

Service Tips

120-Volt Romex—Identification Information

Part 1 in a 2 part series

In 1987, Winnebago Industries adopted a process of printing “wiring identification information” on the 12-volt DC wiring. The primary goal of this extra step was to simplify the manufacturing and assembly process of the motor home, but it has also proven very beneficial for those performing service repairs as well.

The information provides details including the gauge of the wire, the wire harness part number the wire is a part of, and the “intended purpose” or specific function of the wire. The Winnebago Industries wiring diagrams and installation drawings include this wiring I.D. information.

Until recently, we have not had the same advantages or benefits with the 120-volt wiring. Circuit identification and tracing a specific circuit proved difficult because all gauges (i.e., AWG 14, AWG 12 and AWG 10) of romex had a white PVC insulation jacket.

Adding to the tracing difficulties, the NEC electrical code requires all exposed high-voltage wiring to have a convolute tubing (or skin) to protect the wiring. In recent years, the manufacturing pre-prep areas started to identify specific circuits by applying a variety of colored tape near the ends of the wire. While this provided benefits to manufacturing personnel, it did very little to aid service technicians with repairs to the 120-volt system.

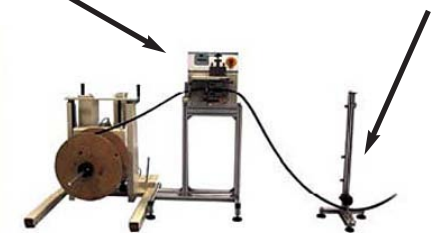
New Process

A new process was initiated with the startup on 2007 models. Nearly all of the 120-volt romex in the motor home is now identifiable with a combination of color and text. Each wire gauge is now identifiable by the color of the PVC insulation jacket and similar to the 12-volt wiring, the text printed on the wire insulation jacket identifies the “intended purpose” of the wire or specific function.



Figure 2

Prefeeder 4000 Feed Rate Control



PreFeeder 4000
PreFeeding System

Figure 3

The Process

The “bulk” romex uncoils off the spool directly into a wiring “prefeeder.” In conjunction with the prefeeder, is another device that controls the “feed rate” of the wire to the printer station. The MegaStrip 9600 assists the wire-feed process by pulling the romex toward the cutter head. See Figures 2 and 3 above.

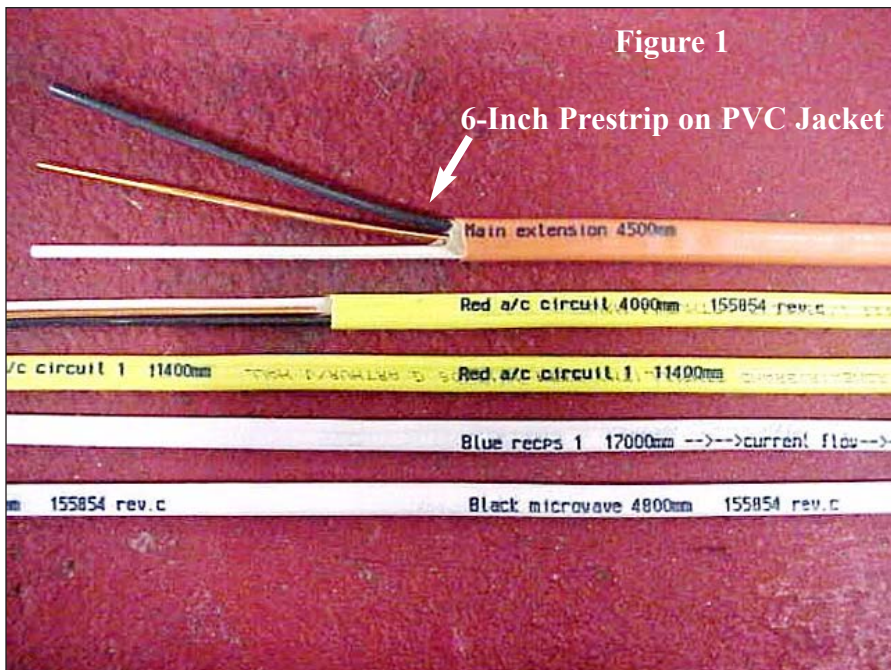
Printing Process

An “inkjet” printer prints the text information on the PVC protective jacket every three inches. The romex passes under the printer head at an average rate of 8 feet per second. See Figure 4, next page.

Cutting and Stripping

The MegaStrip 9600 cuts the romex

Continued on next page—



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to the predetermined lengths and pre-strips the PVC jacket at each end. See **Figures 1 (previous page) and 5.**

NOTE: The PVC jacket on the romex is stamped with information including the gauge of wire, the voltage limitations and “identifiers” that dictate the usage or limitations for the romex (i.e., interior applications versus an in-conduit, temperature restrictions/ratings on the wire insulation, etc.)

See the November issue of *WIT Club News* for part two on the romex identi-



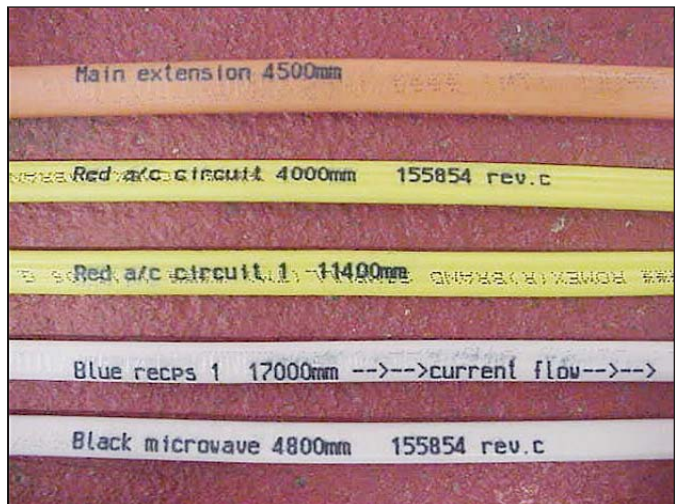
Inkjet Printer
Inkjet Wire Marking Solutions
Figure 4

fication information related to drawings and diagrams for motor homes.



MegaStrip 9600
Automatic Cutting and Stripping Machine
Figure 5

Figure 6



Orange PVC Jacket

AWG 10 Wire—30 Amp.—Typically a Power Supply

Yellow PVC Jacket

AWG 12 Wire—20 amp.—air Conditioning Circuits, Energy Management System, Washer/Dryer, Water Heater

White PVC Jacket

AWG 14 Wire—15 Amp.—Receptacles, Refrigerator, Microwave Oven

The photo in **Figure 6** shows several examples of romex with different information printed on each. This information is printed every three inches for easy identification and tracing. What does this information tell us?

1) Note the text on the second to the bottom AWG 14 wire. It calls out “Blue Recps. 1” and 17,000 mm. Additionally there are arrows and “current flow” comments. This information is indicating the following:

- The “Blue” labeled 15-amp. circuit breaker in the 120-volt load center is providing power to this romex.
- The romex is 17,000 mm long (divide 17,000 by 25.4 =669.29 inches)
- Arrows indicate the power flow away from the load cen-

ter (beneficial for proper wiring of GFCI outlets)

2) Note the text on the bottom AWG 14 wire. It calls out “Black Microwave” and 4800 mm. It continues on with the Number 155854 and Rev. C. This information is indicating the following:

- The “Black” labeled 15-amp. circuit breaker in the 120-volt load center is providing power to this romex.
- The romex is 4800 mm in length (188.97 inches long).
- The 155854 is a reference to a “wire assembly drawing part number” and the Rev. C is a revision code. The code information identifies a wiring change(s) with the wire assembly and is intended for factory use.

Service Tips for WIT Club News

If you have a topic you would like to see discussed in the Service Tips column in the future, please send your suggestions to the *WIT Club News* magazine: by email, witclubnews@winnebagoind.com.