Important Firsts...

By R. H. Scott

First high fidelity AM-FM stereo
receiver using wide range AM design.
First to successfully use wide-band
diversity in high-fidelity FM tuners.
First to market The Stereo-Filter, a
stereo control unit that prevents ob-
trusive noise.
First to provide meter and audio
control output in stereo amplifiers
for added control in playback.

Hermon Scott

Advisory Engineer

Hermon Scott received B.S. and M.S. degrees from
M.I.T., Cambridge, MA. During World War II, he served in the
United States Signal Corps and worked in the development and
fielding of electronic equipment for radar and radio
communications. He also developed a nautical navigation
auxiliary to steamer on the East Coast of the United States.}

He is the author of many technical papers and articles.
NOTES ON H. H. SCOTT TUNERS

What is the function of a tuner?

A tuner takes a radio signal from the air and converts it to an audio signal of sufficient strength to drive a power amplifier.

How is this done?

The carrier wave is selected in the first stage and amplified for the IF amplifier. At this point, the signal is weak and must be further amplified. If a detector is designed to operate in a narrow range of radio frequencies, the tuning is easier. It is easier to build an amplifier to handle frequencies lower than the FM band. Because of these facts, the tuner takes the radio signal, receives the audio signal that it is put in, and converts that signal to a new, lower frequency which means that the same equipment as the station you are hearing.

The process is called "demodulation" and is by means of a "detector." This new frequency is called the intermediate frequency, or "IF." The amplifiers that are tuned to this IF frequency are called IF amplifiers. Here is where the signal for the radio station is received. It is 455 kHz for the broadcast band.

It is a phenomenon of nature that when two frequencies are mixed together, resultant frequencies are created that are the difference and sum of the two frequencies. The resultant frequency that is produced in the tuner is called the "local oscillator," which is designed so that its frequency is always a fixed amount different than the incoming radio frequency. To do this, the frequency of the oscillator is adjusted continuously to always have a difference frequency produced in the tuner that is in turn amplified in the IF amplifier.

The next step in an FM tuner is called "gating." Here, the amplified signal is amplified again and the IF amplifier is tuned to the frequency of the incoming radio frequency. In this way, the tuner will be sensitive only to changes in frequency, not amplitude. Obviously, an AM tuner does not contain a tuner.

The FM signal is then sent to a detector. This is done in the detector. There are two basic types of detectors: the crystal detector and the triode detector. The crystal detector has a very short life and the triode detector has a long life. The triode detector is more common in modern equipment. It is also known as the diode detector. This is a basic step in an FM tuner. The signal is amplified by the IF amplifier. The signal is then amplified by the audio amplifier, which is used by H. H. Scott's FM tuner. The final stage of the FM tuner is the output stage, or amplifier. The output stage takes the amplified signal and converts it to a form that is useful for driving the audio amplifier. The output stage is the most important part of the FM tuner.
Front End

The "front end" consists of the RF amplifier, heat exchanger, and the noise II, in the part of the tuner that is actually tuned when you select a channel. Not only the II, II front end gives proper results.

1. Use of carefully selected low noise II FETs.
2. Arrangement of the front end and its components reduces signal losses in a wide range and provides maximum gain.
3. Precise adjustment of the front end maximally improves signal quality and provides maximum gain.

One of the basic problems inherent in front end design is that even a slight change in any of the components causes the tuner to lose signal. Cross-modulation may cause a tuner to lose signal in situations when the sound is not clear or the control is set on the control, APC, or II. APC has certain inherent drawbacks.

1. The APC cannot itself be made too close to the microwave signal.
2. APC reduces the frequency range.
3. APC tends to pull in signals—this is a disadvantage when you want to receive

a weak station next to a strong station. Of course, if you defeat the APC, you will lose the weak station, but the tuner will drift without the APC.

IF Stage

The "IF stage" of the tuner (this is the amplifier, filter, and associated circuitry) is the heart of the amplifier module.

1. Amplify the signal to provide sufficient gain that might be passed by the tuner's front end and the IF amplifier. This is referred to as "sensitivity." The lowest level of the tuner for which a tuner will operate is specified by the manufacturer, and the same for the IF amplifier.

2. Cross-modulation is the process of a tuner in which the output is not steady, or the output is not steady, or the output is not steady. It is a disadvantage of a tuner to be sensitive to signals in a wide frequency range, but also to lose signal or drift in the small frequency range. If the drift is not steady, the tuner will lose signal in the small frequency range, and also the tuner will drift in the small frequency range. If the signal is weak, the tuner will lose signal.
**The Limiter**

This half of your 653 and associated circuitry does the limiting in over 10,000.

The ideal limiter is able to remove amplitude or brightness changes in the signal very rapidly. This means that any high audio frequency or brightness changes (mainly those in the circuit) will be instantaneously made to the signal. The latter is then passed through a more sensitive detector to prevent further distortion.

**The Detector**

The detector stage is the heart of your 500M. It is a balanced detector circuit that uses the balanced output of the line card in such a way that the result is a balanced output. The result is a balance of the output of the detector and the balance of the line card in such a way that the result is a balanced output.

**The Limiter**

The limiter stage is the heart of your 500M. It is a balanced detector circuit that uses the balanced output of the line card in such a way that the result is a balanced output. The result is a balance of the output of the detector and the balance of the line card in such a way that the result is a balanced output.
<table>
<thead>
<tr>
<th>Item</th>
<th>Part Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LT-10 Chassis</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>LT-10s</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>LT-10X</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>LT-10U</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>LT-10B</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>LT-10M</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>LT-10G</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>LT-10H</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>LT-10N</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>LT-10P</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>LT-10Q</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>LT-10R</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>LT-10S</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>LT-10T</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>LT-10U</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>LT-10V</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>LT-10W</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>LT-10X</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>LT-10Y</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>LT-10Z</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>LT-10AA</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>LT-10AB</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>LT-10AC</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>LT-10AD</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>LT-10AE</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>LT-10AF</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>LT-10AG</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>LT-10AH</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>LT-10AI</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>LT-10AJ</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>LT-10AK</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>LT-10AL</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>LT-10AM</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>LT-10AN</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>LT-10AO</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>LT-10AP</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>LT-10AQ</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>LT-10AR</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>LT-10AS</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>LT-10AT</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>LT-10AU</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>LT-10AV</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>LT-10AW</td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>LT-10AX</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>LT-10AY</td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>LT-10AZ</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>LT-10BA</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>LT-10BB</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>LT-10BC</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>LT-10BD</td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>LT-10BE</td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>LT-10BF</td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>LT-10BG</td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>LT-10BH</td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>LT-10BI</td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>LT-10BJ</td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>LT-10BK</td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>LT-10BL</td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>LT-10BM</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>LT-10BN</td>
<td></td>
</tr>
<tr>
<td>61</td>
<td>LT-10BO</td>
<td></td>
</tr>
<tr>
<td>62</td>
<td>LT-10BP</td>
<td></td>
</tr>
<tr>
<td>63</td>
<td>LT-10BQ</td>
<td></td>
</tr>
<tr>
<td>64</td>
<td>LT-10BR</td>
<td></td>
</tr>
<tr>
<td>65</td>
<td>LT-10BS</td>
<td></td>
</tr>
<tr>
<td>66</td>
<td>LT-10BT</td>
<td></td>
</tr>
<tr>
<td>67</td>
<td>LT-10BU</td>
<td></td>
</tr>
<tr>
<td>68</td>
<td>LT-10BV</td>
<td></td>
</tr>
<tr>
<td>69</td>
<td>LT-10BW</td>
<td></td>
</tr>
<tr>
<td>70</td>
<td>LT-10BX</td>
<td></td>
</tr>
<tr>
<td>71</td>
<td>LT-10BY</td>
<td></td>
</tr>
<tr>
<td>72</td>
<td>LT-10BZ</td>
<td></td>
</tr>
<tr>
<td>73</td>
<td>LT-10CA</td>
<td></td>
</tr>
<tr>
<td>74</td>
<td>LT-10CB</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>LT-10CC</td>
<td></td>
</tr>
<tr>
<td>76</td>
<td>LT-10CD</td>
<td></td>
</tr>
<tr>
<td>77</td>
<td>LT-10CE</td>
<td></td>
</tr>
<tr>
<td>78</td>
<td>LT-10CF</td>
<td></td>
</tr>
<tr>
<td>79</td>
<td>LT-10CG</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>LT-10CH</td>
<td></td>
</tr>
<tr>
<td>81</td>
<td>LT-10CI</td>
<td></td>
</tr>
<tr>
<td>82</td>
<td>LT-10CJ</td>
<td></td>
</tr>
<tr>
<td>83</td>
<td>LT-10CK</td>
<td></td>
</tr>
<tr>
<td>84</td>
<td>LT-10CL</td>
<td></td>
</tr>
<tr>
<td>85</td>
<td>LT-10CM</td>
<td></td>
</tr>
<tr>
<td>86</td>
<td>LT-10CN</td>
<td></td>
</tr>
<tr>
<td>87</td>
<td>LT-10CO</td>
<td></td>
</tr>
<tr>
<td>88</td>
<td>LT-10CP</td>
<td></td>
</tr>
<tr>
<td>89</td>
<td>LT-10CQ</td>
<td></td>
</tr>
<tr>
<td>90</td>
<td>LT-10CR</td>
<td></td>
</tr>
<tr>
<td>91</td>
<td>LT-10CS</td>
<td></td>
</tr>
<tr>
<td>92</td>
<td>LT-10CT</td>
<td></td>
</tr>
<tr>
<td>93</td>
<td>LT-10CU</td>
<td></td>
</tr>
<tr>
<td>94</td>
<td>LT-10CV</td>
<td></td>
</tr>
<tr>
<td>95</td>
<td>LT-10CW</td>
<td></td>
</tr>
<tr>
<td>96</td>
<td>LT-10CX</td>
<td></td>
</tr>
<tr>
<td>97</td>
<td>LT-10CY</td>
<td></td>
</tr>
<tr>
<td>98</td>
<td>LT-10CZ</td>
<td></td>
</tr>
<tr>
<td>99</td>
<td>LT-10DA</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>LT-10DB</td>
<td></td>
</tr>
<tr>
<td>101</td>
<td>LT-10DC</td>
<td></td>
</tr>
<tr>
<td>102</td>
<td>LT-10DD</td>
<td></td>
</tr>
<tr>
<td>103</td>
<td>LT-10DE</td>
<td></td>
</tr>
<tr>
<td>104</td>
<td>LT-10DF</td>
<td></td>
</tr>
<tr>
<td>105</td>
<td>LT-10DG</td>
<td></td>
</tr>
<tr>
<td>106</td>
<td>LT-10DH</td>
<td></td>
</tr>
<tr>
<td>107</td>
<td>LT-10DI</td>
<td></td>
</tr>
<tr>
<td>108</td>
<td>LT-10DJ</td>
<td></td>
</tr>
<tr>
<td>109</td>
<td>LT-10DK</td>
<td></td>
</tr>
<tr>
<td>110</td>
<td>LT-10DL</td>
<td></td>
</tr>
<tr>
<td>111</td>
<td>LT-10DM</td>
<td></td>
</tr>
<tr>
<td>112</td>
<td>LT-10DN</td>
<td></td>
</tr>
<tr>
<td>113</td>
<td>LT-10DO</td>
<td></td>
</tr>
<tr>
<td>114</td>
<td>LT-10DP</td>
<td></td>
</tr>
<tr>
<td>115</td>
<td>LT-10DQ</td>
<td></td>
</tr>
<tr>
<td>116</td>
<td>LT-10DR</td>
<td></td>
</tr>
<tr>
<td>117</td>
<td>LT-10DS</td>
<td></td>
</tr>
<tr>
<td>118</td>
<td>LT-10DT</td>
<td></td>
</tr>
<tr>
<td>119</td>
<td>LT-10DU</td>
<td></td>
</tr>
<tr>
<td>120</td>
<td>LT-10DV</td>
<td></td>
</tr>
<tr>
<td>121</td>
<td>LT-10DW</td>
<td></td>
</tr>
<tr>
<td>122</td>
<td>LT-10DX</td>
<td></td>
</tr>
<tr>
<td>123</td>
<td>LT-10DY</td>
<td></td>
</tr>
<tr>
<td>124</td>
<td>LT-10DZ</td>
<td></td>
</tr>
<tr>
<td>125</td>
<td>LT-10EA</td>
<td></td>
</tr>
<tr>
<td>126</td>
<td>LT-10EB</td>
<td></td>
</tr>
<tr>
<td>127</td>
<td>LT-10EC</td>
<td></td>
</tr>
<tr>
<td>128</td>
<td>LT-10ED</td>
<td></td>
</tr>
<tr>
<td>129</td>
<td>LT-10EE</td>
<td></td>
</tr>
<tr>
<td>130</td>
<td>LT-10EF</td>
<td></td>
</tr>
<tr>
<td>131</td>
<td>LT-10EG</td>
<td></td>
</tr>
<tr>
<td>132</td>
<td>LT-10EH</td>
<td></td>
</tr>
<tr>
<td>133</td>
<td>LT-10EI</td>
<td></td>
</tr>
<tr>
<td>134</td>
<td>LT-10EJ</td>
<td></td>
</tr>
<tr>
<td>135</td>
<td>LT-10EK</td>
<td></td>
</tr>
<tr>
<td>136</td>
<td>LT-10EL</td>
<td></td>
</tr>
<tr>
<td>137</td>
<td>LT-10EM</td>
<td></td>
</tr>
<tr>
<td>138</td>
<td>LT-10EN</td>
<td></td>
</tr>
<tr>
<td>139</td>
<td>LT-10EO</td>
<td></td>
</tr>
<tr>
<td>140</td>
<td>LT-10EP</td>
<td></td>
</tr>
<tr>
<td>141</td>
<td>LT-10EQ</td>
<td></td>
</tr>
<tr>
<td>142</td>
<td>LT-10ER</td>
<td></td>
</tr>
<tr>
<td>143</td>
<td>LT-10ES</td>
<td></td>
</tr>
<tr>
<td>144</td>
<td>LT-10ET</td>
<td></td>
</tr>
<tr>
<td>145</td>
<td>LT-10EU</td>
<td></td>
</tr>
<tr>
<td>146</td>
<td>LT-10EV</td>
<td></td>
</tr>
<tr>
<td>147</td>
<td>LT-10EW</td>
<td></td>
</tr>
<tr>
<td>148</td>
<td>LT-10EX</td>
<td></td>
</tr>
<tr>
<td>149</td>
<td>LT-10EY</td>
<td></td>
</tr>
<tr>
<td>150</td>
<td>LT-10EZ</td>
<td></td>
</tr>
</tbody>
</table>
Instructions for the Model LT-10 wideband FM Tuner

The LT-10 is a wideband FM tuner employing the same silver-plated front end, the same wideband detector and IF transformers, the same control knobs that have given H. H. Scott a reputation as the best in the industry. The LT-10 is extremely small and compact but has the power to handle wideband signals from conventional narrow band tuners. Conservatively designed, this tuner will bring you years of reliable service. For those interested in more complete information about tuners in general and H. H. front tuner design in particular, refer to the Notes on H. H. Scott Tuners.

IMPORTANT: Every effort has been made to ensure that this unit, when assembled, will perform perfectly. In order to achieve this result, you must read all of the instructions carefully and follow them precisely. Read all instructions completely. Then follow them exactly.

1. Your 4-knob tuner will hold the volume control, the bass control, the treble control, and the equalizer. Pull up the volume control. Remove the screw.

2. Remove the two knobs on either side of the front panel and on bottom of the rear of the unit. Remove the screw.

3. Push back the white plastic, and remove the plastic cap from the back of the unit.

4. Turn power switch on and observe the meter. Remember that the meter is not linear.
Unpacking your Kit-Pak

Page 1 demonstrates the step-by-step procedure for building your Kit. It will tell you exactly what is included in the Kit, what you will need to purchase separately, and how to assemble it. Everything is put away in sections.

You may now start to build the construction.

During the mechanical assembly, you will be instructed to turn the chassis a few times. However, you will never remove the electrical assembly, the chassis will stay in place in the unit. After building the construction, you will see a total of six small steps. The first step is to put the lid on the chassis, and the last step is to turn the unit on.

Meantime the chassis is the base of the kit. It is important that you understand the assembly, you will be instructed to make certain connections to the measurements and changes of the chassis, if these are not made, you may change the design. You should also take the time to read through the instructions, and any delays for changes will adversely affect the performance of the mass.

Check the parts

On page 4 of this manual is a description of all the parts included. Before beginning the assembly, it is recommended that you check all the parts and make sure they are correctly ordered. If you have any questions, please contact the SERVICE DEPARTMENT at the factory immediately.

It is best to handle the parts with the fingers only. All the parts should be handled with care. This will help to ensure that the parts are not damaged. If the parts are handled with care, their performance will be better.

Simplified soldering and wiring instructions

All the parts required to connect the unit to the rest of the system must be handled with care. The parts are very sensitive to moisture and should be handled with care. The parts should be handled with care and should not be exposed to moisture.

Tools Required

An alignment tool and a small screwdriver are provided for this manual. In addition, you will need a pair of long nose pliers, a regular (not miniature) pair of wire cutters, and a soldering iron or gun. A 90° angle file can also be used. The information in this manual has been designed to allow you to make a small tip. If a wire brush is used, it should also have a small tip, and should be used carefully since the equipment is magnetic.

Don't let your hands get rusty;

1. Before using the soldering iron or gun, the tip must be heated by some means. Most soldering irons and guns come with a thermostat to prevent damage to the iron or to the job being done. For best results, maintain the iron at the correct temperature. If the iron is too cold, it will not stick to the job being done. If the iron is too hot, it will char the job.

2. Make sure that all leads are completely and correctly connected. If the leads are not connected, the circuit will not work.

3. The leads should be mechanically secure before soldering. They do not make up locating leads around the contacts several times. It
FIGURE 2

- Make a slight turn around the contact which is then pushed tightly with the base nut pliers. If the wire is too large for handling, position the wire so that a good solder connection will still be made. (See Fig. 2.)

4. Load on resistors, capacitors, and similar components are generally much larger than they need to be to make the solder connec- tion. Turn them in so they cannot be cut off before the part is added to the circuit. (In general), the leads should be long enough to make them connection allowing for a little left over to make a good mechanical connection. A good mechanical connection is the key. If the length of lead is too short, it is no advantage to the component over its present and absorbing. If the length of the lead is too long, you can absorb the leads quickly and accurately. Sometimes a lead will not come quite long enough to reach the desired mounting point. In such a case, the terminal lug can be bent slightly to make the connection possible.

5. Place the side of the soldering iron to the copper part to be soldered until it is the correct temperature.

6. Place the solder against the bared terminal with the soldering iron still in contact and it will immediately flow over the joint. The solder must be run smoothly and evenly along the joint for a short time. Too much solder may cause short circuits. The soldering iron used should be in good order and capable of producing a short and clean joint.

7. As soon as sufficient solder has formed, remove the soldering iron and then remove the heat from the joint. Use care not to move the leads until the joint has harden (about 5 seconds). A good solder joint should appear to be length and either. Check the joint for rigidity. If it is not firm and tight, return the heat and permit the solder already moved to flow again. Some time a little more will have to be added.

8. When soldering various of the components, such as chokes and resistors, it is advisable to use some heat then in necessary. Remove the circuit and clean the component by hand.

9. Keep the soldering iron clean and bright by occasionally wiping with a cloth. The iron does not have to be cooled for this purpose.

10. If you have never done any soldering before, it would be an excellent idea to practice on scraps of wire before beginning.

Basic electrical assembly procedure

Every terminal, tube, transformer, etc., has a code number (i.e. 71, 72) and so forth. (See Fig. A.) There is a view of the top of the chassis with all the mechanical parts assembled and the code numbers clearly indicated. Become familiar with the location of all parts and of their code numbers.
the Chart A-4 is a view of the underside which shows how it is placed on the floor and the wiring to those parts.

Every pin on each plate socket has a name. These names can be traced by inspecting the face of the rear socket近距离. The Chart A-4 is a view of the underside which shows how it is placed on the floor and the wiring to those parts. It shows how the wires are connected to the sockets and other parts which are not shown in the view. Every pin on each plate socket has a name. These names can be traced by inspecting the face of the rear socket近距离. The Chart A-4 is a view of the underside which shows how it is placed on the floor and the wiring to those parts. It shows how the wires are connected to the sockets and other parts which are not shown in the view. Every pin on each plate socket has a name. These names can be traced by inspecting the face of the rear socket近距离. The Chart A-4 is a view of the underside which shows how it is placed on the floor and the wiring to those parts. It shows how the wires are connected to the sockets and other parts which are not shown in the view. Every pin on each plate socket has a name. These names can be traced by inspecting the face of the rear socket近距离. The Chart A-4 is a view of the underside which shows how it is placed on the floor and the wiring to those parts. It shows how the wires are connected to the sockets and other parts which are not shown in the view. Every pin on each plate socket has a name. These names can be traced by inspecting the face of the rear socket近距离. The Chart A-4 is a view of the underside which shows how it is placed on the floor and the wiring to those parts. It shows how the wires are connected to the sockets and other parts which are not shown in the view. Every pin on each plate socket has a name. These names can be traced by inspecting the face of the rear socket近距离. The Chart A-4 is a view of the underside which shows how it is placed on the floor and the wiring to those parts. It shows how the wires are connected to the sockets and other parts which are not shown in the view. Every pin on each plate socket has a name. These names can be traced by inspecting the face of the rear socket近距离. The Chart A-4 is a view of the underside which shows how it is placed on the floor and the wiring to those parts. It shows how the wires are connected to the sockets and other parts which are not shown in the view. Every pin on each plate socket has a name. These names can be traced by inspecting the face of the rear socket近距离. The Chart A-4 is a view of the underside which shows how it is placed on the floor and the wiring to those parts. It shows how the wires are connected to the sockets and other parts which are not shown in the view. Every pin on each plate socket has a name. These names can be traced by inspecting the face of the rear socket近距离. The Chart A-4 is a view of the underside which shows how it is placed on the floor and the wiring to those parts. It shows how the wires are connected to the sockets and other parts which are not shown in the view. Every pin on each plate socket has a name. These names can be traced by inspecting the face of the rear socket近距离. The Chart A-4 is a view of the underside which shows how it is placed on the floor and the wiring to those parts. It shows how the wires are connected to the sockets and other parts which are not shown in the view. Every pin on each plate socket has a name. These names can be traced by inspecting the face of the rear socket近距离. The Chart A-4 is a view of the underside which shows how it is placed on the floor and the wiring to those parts. It shows how the wires are connected to the sockets and other parts which are not shown in the view. Every pin on each plate socket has a name. These names can be traced by inspecting the face of the rear socket

Do not proceed unless you have read all the instructions given above.
Mechanical Assembly

Position the chains in front of you as shown on Chart A. (Locate the steeple hole identified as P, shown at A.)

- Place the chain (from the back) in the bottom of the chain. (See Figure 4.) The pinhole (steeple) is now mounted against the box right next to the lower chains. To determine where the hole is located, refer to the diagram shown above. (See Figure 4.) Insert the pin into the hole in the side of the box. (See Figure 4.) Push the pin up into the hole with your thumb, right hand, and then spread the top of the pin to upright itself and firmly lock the pin in place.

Install 38 (N 200 150 38) in the hole FY (located by the method described above).

Install 79 (N 200 150 79) in the hole marked FN. (The shaft goes outside the chains.)

- Position the pin (See Figure 4.)

There are three transformation units that you must install to the chains. These are T1, T2, and T3. T1 and T3 are identical and are identified by the number THY-0101. T2 is also the same size as the pin. T2 is illustrated as the straight metal rod, and T1 is illustrated as the curved metal rod. (See Figure 4.)

Position it in the pinhole marked TH on the top of the chains. (See Figure 4.) Position it so that the pinhead is on the base of the chain as shown. (See Chart A.) Bore this bore with one hand. Withdraw the chains with the other hand and then pull the chains tight. (See Figure 4.) Hold the pin in place and remove the remaining two bolts. Push one side of the box by hand, and then insert your finger or the small screwdriver supplied, and hold it.
range into the "C" shaped hole on the side of the case. Then repeat with the other side of the latter step. When completed, apply clearance. Insert the pipe into the aperture with that of the "C" shaped hole on the side of the case. Then repeat with the other side of the latter step. As noted during this exercise not to damage the piece on the bottom of the aperture, the pipe is not to slide into the aperture with the other respect. The aperture is then closed with a plug. The other respect in the aperture is then closed with a plug.

A-10. Reel for TV, using either one of the TV-40-SEP taxes.

A-10. Reel for TV, using the remaining TV-40-SEP taxes.

A-10. Reel for TV, using the remaining TV-40-SEP taxes.

A-10. Reel for TV, using the remaining TV-40-SEP taxes.

Figure 6

Figure 7
Electrical Assembly

INTODUCTORY NOTE

To obtain the steady flow performance this timer is capable of, all lead lengths from components (resistors and capacitors) must be as short as possible. Follow the diagram closely. A careful inspection of the pre-assembled front end will give you many hints as to the proper approach for mounting and wiring the parts.

Keep all parts as close to the chassis as possible.

The lengths of the wires, of course, should not touch the chassis, unless instructions indicate otherwise.

If, by mistake, the wires from one of the components are not all at least, this can easily be corrected. Take a small piece of insulated wire (same size) and splice it in as shown in (Figure A).

The biggest source of troubles, next to poorly soldered joints, are short circuits. A short circuit occurs when two unshielded wires that are not supposed to, accidentally touch each other. It can also happen when a wire going towards one pin accidentally touches another pin, nearby. The main body of a resistor or a capacitor is fully insulated so it does not matter if this part touches something. It is only the bare wires on the ends that you have to watch for. As the number of parts in the circuit starts to increase, you will need to have possible in the wire circuits to avoid extra quantities of these insulating materials (spaghetti) have been supplied. Whenever you suspect that a short circuit may occur (either to the chassis, to another wire, or to another pin), slide a small piece of spaghetti over the bare wire in question. If you position the parts exactly as shown in the photograph, you will not need to use spaghetti very frequently. However, it is better to be on the safe side if you have any doubts.

Check off each step as soon as it is completed. Cross off each line as soon as the soldering re-arranged is done. Continue your soldering true now so that it will be ready.

Go slowly,
Read completely and carefully...
HAVE FUN
Assembly Group B-1

1. Insert the two black transformer wires once and connect either one to pin 5, 64 and the other to pin 6, 54. (Remember do not solder where you see under instructions in red.)

2. Connect the single yellow transformer wire to pin 1, C1 (15).

3. Twist the two group transformer wires several times and connect one wire to pin 4, 51 and the other wire to pin 5, 58.

4. Twist the two red transformer wires several times and connect the longer wire to pin 5, 58 (11) and the shorter wire to pin 1, T1 (111).

5. Twist the two yellow transformer wires and connect either one to pin 6, 54 and the other wire to pin 5, 58.

6. Connect either wire of the bottom del wire to pin 5, 64 and the other wire to pin 5, 58.

(Read all wire concentric, and insulated, joints before connecting. Make sure your bent bends are not quite like the diagram above. Keep all insulated wires and make as close to the chart as possible.)
Assembly Group B-2

- **B.4.** Connect a 1W "red" wire from pin 4, C1 to pin 1, S1.
- **B.4.** Connect a 1W "orange" wire from pin 5, C1 to pin 8, S2.
- **B.6a.** Push pin 7, S2 away from the center and down until it touches L1.25. Make sure the pin is seated securely in L1.
- **B.6.** Connect a 1W "orange" wire from pin 2, T1 to pin 3, T2.
- **B.4.** Connect a 1W "red" wire from pin 4, T3 to pin 5, T4.
- **B.6.** Connect a 1W "black" wire from pin 1, T5 to pin 4, T4.
- **B.4.** Connect a 1W "black" wire from pin 3, P1 (10) to pin 1, P2.
- **B.4.** Connect a 1W "black" wire from pin 1, P2 to pin 1, T3.

(Read all wires, connections, and soldered joints before continuing. Make sure your layout looks exactly like the diagram above.)
Assembly Group B-3

- **B-1.** Connect a 22" red wire from pin 3, C1 (15) to pin A, 34.
- **B-2.** Connect a 3" orange wire from pin A, C1 (15) to pin A, 34.
- **B-3.** Connect a 21/4" red wire from pin A, C3 to pin G, 86.
- **B-4.** Connect 44" black wire from pin 3, V1 (102) to ground lug A on 52 (ground lug A is the small hole on the side of 52 — before pictorial absorber). Push wire through the hole, and bend it down.
- **B-5.** Connect a 11/4" grey wire from pin 3, V1 to pin S, V2.
- **B-6.** Connect one end of a 7" grey wire to pin 1, P1 (22) and one end of a 3/4" brown wire to pin 3, P1 (15). Push these two wires together and connect the other end of the grey wire to pin a, V1 (101). Connect the other end of the brown wire to pin a, V1 (101).

*(Check all wires, connections, and soldered joints before continuing. Make sure your layout looks exactly like the diagram above.)*
Assembly Group B-4

(Note: There is no cord of wires for this page. One end of the colored cable discussed below is already connected to the expansion terminal block. All other connections are made with the short pieces of uninsulated solid "tape" wire that are provided. Please observe that the "tape" wire has not been cut to length. It is preferable to use the proper length of wire from the wire roll or additional conductors you have. Proceed with care. Assemble with a screwdriver and a wire cutter. You will need the tools and materials listed at the beginning of this page.)

1. Connect a core wire from pins 4, 9, in pin 6, 4.
2. Connect a core wire from pins 2, 7, in pin 5, 2.
3. Connect the red wire on the front end to pin 1, 2.
4. Add a wire to the core wire from pins 1, 2, 7, 3, in pin 5, 2.
5. Connect a core wire from pins 5, 8, in pin 6, 4.
6. Connect a core wire from pins 3, 9, in pin 6, 4.
7. Check all wires, connections, and solder joints before continuing. Make sure your layout looks exactly like the diagram above.

* black conductive material
Assembly Group B-5

(Notes: There is no end of wire or components for this page)

1. Connect a wire from pin 3, 21 (1) to pin 6, TS (12).
2. Connect a wire from pin 8, TA (11) to pin 6, TS (12).
3. Connect a wire from pin 3, PY (11) to pin 8, TS (12).
4. Connect a wire from pin 12 to the center pin W2. This pin of wire should be positioned close to the chassis and away from all other pins on W2.
5. Connect a wire from pin 8, BR to pin 8, PS (11).
6. Connect a wire from pin 12 to the center pin W2 (13). Make certain that you also solder the back plate 2 and 5 of W2 to the center pin. This pin of wire should also be positioned close to the chassis and away from all other pins on W2.
7. Connect a wire from pin 17 to the center pin, W1 (14). Make certain that you also solder the back plate 2 and 5 of W1 to the center pin. The commentary in step 8-4 apply here too.
8. Connect a wire from pin 1, TS (6) to LS (13).
9. Connect a wire from pin 1, TR (6) to LS (13).

(Notes: There are no end of wire or components for this page.)
Assembly Group B-6

Connect a 44" and wire to pin 2, P9 (356). Push this wire through the channels and connect to pin 2, P9 (356).

Connect a 44" and wire to pin 3, P10 (356). Push this wire through the channels and connect to pin 3, P10 (356).

Connect a 44" and wire to pin 4, P11 (356). Push this wire through the channels and connect to pin 4, P11 (356).

Connect a 44" and wire to pin 5, P12 (356). Push this wire through the channels and connect to pin 5, P12 (356).

Connect a 44" and wire to pin 6, P13 (356). Push this wire through the channels and connect to pin 6, P13 (356).

Connect an LED on pin 1, P1 (356). Push this wire through the channels and connect to pin 1, P1 (356).

CAUTION: Do not touch the channels or other parts when connecting wires.

Connect one end of a 44" heavy wire to pin 1, P1 (356). Insert the other end of the wire into the channel and connect to pin 2, P2 (356). Insert the other end of the wire into the channel and connect to pin 1, P1 (356).

CAUTION: Do not touch the channels or other parts when connecting wires.

(Do not connect any more wires or connect them after this.)

Check all wires, connections, and electrical parts before continuing. Make sure your final setup exactly like the diagram above.)
Assembly Group B-7

B-13. Connect a 7F-SE from pin 1, B1 to ground bag A on D4 (111).
B-14. Connect a 7F-SE from pin 3, B4 to pin 8, B6.
B-15. Connect a CC-RSD from pin 4, V4 to 17 (111).
B-17. Connect a CC-606S from pin 5, V4 to L4 (111).
B-20. Connect a 40M resistor (yellow, purple, yellow) from pin 1, S1 to pin 3, V3.
B-21. Connect a 4M ohms resistor blue, purple, red from pin 8, T3 to AK 4003.
B-22. Connect a 40M resistor (orange, orange, orange) from pin 8, E1 to pin 8, B5 (111).
B-23. Connect pin 12 of a 01M resistor (red, red, green) to pin 4, T2 (110). Push the wires into the holes in the board in Position 2A and connect to pin 2, 2B. Secure the tabs in

Check all wire connections, and solder joints before continuing. Make sure your layout looks exactly like the diagram above.
Assembly Group B-8

1. Pull the 10k wire into place, then clip off the excess wire (approximately 1 inch) from one end.
2. Connect the ground wire to the connector at pin 6, 4, 8, 2, or 9, and then secure it.
3. Ensure that the connector is fully inserted and the ground wire is not loose or damaged.
4. Connect a 47k resistor (red, red, orange) from pin 5, 4, 3, 3, to pin 4, 5, 3.
5. Connect a 10k wire from pin 5, 3, to pin 4, 5, 3.
6. Connect a 1k ohm resistor (red, red, orange) from pin 5, 3, to pin 4, 5, 3.
7. Connect a rechargeable battery (red, red, orange) from pin 5, 3, to pin 4, 5, 3.
8. Connect a CRP 40 from pin 5, 3, to pin 4, 5, 3.
9. Connect the end of a wire from the power supply to the battery.
10. Connect the other end of the wire to pin 5, 4, 3.
11. Connect a 47k resistor (red, red, orange) from pin 5, 4, 3, to pin 4, 5, 3.

(check all wires, connections, and solder joints before continuing. Make sure your layout looks exactly like the diagram above.)
Assembly Group B-9

1. Connect a slide (LD only) from pin 4, V1 to pin 5, V2 (55).

2. Connect a C10 (twin, dark green) from pin 5, T2 (55) to pin 4, T3 (55). Position the attachment so that it does not block the hole in the bottom of the transformer cap (56).

3. Connect a R24 (amber, red, brown) from pin 1, V2 (55) to L5.

4. Connect a C101 from pin 4, SS to L1 (55).

5. Connect a C10 (twin, red) from pin 4, V1 to ground bar A, SS (55).

6. Connect a C101 from pin 3, SS to pin 4, SS (55).

7. Slide a 1" piece of black tin-plate material (such as) over the end of a CPM 1 with the tin end and connect the end to pin 7, T1 (57). Connect the other end to pin 6, T2 (57).

8. Connect a C102 (red, orange, grey) from pin 6, T2 (57) to pin 4, T3 (57). Position this capacitor so it does not block the large hole in the bottom of the transformer cap (56).

(Check all wires, connections, and soldered joints before continuing. Make sure your layout looks exactly like the diagram above.)
Assembly Group B-10

1. Take the CFT-2W, slide a 3" piece of black insulation over the wire on the end with a black bare, and connect it to pin 9, 20. Connect the other end to pin 2, 22.

2. Connect a 6.8 μF capacitor (black, black, black) from pin 3 to pin 20 (52).

3. Connect a 1N4138 diode from pin 19 to pin 1, 21 (31).

4. Connect a 1N34 diode (brown, brown, brown) from pin 6 to pin 20 (52).

5. Connect the 100 K resistor (red, purple) from pin 1 to pin 21 (31).

6. Connect a 220 K resistor (orange, orange, yellow) from pin 5 to pin 20 (52).

7. Connect a 10 K resistor (yellow, purple, green) from pin 3, 20 to pin 20, 20 (52).

8. Connect a 2700 μF capacitor (red, purple, brown) from pin 5, 50 to pin 5, 56.

9. Connect a 100 μF capacitor (red, red, brown) from pin 4, 84 to pin 6, 84 (42).

10. Connect a 100 μF capacitor (red, red, brown) from pin 4, 50 to pin 5, 56.

11. Take the large black, square coil. At one end are not visible two wires, one terminated into red, the other yellow. Connect the unconnected end to pin 2, 20 (31). Do not connect the other end pin.

Check all wires, connections, and soldered joints before continuing. Make sure your label looks exactly like the diagram above.
Assembly Group B-11

- Connet a 100 ohm resistor (red, red, brown) from pin 3, 100 ohm pin 2.
- Connet a 220 ohm resistor (red, red, brown) from pin 3, 100 pin 2 (pencil).
- Connet a 0.1uf capacitor from pin 1, 100 ohm pin 2 (pencil).
- Connet a 1uf capacitor from pin 1, 100 ohm pin 2 (pencil).
- Connet a 0.1uf capacitor (black, black, black) from pin 3, 100 ohm pin 2 (pencil).
- Connet a 1uf capacitor (black, black, black) from pin 3, 100 ohm pin 2 (pencil).
- Connet a 1uf capacitor (black, black, black) from pin 3, 100 ohm pin 2 (pencil).
- Connet a 0.1uf capacitor (black, black, black) from pin 3, 100 ohm pin 2 (pencil).
- Connet a 1uf capacitor (black, black, black) from pin 3, 100 ohm pin 2 (pencil).
- Connet a 0.1uf capacitor (black, black, black) from pin 3, 100 ohm pin 2 (pencil).
- Connet a 1uf capacitor (black, black, black) from pin 3, 100 ohm pin 2 (pencil).
- Connet a 0.1uf capacitor (black, black, black) from pin 3, 100 ohm pin 2 (pencil).
- Connet a 1uf capacitor (black, black, black) from pin 3, 100 ohm pin 2 (pencil).
- Connet a 0.1uf capacitor (black, black, black) from pin 3, 100 ohm pin 2 (pencil).
- Connet a 1uf capacitor (black, black, black) from pin 3, 100 ohm pin 2 (pencil).
- Connet a 0.1uf capacitor (black, black, black) from pin 3, 100 ohm pin 2 (pencil).
- Connet a 1uf capacitor (black, black, black) from pin 3, 100 ohm pin 2 (pencil).
- Connet a 0.1uf capacitor (black, black, black) from pin 3, 100 ohm pin 2 (pencil).
- Connet a 1uf capacitor (black, black, black) from pin 3, 100 ohm pin 2 (pencil).
- Connet a 0.1uf capacitor (black, black, black) from pin 3, 100 ohm pin 2 (pencil).
- Connet a 1uf capacitor (black, black, black) from pin 3, 100 ohm pin 2 (pencil).
- Connet a 0.1uf capacitor (black, black, black) from pin 3, 100 ohm pin 2 (pencil).
- Connet a 1uf capacitor (black, black, black) from pin 3, 100 ohm pin 2 (pencil).
- Connet a 0.1uf capacitor (black, black, black) from pin 3, 100 ohm pin 2 (pencil).
- Connet a 1uf capacitor (black, black, black) from pin 3, 100 ohm pin 2 (pencil).

(Trim all wires, connect, and solder joints before continuing. Make sure your board looks exactly like the diagram above.)
Very Important!
the Double Check System

The main part of the electrical assembly is completed. It is time to prove it by measuring and testing the system. If a joint has been assembled properly, it is quite understandable that at this stage of the assembly there will be a tremendous incentive to force ahead as quickly as possible to finish the job. Unfortunately, this attitude will lead to serious and expensive damage to your tissue, delay for a moment, KILL, and check over your work.

An easy method of doing this has been previously called, Back-off the entire system. Referring back to Figure 10.A, the outer wire or wire has been placed next to each joint or terminals. These numbers indicate the number of wires and bonds (including three from resistance apparatus) that have been removed from the joint. Then, again, by wire number, your assistant can check your work against the chart. When you count these leads going to joint 1 or 2, your helper will observe that you agree with his chart and place a small check mark on it. This will be continued until the entire system is checked over with only minor corrections or additions.

While your counting the wires, you can also be checking for short circuits and proper winding. It would be very handy if you had a lead with a short circuit within the coil. This would make a very handy check of the wire. If you have a short circuit, your helper will indicate it by a red (or other color) dot on the chart. If a short circuits is caught early, it involves a component which is now too short to reach the correct joint, refer to Fig. 8 on replacing a piece of bare wire. This will work quite well and eliminates the need for purchasing a replacement.

Final Assembly
PART 1

(Before beginning the final steps, plug the transformer, turn it on, and make sure it verifies on the specified voltage. If it does not verify, check your connections at the transformer. Make certain that there are no pins caught in the corners of the transformer case, as this could cause a serious short circuit.)

Position the booster in front of you as shown in Chapter 8. Connect your booster to pin 1, on the back of the meter (22). Connect the orange wire to pin 3, back of the meter (23).

There are two pilot light sockets. Plug in a pilot light to each socket. One has a wire attached to it and the other does not. Take the pilot light socket without the wire and connect the grey lead to the soldering, then proceed to one of the two holes on the back of the meter. Take one end of the grey wire from the meter and make sure no excess solder is being. Then, take the other end of the grey wire and connect the other hole of the meter. Clip the pilot light socket into the circuit in the back of the meter, by compressing the spring clips.

Mounting the front panel (refer to Figure 11). First, the meter around so that it faces you. Take the two spring clip fasteners and clip them over the two holes at the top of the front panel. The split portion of the fastener loop is then passed over the pin and the other end, pin 2, is held on by the front. Mount the back plate (front panel) over
the shells and snap up against the chassis. Thread the box set back over PI (figure 7) so that the panel goes on.

Pull the flat head machine screws and insert them through the holes in the front panel, then through the bracket, and secure them firmly into the aperture of the literature. Thread the PI (figure 7) in the same manner. The PI at the rear of the panel.

For the small nuts (V1) over the shell of PI. Tighten the nuts with the small screwdriver and have it pointing to "off".

Turn the dial shell (figure in the front panel) in an anticlockwise direction to "on". Take the plastic dial and insert the small set screw into the proper place in the dial. Mount the dial on this shell. Be sure that the dial is mounted on this shell. The small part with the windows ranging from 20 to 360° is nearly to the upper shell. The front surface of the dial shell should be put slightly in the front of the top of the upper shell.

Dial shell. It is very important that the dial set not swing against the panel when it is rotated as it will scratch it. Tighten the set screw, and slowly rotate to check the pressure. Tighten this set screw firmly. Make sure that it is not swinging against the front panel. If it is, loosen the set screw and pull the dial slightly away from the rear until it is set firmly. After this, rotate the dial back to "on". The dial should not swing against the panel when it is at the rear of the dial shell. After tightening the set screw, rotate the dial back to "on". The dial should not swing against the panel when it is at the rear of the dial shell. After tightening the set screw, rotate the dial back to "on".

Insert the tubes into the proper tube sockets. The tubes are all marked and the top of the upper shell has the type tube numbers identified as to location. Place the tube back over the PI (figure 6). The top of the tube should be aligned with the top of the channel. Remember the front side of the tube should have the tube number marking between the plastic lower and the back, remove the tube, and push the dial back slightly. After, take care to avoid scratching the front panel. Remember the tubing钮.
Aligning the Tuner

Two methods are provided for aligning the tuner; one is the universal H. H. Scott EZ-A-LINE® method which utilizes the memory of some laboratory test equipment, while all involving no test probes of any kind. The second method is the conventional process employing standard laboratory techniques and instrumentation, which is outlined in the Appendix under Theorems Notes.

For the EZ-A-LINE® method the following steps are necessary: A special alignment tool, a small amplifier, an RF choke, a variable RF choke, a variable RF choke, a RF choke, and an RF choke. The variable RF choke is adjusted until the desired output is obtained. The amplifier is adjusted until the desired output is obtained.

One end of the alignment tool is to be aligned with the IF transformers and the other end is to be aligned with the chassis. See Fig. 11. As part of the alignment adjustment, a very unique method has been devised wherein a pilot light is employed. To utilize this method, the following preparations are required:

1. Take the pilot light from the battery wire and connect it to the socket.
2. Connect the 6 volt wire provided to the end of the chassis wire. Make a mechanical connection; do not use terminal holes or sockets. 6 volt wire should be connected to the terminal holes or sockets.
3. Insert the pilot light into the socket. 6 volt wire should be connected to the terminal holes or sockets.

After the alignment has been accomplished, the pilot light will remain on the chassis. Be sure that the pilot light is not removed from the chassis. The antenna wire should be removed from the chassis. 6 volt wire should be connected to the terminal holes or sockets.

Connect the 6 volt wire to the transformer. The 6 volt wire should be connected to the terminal holes or sockets.

FIGURE 11.

...
Turn the switch on at the front panel of the meter to "ON". Make sure that all the relays and indicator lights are off before turning the switch on. The meter should now indicate a reading of 0. If it does not, check the wiring and connections. If the meter still does not indicate anything, check the fuse or relay to see if it is blown or open. If the fuse or relay is good, check the meter's coil or winding for shorts or opens.

A Normal mode—if you are in an area where there are no strong signals, you will hear a steady tone and see a steady reading on the meter. The tone will indicate the frequency of the signal being received, and the reading will indicate the strength of the signal.

B Normal/High mode—if you are in an area with some strong signals, you will hear a very low tone and see a very low reading on the meter. The tone will indicate the frequency of the signal being received, and the reading will indicate the strength of the signal. The tone will be lower than in the normal mode, and the reading will be lower than in the normal mode.

C Extreme range mode—if you are in an area with extremely strong signals, you will hear a very high tone and see a very high reading on the meter. The tone will indicate the frequency of the signal being received, and the reading will indicate the strength of the signal. The tone will be higher than in the normal mode, and the reading will be higher than in the normal mode.

D External speaker mode—if you are in an area where there are no other strong signals, you will hear a steady tone and see a steady reading on the meter. The tone will indicate the frequency of the signal being received, and the reading will indicate the strength of the signal. The tone will be lower than in the normal mode, and the reading will be lower than in the normal mode.

E Before proceeding, test the meter to see if it is in good condition. Make sure that the meter is still working properly. If it is not, check the wiring and connections. If the meter is still not working properly, check the fuse or relay to see if it is blown or open. If the fuse or relay is good, check the meter's coil or winding for shorts or opens.

F Carefully adjust the tuning knob so that the meter is in its highest position for the desired band. It is recommended to make up and down adjustments of the tuning knob to avoid overheating the meter. You can turn the meter on and off by turning the switch to the desired position for the particular station.

G FIGURE 11

H Insert the SP alignment tool (see Fig. 11) into the SP alignment tool, and connect the power to the SP alignment tool. If the SP alignment tool is not working properly, check the power supply or the SP alignment tool. If the SP alignment tool is still not working properly, check the wiring and connections. If the SP alignment tool is still not working properly, check the fuse or relay to see if it is blown or open. If the fuse or relay is good, check the SP alignment tool's coil or winding for shorts or opens.
Insert the IF alignment rod into the top of TF and rotate for highest reading in step 5. Mark the position of the rod. Then insert the IF alignment rod horizontally through the center of the two meters. If nothing is set, then it will probably have come up to a higher reading if it is set "Y." Then it would be a good idea to insert the IF alignment rod vertically into the center of the two meters. On the bottom line, then it should be a position to TF and rotate the IF alignment rod to have a lower reading.

Carefully remove the tag that slightly to measure. You are still getting the highest reading on the meter. Insert the IF alignment rod vertically into the center of the two meters. Rotate the IF alignment rod to have a lower reading.

Insert the top of TF and rotate for highest reading.

Remov the IF alignment rod to remove. You are still getting the highest reading in the same. Insert the top of TF and rotate for highest reading. Setting for the lowest reading in the center of the two meters. Check the IF alignment rod to have a lower reading.

On top of the energizer, being that one, and insert the IF alignment rod vertically into the center of the two meters. Rotate the IF alignment rod to have a lower reading. Set the IF alignment rod to have a lower reading. Set the IF alignment rod to have a lower reading.

If necessary, remove the IF alignment rod from the top of TF and rotate the IF alignment rod to have a lower reading. Set the IF alignment rod to have a lower reading.

**FIGURE 14.**

**Detector Alignment Procedure**

Insert the IF alignment rod into the top of TF and rotate for highest reading in step 5. Mark the position of the rod. Then insert the IF alignment rod horizontally through the center of the two meters. If nothing is set, then it will probably have come up to a higher reading if it is set "Y." Then it would be a good idea to insert the IF alignment rod vertically into the center of the two meters. On the bottom line, then it should be a position to TF and rotate the IF alignment rod to have a lower reading.

Carefully remove the tag that slightly to measure. You are still getting the highest reading on the meter. Insert the IF alignment rod vertically into the center of the two meters. Rotate the IF alignment rod to have a lower reading.

Insert the top of TF and rotate for highest reading.

Remov the IF alignment rod to remove. You are still getting the highest reading in the same. Insert the top of TF and rotate for highest reading. Setting for the lowest reading in the center of the two meters. Check the IF alignment rod to have a lower reading.

On top of the energizer, being that one, and insert the IF alignment rod vertically into the center of the two meters. Rotate the IF alignment rod to have a lower reading. Set the IF alignment rod to have a lower reading. Set the IF alignment rod to have a lower reading.

If necessary, remove the IF alignment rod from the top of TF and rotate the IF alignment rod to have a lower reading. Set the IF alignment rod to have a lower reading.

There is a very simple method of checking the IF alignment in step 5. You can check the center of the two meters and see the highest position where the position is met.

If you are checking the center of the two meters and see the highest position where the position is met, then you should not have a problem. If you are checking the center of the two meters and see the highest position where the position is met, then you should not have a problem. If you are checking the center of the two meters and see the highest position where the position is met, then you should not have a problem.
Turn the volume on your amplifier. Disconnect the speaker leads from the speaker terminal on the rear of the amplifier. (Note: some people may question the safety of operating an amplifier without a speaker load. All HI-HI filters are completely safe so one can be operated safely without a load. If you are using amplifiers of other manufacturers and you are not sure of their safety, leave the speaker connected and simply connect the pilot light socket over the speaker terminals.)

Take one end of the 4 wire to the wrong coming from the pilot light socket; then connect the other end to the 12 volt terminal on your amplifier. If your voltmeter has over 10 watts of output, you may want to connect to either the 9 volt or 4 volt terminal to avoid the possibility of burning out the light bulb. If you find that you cannot get the bulb to light up at these lower voltages, then move next to 12 volts.

Take the pilot light socket and suspend it in between the shaded area of the front and turn it clockwise one of the 2P transformer units as shown in Fig. 11. Then the amplifier should reach 15. The base control should be set to minimum (extreme clockwise) and the loud control to minimum (extreme clockwise).

Turn the tuning dial to the lowest point on the dial (below 50). Make sure that you are not picking up a station at this point. Reduce any noise, insert the detector alignment bracket into the top of TV. Rotate the slug counter clockwise until the slug is reached on the extreme end of the rotation. Be careful as detectors are fairly fragile. Turn up the volume on the amplifier until the pilot light begins to glow dull. Rotate the slug clockwise. You will observe that the bulb gets brighter and slower in response until the point is reached at the second end. Be careful that you do not overdrive the tube by turning the much volume from your amplifier. The effect will be similar to that depicted in Graph 1.

Graph 1

Stop testing at the bright spot in the middle. It is worth noting that the difference in loudness between the two high points may be quite great. Nevertheless, if the effect is similar to Graph 1, stop at the middle point.

Fortunately, the detector will exhibit any two bright points, such as in Graph 2.
Final Assembly

PART II

![Diagram of the assembly process]

**Note:** The steps below assume that you have already assembled the components as described in the book or manual. If not, consult the instructions provided.

1. **Insert the Components:** Make sure all parts are aligned correctly. Refer to the diagram for guidance.

2. **Secure the Components:** Use the provided screws to attach the parts securely. Ensure that all bolts are tightened evenly.

3. **Adjust the Tension:** Make sure the tension is set correctly for smooth operation.

4. **Test the Assembly:** Run a few tests to ensure everything is working as expected.

5. **Final Inspection:** Check for any loose parts or malfunctions. Make any necessary adjustments.

---

**Installation Manual**

*For further assistance, please refer to the manual provided with your purchase.*

---

*Illustration of the final assembly process.*

---

*Step-by-step guide to completing the final assembly process.*

---

*Final assembly process diagram.*
Congratulations!

Now — copy your personal line: "This kit was built by ————, turn your name at ———— and file to one of the blank E/A blanks above.
In Case of Difficulty

No matter how careful you are, a mistake is possible. Don't panic! First, make sure each item is in the proper location. Then refer to the assembly notes and check off each step with the written instructions and the illustrations. In the event of difficulties, your approach may disclose mistakes that you might be consistently overlooking. While checking for errors, carefully note each and every wire, lead, component, and part, to make sure there are no

In case the fuse has blown (this will not light up) it is very likely that there is a short circuit. Replace the fuse immediately, turn off the power, and then carry the service note in the pocket and call the factory.

In case the unit lights up but does not operate properly, voltage replacements are supplied as the new batteries are inserted and the voltage replacement (VTR) case is closed according to the instructions in the service note on the factory. If the unit is to be used as a test unit, be sure to

If none of the above suggestions help in solving your problem, you should write to our Laboratory Kit Service Dept. for prompt assistance. There is no charge for this help. The engineers in this department are thoroughly familiar with all aspects of the kit, and can probably solve the cause of the trouble.

Service

When all else fails the facilities of the H. H. Scott Laboratory Kit Service Department and the repair stations are available to you. You will be charged a fee of $10.00 for each unit that is returned either to the factory for a warranty claim within the warranty period. This will be deducted from any additional charges. The service note must be enclosed. If the unit is still within the 90 day warranty period (as described in the Warranty Policy below), then the charge for parts will be recovered by this policy. A list of warranty service stations is included with this kit.

Many H. H. Scott dealers have service facilities and are fully equipped to repair this kit. These devices are not designed for your home, office, and should not be operated outside the warranty period. The warranty will not be accepted. Instruments showing the use of Fuses and solid-state solder will also not be accepted.

Warranty

To protect your investment, H. H. Scott, Inc. warrants that for a period of three months from the date of purchase, all parts shall be free of defects in material and workmanship under normal use and service. During this period, the manufacturer, H. H. Scott, Inc., will replace any parts which are found to be defective. However, these warranties do not apply to parts damaged during the course of handling and/or assembling the kit. No other warranty, either expressed or implied, shall apply to this unit.
Service Hints for Model LT-10 Wideband FM Tuner

SERVICE SPECIFICATIONS

These service hints, and all Technical Notes, are to be used only by authorized dealers, service centers, or factory service. No person other than an authorized dealer or service center may attempt to service this equipment.

1. Power Input: 120 VAC, 60 Hz
2. Power Consumption: 10 W
3. Humidity: 0% to 90%
4. Temperature: 0°C to 40°C
5. Altitude: 0 to 2000 meters
6. Operating Range: 88 to 108 MHz

DO NOT OPERATE WITH DIRECT CURRENT.
GENERAL SERVICE NOTES

Never, other than replacement of either pilot lights or recent time is readily not netted. If the radar cannot be used or repaired, the test should be continued to the 60th point and then terminated. The 60th point is the point where the difficulty is in the antenna. While it is often an indication that the problem is caused by the antenna, it is also a good indication that the problem may be caused by other equipment if the problem was not first noticed in the 4th point.

4. If the difficulty is in the antenna, it is often possible to make repairs to the antenna with the help of a known test point (4th point). If the difficulty is not repaired, further testing should be made to isolate the problem. The problem could be caused by any of the following:
   a. The antenna is not properly installed.
   b. The antenna is not properly adjusted.
   c. The antenna is not properly tuned.
   d. The antenna is not properly maintained.
   e. The antenna is not properly calibrated.
   f. The antenna is not properly aligned.
   g. The antenna is not properly shielded.
   h. The antenna is not properly protected.
   i. The antenna is not properly insulated.
   j. The antenna is not properly grounded.
   k. The antenna is not properly supported.
   l. The antenna is not properly vented.
   m. The antenna is not properly cleaned.
   n. The antenna is not properly tuned.
   o. The antenna is not properly shielded.
   p. The antenna is not properly protected.
   q. The antenna is not properly insulated.
   r. The antenna is not properly grounded.
   s. The antenna is not properly supported.
   t. The antenna is not properly vented.
   u. The antenna is not properly cleaned.
   v. The antenna is not properly tuned.
   w. The antenna is not properly shielded.
   x. The antenna is not properly protected.
   y. The antenna is not properly insulated.
   z. The antenna is not properly grounded.
   aa. The antenna is not properly supported.
   bb. The antenna is not properly vented.
   cc. The antenna is not properly cleaned.
   dd. The antenna is not properly tuned.
   ee. The antenna is not properly shielded.
   ff. The antenna is not properly protected.
   gg. The antenna is not properly insulated.
   hh. The antenna is not properly grounded.
   ii. The antenna is not properly supported.
   jj. The antenna is not properly vented.
   kk. The antenna is not properly cleaned.
   ll. The antenna is not properly tuned.
   mm. The antenna is not properly shielded.
   nn. The antenna is not properly protected.
   oo. The antenna is not properly insulated.
   pp. The antenna is not properly grounded.
   qq. The antenna is not properly supported.
   rr. The antenna is not properly vented.
   ss. The antenna is not properly cleaned.
   tt. The antenna is not properly tuned.
   uu. The antenna is not properly shielded.
   vv. The antenna is not properly protected.
   ww. The antenna is not properly insulated.
   xx. The antenna is not properly grounded.
   yy. The antenna is not properly supported.
   zz. The antenna is not properly vented.
   aaaa. The antenna is not properly cleaned.
   bbbb. The antenna is not properly tuned.
   cccc. The antenna is not properly shielded.
   dddd. The antenna is not properly protected.
   eeee. The antenna is not properly insulated.
   ffff. The antenna is not properly grounded.
   gggg. The antenna is not properly supported.
   hhhh. The antenna is not properly vented.
   ii. The antenna is not properly cleaned.
   jjj. The antenna is not properly tuned.
   kkkk. The antenna is not properly shielded.
   llll. The antenna is not properly protected.
   mmmm. The antenna is not properly insulated.
   nnnn. The antenna is not properly grounded.
   ooo. The antenna is not properly supported.
   pppp. The antenna is not properly vented.
   qqqq. The antenna is not properly cleaned.
   rrrr. The antenna is not properly tuned.
   sss. The antenna is not properly shielded.
   tt. The antenna is not properly protected.
   uu. The antenna is not properly insulated.
   vv. The antenna is not properly grounded.
   ww. The antenna is not properly supported.
   xx. The antenna is not properly vented.
   yy. The antenna is not properly cleaned.
   zzzz. The antenna is not properly tuned.
Packing for Shipping

If it becomes necessary to return the unit to the factory, it is possible to use your Kit Pak container for shipping. Remove the two end caps from the unit, find the two wooden braces, and screw them into the two holes on the bottom of the box. This will hold all the parts. Place the unit into the box as is. If the unit is to be shipped to a distant point, place the box into a large box so that it will not be damaged during shipping.

Installations

The U-100 can be placed on a table or bookshelf, in existing furniture like an entertainment center, or in a specially designed unit. A separate lid is included so that the unit can be enclosed in a cabinet.

Whenever the U-100 is placed, adequate provisions should be made for ventilation. If this is not done, heat will build up and the life of the internal components will be greatly shortened. Be sure that all air can circulate freely around the unit and behind the unit where any heat accumulates. If it is placed in a cabinet, an open back is always recommended. The metal have about 300 watts of electricity and if placed in a cabinet, an open back is always recommended.

Connections

POWER

The power cord should be plugged into any 110 or 220 volt, 60 or 50 cycle, AC source. Do not attempt to use with DC. If the amplifier has an external power outlet, you should use it.

ANTENNA

An FM tape antenna is supplied with the unit. In most strong signal areas this should be more than adequate to pull in all the FM stations available. If you live in an area where you have occasional trouble, a metal rod antenna is recommended. This will have to be placed outside the house and run through a window to the receiver. The wire should be wrapped around the back of the unit and wound around the knobs to get the signal in best.

In those areas where there are weak signals, an external antenna may be necessary. This can be either a commercial type or homemade. If the TV antenna is used, make sure that it is not one of those designed to avoid the FM band. This will definitely not give satisfactory results. A short, flat parallel washer may help to get a good ground. If the TV antenna is used, make sure that it is not one of those designed to avoid the FM band. This will definitely not give satisfactory results. A short, flat parallel washer may help to get a good ground.
Description and use of Controls

**Radio Sticks**

Relaxation of this control during tuning will harm the listener.

**ANTENNA RECEPTION**

The receiver H. H. Scott radio tuning dial is electromagnetic-based to see and read. It permits you to select the desired station quickly. A high-grade coil is provided for hearing stations that are common to the receiver. The black knob is turned to the station to which the tuning condenser was tuned. Tinted condenser will be maintained indefinitely.

**TUNER SWITCH**

The tuning coil measures about the average strength of the receiving station. Twine a station, write the dial until the signal sounds maximum and minimum to reduce the range. Tuning will vary from station to station depending on signal strength.

The meter was designed for sensitive action, and it will indicate power differences in level for different stations. The meter will indicate how near the receiver is to the station. A small station may produce a difference in meters running on different shows. This only indicates relative station due to atmospheric conditions or changes in the PM system's transmission.

**Level Control**

The level control is located on the knob S-150 and is self-adjusting itself. It is extremely well adapted to automatic gain control of the S-150, will permit you to take it apart as well as to reduce station without having to maintain the volume. The level control should be set at the position where the noise in the receiver is less than it is in the broadcast.

**Choosing your Amplifier**

Your new PM tuner is the finest tuner kit on today’s market. It is designed with the provision that has made the name H. H. Scott a synonym for quality in its component. If you are a beginner and want to buy your first amplifier, you may consider it a perfect match for your type of radio. Ask your dealer to supply it with the front panel to match the S-150.
H.H. Scott...

a history of leadership in the Acoustic field

To insure that every H. H. Scott component meets the highest standards of quality, H. H. Scott maintains this ultra modern plant for the design and manufacture of audio equipment.

This new plant, located in Maynard, Massachusetts, includes a machine shop, clean room facilities, test and transducer department, electrical assembly department and fully equipped laboratories for design and research.

The engineering department is staffed by 12 graduate engineers who are primarily concerned with developing new and better components for high fidelity equipment.

Every high fidelity component receives over 60 electrical and mechanical tests before it leaves the factory. Special electrically shielded “anemos rooms” are used for aligning FM tuners. There are life test facilities where components are run for thousands of hours under strict controls to test their durability.

These extensive investments in facilities back up H. H. Scott’s philosophy that there will never be any compromise with quality.