input Level Off-air -10dBmV to +25dBmV
CATV -10dBmV to +10dBmV

Video Output 1V p-p +/- 5 IRE into 75 Ω

Video Performance Diff. gain < 5%
Diff. phase < 3°

Audio Output Types Normal Audio
Multiplex Audio
Subcarrier
(selected by internal jumpers)

Audio Output 500 mV p-p into 600 Ω unbalanced

MPX Audio Output 500 mV p-p into 600 Ω unbalanced

Audio Subcarrier Output > +40dBmV into 75 Ω unbalanced

Front Panel Controls Output on/off
CATV/Broadcast (only CATV is valid on PAL units)
Rotary tuning switches

Front Panel Indicator Low RF

Rear Panel Connectors RF in, Video out...type "F"
Audio...RCA

Power Requirements < 2 watts from LCM-550 RKA chassis
(5V @ 165mA and 10V @ 30mA typical)

Size 1.3x3x6

Weight < 1 lb.

PAL D/K Channels

EAST EUROPE		
R CHANNELS	RUSSIA	VIDEO FREQ
R1	1	49.75
	2	57.75
R2		59.25
	3	65.75
R3	4	77.25
R4	5	85.25
R5		93.25
	SC-1	111.25
	SC-2	119.25
	SC-3	127.25
	SC-4	135.25
	SC-5	143.25
	SC-6	151.25
	SC-7	159.25
	SC-8	167.25
R6	6	175.25
R7	7	183.25
R8	8	191.25
R9	9	199.25
R10	10	207.25
R11	11	215.25
R12	12	223.25
	SC-11	231.25
	SC-12	239.25
	SC-13	247.25
	SC-14	255.25
	SC-15	263.25
	SC-16	271.25
	SC-17	279.25
	SC-18	287.25
	SC-19	295.25
	SC-20	303.25
	SC-21	311.25

CHINA	
CHANNEL	VIDEO FREQ
1	49.75
2	57.75
3	65.75
4	77.25
5	85.25
6	168.25
7	176.25
8	184.25
9	192.25
10	200.25
11	208.25
12	216.25
13	471.25
14	479.25
15	487.25
16	495.25
17	503.25
18	511.25
19	519.25
20	527.25
21	535.25
22	543.25
23	551.25
24	559.25
NOT DEFINED	567.25
NOT DEFINED	575.25
NOT DEFINED	583.25
NOT DEFINED	591.25
NOT DEFINED	599.25
25	607.25
26	615.25
27	623.25
28	631.25
29	639.25

EAST EUROPE		
R CHANNELS	RUSSIA	VIDEO FREQ
	SC-22	319.25
	SC-23	327.25
	SC-24	335.25
	SC-25	343.25
	SC-26	351.25
	SC-27	359.25
	SC-28	367.25
	SC-29	375.25
	SC-30	383.25
	SC-31	391.25
	SC-32	399.25
	SC-33	407.25
	SC-34	415.25
	SC-35	423.25
	SC-36	431.25
	SC-37	439.25
	SC-38	447.25
	SC-39	455.25
	SC-40	463.25
	21	471.25
	22	479.25
	23	487.25
	24	495.25
	25	503.25
	26	511.25
	27	519.25
	28	527.25
	29	535.25
	30	543.25
	31	551.25

CHINA	
CHANNEL	VIDEO FREQ
30	647.25
31	655.25
32	663.25
33	671.25
34	679.25
35	687.25
36	695.25
37	703.25
38	711.25
39	719.25
40	727.25
41	735.25
42	743.25
43	751.25
44	759.25
45	767.25
46	775.25
47	783.25
48	791.25
49	799.25
50	807.25
51	815.25
52	823.25
53	831.25
54	839.25
55	847.25
56	855.25
57	863.25