SB-34-88
Dated: 11/10/88
REV. A 3/99

Manitowoc®

SERVICE COMMUNICATOR

Subject: GEAR MOTOR AND ELECTRONIC START SWITCH DIAGNOSIS FOR F290, H300, C260, C200, C150 DISPENSERS

SEQUENCE OF OPERATION

The vend switch energizes the coil on the relay which closes the normally open (N.O.) contacts to energize the motor. The ¼ h.p. **start capacitor** motor uses an electronic start winding switch. As the motor nears 75-80% of speed, the switch (triac) across #2 and #3 will open and take the start capacitor out of the circuit.

VEND SWITCH

The design and location of the vend switch varies with each dispenser. Listed below is the location of the vend switch.

F291, C260, C200 (DIAGRAM A), C251 (DIAGRAM B): The vend switch is activated by the dispense activator assembly at the ice chute.

HPA310 pushbutton: the vend switch is the push button at the front of the dispenser. (Diagram A)

HKA320 key operation: the vend switch is a key slot at the front of the dispenser. (Diagram A)

HCA330 coin operation: the vend switch is a push button at the front of the dispenser. NOTE: The coin switch must be activated before the push button vend switch will start the motor. (Diagram C)

HRA340 room card: the vend switch is activated by the room card actuator. (Diagram A)

SERVICE DIAGNOSIS

SYMPTOM A: Dispenser motor fails to operate when the vend switch is activated.

NOTE: Steps 1 through 5 can be performed from the front of the dispenser without emptying stored ice.

STEP 1 Make sure dispenser has incoming power
Must be ± 10% of rated line voltage.

STEP 2 a) Close the vend switch. You must read line voltage at the relay coil. If you do not read line voltage, replace the vend switch.
b) With line voltage at the relay coil, you must read 0 volts across the relay closed contacts. If you read line voltage, replace the relay.

STEP 3 Test the start capacitor. Use a capacitor tester or replace the capacitor with a known good capacitor. Replace the capacitor if defective.

STEP 4 Test the electronic start switch to determine if the switch across #2 and #3 is failed open. Place a jumper wire across terminals 2 and 3 on the electronic start switch. Close the vend switch for **10 seconds maximum.**
(IMPORTANT: Closing the vend switch for more than 10 seconds may result in motor damage.)
If the motor starts and operates, replace the electronic start switch.

STEP 5 Test motor windings for continuity. Readings are taken from the front of the dispenser by disconnecting motor wires in the control box.
a) Check motor windings for continuity:
Black to Red - if no continuity replace motor
Black to Blue – if no continuity replace motor
IMPORTANT: No continuity between both readings indicates an open overload. Wait for motor to cool and recheck motor windings.

b) Check motor windings to ground (motor casing). All readings must read open (no continuity). If continuity to ground, replace motor.

STEP 6 Electrical components are functioning properly. Check for foreign material inside dispenser. Remove the drive belt and turn each auger by hand to assure augers turn freely.

SYMPTOM B: Gear drive runs, then goes off on overload.

STEP 1 Check line voltage. Must be ± 10% of rated line voltage. If not within 10% determine cause.
NOTE: If the electronic start switch fails closed, the motor will trip on overload. Test the electronic start switch as follows:

STEP 2 Clamp amprobe on wire going to terminal 2 on electronic start switch. The amp draw should decrease after start up. If the amperage doesn't drop off, the electronic start switch failed closed – replace the start switch.

STEP 3 Check the voltage at the black wire and terminal R at the auger motor. If it varies beyond ± 10%, retrace electrical circuit to determine cause. Repair as required.

(over)

DISPENSER WIRING DIAGRAMS

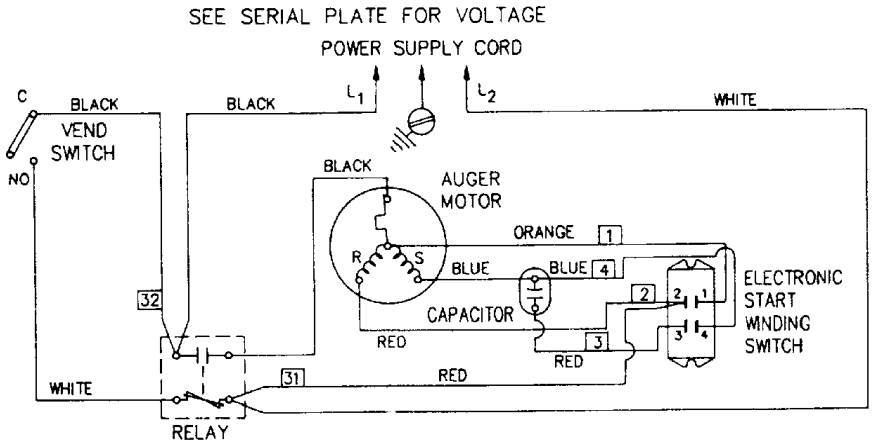


DIAGRAM A

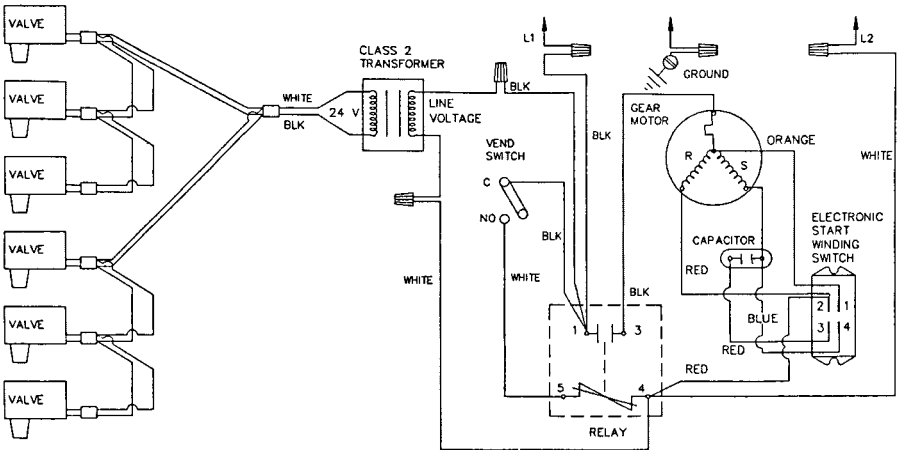


DIAGRAM B

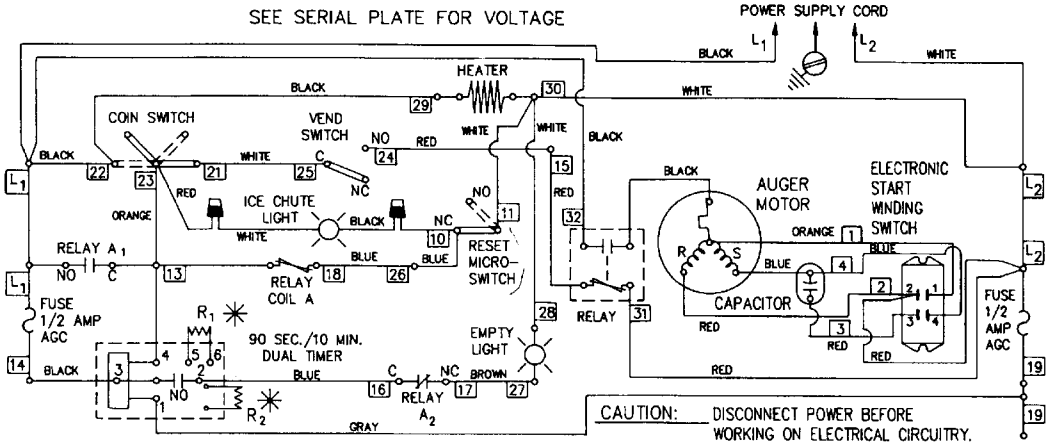


DIAGRAM C