

### Background

On 6/15/04, Work Mech #2715799 was issued to troubleshoot the reason for the RCP Bearing Oil Lift Pump 2M-RCN-P02B tripping the overload heaters. Electrical Maintenance was dispatched to investigate. The motor was meggered with satisfactory results, 6 Giga Ohms to ground. The motor resistance was also checked, AB – 1.95 ohms, AC – 2.02 ohms & BC – 1.94 ohms. New overload relay APN 51102 and overload heaters APN 44450157 were installed. The motor was started, its starting current was 34 amps, running current was recorded at 11.1 amps and it tripped after 12 minutes.

On 6/16/04, the motor was again ran to record running current on three phases, they were 11.2 – 10.9 & 10.7 Amps. Engineering provided instructions to set the thermal overload relay setting to 110%.

### Evaluation

Documents RSS-03-0947 & E018-00545 show the motor as a 7.5 hp, FLA - 10.9, Service Factor – 1.0, size 1 starter and the overload heaters of CR123C11.3B. Calculation No. 13-EC-PH-0250, section 3.1 states that for non-class 1E non-reversing motor with a SF of 1.0, multiply the motor full load current by 0.9 and to use this value to select the overload heaters from GE Heater Selection Table (Attachment 1, first column) equal to or slightly greater than this value. Per Attachment 1, first column, for 9.81 amps ( $0.9 \times 10.9$ ) the OL should be CR123C11.3B which is the heater installed for this motor.

New motors in the warehouse (APN 44630043) have the following information: 7.5 hp, SF – 1.0, FLA – 10.5. Per calculation 13-EC-PH-0250, section 3.1, the OL heaters based on 9.45 amps ( $0.9 \times 10.5$ ) is CR123C10.4B. The motor was replaced under WO #00925131 on 4/19/00. The work order was not archived so it is not known whether a 10.9 amp or a 10.5 amp motor was installed. If the new motor was installed, the OL heater should be changed.

Per Mechanical Engineering, the lift pumps are run about every 45 days, then it is only run for approximately 5 minutes and it will only run four more times until U3R11.

### Conclusion

Continued use of the motor is acceptable based on the usage – run every 45 days & it is only run for approximately 5 minutes. Based on the OL relay curve & running current of 11.2 amps, the heaters should start to trip at 600 seconds or 10 minutes. Therefore, there are enough margins on the trip curve to prevent nuisance tripping. A CRDR will be written to evaluate the oil lift pump motor sizing and to determine the actual motor installed (10.9 amp vs. 10.5 amp).

C/B