Service Manual For Commercial Superload II Washer-Extractors

(Metered and Nonmetered)

Part No. 82224
6/06

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WARNING

FAILURE TO INSTALL, MAINTAIN, AND/OR OPERATE THIS MACHINE ACCORDING TO MANUFACTURER'S INSTRUCTIONS MAY RESULT IN CONDITIONS WHICH CAN PRODUCE BODILY INJURY AND/OR PROPERTY DAMAGE.

NOTE: The WARNING and IMPORTANT instructions appearing in this manual are not meant to cover all possible conditions and situations that may occur. It must be understood that common sense, caution and carefulness are factors which CANNOT be built into this Washer-Extractor. These factors MUST BE supplied by the person(s) installing, maintaining or operating this Washer-Extractor.

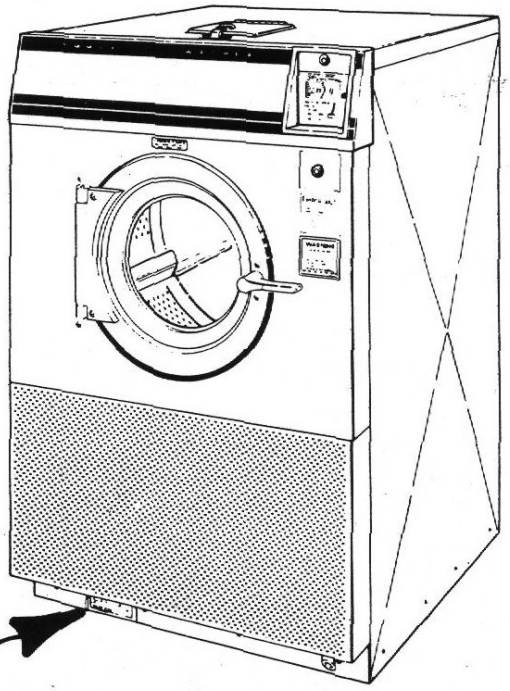
Always contact your dealer, distributor, service agent or the manufacturer on any problems or conditions you do not understand.

Information in this manual is applicable to the following Model Superload II Washer-Extractors.

MODELS		DRAIN	
Metered	*Nonmetered*	*Pump*	*Nonpump*
CL9161	CL9171		X
CL9163	CL9173	X	

NOTE: When reference to directions (right or left) is made in this manual, it is from the operator's position facing the front of the Washer-Extractor.

Nameplate Location



When writing for information on the Superload II Washer-Extractor, be sure to mention model and serial numbers. The model and serial numbers will be found on the nameplate as shown.

IMPORTANT WARNING AND INFORMATION

IMPORTANT: When checking clutch operation, a momentary slipping noise may be heard when the motor drive goes into the spin mode. This is normal operation caused by the drive clutch pads engaging against the clutch drum.

To avoid serious damage to motor drive or timers, DO NOT advance either timer with power on, or with the wash cylinder moving.

It is very important to keep timers synchronized. Timers automatically synchronize themselves (if needed) during each spin cycle.

If timers are advanced or changed in any way to service, *the service man* (with power off and clothes cylinder stopped) should put the washer into the final spin cycle and allow the washer to complete the cycle by itself. This will get the timers synchronized and the washer set for proper operation.

If the washer timers advance from tumble into spin in the wrong rotation, the clothes cylinder will also spin in *the wrong rotation*, but the timers will automatically synchronize during that spin cycle. Correct rotation viewing clothes cylinder from the front of washer is clockwise; BOTH FOR LAST TUMBLE MODE BEFORE SPIN AND SPIN.

SECTION II
Service Procedures

WARNING

Disconnect electrical power and close water supply valves before servicing washer.

NOTE: When reference to directions (right or left) is made in this manual, it is from the operator's position facing the front of the washer.

1. **ACCUMULATOR COIN DROP — Metered Models** *(Refer to Figure 1)*

   a. Unlock coin drop and pull out of washer as far as wires will permit.

   NOTE: Lock is threaded and will require several counterclockwise turns to unlock.

   b. Disconnect wire harness at terminal block.

   NOTE: Refer to *Figure 2* for accumulator coin drop assembly sequence.

   IMPORTANT STEPS IN RE-ASSEMBLING ACCUMULATOR COIN DROP

   1. Install coin switch, *Figure 2*, so switch "clicks" before coin has completely dropped free of actuator arm. When actuator arm returns to natural position, there should be some free travel between the "click" and reseating against bottom of coin chute.

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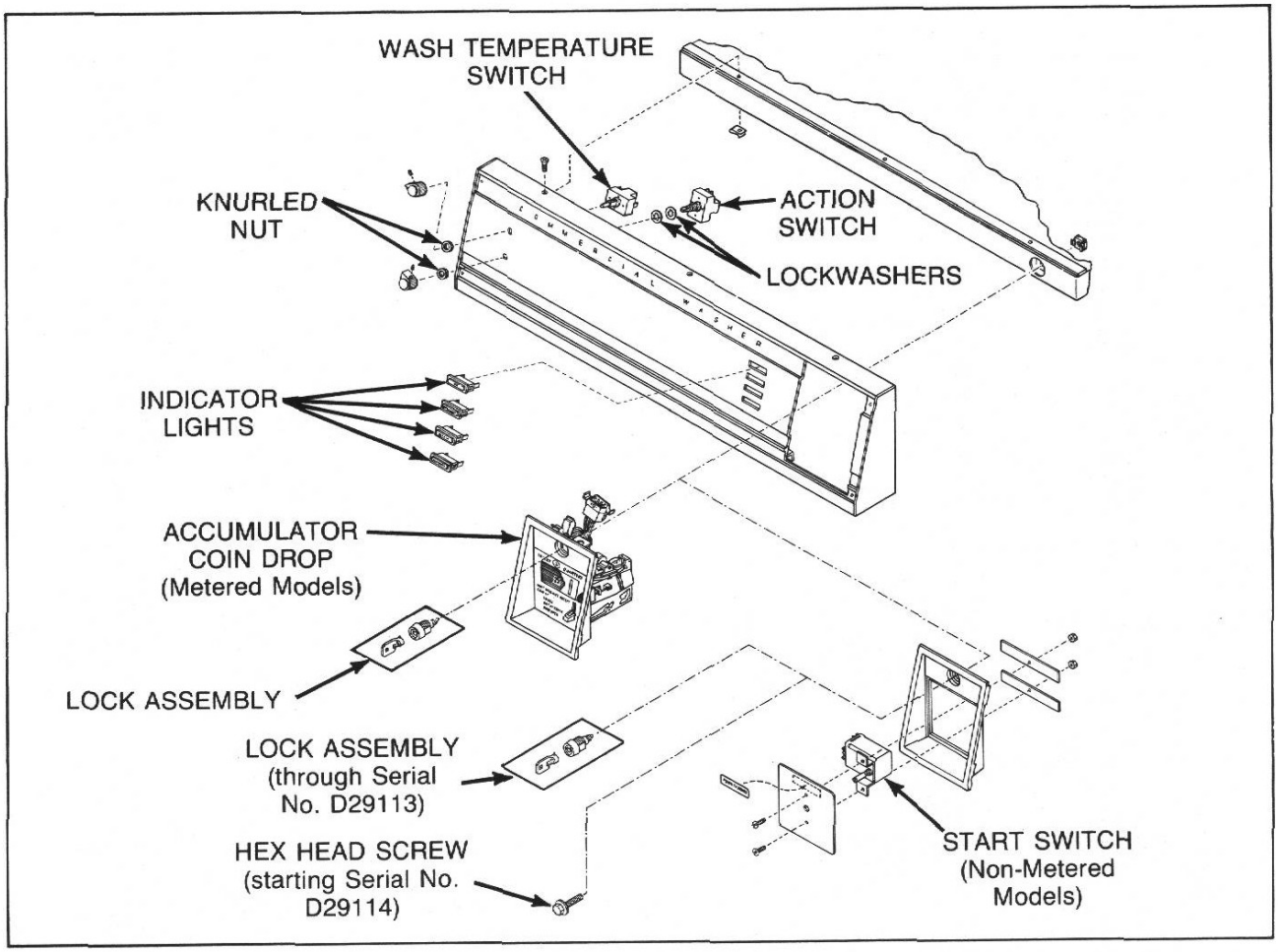

Figure 1

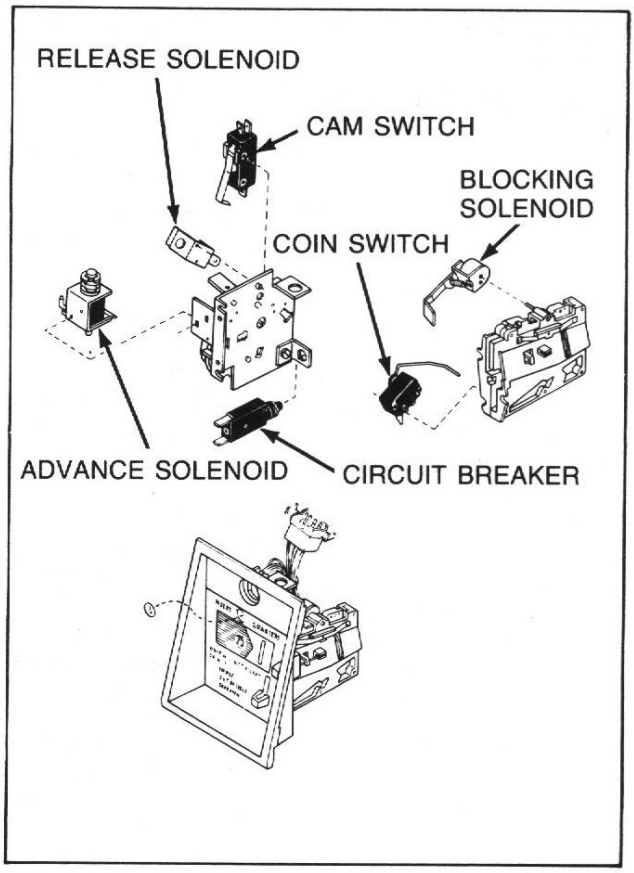

Figure 2

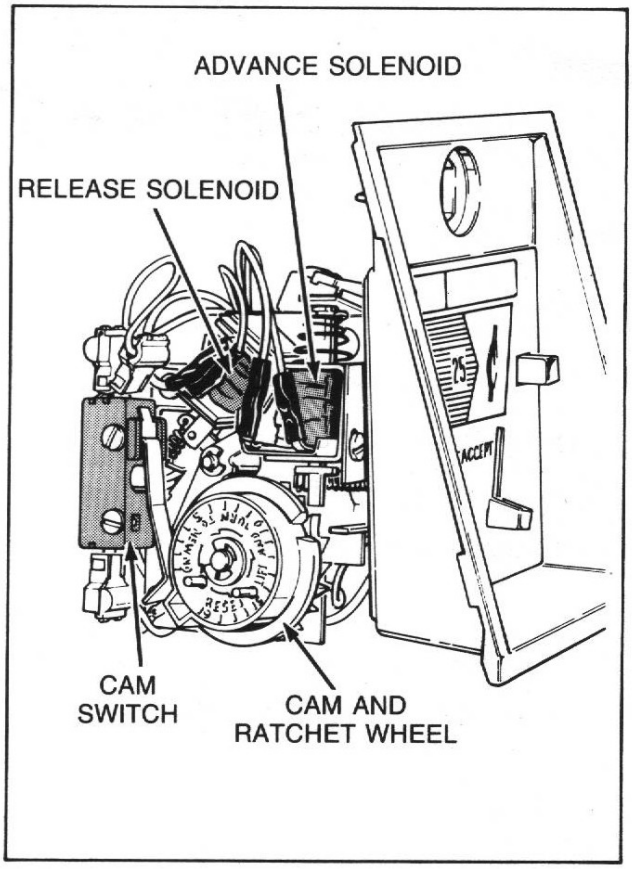

Figure 3

2. Install cam switch, *Figure 3,* so it clicks "on" about 3/4 the distance up switch cam rise.
3. Install advance solenoid, *Figure 3,* so plunger actuates the ratchet wheel enough for the pawl to latch it. Make sure ratchet wheel teeth can rotate clear of plunger boot after solenoid plunger has returned.
4. Install release solenoid, *Figure 3,* so when fully actuated, the solenoid will pivot the pawl enough to allow the ratchet wheel to rotate freely.

2. START SWITCH — Nonmetered Models *(Refer to Figure 1)*

a. (Through Serial No. D29113), unlock start switch and pull out of washer as far as wires will permit.

NOTE: Lock is threaded and will require several counterclockwise turns to unlock.

(Starting Serial No. D29114), remove hex head screw and pull start switch out of washer as far as wires will permit.

b. Disconnect wire harness at disconnect block.

c. Remove two screws and nuts holding switch to plate and frame.

3. CONTROL PANEL ASSEMBLY *(Refer to Figure 1)*

a. Unlock coin drop (metered models), or start switch (nonmetered models through Serial No. D29113), and pull out of washer as far as wires will permit.

NOTE: Lock is threaded and will require several counterclockwise turns to unlock.

(Nonmetered models starting Serial No. D29114), remove hex head screw and pull start switch out of washer as far as wires will permit.

b. Disconnect wire harness at disconnect blocks.

c. Remove three screws holding control panel assembly to cabinet top.

d. Tilt control panel assembly away from washer and disconnect wire harness at disconnect blocks, then remove control panel.

4. INDICATOR LIGHTS *(Refer to Figure 1)*

a. Remove control panel assembly, paragraph 3.
b. Disconnect wires from light, compress locking tabs, and push light out through front of control panel.

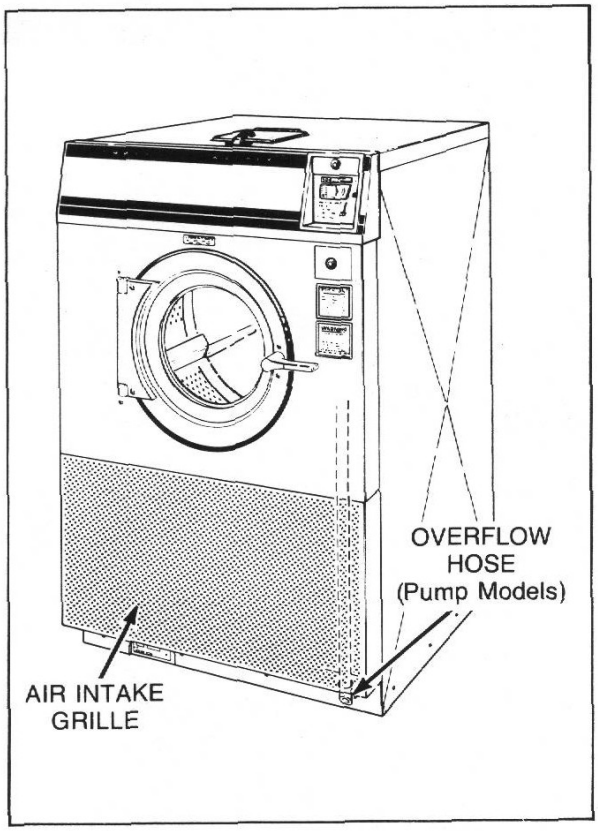

Figure 4

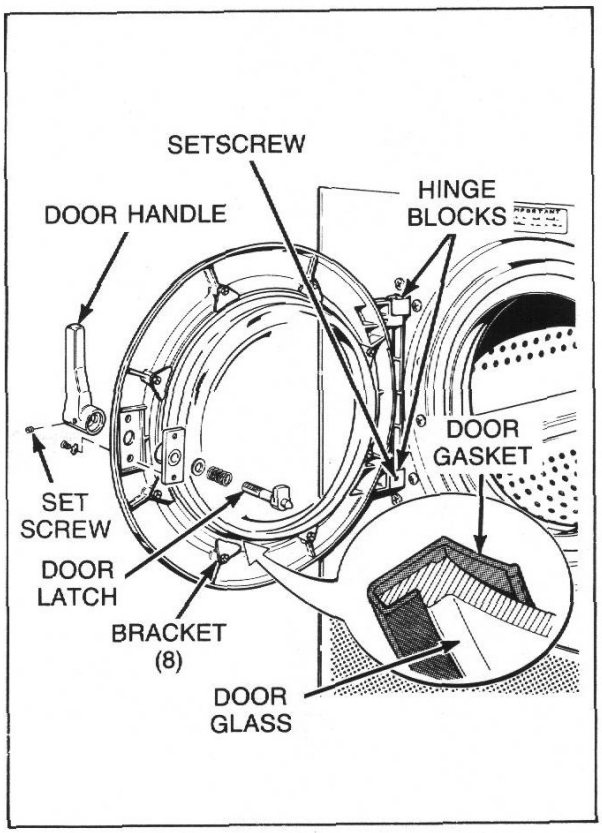

Figure 5

NOTE: Refer to appropriate wiring diagram when rewiring light.

5. **SWITCH — Temperature or Action** *(Refer to Figure 1)*

a. Remove control panel assembly, paragraph 3.
b. Disconnect wires from switch.

NOTE: Refer to appropriate wiring diagram when rewiring switch.

c. Loosen setscrew holding switch knob to switch shaft and remove knob.
d. Remove knurled nut holding switch to control panel and remove switch.

IMPORTANT: Two lockwashers must be used between action switch and control panel when installing switch.

6. **AIR INTAKE GRILLE** *(Refer to Figure 4)*

a. Remove four screws from base of grille.
b. Pull bottom of grille away from washer, lower the grille and remove.

NOTE: Pump Models — When grille is reinstalled, end of overflow hose must protrude through hole in bottom of grille, *Figure 4.*

7. **DOOR LATCH AND HANDLE** *(Refer to Figure 5)*

a. Open loading door.
b. Loosen setscrew in door handle and turn latch out of handle.

NOTE: When reinstalling, turn latch into door handle until door fits snug when closed and latched. With latch parallel to door handle, tighten setscrew securely. (Apply a retaining compound such as Loctite on setscrew threads.)

8. **DOOR GLASS AND GASKET** *(Refer to Figure 5)*

Open loading door and remove eight bracket screws holding door glass and gasket to door.

9. **LOADING DOOR ASSEMBLY** *(Refer to Figure 5)*

Open loading door, loosen setscrew in lower hinge block and remove hinge pin.

NOTE: Spacer washer must be located on hinge pin when installing door.

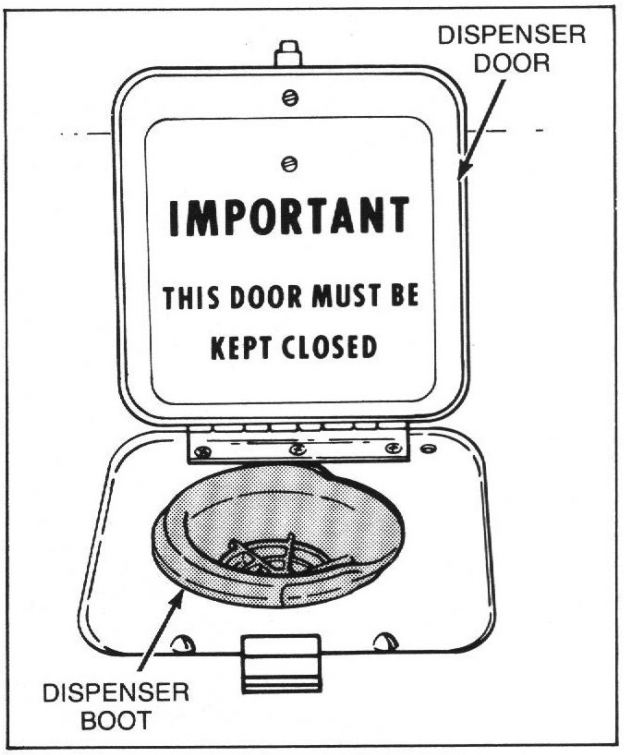

Figure 6

10. CABINET TOP ASSEMBLY

a. Remove control panel assembly, paragraph 3.
b. Open dispenser door, compress dispenser boot and push boot down through cabinet top, *Figure 6.*
c. Remove two cabinet top hold-down screws, *Figure 7.*
d. Tilt cabinet top backward and hold in raised position with a small chain, *Figure 8.*
e. Remove four screws and nuts holding cabinet top to hinges, *Figure 8.*

11. COIN VAULT — Metered Models

a. Unlock coin drop.

NOTE: Lock is threaded and will require several counterclockwise turns to unlock.

b. Pull coin drop out of control panel as far as wires will permit, then disconnect wire harness at disconnect blocks.
c. Remove three screws holding control panel assembly to cabinet top.
d. Tilt control panel assembly away from washer and disconnect wire harness at disconnect blocks and remove panel.
e. Unlock and remove coin drawer, *Figure 9.*

NOTE: Coin drawer has threaded lock and will require several counterclockwise turns to unlock.

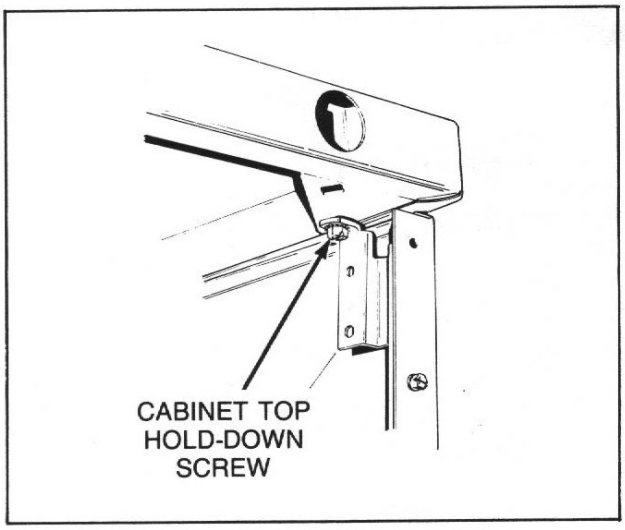

Figure 7

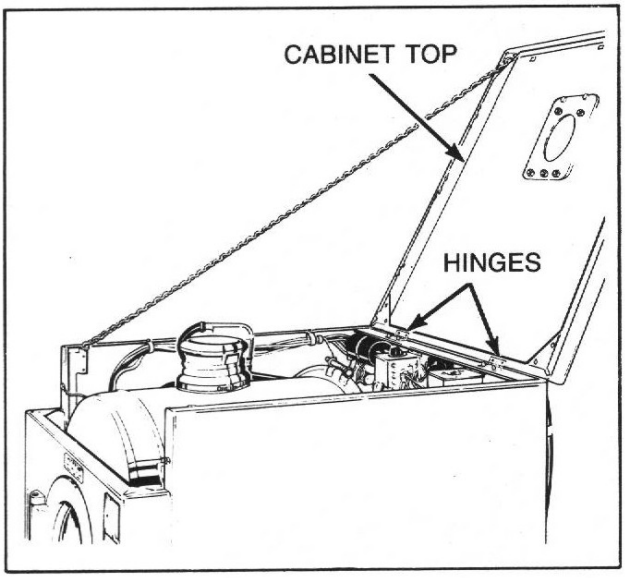

Figure 8

f. Open dispenser door, compress dispenser boot and push boot down through cabinet top, *Figure 6.*
g. Remove two cabinet top hold-down screws, *Figure 7.*
h. Tilt cabinet top backward and hold in raised position with small chain, *Figure 8.*
i. Remove flathead screw and locknut holding coin vault to front panel, *Figure 10,* then remove two cap screws and lockwashers holding coin vault to right leg, *Figure 10.*

12. FRONT PANEL ASSEMBLY

a. Remove control panel assembly, paragraph 3.
b. Remove air intake grille, paragraph 6.
c. Metered Models: Unlock and remove coin drawer, *Figure 9.*

NOTE: Coin drawer has threaded lock and will require several counterclockwise turns to unlock.

d. Open dispenser door, compress dispenser boot and push boot down through cabinet top, *Figure 6.*
e. Remove two cabinet top hold-down screws, *Figure 7.*
f. Tilt cabinet top backwards and hold in raised position with a small chain, *Figure 8.*
g. Metered Models: Remove flathead screw and locknut holding coin vault to front panel, *Figure 10,* then remove two cap screws and lockwashers holding coin vault to right leg, *Figure 10.*
h. Remove two nuts and lockwashers, *Figure 11,* holding front panel assembly to left leg (leave bolts in place).
i. Remove nut and lockwasher (bottom), and capscrew (top), *Figure 12,* holding front panel assembly to right leg.

NOTE: Pump Models — Overflow hose, *Figure 10,* may have to be pushed down to gain access to cap screw holding top of front panel assembly to right leg.

j. Disconnect door lock wire harness at disconnect blocks.
k. Disengage door seal from front panel flange, *Figure 13.*
l. Carefully remove front panel assembly from washer.

IMPORTANT: When reinstalling front panel assembly, leave bolts loose until the door seal is properly positioned and the door opening is centered with the outer tub when loading door is in the closed position.

13. DOOR HINGE

a. Remove control panel assembly, paragraph 3.
b. Remove air intake grille, paragraph 6.
c. Remove loading door, paragraph 9.
d. Metered Models: Unlock and remove coin drawer, *Figure 9.*

NOTE: Coin drawer has threaded lock and will require several counterclockwise turns to unlock.

e. Open dispenser door, compress dispenser boot and push boot down through cabinet top, *Figure 6.*
f. Remove two cabinet top hold-down screws, *Figure 7.*
g. Tilt cabinet top backward and hold in raised position with a small chain, *Figure 8.*
h. Metered Models: Remove flathead screw and locknut holding coin vault to front panel, *Figure 10.*
i. Metered Models: Remove two cap screws and lockwashers holding coin vault to right leg, *Figure 10.*

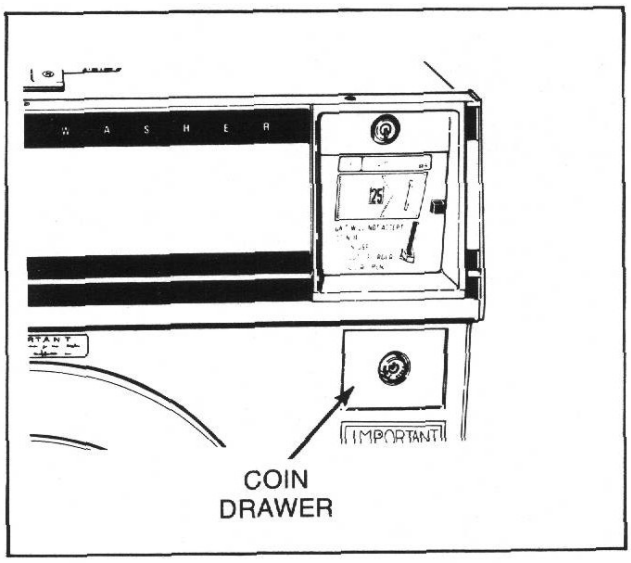

Figure 9

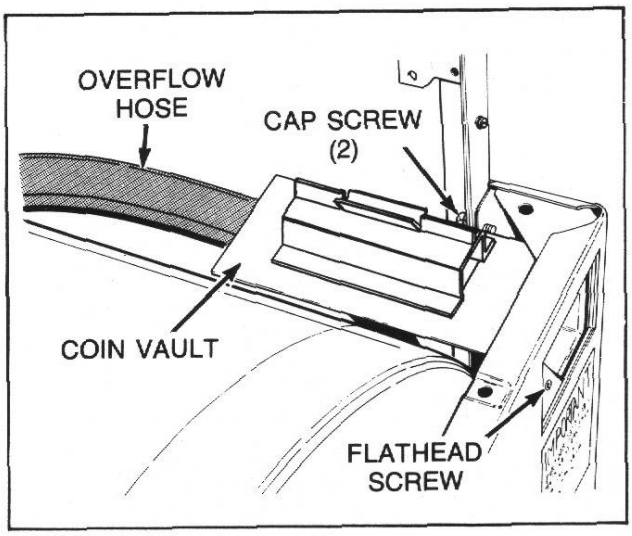

Figure 10

j. Remove two nuts and lockwashers, *Figure 11,* holding front panel assembly to left leg (leave bolts in place).
k. Remove nut and lockwasher (bottom), and cap screw (top), *Figure 12,* holding front panel assembly to right leg.

NOTE: Pump Models — Overflow hose, *Figure 10,* may have to be pushed down to gain access to cap screw holding top of front panel assembly to right leg.

l. Disconnect door lock wire harness at disconnect blocks.
m. Disengage door seal from front panel flange, *Figure 13.*
n. Carefully remove front panel assembly from washer.

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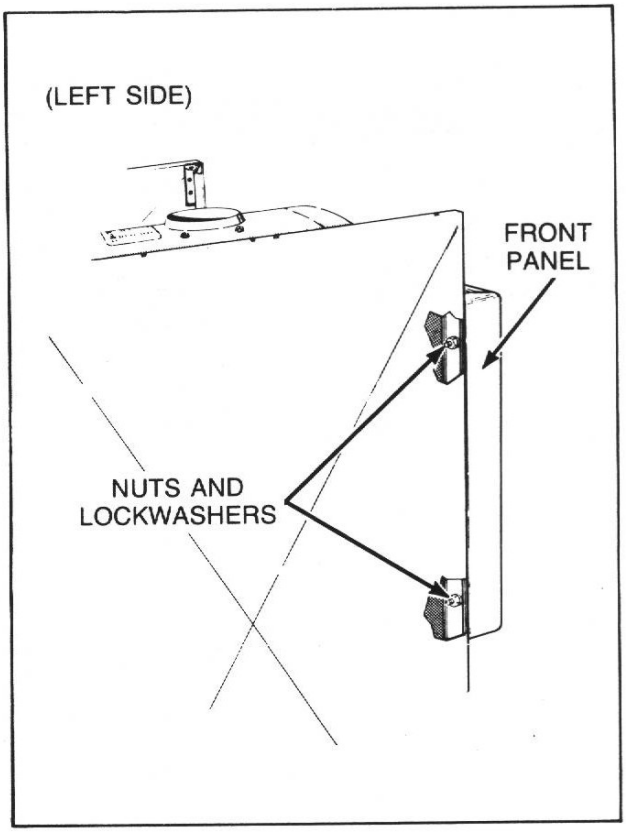

Figure 11

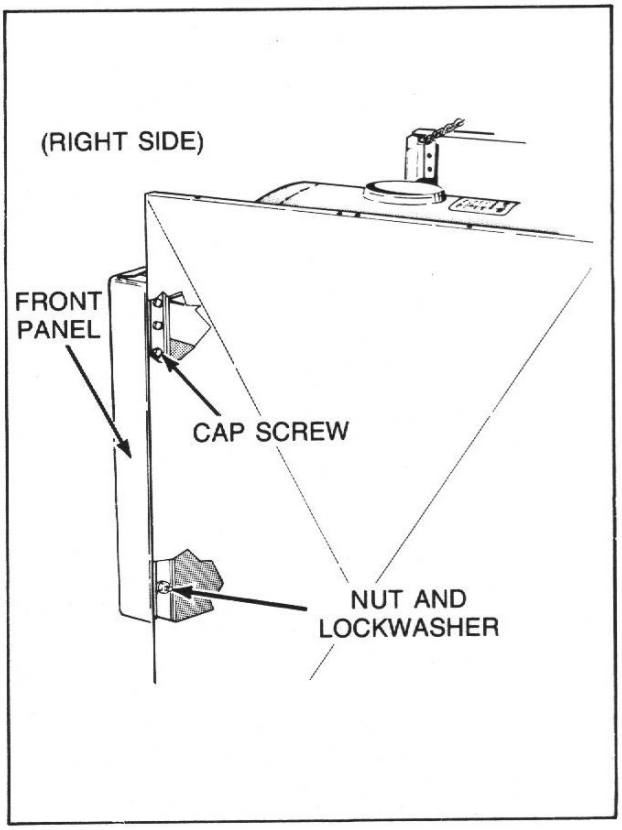

Figure 12

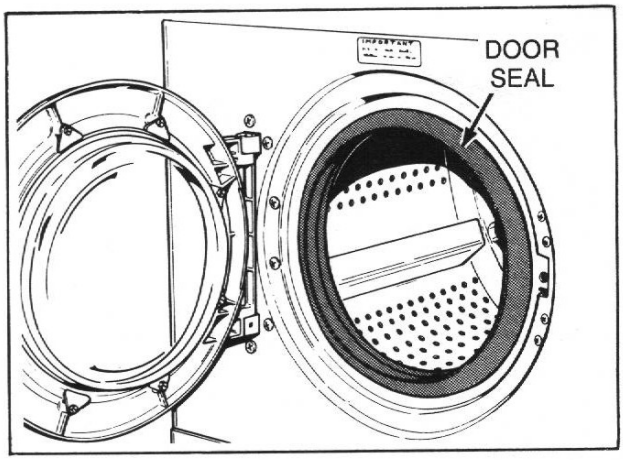

Figure 13

IMPORTANT: When reinstalling front panel assembly, leave bolt loose until the door seal is properly positioned and the door opening is centered with the outer tub when loading door is in the closed position.

o. Remove screws holding door hinge to front panel, *Figure 14.*

14. DOOR LOCK SOLENOID

a. Remove control panel assembly, paragraph 3.
b. Remove air intake grille, paragraph 6.
c. Remove two wire harness clips from top flange of front panel, *Figure 14.*
d. While holding wire harness, open loading door and remove the four screws holding door lock assembly bracket to front panel, *Figure 15.*
e. Lower complete door lock assembly (by use of wire harness) and remove assembly through air intake grille opening, *Figure 15.*
f. Disconnect wires and unhook spring from solenoid.

NOTE: When connecting spring to solenoid, hook on spring must be facing up, *Figure 14.*

g. Remove four screws holding solenoid to bracket, *Figure 15.*

15. SWITCH — Door Lock or Door Safety

a. Remove control panel assembly, paragraph 3.
b. Remove air intake grille, paragraph 6.
c. Metered Models: Unlock and remove coin drawer, *Figure 9.*

NOTE: Coin drawer has threaded lock and will require several counterclockwise turns to unlock.

d. Open dispenser door, compress dispenser boot and push boot down through cabinet top, *Figure 6.*
e. Remove two cabinet top hold-down screws, *Figure 7.*

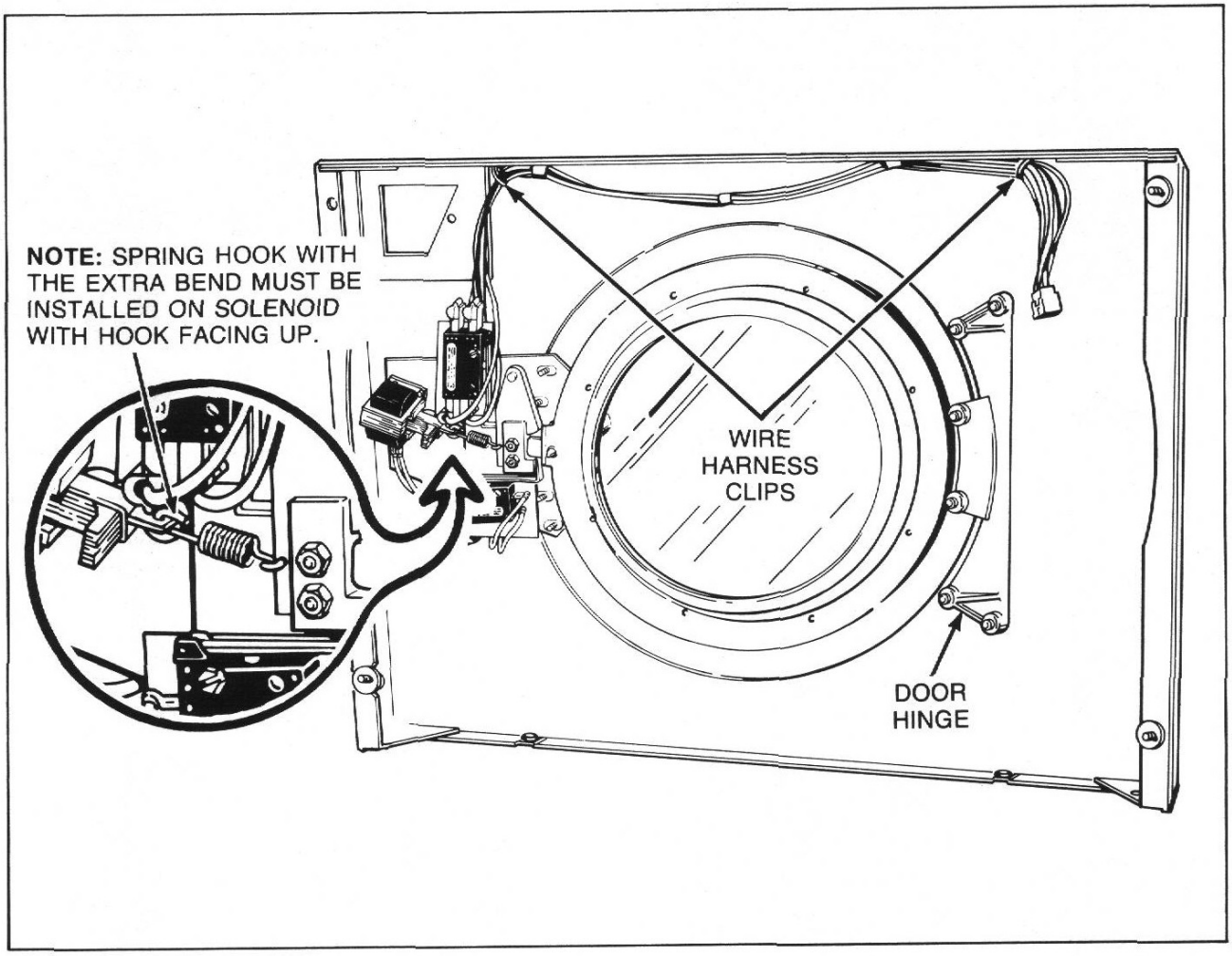

Figure 14

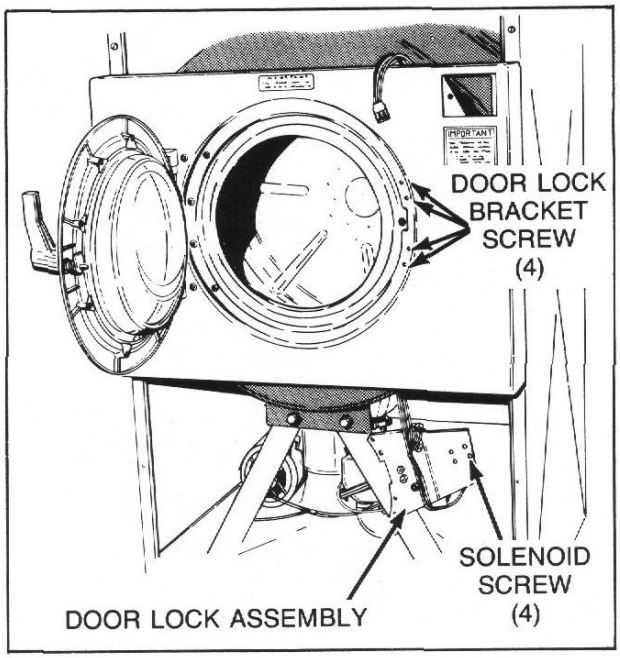

Figure 15

f. Tilt cabinet top backward and hold in raised position with a small chain, *Figure 8.*
g. Metered Models: Remove flathead screw and locknut holding coin vault to front panel, *Figure 10,* then remove two cap screws and lockwashers holding coin vault to right leg, *Figure 10.*
h. Remove two nuts and lockwashers, *Figure 11,* holding front panel assembly to left leg (leave bolts in place).
i. Remove nut and lockwasher (bottom), and cap screw (top), *Figure 12,* holding front panel assembly to right leg.

NOTE: Pump Models — Overflow hose, *Figure 10,* may have to be pushed down to gain access to cap screw holding top of front panel assembly to right leg.

j. Disconnect door lock wire harness at disconnect blocks.
k. Disengage door seal from front panel flange, *Figure 13.*
l. Carefully remove front panel assembly from washer.

(continued)

IMPORTANT: When reinstalling front panel assembly, leave bolts loose until the door seal is properly positioned and the door opening is centered with the outer tub when loading door is in the closed position.

m. Disconnect wires from switch.

NOTE: Refer to appropriate wiring diagram when rewiring switch.

n. Remove two screws, nut and lockwasher holding switch to bracket, *Figure 16.*

IMPORTANT: When installing switch, insulation must be in place between switch and bracket. Adjust switch per paragraph 42.

16. DOOR SEAL

a. Remove control panel assembly, paragraph 3.
b. Remove air intake grille, paragraph 6.
c. Metered Models: Unlock and remove coin drawer, *Figure 9.*

NOTE: Coin drawer has threaded lock and will require several counterclockwise turns to unlock.

d. Open dispenser door, compress dispenser boot and push boot down through cabinet top, *Figure 6.*
e. Remove two cabinet top hold-down screws, *Figure 7.*
f. Tilt cabinet top backwards and hold in raised position with a small chain, *Figure 8.*
g. Metered Models: Remove flathead screw and locknut holding coin vault to front panel, *Figure 10,* then remove two cap screws and lockwashers holding coin vault to front panel, *Figure 10.*
h. Remove two nuts and lockwashers, *Figure 11,* holding front panel assembly to left leg (leave bolts in place).
i. Remove nut and lockwasher (bottom), and cap screw (top), *Figure 12,* holding front panel assembly to right leg.

NOTE: Pump Models — Overflow hose, *Figure10,* may have to be pushed down to gain access to cap screw holding top of front panel assembly to right leg.

j. Disconnect door lock wire harness at disconnect blocks.
k. Disengage door seal from front panel flange, *Figure 13.*
l. Carefully remove front panel assembly from washer.

IMPORTANT: When reinstalling front panel assembly, leave bolts loose until the door seal is properly positioned and the door opening is centered with the outer tub when loading door is in the closed position.

m. Disconnect retainer strap spring from retainer strap, *Figure 17.*
n. Pull door seal off flange of outer tub.

IMPORTANT: Reinstall door seal with seam at top, *Figure 17.*

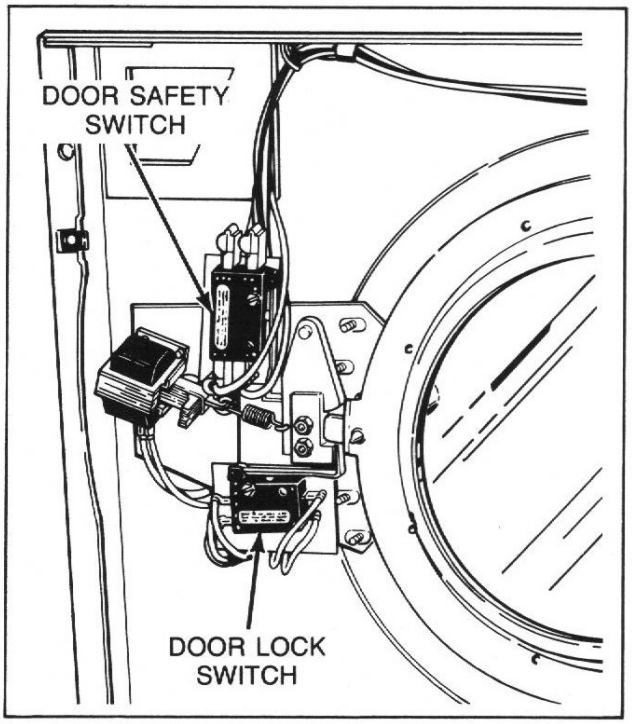

Figure 16

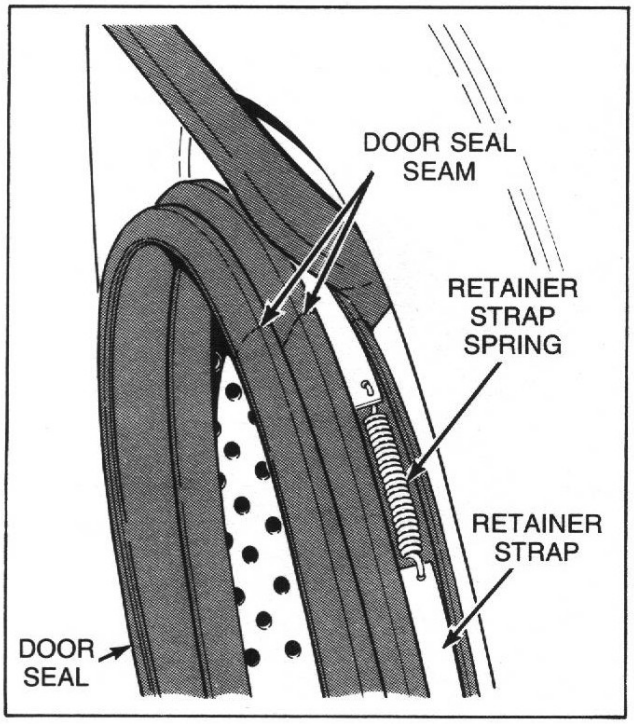

Figure 17

17. BUTTON TRAP *(Refer to Figure 18)*

a. Remove air intake grille, paragraph 6.

NOTE: Pump Models — When installing grille, insert end of overflow hose through hole in bottom of grille, *Figure 4.*

b. Loosen clamp holding button trap to outer tub.

NOTE: Pump Models — When installing button trap, the divider in the outer tub outlet must fit into slot in the top of the filter assembly.

18. DRAIN VALVE AND BRACKET ASSEMBLY *(Refer to Figure 18)*

a. Remove air intake grille, paragraph 6.
b. Disconnect wires from drain valve solenoid.
c. Disconnect hoses from drain valve.
d. Remove two screws and lockwashers holding valve bracket to front tub support.

NOTE: Refer to *Figure 19* for drain valve assembly sequence.

19. DRAIN VALVE SOLENOID *(Refer to Figure 18)*

a. Remove air intake grille, paragraph 6.
b. Disconnect wires from solenoid.
c. Support solenoid while removing the four screws, lockwashers and nuts holding solenoid to drain valve bracket.
d. Lower solenoid and disengage spring.

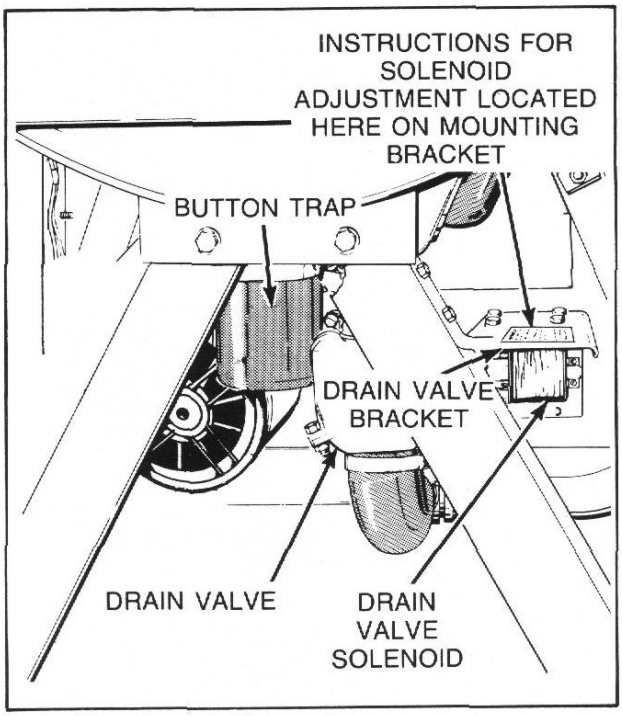

Figure 18

NOTE: When installing solenoid, adjust solenoid per paragraph 43.

20. TERMINAL BLOCK *(Refer to Figure 20)*

a. Remove terminal block access plate from rear cross channel.

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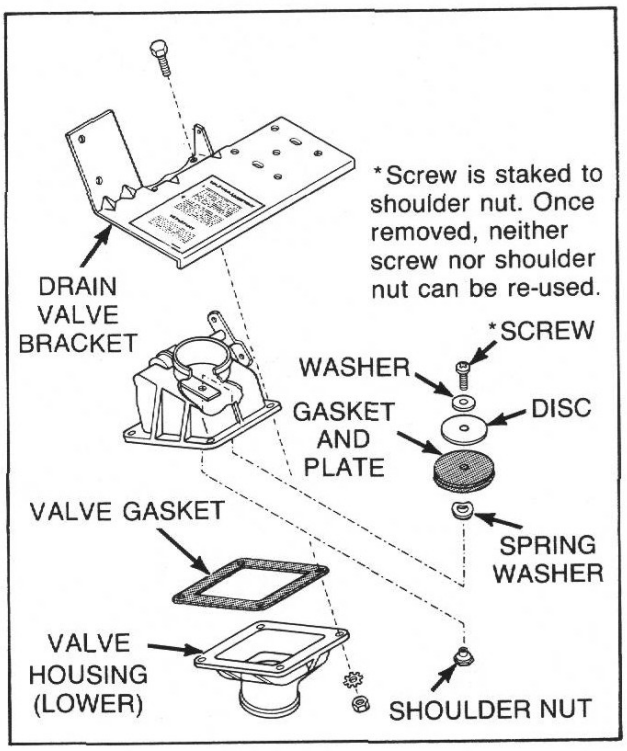

Figure 19

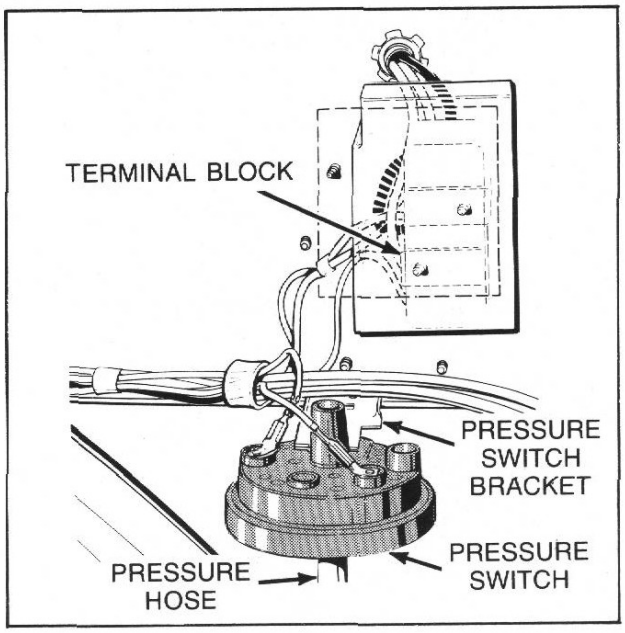

Figure 20

b. Disconnect wires from terminal block.

IMPORTANT: Refer to appropriate wiring diagram when rewiring terminal block. Tighten nuts securely.

c. Remove two screws holding terminal block to bracket.

21. PRESSURE SWITCH

a. Remove control panel assembly, paragraph 3.
b. Open dispenser door, compress dispenser boot and push boot down through cabinet top, *Figure 6.*
c. Remove two cabinet top hold-down screws, *Figure 7.*
d. Tilt cabinet top backwards and hold in raised position with a small chain, *Figure 8.*
e. Disconnect pressure hose from pressure switch, *Figure 20.*

NOTE: Tape hose to right side panel to prevent hose from falling to base.

f. Disconnect wires from pressure switch.

NOTE: Refer to appropriate wiring diagram when rewiring switch.

g. Remove screw holding pressure switch and bracket to rear cross channel, *Figure 20.*

IMPORTANT: When installing pressure switch, blow air through pressure hose before connecting hose to switch to remove any condensation that may have accumulated in the hose.

22. MOTOR RELAY

a. Remove control panel assembly, paragraph 3.
b. Open dispenser door, compress dispenser boot and push boot down through cabinet top, *Figure 6.*
c. Remove two cabinet top hold-down screws, *Figure 7.*
d. Tilt cabinet top backwards and hold in raised position with a small chain, *Figure 8.*
e. Disconnect wires from relay.

NOTE: Refer to appropriate wiring diagram when rewiring relay.

f. Remove nut holding motor relay to rear cross channel, *Figure 21.*

23. TIMER ASSEMBLY — Cycle or Reversing

a. Remove control panel assembly, paragraph 3.
b. Open dispenser door, compress dispenser boot and push boot down through cabinet top, *Figure 6.*
c. Remove two cabinet top hold-down screws, *Figure 7.*
d. Tilt cabinet top backwards and hold in raised position with a small chain, *Figure 8.*
e. Cycle Timer: Loosen setscrew holding knob to timer shaft, *Figure 21,* and remove knob.
f. Remove three screws holding timer to mounting bracket, *Figure 21.*
g. Disconnect wires from timer.

NOTE: Refer to appropriate wiring diagram when rewiring timer.

TO REMOVE TIMER MOTOR (CYCLE TIMER)

a. Remove timer assembly.
b. Remove two nuts holding timer motor to timer assembly.
c. Disconnect timer motor lead wires from timer.

NOTE: Refer to appropriate wiring diagram when rewiring timer motor lead wires.

TO REMOVE TIMER ESCAPEMENT (CYCLE TIMER)

a. Remove timer motor.

NOTE: Refer to appropriate wiring diagram when rewiring timer motor lead wires.

b. Remove three screws holding timer escapement to timer.

24. CAPACITOR

WARNING

Before handling capacitor, touch capacitor terminals with ends of insulated wire to discharge capacitor.

a. Remove control panel assembly, paragraph 3.
b. Open dispenser door, compress dispenser boot and push boot down through cabinet top, *Figure 6.*
c. Remove two cabinet top hold-down screws, *Figure 7.*
d. Tilt cabinet top backwards and hold in raised position with a small chain, *Figure 8.*
e. Disconnect wires from capacitor.
f. Remove capacitor clamp screw holding capacitor to cross channel, *Figure 22.*

25. MIXING VALVE

a. Remove control panel assembly, paragraph 3.
b. Open dispenser door, compress dispenser boot and push boot down through cabinet top, *Figure 6.*
c. Remove two cabinet top hold-down screws, *Figure 7.*
d. Tilt cabinet top backwards and hold in raised position with a small chain, *Figure 8.*

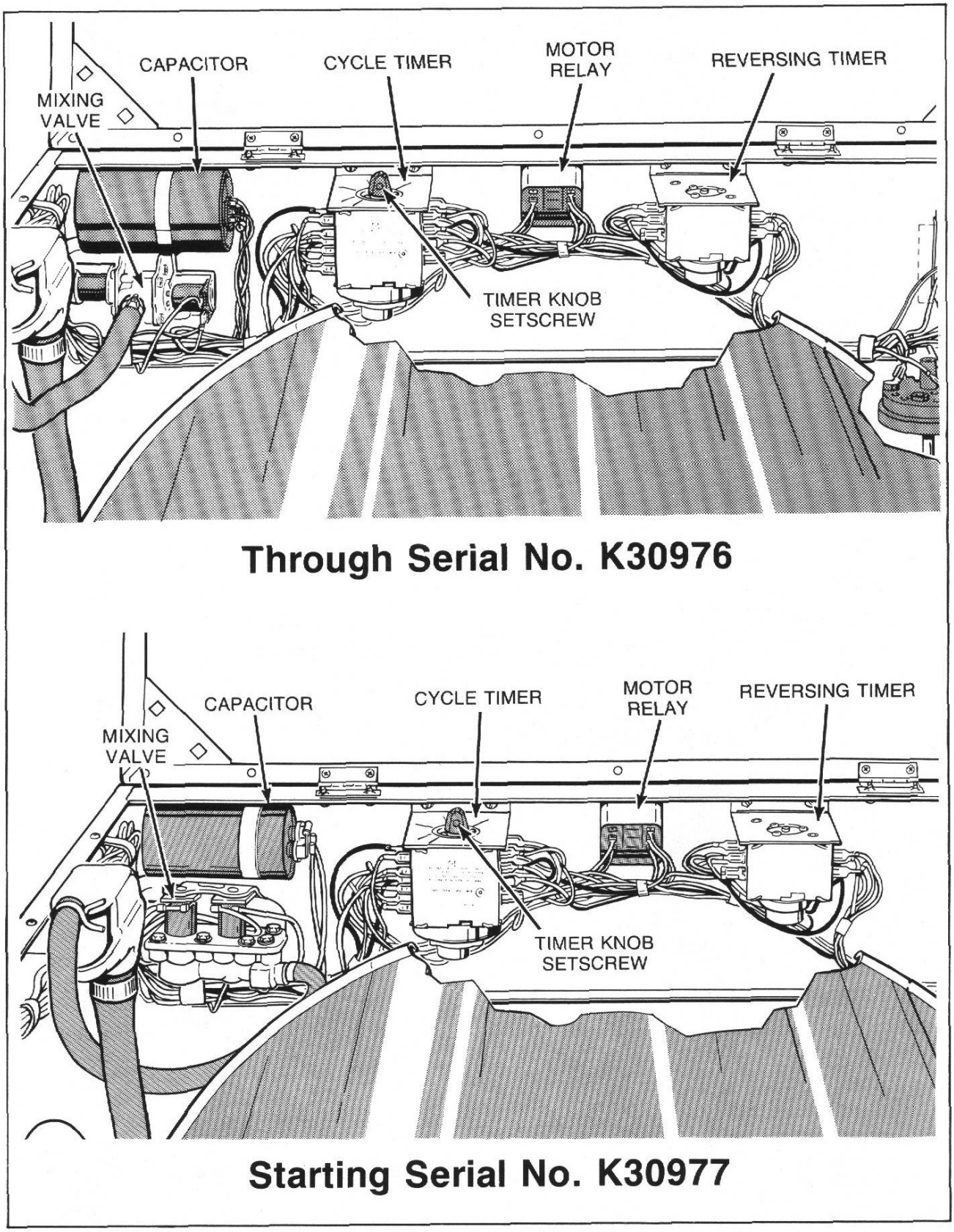
MIXING VALVE
CAPACITOR
CYCLE TIMER
MOTOR RELAY
REVERSING TIMER
TIMER KNOB SETSCREW
Through Serial No. K30976
MIXING VALVE
CAPACITOR
CYCLE TIMER
MOTOR RELAY
REVERSING TIMER
TIMER KNOB SETSCREW
Starting Serial No. K30977

Figure 21

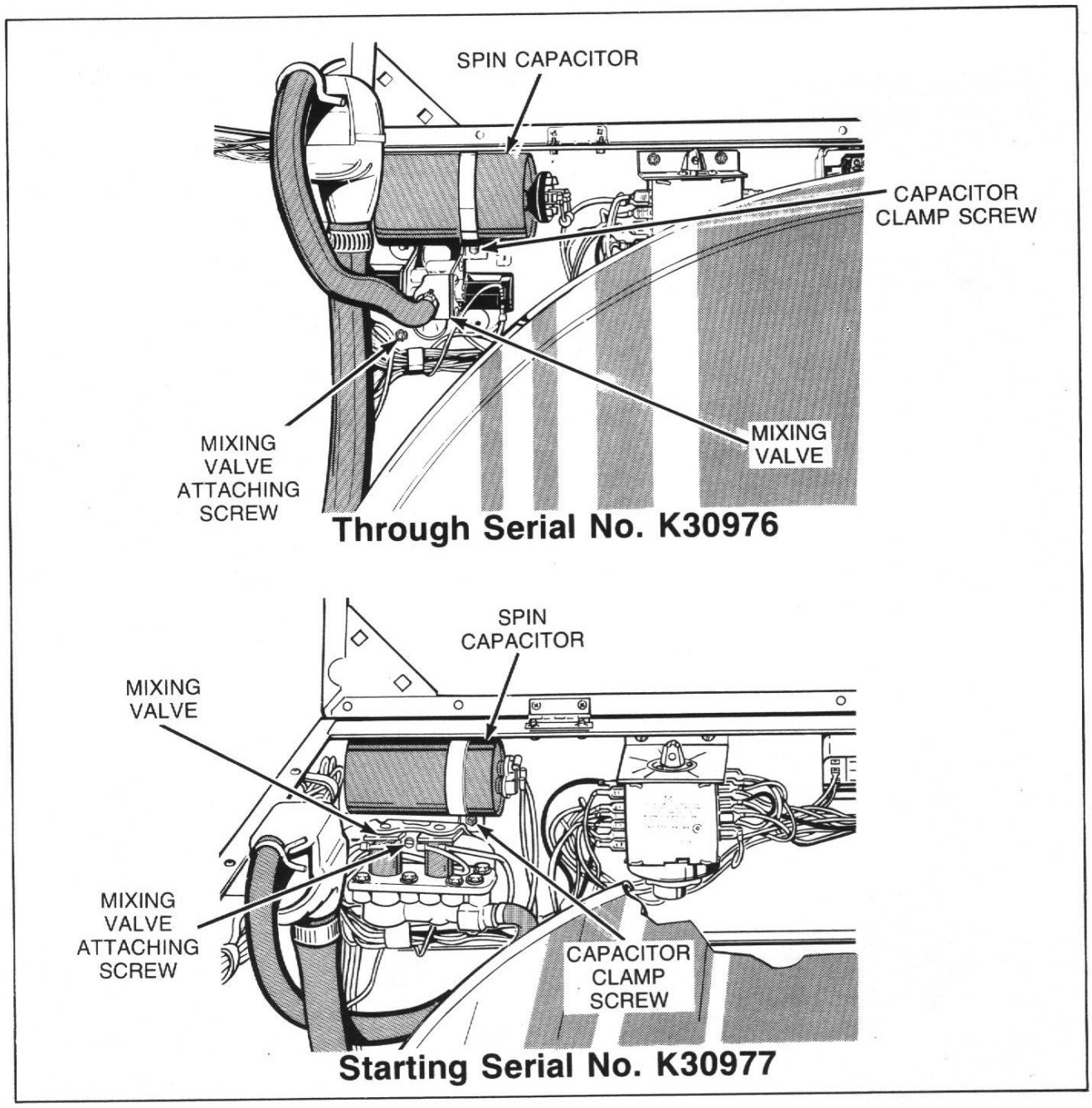

Figure 22

WARNING

Before handling capacitor, touch capacitor terminals with ends of insulated wire to discharge capacitor.

e. Disconnect wires from capacitor.
f. (Through Serial No. K30976), remove capacitor clamp screw holding capacitor and mixing valve to cross channel, *Figure 22,* then remove remaining screw.
g. (Starting Serial No. K30977), remove screw holding mixing valve to rear cross channel, *Figure 22.*

NOTE: Refer to *Figure 23* for assembly sequence of mixing valve.

h. Disconnect hoses and wires from mixing valve.

NOTE: Refer to appropriate wiring diagram when rewiring mixing valve solenoids.

26. WATER INLET

a. Remove control panel assembly, paragraph 3.
b. Open dispenser door, compress dispenser boot and push boot down through cabinet top, *Figure 6.*
c. Remove two cabinet top hold-down screws, *Figure 7.*

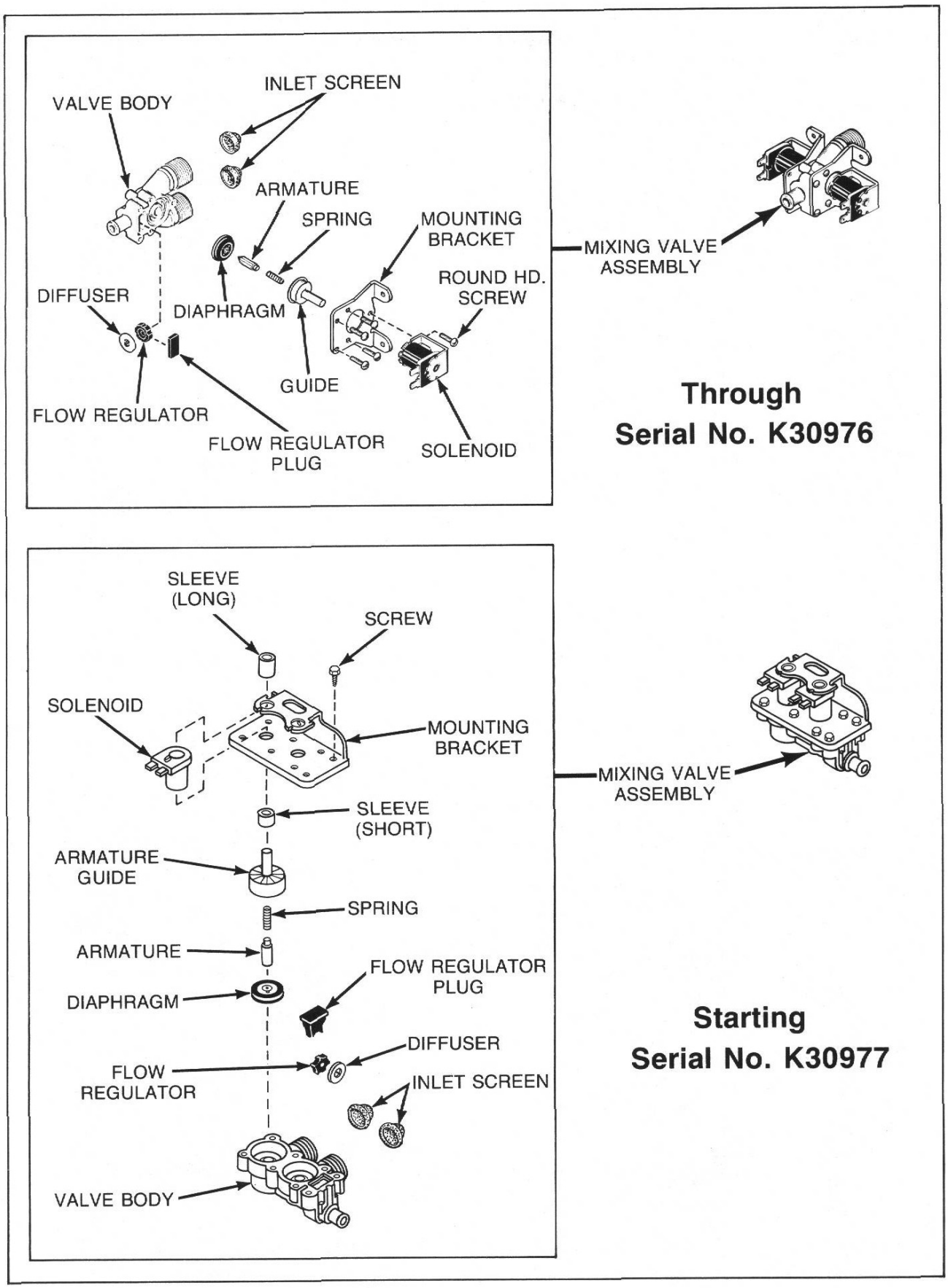
VALVE BODY
INLET SCREEN
ARMATURE
SPRING
MOUNTING BRACKET
ROUND HD. SCREW
DIFFUSER
DIAPHRAGM
GUIDE
FLOW REGULATOR
FLOW REGULATOR PLUG
SOLENOID
MIXING VALVE ASSEMBLY
Through
Serial No. K30976
SLEEVE (LONG)
SCREW
SOLENOID
MOUNTING BRACKET
SLEEVE (SHORT)
ARMATURE GUIDE
SPRING
ARMATURE
FLOW REGULATOR PLUG
DIAPHRAGM
DIFFUSER
FLOW REGULATOR
INLET SCREEN
VALVE BODY
MIXING VALVE ASSEMBLY
Starting
Serial No. K30977

Figure 23

d. Tilt cabinet top backwards and hold in raised position with a small chain, *Figure 8.*
e. Disconnect hoses from water inlet, *Figure 24.*

IMPORTANT: (Through Serial No. K30976), install the water inlet-to-tub hose behind mixing valve water inlet hose, *Figure 24.* (Starting Serial No. K30977), install the water inlet-to-tub hose in front of mixing valve water inlet hose, *Figure 24.*

f. Remove two screws and fiber washer holding water inlet to left side panel flange.

NOTE: When installing water inlet, be sure fiber washer is repositioned on rear screw between the inlet and flange of left side panel. DO NOT overtighten srews.

27. WATER INLET-TO-TUB HOSE

a. Remove control panel assembly, paragraph 3.
b. Remove air intake grille, paragraph 6.
c. Metered Models: Unlock and remove coin drawer, *Figure 9.*

NOTE: Coin drawer has threaded lock and will require several counterclockwise turns to unlock.

d. Open dispenser door, compress dispenser boot and push boot down through cabinet top, *Figure 6.*
e. Remove two cabinet top hold-down screws, *Figure 7.*
f. Tilt cabinet top backwards and hold in raised position with a small chain, *Figure 8.*
g. Metered Models: Remove flathead screw and locknut holding coin vault to front panel, *Figure 10,* then remove two cap screws and lockwashers holding coin vault to right leg, *Figure 10.*
h. Remove two nuts and lockwashers, *Figure 11,* holding front panel assembly to left leg (leave bolts in place).
i. Remove nut and lockwasher (bottom), and cap screw (top), *Figure 12,* holding front panel assembly to right leg.

NOTE: Pump Models — Overflow hose, *Figure 10,* may have to be pushed down to gain access to cap screw holding top of front panel assembly to right leg.

j. Disconnect door lock wire harness at disconnect blocks.
k. Disengage door seal from front panel, *Figure 13.*
l. Carefully remove front panel assembly from washer.

IMPORTANT: When reinstalling front panel assembly, leave bolts loose until the door seal is properly positioned and the door opening is centered with the outer tub when loading door is in the closed position.

m. Disconnect water inlet-to-tub hose from water inlet and from outer tub, *Figure 24.*

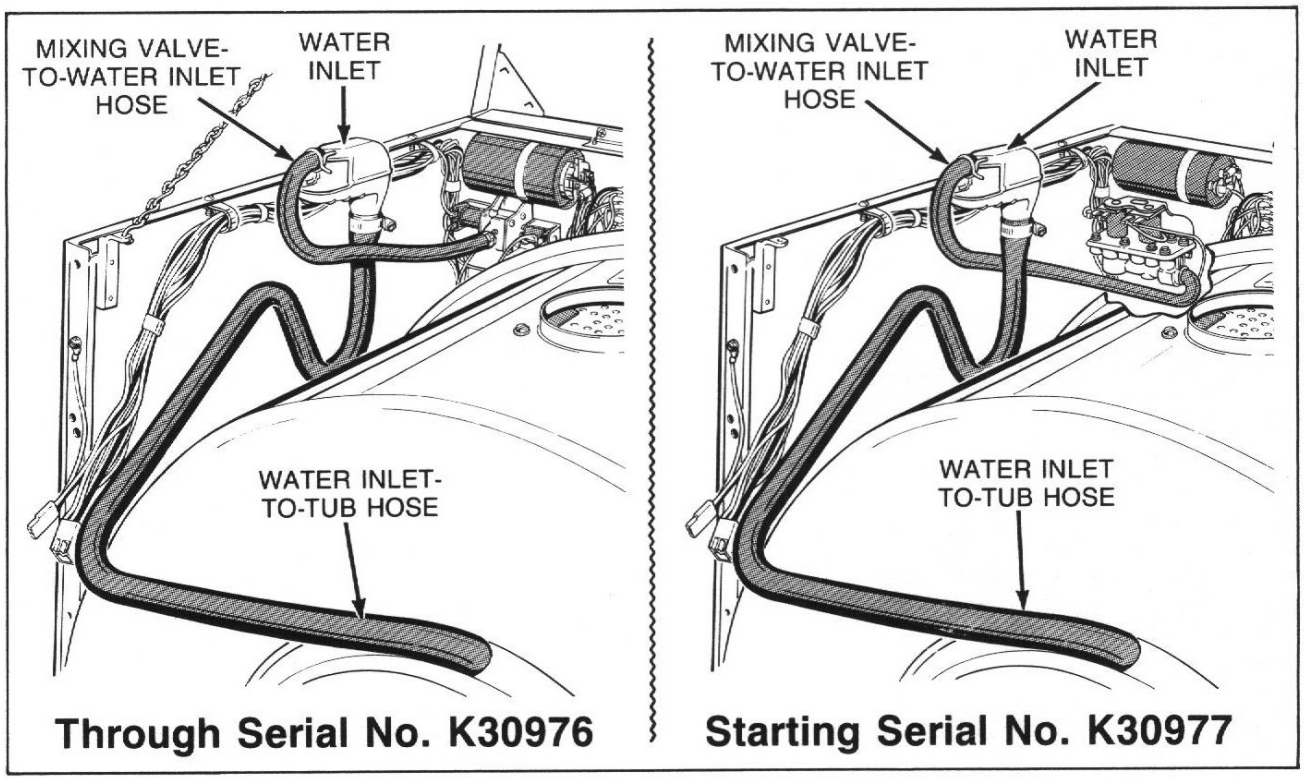

Figure 24

IMPORTANT: (Through Serial No. K30976), install the water inlet-to-tub hose behind mixing valve water inlet hose, *Figure 24.* (Starting Serial No. K30977), install the water inlet-to-tub hose in front of mixing valve water inlet hose, *Figure 24.*

NOTE: Before installing hose in outer tub, apply a small amount of No. 27615 Sealant to hose flange to assure a water tight seal.

28. OVERFLOW HOSE

a. Remove control panel assembly, paragraph 3.
b. Remove air intake grille, paragraph 6.
c. Open dispenser door, compress dispenser boot and push boot down through cabinet top, *Figure 6.*
d. Remove two cabinet top hold-down screws, *Figure 7.*
e. Tilt cabinet top backwards and hold in raised position with a small chain, *Figure 8.*
f. Gravity Drain Models: Disconnect overflow hose from drain hose tee, *Figure 25.*
g. Disconnect overflow hose from outer tub, *Figure 26.* DO NOT chip porcelain tub.

NOTE: Before installing hose in outer tub, apply a small amount of No. 27615 Sealant to hose flange to assure a water tight seal.

IMPORTANT: When installing overflow hose (pump models), run hose on incline toward front of washer, *Figure 26.*

29. CROSS CHANNEL ASSEMBLY

a. Remove control panel assembly, paragraph 3.
b. Open dispenser door, compress dispenser boot and push boot down through cabinet top, *Figure 6.*
c. Remove two cabinet top hold-down screws, *Figure 7.*
d. Tilt cabinet top backwards and hold in raised position with a small chain, *Figure 8.*
e. Remove four scrws and nuts holding cabinet top to hinges, *Figure 8,* and carefully remove cabinet top from washer.
f. Disconnect hoses and wires from mixing valve solenoids and from pressure switch.

NOTE: Refer to appropriate wiring diagram when rewiring mixing valve solenoids and pressure switch.

g. Disconnect main wire harness at connector's, external ground wire from rear cross channel and main wires from terminal block.

IMPORTANT: Refer to appropriate wiring diagram when rewiring terminal block. Be sure nuts are tightened securely.

h. Remove cable clips from left side panel.
i. Disconnect motor wire harness at disconnect block.
j. Pump Models: Disconnect pump motor wires at connectors.

(continued)

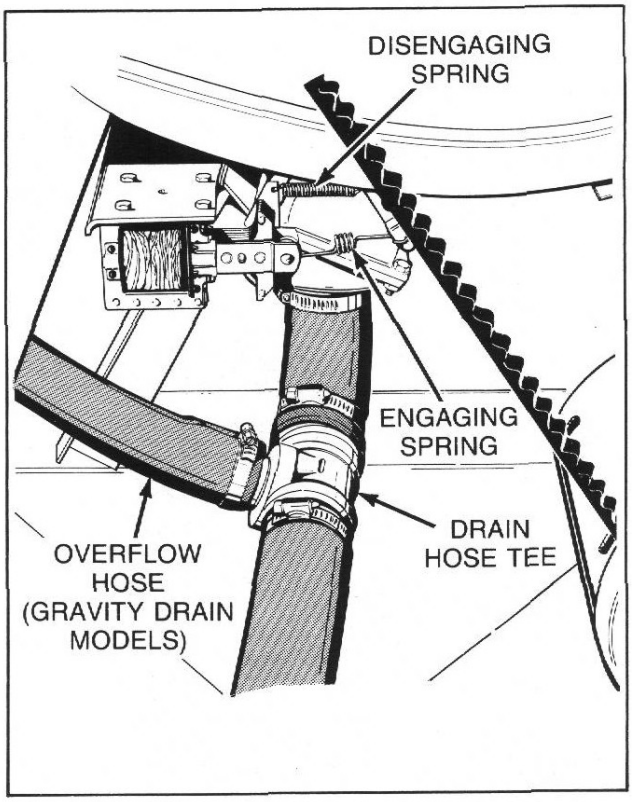

Figure 25

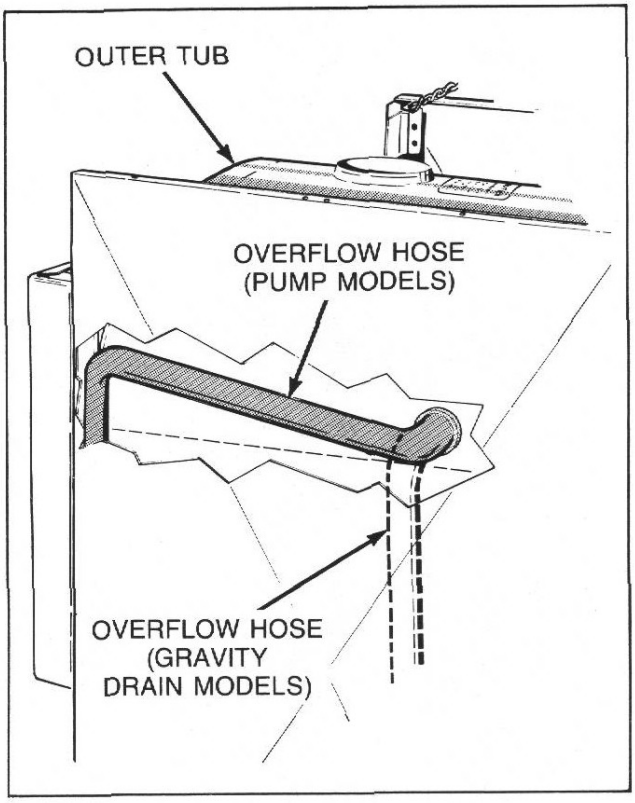

Figure 26

k. Carefully remove screws and lockwashers holding cross channel to each side panel, *Figure 27.*

l. Support cross channel and remove four screws holding top edge of rear panel to cross channel, *Figure 27.*

30. DRIVE MOTOR AND MOUNTING BRACKET

(Refer to Figure 28)

NOTE: If clutch shoes sound noisy, refer to paragraph 32.

a. Remove screws holding rear panel to washer, *Figure 27.*
b. Run belt off cylinder pulley.
c. Disconnect motor wire harness at disconnect blocks.
d. Remove two mounting plate pivot bolts and lockwashers, and allow assembly to pivot down and rest on washer base. Belt adjusting bolts may have to be loosened slightly.
e. Remove two belt adjusting bolts, washers and lockwasher and lift assembly out of washer.

NOTE: When reinstalling assembly, adjust belt, paragraph 39.

ATTENTION

Superload washers installed with an inadequate service area behind the washer, follow these steps for removing drive motor and bracket assembly.

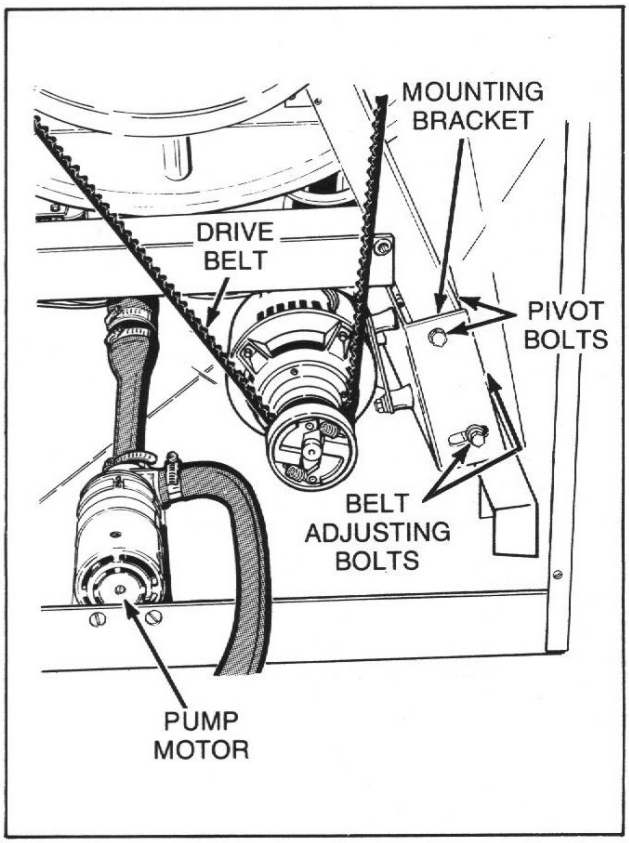

Figure 28

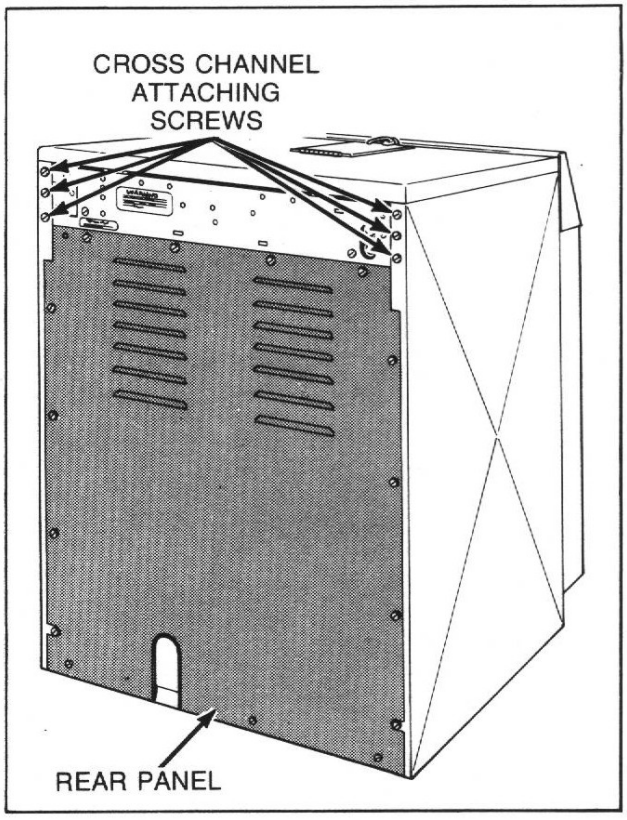

Figure 27

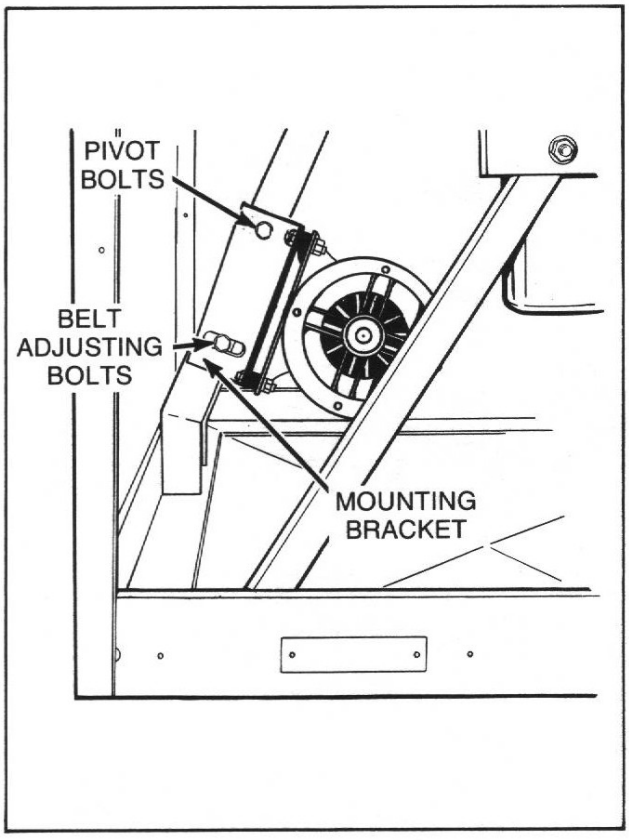

Figure 29

a. Remove air intake grille, paragraph 6.
b. GRAVITY DRAIN MODELS: Disconnect wires from drain valve solenoid.
c. Disconnect motor wire harness at disconnect blocks.
d. Remove two mounting bracket pivot bolts and lockwashers, *Figure 29,* and allow assembly to pivot down and rest on washer base. Belt adjusting bolts may have to be loosened slightly.
e. Remove two belt adjusting bolts, washers and lockwashers, *Figure 29,* and carefully lift assembly out through front of washer.

IMPORTANT: When reinstalling motor and bracket assembly, tighten pivot and adjusting bolts up snug. Tap bottom of mounting bracket with hammer to tighten belt. Tighten adjusting bolts securely, then tighten pivot bolts. Proper belt tension is obtained when belt can be deflected approximately 1/2 inch (12.7 mm) from normal position when moderate pressure (5 pounds - 2.25 kg) is applied to a point midway between pulleys.

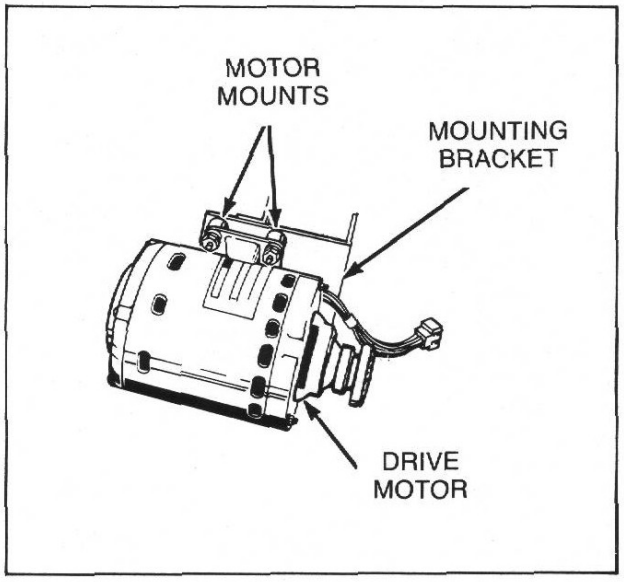

Figure 30

31. DRIVE MOTOR

NOTE: If clutch shoes sound noisy, refer to paragraph 32.

a. Remove drive motor and mounting bracket, paragraph 30.
b. Remove four nuts, washers and lockwashers holding drive motor to rubber motor mounts, *Figure 30.*

32. No. 355P3 CLUTCH REPAIR KIT *(Refer to Figure 31)*

IMPORTANT: When checking clutch operation, a momentary slipping noise may be heard when the motor drive goes into the spin mode. This is normal operation caused by the drive clutch pads engaging against the clutch drum.

TO DISASSEMBLE CLUTCH ASSEMBLY

a. Remove rear panel from washer, *Figure 27.*
b. Block the clutch assembly using a screwdriver between the clutch driver and the back of the clutch drum.

CAUTION: Do not use the screwdriver in the area of the drum facing.

c. Carefully unhook springs from clutch shoes using a needle nose pliers, or a screwdriver.
d. Pry push nuts off clutch driver studs using a screwdriver or by splitting push nuts with a side cutting pliers, then remove the spring washers, clutch shoes and bushings.

TO ASSEMBLE CLUTCH REPAIR KIT

IMPORTANT: All the parts included in the repair kit MUST be installed, DO NOT replace only the worn parts.

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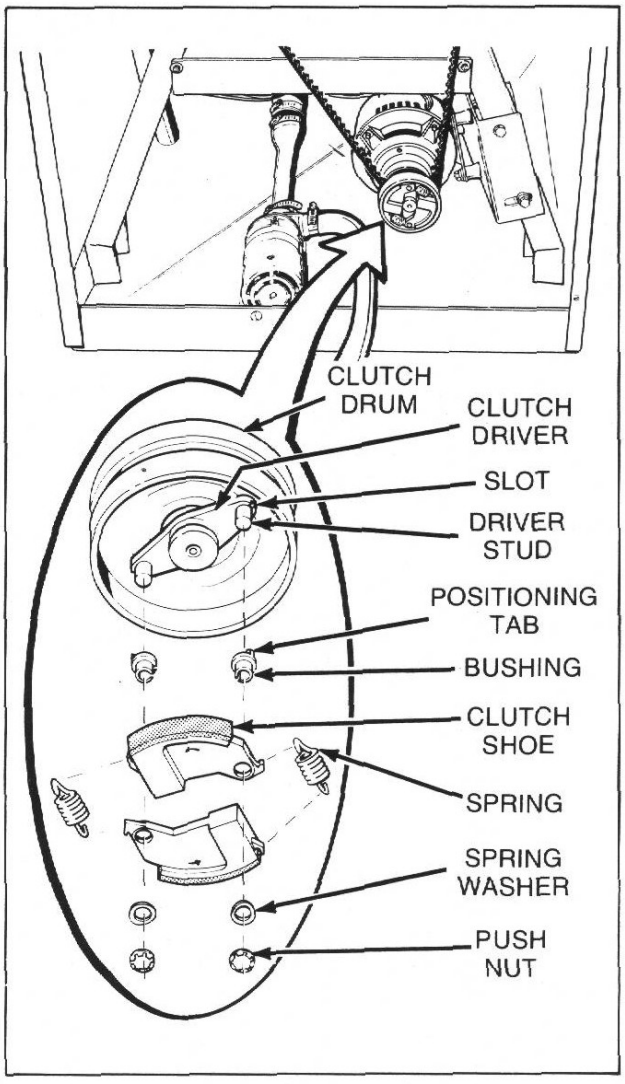

Figure 31

a. Place new bushings on clutch driver studs with positioning tabs fitting into slots in driver.
b. Place new clutch shoes over bushings on driver studs.

NOTE: See *Figure 31* for clutch shoe assembly sequence. Arrows must be facing out on shoes, and pointing in direction of spin.

c. Place new spring washers on driver studs.
d. Press new push nuts on driver studs.

IMPORTANT: When installing push nuts, do not press nuts on studs to the point of binding the clutch shoes. Correct force is 56 to 67 pounds (25.40 to 30.39 kg).

e. Carefully hook new springs on clutch shoes.

IMPORTANT: Do not overstretch springs as it will affect the washer operation.

33. PUMP ASSEMBLY

a. Remove screws holding rear panel to washer, *Figure 27.*
b. Disconnect pump wires at connectors.
c. Remove nut holding ground wire to rear support.
d. Disconnect hoses from pump, *Figure 28.*
e. Remove two screws, nuts and lockwashers holding pump mounting bracket to washer base, *Figure 28.*
f. Remove four screws holding pump body to mounting bracket, *Figure 32.*

NOTE: See *Figure 32* for pump assembly sequence.

IMPORTANT: Mark pump body before disassembling so body can be reinstalled in same position.

34. PULLEY AND HUB ASSEMBLY

a. Remove screws holding rear panel to washer, *Figure 27.*
b. Run belt off pulley.
c. Remove cap screw, lockwasher and flat washer from end of cylinder shaft, *Figure 33.*
d. Loosen two setscrews, *Figure 33,* holding pulley and hub assembly to cylinder shaft and pull pulley off shaft.

NOTE: When reinstalling pulley, cap screw should be tightened before tightening the setscrews.

e. Remove key from shaft.

35. CLOTHES CYLINDER

a. Remove control panel assembly, paragraph 3.
b. Remove air intake grille, paragraph 6.
c. Remove front panel assembly, paragraph 12, steps "c" through "l".

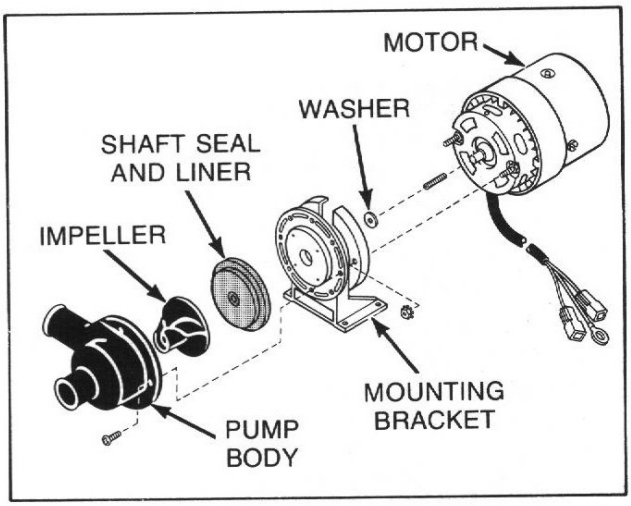

Figure 32

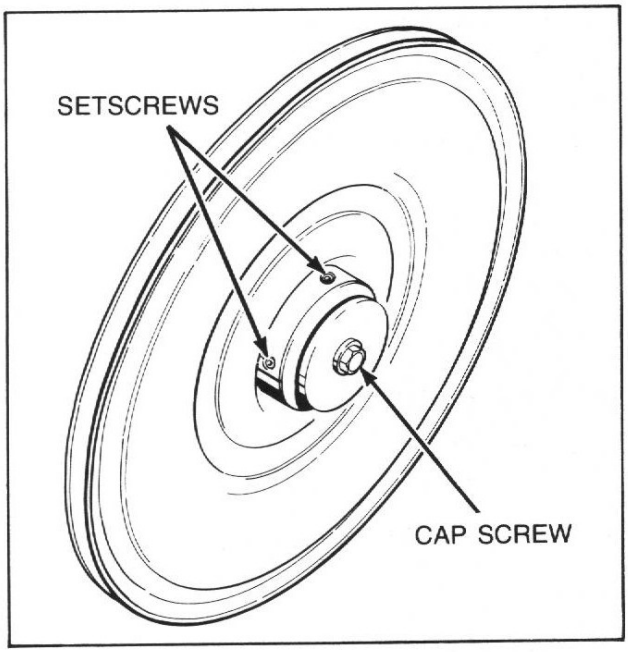

Figure 33

d. Remove pulley and hub assembly, paragraph 34.
e. Loosen hose clamp and disconnect water inlet-to-tub hose from water inlet, *Figure 24,* and pressure hose from pressure switch, *Figure 20.*
f. Loosen dispenser boot clamp and remove boot from outer tub.
g. Remove two screws holding water deflector to outer tub, *Figure 34,* and remove deflector out through dispenser opening.
h. Loosen clamps, then remove button trap, *Figure 35,* and drain hose from bottom of outer tub.

NOTE: Pump Models — When installing filter, the divider in the tub outlet must fit into the slot in the top of the filter assembly.

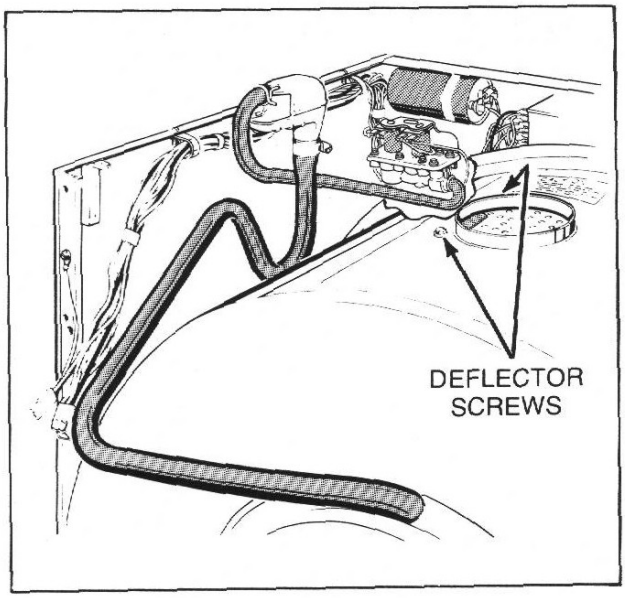

Figure 34

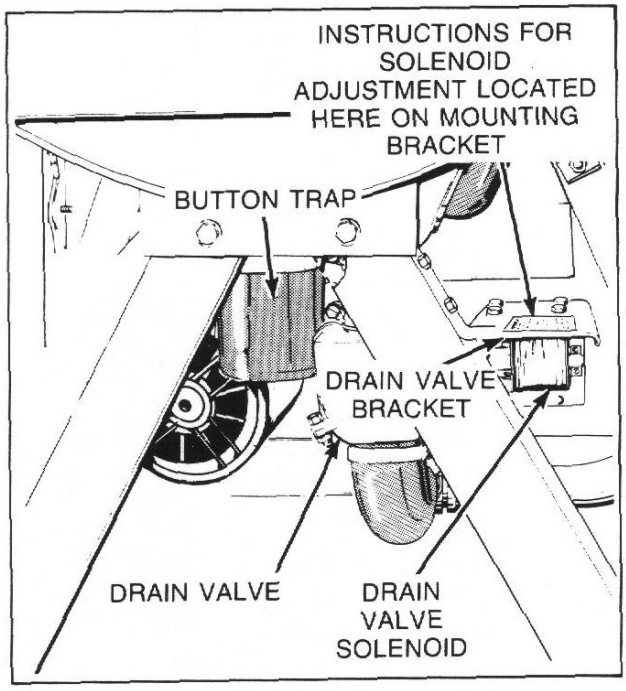

Figure 35

i. Gravity Drain Models: Loosen clamp and disconnect overflow hose from drain hose tee, *Figure 25.*

j. Remove two screws, nuts, washers and lockwashers holding outer tub to rear support, *Figure 36.*

k. Remove two screws, nuts, washers and lockwashers holding outer tub to front support, *Figure 37.*

l. Remove clamp screw, nut and washers holding clamp ring to rear tub head assembly, *Figure 38.*

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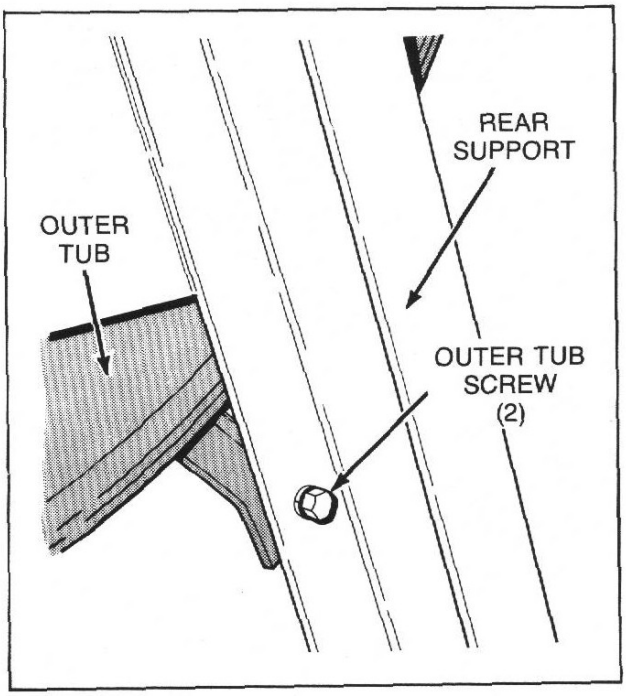


Figure 36

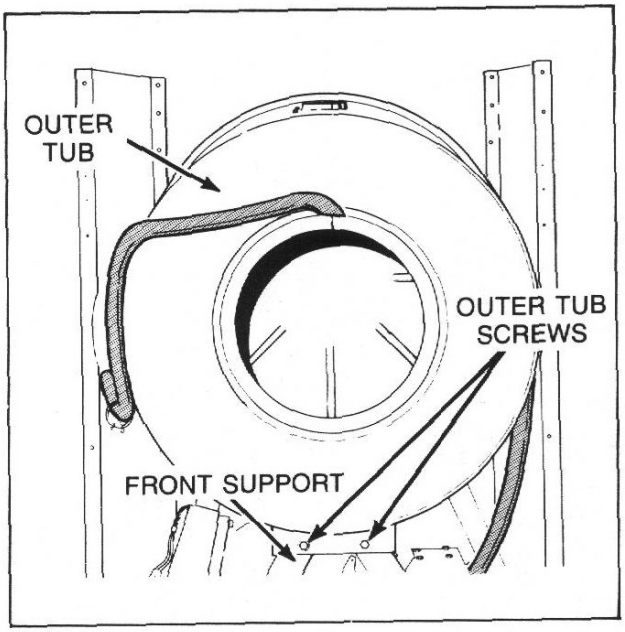


Figure 37

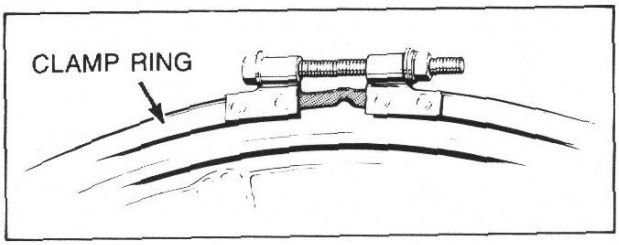


Figure 38

m. Grasp outer tub at dispenser opening and loading door opening, rotate clockwise far enough for drain trough to clear front support, *Figure 39,* and pull outer tub off cylinder.
n. Carefully pull cylinder and shaft out of bearing housing.
o. Remove "O" ring gland, "V" ring seal and two "O" rings from cylinder shaft, *Figure 40.*

IMPORTANT: We recommend installing new "O" rings and "V" ring seal whenever clothes cylinder is removed. Lubricate inside of "O" rings before installing. Care must be taken that "O" rings are not cut or damaged and are in their normal (not inside-out) position when in place. Apply a bead of sealant, such as Dow Corning Silastic® 732-RTV or equivalent (these are clear silicone sealants), around the entire area where the "O" ring gland and the rear tub head meet. Then slide the "V" ring seal over the "O" ring gland and up against the rear tub head.

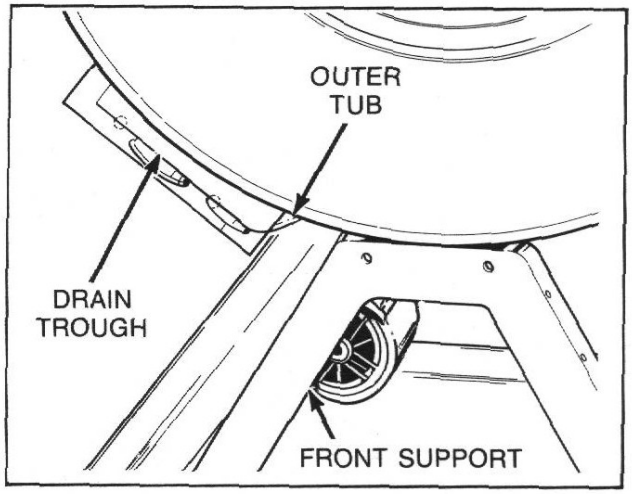


Figure 39

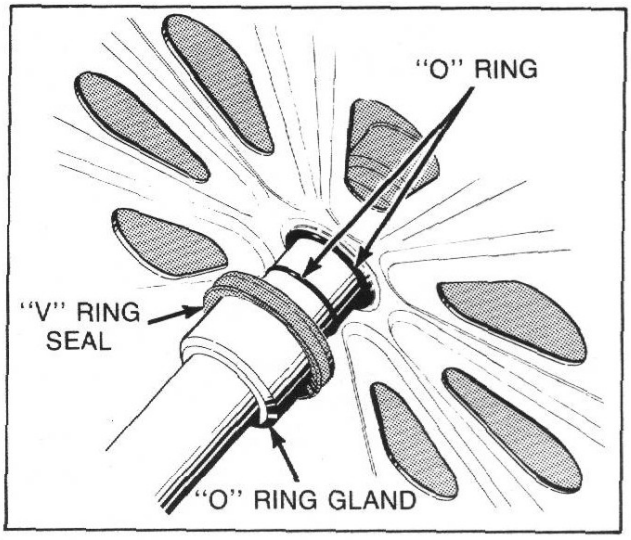


Figure 40

36. REAR TUB HEAD

a. Remove control panel assembly, paragraph 3.
b. Remove air intake grille, paragraph 6.
c. Remove front panel assembly, paragraph 12, steps "c" through "l".
d. Remove pulley and hub assembly, paragraph 34.
e. Remove clothes cylinder, paragraph 35, steps "e" through "n".
f. Remove six screws, lockwashers, gasket retainer and gaskets holding rear tub head to bearing housing, *Figure 41.*

37. WATER SEALS

a. Remove control panel assembly, paragraph 3.
b. Remove air intake grille, paragraph 6.
c. Remove front panel assembly, paragraph 12, steps "c" through "l".
d. Remove pulley and hub assembly, paragraph 34.
e. Remove clothes cylinder, paragraph 35, steps "e" through "n".
f. Remove six screws, lockwashers, gasket retainer and gaskets holding rear tub head to bearing housing, *Figure 41.*
g. Carefully pry water seals out of bearing housing using a pry bar.

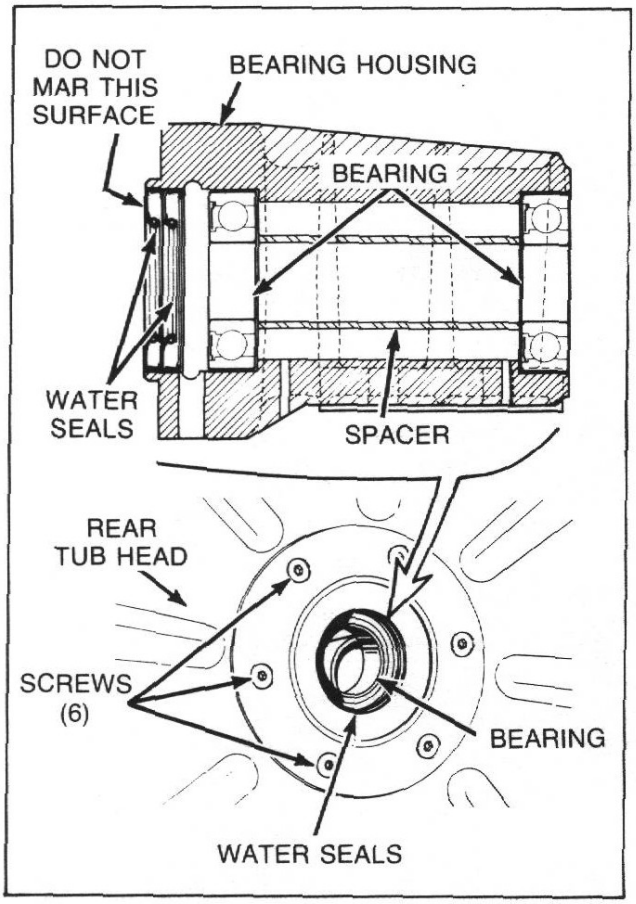


Figure 41

NOTE: New seals should be installed with spring loaded lip facing in as shown in *Figure 41.*

CAUTION: Be careful when installing second water seal as not to mar the surface where the "V" ring seal contacts the water seal, Figure 41.

IMPORTANT: When installing new seals, apply a retaining compound such as Loctite to the outside diameter of seals to assure a water tight seal. Lubricate inside diameter of seals, and inside diameter of "O" ring gland with No. 21814 Lubricant.

38. CYLINDER SHAFT BEARING

a. Remove control panel assembly, paragraph 3.
b. Remove air intake grille, paragraph 6.
c. Remove front panel assembly, paragraph 12, steps "c" through "l".
d. Remove pulley and hub assembly, paragraph 34.
e. Remove clothes cylinder, paragraph 35, steps "e" through "n".
f. Remove six screws, lockwashers, gasket retainers and gaskets holding rear tub head to bearing housing, *Figure 41.*
g. Carefully pry water seals out of bearing housing using a pry bar.

NOTE: Refer to paragraph 37, for proper seal installation.

h. Drive rear bearing out rear of bearing housing using hammer and hardwood dowel.
i. Drive front bearing out front of bearing housing using hammer and hardwood dowel.

NOTE: When replacing bearings, we recommend installing new water seals as per paragraph 37. Apply a retaining compound (such as Loctite) to outside diameter of bearings. Install bearings with sealed side facing rear tub head, *Figure 41 or 42.*

IMPORTANT: If bearing housing was removed, leave mounting bolts slightly loose while positioning outer tub. This allows proper alignment of cylinder to opening of outer tub. Then tighten bolts securely (approximately 100 foot pounds - 135.58 N·m).

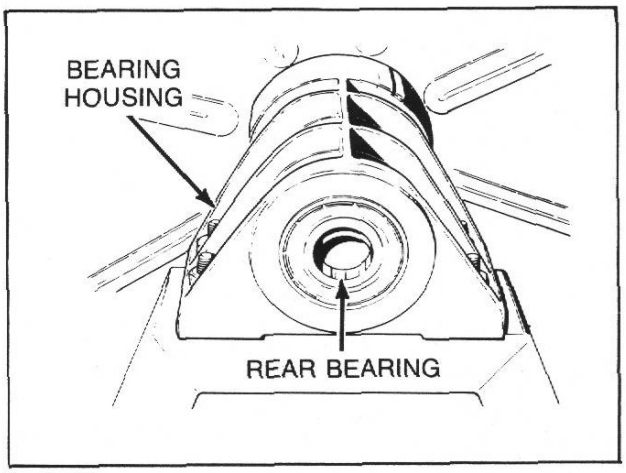


Figure 42

SECTION III
Adjustments

39. DRIVE BELT

The drive belt requires a number of cycles to achieve its permanent operating position in the pulleys. After 25 to 30 cycles, remove rear panel and recheck belt tension.

WARNING

Disconnect electrical power to washer before performing the following adjustment.

a. Remove screws holding rear panel to washer, *Figure 27.*
b. Loosen four bolts holding motor mounting bracket to rear tub support, *Figure 43.*
c. Move bracket to secure proper belt tension. Proper belt tension is obtained when belt can be deflected approximately 1/2 inch (12.7 mm) from normal position when moderate pressure (5 pounds - 2.25 kg) is applied to a point midway between pulleys.
d. After proper belt tension has been obtained, tighten belt adjusting bolts securely, then tighten pivot bolts, *Figure 43.*

40. PRESSURE SWITCH

NOTE: Do not adjust pressure switch if the washer-extractor is within the warranty period.

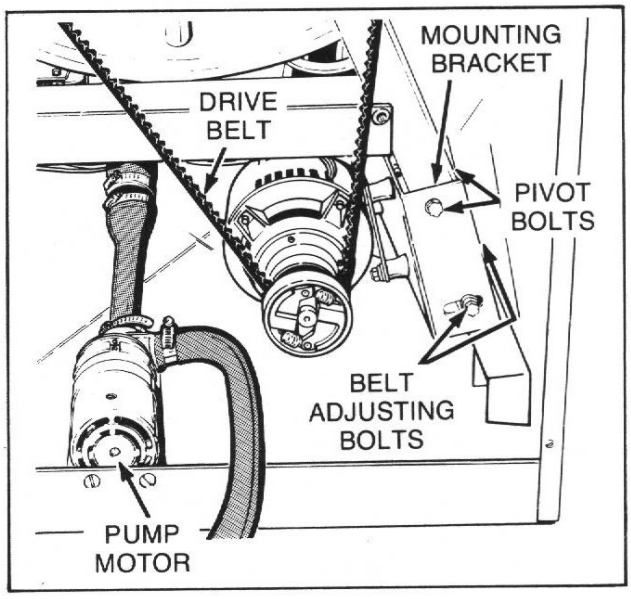


Figure 43

The pressure switch is set at the factory for proper water fill levels. If there is a problem of overfilling or underfilling, check the water depth in the cylinder. At the end of the fill portion, water depth should be approximately 4-1/2 inches (1.43 cm), *Figure 44.* (Measure water depth with no clothes in cylinder.) The pressure switch can be adjusted as follows:

WARNING

Disconnect electrical power to washer before performing the following adjustment.

a. Remove control panel assembly, paragraph 3.
b. Open dispenser door, compress dispenser boot and push boot down through cabinet top, *Figure 6.*
c. Remove two cabinet top hold-down screws, *Figure 7.*
d. Tilt cabinet top backwards and hold in raised position with a small chain, *Figure 8.*
e. Remove sealer from around pressure switch adjusting screw, *Figure 45.*
f. Turn adjusting screw, *Figure 45,* clockwise to increase water level in clothes cylinder, or counterclockwise to decrease water level.

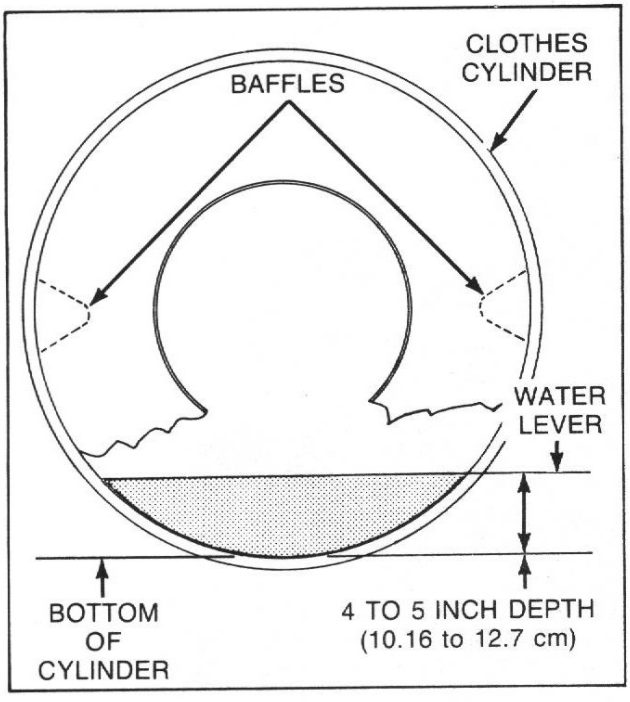


Figure 44

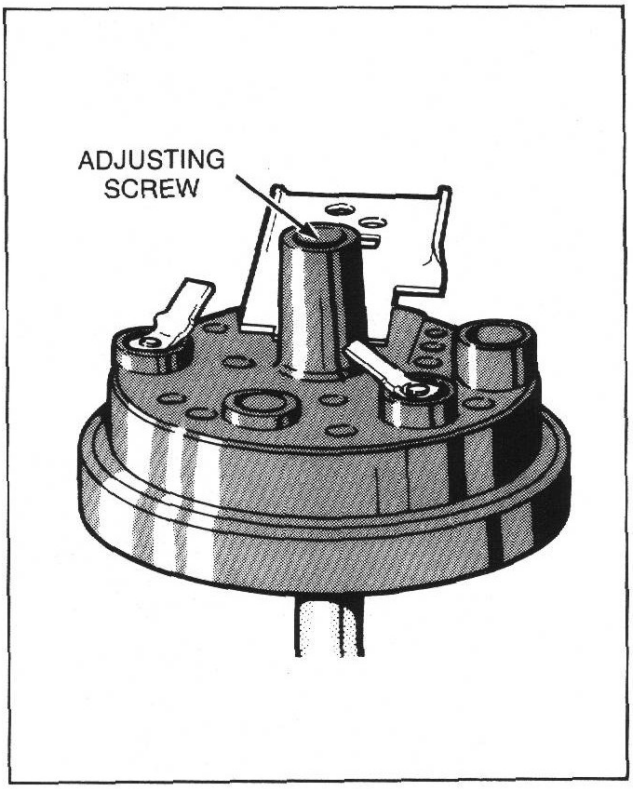


Figure 45

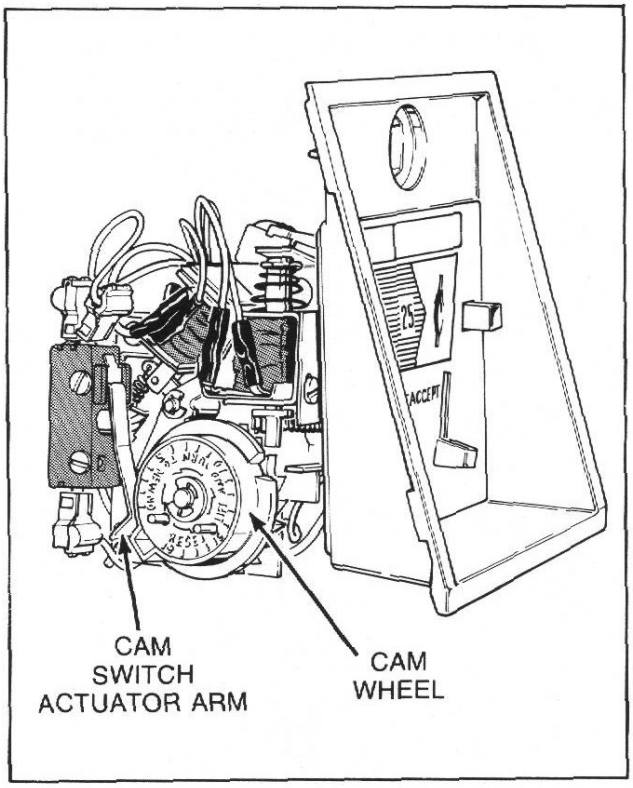


Figure 46

NOTE: 1/4 turn of adjusting screw represents approximately one inch (2.54 cm) increase or decrease of water level in clothes cylinder.

IMPORTANT: DO NOT turn adjusting screw more than 3/4 of a turn in either direction.

41. ACCUMULATOR COIN DROP *(Refer to Figure 46)*

a. Remove coin drop, paragraph 1.
b. Depress cam switch actuator arm.
c. Pull out on cam wheel and turn to desired setting (number of coins per load) by aligning number with elbow in actuator arm.

42. DOOR LOCK ASSEMBLY

IMPORTANT: Before making switch adjustment be sure door handle and latch are aligned, and setscrew (in door handle) is tight.

a. Remove control panel assembly, paragraph 3.
b. Remove air intake grille, paragraph 6.
c. Metered Models: Unlock and remove coin drawer, *Figure 9.*

NOTE: Coin drawer has threaded lock and will require several counterclockwise turns to unlock.

d. Open dispenser door, compress dispenser boot and push boot down through cabinet top, *Figure 6.*
e. Remove two cabinet top hold-down screws, *Figure 7.*
f. Tilt cabinet top backwards and hold in raised position with a small chain, *Figure 8.*
g. Metered Models: Remove flathead screw and locknut holding coin vault to front panel, *Figure 10,* then remove two cap screws and lockwashers holding coin vault to right leg, *Figure 10.*
h. Remove two nuts and lockwashers, *Figure 11,* holding front panel assembly to left leg (leave bolts in place).
i. Remove nut and lockwasher (bottom), and cap screw (top), *Figure 12,* holding front panel assembly to right leg.

NOTE: Pump Models — Overflow hose, *Figure 10,* may have to be pushed down to gain access to cap screw holding top of front panel assembly to right leg.

j. Disconnect door lock wire harness at disconnect blocks.
k. Disengage door seal from front panel flange, *Figure 13.*
l. Carefully remove front panel assembly from washer.

IMPORTANT: When reinstalling front panel assembly, leave bolts loose until the door seal is properly positioned and the door opening is centered with the outer tub when loading door is in the closed position.

(continued)

m. Loosen door safety switch attaching screws, *Figure 47.*

NOTE: Switch is properly adjusted when switch contacts "reset" with 1/16 inch (1.588 mm) clearance between door lock latch and door lock cam.

n. Without moving switch, tighten nut on adjusting screw, then tighten remaining screw. DO NOT overtighten screws.
o. Loosen door lock switch attaching screws, *Figure 47.*

NOTE: Switch is properly adjusted when switch contacts "make" with a 1/16 inch (1.588 mm) clearance between door latch and door lock latch.

p. Without moving switch, tighten nut on adjusting screw, then tighten remaining screw. DO NOT overtighten screws.

43. DRAIN VALVE SOLENOID

a. Remove four screws from base of grille, *Figure 4.*
b. Pull bottom of grille away from washer, lower grille and remove.

NOTE: If washer is equipped with the new style drain valve mounting bracket, then proceed and adjust the solenoid by following the instructions located on the mounting bracket, *Figure 35.*

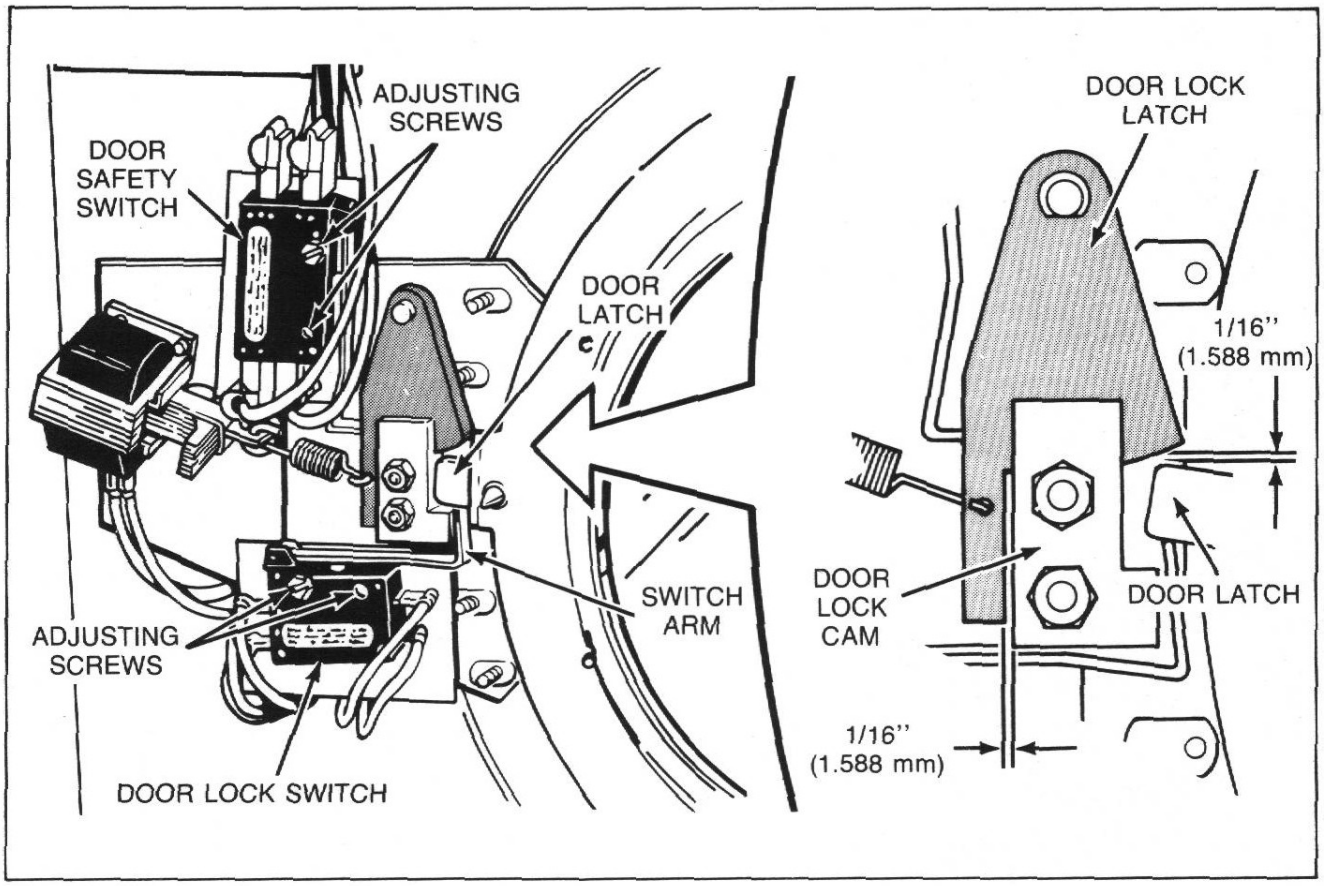


Figure 47

SECTION IV
Test Procedures

NOTE: The following test procedures will concern both voltage and continuity checks.

Voltage checks are taken by setting the meter on a Voltage AC scale that is higher than the expected reading. These voltage checks MUST be done while the washer-extractor is operating. Components must be checked while they are normally energized during the cycle.

Continuity checks are taken by setting the meter on an Ohms scale. The washer-extractor MUST be shut off and the electrical power to the unit MUST be disconnected. When making a continuity check, always disconnect at least one wire to any two points being checked.

IMPORTANT: Electrical test procedures in this manual are performed using a Volt-Ohm meter. Test can also be performed using a multimeter or any other electrical testing equipment with which the service person is familiar.

14. ACCUMULATOR COIN DROP *(Refer to Figure 48)*

a. Remove accumulator coin drop, paragraph 1.
b. CAM SWITCH - with ratchet wheel in the prestart position, continuity should be read from COM. (black) to N.C. (pink). No continuity from COM. (black) to N.O. (brown). Depressing the cam switch actuator arm should cause these readings to be the opposite.
c. ADVANCE SOLENOID - For voltage check, place meter probes on the two solenoid terminals. Depress coin drop wire and you should have 120 Volt reading. For continuity check, meter should read approximately 50 Ω (Ohms).
d. RELEASE SOLENOID - For voltage check, place meter probes on the two solenoid terminals. When softener light comes on, you should have a 120 Volt reading. For continuity check, meter should read approximately 700 Ω (Ohms).

15. START SWITCH - Nonmetered Models

a. Remove start switch, paragraph 2.
b. Disconnect wires from switch terminals.

NOTE: Refer to appropriate wiring diagram when rewiring switch.

IMPORTANT: Before making the following test, momentarily push switch button in to reset switch.

(continued)

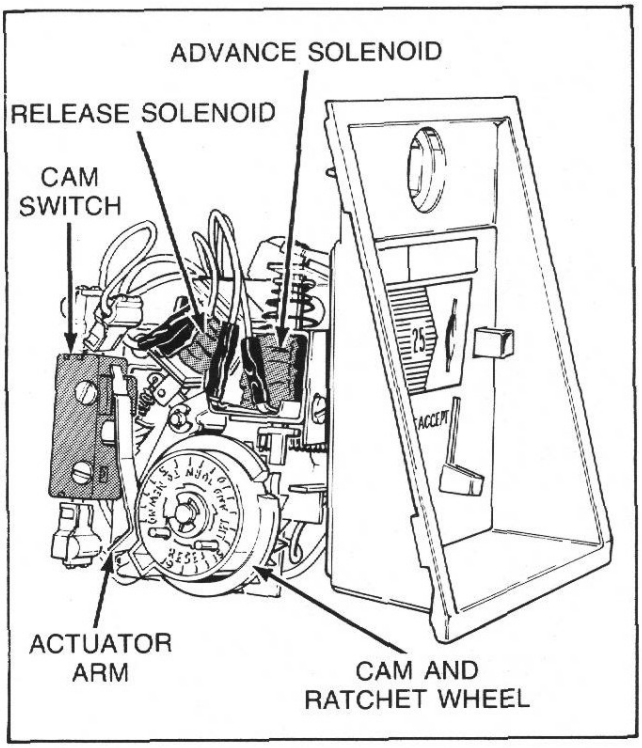


Figure 48

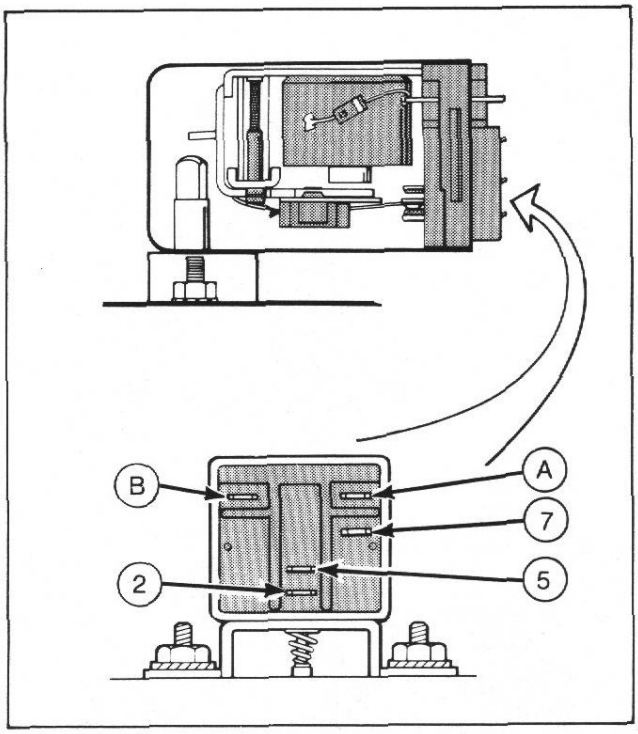


Figure 49

c. For continuity check, place meter probes to terminal No. 7 (common) and to terminal No. 2 (normally closed).
d. Reset switch contacts by momentarily engaging solenoid. For continuity check, place meter probes to terminal No. 7 (common) and to terminal No. 5 (normally open).
e. SOLENOID - For voltage check, place meter probes to solenoid terminals "A" and "B", meter should read 120 Volts when softener light comes on. For continuity check, meter should read approximately 1800 Ω (Ohms) plus or minus ten percent.

46. INDICATOR LIGHTS

a. Remove control panel assembly, paragraph 3.
b. For voltage check, place one meter probe on the colored wire, leading to the light and the other probe to a known ground. If meter reads 120 Volts but light does not glow, replace the light.

NOTE: This check must be done when the light is normally lit during the cycle. Refer to appropriate wiring diagram.

47. WASH TEMPERATURE SWITCH

a. Remove control panel assembly, paragraph 3.
b. Disconnect wires from switch.

NOTE: Refer to appropriate wiring diagram when rewiring switch.

c. Apply meter probes to terminals indicated in *Figure 50* for continuity check.

48. ACTION SWITCH

a. Remove control panel assembly, paragraph 3.
b. Disconnect wires from switch.

NOTE: Refer to appropriate wiring diagram when rewiring switch.

c. Apply meter probes to terminals indicated in *Figure 51* for continuity check.

49. DRAIN VALVE SOLENOID *(Refer to Figure 52)*

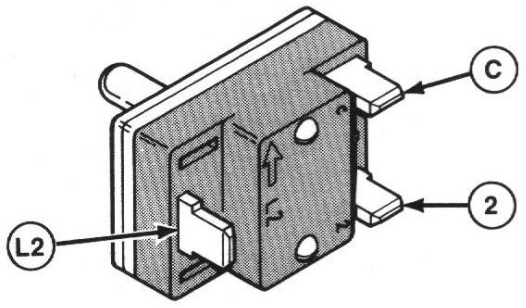
a. Remove air intake grille, paragraph 6.
b. For voltage check, apply meter probes to solenoid terminals. Meter should read 120 Volts during wash cycle. For continuity check, meter should read approximately 4 Ω (Ohms).

50. DOOR LOCK ASSEMBLY *(Refer to Figure 53)*

NOTE: The following checks are made by removing the control panel and disconnecting the harness at the Molex plug. However, the assembly can be removed and each component checked separately.

a. DOOR LOCK SOLENOID - For continuity check, apply meter probes to WHITE and PINK wires at Molex plug, meter should read approximately 120 Ω (Ohms).
b. DOOR LOCK AND SAFETY SWITCH - For continuity check, apply meter probes to YELLOW and ORANGE wires at Molex plug, meter should read a closed circuit with the door closed.

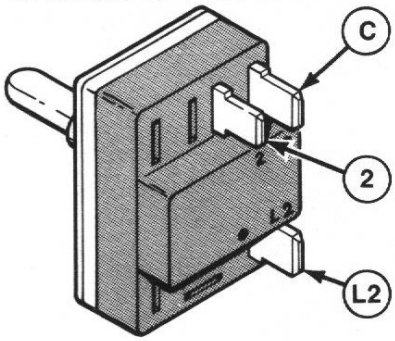
SWITCH IS SHOWN
IN MOUNTED POSITION



POSITION	TERMINAL CONTINUITY OHM METER
HOT	L2-2
WARM	L2-2-C
COLD	L2-C

Figure 50

SWITCH IS SHOWN
IN MOUNTED POSITION



POSITION	TERMINAL CONTINUITY OHM METER
NORMAL	L2-C
GENTLE	L2-2

Figure 51

c. DOOR LOCK AND SAFETY SWITCH - For continuity check, apply meter probes to RED and BLUE wires at Molex plug, meter should read a closed circuit with the door closed.

51. PRESSURE SWITCH *(Refer to Figure 54)*

a. Remove pressure switch, paragraph 21, steps "a" through "e".
b. Attach a short length of hose to pressure switch.
c. For continuity check, apply meter probes to terminals on pressure switch, meter reading should be a closed circuit.
d. Blow gently into hose until a distinct "click" is heard, meter should now read an open circuit.

52. MOTOR RELAY *(Refer to Figure 55)*

a. Remove control panel assembly, paragraph 3.
b. Open dispenser door, compress dispenser boot and push boot down through cabinet top, *Figure 6.*
c. Remove two cabinet top hold-down screws, *Figure 7.*
d. Tilt cabinet top backwards and hold in raised position with a small chain, *Figure 8.*
e. Disconnect wires from relay.

NOTE: Refer to appropriate wiring diagram when rewiring relay.

f. COIL - For continuity check, place meter probes to terminals "A" and "B".

NOTE: The relay is a double pole, double throw relay.

(continued)

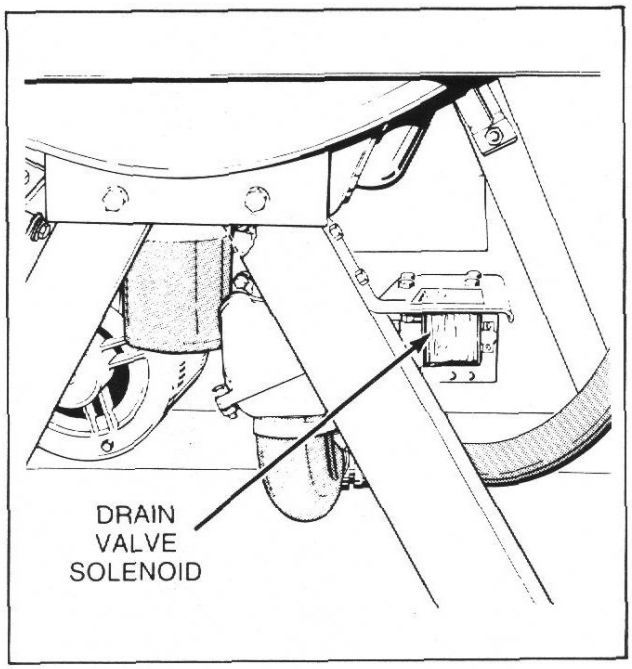


Figure 52

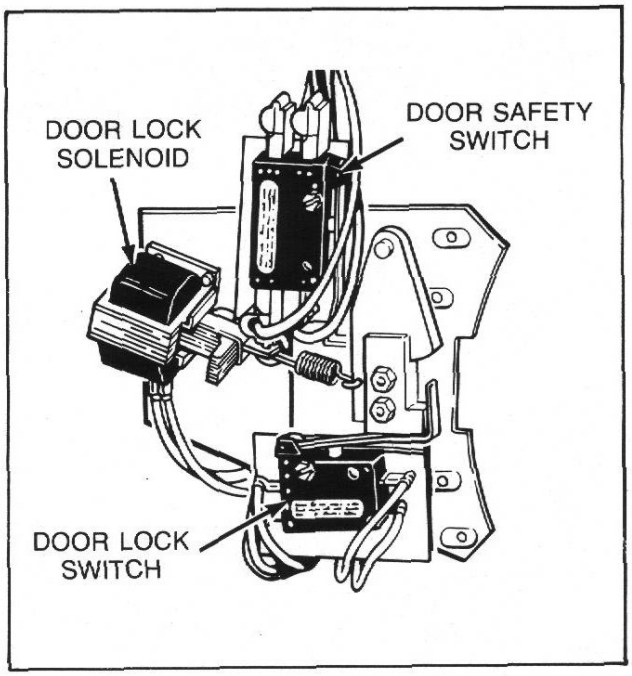


Figure 53

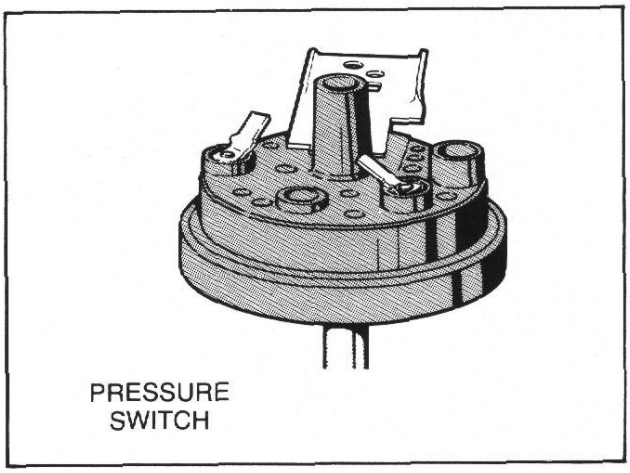


Figure 54

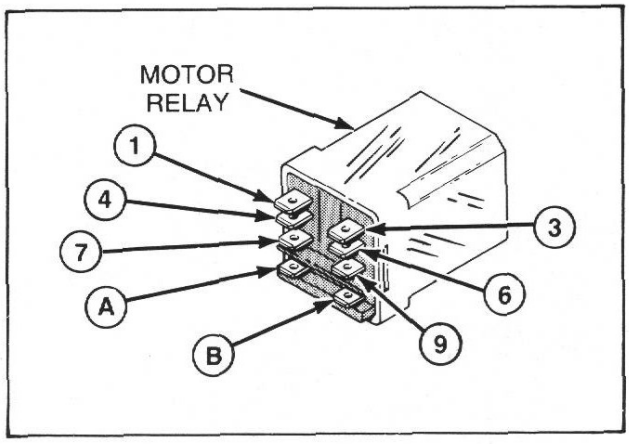


Figure 55

g. For continuity check and with coil de-energized, place meter probes to terminal No. 7 (common) and to terminal No. 1 (normally closed). Then place meter probes to terminal No. 9 (common) and to terminal No. 3 (normally closed).

h. For continuity check and with coil energized, place meter probes to terminal No. 7 (common) and to terminal No. 4 (normally open). Then place meter probes to terminal No. 9 (common) and to terminal No. 6 (normally open).

53. CAPACITOR

a. Remove capacitor, paragraph 24.

b. Check capacitor visually for ruptures or corrosion.

c. Discharge capacitor by shorting across terminals with an insulated screwdriver.

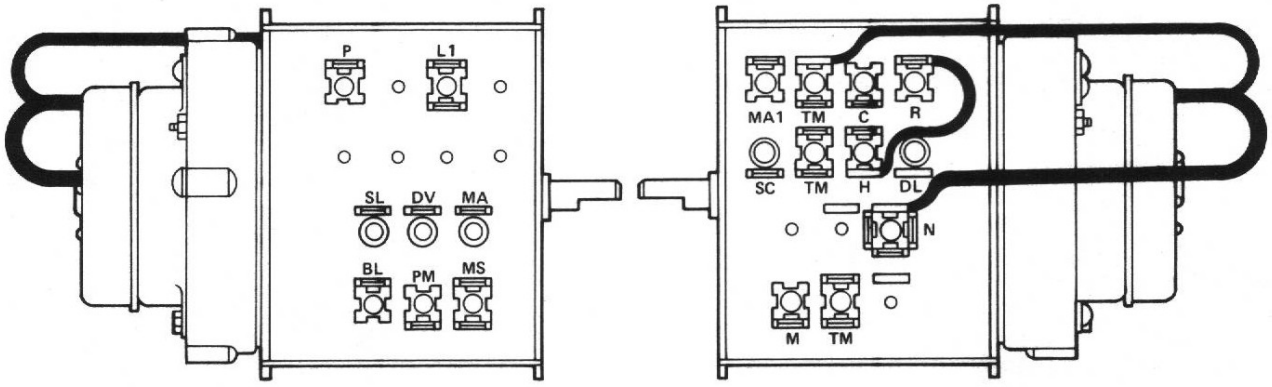
d. Remove wires and resistor from capacitor.

e. For continuity test, set meter in highest scale and apply probes to capacitor terminals. Needle on meter should read closed circuit initially and slowly return back to an open circuit reading.

f. For continuity check, apply one meter probe to capacitor casing and the other to each terminal, all readings should be open.

g. RESISTOR - For continuity check, apply meter probes to resistor terminals, meter should read approximately 220,000 Ω (Ohms).

NO. 81613 CYCLE TIMER



PROBLEM	TIMER TERMINALS	TIMER INCREMENTS
Timer Motor	L1 & TM	2 — 60
Motor Agitation	M & MA	1-23/28-32/38-42/60
Motor Spin	M & MS	24-25/33-35/43-56
Drain Valve	TM & DV	1-15/17-18/26-30/35-40
Detergent Light	P & DL	2 — 4
Softener Light	TM & SL	37 — 39
Bleach Light	TM & BL	9 — 11
*Wash	P & H	1 — 14
*Rinse	P & C	16-21/26-30/36-40
Pump Motor	TM & PM	16-17/19-24/31-34/41-60
Start Circuit	L1 & SC	1 — 2
Timer Synchronization	L1 & MA1	4-23/29-32/39-42
*Remove **R** to **H** jumper wire (if present) when performing either of these tests.		

Figure 56

54. TIMER MOTOR (Cycle or Reversing Timer)

a. Remove timer motor, paragraph 23.
b. For continuity check, apply meter probes to each timer motor wire terminals, meter should read approximately 3,000 Ω (Ohms).
c. Apply live power to timer motor wire terminals, timer motor should run.

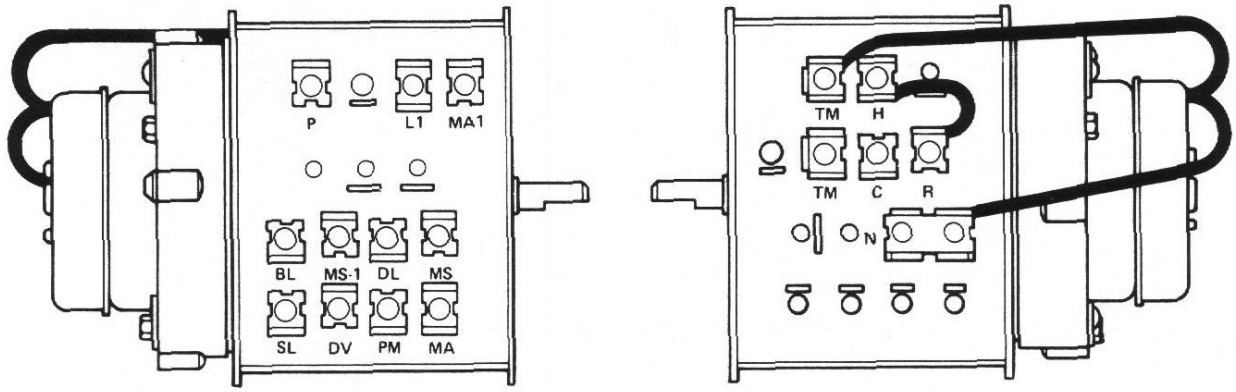
55. CYCLE TIMER

a. Remove timer, paragraph 23.
b. Disconnect wires from timer terminals.

NOTE: Refer to appropriate wiring diagram when rewiring timer.

c. Apply meter probes to timer terminals indicated in *Figure 56 or 57* for continuity check.

NO. 81693 CYCLE TIMER



PROBLEM	TIMER TERMINALS	TIMER INCREMENTS
Timer Motor	L1 & Tm	2 — 60
Motor Agitation	M & MA	2-23/28-32/38-42/60
Motor Spin	M & MS	24-25/33-35/43-56
Drain Valve	TM & DV	1-15/17-18/26-30/35-40
Detergent Light	P & DL	2 — 4
Softener Light	TM & SL	37 — 39
Bleach Light	TM & BL	9 — 11
*Wash	P & H	1 — 14
*Rinse	P & C	16-21/26-30/36-40
Pump Motor	TM & PM	16-17/19-25/31-35/41-60
Start Circuit	L1 & SC	1 — 2
Timer Synchronization	L1 & MA1	4-23/29-32/39-42
*Remove **R** to **H** jumper wire (if present) when performing either of these tests.		

Figure 57

56. REVERSING TIMER

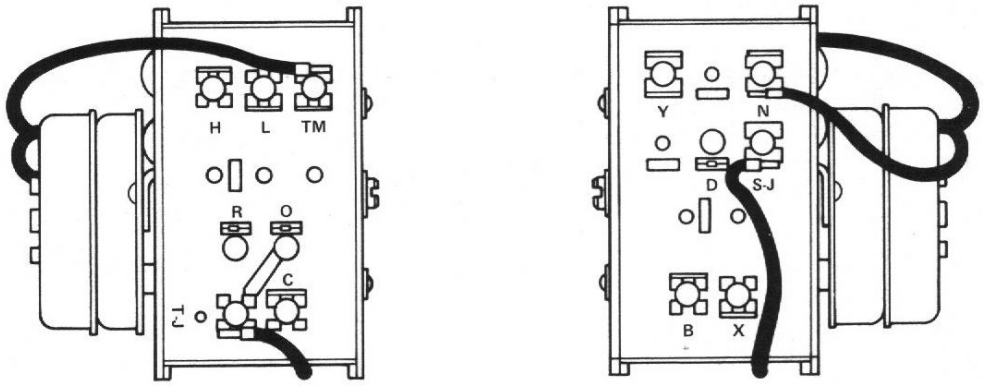
a. Remove timer, paragraph 23.
b. Disconnect wires from timer terminals.

NOTE: Refer to appropriate wiring diagram when rewiring timer.

c. Apply meter probes to timer terminals indicated in *Figure 58* for continuity check.

NOTE: During the agitation portion of the cycle, the center screw should revolve once every two minutes.

REVERSING TIMER



PROBLEM	TIMER TERMINAL	TIMER INCREMENT
Cam 2 Cam 4	C & B T-J & X	Meter should read open or closed approximately every 1/4 turn of center screw.
Gentle Agitation	L & S-J	Meter should read open or closed four times per revolution.
Normal Agitation	H & S-J	Meter should read open or closed four times per revolution.
Timer Synchronization	Y & T-M	Meter should read closed three times and open two times per revolution.

Figure 58

57. MIXING VALVE SOLENOID

a. Raise cabinet top assembly, paragraph 10.
b. Remove wires from solenoid.

NOTE: Refer to appropriate wiring diagram when rewiring solenoids.

c. For voltage check, apply meter probes to solenoid terminals, meter should read 120 Volts.
d. For continuity check, apply meter probes to solenoid terminals, meter should read approximately 600 Ω (Ohms).

58. PUMP MOTOR *(Refer to Figure 59)*

a. Remove rear panel.
b. Disconnect motor wire leads at connectors.
c. For voltage check, apply meter probes to motor leads, meter reading should be 120 Volts.
d. For continuity check, apply meter probes to motor leads, meter should read approximately 4 Ω (Ohms).

59. DRIVE MOTOR *(Refer to Figure 59)*

a. Remove rear panel.
b. Disconnect motor wire harness at disconnect block.

NOTE: Number 81691 Service Harness is available for checking out the motor. Use it **ONLY** with an adjacent Superload II Washer-Extractor in working order.

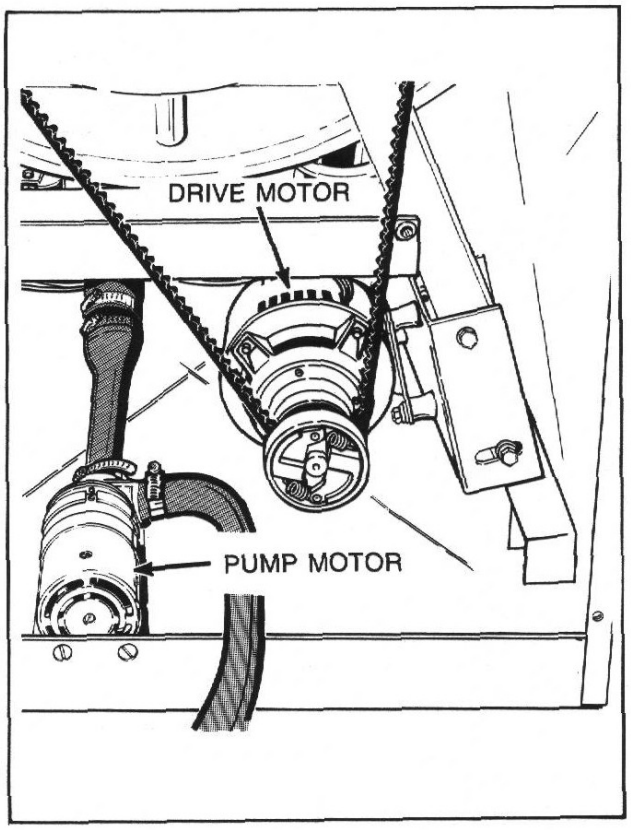


Figure 59

SECTION V
Service Helps

60. WASHER DOES NOT START

POSSIBLE CAUSE	TO CORRECT
Electric power disconnected or fuse blown.	Connect electrical power or replace fuse.
Inoperative start switch (Nonmetered Models).	Test start switch, paragraph 45, and replace if inoperative, paragraph 2.
Accumulator Coin Drop (Metered Models) Coin drop does not accept coins. (1) Inoperative coin switch. (2) Inoperative advance solenoid. (3) Bent coin switch trip wire. (4) Ratchet binding. (5) Advance solenoid plunger binding. (6) Advance solenoid does not pivot.	Check out accumulator coin drop per paragraph 44.
Improperly adjusted door lock switch.	Adjust switch, paragraph 42.
Inoperative door lock switch.	Test switch, paragraph 50, and replace if inoperative, paragraph 15.
Improperly adjusted door safety switch.	Adjust switch, paragraph 42.
Inoperative door safety switch.	Test switch, paragraph 50, and replace if inoperative, paragraph 15.
Inoperative cycle timer.	Test timer start circuit, paragraph 55, and replace if inoperative.
Broken, loose or incorrect wiring.	Refer to appropriate wiring diagram.

61. CYLINDER DOES NOT FILL

POSSIBLE CAUSE	TO CORRECT
No hot water.	Refer to paragraph 62.
No cold water.	Refer to paragraph 63.
Inoperative pressure switch.	Test switch, paragraph 51, and replace if inoperative, paragraph 21.
Improperly adjusted pressure switch.	Adjust switch, paragraph 40.
Inoperative cycle timer.	Test timer, paragraph 55, and replace if inoperative, paragraph 23.
Inoperative drain valve solenoid.	Test solenoid, paragraph 49, and replace if inoperative, paragraph 19.
Drain valve engaging spring is broken, weak or disconnected.	Replace or connect spring, *Figure 25.*
Obstruction in drain valve.	Clean valve, *Figure 19.*
Broken, loose or incorrect wiring.	Refer to appropriate wiring diagram.

62. NO HOT WATER

POSSIBLE CAUSE	TO CORRECT
Water in hot water tank cold.	
Hot water supply line closed.	Check for closed valve, kinked hose or obstruction in line.
Clogged water mixing valve inlet screen.	Remove and clean or replace screen, *Figure 23.*
WASH TEMPERATURE switch improperly set or inoperative.	Set switch or test switch, paragraph 47, and replace if inoperative, paragraph 5.
Inoperative hot water solenoid.	Test solenoid, paragraph 57, and replace if inoprative, *Figure 23.*
Inoperative cycle timer.	Test timer, paragraph 55, and replace if inoperative, paragraph 23.
Broken, loose or incorrect wiring.	Refer to appropriate wiring diagram.

63. NO COLD WATER

POSSIBLE CAUSE	TO CORRECT
Cold water supply line closed.	Check for closed valve, kinked hose or obstruction in line.
Clogged water mixing valve inlet screen.	Remove and clean, or replace screens, *Figure 23.*
WASH TEMPERATURE switch improperly set or inoperative.	Set switch or test switch, paragraph 47, and replace if inoperative, paragraph 5.
Inoperative cold water solenoid.	Test solenoid, paragraph 57, and replace if inoperative, *Figure 23.*
Inoperative cycle timer.	Test timer, paragraph 55, and replace if inoperative, paragraph 23.
Broken, loose or incorrect wiring.	Refer to appropriate wiring diagram.

64. NO WARM WATER

POSSIBLE CAUSE	TO CORRECT
No hot water.	Refer to paragraph 62.
No cold water.	Refer to paragraph 63.

65. WATER DOES NOT SHUT OFF

POSSIBLE CAUSE	TO CORRECT
Sediment in water mixing valve.	Disassemble and clean, *Figure 23.*
Weak or broken armature spring in water mixing valve.	Replace spring, *Figure 23.*
Inoperative pressure switch.	Test switch, paragraph 51, and replace if inoperative, paragraph 21.
Pressure switch improperly adjusted.	Adjust switch, paragraph 40.
Incorrect wiring.	Refer to appropriate wiring diagram.

66. WATER DOES NOT DRAIN FROM CLOTHES CYLINDER

POSSIBLE CAUSE	TO CORRECT
Obstruction in drain valve.	Clean valve, *Figure 19.*
Kinked drain hose.	Straighten drain hose.
Pump Models: Obstruction in pump.	Clean pump, *Figure 32.*
Pump Models: Inoperative pump motor.	Test pump motor, paragraph 58, and replace if inoperative, paragraph 33.
Inoperative cycle timer.	Test timer, paragraph 55, and replace if inoperative, paragraph 23.
Broken, weak or disconnected drain valve disengaging spring.	Replace or connect spring, *Figure 25.*
Incorrect wiring.	Refer to appropriate wiring diagram.

67. DRIVE MOTOR DOES NOT RUN

POSSIBLE CAUSE	TO CORRECT
No electrical power.	Check fuses, switch box and power cord.
Inoperative cycle timer.	Test timer, paragraph 55, and replace if inoperative, paragraph 23.
Inoperative reversing timer.	Test timer, paragraph 56, and replace if inoperative, paragraph 23.
Inoperative action switch.	Test switch, paragraph 48, and replace if inoperative, paragraph 5.
Improperly adjusted door lock switch.	Adjust switch, paragraph 42.
Inoperative door lock switch.	Test switch, paragraph 50, and replace if inoperative, paragraph 15.
Improperly adjusted door safety switch.	Adjust switch, paragraph 42.
Inoperative door safety switch.	Test switch, paragraph 50, and replace if inoperative, paragraph 15.
Motor overload protector has cycled.	Wait two or three minutes for overload protector to reset. If protector cycles repeatedly, refer to paragraph 68.
Inoperative capacitor.	Test capacitor, paragraph 53, and replace if inoperative, paragraph 24.
Inoperative drive motor.	Test motor, paragraph 59, and replace if inoperative, paragraphs 30 and 31.
Inoperative motor relay.	Test motor relay, paragraph 52, and replace if inoperative, paragraph 22.
Broken, loose or incorrect wiring.	Refer to appropriate wiring diagram.

68. MOTOR OVERLOAD PROTECTOR CYCLES REPEATEDLY

POSSIBLE CAUSE	TO CORRECT
Low voltage.	See Installation Instructions (supplied with washer) for electrical requirements.
Belt is too tight.	Adjust belt, paragraph 39.
Inoperative motor overload protector.	Replace drive motor, paragraph 31.
Water does not drain from clothes cylinder.	Refer to paragraph 66.
Inoperative motor relay.	Test motor relay, paragraph 52, and replace if inoperative, paragraph 22.

69. CYLINDER DOES NOT TURN

POSSIBLE CAUSE	TO CORRECT
Drive motor does not run.	Refer to paragraph 67.
Loose or broken drive belt.	Adjust belt, paragraph 39, or replace belt.

70. CYCLE TIMER DOES NOT ADVANCE

POSSIBLE CAUSE	TO CORRECT
Inoperative timer motor.	Test timer motor, paragraph 54, and replace if inoperative, paragraph 23.
Inoperative timer escapement.	If timer motor operates but timer does not advance, replace escapement, paragraph 23.

SECTION VI
Timer Sequence Chart

No. 81613 Timer

OPERATIONS	MINUTES	GALLONS WATER	WATER TEMP. WITH WASH TEMP. SWITCH SET AT:		
			HOT	WARM	COLD
WASH FILL	1/2	1.9 (7.22 L)	HOT	WARM	COLD
WASH FILL AND TUMBLE	6-1/2	*VARIABLE	HOT	WARM	COLD
TUMBLE	1/2				
TUMBLE AND RINSE FILL	3	*VARIABLE	COLD	WARM	COLD
TUMBLE	1				
SPIN	1				
RINSE FILL	1	3.8 (14.44 L)	†COLD	WARM	COLD
TUMBLE AND RINSE FILL	1-1/2	*VARIABLE	†COLD	WARM	COLD
TUMBLE	1				
SPIN	1-1/2				
RINSE FILL	1	3.8 (14.44 L)	†COLD	WARM	COLD
TUMBLE AND RINSE FILL	1-1/2	*VARIABLE	†COLD	WARM	COLD
TUMBLE	1				
SPIN	7				
PAUSE	1-1/2				
TUMBLE	1/2				
TOTALS	30	**VARIABLE			

*If proper water level is reached before end of fill period, pressure switch will stop water fill.

**Amount of water used depends on size of load and fabrics being washed. Approximately 40 gallons (151.4 L) for 20 lb. (9 kg) AHAM cotton load.

†To obtain all warm water rinses in the HOT WASH TEMPERATURE setting, add a jumper wire between terminals H and R on the cycle timer.

No. 81693 TIMER

OPERATIONS	MINUTES	GALLONS WATER	WATER TEMP. WITH WASH TEMP. SWITCH SET AT:		
			HOT	WARM	COLD
WASH FILL	1/2	1.9 (7.22 L)	HOT	WARM	COLD
WASH FILL AND TUMBLE	6-1/2	*VARIABLE	HOT	WARM	COLD
TUMBLE	1/2				
TUMBLE AND RINSE FILL	3	*VARIABLE	COLD	WARM	COLD
TUMBLE	1				
SPIN	1				
RINSE FILL	1	3.8 (14.44 L)	†COLD	WARM	COLD
TUMBLE AND RINSE FILL	1-1/2	*VARIABLE	†COLD	WARM	COLD
TUMBLE	1				
SPIN	1-1/2				
RINSE FILL	1	3.8 (14.44 L)	†COLD	WARM	COLD
TUMBLE AND RINSE FILL	1-1/2	*VARIABLE	†COLD	WARM	COLD
TUMBLE	1				
SPIN	7				
PAUSE	1-1/2				
TUMBLE	1/2				
TOTALS	30	**VARIABLE			

*If proper water level is reached before end of fill period, pressure switch will stop water fill.

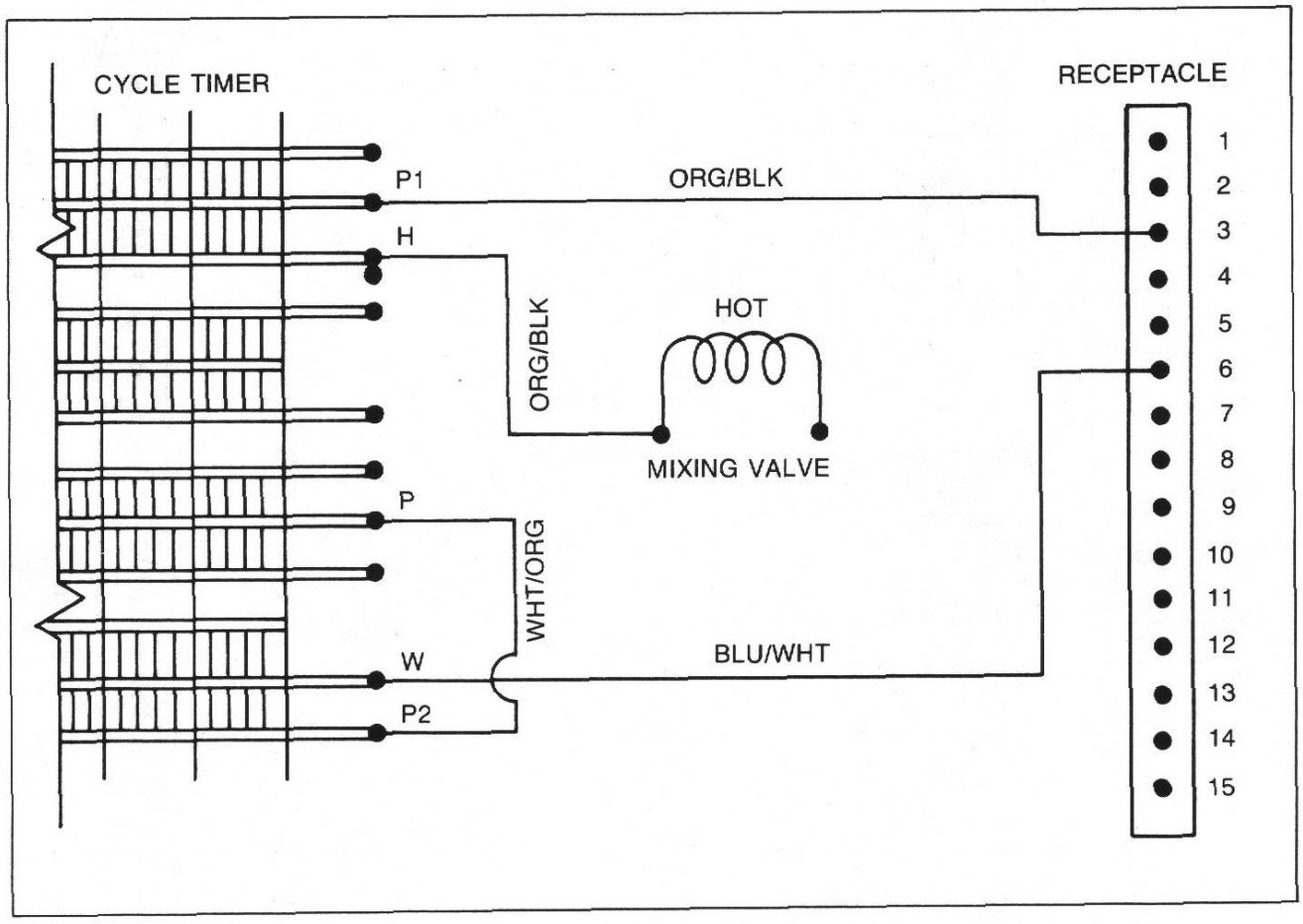
**Amount of water used depends on size of load and fabrics being washed. Approximately 43 gallons (163.4 L) for 25 lb. (11.34 kg) AHAM cotton load.

†To obtain different rinse water temperatures in the WASH TEMPERATURE setting, refer to Section VII in this manual.

SECTION VII
Rinse Water Options

Starting with Serial No. F29794, the cycle timer on the Superload II Washer-Extractor is wired for all cold water rinses. See illustration below. For other rinse water options, see page 64 or 65.

"WASH TEMPERATURE" (SWITCH SETTING)	RINSE WATER TEMPERATURE
Hot	Cold
Warm	Cold
Cold	Cold



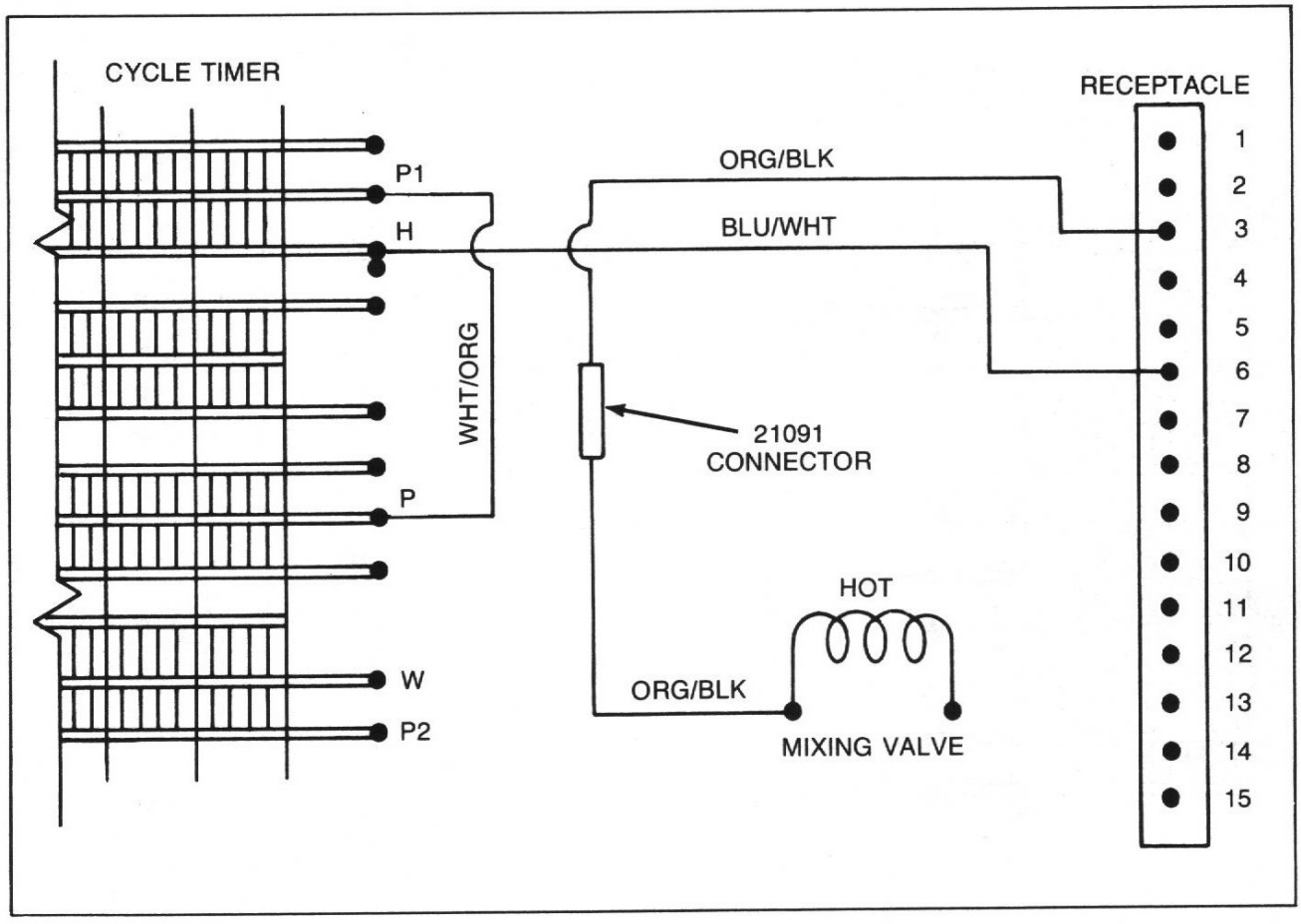
To obtain warm water rinse on the "WARM" WASH TEMPERATURE (switch setting), rewire the cycle timer as shown in the illustration below.

1. Remove each of the orange/black wires from the cycle timer terminals "P1" and "H", then connect the ends of these wires together using a connector, Part No. 21091.

2. Remove the white/orange wire from the cycle timer terminal "P2" and reconnect the wire to timer terminal "P1".

3. Remove the blue/white wire fromthe cycle timer terminal "W" and reconnect the wire to timer terminal "H".

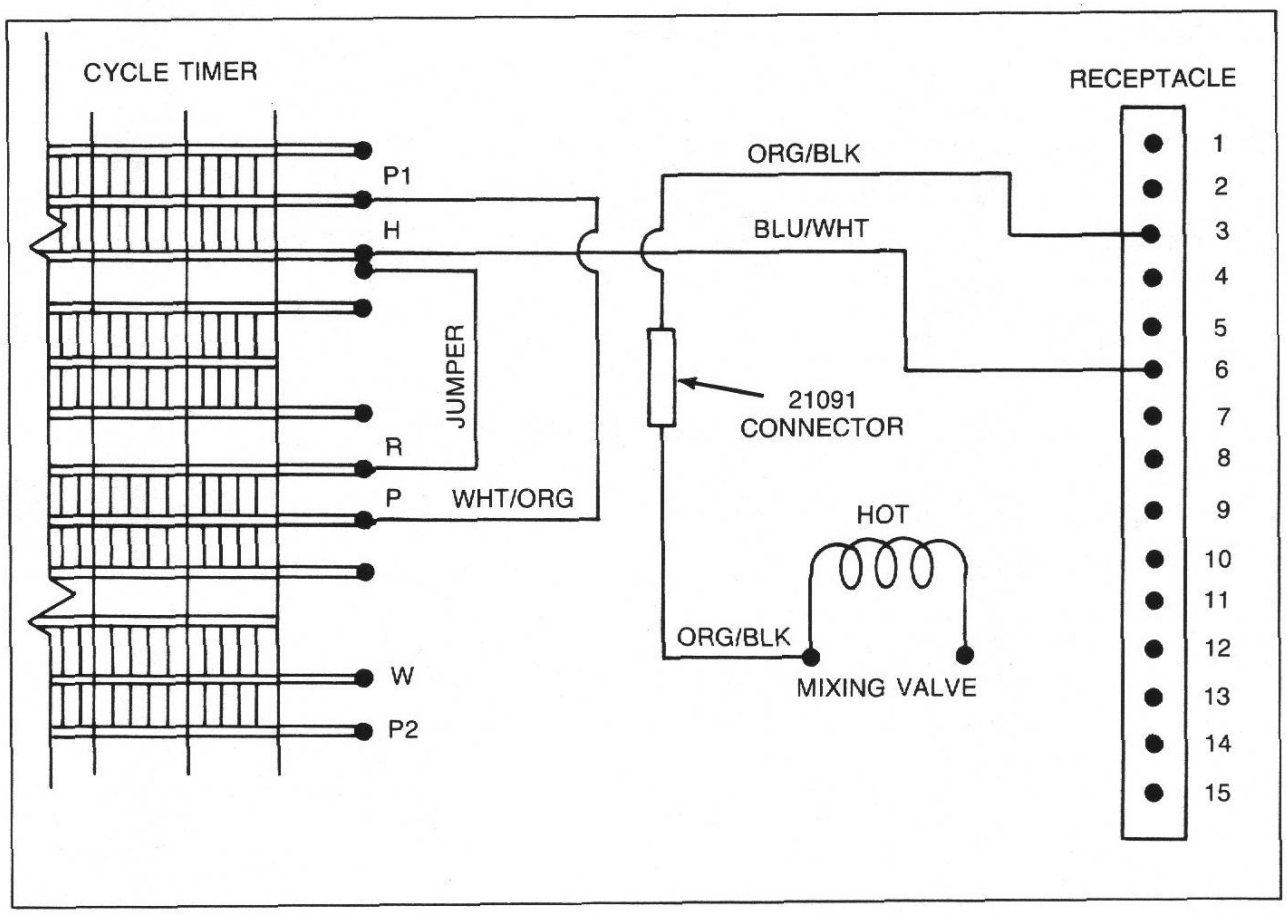
"WASH TEMPERATURE" (SWITCH SETTING)	RINSE WATER TEMPERATURE
Hot	Cold
Warm	Warm
Cold	Cold



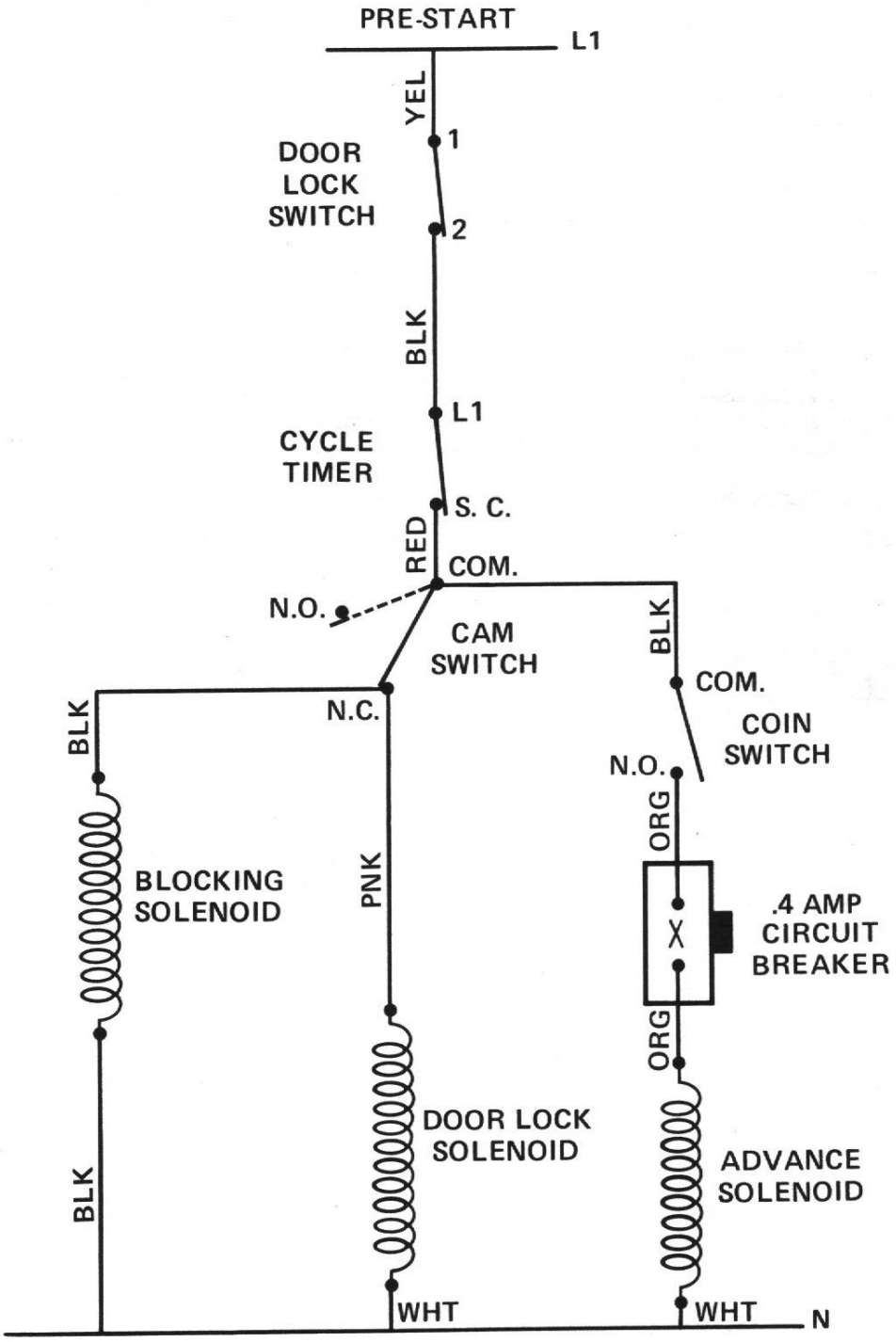
To obtain warm water rinses on the "HOT" or "WARM" WASH TEMPERATURE (switch setting) rewire the cycle timer as shown in the illustration below.

1. Remove each of the orange/black wires from the cycle timer terminals "P1" and "H", then connect the ends of these wires together using a connector, Part No. 21091.
2. Remove the white/orange wire from the cycle timer terminal "P2" and reconnect the wire to timer terminal "P1".
3. Remove the blue/white wire from the cycle timer terminal "W" and reconnect the wire to timer terminal "H".
4. Add a jumper wire between cycle timer terminals "H" and "R".

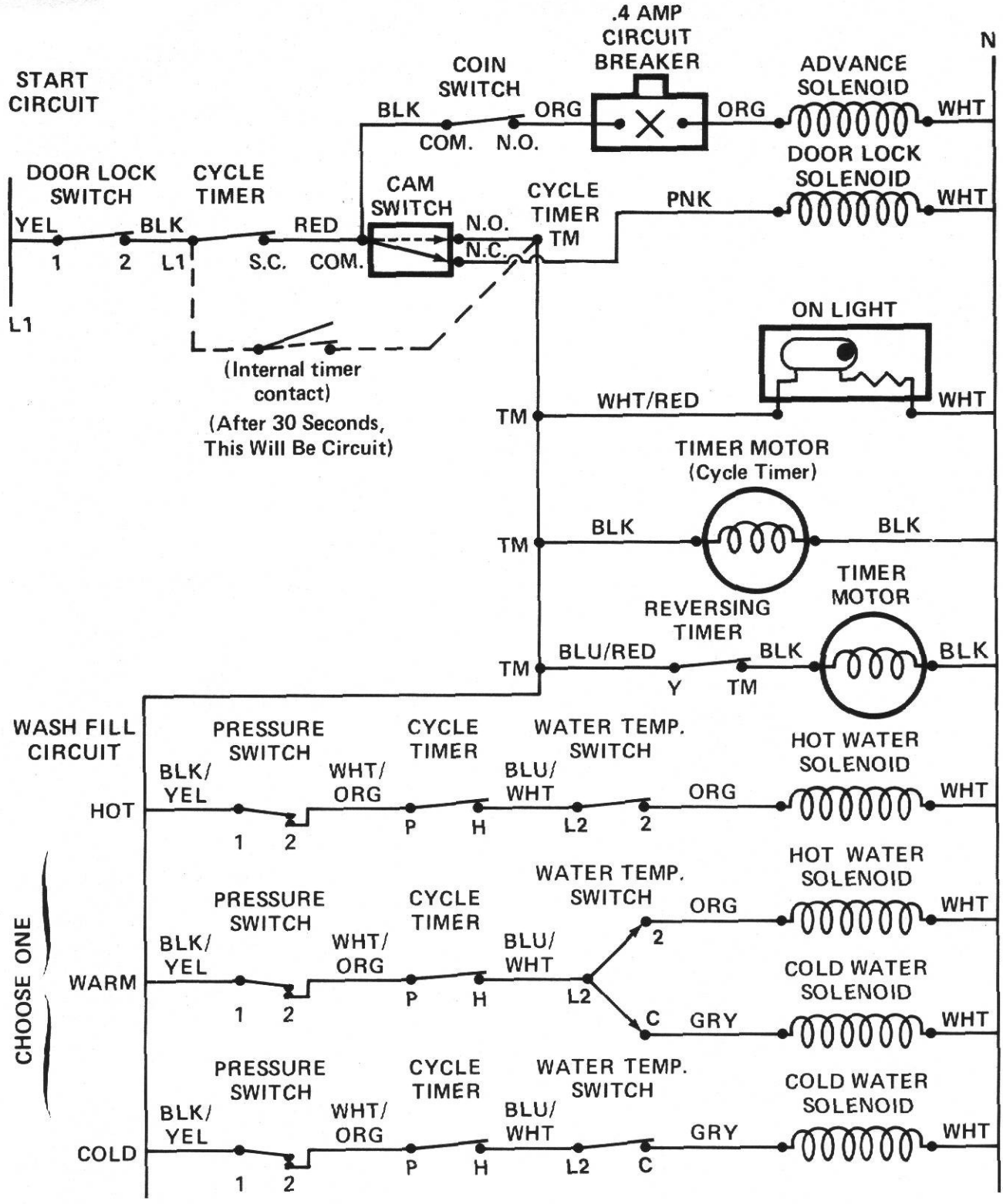
"WASH TEMPERATURE" (SWITCH SETTING)	RINSE WATER TEMPERATURE
Hot	Warm
Warm	Warm
Cold	Cold



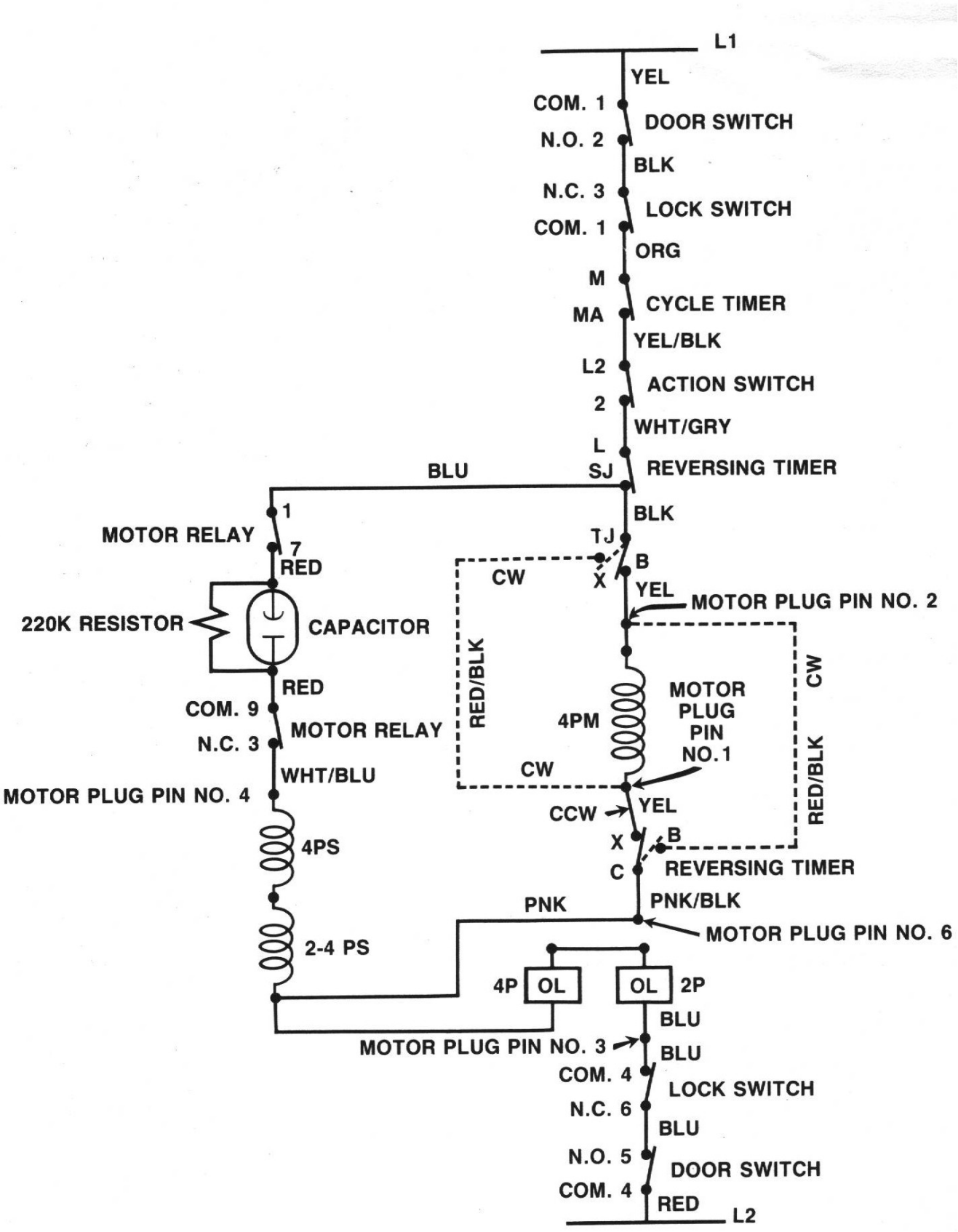
SECTION VIII
Circuitry Schematics



START CIRCUIT

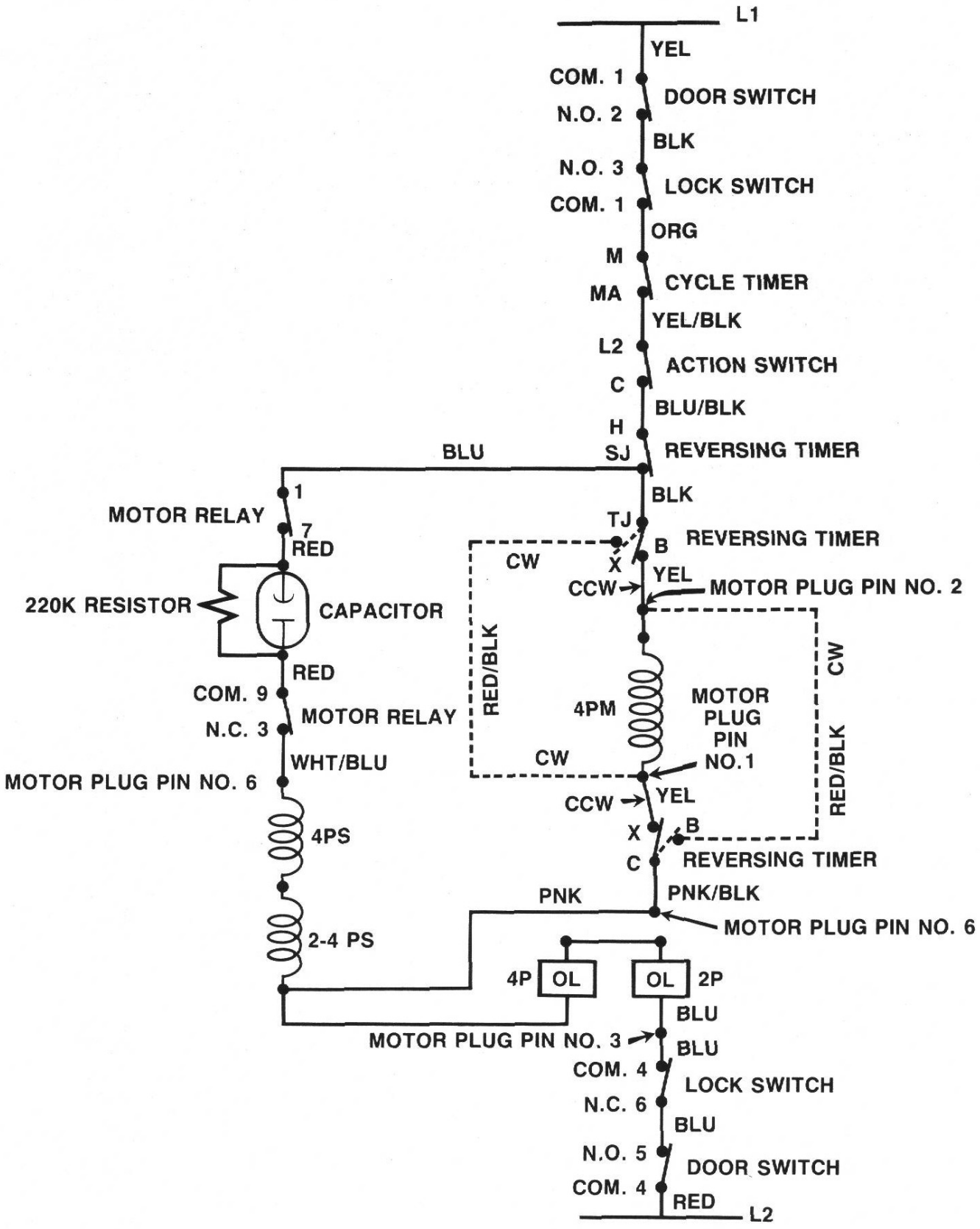


START AND WASH FILL CIRCUIT



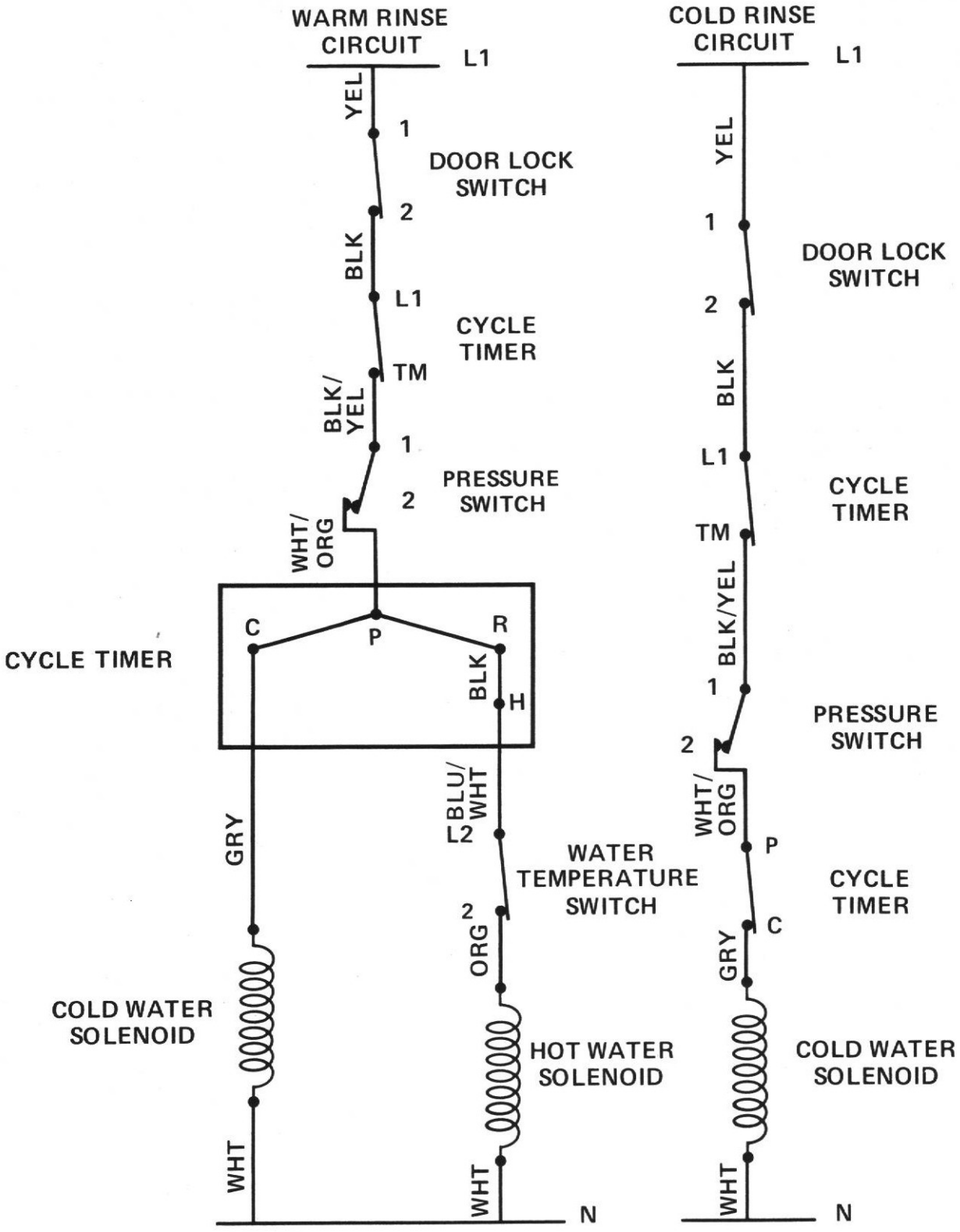
WASH CIRCUIT

(Gentle Agitation)

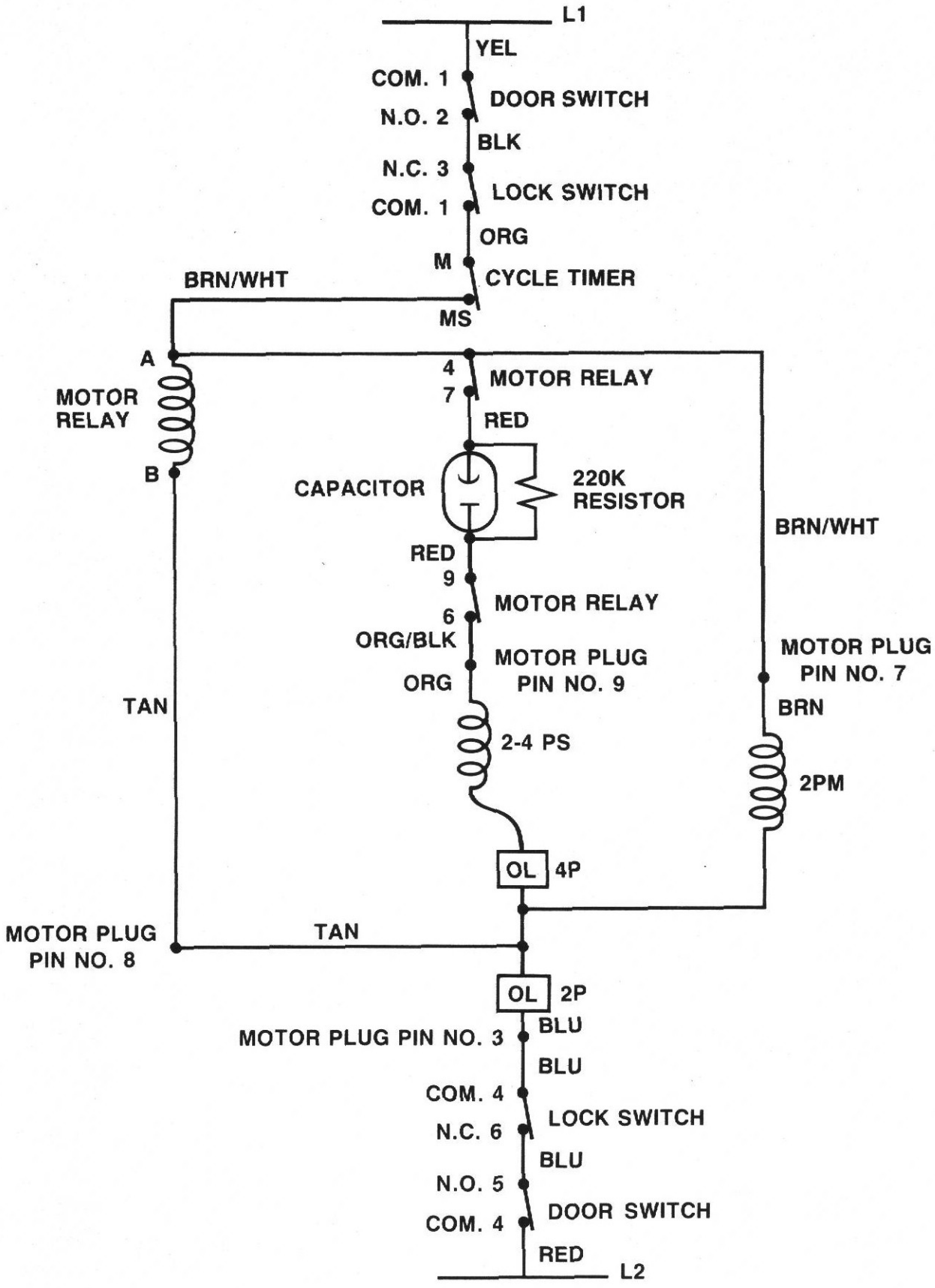


WASH CIRCUIT

(Normal Agitation)

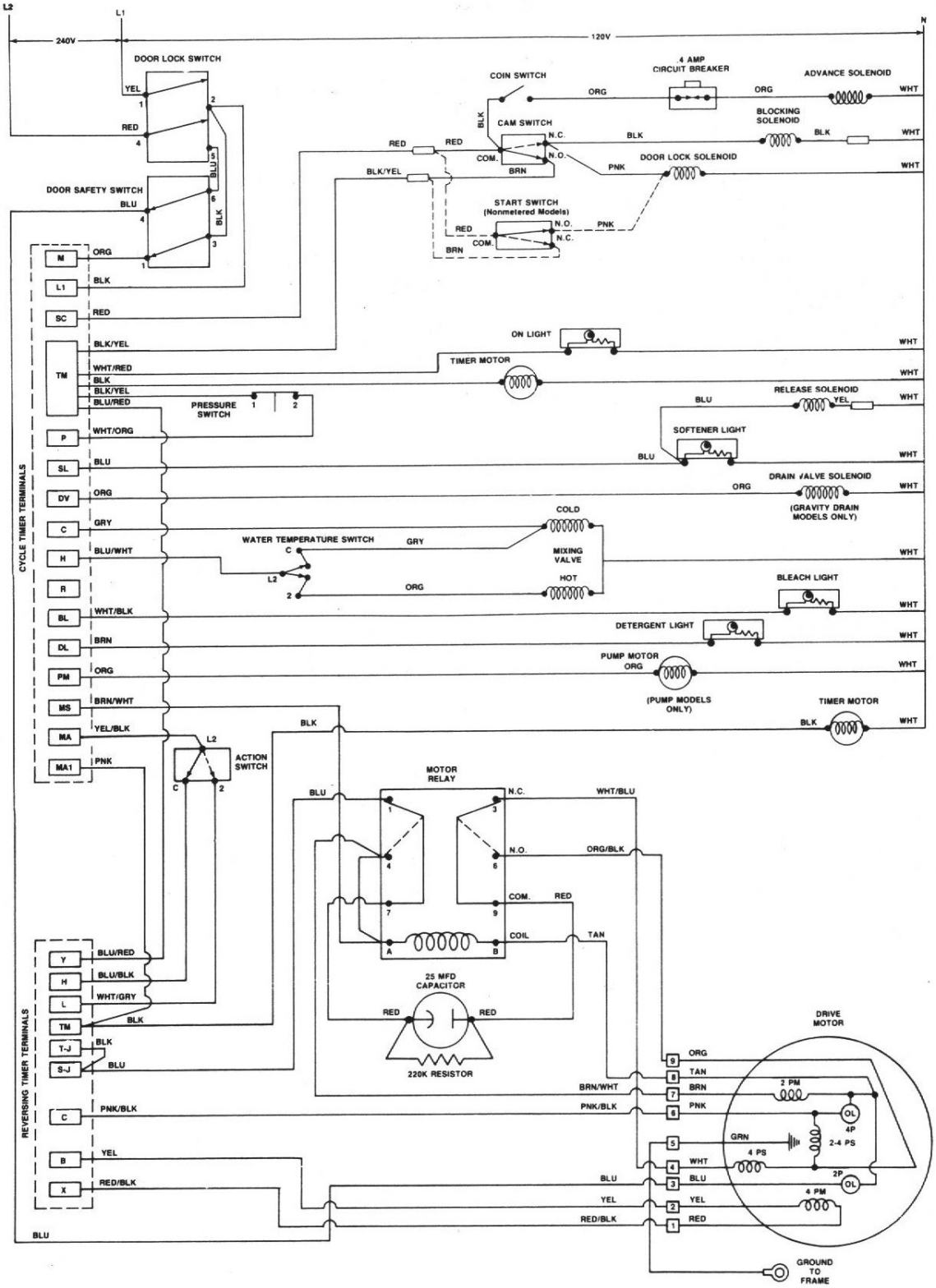


RINSE CIRCUIT

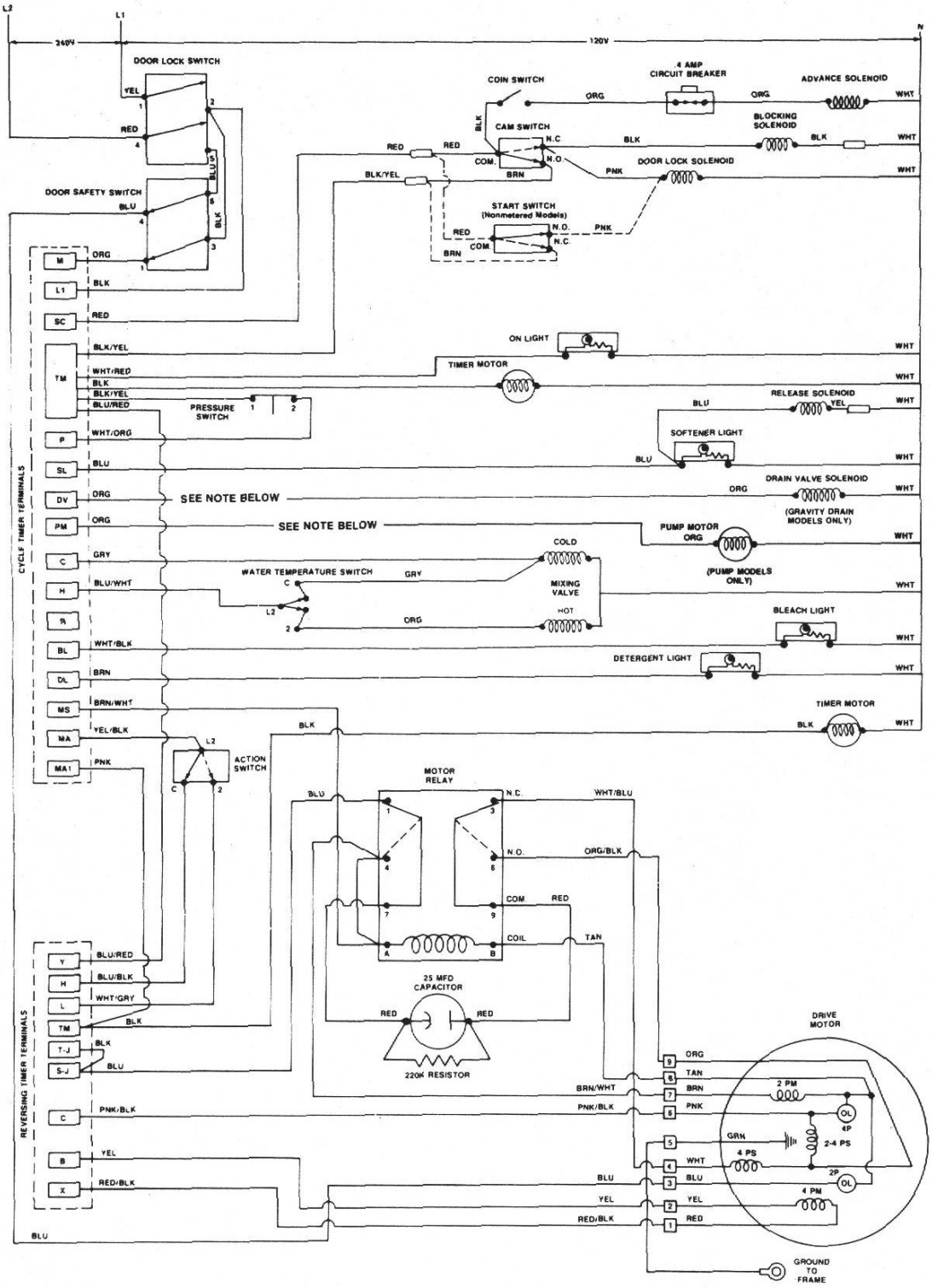


SPIN CIRCUIT

SECTION IX
Wiring Schematics



Through Serial No. F29793

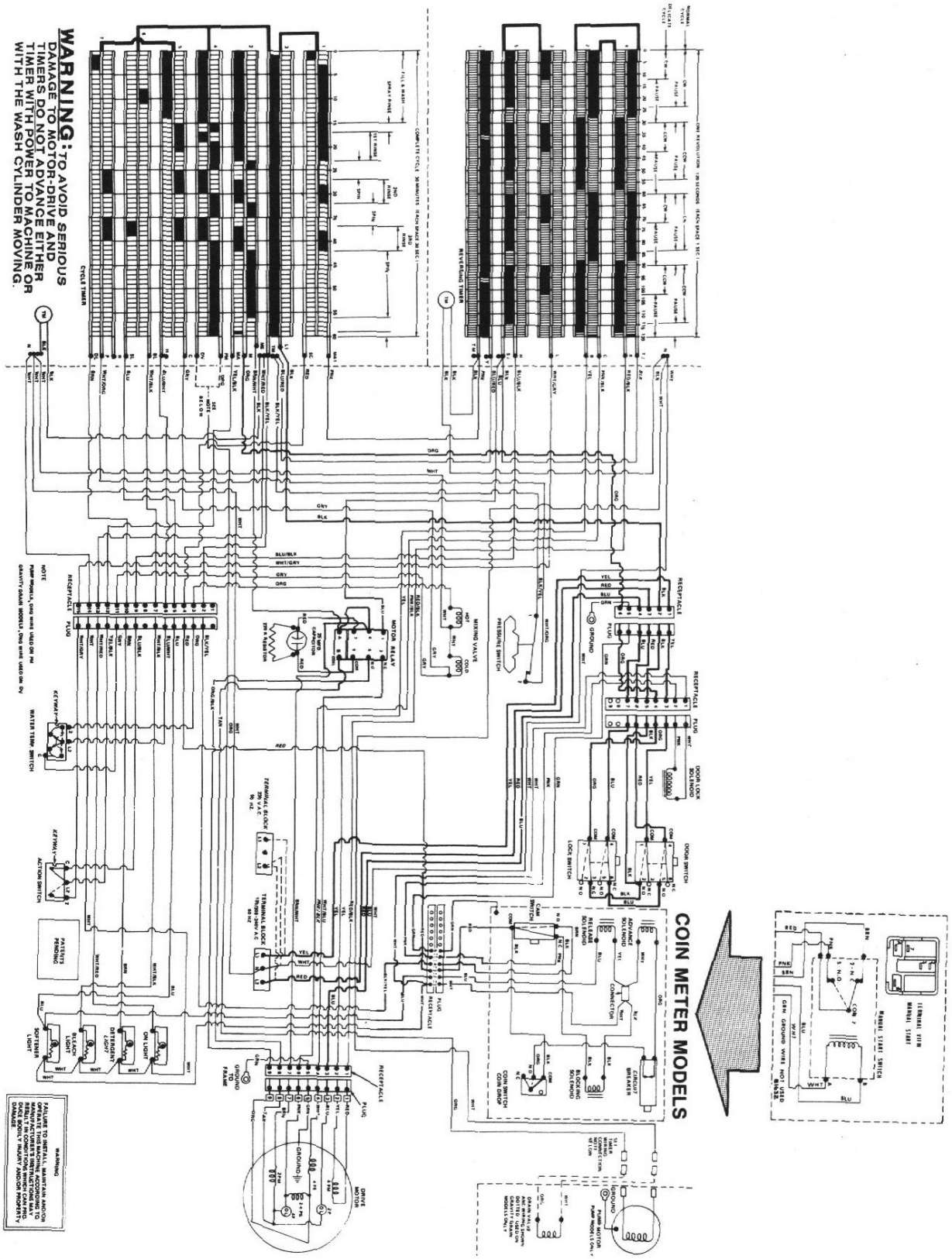


NOTE

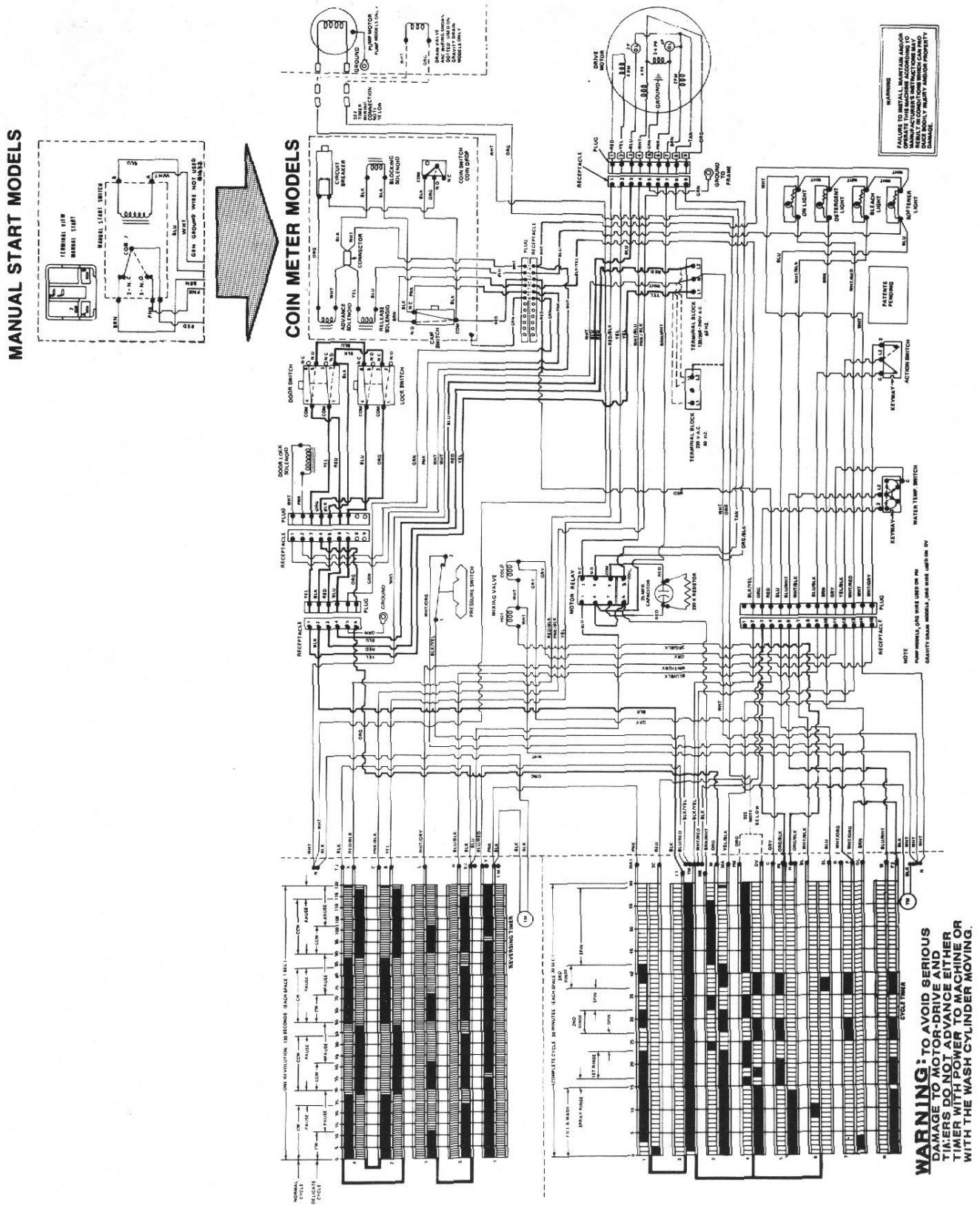
PUMP MODELS, ORG WIRE USED ON PM
GRAVITY DRAIN MODELS, ORG WIRE USED ON DV

Starting Serial No. F29794

SECTION X
Wiring Diagrams



Through Serial No. F29793



Starting Serial No. F29794