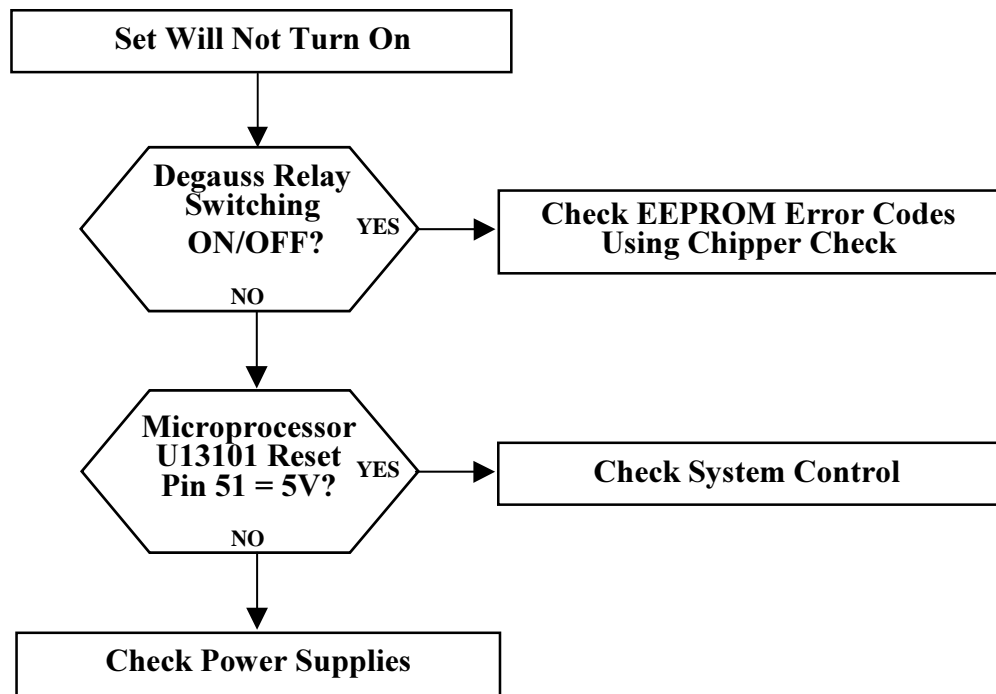


## **Main Troubleshooting Flow Chart**

<b>Dead Set</b>	<b>7-2</b>
<b>EEPROM Error Codes</b>	<b>7-3</b>
<b>System Control</b>	<b>7-4</b>
<b>Power Supply</b>	<b>7-5</b>
<b>Horizontal</b>	<b>7-6</b>
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<b>Tuner</b>	<b>7-8</b>
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<b>Color</b>	<b>7-10</b>
<b>Video</b>	<b>7-11</b>
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<b>OSD</b>	<b>7-13</b>
<b>Gemstar</b>	<b>7-14</b>
<b>F2PIP</b>	<b>7-15</b>
<b>Analog Comb</b>	<b>7-16</b>
<b>General Audio Problems</b>	<b>7-18</b>
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<b>Stereo Seperation</b>	<b>7-20</b>
<b>No Stereo</b>	<b>7-21</b>
<b>Sound Logic</b>	<b>7-22</b>

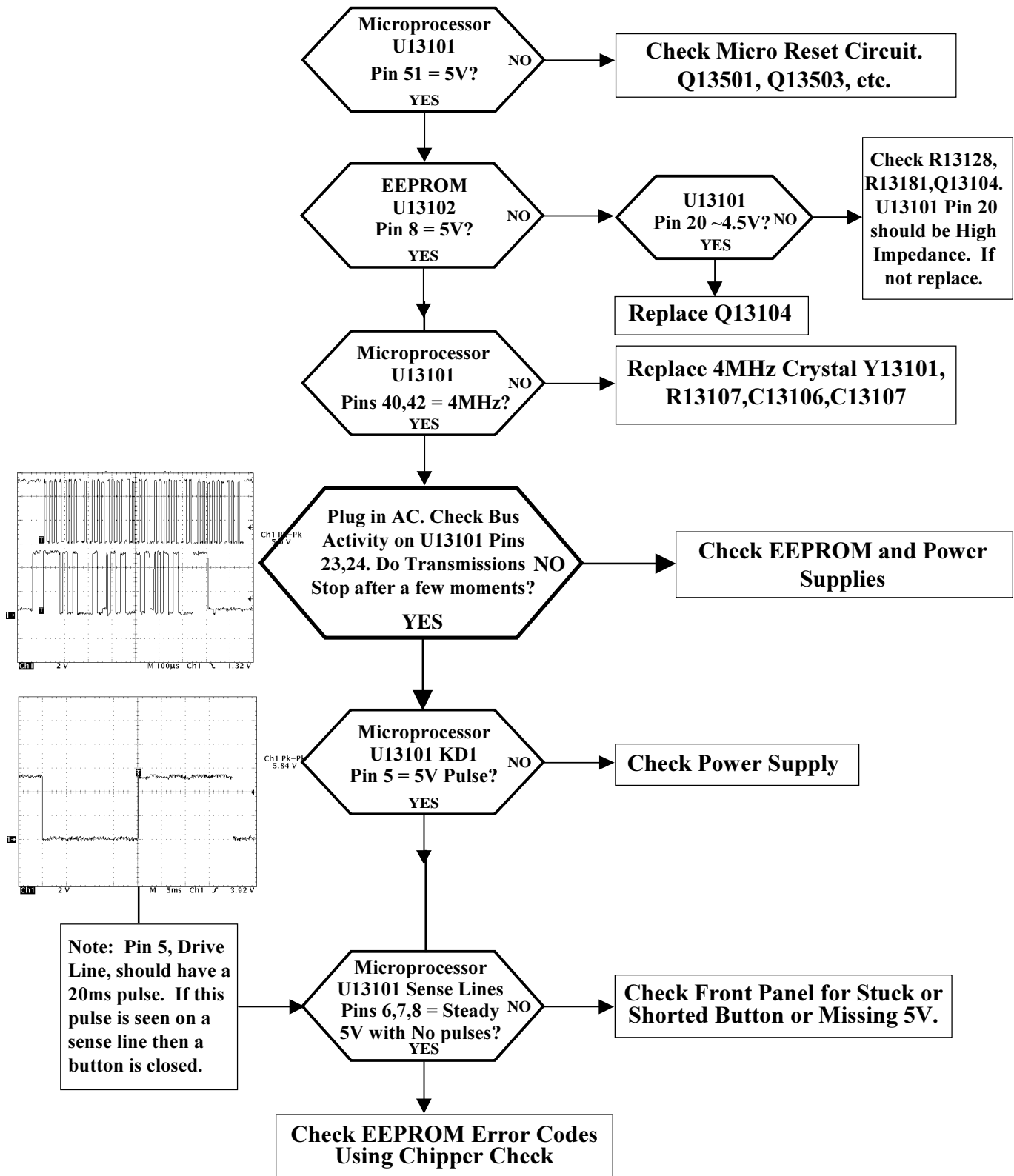
**DEAD SET TROUBLESHOOTING**



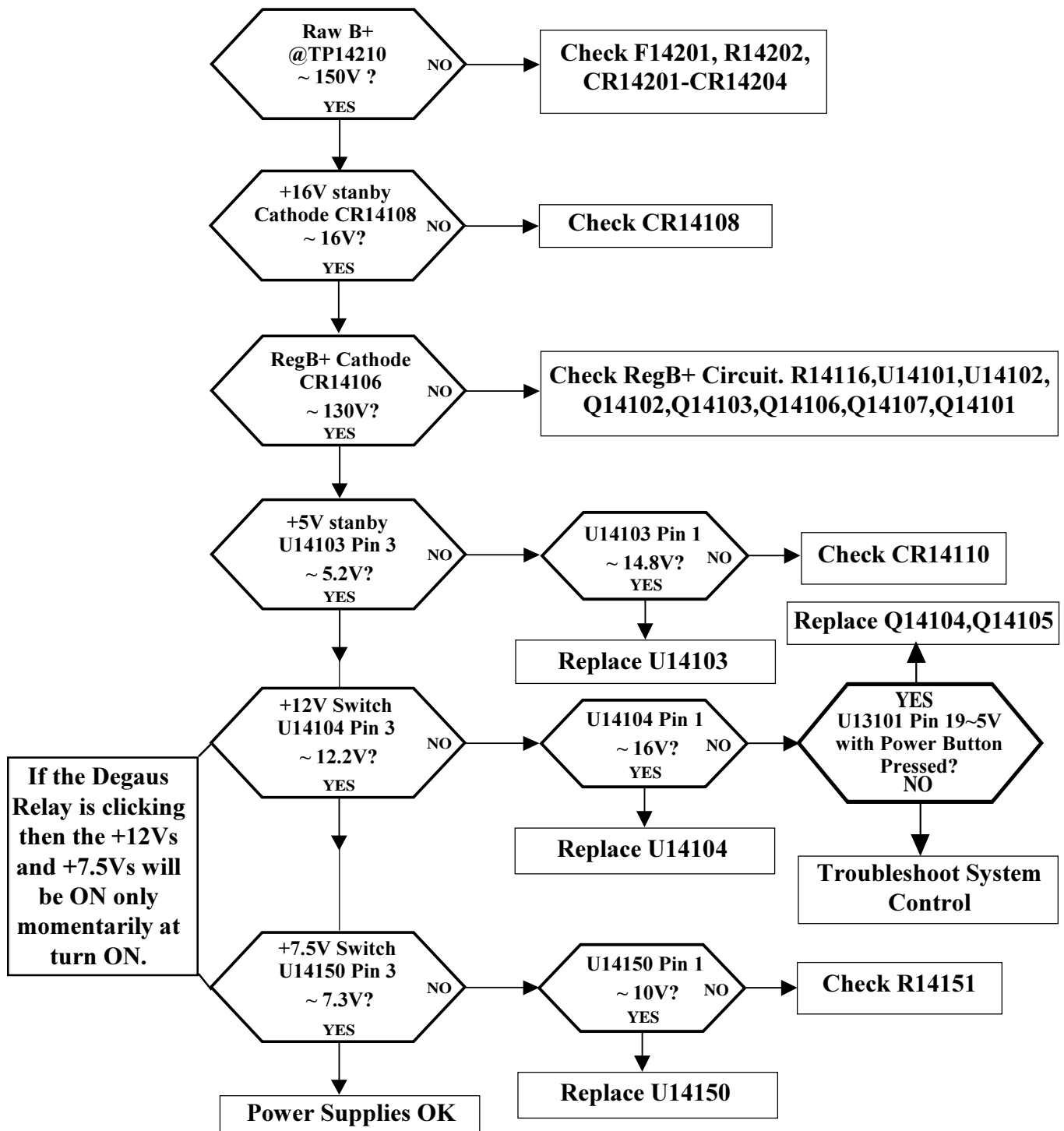
**EEPROM Error Codes**

Error code:		Chassis:	Error:	Action
HEX	DEC	POWER CONTROL ERRORS		
00	0	ALL	No Errors	
01	1	ALL	16V_STBY fault	Check Power Supplies
03	3	ALL	12V_RUN fault	Check Power Supplies
08	8	ALL	T4chip XRP (X-ray protection)	Check Power Supplies
09	9	ALL	T4chip POR (power on reset)	Check Horizontal
0A	10	w/ F2PIP	F2PIP POR	Check F2PIP
0B	11	ALL	Stereo Decoder POR	Check General Audio
10	16	ALL	Run I <sup>2</sup> C bus latched	Check System Control
12	18	ALL	Standby I <sup>2</sup> C bus latched	Check System Control
HEX	DEC	I <sup>2</sup> C ACKNOWLEDGE ERRORS		
22	34	w/Gemstar	Failure to get acknowledge from Gemstar module	Check Gemstar
2C	44	w/ F2PIP	F2PIP fault	Check F2PIP
66	102	w/Gemstar	Gemstar bus fault	Check Gemstar
80	128	ALL	Stereo Decoder fault	Check General Audio
A0	160	EEPROM	EEPROM bus fault	Check System Control
BA	186	ALL	T4chip fault	Check System Control
C4	196	ALL	Main Tuner PLL bus fault	Check Tuner
C6	198	ALL	Main Tuner DAC bus fault	Check Tuner

## System Control Troubleshooting

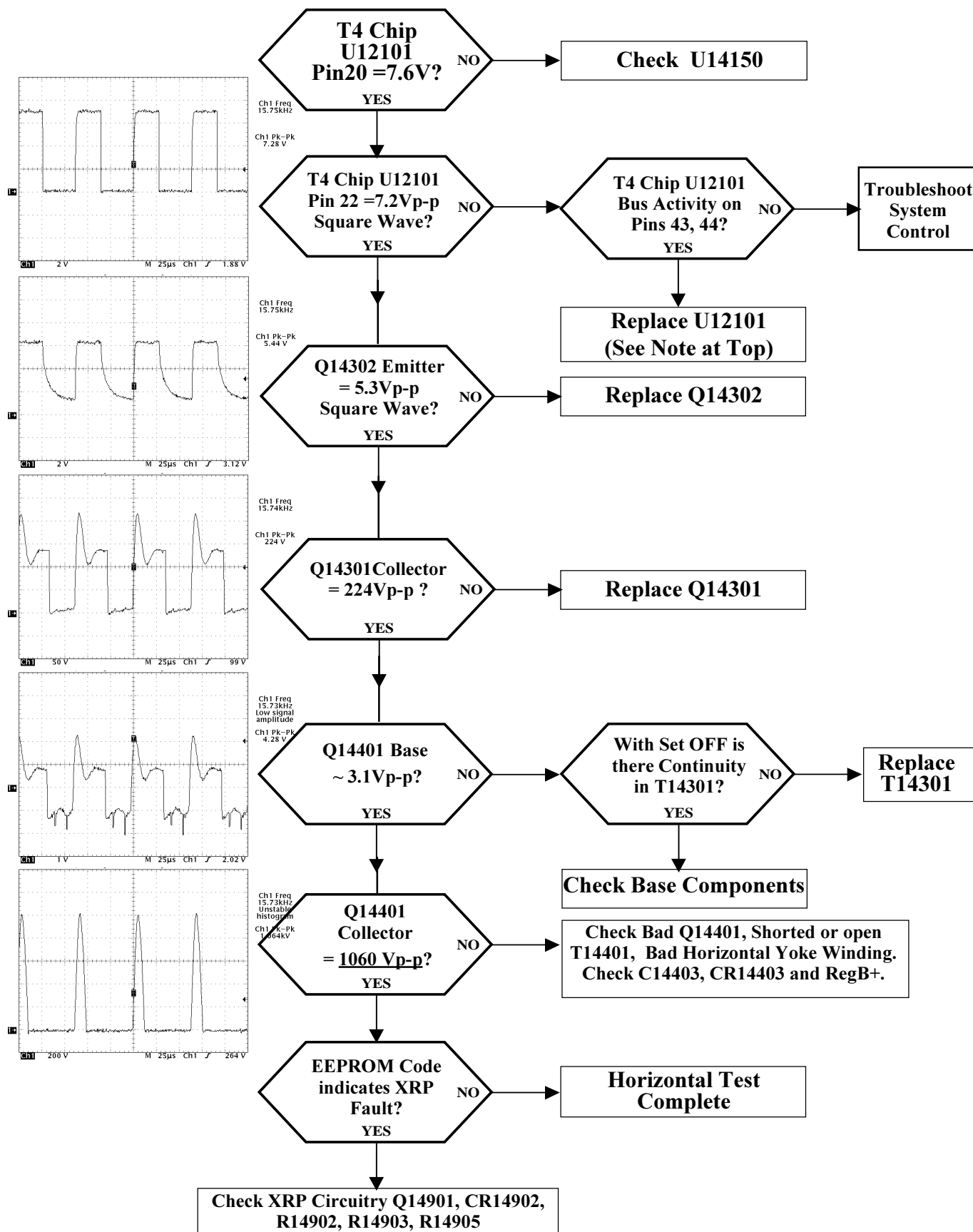


## Power Supply Troubleshooting

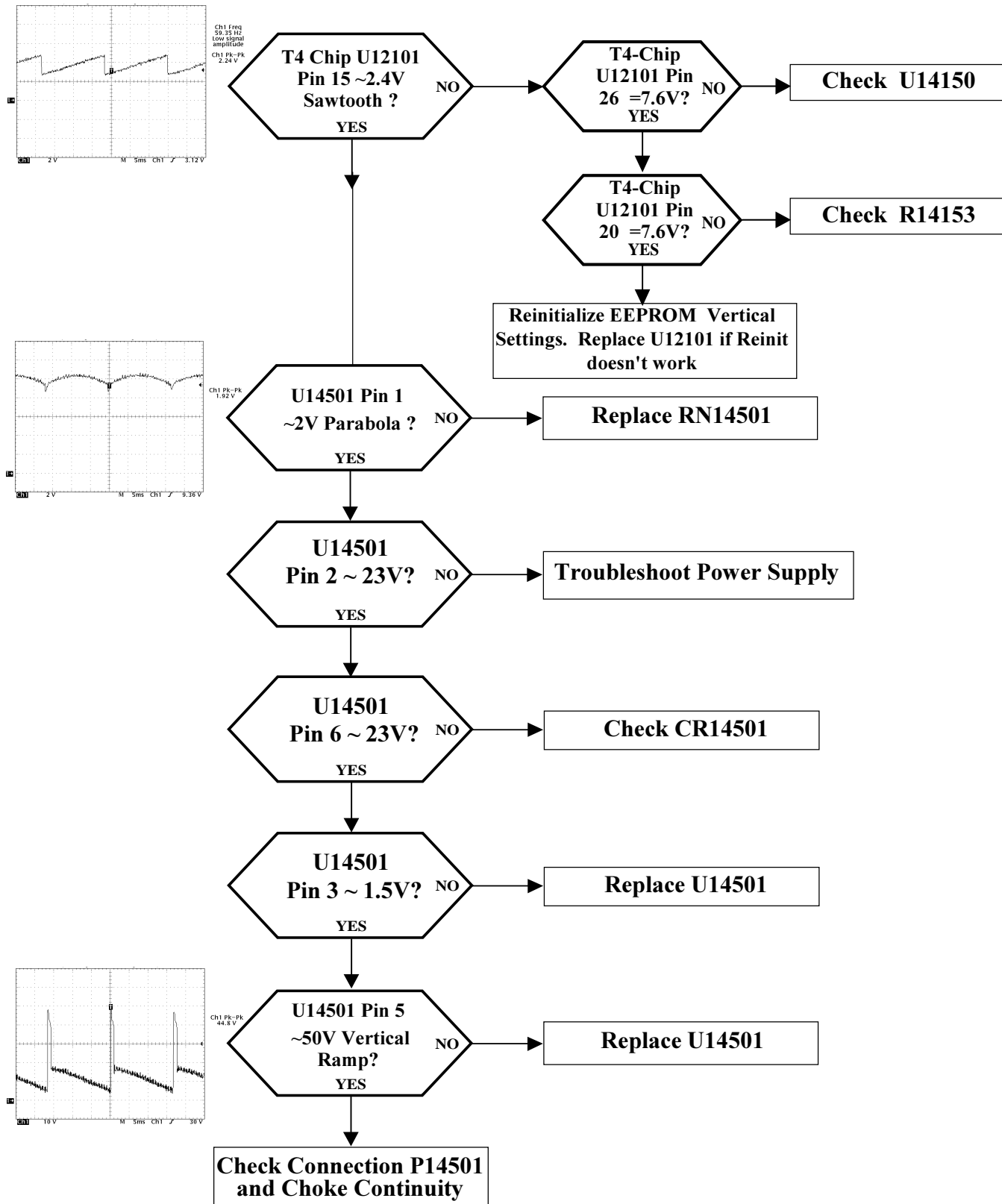


## Horizontal Troubleshooting

**NOTE:** If the Set is going into XRP shutdown the Degaus Relay will click and the pulses below will only be present momentarily at turn ON

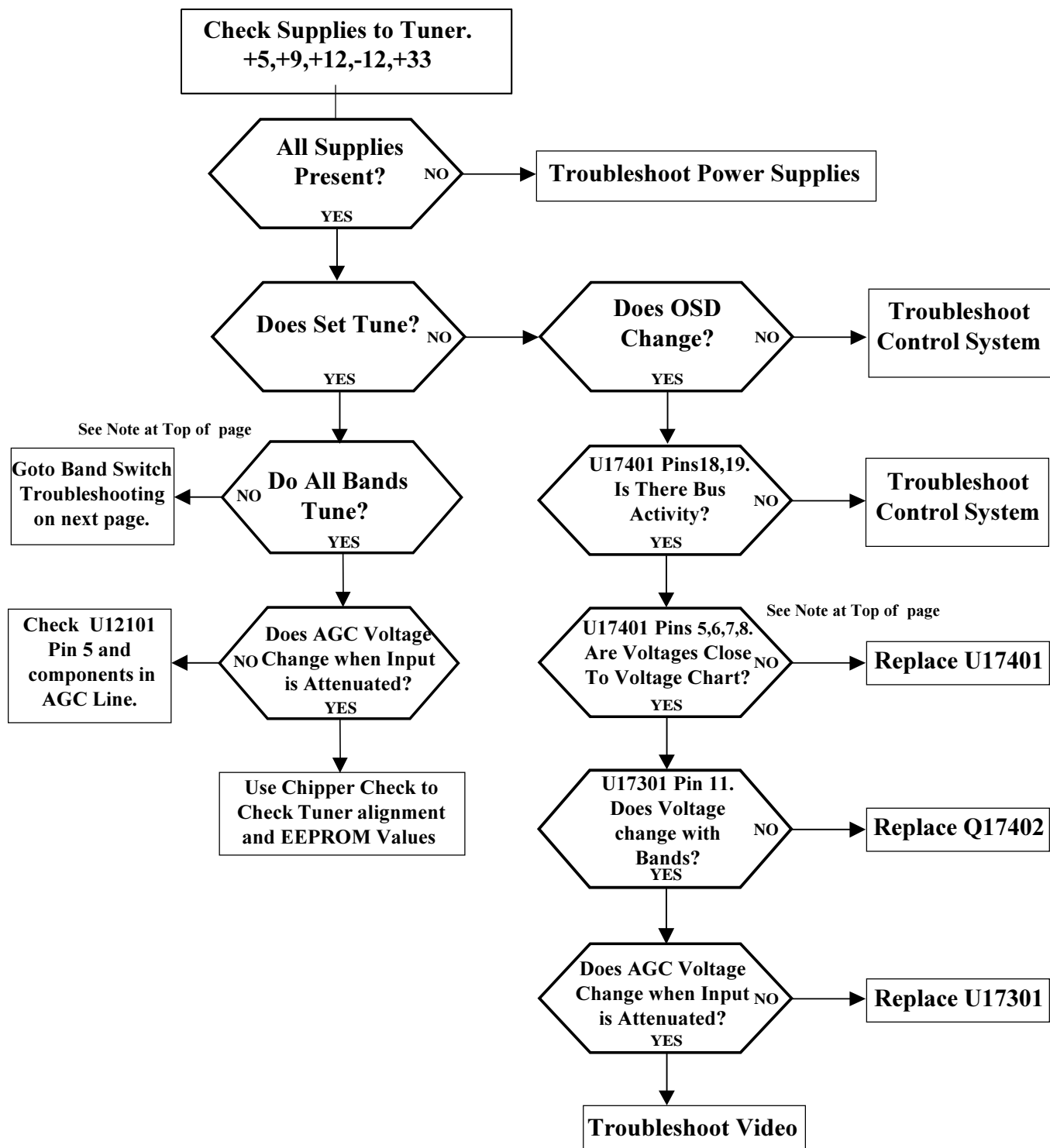


## Vertical Troubleshooting



## Tuner Troubleshooting

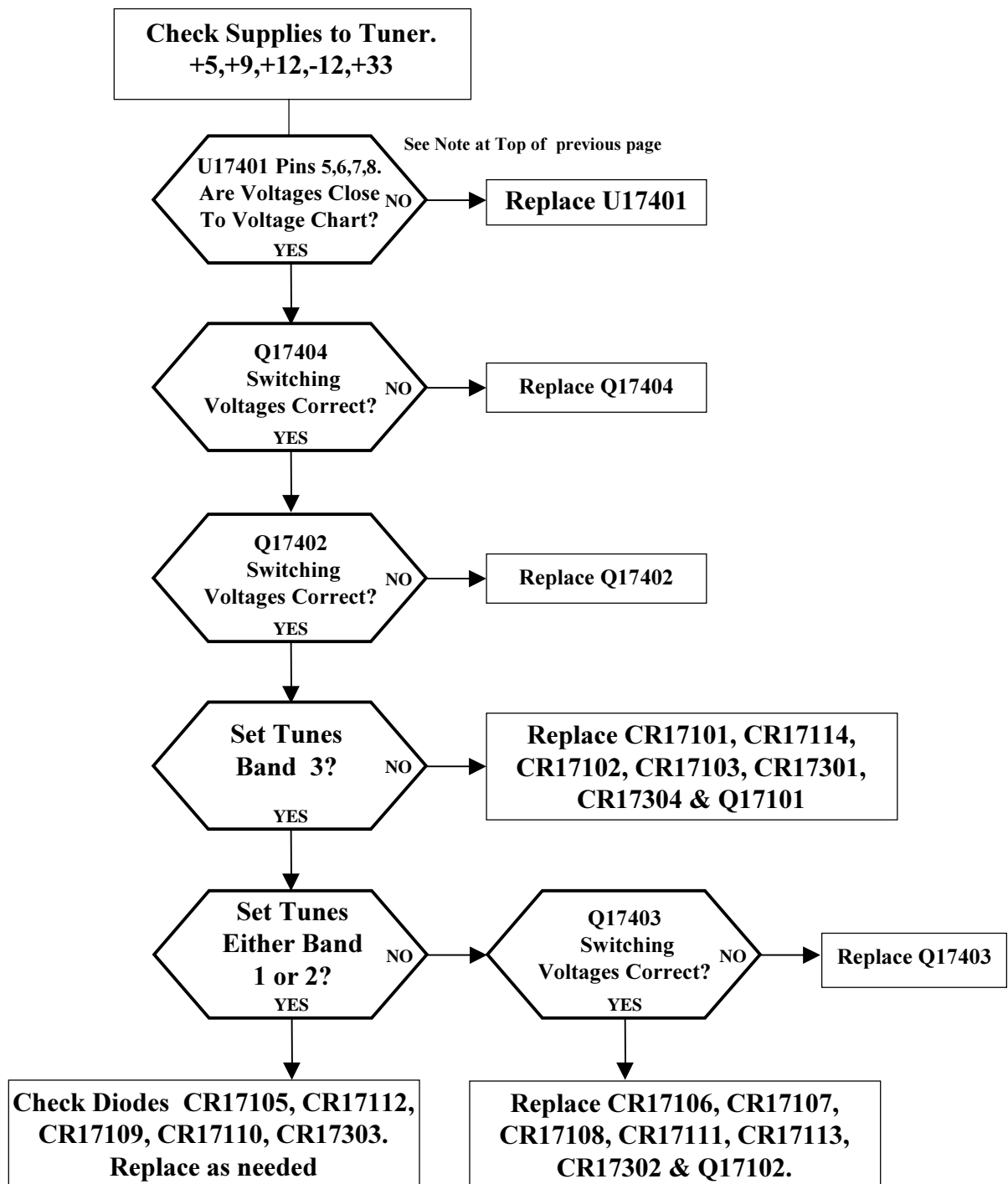
**NOTE:** If the GEMSTAR is set up to use a DSS or Cable Box the Tuner may be locked to the input channel for that device. The OSD will still show a channel change but the Channel DOES NOT change therefore the tuning voltages will NOT change



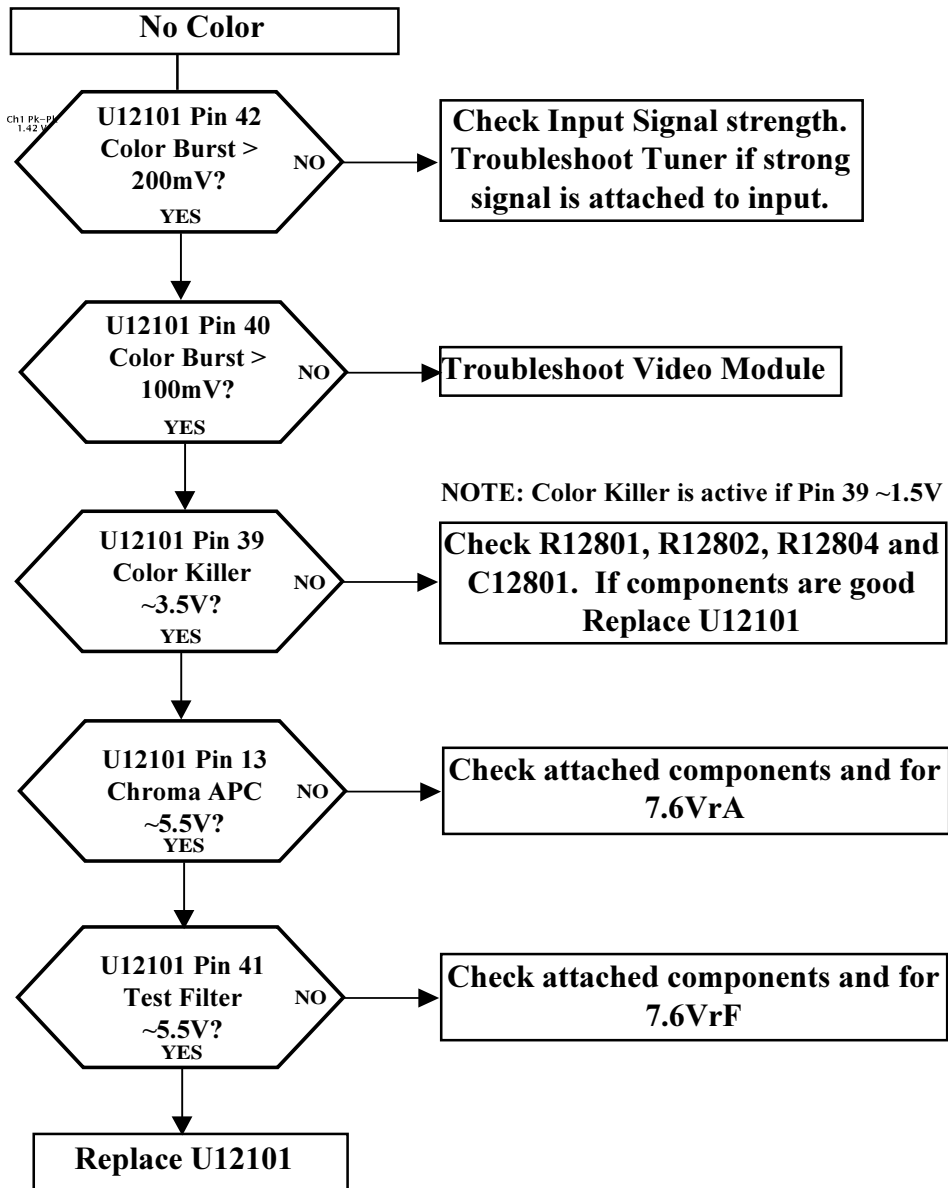
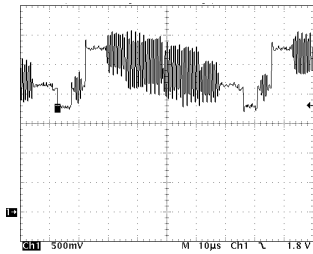


**Tuner Troubleshooting (continued)**

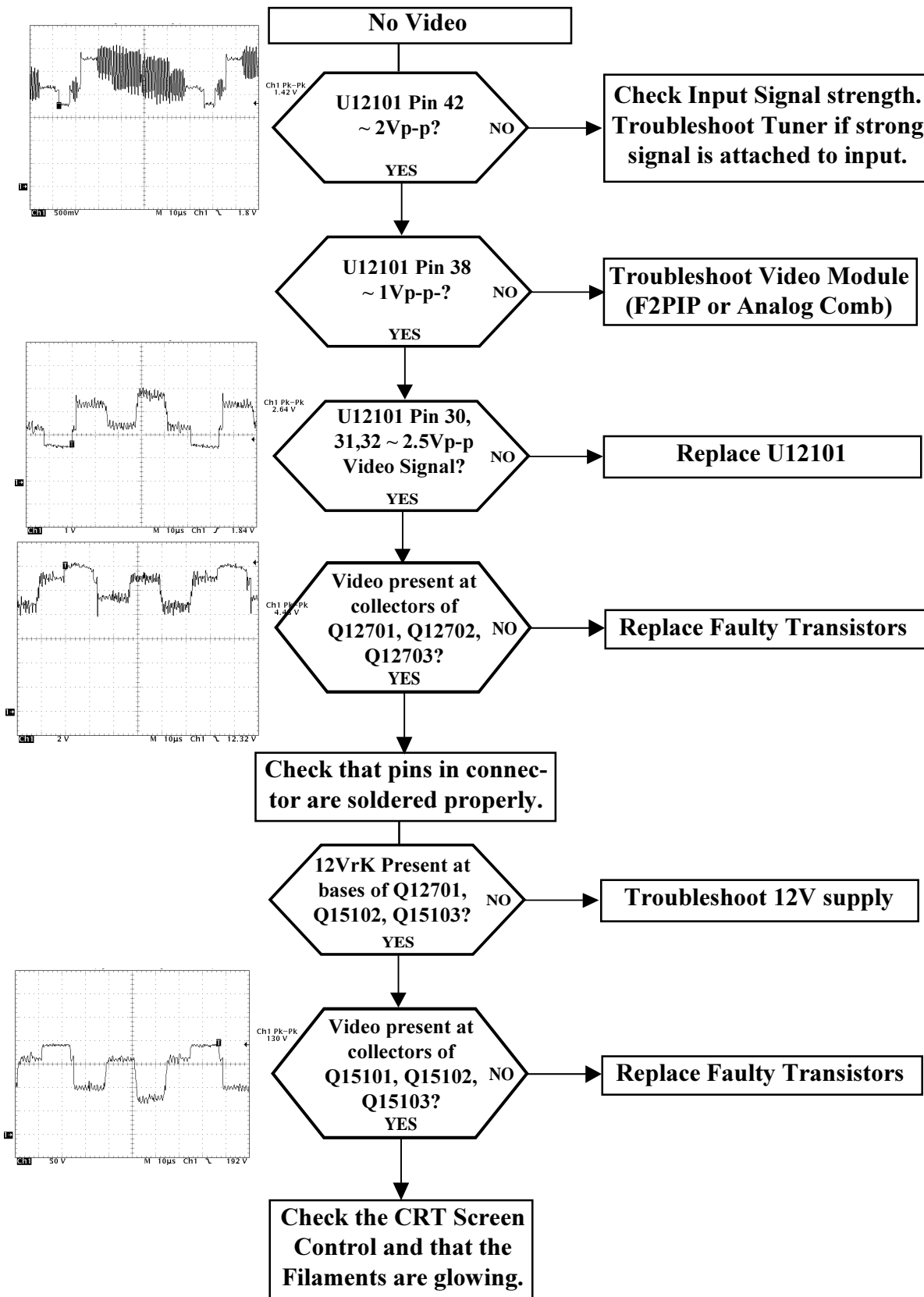
**Troubleshoot Band Switches**



## Color Troubleshooting



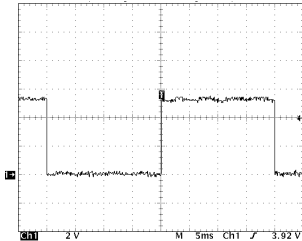
## Video Troubleshooting



## User Interface Troubleshooting

If a Button is shorted or stuck closed the set will not respond to either the Remote Control or Button Press.

Set does not respond to some button presses.



U13101 Pin 5  
~ 20ms Square Wave?  
YES  
NO → Troubleshoot System Control

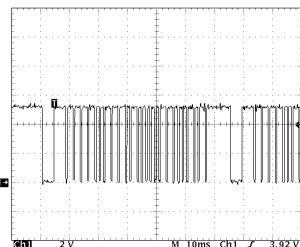
U13101 Pin 6,7,8  
= 5V?  
YES  
NO → Check 5V and R13113, R13118, R13119.

When Power, Volume Up, or Volume Down is pressed there should be ~20ms low pulse on their respective sense line. If pulse is not present check for a bad switch. If Channel Up, Channel Down or Menu is pressed their respective sense line should go Low for the duration of the button press. If not check for a bad switch.

Set does not respond to Remote Control.

Set Responds to all buttons?  
YES  
NO → Troubleshoot Buttons

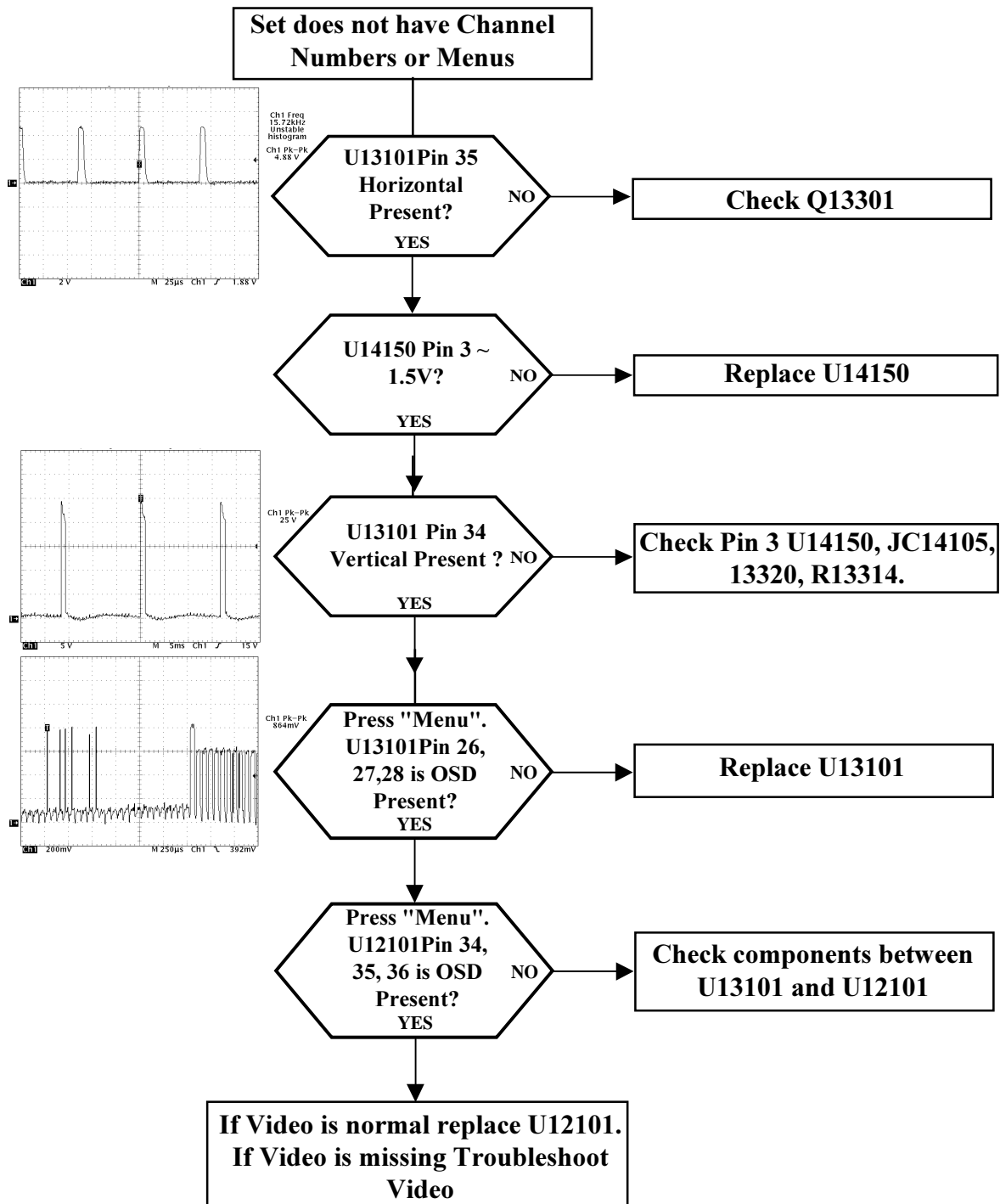
5V at VCC Pin of IR receiver?  
YES  
NO → Troubleshoot Power Supply



~5Vp-p Transmission at Output Pin of IR receiver?  
YES  
NO → Replace IR Receiver

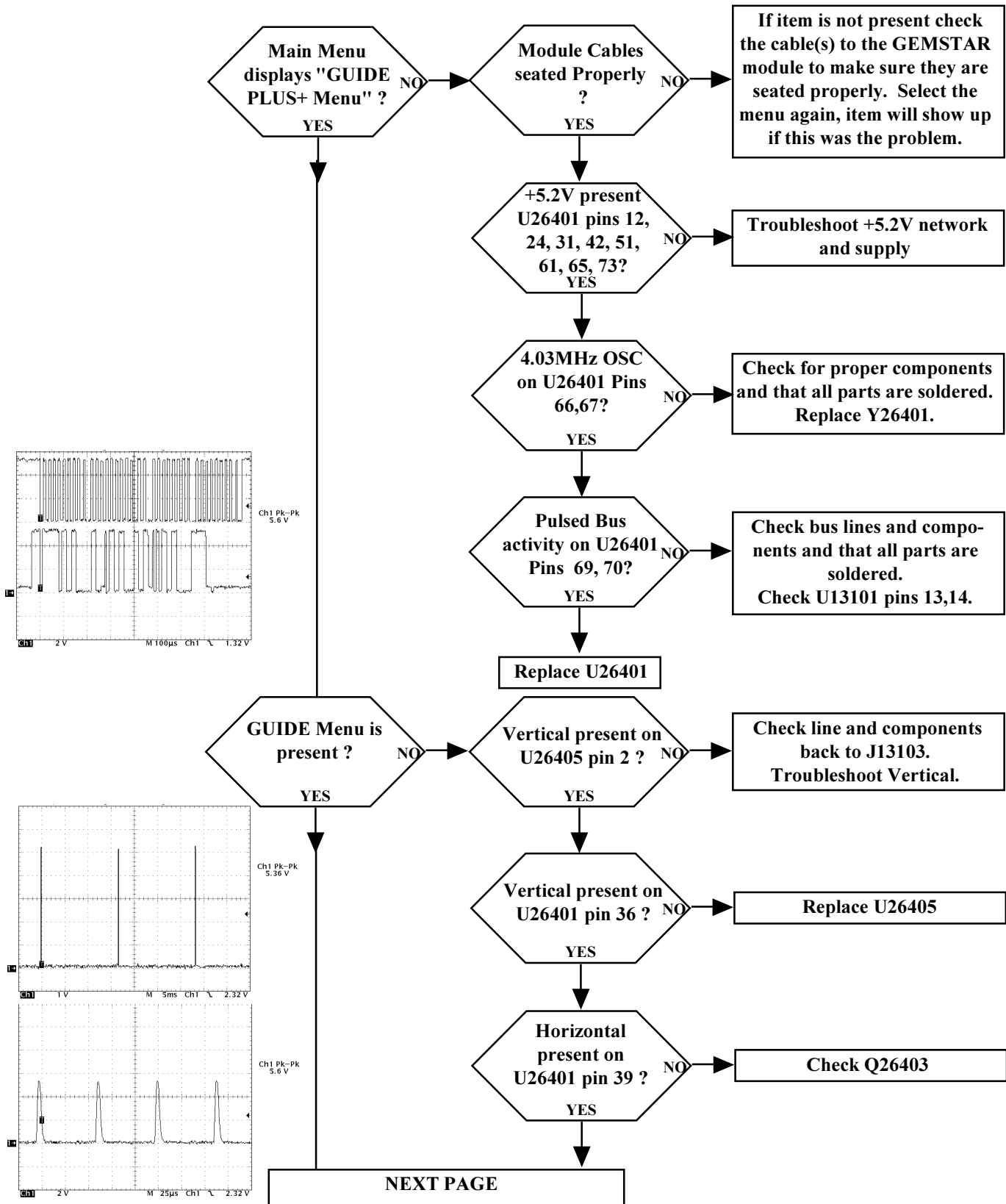
Troubleshoot System Control  
U13101 Pin 36.

## OSD Troubleshooting

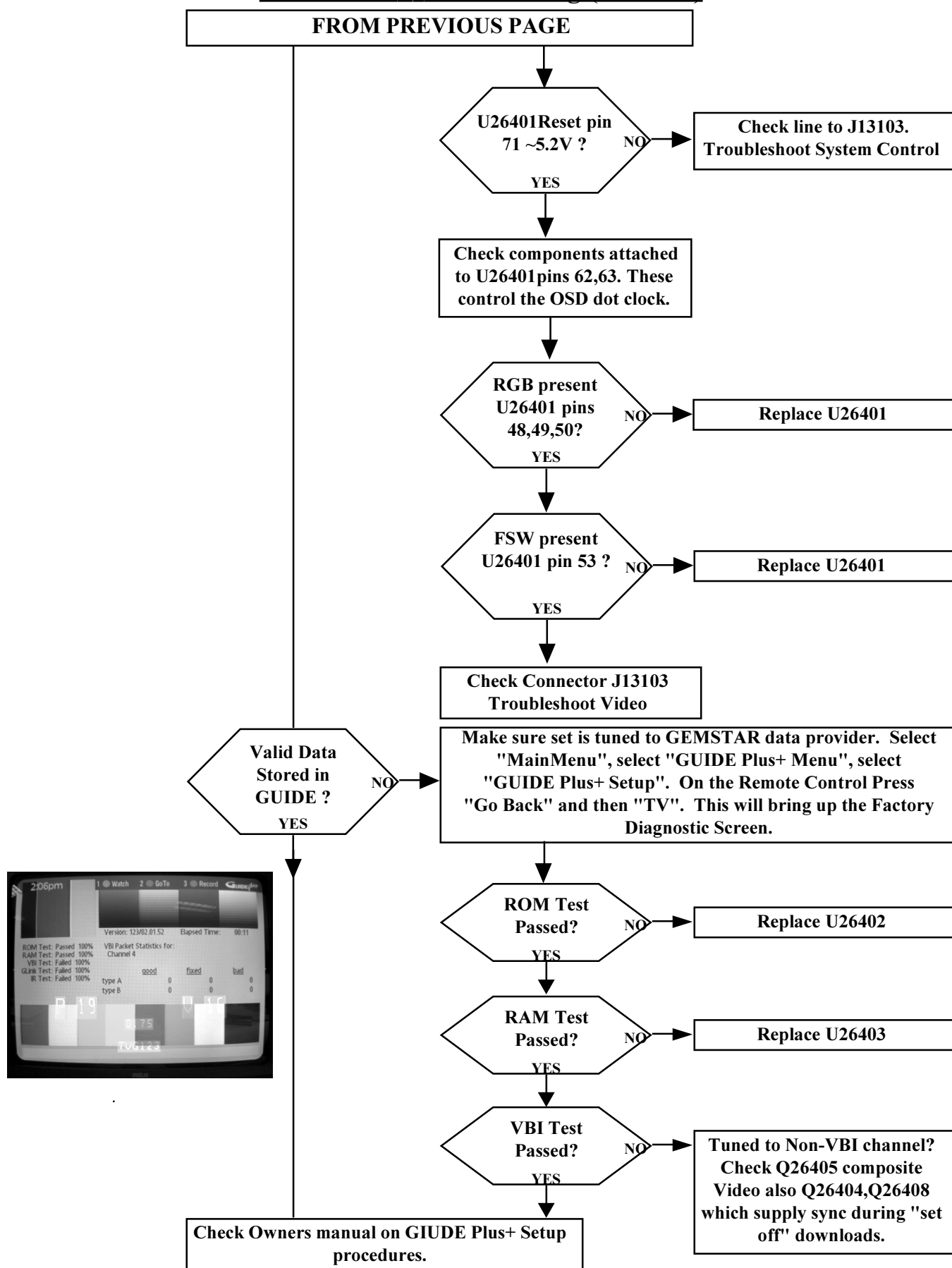


## GEMSTAR Troubleshooting

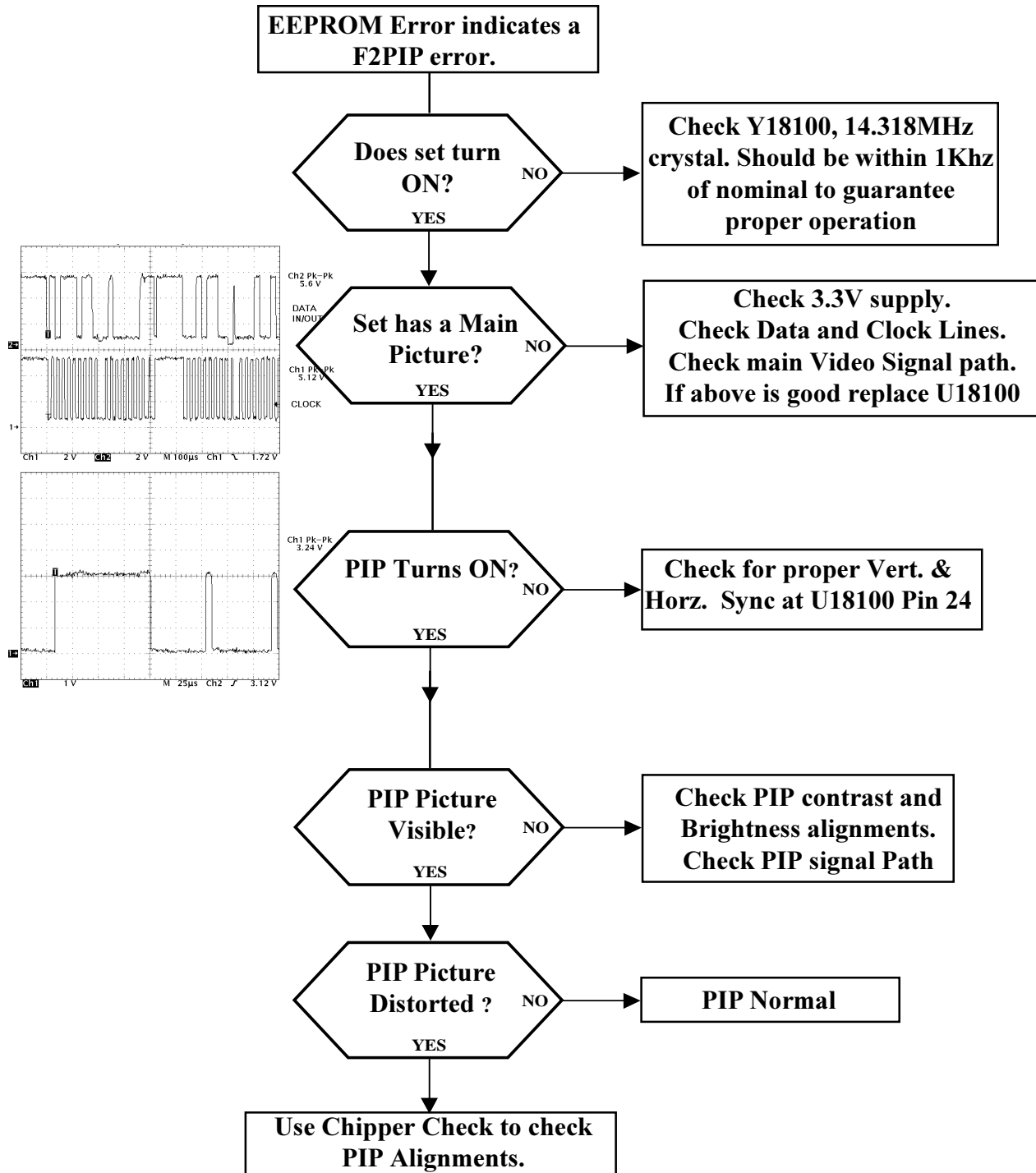
Tune set to a channel with valid GEMSTAR program information on the Vertical Blank Interval (VBI). Gemstar is auto-detected by the micro-processor. Select the Main menu. If GEMSTAR has been detected there will be a menu item "Guide Plus+ Menu".



# **GEMSTAR Troubleshooting (cotinued)**



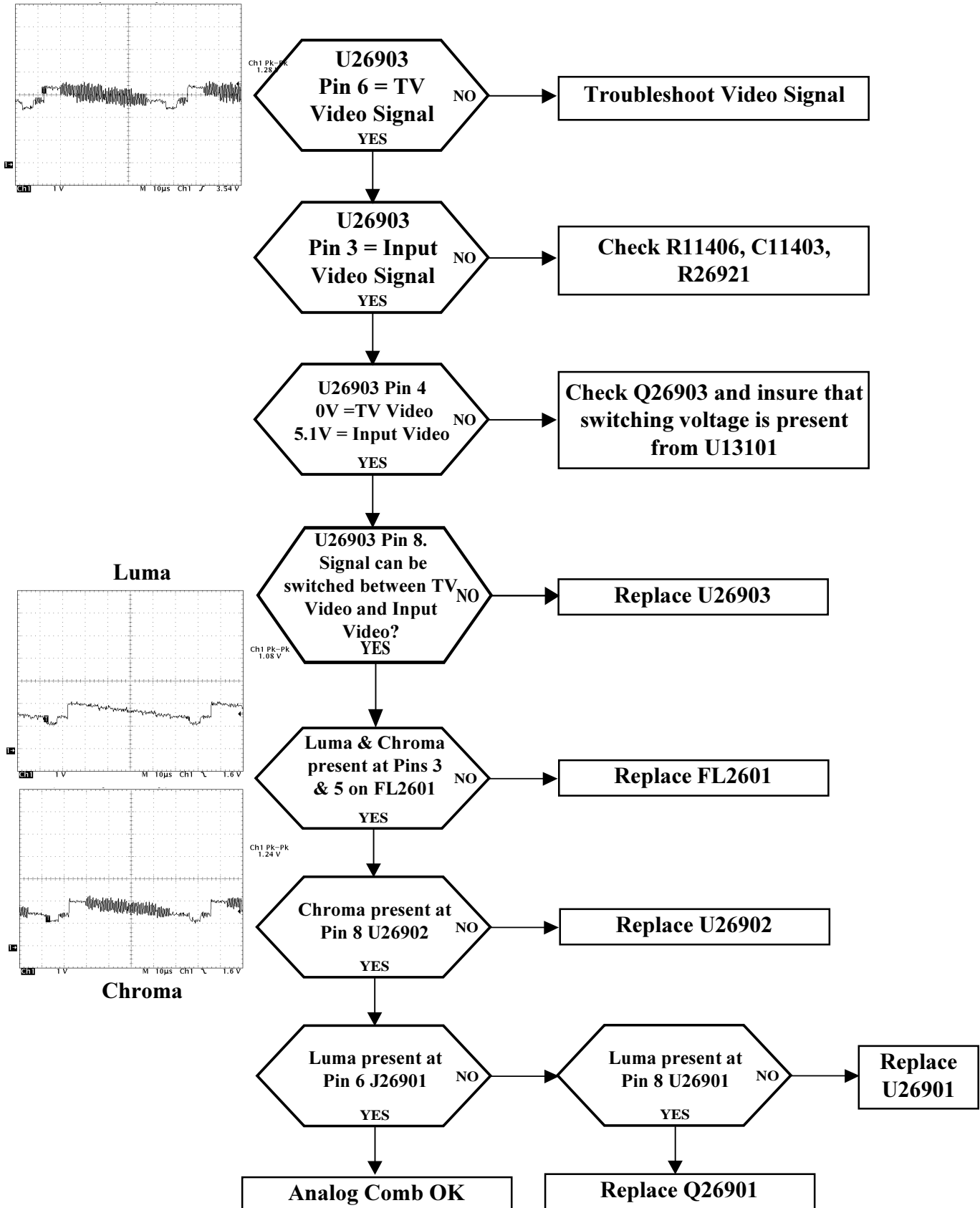
## F2PIP Troubleshooting





## Analog Comb Troubleshooting

Connect a signal generator to the Tuner Input and to the Video Input Jack. Check 5V and 12V supplies.

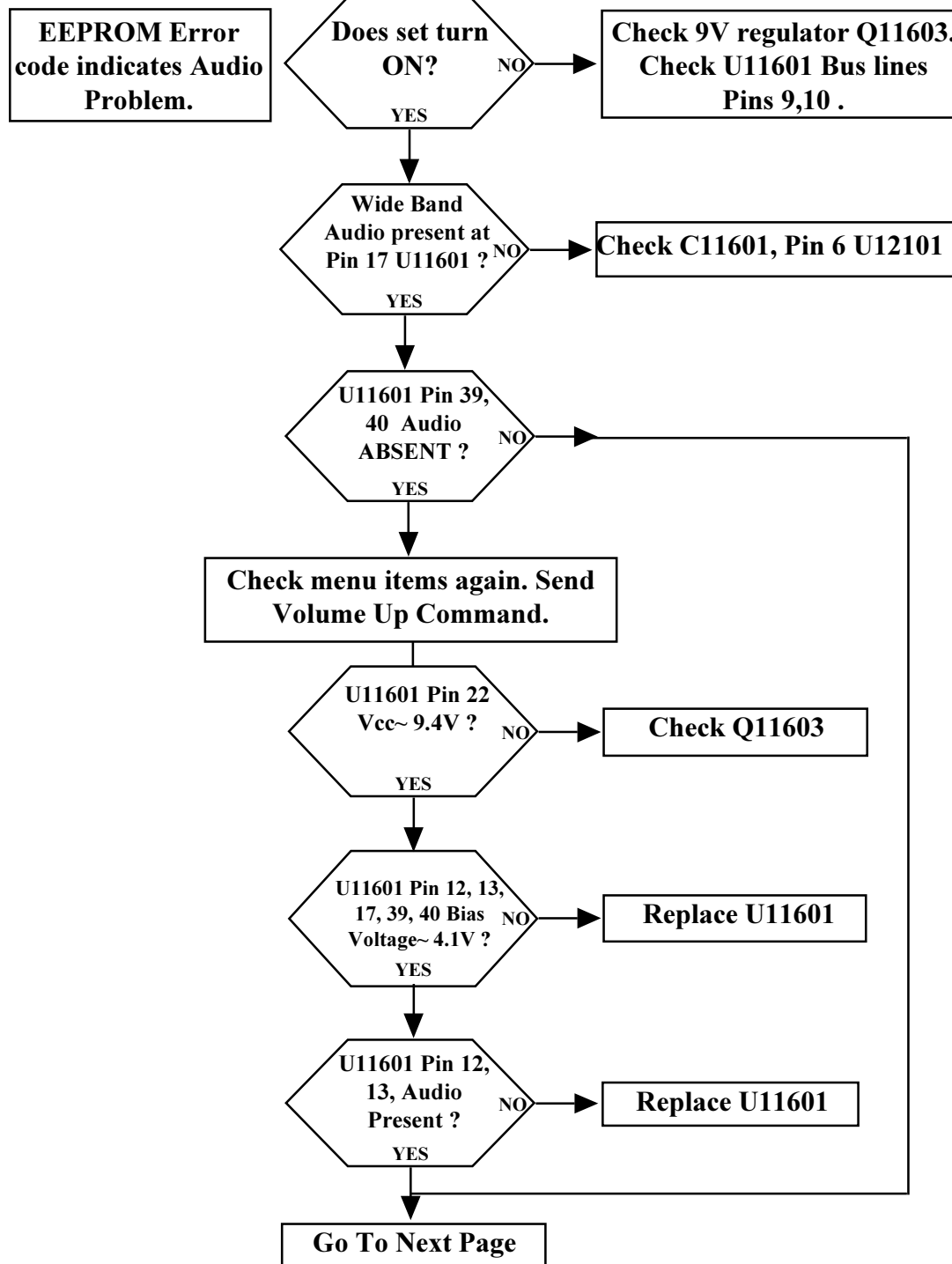


### **General Audio Troubleshooting**

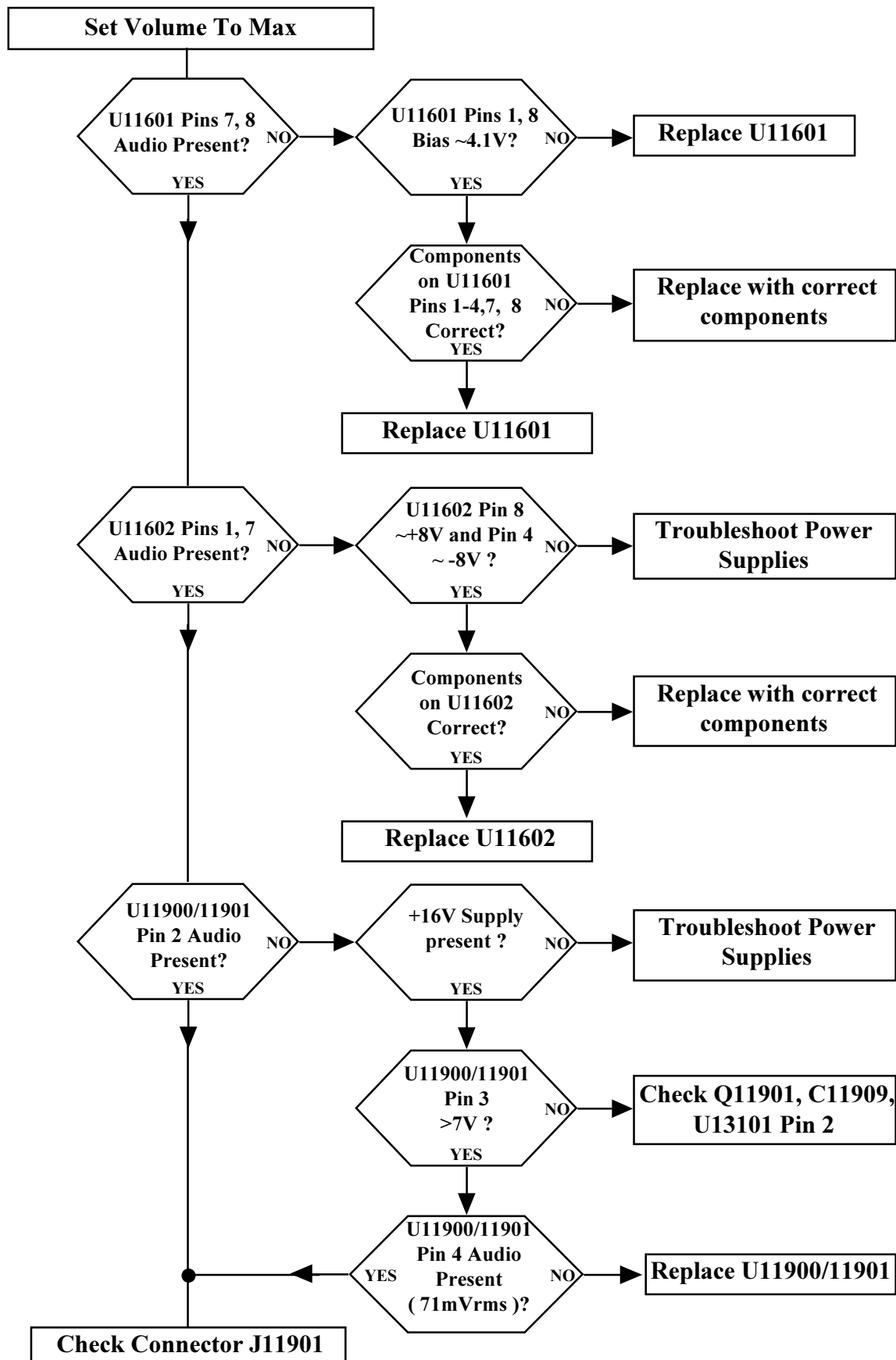
Connect a generator to the set. Adjust "Sound Processor" Menu to "Speakers ON", Fixed Level Mode OFF", "Sound Logic OFF".

#### **Sound Quick Checks:**

1. Check that Speaker's plug is seated properly.
2. Check that the "Speakers" are turned ON & "Fixed Level Mode" is OFF
3. Check that Balance is Centered.
4. Check if there is audio present at Audio Output Jacks to isolate problem.



## General Audio Troubleshooting (continued)



### **Audio Troubleshooting (Distortion)**

**Use a standard 1kHz or 3kHz Sine Wave as an input to the Audio System.**

**Scope Audio at HiFi or Speaker Outputs (whichever is failing) to determine if distortion is visible. Move back along Audio signal path to determine where distortion begins. If point of origin cannot be determined check the things below.**

**Check for electrolytics installed backwards or solder shorts around U11601. Anything that can cause shorts or improper bias on the IC pins. Check for open traces or missing jumper wires.**

**Check values of R11704/11706. Excessive gain in Expanded Stereo can cause Loop IN (U11601 Pins 41,41) to be overdriven. This can cause distortion in All Modes.**

**Check voltages on Vcc pins at the Audio ICs as well as the power network that supplies power to the audio circuit for proper voltage levels.**

**Check that the Pins of all Audio ICs are soldered properly. Unsoldered pins can cause overheating and shutdown in the output devices.**

**If Speaker output is distorted but HiFi outputs are not then the problem is probably in the U11900/11901 circuit area.**

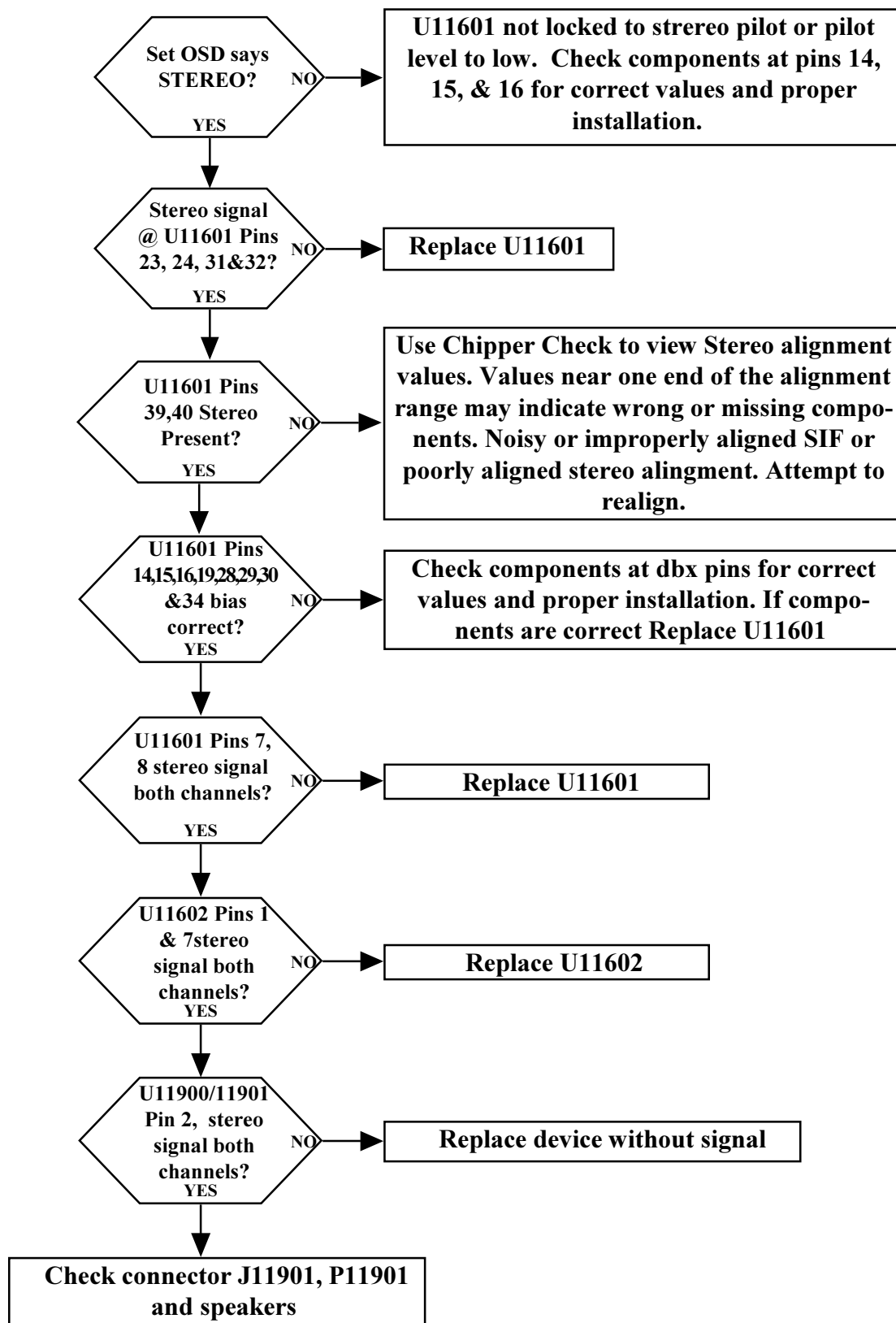
**Check that coupling capacitors are loaded properly. Check for shorts around U11900/U11901 and that the devices are not partially MUTED.**

### **No Stereo Separation**

**Problems with stereo separation are mostly due to wrong, missing or backward parts around U11601. Specifically C11605, C11610 and other parts connected to pins 16, 18, 23, 24, 28, 29, 30 and 34. this can cause failure of one of the alignments.**

**Audio Troubleshooting (No Stereo)**

**Tune to a channel with known good stereo. Set SOUND PROCESSOR mode to STEREO. Insure set is working with Mono audio signal.**



**Audio Troubleshooting (Sound Logic)**

**Tune to a channel with strong MONO signal. Connect a DC voltmeter to cathode of CR11503.**

