Sizing Fuses in a Motor Distribution System

Program: Electrician Technician

Course: EL[1]70 – Motor and Industrial Motor Controls

Objectives: Under the supervision of your instructor, you should be able to do the following:

- Size branch circuits and feeders for electric motors.
- Size motor short circuit protectors

Lab Equipment:
- N/A

Required Tools:
- Pencils and paper
- Calculator

Materials:
- Pencil • Paper

Safety (PPE): N/A

Resources:
- Latest edition of the *National Electrical Code®*

Instructor Notes:
- You may change the horsepower ratings of the motors for additional practice.
- Refer to *NEC Table 430.250* for all motor full-load amperage ratings.
- Refer to *NEC Table 430.52* for maximum fuse ratings.
- Refer to *NEC Section 240.6* for standard fuse ratings.

Required Time: 60 Minutes

Shop Maintenance:
- All work will cease 20 minutes prior to the end of class.
- All work areas must be cleaned.
- Tools and equipment must be cleaned and returned to the designated areas (cage, tool room, cabinets etc.)
- Any broken or missing tools must be reported immediately.
- Tools and equipment are student's responsibility

Procedures: (Eye protection must always be worn)

This performance project requires the trainee to size both dual-element time-delay and nontime-delay fuses for various branch motor circuits.

1. Look up and write down the full-load current in *NEC Table 430.250* for each of the motors shown on Figure 1.
2. Refer to *NEC Table 430.52* and determine the maximum fuse rating for each of the motors based on the type of fuse shown in Figure 1.
3. Calculate the fuse rating for each motor circuit based on the standard fuse ratings found in *NEC Section 240.6* and write your answers in the spaces provided on Figure 1.
4. Have your instructor check your work.

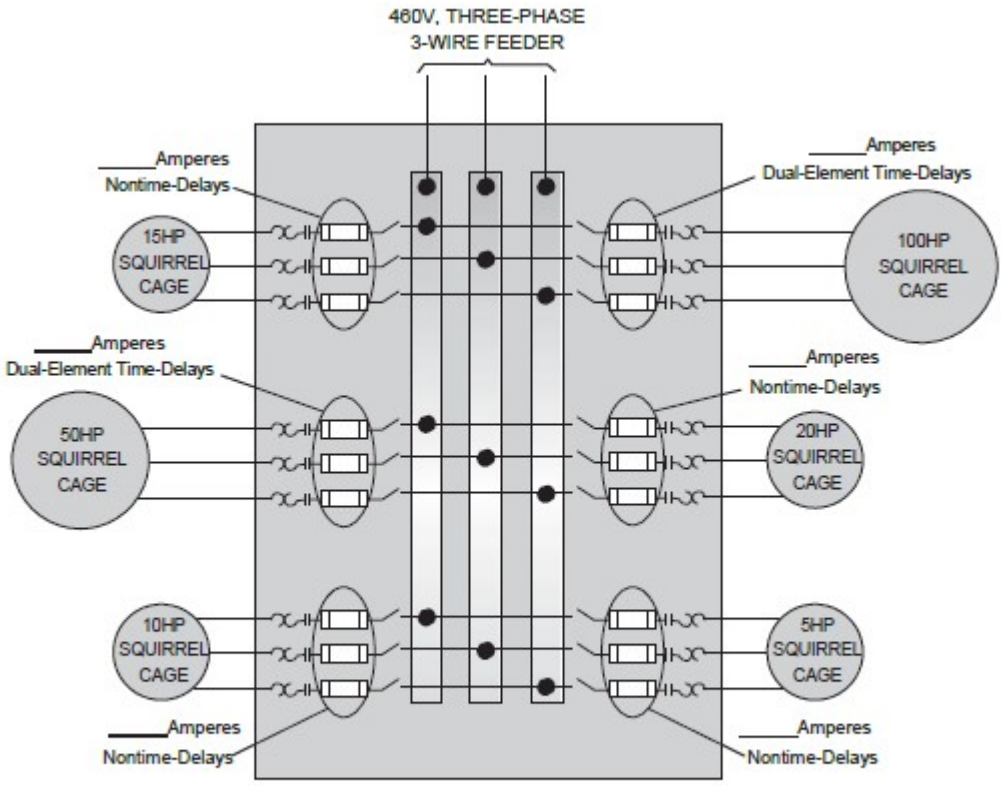

Figure 1 ■ Motor Distribution System Drawing