

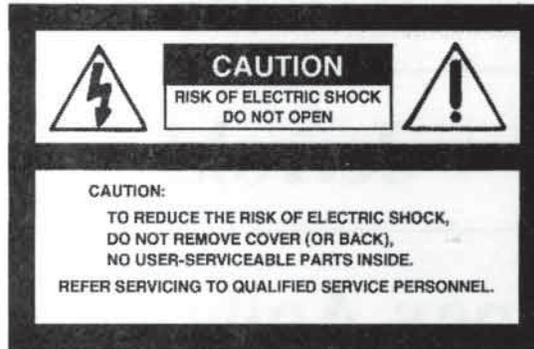


**S450P**

**FREQUENCY AGILE PROCESSOR**

**INSTRUCTION MANUAL**

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Graphical symbols and supplemental warning marking located on top of modulator.

**WARNING:**  
**TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

This installation should be made by a qualified service person and should conform to all local codes.

**NOTE TO CATV SYSTEM INSTALLER:**

This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

**WARNING:**

To prevent fire or shock hazard, do not expose this appliance to rain or moisture.

**WARNING:**

To prevent electrical shock, do not use the converter electrical power plug (polarized) with an extension cord, receptacle, or other outlet unless the blades can be fully inserted to prevent blade exposure.

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## 1.1 Description

The Olson Technology Model S450P is a high quality, channel processor designed with front-panel selectable frequency agility. The input tuner is capable of selecting any VHF, UHF, or cable channel from 54 to 860MHz, in 1MHz increments. The output tuner can select any output frequency from 55.25 to 547.25, also 1MHz increments.

The S450P input and output channels are selected by setting front panel dip switches concealed behind cover plates. Frequency offsets (+12.5 or +25 KHz) as required by the FCC, are also selectable via dip switches in the group of output channel selection switches.

The IF output of the input tuner is externally connected to the IF input of the output tuner at the S450P's rear panel. This connection must be in place for standard operation.

Specifications for the S450P are listed in Table 1-1; a block diagram of the unit is shown in Figure 1-1.

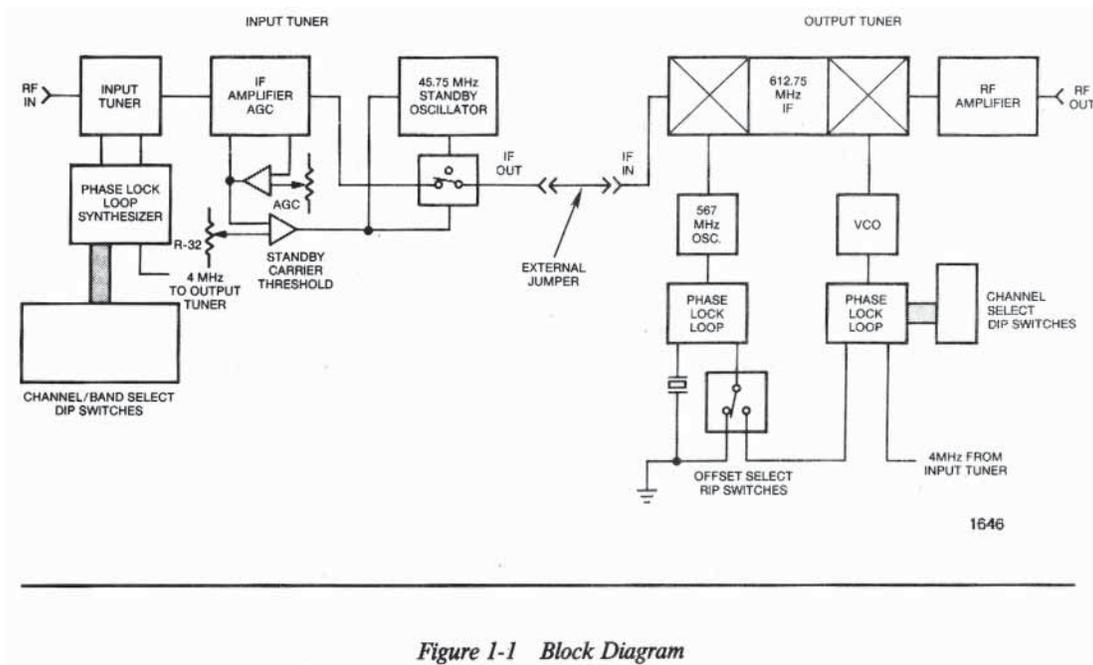


Figure 1-1 Block Diagram

**1.1 Description  
(Continued)**

**TABLE 1-1. MODEL S450P SPECIFICATIONS**

<b>RF</b>	
Output Channels	2-86 IRC and FCC offsets, front-panel selectable.
Output Level	60 dBmV typical, 10 dB adjustable
Spurious Output	> 60 dB down @ 60 dBmV output, 50-450 MHz > 60 dB down @ 57 dBmV output, 450-550 MHz
Out-of-Band C/N	80 dB min, as measured in 4 MHz bandwidth
Frequency Stability	+/- 5 kHz (conforms to FCC requirements)
Selectivity	> 60 dB rejection of adjacent video and aural carriers
Aural Carrier Level	Adjustable from -12 dB to -17 dB below video carrier level dependent on input carrier level.
Input Range for AGC	-15 dBmV to +25 dBmV
Input Channels	VHF, UHF, and cable channels to 860 MHz
Input/Output Impedance	75 Ohms
<b>GENERAL</b>	
AC Power Requirements	100-240 VAC, 50/60 Hz, 0.18 A
Fuse	0.5 A, 250 V, slo-blo
Rack Mounting Dimensions	19" x 1.75" (single EIA rack unit)
Overall Dimensions	7" D x 19" W x 1.75" H
Operating Temperature Range	32 to 104 degrees F (0 to 40 degrees C)

**2.1 Installation**

Front and rear panel controls and connectors used in the installation and operation procedures are shown in Figure 2-1, 2-2, and listed in Tables 2-1 and 2-2.

**TABLE 2-1. FRONT PANEL CONTROLS AND CONNECTIONS**

<b>NAME</b>	<b>FUNCTION</b>
input channel (two 8-position DIP switches)	Tune input channel
output channel (two 8-position DIP switches)	Tune output channel
offset (control)	Sets output carrier offset
rf out (control)	Sets RF output level (10 dB range)
a/v (control)	Sets the audio carrier level
rf test ("F" connector)	RF test point (-20 dB)
power (indicator)	Green LED lights when power is applied

## 2.1 Installation (continued)

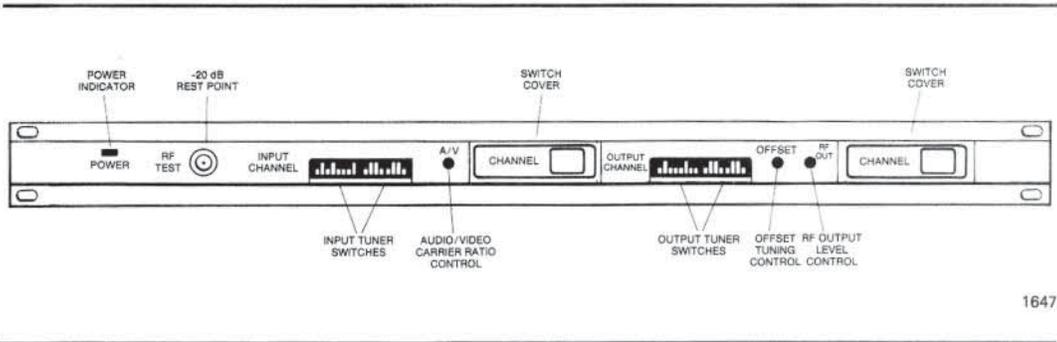


Figure 2-1 Front Panel

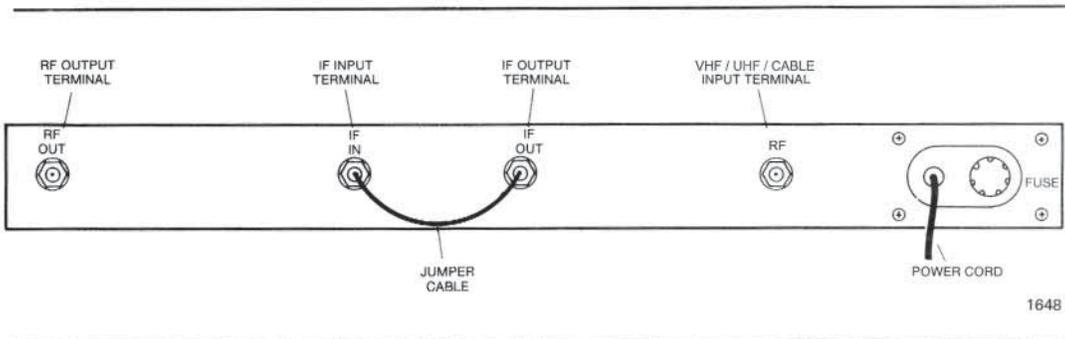


Figure 2-2 Rear Panel

TABLE 2-2. REAR PANEL CONNECTIONS

NAME	FUNCTION
100-240 VAC, 50/60 Hz, 0.18 A	Ac line cord
RF ("F" connector)	Input terminal for VHF / UHF and cable channels
IF OUT ("F" connector)	IF output from input tuner
IF IN ("F" connector)	IF input to output tuner
RF OUT ("F" connector)	RF output for distribution system

## 2.2 Rear Panel IF Connections

The IF output of the input tuner and the IF input of the output tuner are made available at the rear panel of the S450P to permit flexible application of the unit, such as:

- 1: Using the input tuner only (RF input / IF output)
- 2: Using the output tuner only (IF input / RF output)
- 3: Using both tuners to employ the unit in the processor mode. For this application, the IF IN and the IF OUT F-connectors are connected (Figure 2-2); a jumper cable is provided in the accessory package for this purpose. The following procedures assume that the unit is being used in the processor mode.

## 2.3 Input Connections

Using a 75-Ohm cable, connect the input to the RF input F-connector.

An input signal level of +10 dBmV will provide optimum picture quality. A level below -20 dBmV will cause activation of the standby carrier. The threshold level for this is set by R32 (refer to Section 3.2)

## 2.4 Output Connections

Using a 75-Ohm cable, connect the RF OUT F-connector to the TV distribution system.

## 3.1 Adjustments and Operation

If adjustment of the standby carrier threshold level is to be made, proceed as in Section 3.2 before installing the S450P in its rack or cabinet, otherwise install the unit and go to Section 3.3.

## 3.2 Standby Carrier Threshold Adjustment

The standby carrier threshold is factory-set for -20dBmV. If you wish to set the threshold to some other level proceed as follows before installing the S450P in its rack or cabinet.

- 1: Remove the top cover from the unit.
- 2: Referring to Section 3.4 and 3.5, tune the S450P to the desired input and output channels.
- 3: Connect a television receiver (tuned to the output channel) to the rear panel RF OUT F-connector; use the RF OUT control and attenuators as required to avoid overloading the receiver.
- 4: Using a variable attenuator and a signal level meter, adjust the input signal to the desired threshold level. Connect the RF input signal to the appropriate RF F-connector.
- 5: Plug the processor power cord into a 100-240 VAC, 50/60Hz outlet. The green power LED on the front panel will light. Allow a warm-up period of about 30 minutes to stabilize the equipment.
- 6: Referring to Figure 3-1, locate the threshold control (R32).
- 7: Using the television receiver as an indicator, adjust R32 so that the picture just switches between the input signal and the standby carrier.
- 8: After making the adjustment, disconnect the power cord, input, and output cabling. Replace the top cover and install the unit in its mounting location.

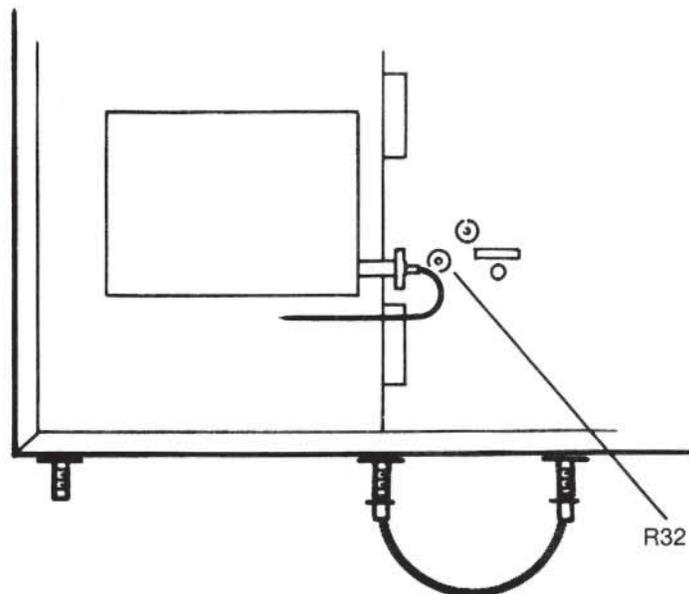
## 3.3 Powering

After installing the S450P in its cabinet or rack, plug the processor power cord into a 100-240 VAC, 50/60Hz outlet. The green power LED on the front panel will light. Allow a warm up period of about 30 minutes to stabilize the equipment.

## 3.4 Input Channel Tuning

Input channel tuning is done with the Input Channel switches; two 8-position DIP switches located at the left side of the front panel (Figure 2-1). Access the switch by removing the switch cover.

### 3.4 Input Channel Tuning (continued)



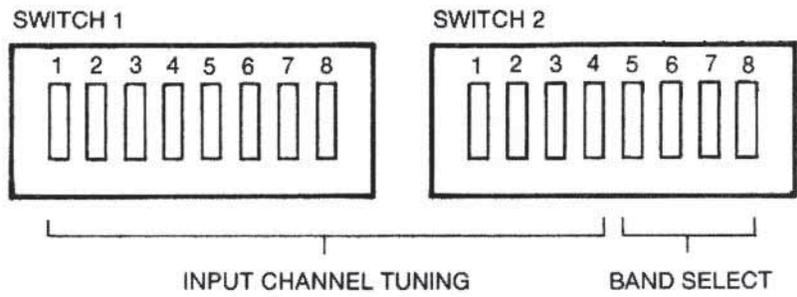
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*Figure 3-1 Location of Standby Carrier Threshold Adjustment*

The last four positions of switch 2 (Figure 3-2) are used for band selection. The first four positions of switch 2 and all of switch 1 are used for tuning within the selected band.

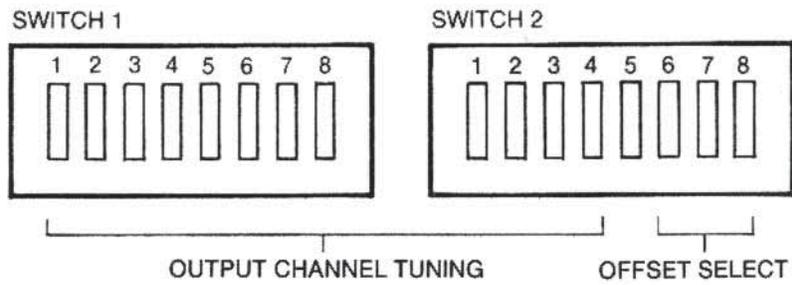
Set the Input Channel switches for the channel to be tuned as indicated in Table 3-1 (for VHF or cable channels) or Table 3-2 (for UHF channels). In the table a “1” indicates that the switch is set to the “up” (or “on”) position, a “0” indicates that the switch is set to the “down” (or “off”) position.

### 3.4 Input Channel Loading (continued)



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Figure 3-2 Input Tuner Switches



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Figure 3-3 Output Tuner Switches

**TABLE 3-1 INPUT TUNER SWITCH SETTINGS FOR VHF/CABLE CHANNELS**

**NOTE: Channels plans in Jerrold channel format.**

**For EIA, use frequency only to set dip switches.**

VHF/CABLE CHANNEL	FREQUENCY	SWITCH 1								SWITCH 2							
		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
2	55.25	1	0	1	0	0	1	1	0	0	0	0	0	1	1	1	0
3	61.25	1	1	0	1	0	1	1	0	0	0	0	0	1	1	1	0
4	67.25	1	0	0	0	1	1	1	0	0	0	0	0	1	1	1	0
5	77.25	1	1	0	1	1	1	1	0	0	0	0	0	1	1	1	0
6	83.25	1	0	0	0	0	0	0	1	0	0	0	0	1	1	1	0
7	175.25	1	0	1	1	1	0	1	1	0	0	0	0	1	1	0	1
8	181.25	1	1	0	0	0	1	1	1	0	0	0	0	1	1	0	1
9	187.25	1	0	0	1	0	1	1	1	0	0	0	0	1	1	0	1
10	193.25	1	1	1	1	0	1	1	1	0	0	0	0	1	1	0	1
11	199.25	1	0	1	0	1	1	1	1	0	0	0	0	1	1	0	1
12	205.25	1	1	0	1	1	1	1	1	0	0	0	0	1	1	0	1
13	211.25	1	0	0	0	0	0	0	0	1	0	0	0	1	1	0	1
14	121.25	1	1	1	0	0	1	0	1	0	0	0	0	1	1	0	1
15	127.25	1	0	1	1	0	1	0	1	0	0	0	0	1	1	0	1
16	133.25	1	1	0	0	1	1	0	1	0	0	0	0	1	1	0	1
17	139.25	1	0	0	1	1	1	0	1	0	0	0	0	1	1	0	1
18	145.25	1	1	1	1	1	1	0	1	0	0	0	0	1	1	0	1
19	151.25	1	0	1	0	0	0	1	1	0	0	0	0	1	1	0	1
20	157.25	1	1	0	1	0	0	1	1	0	0	0	0	1	1	0	1
21	163.25	1	0	0	0	1	0	1	1	0	0	0	0	1	1	0	1
22	169.25	1	1	1	0	1	0	1	1	0	0	0	0	1	1	0	1
23	217.25	1	1	1	0	0	0	0	0	1	0	0	0	1	0	1	1
24	223.25	1	0	1	1	0	0	0	0	1	0	0	0	1	0	1	1
25	229.25	1	1	0	0	1	0	0	0	1	0	0	0	1	0	1	1
26	235.25	1	0	0	1	1	0	0	0	1	0	0	0	1	0	1	1
27	241.25	1	1	1	1	1	0	0	0	1	0	0	0	1	0	1	1
28	247.25	1	0	1	0	0	1	0	0	1	0	0	0	1	0	1	1
29	253.25	1	1	0	1	0	1	0	0	1	0	0	0	1	0	1	1
30	259.25	1	0	0	0	1	1	0	0	1	0	0	0	1	0	1	1
31	265.25	1	1	1	0	1	1	0	0	1	0	0	0	1	0	1	1
32	271.25	1	0	1	1	1	1	0	0	1	0	0	0	1	0	1	1
33	277.25	1	1	0	0	0	0	1	0	1	0	0	0	1	0	1	1
34	283.25	1	0	0	1	0	0	1	0	1	0	0	0	1	0	1	1
35	289.25	1	1	1	1	0	0	1	0	1	0	0	0	1	0	1	1
36	295.25	1	0	1	0	1	0	1	0	1	0	0	0	1	0	1	1
37	301.25	1	1	0	1	1	0	1	0	1	0	0	0	1	0	1	1
38	307.25	1	0	0	0	0	1	1	0	1	0	0	0	1	0	1	1
39	313.25	1	1	1	0	0	1	1	0	1	0	0	0	1	0	1	1
40	319.25	1	0	1	1	0	1	1	0	1	0	0	0	1	0	1	1
41	325.25	1	1	0	0	1	1	1	0	1	0	0	0	1	0	1	1
42	331.25	1	0	0	1	1	1	1	0	1	0	0	0	1	0	1	1
43	337.25	1	1	1	1	1	1	1	0	1	0	0	0	1	0	1	1
44	343.25	1	0	1	0	0	0	0	1	1	0	0	0	1	0	1	1
45	349.25	1	1	0	1	0	0	0	1	1	0	0	0	1	0	1	1
46	355.25	1	0	0	0	1	0	0	1	1	0	0	0	1	0	1	1
47	361.25	1	1	1	0	1	0	0	1	1	0	0	0	1	0	1	1
48	367.25	1	0	1	1	1	0	0	1	1	0	0	0	1	0	1	1
49	373.25	1	1	0	0	0	1	0	1	1	0	0	0	0	1	1	1
50	379.25	1	0	0	1	0	1	0	1	1	0	0	0	0	1	1	1

**TABLE 3-1 INPUT TUNER SWITCH SETTINGS FOR VHF/CABLE CHANNELS (continued)**

**NOTE: Channels plans in Jerrold channel format.**

**For EIA, use frequency only to set dip switches.**

VHF/CABLE CHANNEL	FREQUENCY	SWITCH 1								SWITCH 2							
		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
51	385.25	1	1	1	1	0	1	0	1	1	0	0	0	0	1	1	1
52	391.25	1	0	1	0	1	1	0	1	1	0	0	0	0	0	1	1
53	397.25	1	1	0	1	1	1	0	1	1	0	0	0	0	0	1	1
54	73.25	1	1	1	0	1	1	1	0	0	0	0	0	1	1	1	0
55	79.25	1	0	1	1	1	1	1	0	0	0	0	0	1	1	1	0
56	85.25	1	1	0	0	0	0	0	1	0	0	0	0	1	1	1	0
57	91.25	1	0	0	1	0	0	0	1	0	0	0	0	1	1	1	0
58	97.25	1	1	1	1	0	0	0	1	0	0	0	0	1	1	1	0
59	103.25	1	0	1	0	1	0	0	1	0	0	0	0	1	1	0	1
60	109.25	1	1	0	1	1	0	0	1	0	0	0	0	1	1	0	1
61	115.25	1	0	0	0	0	1	0	1	0	0	0	0	1	1	0	1
62	403.25	1	0	0	0	0	0	1	1	1	0	0	0	0	0	1	1
63	409.25	1	1	1	0	0	0	1	1	1	0	0	0	0	0	1	1
64	415.25	1	0	1	1	0	0	1	1	1	0	0	0	0	0	1	1
65	421.25	1	1	0	0	1	0	1	1	1	0	0	0	0	0	1	1
66	427.25	1	0	0	1	1	0	1	1	1	0	0	0	0	0	1	1
67	433.25	1	1	1	1	1	0	1	1	1	0	0	0	0	0	1	1
68	439.25	1	0	1	0	0	1	1	1	1	0	0	0	0	0	1	1
69	445.25	1	1	0	1	0	1	1	1	1	0	0	0	0	0	1	1
70	451.25	1	0	0	0	1	1	1	1	1	0	0	0	0	0	1	1
71	457.25	1	1	1	0	1	1	1	1	1	0	0	0	0	0	1	1
72	463.25	1	0	1	1	1	1	1	1	1	0	0	0	0	0	1	1
73	469.25	1	1	0	0	0	0	0	0	0	0	1	0	0	0	1	1
74	475.25	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	1
75	481.25	1	1	1	1	0	0	0	0	0	0	1	0	0	0	1	1
76	487.25	1	0	1	0	1	0	0	0	0	0	1	0	0	0	1	1
77	493.25	1	1	0	1	1	0	0	0	0	0	1	0	0	0	1	1
78	499.25	1	0	0	0	0	1	0	0	0	0	1	0	0	0	1	1
79	505.25	1	1	1	0	0	1	0	0	0	0	1	0	0	0	1	1
80	511.25	1	0	1	1	0	1	0	0	0	0	1	0	0	0	1	1
81	517.25	1	1	0	0	1	1	0	0	0	0	1	0	0	0	1	1
82	523.25	1	0	0	1	1	1	0	0	0	0	1	0	0	0	1	1
83	529.25	1	1	1	1	1	1	0	0	0	0	1	0	0	0	1	1
84	535.25	1	0	1	0	0	0	1	0	0	0	1	0	0	0	1	1
85	541.25	1	1	0	1	0	0	1	0	0	0	1	0	0	0	1	1
86	547.25	1	0	0	0	1	0	1	0	0	0	1	0	0	0	1	1

TABLE 3-2 INPUT TUNER SWITCH SETTINGS FOR UHF CHANNELS\*

UHF Channel	Freq. (MHz)	Switch #1								Switch #2								
		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	
14	471.25	1	0	1	0	0	0	0	0	0	1	0	0	0	1	1	1	
15	477.25	1	1	0	1	0	0	0	0	0	0	1	0	0	0	1	1	1
16	483.25	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	1	1
17	489.25	1	1	1	0	1	0	0	0	0	0	1	0	0	0	1	1	1
18	495.25	1	0	1	1	1	0	0	0	0	0	1	0	0	0	1	1	1
19	501.25	1	1	0	0	0	1	0	0	0	0	1	0	0	0	1	1	1
20	507.25	1	0	0	1	0	1	0	0	0	0	1	0	0	0	1	1	1
21	513.25	1	1	1	1	0	1	0	0	0	0	1	0	0	0	1	1	1
22	519.25	1	0	1	0	1	1	0	0	0	0	1	0	0	0	1	1	1
23	525.25	1	1	0	1	1	1	0	0	0	0	1	0	0	0	1	1	1
24	531.25	1	0	0	0	0	0	1	0	0	0	1	0	0	0	1	1	1
25	537.25	1	1	1	0	0	0	1	0	0	0	1	0	0	0	1	1	1
26	543.25	1	0	1	1	0	0	1	0	0	0	1	0	0	0	1	1	1
27	549.25	1	1	0	0	1	0	1	0	0	0	1	0	0	0	1	1	1
28	555.25	1	0	0	1	1	0	1	0	0	0	1	0	0	0	1	1	1
29	561.25	1	1	1	1	1	0	1	0	0	0	1	0	0	0	1	1	1
30	567.25	1	0	1	0	0	1	1	0	0	0	1	0	0	0	1	1	1
31	573.25	1	1	0	1	0	1	1	0	0	0	1	0	0	0	1	1	1
32	579.25	1	0	0	0	1	1	1	0	0	0	1	0	0	0	1	1	1
33	585.25	1	1	1	0	1	1	1	0	0	0	1	0	0	0	1	1	1
34	591.25	1	0	1	1	1	1	1	0	0	1	0	0	0	1	1	1	
35	597.25	1	1	0	0	0	0	0	1	0	1	0	0	0	1	1	1	
36	603.25	1	0	0	1	0	0	0	1	0	1	0	0	0	1	1	1	
37	609.25	1	1	1	1	0	0	0	1	0	1	0	0	0	1	1	1	
38	615.25	1	0	1	0	1	0	0	1	0	1	0	0	0	1	1	1	
39	621.25	1	1	0	1	1	0	0	1	0	1	0	0	0	1	1	1	
40	627.25	1	0	0	0	0	1	0	1	0	1	0	0	0	1	1	1	
41	633.25	1	1	1	0	0	1	0	1	0	1	0	0	0	1	1	1	
42	639.25	1	0	1	1	0	1	0	1	0	1	0	0	0	1	1	1	
43	645.25	1	1	0	0	1	1	0	1	0	1	0	0	0	1	1	1	
44	651.25	1	0	0	1	1	1	0	1	0	1	0	0	0	1	1	1	
45	657.25	1	1	1	1	1	1	0	1	0	1	0	0	0	1	1	1	
46	663.25	1	0	1	0	0	0	1	1	0	1	0	0	0	1	1	1	
47	669.25	1	1	0	1	0	0	1	1	0	1	0	0	0	1	1	1	
48	675.25	1	0	0	0	1	0	1	1	0	1	0	0	0	1	1	1	
49	681.25	1	1	1	0	1	0	1	1	0	1	0	0	0	1	1	1	
50	687.25	1	0	1	1	1	0	1	1	0	1	0	0	0	1	1	1	
51	693.25	1	1	0	0	0	1	1	1	0	1	0	0	0	1	1	1	
52	699.25	1	0	0	1	0	1	1	1	0	1	0	0	0	1	1	1	
53	705.25	1	1	1	1	0	1	1	1	0	1	0	0	0	1	1	1	
54	711.25	1	0	1	0	1	1	1	1	0	1	0	0	0	1	1	1	
55	717.35	1	1	0	1	1	1	1	1	0	1	0	0	0	1	1	1	
56	723.95	1	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	1
57	729.25	1	1	1	0	0	0	0	0	0	1	1	0	0	0	1	1	1
58	735.25	1	0	1	1	0	0	0	0	0	1	1	0	0	0	1	1	1
59	741.25	1	1	0	0	1	0	0	0	0	1	1	0	0	0	1	1	1
60	747.25	1	0	0	1	1	0	0	0	0	1	1	0	0	0	1	1	1
61	753.25	1	1	1	1	1	0	0	0	0	1	1	0	0	0	1	1	1
62	759.25	1	0	1	0	0	1	0	0	0	1	1	0	0	0	1	1	1
63	765.25	1	1	0	1	0	1	0	0	0	1	1	0	0	0	1	1	1
64	771.25	1	0	0	0	1	1	0	0	0	1	1	0	0	0	1	1	1
65	777.25	1	1	1	0	1	1	0	0	0	1	1	0	0	0	1	1	1
66	783.25	1	0	1	1	1	1	0	0	0	1	1	0	0	0	1	1	1
67	789.25	1	1	0	0	0	0	1	0	0	1	1	0	0	0	1	1	1
68	795.25	1	0	0	1	0	0	1	0	0	1	1	0	0	0	1	1	1
69	801.25	1	1	1	1	0	0	1	0	0	1	1	0	0	0	1	1	1
70	807.25	1	0	1	0	1	0	1	0	0	1	1	0	0	0	1	1	1
71	813.25	1	1	0	1	1	0	1	0	0	1	1	0	0	0	1	1	1
72	819.25	1	0	0	0	0	1	1	0	0	1	1	0	0	0	1	1	1
73	825.25	1	1	1	0	0	1	1	0	0	1	1	0	0	0	1	1	1
74	831.25	1	0	1	1	0	1	1	0	0	1	1	0	0	0	1	1	1
75	837.25	1	1	0	0	1	1	1	0	0	1	1	0	0	0	1	1	1
76	843.25	1	0	0	1	1	1	1	0	0	1	1	0	0	0	1	1	1
77	849.25	1	1	1	1	1	1	1	0	0	1	1	0	0	0	1	1	1
78	855.25	1	0	1	0	0	0	0	1	0	1	1	0	0	0	1	1	1
79	861.25	1	1	0	1	0	0	0	1	0	1	1	0	0	0	1	1	1
80	867.25	1	0	0	0	1	0	0	1	0	1	1	0	0	0	1	1	1
81	873.25	1	1	1	0	1	0	0	1	0	1	1	0	0	0	1	1	1
82	879.25	1	0	1	1	1	0	0	1	0	1	1	0	0	0	1	1	1
83	885.25	1	1	0	0	0	1	0	1	0	1	1	0	0	0	1	1	1

\* 1 - indicates switch in up position  
 0 - indicates switch in down position

### 3.5 Output Channel Tuning

Output channel tuning is done with the Output Channel switches; two 8-position DIP switches located at the right side of the front panel (Figure 2-1). Access the switches by removing the switch cover.

The last three positions of switch 2 (Figure 3-3) are used for FCC offset. The first five positions of switch 2 and all of switch 1 are used for tuning the selected output channel.

Set the Output Channel switches for the channel to be tuned as indicated in Table 3-3. In the table a “1” indicates that the switch is set to the “up” (or “on”) position, a “0” indicates that the switch is set to the “down” (or “off”) position.

The S450P can be used in either the non-offset or the offset modes. Refer to the following sections for the proper settings of the front-panel Offset Switches and Offset Control.

#### 3.5.1 On-Channel Operation

Using the S450P as a processor in the on-channel mode phase locking circuitry locks the oscillators in the input/IF/output conversion processes and no offset is produced. To operate in the on-channel mode:

1: Set the following output channel as follows:

SWITCH 2 POSITION		
6	7	8
0	0	1

The output switch settings shown in Tables 3-3 are shown in these positions for those channels not requiring to have FCC offsets.

2: Turn the front-panel Offset Control fully clockwise.

#### 3.5.2 Offset Mode

Using the S450P as a processor in the offset mode permits adjustment of the IF/output conversion process so that tunable output offset is enabled. To operate in the offset mode:

1: Set the output channel switches as follows:

SWITCH 2 POSITION		
6	7	8
1	1	0

The output switch settings shown in Table 3-3 are shown in these positions of those channels required to have the FCC offsets.

2: To set the offset control for those channels requiring FCC offset, proceed as follows:

A: Connect a frequency counter, capable of counting a modulated carrier at the frequency of the output channel, to the -20dB test point.

**NOTE: It is essential that the frequency counter can accurately count a video modulated carrier, offset control cannot be accurately set otherwise, and failure to meet FCC offset will result.**

NOTE: Channels plans in Jerrold channel format. For EIA, use frequency only to set dip switches.

TABLE 3-3 OUTPUT TUNER SWITCH SETTINGS\*

Channel	Freq. (MHz)	Switch #1								Switch #2							
		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
2	55.2500	0	0	1	1	1	0	0	1	0	1	0	0	0	0	0	1
3	61.2500	0	1	0	0	0	1	0	1	0	1	0	1	0	0	0	0
4	67.2500	0	0	0	1	0	1	0	1	0	1	0	1	0	0	0	1
5	77.2500	0	1	0	0	1	1	0	1	0	1	0	1	0	0	0	1
6	83.2500	0	0	0	1	1	1	0	1	0	1	0	1	0	0	0	1
7	175.2500	0	0	1	0	1	0	0	0	1	1	0	0	0	0	0	1
8	181.2500	0	1	0	1	1	0	0	0	1	1	0	0	0	0	0	1
9	187.2500	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	1
10	193.2500	0	1	1	0	0	1	0	0	1	1	0	0	0	0	0	1
11	199.2500	0	0	1	1	0	1	0	0	1	1	0	0	0	0	0	1
12	205.2500	0	1	0	0	1	1	0	0	1	1	0	0	0	0	0	1
13	211.2500	0	0	0	1	1	1	0	0	1	1	0	0	0	0	0	1
14	121.2625	0	1	1	1	1	0	1	1	0	1	0	0	0	1	1	0
15	127.2625	0	0	1	0	0	1	1	1	0	1	0	0	0	1	1	0
16	133.2625	0	1	0	1	0	1	1	1	0	1	0	0	0	1	1	0
17	139.2500	0	0	0	0	1	1	1	1	0	1	0	0	0	0	0	1
18	145.2500	0	1	1	0	1	1	1	1	0	1	0	0	0	0	0	1
19	151.2500	0	0	1	1	1	1	1	0	0	1	0	0	0	0	0	1
20	157.2500	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	1
21	163.2500	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	1
22	169.2500	0	1	1	1	0	0	0	0	1	1	0	0	0	0	0	1
23	217.2500	0	1	1	1	1	1	0	0	1	1	0	0	0	0	0	1
24	223.2500	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0	1
25	229.2625	0	1	0	1	0	0	1	0	1	1	0	0	0	1	1	0
26	235.2625	0	0	0	0	1	0	1	0	1	1	0	0	0	1	1	0
27	241.2625	0	1	1	0	1	0	1	0	1	1	0	0	0	1	1	0
28	247.2625	0	0	1	1	1	0	1	0	1	1	0	0	0	1	1	0
29	253.2625	0	1	0	0	0	1	1	0	1	1	0	0	0	1	1	0
30	259.2625	0	0	0	1	0	1	1	0	1	1	0	0	0	1	1	0
31	265.2625	0	1	1	1	0	1	1	0	1	1	0	0	0	1	1	0
32	271.2625	0	0	1	0	1	1	1	0	1	1	0	0	0	1	1	0
33	277.2625	0	1	0	1	1	1	1	0	1	1	0	0	0	1	1	0
34	283.2625	0	0	0	0	0	0	0	1	1	1	0	0	0	1	1	0
35	289.2625	0	1	1	0	0	0	0	1	1	1	0	0	0	1	1	0
36	295.2625	0	0	1	1	0	0	0	1	1	1	0	0	0	1	1	0
37	301.2625	0	1	0	0	1	0	0	1	1	1	0	0	0	1	1	0
38	307.2625	0	0	0	1	1	0	0	1	1	1	0	0	0	1	1	0
39	313.2625	0	1	1	1	1	0	0	1	1	1	0	0	0	1	1	0
40	319.2625	0	0	1	0	0	1	0	1	1	1	0	0	0	1	1	0
41	325.2625	0	1	0	1	0	1	0	1	1	1	0	0	0	1	1	0
42	331.2750	0	0	0	0	1	1	0	1	1	1	0	0	0	1	1	0
43	337.2625	0	1	1	0	1	1	0	1	1	1	0	0	0	1	1	0
44	343.2625	0	0	1	1	1	1	0	1	1	1	0	0	0	1	1	0
45	349.2625	0	1	0	0	0	0	1	1	1	1	0	0	0	1	1	0
46	355.2625	0	0	0	1	0	0	1	1	1	1	0	0	0	1	1	0
47	361.2625	0	1	1	1	0	0	1	1	1	1	0	0	0	1	1	0
48	367.2625	0	0	1	0	1	0	1	1	1	1	0	0	0	1	1	0
49	373.2625	0	1	0	1	1	0	1	1	1	1	0	0	0	1	1	0
50	379.2625	0	0	0	0	0	1	1	1	1	1	0	0	0	1	1	0
51	385.2625	0	1	1	0	0	1	1	1	1	1	0	0	0	1	1	0
52	391.2625	0	0	1	1	0	1	1	1	1	1	0	0	0	1	1	0
53	397.2625	0	1	0	0	1	1	1	1	1	1	0	0	0	1	1	0
54	73.2625	0	1	1	1	0	1	0	1	0	1	0	0	0	1	1	0
55	79.2625	0	0	1	0	1	1	0	1	0	1	0	0	0	1	1	0
56	85.2625	0	1	0	1	1	1	0	1	0	1	0	0	0	1	1	0
57	91.2625	0	0	0	0	0	0	1	1	0	1	0	0	0	1	1	0
58	97.2625	0	1	1	0	0	0	1	1	0	1	0	0	0	1	1	0
59	103.2625	0	0	1	1	0	0	1	1	0	1	0	0	0	1	1	0
60	109.2750	0	1	0	0	1	0	1	1	0	1	0	0	0	1	1	0
61	115.2750	0	0	0	1	1	0	1	1	0	1	0	0	0	1	1	0
62	403.2500	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	1
63	409.2500	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1
64	415.2500	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1
65	421.2500	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	1
66	427.2500	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1
67	433.2500	0	1	1	0	1	0	0	0	0	0	0	1	0	0	0	1
68	439.2500	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0	1
69	445.2500	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1

\* 1 - indicates switch in up position  
 0 - indicates switch in down position

**S450P STANDARD OUTPUT CHANNELS 70 TO 86**

**NOTE: Channels plans in Jerrold channel format.**

**For EIA, use frequency only to set dip switches.**

CH	FREQ.	SW1								SW2							
		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
70	451.25	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	1
71	457.25	0	1	1	1	0	1	0	0	0	0	1	0	0	0	0	1
72	463.25	0	0	1	0	1	1	0	0	0	0	1	0	0	0	0	1
73	469.25	0	1	0	1	1	1	0	0	0	0	1	0	0	0	0	1
74	475.25	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1
75	481.25	0	1	1	0	0	0	1	0	0	0	1	0	0	0	0	1
76	487.25	0	0	1	1	0	0	1	0	0	0	1	0	0	0	0	1
77	493.25	0	1	0	0	1	0	1	0	0	0	1	0	0	0	0	1
78	499.25	0	0	0	1	1	0	1	0	0	0	1	0	0	0	0	1
79	505.25	0	1	1	1	1	0	1	0	0	0	1	0	0	0	0	1
80	511.25	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	1
81	517.25	0	1	0	1	0	1	1	0	0	0	1	0	0	0	0	1
82	523.25	0	0	0	0	1	1	1	0	0	0	1	0	0	0	0	1
83	529.25	0	1	1	0	1	1	1	0	0	0	1	0	0	0	0	1
84	535.25	0	0	1	1	1	1	1	0	0	0	1	0	0	0	0	1
85	541.25	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0	1
86	547.25	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	1

### 3.5.2 Offset Mode (continued)

B: Adjust the Offset Control to obtain the desired carrier frequency, as indicated on the counter. The picture carrier frequencies of the output channels, including offsets, are shown in Table 3-3.

**NOTE:** Because the S450P is a frequency conversion device, the output frequency will change in direct relation with the input frequency. Therefore, any change in the input frequency may cause the output frequency to change in excess of the FCC tolerance of +/- 5KHz on off set channels.

### 3.6 Output Carrier Level

The RF output carrier level is adjusted with the front panel (output level) control. To make this adjustment, connect a signal level meter, tuned to the appropriate RF picture carrier, to the -20dB test point on the front panel. Adjust the output level control for the desired level; the level can be adjusted over a 10dB range to suit your system requirements. Maximum recommended output level is +60 dBmV, 50-450 MHz. +57 dBmV for 450-550 MHz.

### 3.7 Picture/Sound Ratio

The aural/visual carrier ratio can be adjusted using the front-panel A/V control. To make this adjustment proceed as follows:

- 1: Connect a signal level meter to the -20dB test point.
- 2: Tune the meter to the appropriate picture carrier and note the measured level.
- 3: Tune the meter to the aural carrier of the same channel. Compare the aural carrier level to the picture carrier level measured in step 2. This will give the aural/visual carrier ratio.
- 4: Adjust the A/V control to increase or decrease the ratio as required by the system needs. The picture carrier will not be affected by this adjustment.