UNITED TECHNOLOGIES CARRIER

Commercial Division
Carrier Corporation

BULLETIN: CA-SB-19-C-56-2
DATE: 10/23/56
PAGE: 1 OF: 2

SERVICE BULLETIN

SUPERSEDE BULLETIN:
DATE:
PAGE: OF:

SUBJECT:

MOTOR AMPERAGE READINGS

PURPOSE

To provide information on how to properly interpret amperage readings.

MACHINES AFFECTED

19C machines.

INFORMATION

When calibrating the motor overload module and setting relay CR_2 to cut out at 100% of rated motor amperage (as shown on the motor nameplate), it is important that the amperage reading be properly interpreted. The reading on the clamp-on ammeter will vary according to its location in the wiring circuit. The following shows the readings to be expected with various arrangements:

3.1 Star-Delta Starter

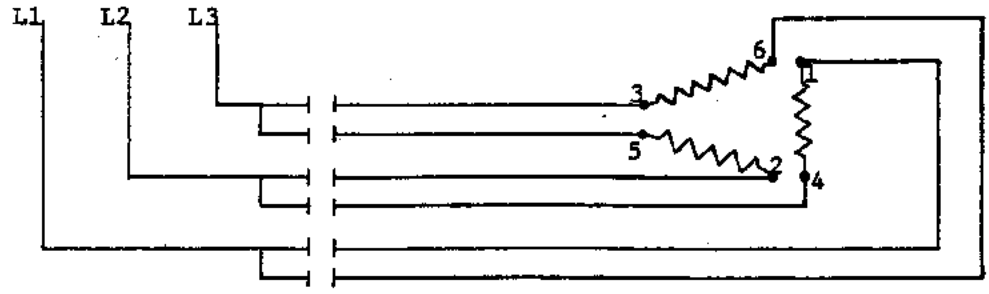

Fig. 1

When the motor is drawing 100% of its rated amperage:

Current measured in L1, L2, and L3 will be 100% of rated amperage.

If the current is measured in one of the six motor leads, as is the general case, this current is equal to 100% motor amp, divided by the square root of three. (The square root of 3 is 1.74.)

EXAMPLE: Motor rated at 500 amp.

Lines L1, L2, and L3 will each have 500 amp.

Each of the six motor leads will carry 500 amp divided by 1.74, which equals 287 amp (approximately) at 100% rated motor amp.

NOTE: To determine the reading to be expected on any one of the six lines when the motor is drawing full amperage, divide the rated amperage by 1.74. To determine the amperage being drawn by the motor, check the current in any one of the six lines and multiply by 1.74.

Across-the-Line and Step Starter

When separate leads are brought to each of the six motor terminals and the terminals are not tied together at the motor, the above instructions on start-delta starters will apply.

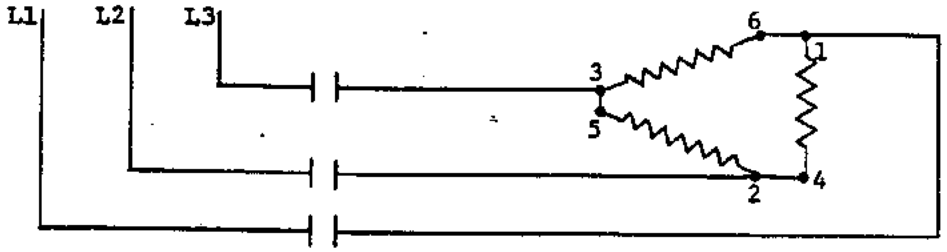

Fig. 2

If three leads are brought to the motor and the motor terminals are tied together as in Fig. 2, each of the loads will carry 100% of rated amperage when the motor is drawing 100% of rated motor amp.

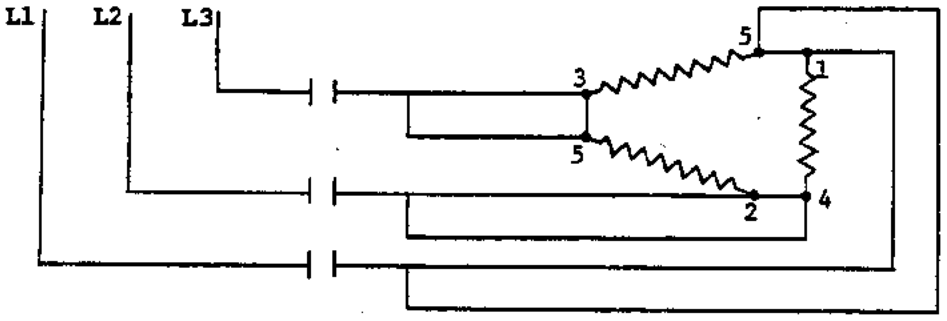

Fig. 3

If six motor leads are used with the motor terminals tied together, as in Fig. 3, at full load:

The current in L1, L2, and L3 will be 100% of rated amperage.

Each of the six motor leads will carry one-half of the rated motor amp.

NOTE: Any number of leads can be brought to a pair of terminals which is tied together, as in Fig. 3, and the current will divide equally between the leads (assuming the wires are of equal size and resistance).