

## Cable Fault Location System - Aerial Fault Location Quick Reference

This quick reference provides abbreviated guidelines on the use of the Cable Fault Location System (Snoopy) for locating Aerial resistive cable faults.

### 1. SAFETY

**All prescribed safety precautions and procedures must be observed while using the SR-101 equipment. Failure to do so can result in serious injury or death.**

### 2. TYPES OF FAULTS

The following resistive faults may be located:

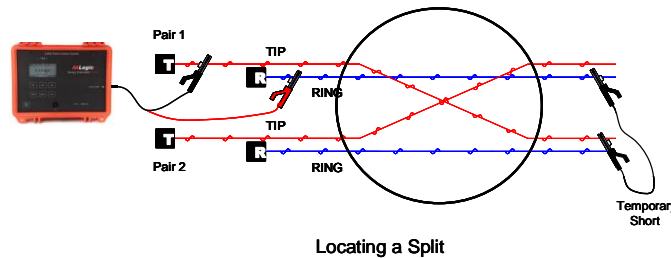
- Short Tip connected to Ring
  - Cross Tip or Ring of one pair is connected to the Tip or Ring of another pair
  - Split Tip or Ring of one pair is split with the Tip or Ring of another pair
- ✓ The cable length beyond the fault should be as short as possible.

### 3. FAULT PRE-TESTING

The technician must identify the type of fault, estimate the distance, and section the pair(s) using local practice procedures. The far end of the section should be less than 35% of the section length if possible.

### 4. PAIR SPLITS

The diagram below shows a split and how to place temporary short at the far end of the section and connect the transmitter clips.



### 5. FAULT LOCATION

Transmitter Setup	<ol style="list-style-type: none"> <li>1. The ST-101 should be positioned at one end of the cable section. The length past the fault, the far-end opposite the transmitter, should be minimized, to reduce carry-by of the tone.</li> <li>2. Connect the transmitter clips to the fault as follows: <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #333; color: white;"> <th style="padding: 2px;">Fault</th> <th style="padding: 2px;">Connections</th> </tr> </thead> <tbody> <tr style="background-color: #eee;"> <td style="padding: 2px;">Short</td> <td style="padding: 2px;">Tip and Ring of the shorted pair.</td> </tr> <tr> <td style="padding: 2px;">Cross</td> <td style="padding: 2px;">The two wires that are crossed</td> </tr> <tr style="background-color: #eee;"> <td style="padding: 2px;">Split</td> <td style="padding: 2px;">The split wires. See paragraph 4.</td> </tr> </tbody> </table> </li> <li>3. The transmitter "Auto-Set" function serves as a general guideline for frequency and [LEVEL] settings.</li> <li>4. Turn on the transmitter and use Auto-Set for the transmitter initial frequency and power settings or use 335Hz. The <b>PWR OUT</b> indication should be near mid-scale.</li> <li>5. The following guidelines help manually adjust the frequency based on the cable section length if needed: <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #333; color: white;"> <th colspan="7">Resistance Limits In Ohms (<math>\Omega</math>)</th> </tr> <tr style="background-color: #eee;"> <th colspan="7">Section Length (Feet)</th> </tr> <tr style="background-color: #eee;"> <th style="padding: 2px;">Freq (Hz)</th> <th style="padding: 2px;">500</th> <th style="padding: 2px;">1000</th> <th style="padding: 2px;">5000</th> <th style="padding: 2px;">10000</th> <th style="padding: 2px;">20000</th> <th style="padding: 2px;">40000</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;"><b>145</b></td> <td style="padding: 2px;">95,900</td> <td style="padding: 2px;">48,000</td> <td style="padding: 2px;">19,200</td> <td style="padding: 2px;">9,600</td> <td style="padding: 2px;">4,800</td> <td style="padding: 2px;">2,400</td> </tr> <tr> <td style="padding: 2px;"><b>335</b></td> <td style="padding: 2px;">41,500</td> <td style="padding: 2px;">20,800</td> <td style="padding: 2px;">8,300</td> <td style="padding: 2px;">4,200</td> <td style="padding: 2px;">2,100</td> <td style="padding: 2px;">1,000</td> </tr> <tr> <td style="padding: 2px;"><b>577</b></td> <td style="padding: 2px;">24,100</td> <td style="padding: 2px;">12,100</td> <td style="padding: 2px;">4,800</td> <td style="padding: 2px;">2,400</td> <td style="padding: 2px;">1,200</td> <td style="padding: 2px;">600</td> </tr> <tr> <td style="padding: 2px;"><b>987</b></td> <td style="padding: 2px;">14,100</td> <td style="padding: 2px;">7,000</td> <td style="padding: 2px;">2,800</td> <td style="padding: 2px;">1,400</td> <td style="padding: 2px;">700</td> <td style="padding: 2px;">400</td> </tr> <tr> <td style="padding: 2px;"><b>2000</b></td> <td style="padding: 2px;">7,000</td> <td style="padding: 2px;">3,500</td> <td style="padding: 2px;">1,400</td> <td style="padding: 2px;">700</td> <td style="padding: 2px;">300</td> <td style="padding: 2px;">200</td> </tr> </tbody> </table> </li> </ol>	Fault	Connections	Short	Tip and Ring of the shorted pair.	Cross	The two wires that are crossed	Split	The split wires. See paragraph 4.	Resistance Limits In Ohms ( $\Omega$ )							Section Length (Feet)							Freq (Hz)	500	1000	5000	10000	20000	40000	<b>145</b>	95,900	48,000	19,200	9,600	4,800	2,400	<b>335</b>	41,500	20,800	8,300	4,200	2,100	1,000	<b>577</b>	24,100	12,100	4,800	2,400	1,200	600	<b>987</b>	14,100	7,000	2,800	1,400	700	400	<b>2000</b>	7,000	3,500	1,400	700	300	200
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Receiver Setup	<ol style="list-style-type: none"> <li>1. Connect the DHC-100 or other compatible hand coil, to the receiver.</li> <li>2. Turn on the receiver and select <b>Aerial [F1]</b> or <b>[F3] Aerial SP</b> from the main screen.</li> <li>3. Select <b>[F1]</b> to highlight <b>Freq</b> on the display if needed. Use <b>↓ [F2]</b> or <b>↑ [F3]</b> to select the frequency matching the transmitter.</li> <li>4. Place the coil on the cable at least ten feet from the transmitter. Press <b>[F1]</b> to select <b>Gain</b> and use <b>↓ [F2]</b> or <b>↑ [F3]</b> to adjust the gain and obtain a reading of 70% to 90%, as indicated on the display. Adjust the transmitter power <b>[LEVEL]</b> setting, if necessary, to obtain this reading. A different frequency <b>[FREQ]</b> may also be used if needed.</li> <li>5. Adjust <b>Volume</b> to a comfortable level. A headphone may also be connected if desired.</li> <li>6. Press <b>[F3]</b> for Natural or Simulate Sound. Select the Sound that is the most desirable to the user.</li> </ol>
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## 6. LOCATING THE FAULT

1. Sample the cable at intervals. With the hand coil on the cable, scan a 3' to 4' area and find the peak signal.
2. Monitor the signal amplitude on the receiver display and sound from the speaker. The signal indication/volume will rise and fall as the hand coil is moved along the cable. This is due to the twist in the cable. The fault location is indicated by a significant **DECREASE** in signal after passing the fault for a SHORT or CROSS. A SPLIT produces a significant **INCREASE** in signal when passing the fault.
3. If the signal is present and no significant change in strength, move to the next location closer to the fault.
4. The hand coil can be moved back to the transmitter side to confirm the fault location.
5. If the fault cannot be identified, repeat the location process with the next lower frequency on the transmitter and receiver and/or increase the power level at the transmitter or use the Aerial SP mode.
6. In addition to the indications described above, when using **Aerial SP** mode, use the **PS:** indication, *arrows*, and the *blocks* at the bottom of the graph as an additional aid for determining fault location.
  - a. **Before the fault:**  
PS:  $\leq 80$ ,  $\downarrow$ , and no blocks along the bottom of the graph.
  - b. **After the Fault:**  
PS:  $\geq 85$ ,  $\uparrow$ , and block along the bottom of the graph.

