



LCP-500-550

TELEVISION PROCESSOR

INSTRUCTION MANUAL

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TELEVISION PROCESSOR

1) INTRODUCTION

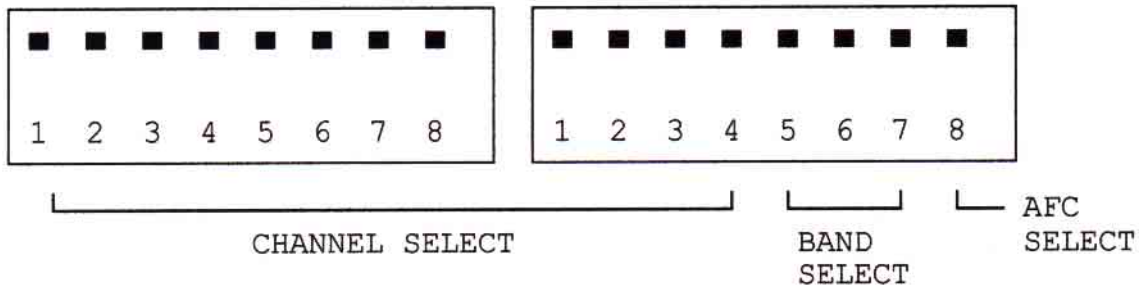
The Olson Technology LCP-500-550 is a frequency agile F.C.C. compatible television processor that will select any VHF, standard and HRC cable, or UHF input channel in 0.25MHz increments, from channel 2 (54MHz) to channel W (300MHz) and UHF channel 14 (471.25MHz) through channel 83 (885.25MHz). This unit provides $>+55\text{dBmV}$ output in 1MHz increments, on any channel from channel 2 (55.25MHz) through channel AAA (547.25MHz). All input and output channels are selectable by front panel DIP switches. A front panel control allows adjustment of the output frequency for F.C.C. required offsets.

The LCP-500-550 uses dual SAW filtering for excellent adjacent channel performance and has $>-60\text{dB}$ spurious free output capability. The LCP-500-550 also offers $>77\text{dB}$ out-of-band carrier to noise performance which will allow virtually unlimited numbers of LCP-500-550's to be combined without the use of external band pass filters. Power consumption is 14 watts maximum @ 115 VAC.

2) INPUT CHANNEL SELECTION

Remove the small cover plate from the front panel to expose the 2, 8 position channel select, band select, and AFC select DIP switches as shown in Figure 1.

FIGURE 1 - Input Channel Select



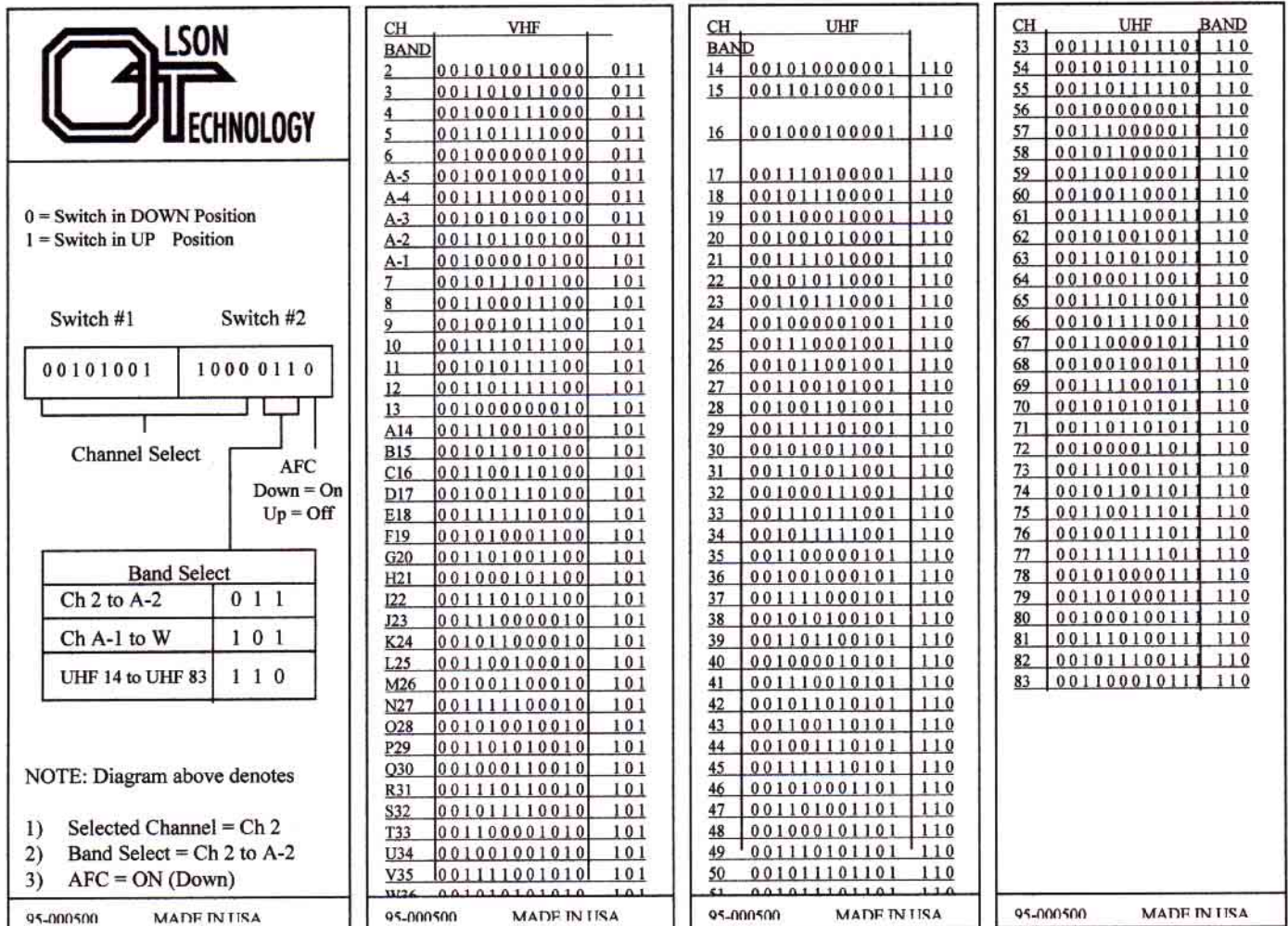
- A) **Channel Selection:** Channel selection is accomplished by properly setting the 8 positions on DIP Switch #1 and the first 4 positions on DIP Switch #2 to the corresponding channel codes. Channel codes can be selected from the code cards attached to the "Input Channel Select" cover plate, or from Figure #2 of this manual.
- B) **Band Selection:** The proper band is selected by setting positions 5, 6 & 7 on DIP Switch #2 to the corresponding band. The correct position for these switches can be selected from the code card attached to the "Input Channel Select" cover or from Figure 2.

HRC CATV CHANNEL CODES

CHANNEL	VIDEOFREQ.	DIP SWITCH	LSB = LEFT
2	54.000	1111 0001	1000 0000
3	60.000	1110 0101	1000 0000
4	66.000	1111 1101	1000 0000
5	72.000	1110 1011	1000 0000
6	78.000	1111 0111	1000 0000
7	174.000	1111 0110	1100 0000
8	180.000	1110 0001	1100 0000
9	186.000	1111 1001	1100 0000
10	192.000	1110 1101	1100 0000
11	198.000	1111 1101	1100 0000
12	204.000	1110 0111	1100 0000
13	210.000	1111 1111	1100 0000
14	120.000	1110 1001	0100 0000
15	126.000	1111 0101	0100 0000
16	132.000	1110 0011	0100 0000
17	138.000	1111 1011	0100 0000
18	144.000	1110 1111	0100 0000
19	150.000	1111 0000	1100 0000
20	156.000	1110 0100	1100 0000
21	62.000	1111 1100	1100 0000
22	168.000	1110 1010	1100 0000
23	216.000	1110 1000	0010 0000
24	222.000	1111 0100	0010 0000
25	228.000	1110 0010	0010 0000
26	234.000	1111 1010	0010 0000
27	240.000	1110 1110	0010 0000
28	246.000	1111 0001	0010 0000
29	252.000	1110 0101	0010 0000
30	258.000	1111 1101	0010 0000
31	264.000	1110 1011	0010 0000
32	270.000	1111 0111	0010 0000
33	276.000	1110 0000	1010 0000
34	282.000	1111 1000	1010 0000
35	288.000	1110 1100	1010 0000
36	294.000	1111 0010	1010 0000
37	300.000	1110 0110	1010 0000
66	474.000	1111 1000	0001 0000
67	480.000	1110 1100	0001 0000
68	486.000	1111 0010	0001 0000
69	492.000	1110 0110	0001 0000
95	90.000	1111 1000	0100 0000
96	96.000	1110 1100	0100 0000
97	102.000	1111 0010	0100 0000
98	108.000	1110 0110	0100 0000
99	114.000	1111 1110	0100 0000

- C) AFC Selection: Most off-air TV stations are usually very close to the specified carrier frequency such that the AFC function need not be used. However, if AFC is desired, then utilize position 8 on DIP Switch #2. Refer to Figure #2.

FIGURE 2 - Input Channel Select Chart



- D) Input Connection: After an input channel and the band select have been determined and the DIP switches placed in the correct position, connect an antenna or cable source to the appropriate RF input connector. For optimum video quality the input signal level should be a minimum of +10dBmV. This unit will function with input signal levels as low as -20dBmV, but any signals below -20dBmV will be squelched by the internal squelch circuit.

3) AGC ADJUSTMENT

- A) The delayed AGC adjustment is factory set for a +5 to +10dBmV threshold. This setting provides for the best signal-to-noise ratio for low level off-air signals.
- B) For cable operation, where high-level adjacent channel signals may be present, adjacent channel performance may be improved by lowering the AGC threshold level.

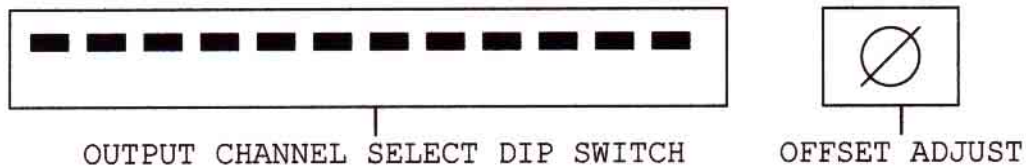
C) To adjust the delayed AGC threshold level for cable operation.

1. Connect a cable signal carrying three adjacent channels at a level of +15dBmV maximum to the RF input connector.
2. Set the input channel and band select DIP switches to the channel located in the center carrier frequency (of the three channels).
3. Adjust the demodulator delayed AGC control (R32) slightly for the least amount of adjacent channel interference while viewing the picture on a video monitor or through a modulator.

4) OUTPUT CHANNEL SELECTION

Remove the small cover plate from the front panel to expose the channel select switches and the F.C.C. offset adjust control as shown in Figure 3.

FIGURE 3 - Output Channel Select/Offset Adjust



Channel selection is made by properly setting the 12-position DIP switches to the corresponding channel code. Channel codes are shown in Table 1 and on the code card attached to the cover plate. Set the DIP switches from left to right. For example, if channel 11 is desired, its corresponding channel code is:

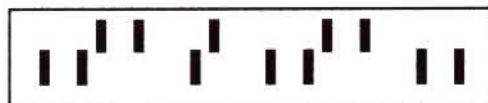


Table 1
LCP-500-550
STANDARD TV CHANNEL CODES FOR OUTPUT

FREQUENCY MHz	EIA CHANNEL	HISTORIC CHANNEL	CHANNEL SELECT
55.25	2	2	0 0 1 1 1 0 0 1 0 1 0 0
61.25	3	3	0 1 0 0 0 1 0 1 0 1 0 0
67.25	4	4	0 0 0 1 0 1 0 1 0 1 0 0
77.25	5	5	0 1 0 0 1 1 0 1 0 1 0 0
83.25	6	6	0 0 0 1 1 1 0 1 0 1 0 0
91.25	95	A-5	0 0 0 0 0 0 1 1 0 1 0 0
97.25	96	A-4	0 1 1 0 0 0 1 1 0 1 0 0
103.25	97	A-3	0 0 1 1 0 0 1 1 0 1 0 0
109.25	98	A-2	0 1 0 0 1 0 1 1 0 1 0 0
115.25	99	A-1	0 0 0 1 1 0 1 1 0 1 0 0
121.25	14	A	0 1 1 1 1 0 1 1 0 1 0 0
127.25	15	B	0 0 1 0 0 1 1 1 0 1 0 0
133.25	16	C	0 1 0 1 0 1 1 1 0 1 0 0
139.25	17	D	0 0 0 0 1 1 1 1 0 1 0 0
145.25	18	E	0 1 1 0 1 1 1 1 0 1 0 0
151.25	19	F	0 0 1 1 1 1 1 1 0 1 0 0
157.25	20	G	0 1 0 0 0 0 0 0 1 1 0 0
163.25	21	H	0 0 0 1 0 0 0 0 1 1 0 0
169.25	22	I	0 1 1 1 0 0 0 0 1 1 0 0
175.25	7	7	0 0 1 0 1 0 0 0 1 1 0 0
181.25	8	8	0 1 0 1 1 0 0 0 1 1 0 0
187.25	9	9	0 0 0 0 0 1 0 0 1 1 0 0
193.25	10	10	0 1 1 0 0 1 0 0 1 1 0 0
199.25	11	11	0 0 1 1 0 1 0 0 1 1 0 0
205.25	12	12	0 1 0 0 1 1 0 0 1 1 0 0
211.25	13	13	0 0 0 1 1 1 0 0 1 1 0 0
217.25	23	J	0 1 1 1 1 1 0 0 1 1 0 0
223.25	24	K	0 0 1 0 0 0 1 0 1 1 0 0
229.25	25	L	0 1 0 1 0 0 1 0 1 1 0 0
235.25	26	M	0 0 0 0 1 0 1 0 1 1 0 0

Table 1 (Continued)
LCP-500-550
STANDARD TV CHANNEL CODES FOR OUTPUT

FREQUENCY MHz	EIA CHANNEL	HISTORIC CHANNEL	CHANNEL SELECT
241.25	27	N	0 1 1 0 1 0 1 0 1 1 0 0
247.25	28	O	0 0 1 1 1 0 1 0 1 1 0 0
253.25	29	P	0 1 0 0 0 1 1 0 1 1 0 0
259.25	30	Q	0 0 0 1 0 1 1 0 1 1 0 0
265.25	31	R	0 1 1 1 0 1 1 0 1 1 0 0
271.25	32	S	0 0 1 0 1 1 1 0 1 1 0 0
277.25	33	T	0 1 0 1 1 1 1 0 1 1 0 0
283.25	34	U	0 0 0 0 0 0 0 1 1 1 0 0
289.25	35	V	0 1 1 0 0 0 0 1 1 1 0 0
295.25	36	W	0 0 1 1 0 0 0 1 1 1 0 0
301.25	37	AA	0 1 0 0 1 0 0 1 1 1 0 0
307.25	38	BB	0 0 0 1 1 0 0 1 1 1 0 0
313.25	39	CC	0 1 1 1 1 0 0 1 1 1 0 0
319.25	40	DD	0 0 1 0 0 1 0 1 1 1 0 0
325.25	41	EE	0 1 0 1 0 1 0 1 1 1 0 0
331.25	42	FF	0 0 0 0 1 1 0 1 1 1 0 0
337.25	43	GG	0 1 1 0 1 1 0 1 1 1 0 0
343.25	44	HH	0 0 1 1 1 1 0 1 1 1 0 0
349.25	45	II	0 1 0 0 0 0 1 1 1 1 0 0
355.25	46	JJ	0 0 0 1 0 0 1 1 1 1 0 0
361.25	47	KK	0 1 1 1 0 0 1 1 1 1 0 0
367.25	48	LL	0 0 1 0 1 0 1 1 1 1 0 0
373.25	49	MM	0 1 0 1 1 0 1 1 1 1 0 0
379.25	50	NN	0 0 0 0 0 1 1 1 1 1 0 0
385.25	51	OO	0 1 1 0 0 1 1 1 1 1 0 0
391.25	52	PP	0 0 1 1 0 1 1 1 1 1 0 0
397.25	53	QQ	0 1 0 0 1 1 1 1 1 1 0 0
403.25	54	RR	0 0 0 1 1 1 1 1 1 1 0 0
409.25	55	SS	0 1 1 1 1 1 1 1 1 1 0 0
415.25	56	TT	0 0 1 0 0 0 0 0 0 0 1 0

Table 1 (Continued)
LCP-500-550
STANDARD TV CHANNEL CODES FOR OUTPUT

FREQUENCY MHz	EIA CHANNEL	HISTORIC CHANNEL	CHANNEL SELECT
421.25	57	UU	0 1 0 1 0 0 0 0 0 0 1 0
427.25	58	VV	0 0 0 0 1 0 0 0 0 0 1 0
433.25	59	WW	0 1 1 0 1 0 0 0 0 0 1 0
439.25	60	XX	0 0 1 1 1 0 0 0 0 0 1 0
445.25	61	YY	0 1 0 0 0 1 0 0 0 0 1 0
451.25	62	ZZ	0 0 0 1 0 1 0 0 0 0 1 0
457.25	63	63	0 1 1 1 0 1 0 0 0 0 1 0
463.25	64	64	0 0 1 0 1 1 0 0 0 0 1 0
469.25	65	65	0 1 0 1 1 1 0 0 0 0 1 0
475.25	66	66	0 0 0 0 0 0 1 0 0 0 1 0
481.25	67	67	0 1 1 0 0 0 1 0 0 0 1 0
487.25	68	68	0 0 1 1 0 0 1 0 0 0 1 0
493.25	69	69	0 1 0 0 1 0 1 0 0 0 1 0
499.25	70	70	0 0 0 1 1 0 1 0 0 0 1 0
505.25	71	71	0 1 1 1 1 0 1 0 0 0 1 0
511.25	72	72	0 0 1 0 0 1 1 0 0 0 1 0
517.25	73	73	0 1 0 1 0 1 1 0 0 0 1 0
523.25	74	74	0 0 0 0 1 1 1 0 0 0 1 0
529.25	75	75	0 1 1 0 1 1 1 0 0 0 1 0
535.25	76	76	0 0 1 1 1 1 1 0 0 0 1 0
541.25	77	77	0 1 0 0 0 0 0 1 0 0 1 0
547.25	78	78	0 0 0 1 0 0 0 1 0 0 1 0

5) F.C.C. OFFSET ADJUSTMENT

F.C.C. offset frequencies are shown in Table 2 and summarized on the card attached to the cover plate. To adjust the frequency of a particular channel to provide the correct F.C.C. offset, look up it's offset frequency in Table 2 (or use the summary attached to the cover plate). Connect a frequency counter to the RF output and remove the input signal from the LCP-500-550. Adjust the offset control (located to the right of the DIP switch) so that the counter reads the correct frequency.

Table 2. F.C.C. Offset Frequencies

<u>CHANNEL</u>	<u>F.C.C. OFFSET</u>	<u>CHANNEL FREQUENCY</u> (including offset)
A-2	25KHz	109.275MHz
A-1	25KHz	115.275MHz
A	12.5KHz	121.2625MHz
B	12.5KHz	127.2625MHz
C	12.5KHz	133.2625MHz
L	12.5KHz	229.2625MHz
M	12.5KHz	235.2625MHz
N	12.5KHz	241.2625MHz
O	12.5KHz	247.2625MHz
P	12.5KHz	253.2625MHz
Q	12.5KHz	259.2625MHz
R	12.5KHz	265.2625MHz
S	12.5KHz	271.2625MHz
T	12.5KHz	277.2625MHz
U	12.5KHz	283.2625MHz
V	12.5KHz	289.2625MHz
W	12.5KHz	295.2625MHz
AA	12.5KHz	301.2625MHz
BB	12.5KHz	307.2625MHz
CC	12.5KHz	313.2625MHz
DD	12.5KHz	319.2625MHz
EE	12.5KHz	325.2625MHz
FF	25KHz	331.275MHz
GG	12.5KHz	337.2625MHz
HH	12.5KHz	343.2625MHz
II	12.5KHz	349.2625MHz
JJ	12.5KHz	355.2625MHz
KK	12.5KHz	361.2625MHz
LL	12.5KHz	367.2625MHz
MM	12.5KHz	373.2625MHz
NN	12.5KHz	379.2625MHz
OO	12.5KHz	385.2625MHz
PP	12.5KHz	391.2625MHz
QQ	12.5KHz	397.2625MHz

6) RF OUTPUT AND AURAL CARRIER LEVEL ADJUSTMENT

- A) Using a field strength meter or spectrum analyzer, set the video carrier to the desired level with the RF output level control (typically +55dBmV).
- B) Tune to the aural carrier, which is located 4.5MHz above the video carrier.
- C) Adjust the aural carrier level control (A/V) to the desired level, typically 15dB below the video carrier. CAUTION: Reducing the visual/aural carrier ratio to less than 15dB can result in high spurious signals in adjacent channels.
- D) Output Connection - The output signal is now present at the RF output port.

7) MISCELLANEOUS

- A) The LCP-500-550 is BTSC compatible. The unit will automatically function with either stereo or monaural audio carriers and will pass an SAP signal if present.
- B) The LCP-500-550 is equipped with a 0.5A slo-blo fuse. For safety, and to maintain proper performance of the unit, please replace only with an equivalent fuse.
- C) When installing the LCP-500-550 in an equipment rack, it is best to leave an empty rack space above and below the unit to allow for optimum air circulation.