S & C
DISTRIBUTION COMPANY

Model 344 Short Finder Plus & Spectrum Analyzer (July 31, 2021)

FIND TRACK CIRCUIT SHORTS
Shorted Insulation, Banding Hidden in Ballast, Shorted Bridge Deck or Retarder Insulation, Contaminated Ballast

Test Track Insulation.

Can Be Used to Locate Line or Cable Shorts.

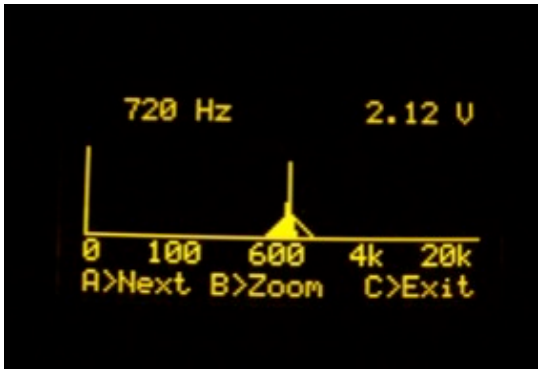
Locate High Resistance Bonds.

Determine Ballast "Quality".

Test Resistance of Testing Shunts.

Determine Voltage of Track Circuits, Both AC & DC.

Using the Spectrum Analyzer, Determine Frequency and Voltage Level of Any AC Signal On the Track



TO THE LEFT - Spectrum Analyzer graph of signal detected on the on the track. The Cursor "/|\" is on the peak AC volts at 720Hz and the level is displayed as 2.12 VAC. Zero hertz signal (DC) is also shown.

Immune to 120VAC.

Does Not Short Out Overlay, Crossing Warning Control Devices or Any Other AC Signal.

GENERAL

The Model 344 Short Finder and Spectrum Analyzer is designed to assist in quickly locating track circuit shorts and opens. The presence of a short is easily determined through normal signal troubleshooting techniques, but it can take long hours of trial and error work before the actual shorted component is identified. Not with the Short Finder. In the hands of expert or novice, the Model 344 Short Finder can reduce trouble-shooting time substantially. The Short Finder is an excellent tool for testing track insulation. It can also be used to locate high resistance track wire and signal bond connections; areas of bad ballast, shorted lightning arrestors, and to test signal testing shunts for proper resistance. A Spectrum Analyzer is also included that will identify frequencies and their voltage levels of the AC that you know is on the track as well as the AC that you don't know is there.

APPLICATION

The unit provides two user selected frequencies (3 Khz and 24 Khz) to feed into the suspect item or area, and boots up with the 24KHz frequency active. Use this frequency for work in turnouts, interlocking plants, when you get close to the short on longer track circuits, measuring ballast resistance, etc. Use the 3.0KHz frequency to reach out on longer track circuits to look for shorts, and to test signal testing shunts. Readings in ohms of the short will be displayed on the screen under the bar graph. Up to five (5) readings can be recorded and displayed on the screen for comparison. The higher the bar graph reading (the lower the ohms, the closer you are to a short. By using an illuminated (OLED display) readout, the meter is easily read in the dark. To create a shadowed area for the display in bright sunlight, ACHC Sun Shields are provided.

To assist the user in determining whether he is dealing with a short or open, the Short Finder is also equipped with an AC/DC voltmeter (range limited 0-17V) and selectable Spectrum Analysis function for detecting overlay, motion detector, and constant warning time device frequencies and the presence of 50/60Hz AC, on the track. In the case of the voltmeter, should the voltage measured exceed 17 volts, the voltage display will read "OVER" (meaning the voltage detected exceeds the range of the meter).

A padded, zippered nylon carrying case is furnished as well as our Universal Battery Charger. Optional accessories are listed on the last page of this brochure. These accessories allow the taking of readings through rust, grease, or other rail contaminants without filing. Rail Clamp Connector Sets are also available to attach the Short Finder to the rail, around insulated joints, etc., and are equipped with either head or base of rail clamps.

SPECIFICATIONS

I. Voltage Tolerance without damage all inputs: DC up to 250V, AC up to 160V.
II. Short Finder:
    A. Test Frequencies:
        1. 3.0 KHz
            a) Track 1,500 to 3000 Ft.
            b) Line Approx. 1 Mile.
        2. 24.0 KHz
            a) Track 150 to 300 Ft.
            b) Line Approx. 1000 Ft.
    B. Output Impedance: Approximately 4 Ohms at 3.0 KHz and 24.0 KHz.
    C. Short Indication: Bar Graph and Ohms Readout.
III. Voltmeter & Spectrum Analyzer:
    A. Frequency Range: 0 Hz (DC) to 20 kHz
    B. Low End Sensitivity: .070 Volts or -20 dB
    C. IV. Voltage:
        1. DC Voltage Display limited to a maximum of 17VDC
        2. AC Voltage Display limited to a maximum of 17VAC and 20Hz to 20,000Hz.
IV. Operating Battery: 12V 1.2AH Gel Cell (Internal)
    A. Temperature: -40 to +140F (-40 to +60C) within the constraints of the Lead Acid Battery.
    B. Low Op. Battery Voltage Indicator: Battery Voltage displayed continuously on screen when unit is on. Unit advises Low Battery at 11.5V
    C. To protect the battery from freezing, the unit will allow you to work only to a battery voltage of 11.2 Volts if the temperature is below -20C or -4F.
    D. Otherwise the unit will work down to a battery voltage of 10V if the temperature is higher than -20C or -4F.
    E. When the battery voltage drops to the 10V or 11.2V level DEPENDING ON TEMPERATURE, the screen will display “Turn Unit Off and Recharge” and will not display any other readings.
V. Physical Dimensions: 7.6” X 4.4” X 3.6” without case.
VI. Leads: 4 foot long rubber insulated, with probes, CAT III
VII. Carrying Case: Zippered, Padded Nylon with carrying handle.
VIII. Battery Charger: Universal Charger, 100 to 250VAC, 50/60Hz to 12VDC, 1.2A for internal battery.