Speed Queen

A **Raytheon** Company

Parts and Service Manual for Home Laundry Automatic Washers

(HA Models)

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Part No. 24163R5
10/86

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.

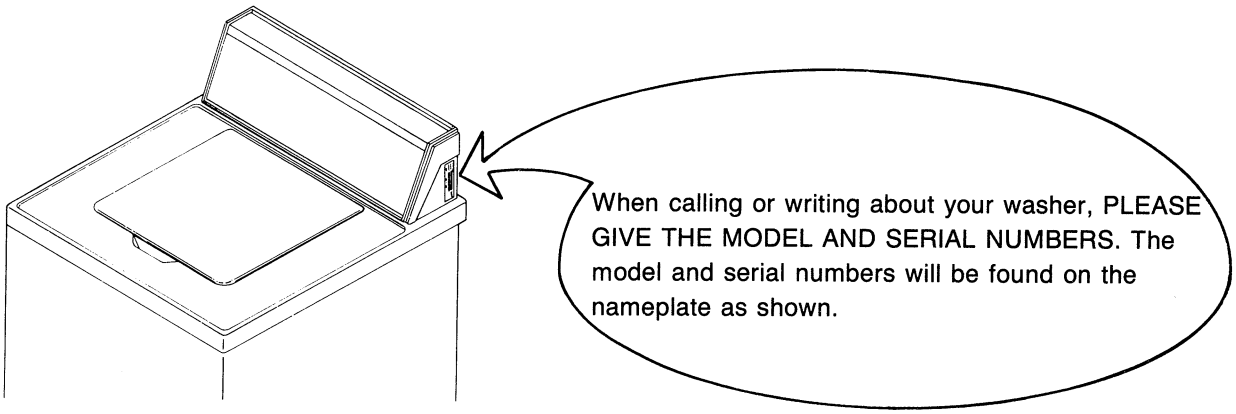
NOTE: The WARNING and IMPORTANT instructions appearing in this manual are not meant to cover all possible conditions and situations that may occur. It must be understood that common sense, caution and carefulness are factors which CANNOT be built into these washers. These factors MUST BE supplied by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

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

INFORMATION CONTAINED IN THIS MANUAL IS APPLICABLE TO THESE WASHER MODELS:

HA7221	HA5000	HA4341	HA4010
HA7001	HA4591	HA4340	HA4001
HA6471	HA4590	HA4291	HA4000
HA6470	HA4521	HA4290	HA3001
HA6450	HA4520	HA4261	HA3000
HA6001	HA4511	HA4260	HA2621
HA6000	HA4510	HA4211	HA2620
HA5591	HA4501	HA4210	HA2411
HA5590	HA4500	HA4021	HA2410
HA5320	HA4371	HA4020	HA2300
HA5001	HA4370	HA4011	HA2010

NAMEPLATE LOCATION



IMPORTANT INFORMATION: During the lifetime of your washer, it may require service. The information contained in this manual was written and is intended for use by qualified service technicians who are familiar with the safety procedures required in the repair of your washer, and who are equipped with the proper tools and testing equipment.

Repairs that are made to your washer by unqualified persons can result in hazards due to improper assembly or adjustments subjecting you, or the inexperienced person making such repairs, to the risk of injury or electrical shock which can be serious or even fatal.

If you or an unqualified person perform service on your washer, you must assume the responsibility for any personal injury or property damage which may result. The manufacturer will not be responsible for any injury or property damage arising from improper service and/or service procedures.

CAUTION: Whenever ground wires are removed during servicing, these ground wires must be reconnected to insure that the washer is properly grounded.

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SECTION I
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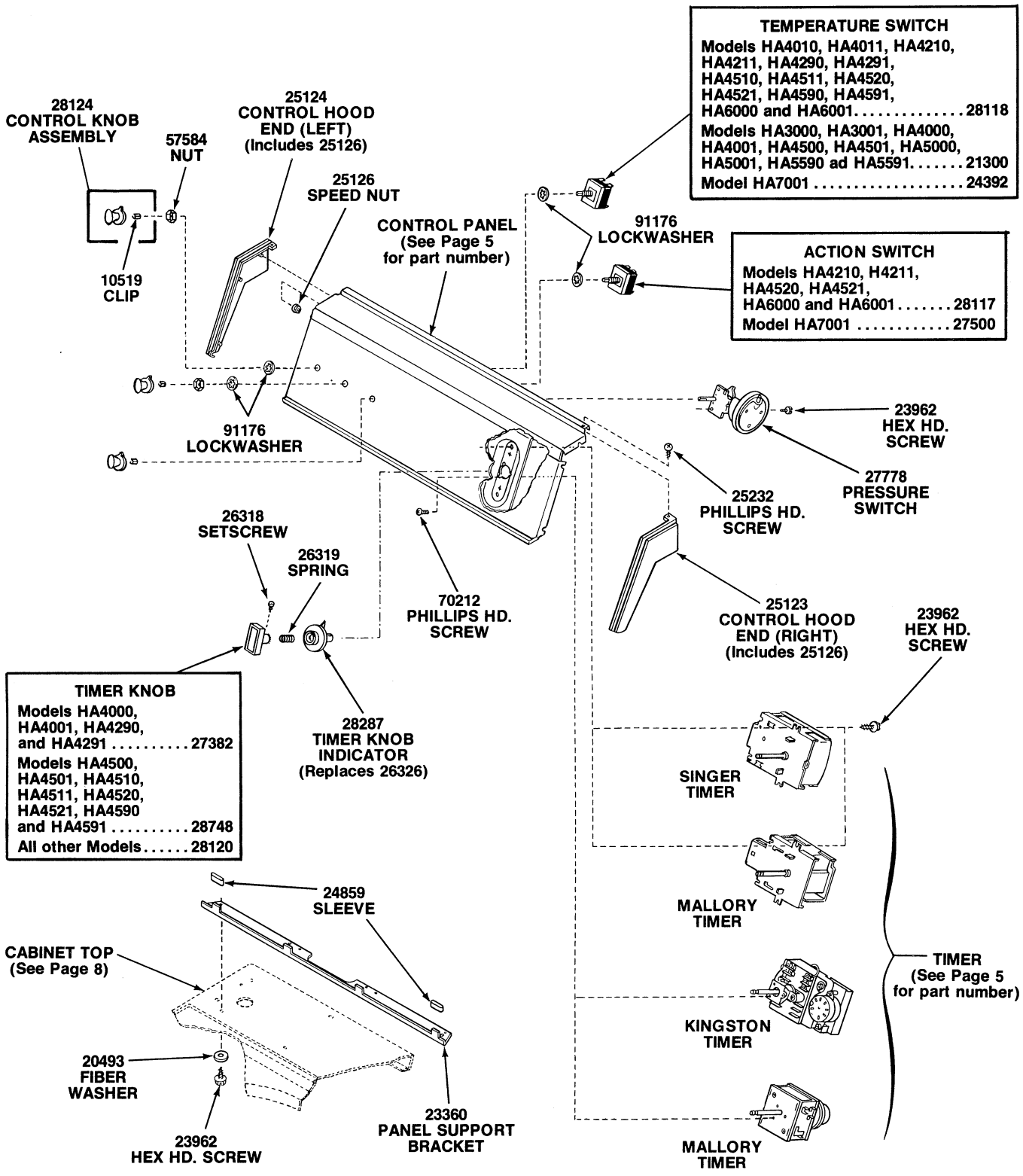
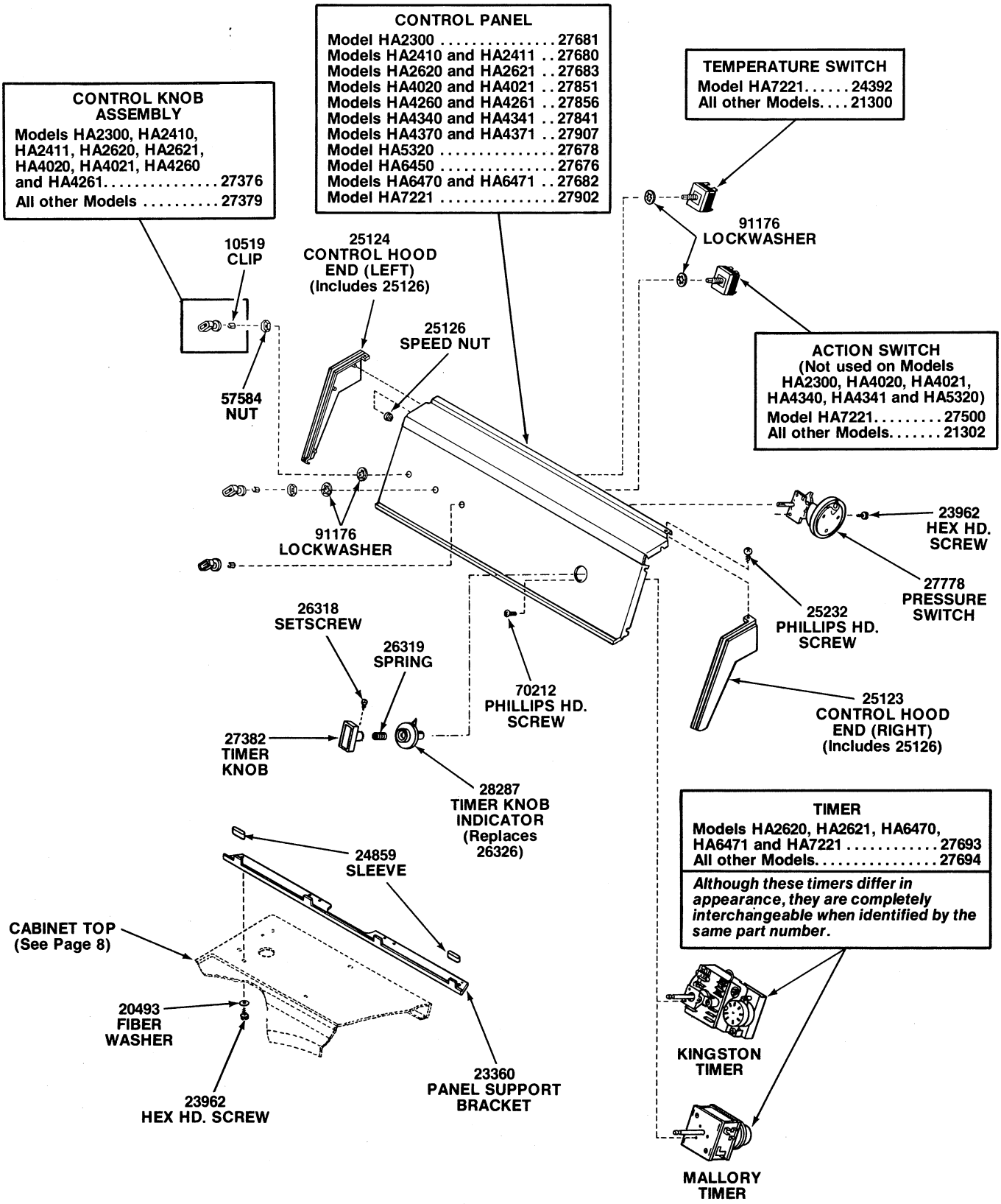


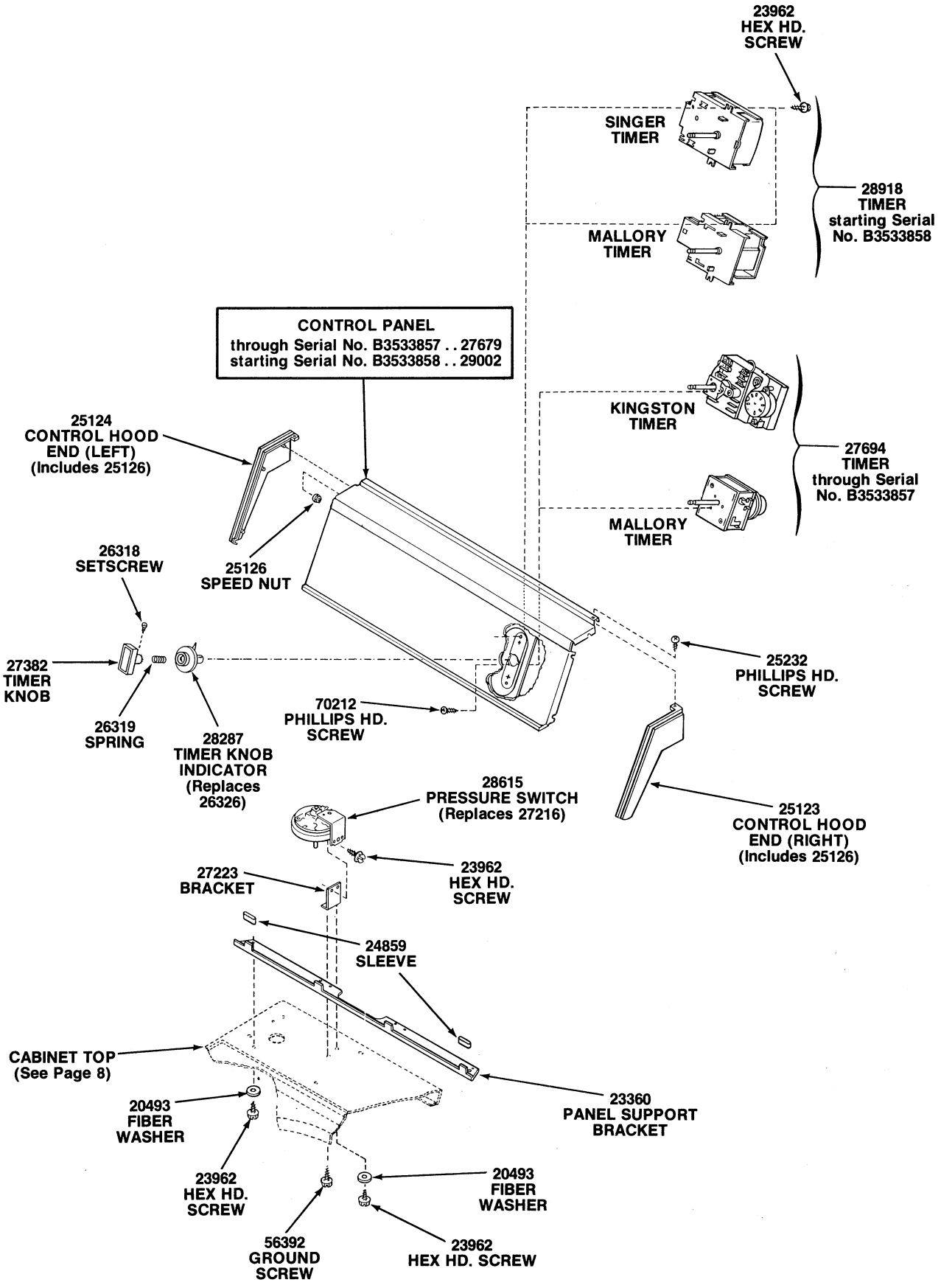
CONTROL PANEL AND CONTROLS
(Models HA3000, HA3001, HA4000, HA4001, HA4010, HA4011, HA4210, HA4211, HA4290, HA4291, HA4500, HA4501, HA4510, HA4511, HA4520, HA4521, HA4590, HA4591, HA5000, HA5001, HA5590, HA5591, HA6000, HA6001 and HA7001)

	CONTROL PANEL		TIMER	
Model Number	through Serial Number B3533857	starting Serial Number B3533858	through Serial Number B3533857	starting Serial Number B3533858
HA3000 and HA3001	28785	29001	27694	28918
HA4000 and HA4001	—	29193	—	28918
HA4010	28573	28993	28093	28917
HA4011	28574	28994	28093	28917
HA4210	28575	28995	28093	28917
HA4211	28576	28996	28093	28917
HA4290 and HA4291	—	30967	—	29966
HA4500 and HA4501	—	29194	—	28918
HA4510	28680	28985	28093	28917
HA4511	28681	28986	28093	28917
HA4520	28682	28987	28093	28917
HA4521 through Serial No. B3547780	28683	—	28093	—
HA4521 starting Serial No. B3547781	—	28988	—	28917
HA4590	—	30239	—	29966
HA4591	—	29973	—	29966
HA5000 and HA5001	28145	28984	28093	28917
HA5590	—	28984	—	29966
HA5591	—	28984	—	29966
HA6000 and HA6001	28147	28983	28093	28917
HA7001	28149	29003	27693	28919

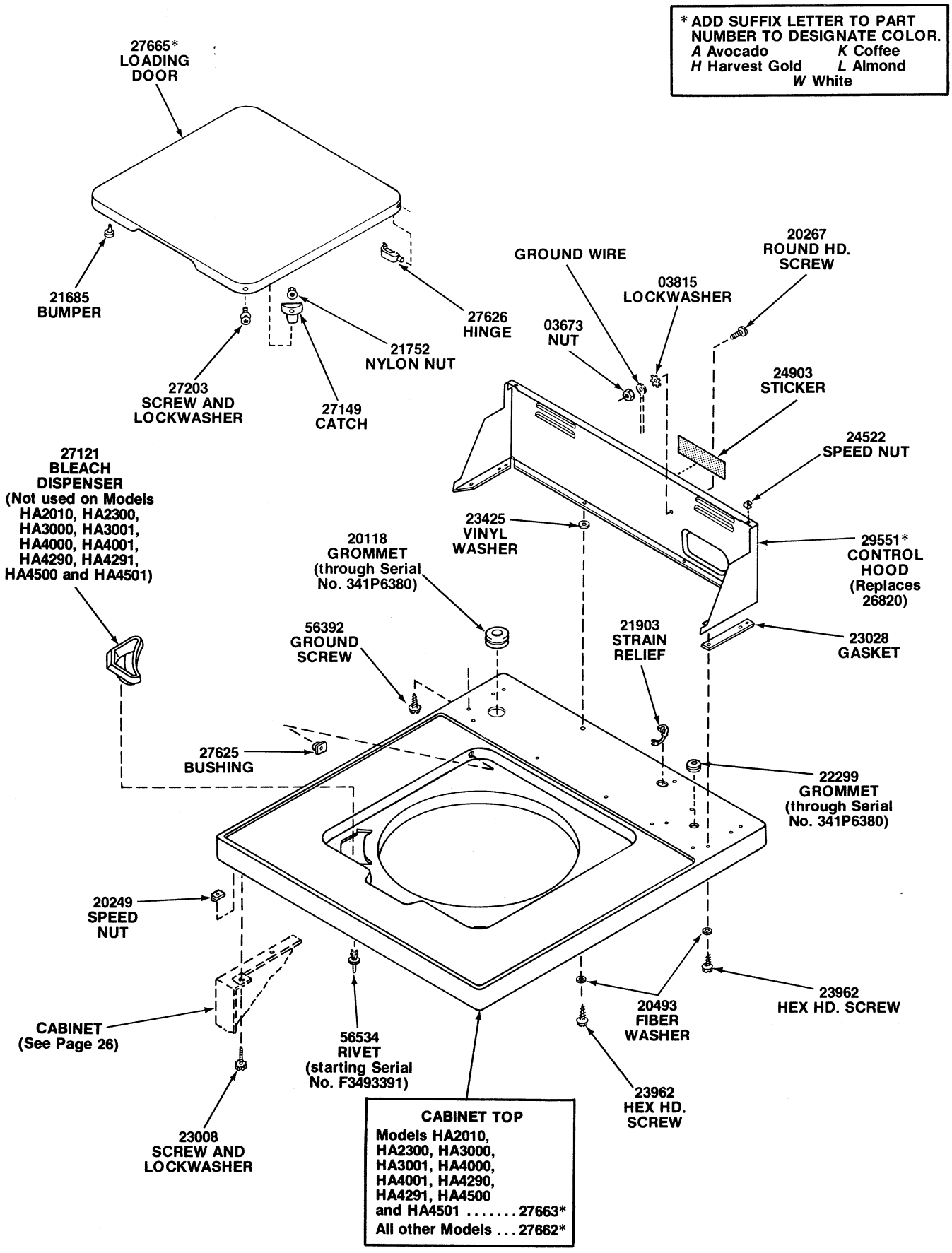
CONTROL PANELS AND TIMERS



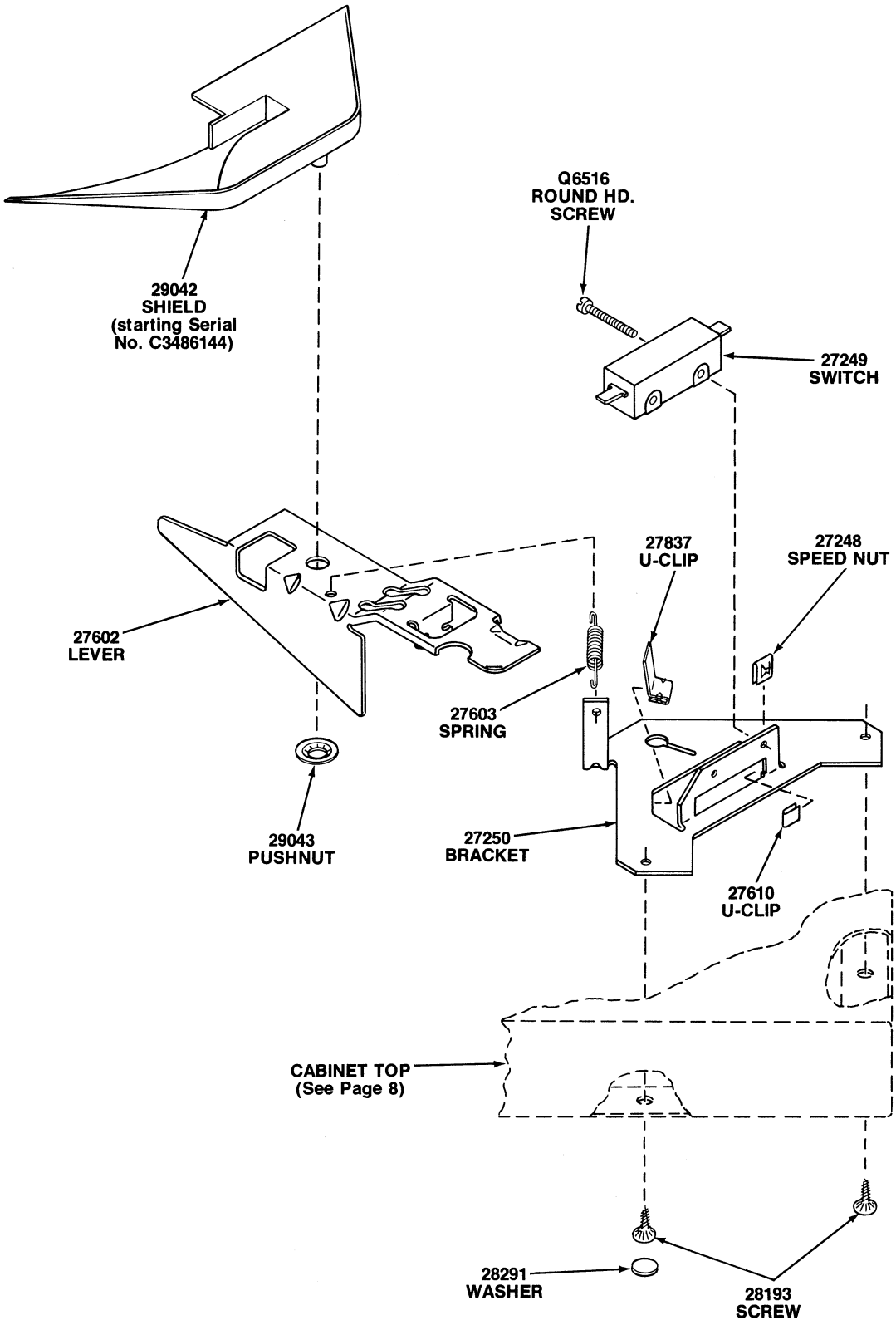
CONTROL PANEL AND CONTROLS
(Models HA2300, HA2410, HA2411, HA2620, HA2621, HA4020, HA4021, HA4260, HA4261, HA4340, HA4341, HA4370, HA4371, HA5320, HA6450, HA6470, HA6471 and HA7221)



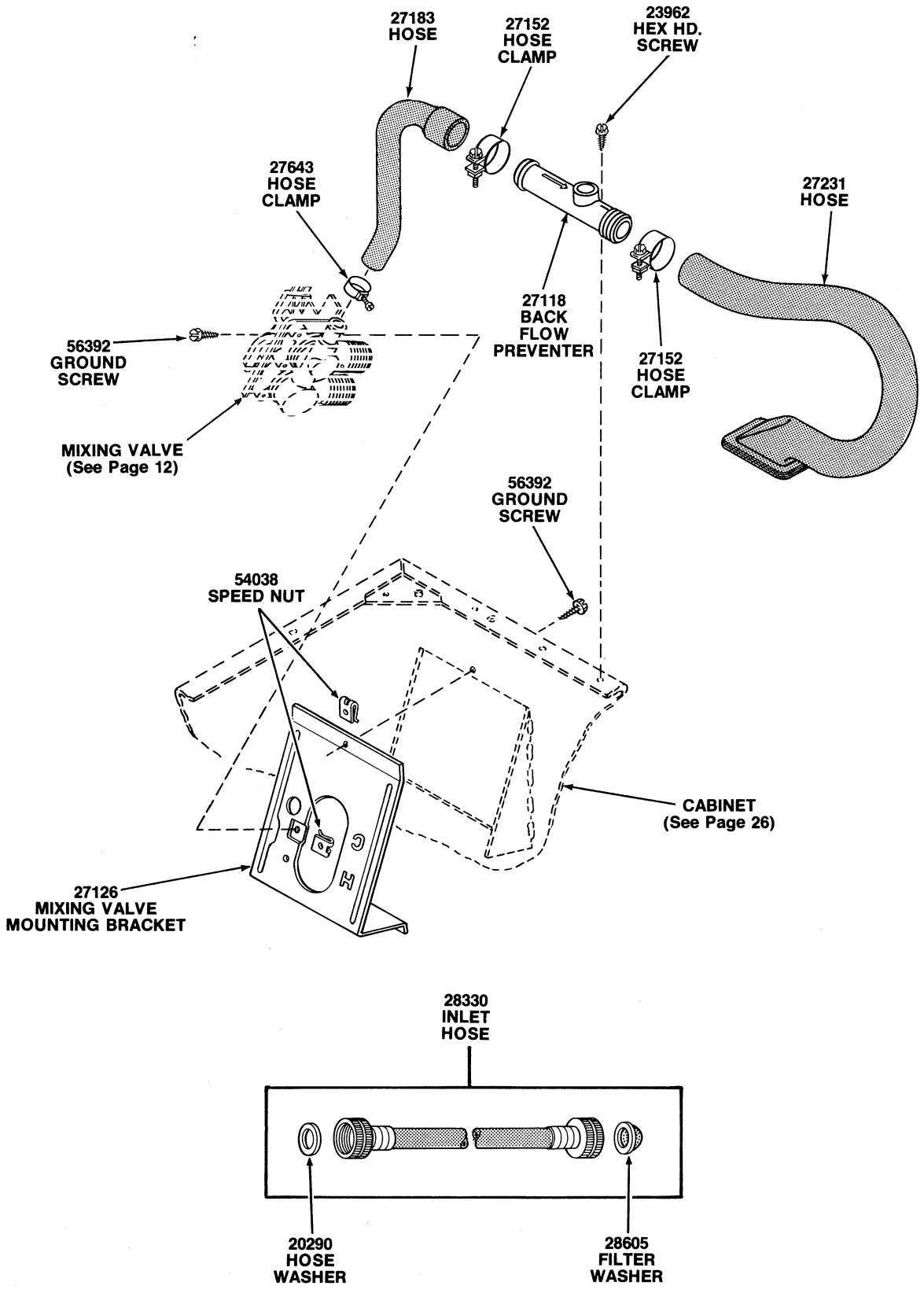
CONTROL PANEL AND TIMER
(Model HA2010)



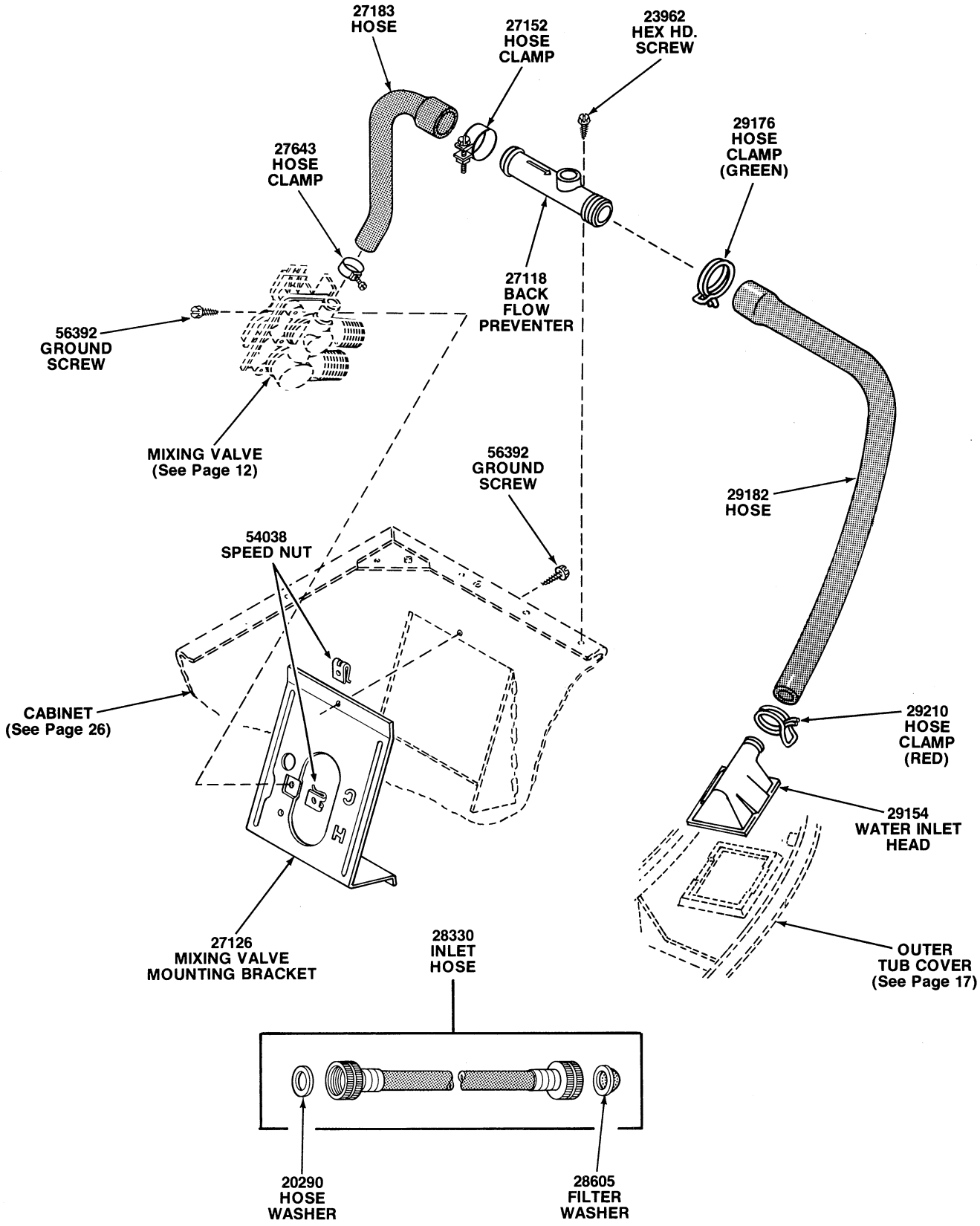
CABINET TOP, LOADING DOOR AND CONTROL HOOD



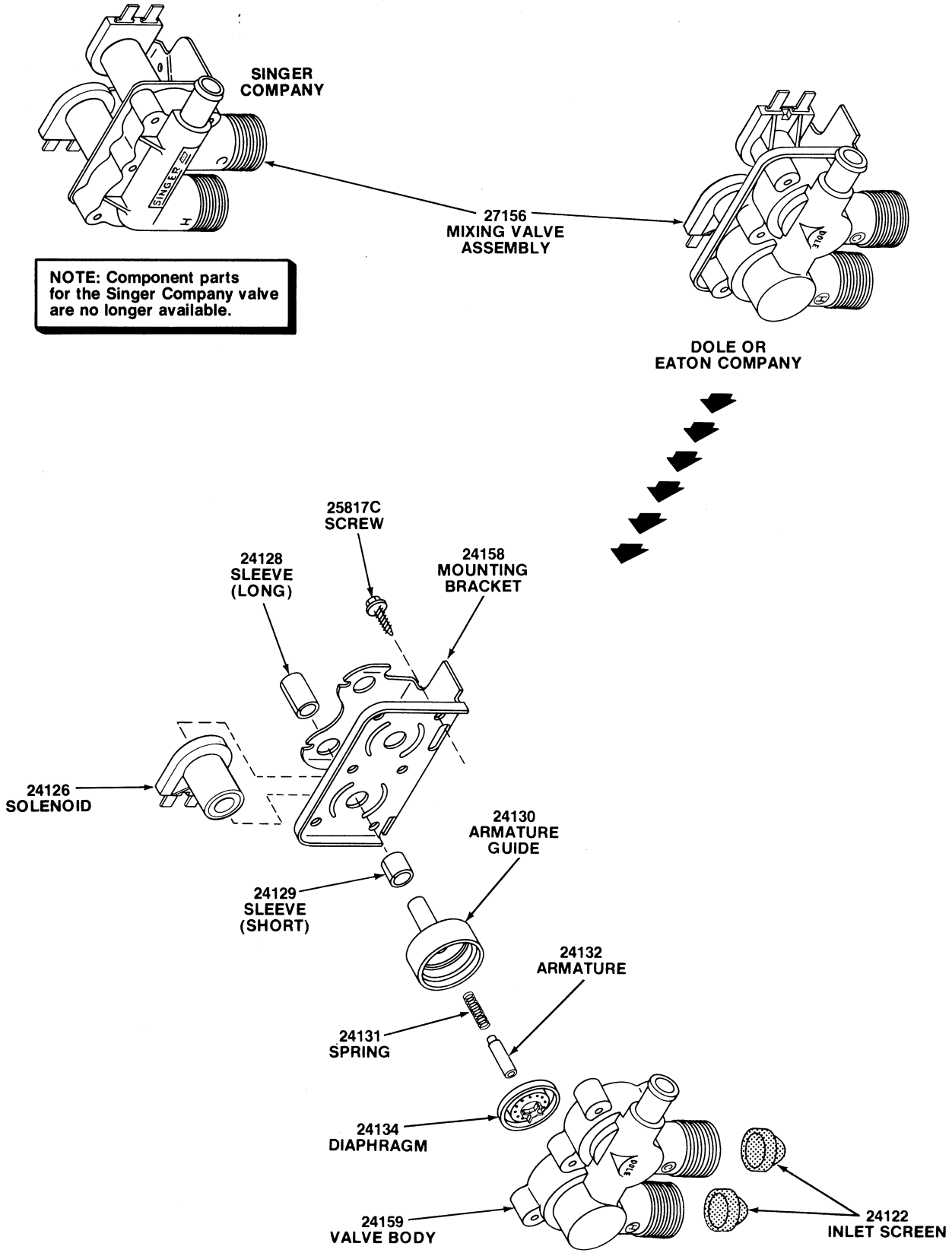
SWITCH AND BRACKET ASSEMBLY



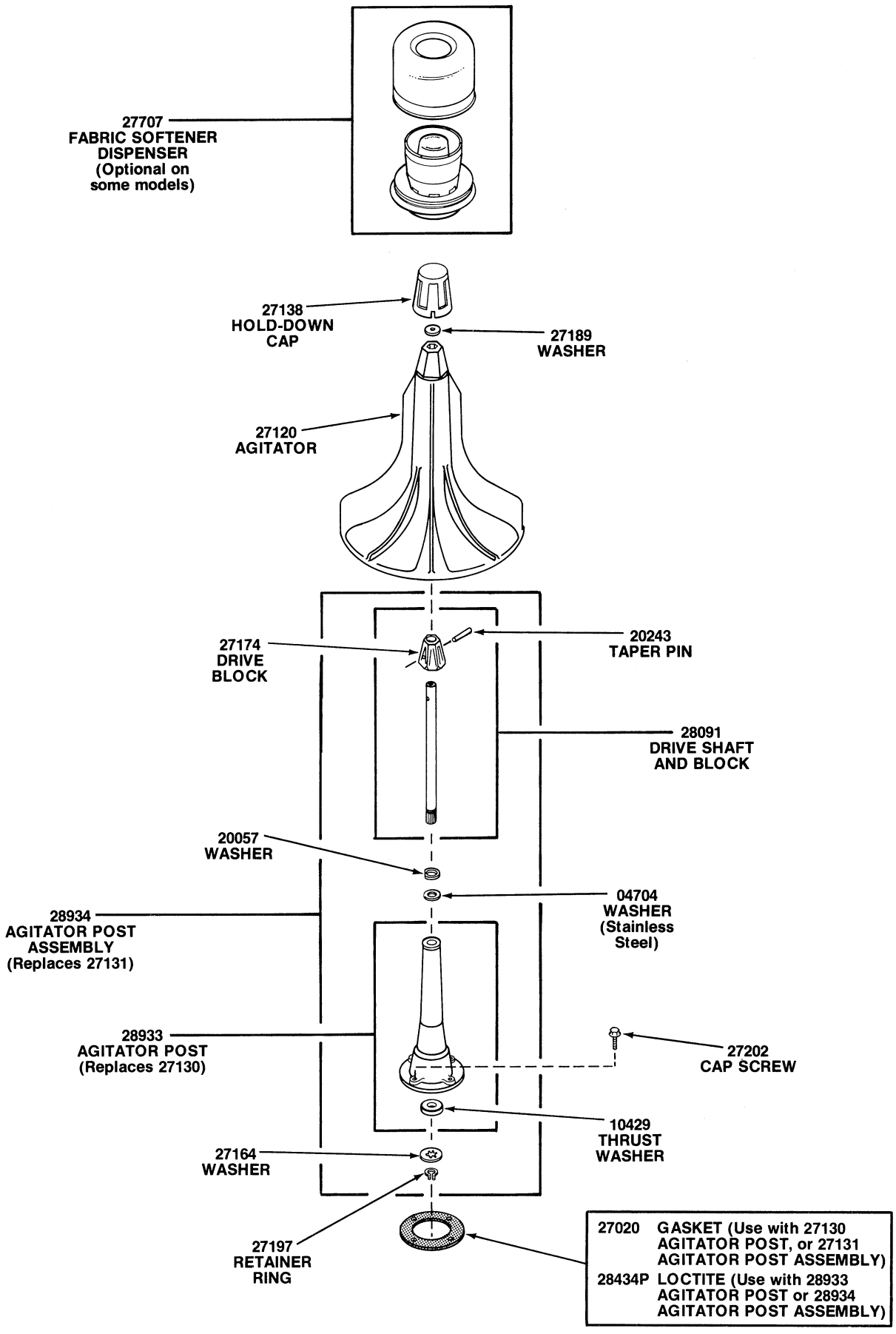
INLET HOSE, FILLER HOSE, BACK FLOW PREVENTER AND MIXING VALVE MOUNTING BRACKET (through Serial No. N3605084)



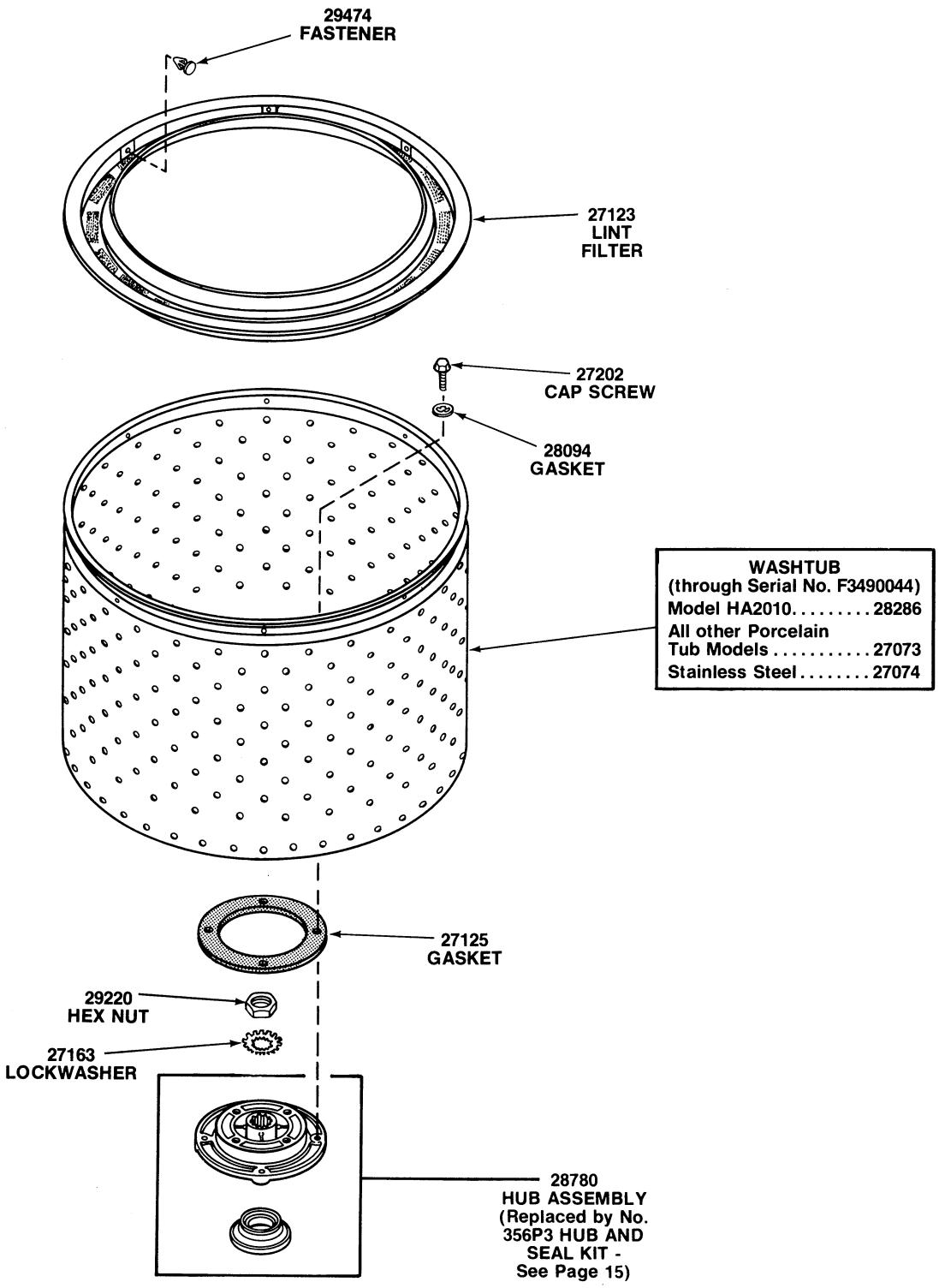
INLET HOSE, FILLER HOSE, BACK FLOW PREVENTER AND MIXING VALVE MOUNTING BRACKET (starting with Serial No. N3605085)



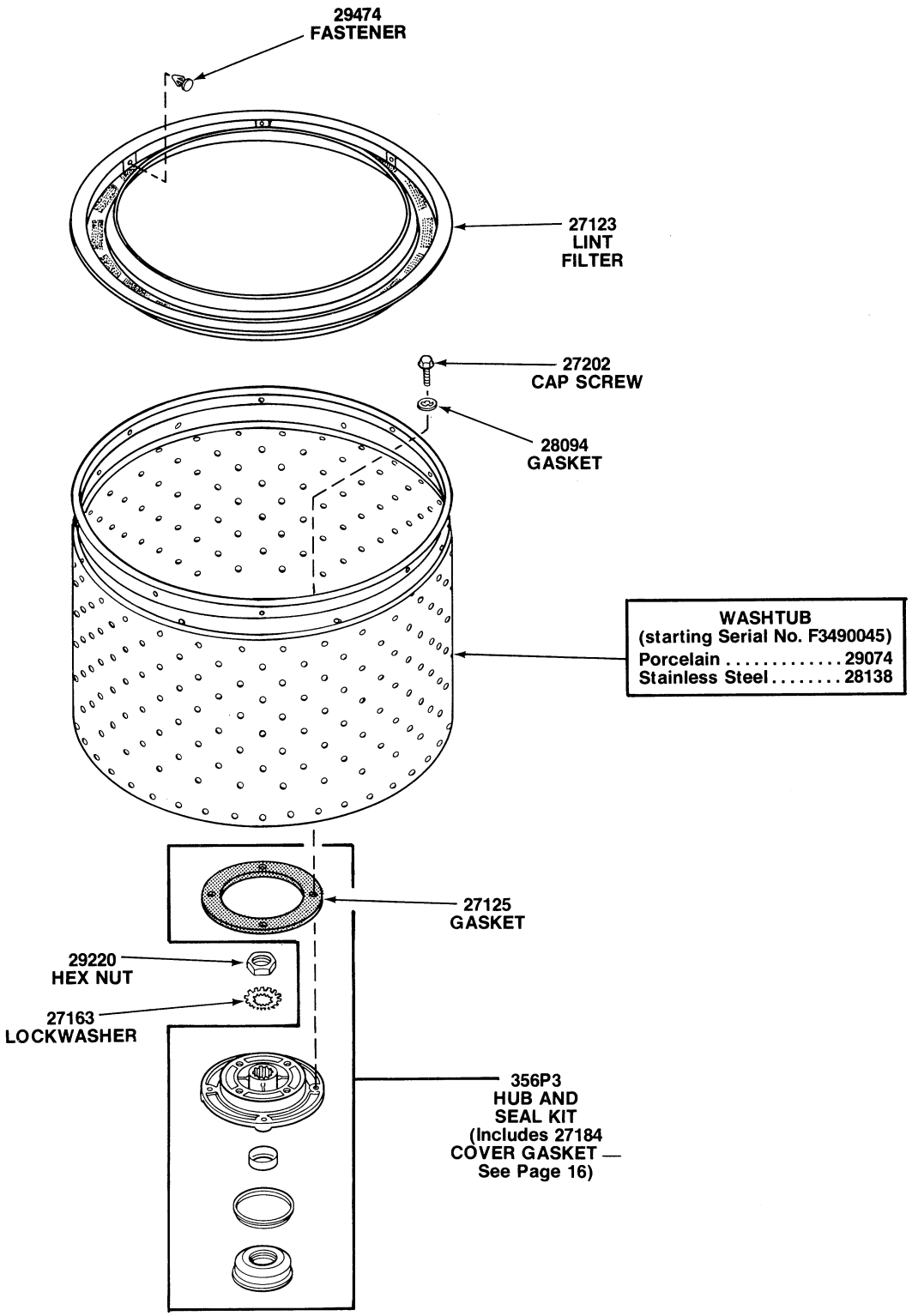
MIXING VALVE ASSEMBLY



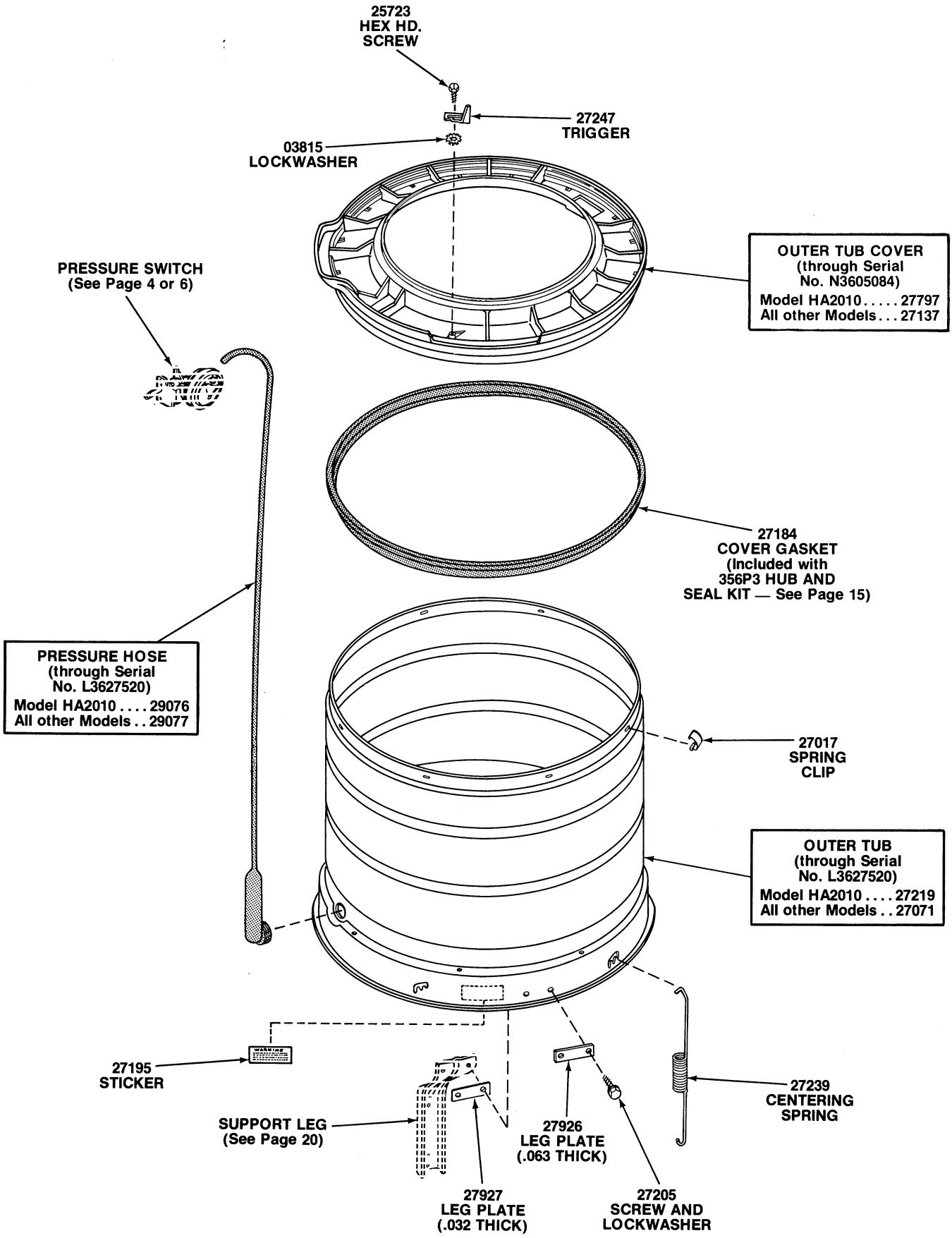
AGITATOR AND POST



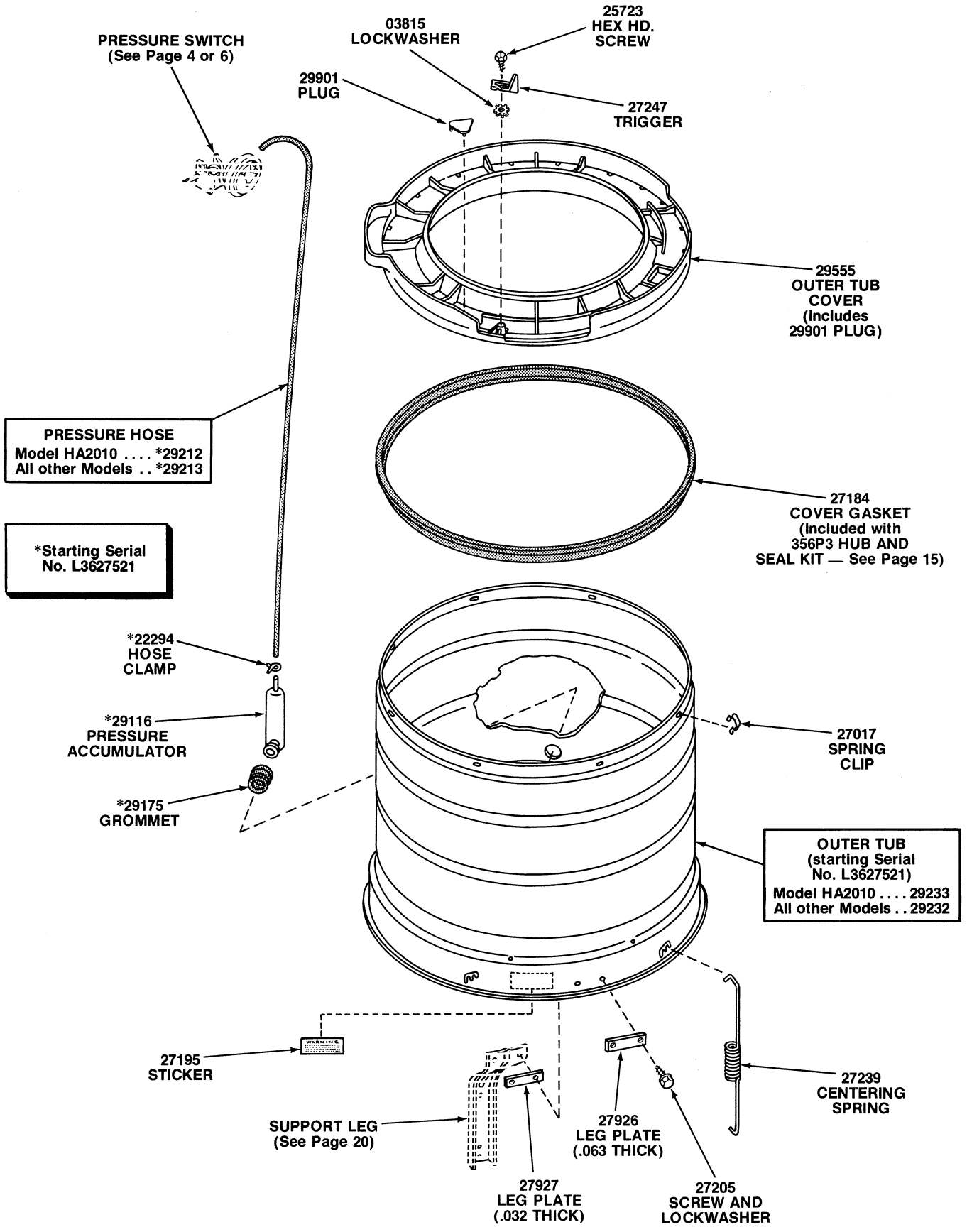
LINT FILTER, WASHTUB AND HUB



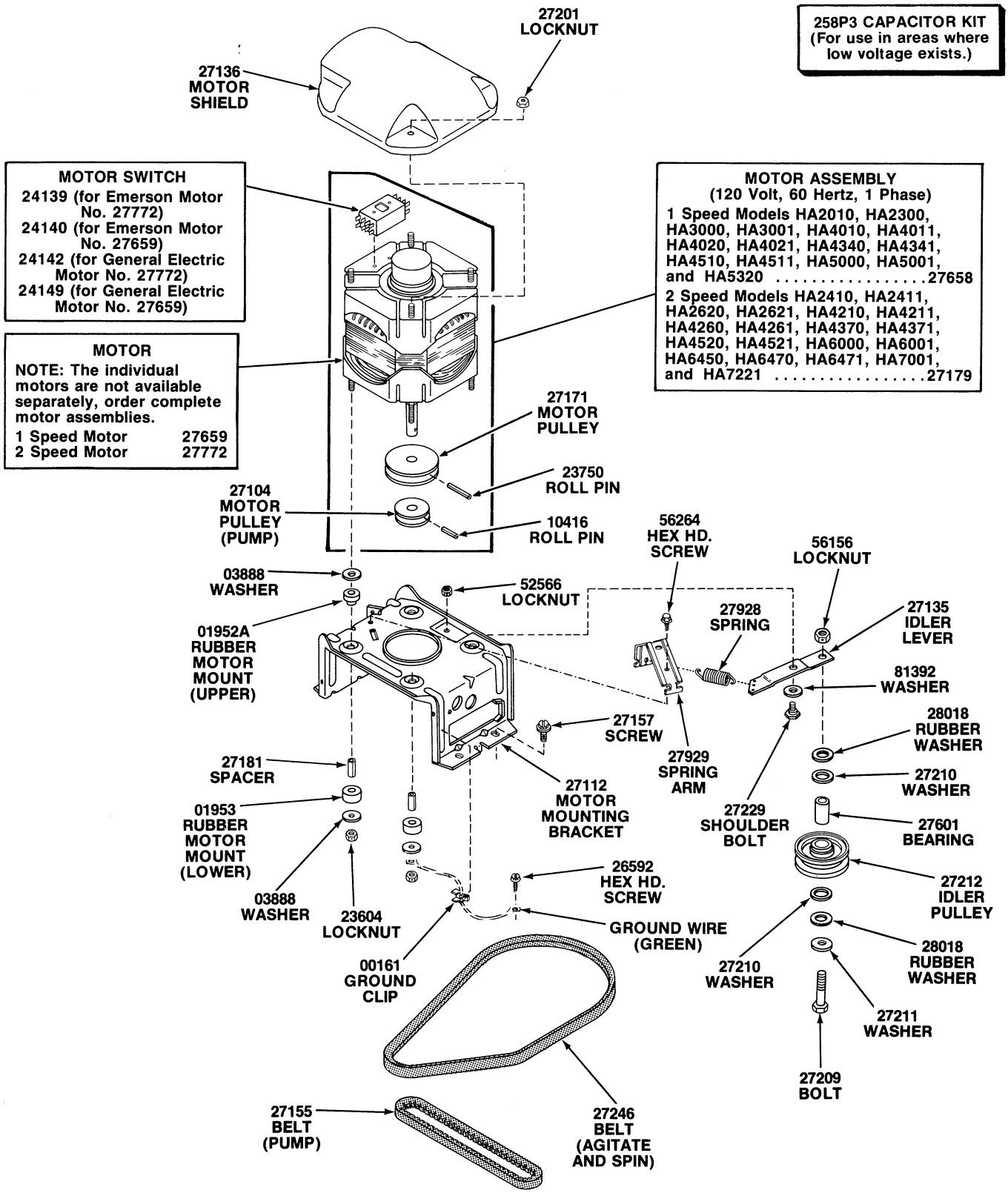
LINT FILTER, WASHTUB AND HUB



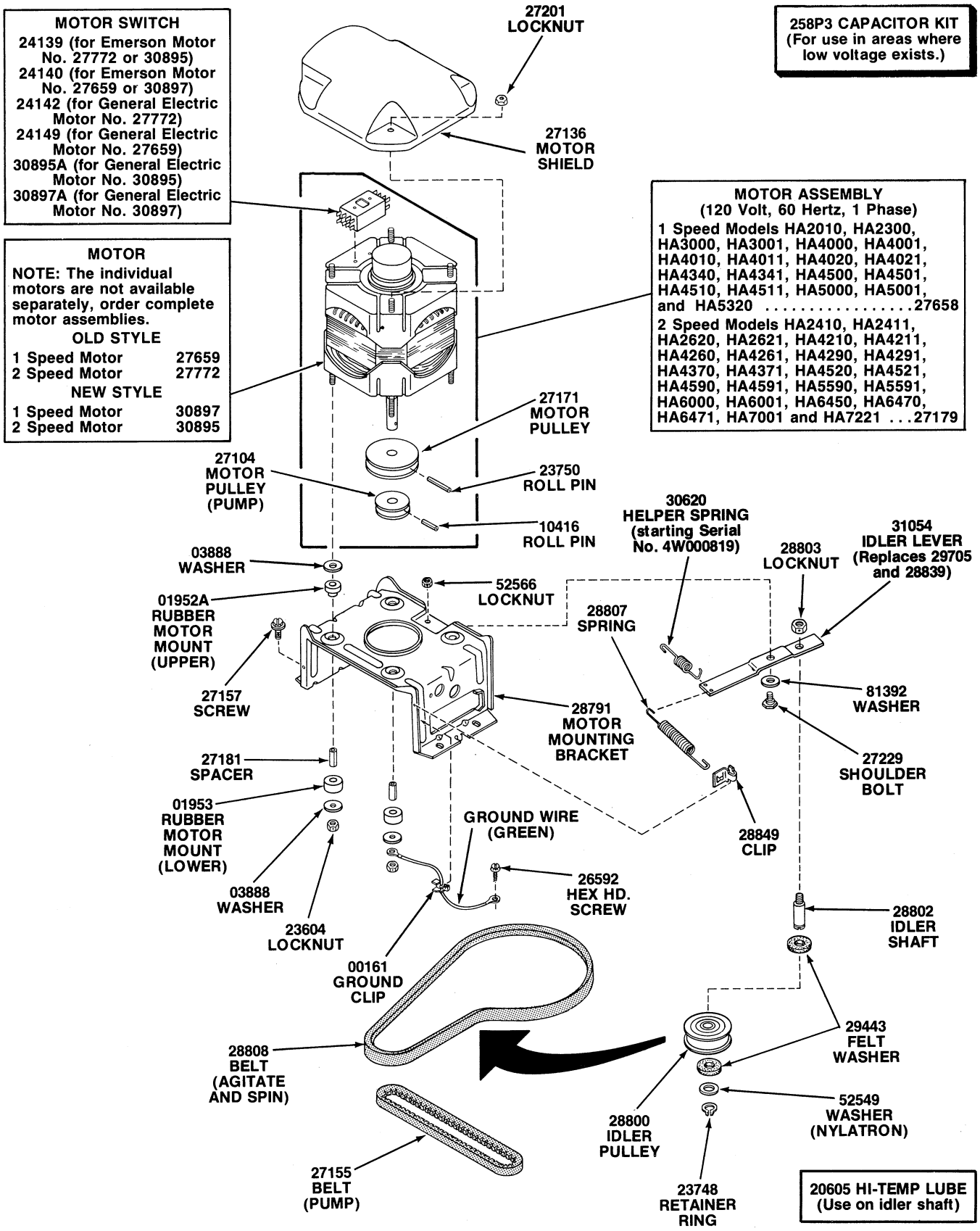
OUTER TUB, COVER AND PRESSURE HOSE



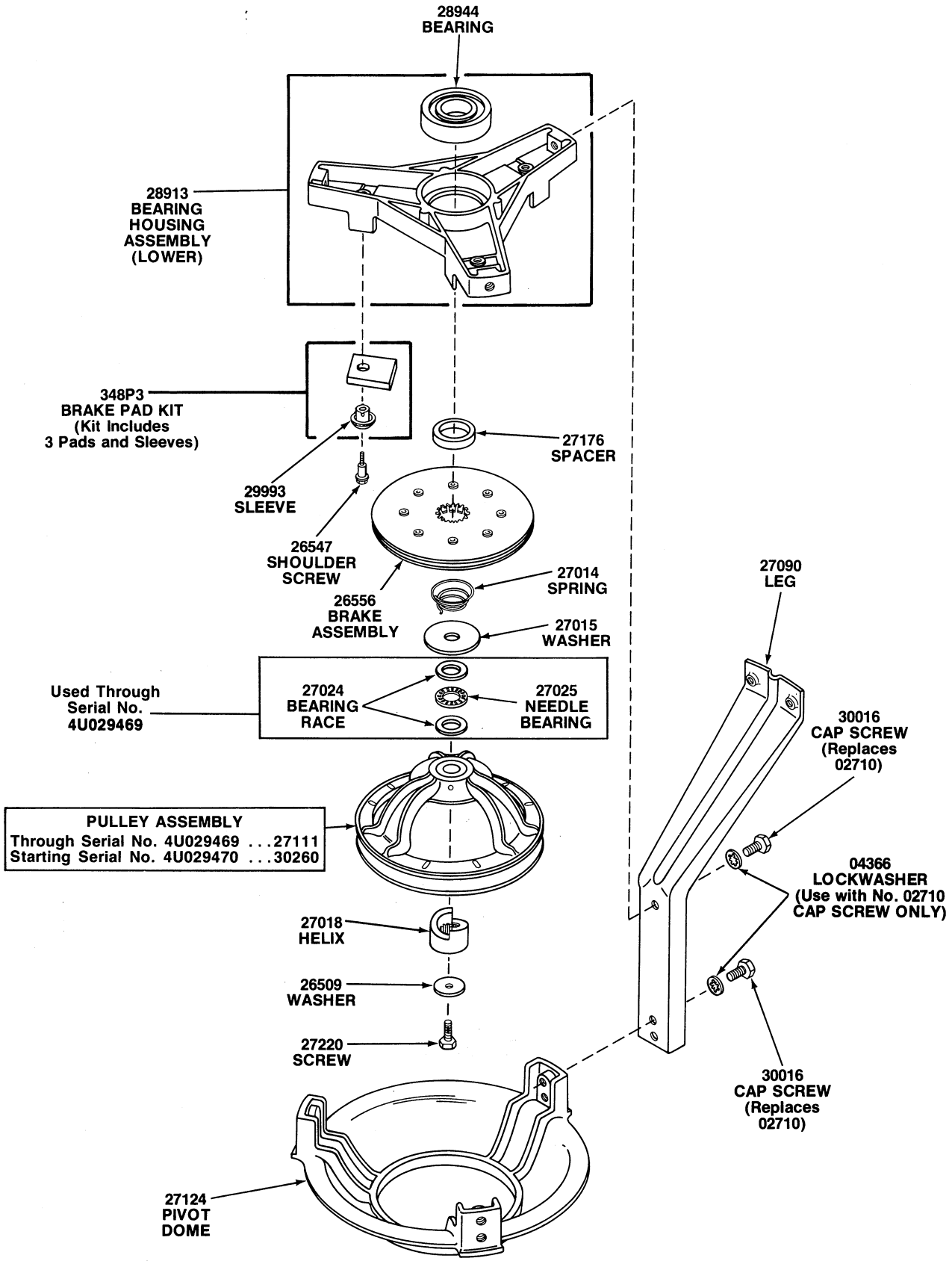
OUTER TUB, COVER AND PRESSURE HOSE



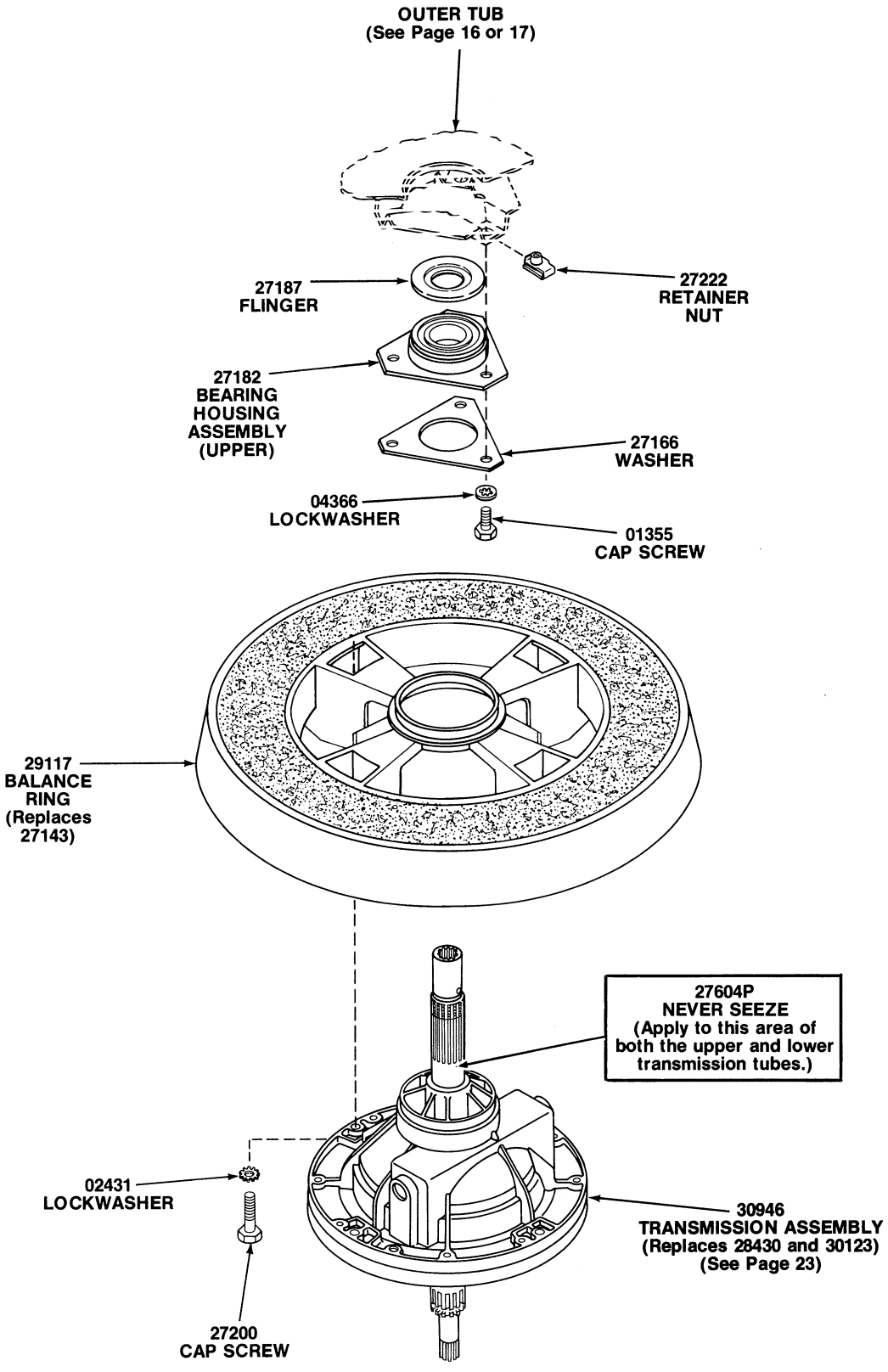
MOTOR, MOUNTING BRACKET, BELTS AND IDLER ASSEMBLY
(through Serial No. C3486773)



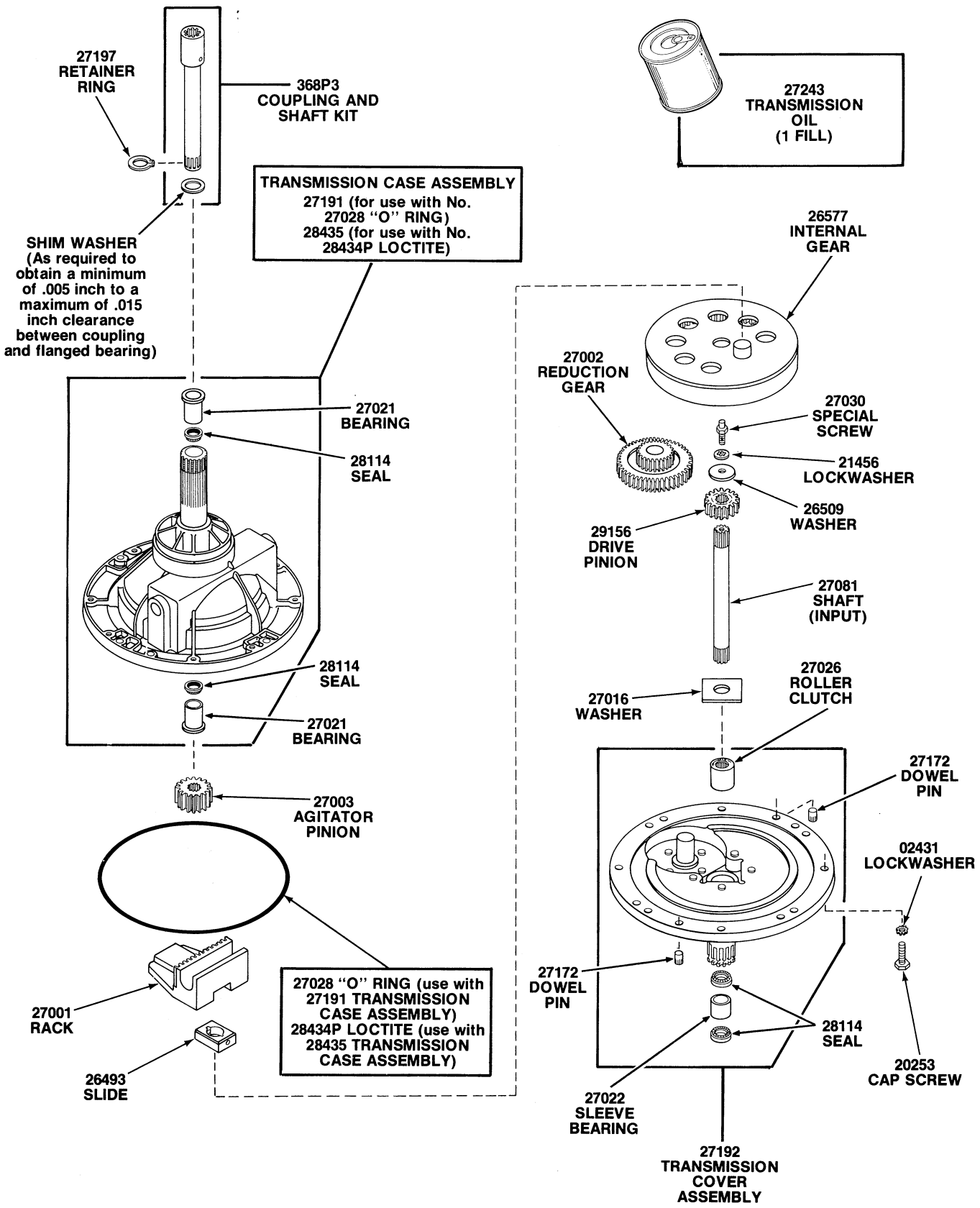
MOTOR, MOUNTING BRACKET, BELTS AND IDLER ASSEMBLY
(starting with Serial No. C3486774)



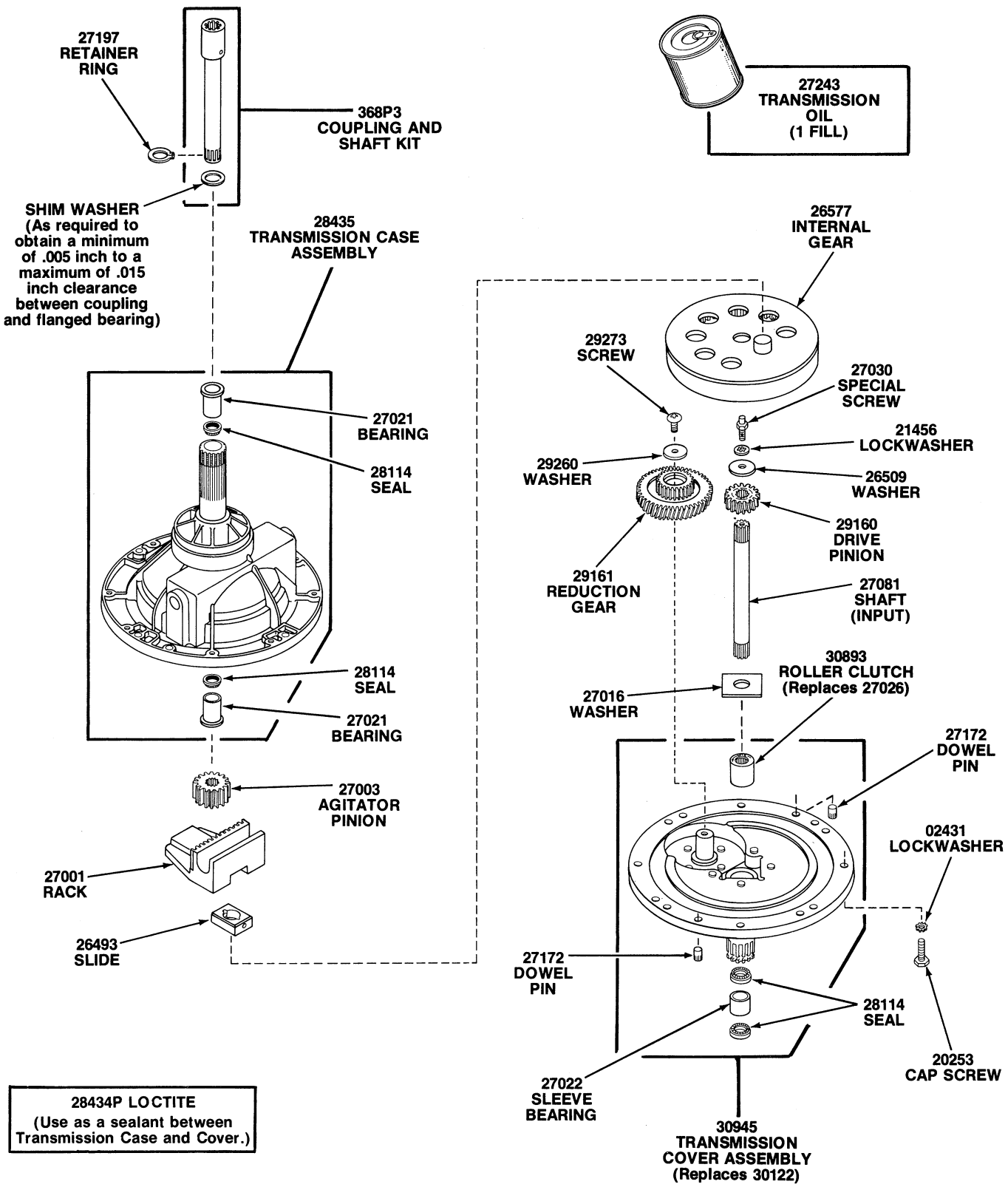
BEARING HOUSING, BRAKE, PULLEY AND PIVOT DOME



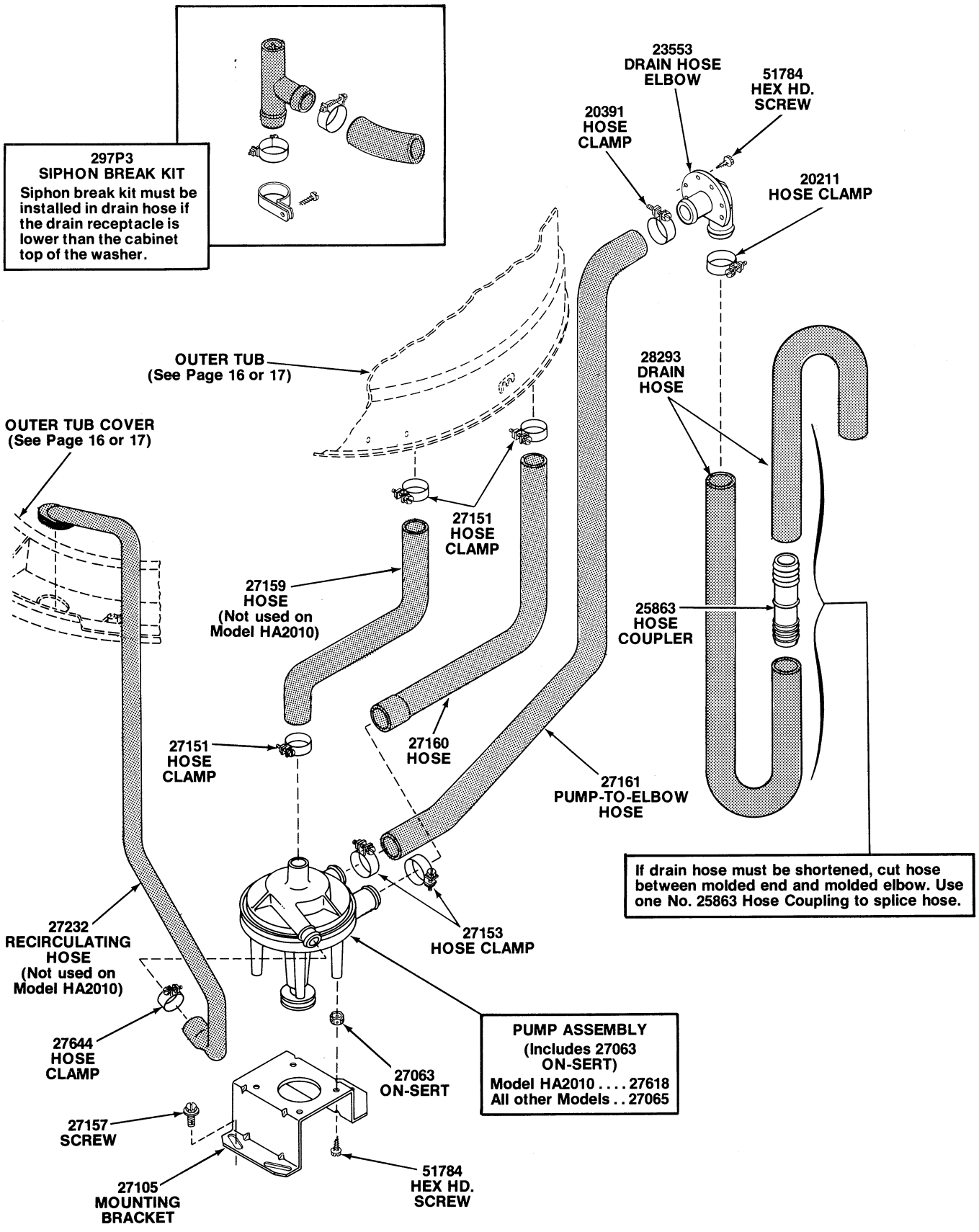
TRANSMISSION ASSEMBLY AND BALANCE RING



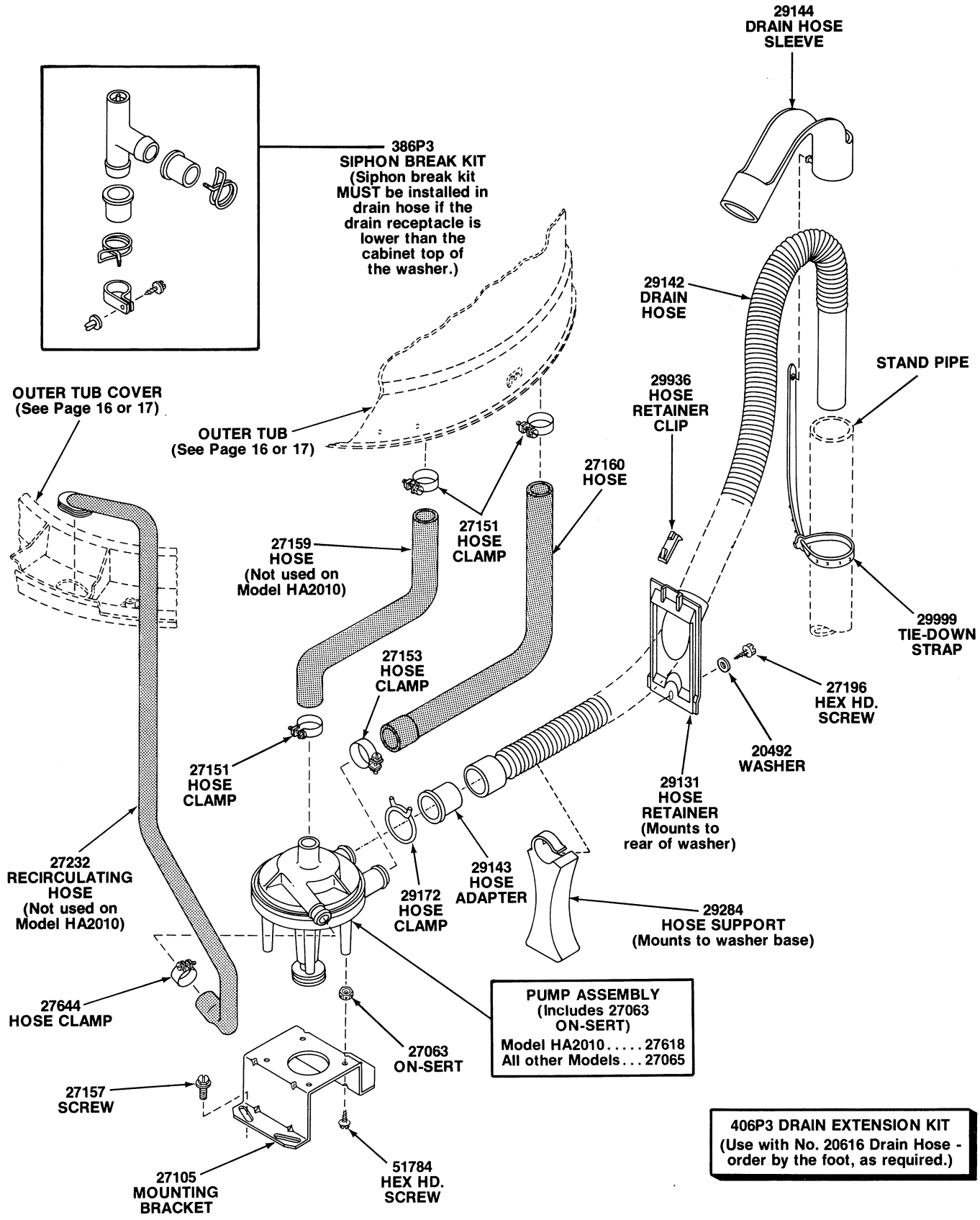
COMPONENTS FOR 28430 TRANSMISSION ASSEMBLY



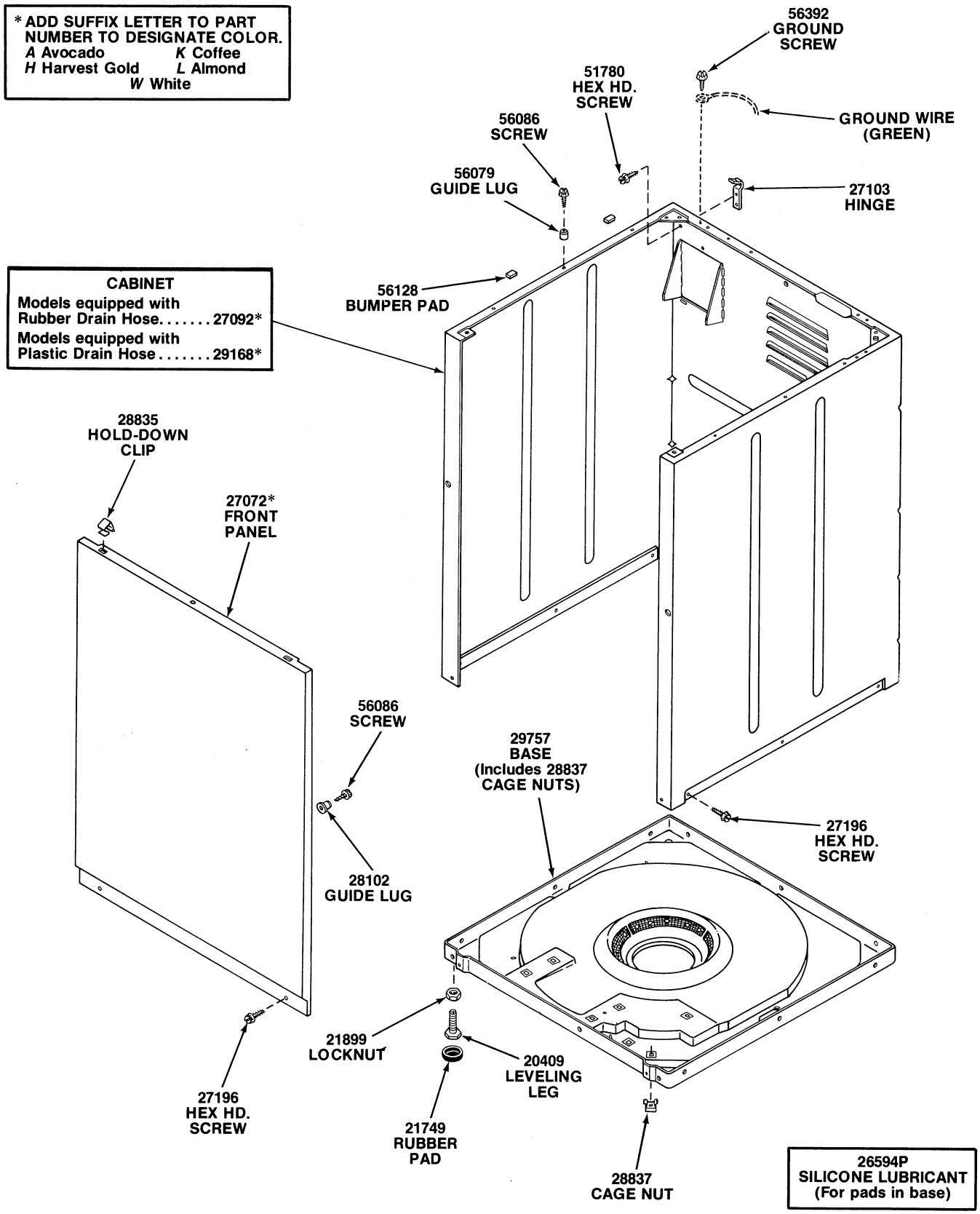
COMPONENTS FOR 30123 and 30946 TRANSMISSION ASSEMBLIES



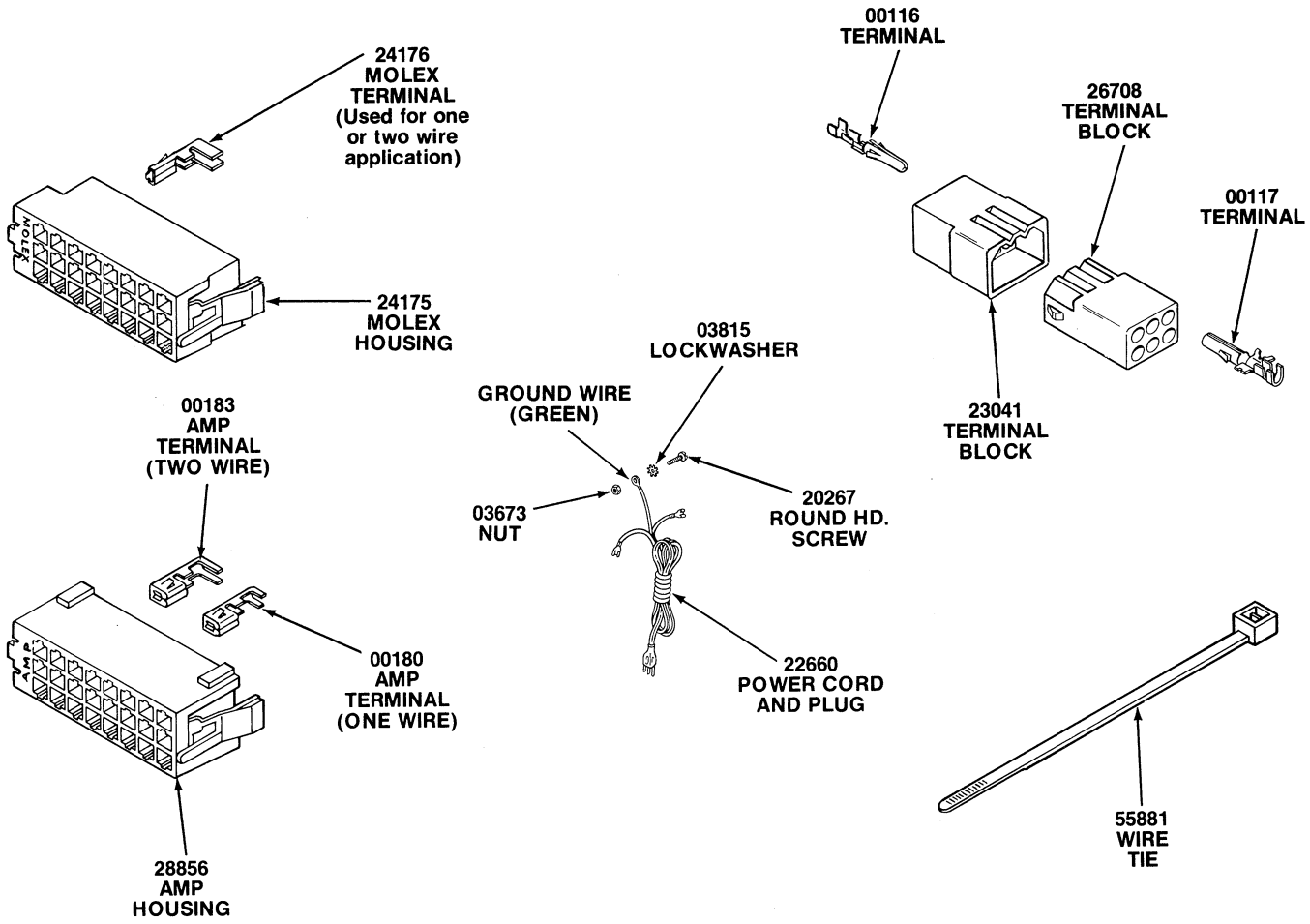
PUMP ASSEMBLY, BRACKET, HOSES AND SIPHON BREAK KIT
(Models equipped with rubber drain hose)

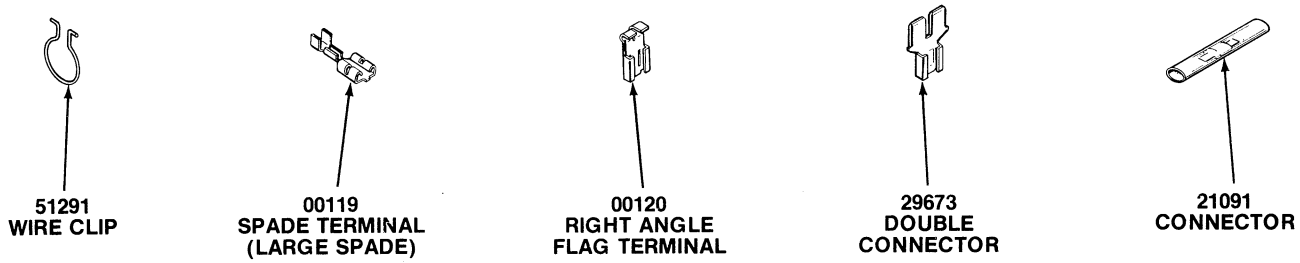


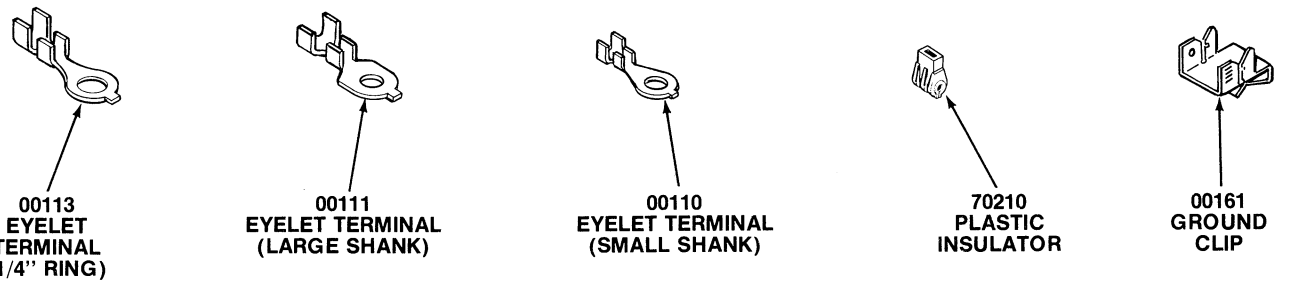
PUMP ASSEMBLY, BRACKET, HOSES AND SIPHON BREAK KIT
(Models equipped with plastic drain hose)



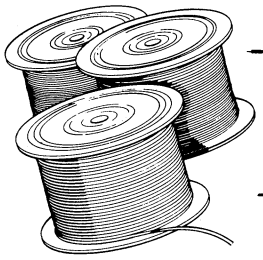
FRONT PANEL, CABINET AND BASE







POWER CORD AND WIRE TERMINALS



20680 18 GAUGE WIRE PER FOOT (SPECIFY COLOR)

ORDER BY THE FOOT. ALWAYS SPECIFY COLOR CODE REQUIRED. SEE WIRING DIAGRAM FOR CORRECT COLOR CODE.

INDIVIDUAL WIRES NOT SERVICED SEPARATELY. ORDER COMPLETE ASSEMBLIES OR ORDER BY THE FOOT AND NECESSARY TERMINALS AND CONNECTORS AS REQUIRED. IT IS RECOMMENDED THAT WHENEVER APPLYING TERMINALS TO WIRES THAT THE TERMINAL BE SOLDERED TO THE WIRE.

		WASHERS EQUIPPED WITH SHORT MOTOR WIRE HARNESS		WASHERS EQUIPPED WITH LONG MOTOR WIRE HARNESS	
MODEL NUMBERS	LID WIRE HARNESS	BASE WIRE HARNESS	MOTOR WIRE HARNESS	BASE WIRE HARNESS	MOTOR WIRE HARNESS
HA7221	27872	27705	26062	28169	28131
HA7001 through Serial No. B3533857	27872	—	—	28169	28131
HA7001 starting Serial No. B3533858	28895	—	—	28896	28131
HA6470 and HA6471	27872	27703	26062	28184	28131
HA6450	27872	27701	26062	28172	28131
HA6000 and HA6001 through Serial No. B3533857	27872	—	—	28169	28131
HA6000 and HA6001 starting Serial No. B3533858	28895	—	—	28896	28131
HA5590 and HA5591	28895	—	—	30222	28131
HA5320	27872	27699	26144	28150	28132
HA5000 and HA5001 through Serial No. B3533857	27872	—	—	28166	28132
HA5000 and HA5001 starting Serial No. B3533858	28895	—	—	28898	28132
HA4590 and HA4591	28895	—	—	29968	28131
HA4521 through Serial No. B3547780	27872	—	—	28169	28131
HA4521 starting Serial No. B3547781	28895	—	—	28896	28131
HA4520	27872	—	—	28169	28131
HA4510 and HA4511	27872	—	—	28546	28132
HA4500	28895	—	—	28898	28132
HA4370 and HA4371	27872	27701	26062	28172	28131

WIRE AND HARNESSES

		WASHERS EQUIPPED WITH SHORT MOTOR WIRE HARNESS		WASHERS EQUIPPED WITH LONG MOTOR WIRE HARNESS	
MODEL NUMBERS	LID WIRE HARNESS	BASE WIRE HARNESS	MOTOR WIRE HARNESS	BASE WIRE HARNESS	MOTOR WIRE HARNESS
HA4340 and HA4341	27872	27699	26144	28150	28132
HA4290 and HA4291	28895	—	—	28896	28131
HA4260 and HA4261	27872	27701	26062	28172	28131
HA4210 and HA4211 through Serial No. B3533857	27872	—	—	28169	28131
HA4210 and HA4211 starting Serial No. B3533858	28895	—	—	28896	28131
HA4020 and HA4021	27872	27699	26144	28150	28132
HA4010 and HA4011 through Serial No. B3533857	27872	—	—	28546	28132
HA4010 and HA4011 starting Serial No. B3533858	28895	—	—	28897	28132
HA4000	28895	—	—	28898	28132
HA3000 and HA3001 through Serial No. B3533857	27872	—	—	28150	28132
HA3000 and HA3001 starting Serial No. B3533858	28895	—	—	28898	28132
HA2620 and HA2621	27872	27703	26062	28184	28131
HA2410 and HA2411	27872	27701	26062	28172	28131
HA2300	27872	27699	26144	28150	28132
HA2010 through Serial No. B3533857	27872	27697	26144	28148	28132
HA2010 starting Serial No. B3533858	28895	—	—	28900	28132

WIRE AND HARNESSES

SECTION II
Grounding

1. POWER CORD TO CONTROL HOOD

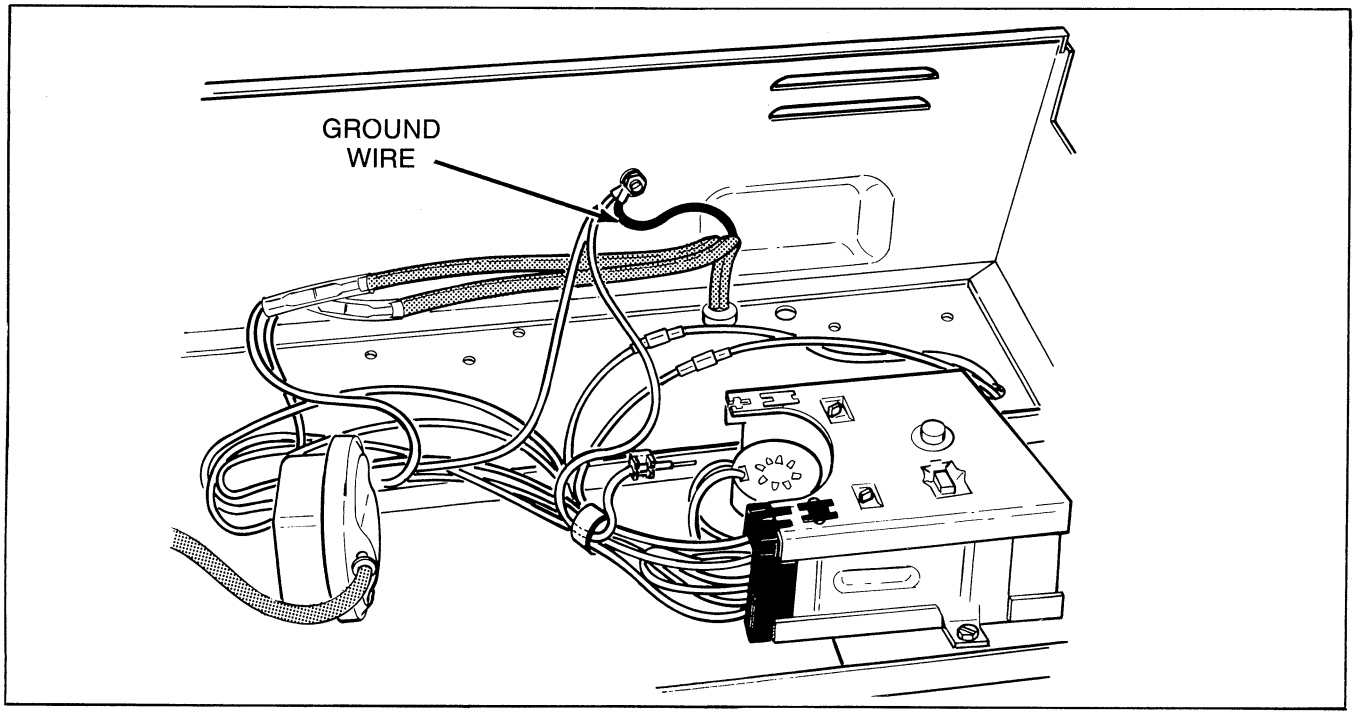


Figure 1

2. CONTROL HOOD TO BOTTOM FLANGE OF CONTROL PANEL

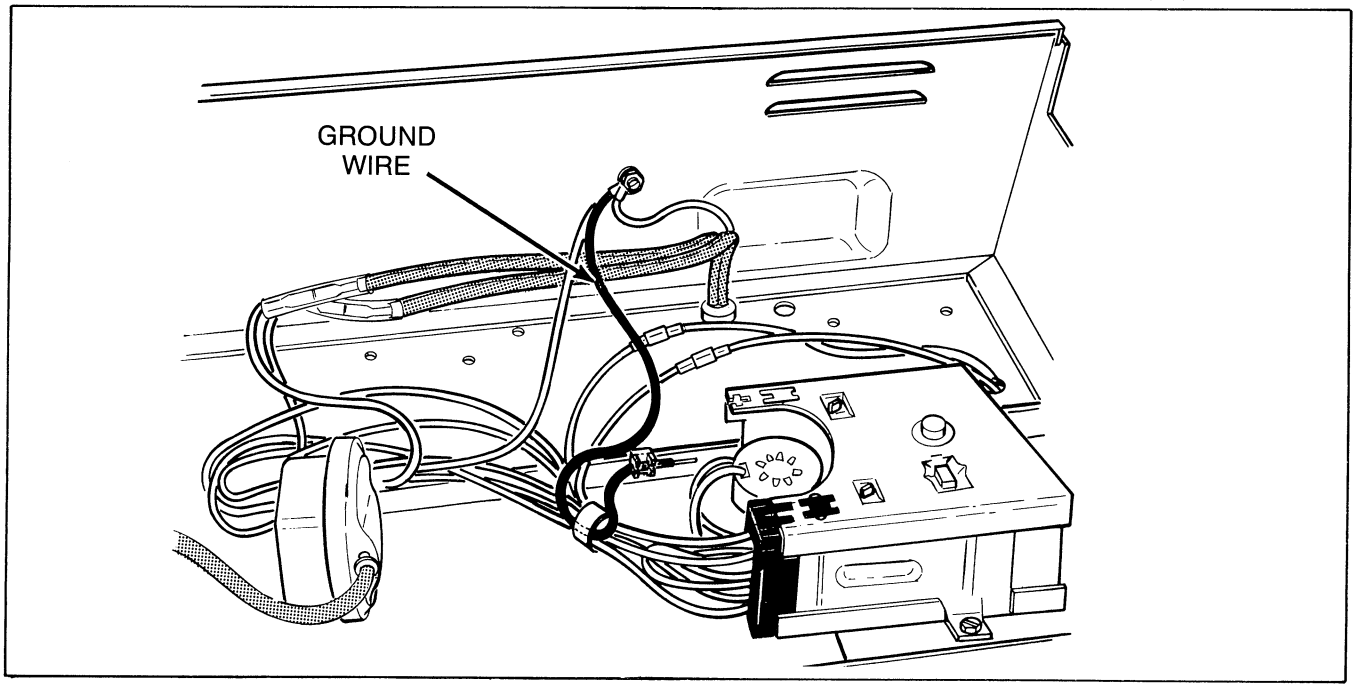


Figure 2

3. MAIN WIRE HARNESS TO TOP REAR FLANGE OF CABINET

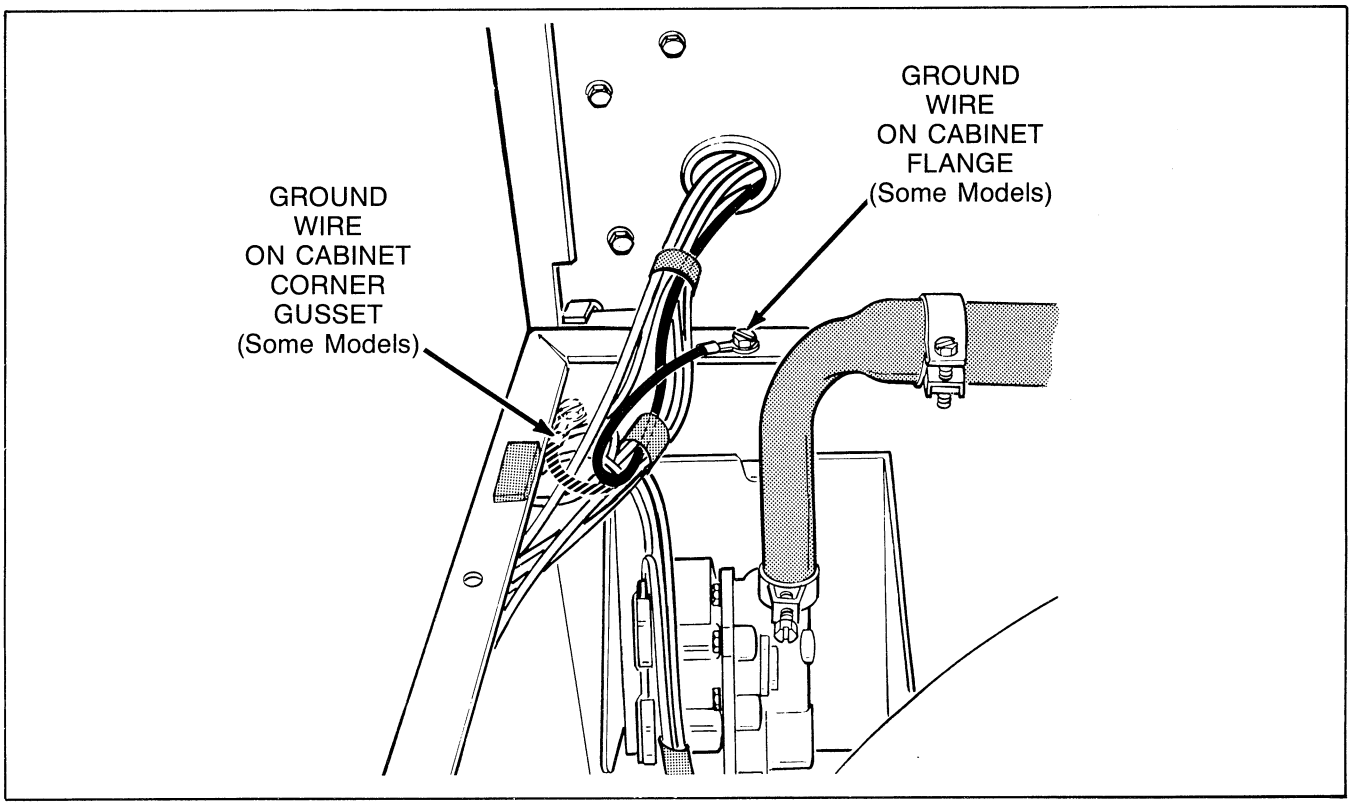


Figure 3

4. MOTOR TO MOTOR MOUNTING BRACKET, TO BASE

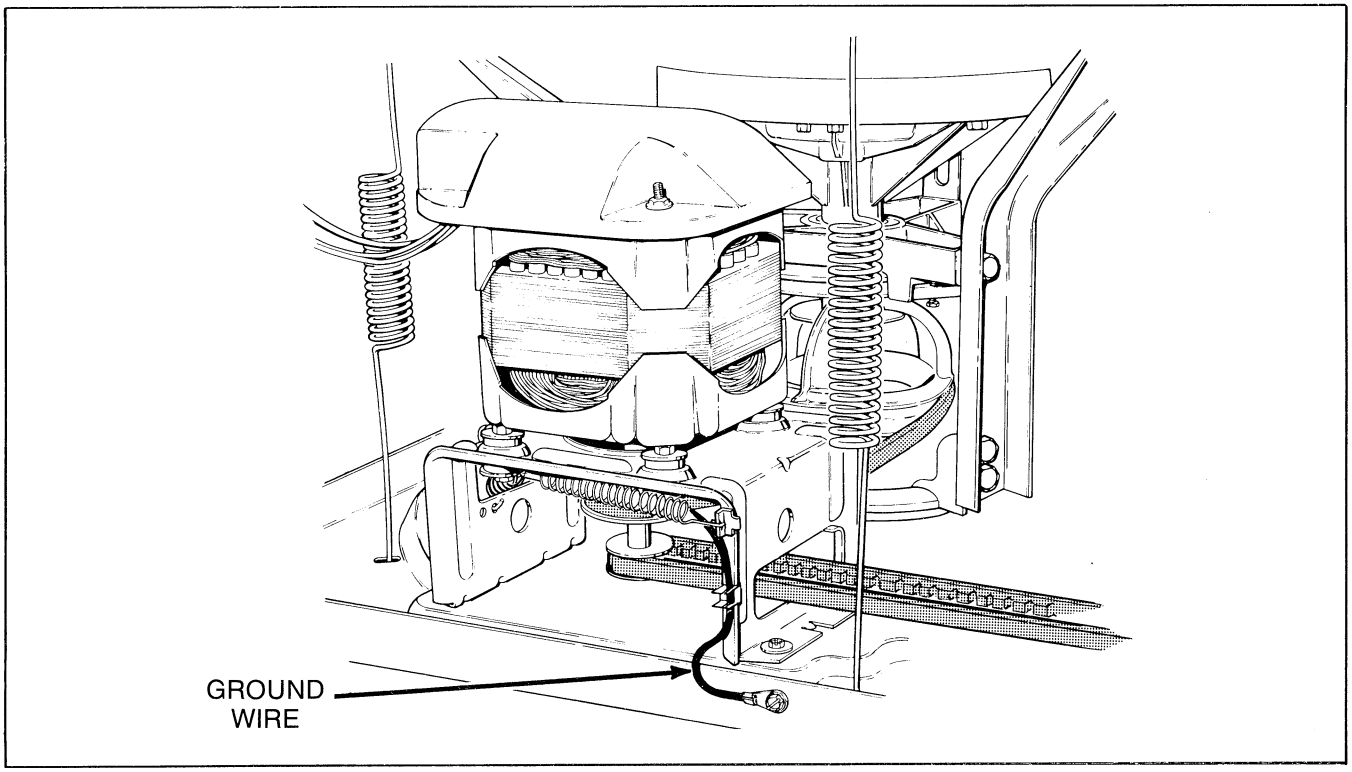


Figure 4

SECTION III
Service Procedures

WARNING

DISCONNECT POWER CORD AND CLOSE WATER SUPPLY VALVE BEFORE SERVICING WASHER.

NEVER ENERGIZE THE ELECTRICAL POWER TO THE WASHER WITH ANY OF THE PANELS REMOVED.

CAUTION: Whenever ground wires are removed during servicing, those ground wires must be reconnected to insure that the washer is properly grounded.

5. **CONTROL PANEL** *(Refer to Figure 5 or 6)*
   a. Remove panel assembly screws and lift assembly off panel support.
   b. Remove end caps.
   c. Remove timer knob assembly.

NOTE: When reinstalling timer knob assembly, pin in timer shaft must be positioned in slot in timer knob indicator.

   d. Pull knobs off temperature and speed (action) switches (if present), and remove knurled nuts and lockwashers holding switches to control panel.

NOTE: Lockwashers must be between switch and control panel when installing switch.

   e. Pull knob off pressure switch and remove screws holding switch to control panel.
   f. Remove screws holding timer to control panel.

NOTE: When installing timers, shown in

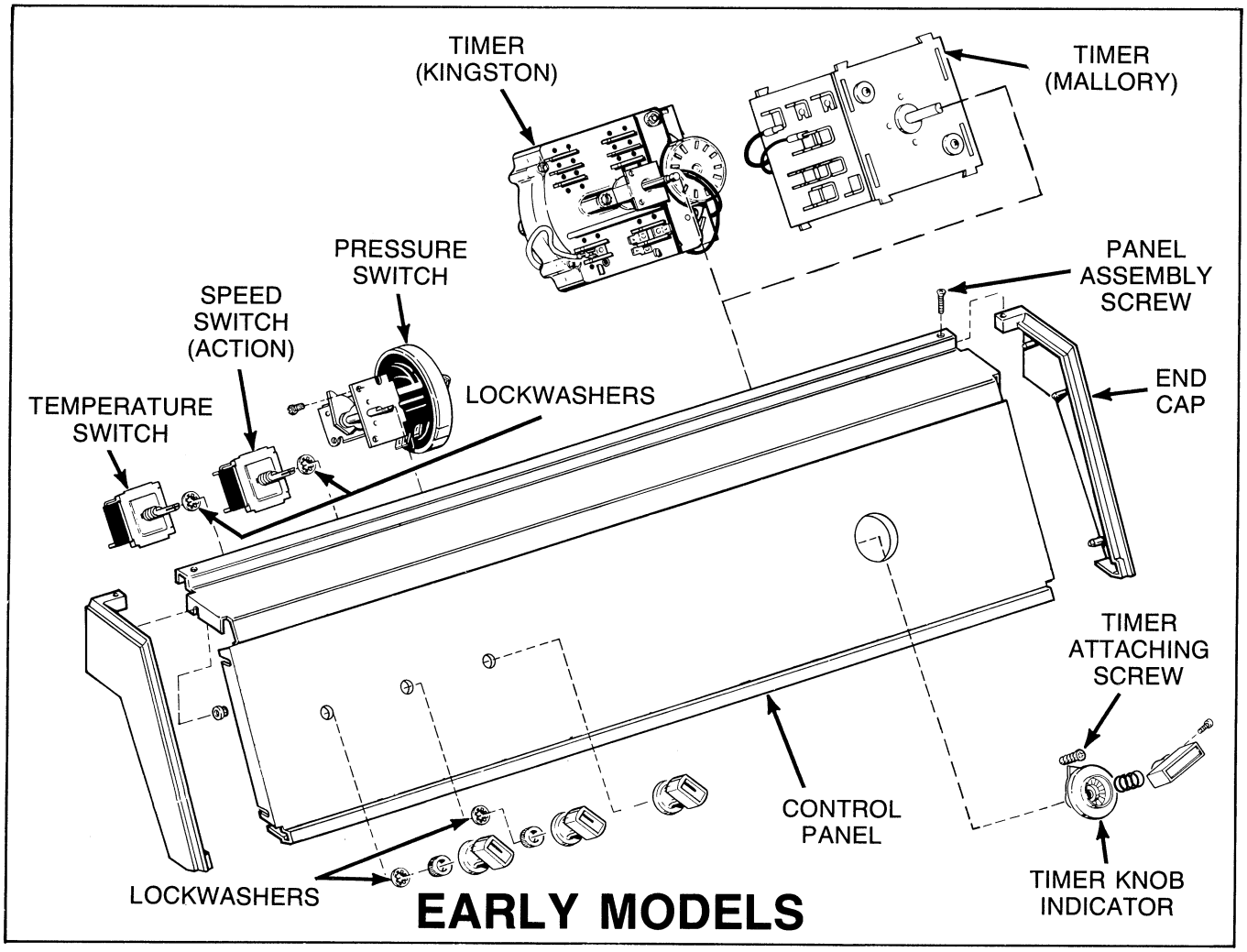


Figure 5

***Figure 6,* the horizontal and vertical tabs on front plate of timer must seat completely into the "cross shaped" holes on the control panel bracket, *Figure 8,* and that the two timer hex head attaching screws are torqued down between 12 to 18 inch pounds (14 to 21 cm-Kg).**

6. **TIMER**

   a. Remove panel assembly screws and lift assembly off panel support.
   b. Loosen setscrew holding timer knob to timer shaft, then remove knob, spring and timer knob indicator.

NOTE: When reinstalling timer knob assembly, pin in timer shaft must be positioned in slot in timer knob indicator, *Figure 5.*

EARLY MODELS *(Refer to Figure 5)*

a. Disconnect wires from timer.

IMPORTANT: Refer to appropriate wiring diagram when rewiring timer.

b. Remove three Phillip head screws holding timer to control panel bracket, *Figure 5.*

LATE MODELS *(Refer to Figure 6)*

NOTE: DO NOT attempt to repair the timer.

a. Disengage wire harness terminal block plug from the timer by pressing in on the movable locking tabs (located on each side of the terminal block plug) and pulling plug away from timer, *Figure 7.*

IMPORTANT: To avoid an open circuit, DO NOT pull on the terminal block wires when removing block from timer as this could damage the wires or terminal crimping.

Before attaching wire harness terminal block to timer, be sure all the male terminals on timer are straight and are capable of accepting the terminals from the wire harness terminal block.

(continued)

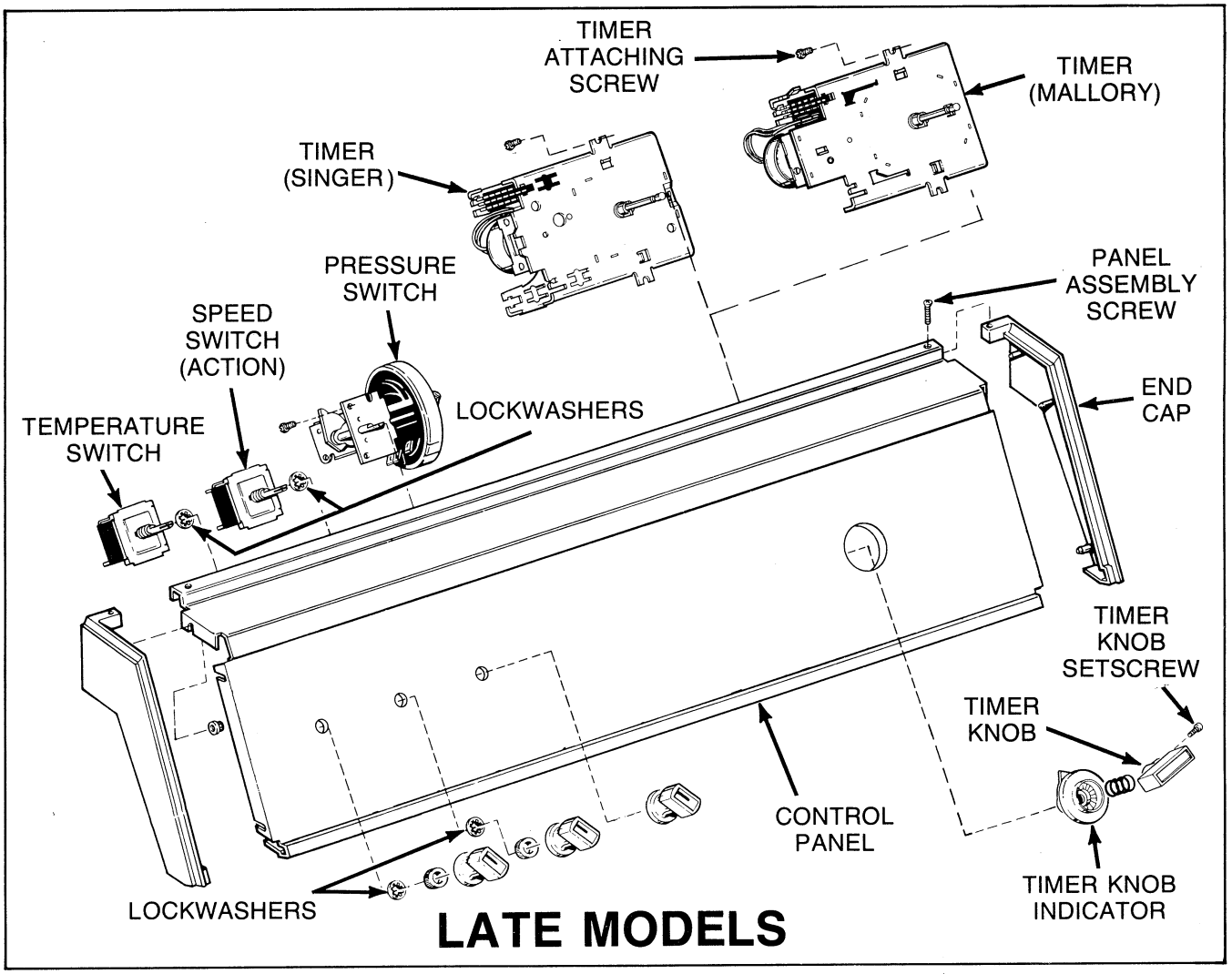


Figure 6

b. Remove the two hex head screws holding timer to rear of control panel bracket.

NOTE: When installing timer, be sure timer is installed correctly and is securely mounted to bracket on control panel, *Figure 8.*

The horizontal and vertical tabs on front plate of timer must seat completely into the "cross shaped" holes on the control panel bracket, and that the two hex head screws are torqued down between 12 to 18 inch pounds (14 to 21 cm-kg).

IMPORTANT: To avoid timer damage, do not allow timer to be struck on the corners, edges of frame, or on the timer shaft.

7. TEMPERATURE OR SPEED (ACTION) SWITCH

Refer to *Figure 5 or 6* for switch removal.

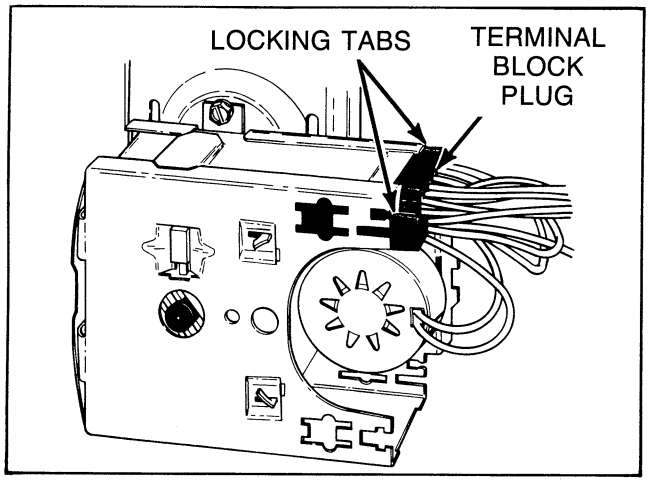


Figure 7

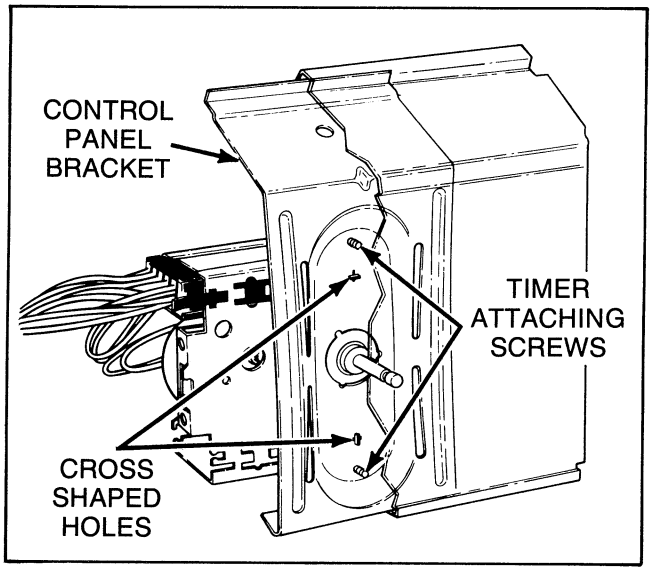


Figure 8

NOTE: Refer to appropriate wiring diagram when rewiring switch.

8. PRESSURE SWITCH

Refer to *Figure 5 or 6* for switch removal.

NOTE: Refer to appropriate wiring diagram when rewiring switch.

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.

When the pressure hose has been removed and replaced several times, the end of the hose may become enlarged, and does not seal properly.

If hose is enlarged, cut approximately 1/2" to 3/4" off the end of the hose and reinstall hose on pressure switch.

9. DRAIN HOSE ELBOW *(Refer to Figure 9)*

a. Loosen hose clamp and remove drain hose from elbow.
b. Remove screws holding elbow to rear of washer cabinet.
c. Pull elbow out through opening in cabinet far enough to permit loosening inner clamp, then remove elbow from inner hose.

NOTE: When reinstalling elbow on inner hose, DO NOT allow hose inside washer to twist! Direct elbow toward drain receptacle before tightening the inner hose clamp. If this is not done, the inner hose will twist in the direction of the outer tub resulting in the hose rubbing against the bottom edge of the outer tub.

d. Secure elbow to washer cabinet using the screws removed in step "b".

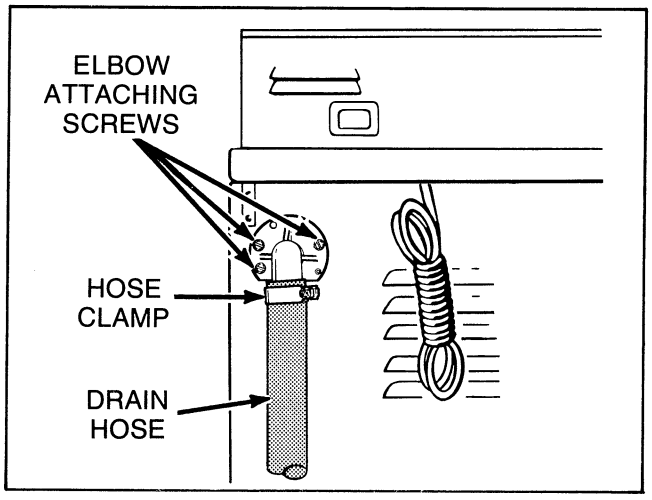


Figure 9

10. LOADING DOOR *(Refer to Figure 10)*

a. Depress tab on either hinge, then slide hinge out of loading door and bushing in cabinet top.
b. Tilt loading door slightly and slide door and hinge out of opposite bushing.

11. AGITATOR POST ASSEMBLY

WARNING

IF WATER IS PRESENT IN WASHTUB, SPIN AND PUMP OUT BEFORE REMOVING AGITATOR POST ASSEMBLY.

a. Remove agitator hold-down cap and lift agitator out of washtub, *Figure 10.*
b. Remove four cap screws holding agitator post assembly to washtub hub, *Figure 11,* then lift assembly out of washtub.

NOTE: Models equipped with gasket, use a new gasket when installing agitator post. (Be sure all traces of old gasket are removed from the hub and agitator post.) Apply a small bead of sealant, No. 27615, to each of the sealing surfaces where the agitator post gasket will contact the hub. Carefully place new gasket, No. 27020, on hub. Be sure holes in gasket are aligned with bolt holes in hub.

Models equipped with Loctite — Be sure all traces of old Loctite are removed from the hub and agitator post. Apply approximately a 1/16 diameter continuous bead of No. 28434P Loctite to the embossed surfaces of the agitator post, *Figure 12.*

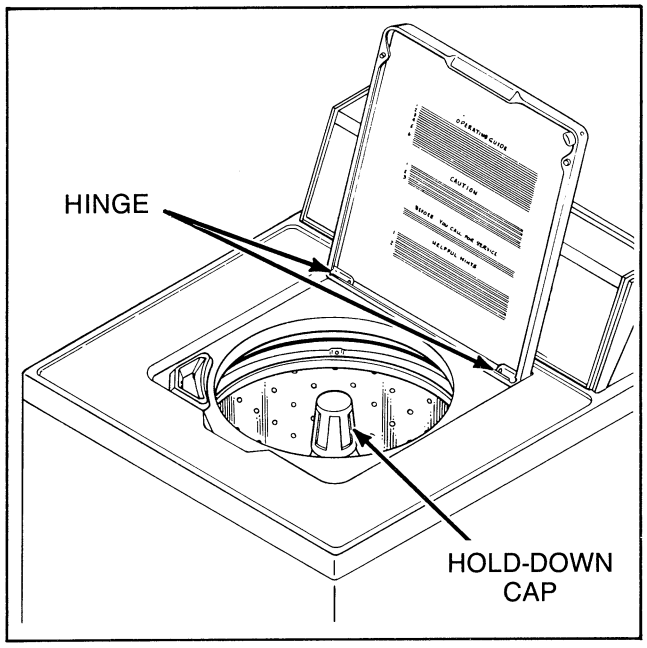


Figure 10

c. While tightening the four cap screws, tap lightly on the drive block to force splines on drive shaft into the coupling on the transmission assembly.

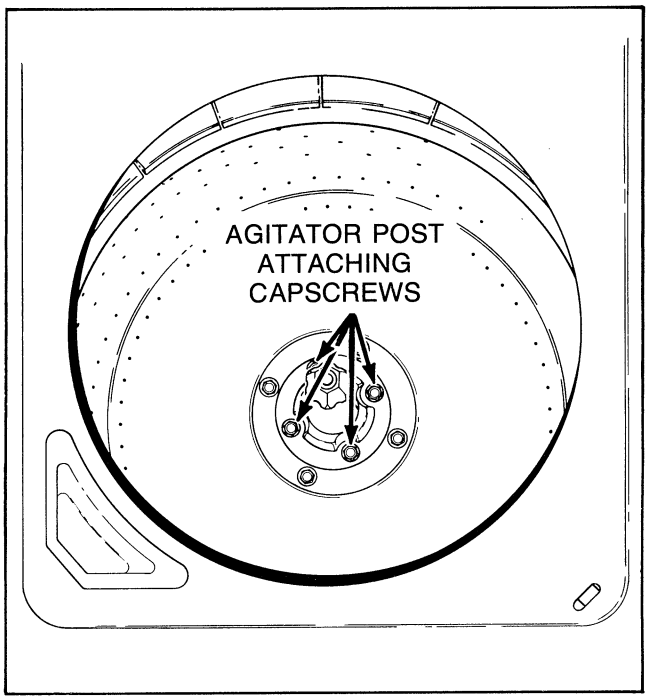


Figure 11

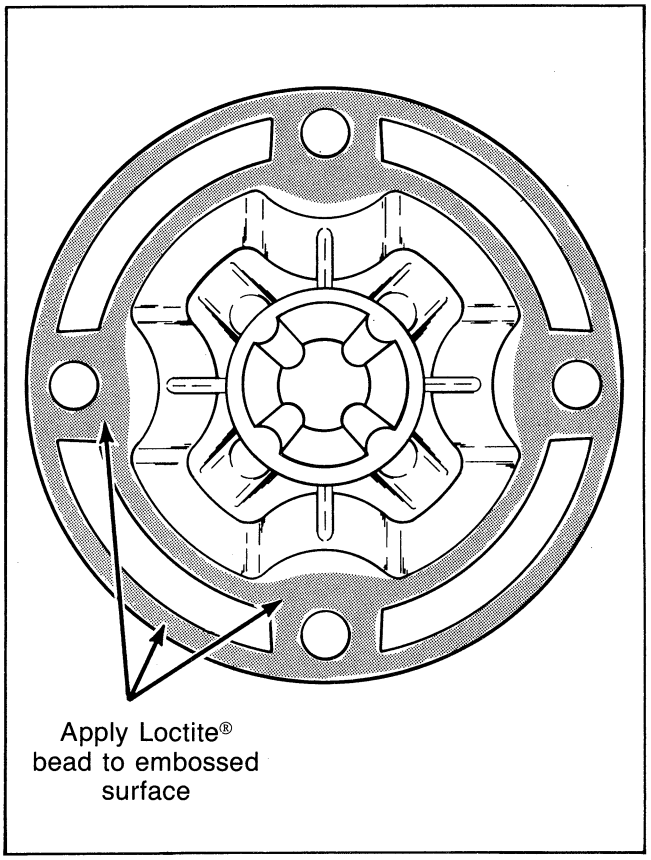


Figure 12

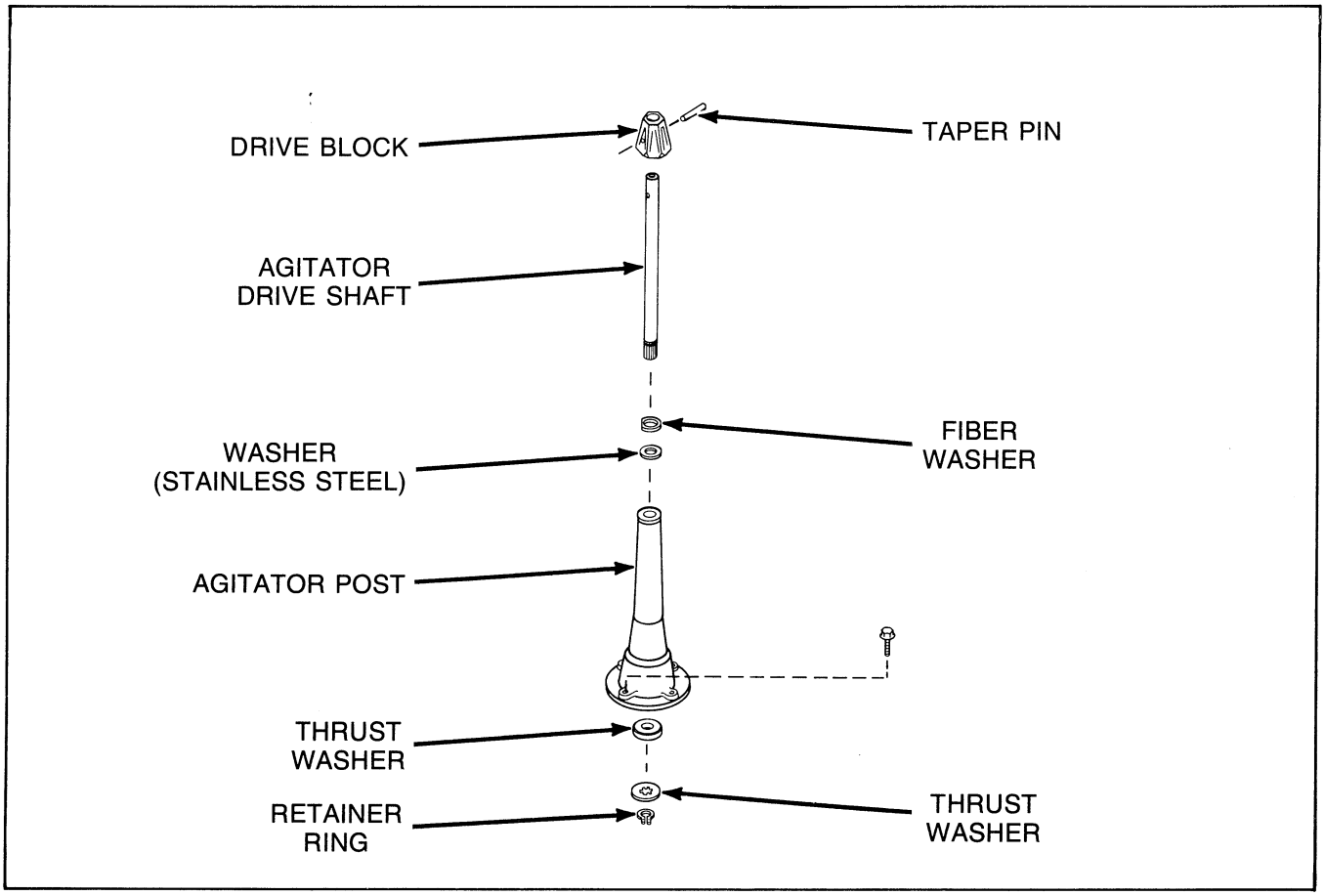


Figure 13

12. AGITATOR DRIVE SHAFT *(Refer to Figure 13)*

a. Remove agitator post assembly, *paragraph 11.*
b. Remove retainer ring from bottom end of drive shaft, grasp agitator drive block and pull shaft out of agitator post.

IMPORTANT: Stainless steel washer must be between thrust bearing and fiber washer on agitator drive block when installing drive shaft.

CAUTION: Use caution when installing drive shaft in agitator post to prevent cutting seal lips with the splines on lower end of drive shaft.

13. FRONT PANEL *(Refer to Figure 14)*

a. Remove two screws from bottom edge of panel.
b. Pull bottom of panel away from washer until hold-down clips (located on top flange of panel) disengage from slots in cabinet top.

Hold-down Clips

Compress hold-down clips enough to remove from slots in top flange of panel.

Guide Lugs

Remove screws holding guide lugs to side flanges of front panel.

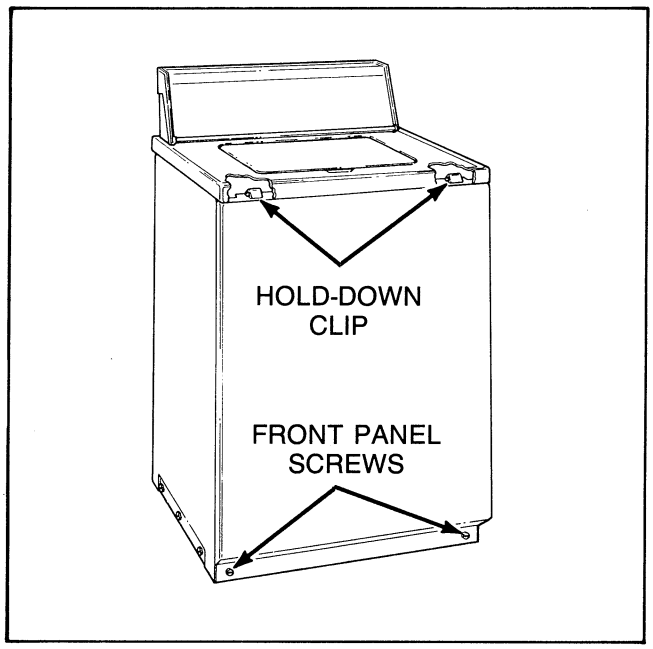


Figure 14

14. PUMP BELT

a. Remove two screws from bottom edge of front panel, *Figure 14.*
b. Pull bottom of panel away from washer until hold-down clips (located on top flange of panel) disengage from slots in cabinet top.
c. Loosen two front mounting screws and one rear mounting screw holding pump and bracket to washer base, *Figure 15,* pivot entire assembly toward motor to loosen belt tension.
d. Run belt off motor pulley, then remove belt from pump pulley.

NOTE: After installing pump belt, adjust belt, *paragraph 37.*

15. DRIVE BELT

IMPORTANT: If the washer is still equipped with the old style drive belt, No. 27246, and the old style idler lever and pulley assembly, we recommend that these parts be replaced with the No. 364P3 Idler Kit. This kit can be installed on washers by following the instructions supplied with the kit.

For washers equipped with the new style idler system, proceed as follows:

a. Remove two screws from bottom edge of front panel, *Figure 14.*
b. Pull bottom of panel away from washer until hold-down clips (located on top flange of panel) disengage from slots in cabinet top, *Figure 14.*
c. Remove two front mounting screws and loosen the rear mounting screw holding pump and bracket to washer base, *Figure 15,* pivot entire assembly toward motor to loosen belt tension.
d. Run belt off motor pulley, then remove belt from pump pulley.

NOTE: After installing belt, adjust belt, *paragraph 37.*

e. Reach in through front of motor mount and move idler lever to the left to release tension on belt.

IMPORTANT: Use caution when releasing idler lever tension (and helper spring if present). If the springs are overstretched, it will affect the washer operation.

(continued)

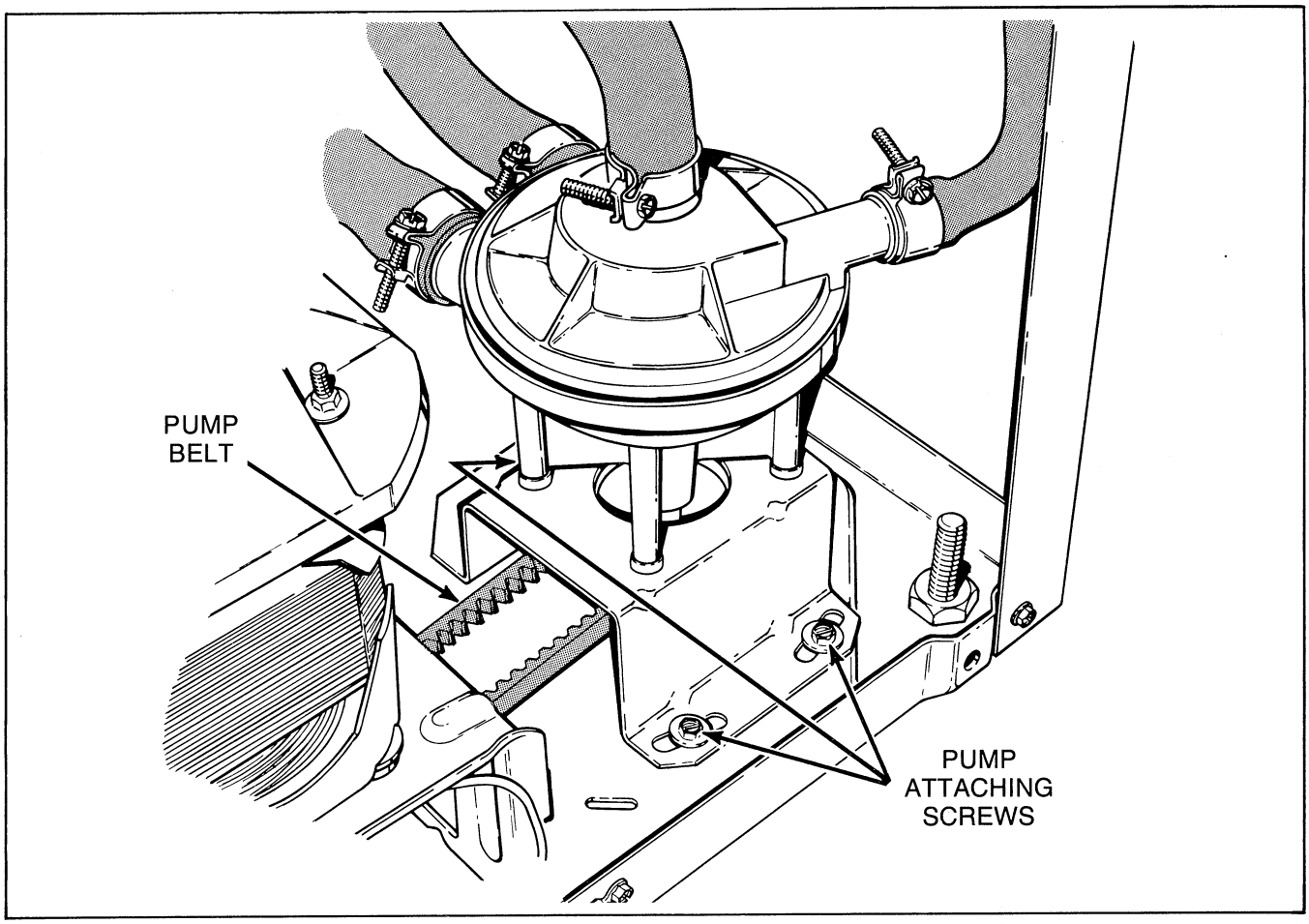


Figure 15

f. While holding idler lever, reach in and around right side of motor and run belt off right side of large drive pulley, *Figure 16.*
g. Remove belt from motor pulley and pull belt out through front of motor mount.

IMPORTANT: Drive belt MUST be replaced with belt No. 28808 (special clutch type belt) for proper washer operation.

TO INSTALL NO. 28808 DRIVE BELT

NOTE: If the new belt is replacing a burned belt, the motor pulley "V" groove must be polished with a fine (320 grit) emery cloth to remove rubber residue. The residue will affect the washer spin operation.

a. Push belt in through front of motor mount and place belt on motor pulley.
b. Reach in and around right side of motor, starting with belt on right side of large drive pulley, run belt onto pulley.
c. Reach in through front of motor mount and move idler lever to the left.

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

d. While holding idler lever, reach around right side of motor and place belt on idler pulley. IDLER PULLEY MUST RIDE ON OUTSIDE OF BELT.

NOTE: There is no belt adjustment after installing new drive belt. Check to be sure motor and mounting bracket has been shifted toward rear of washer to its limit of travel within the mounting bracket attaching screws. If the motor and mounting bracket must be repositioned, loosen the four motor attaching screws, *Figure 17,* and shift motor and mounting bracket toward rear of washer to its limit of travel. Retighten the four attaching screws, *Figure 17.*

16. MOTOR AND MOUNTING BRACKET

a. Remove front panel, *paragraph 13.*
b. Disconnect motor wire harness plug from base wire harness receptacle.

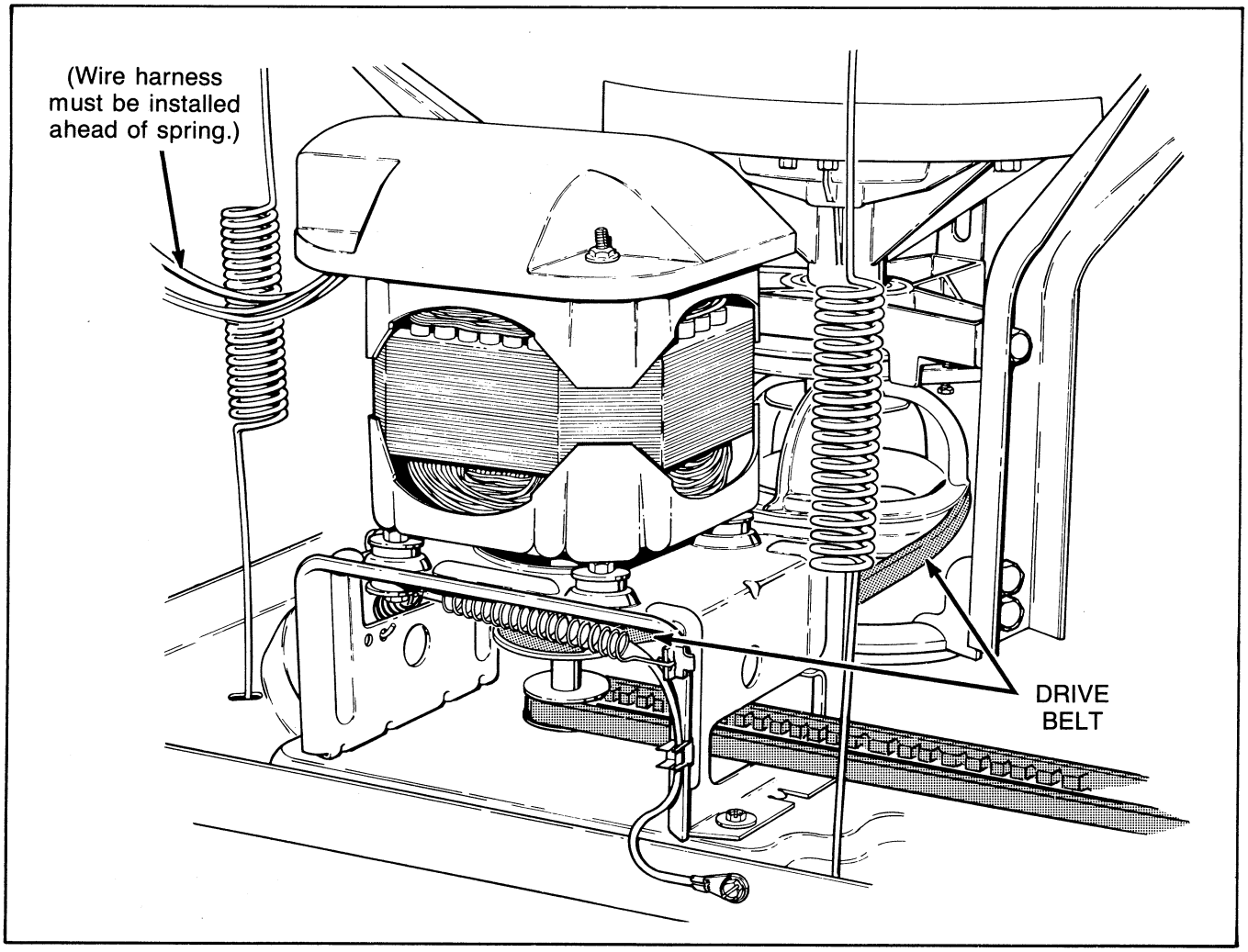


Figure 16

c. Remove pump belt, *paragraph 14,* then remove drive belt, *paragraph 15.*

NOTE: When installing belts, adjust pump belt, *paragraph 37.* There is no drive belt adjustment.

d. Remove screw holding ground wire to washer base, *Figure 17.*
e. Remove four screws holding motor and mounting bracket to washer base, *Figure 18,* then lift complete assembly out of washer.

NOTE: When installing motor and mounting bracket, tab on right bottom flange of mounting bracket must be placed in positioning hole in base. Mounting bracket must be shifted toward rear of washer to its limit of travel within the mounting bracket attaching screws.

f. Remove nuts, steel washers, spacers and rubber mounts holding motor to mounting bracket, *Figure 18 or 19.* Lift motor off mounting bracket and remove balance of rubber mounts and steel washers from motor mounting studs.

IMPORTANT: When installing motor on mounting bracket, position motor with switch facing toward left side of mounting bracket.

NOTE: Refer to *Figure 18 or 19* for motor and mounting bracket assembly sequence.

17. IDLER LEVER AND PULLEY

a. Remove motor and mounting bracket, *paragraph 16,* steps "a" through "e."
b. Remove nut, washer and bolt holding idler lever and pulley to motor mounting bracket.

NOTE: Refer to *Figure 18 or 19* for idler lever and pulley assembly sequence.

c. Apply No. 21814 Lubricant to the area of the idler lever making contact with the motor mounting bracket.

18. MOTOR DRIVE PULLEY OR PUMP PULLEY

a. Remove motor and mounting bracket, *paragraph 16,* steps "a" through "e."
b. Lay motor and mounting bracket on its side.

NOTE: To remove pulleys, support motor shaft (to prevent bending shaft) and drive out pulley roll pins.

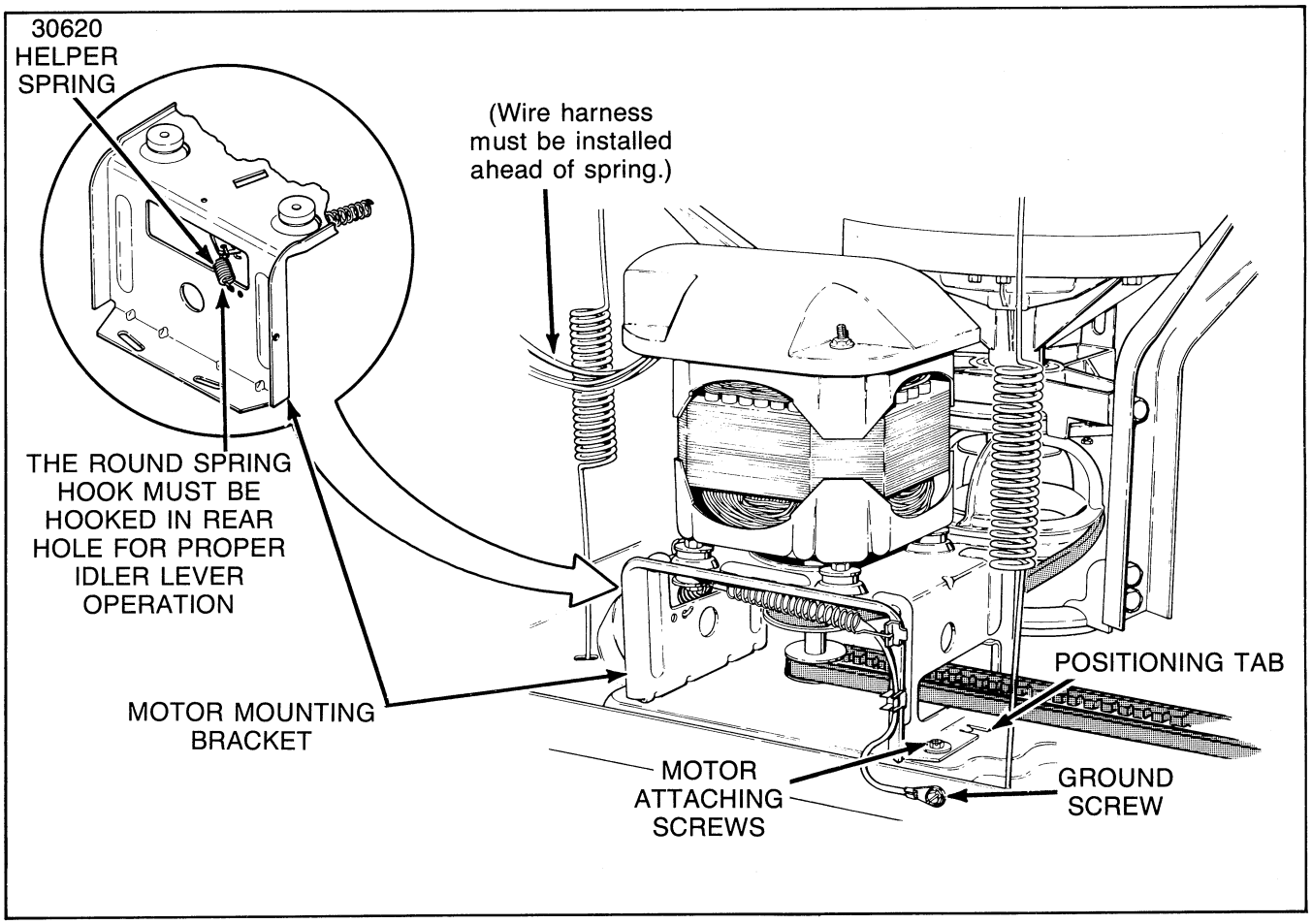
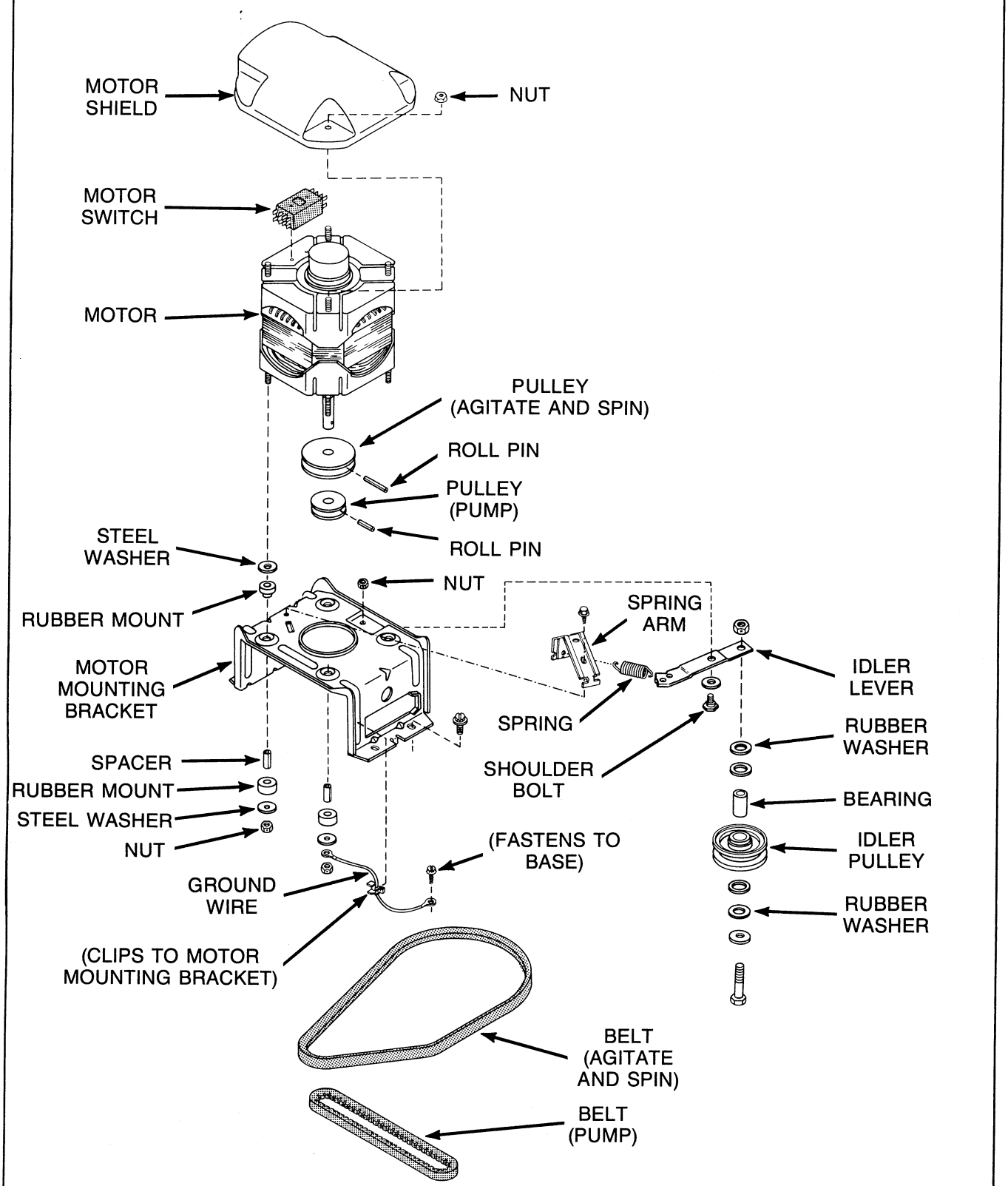


Figure 17



(Through Serial No. C3486773)

Figure 18

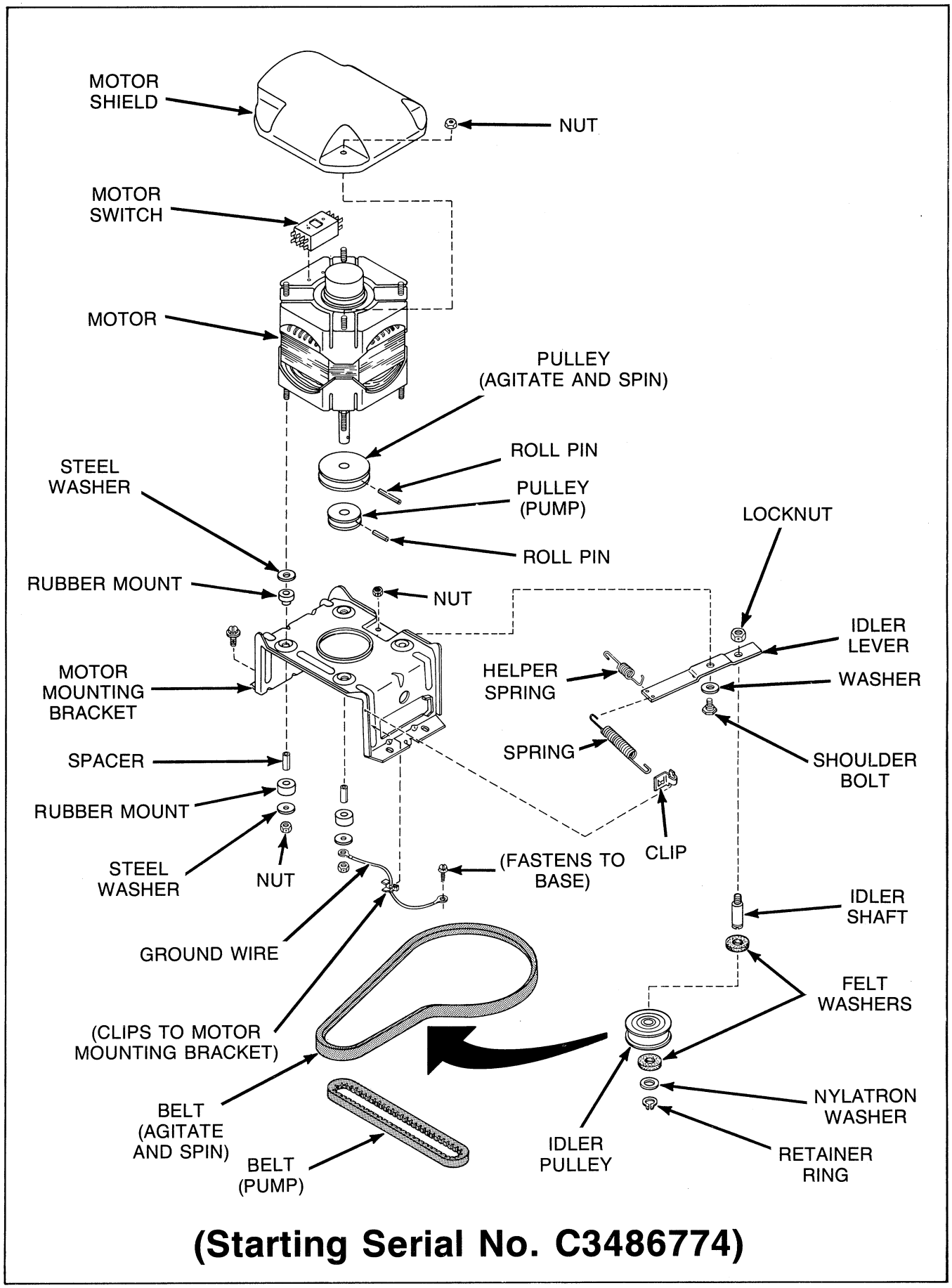

MOTOR SHIELD
NUT
MOTOR SWITCH
MOTOR
PULLEY (AGITATE AND SPIN)
ROLL PIN
STEEL WASHER
PULLEY (PUMP)
LOCKNUT
ROLL PIN
RUBBER MOUNT
NUT
IDLER LEVER
MOTOR MOUNTING BRACKET
HELPER SPRING
WASHER
SPRING
SHOULDER BOLT
SPACER
RUBBER MOUNT
CLIP
STEEL WASHER
NUT
(FASTENS TO BASE)
IDLER SHAFT
GROUND WIRE
FELT WASHERS
(CLIPS TO MOTOR MOUNTING BRACKET)
NYLATRON WASHER
BELT (AGITATE AND SPIN)
IDLER PULLEY
RETAINER RING
BELT (PUMP)
(Starting Serial No. C3486774)

Figure 19

19. MOTOR SWITCH

a. Remove front panel, *paragraph 13.*
b. Remove nut holding motor shield to motor.
c. Disconnect external wires from motor switch terminals.

NOTE: Refer to appropriate wiring diagram when rewiring switch.

d. Remove two screws holding switch to motor.
e. Disconnect internal motor leads from switch terminals.

NOTE: Refer to Wiring Schematics, page 72.

20. PUMP ASSEMBLY

a. Remove front panel, *paragraph 13.*
b. Remove pump belt, *paragraph 14.*

CAUTION: There will always be some water that will remain in the outer tub, therefore, before removing hoses from the pump, the hoses will have to be pinched off or drained to prevent water spillage on the floor.

c. Remove the two front mounting screws, *Figure 20,* and loosen the rear screw.

NOTE: Rear screw hole in pump mounting bracket is keyhole shaped, therefore, it is not necessary to remove the rear screw.

d. Slide pump and mounting bracket toward rear of washer and lift assembly out of washer.
e. Loosen hose clamps and remove all hoses from pump assembly, *Figure 20.*

Pump Mounting Bracket
Remove four hex head screws holding pump to mounting bracket.

NOTE: Refer to *Figure 21* for pump and mounting bracket assembly sequence.

21. CABINET TOP ASSEMBLY

a. Remove two screws from bottom edge of front panel, *Figure 14.*
b. Pull bottom of panel away from washer until hold-down clips (located on top flange of panel) disengage from slots in cabinet top.
c. Remove two cabinet top hold-down screws, *Figure 22.*
d. If the area or space permits, tape loading door closed and lift cabinet top to a vertical position by hinging it on the rear hold-down bracket.

NOTE: Cabinet top is self supporting, or use a small chain to support the cabinet top, *Figure 23.*

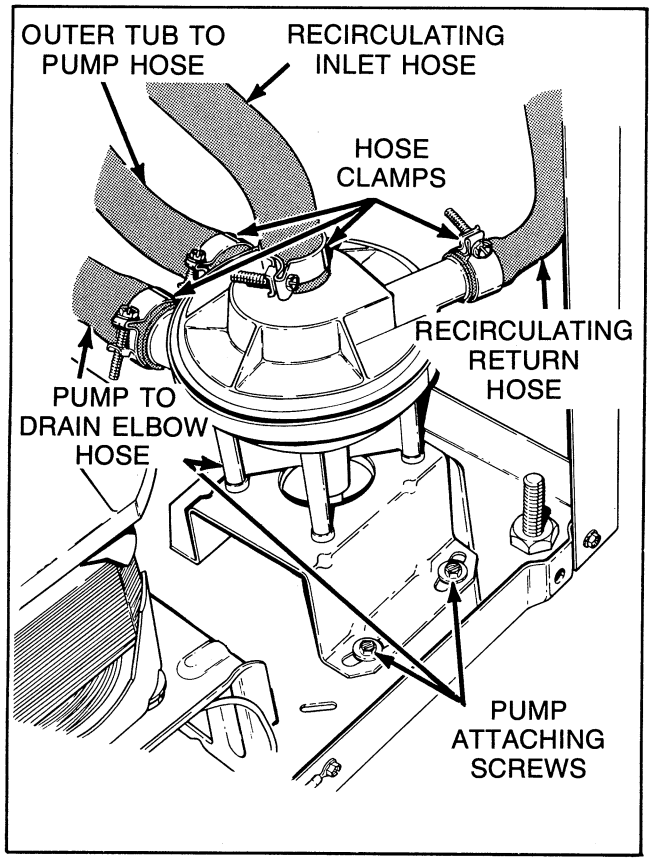


Figure 20

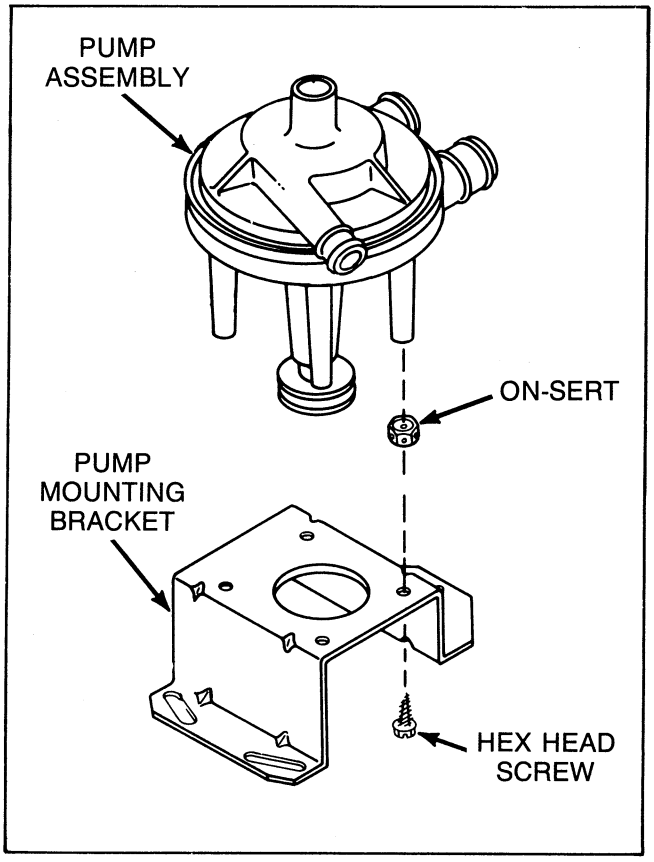


Figure 21

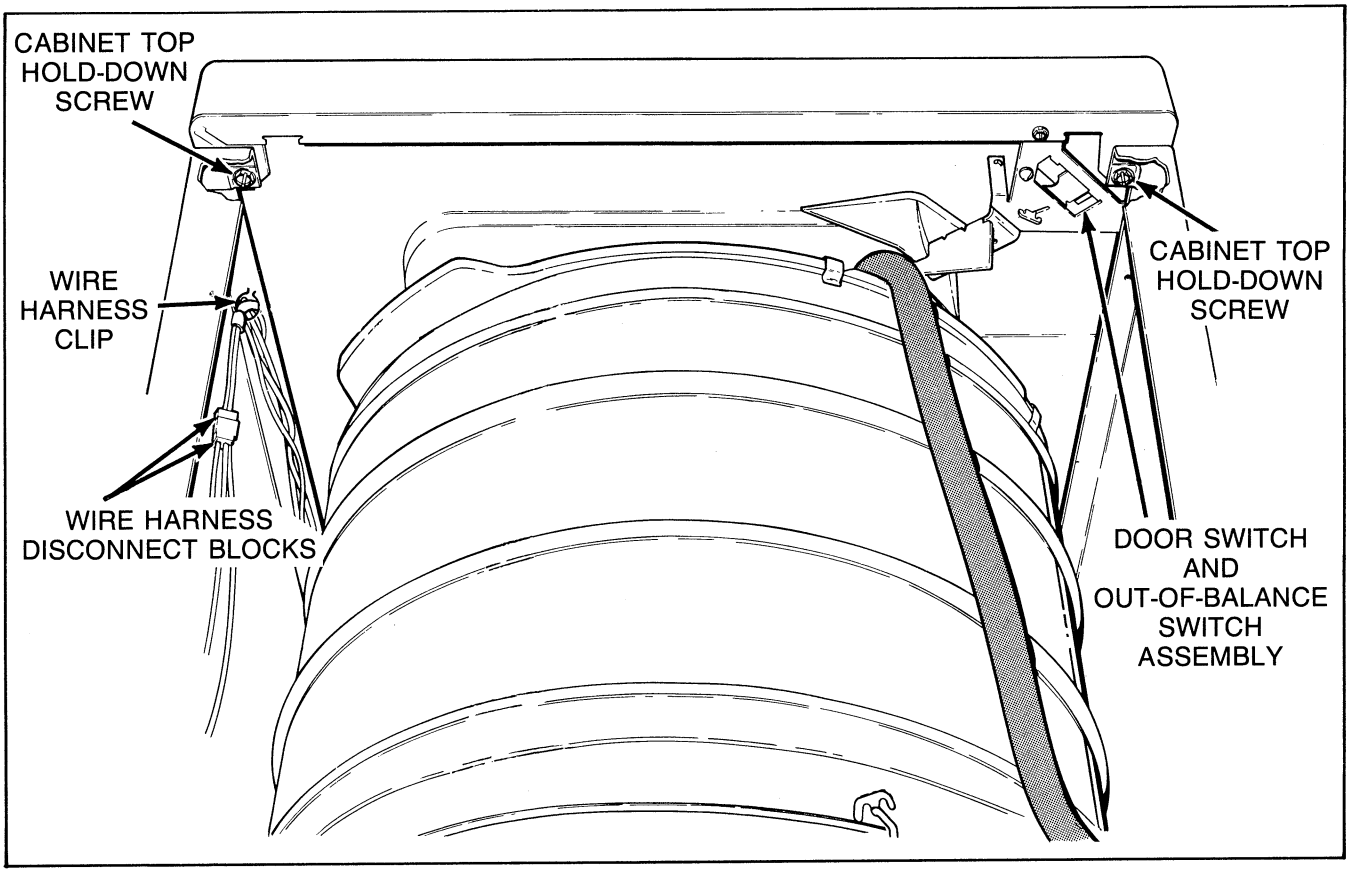


Figure 22

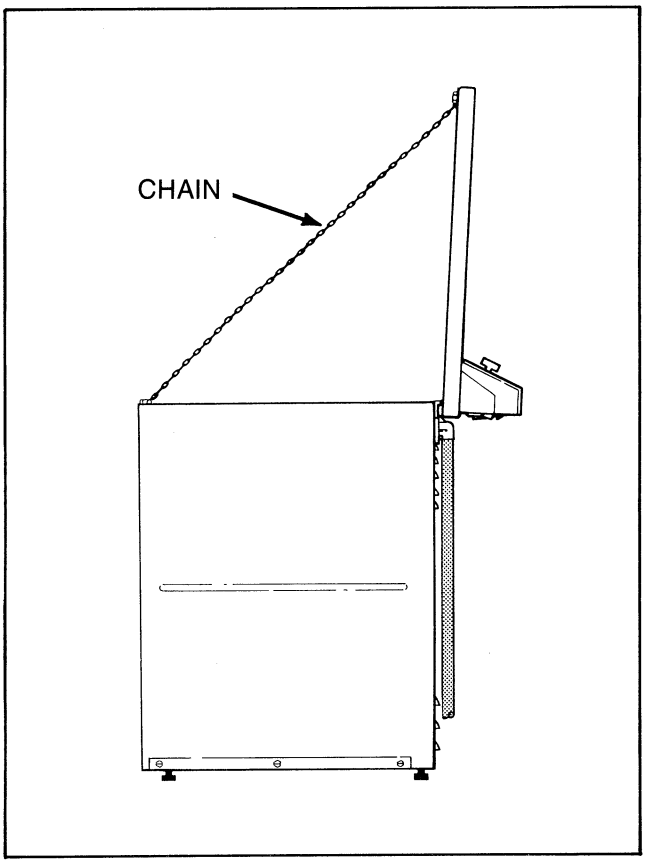


Figure 23

TO REMOVE CABINET TOP FROM WASHER

a. Repeat steps "a", "b" and "c" of paragraph 21.
b. Remove control panel assembly screws and lift assembly off panel supports, disconnect hose from pressure switch and push hose down through hole in cabinet top. Reinstall control panel assembly.
c. Disconnect wire harness at disconnect blocks, *Figure 22.*
d. Remove wire clips holding wire harness and pressure hose to top flange of left side of washer cabinet.
e. Tape loading door closed.
f. Lift front of cabinet top slightly and pull forward to disengage from rear hold-down bracket.
g. Pull top forward far enough to permit disconnecting green ground wire from top flange of washer cabinet and disconnecting wires from mixing valve solenoids at rear of washer.

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

h. Carefully lift cabinet top off washer and set beside washer cabinet on protective padding.

NOTE: Do not damage door switch and out-of-balance switch assembly when removing cabinet top.

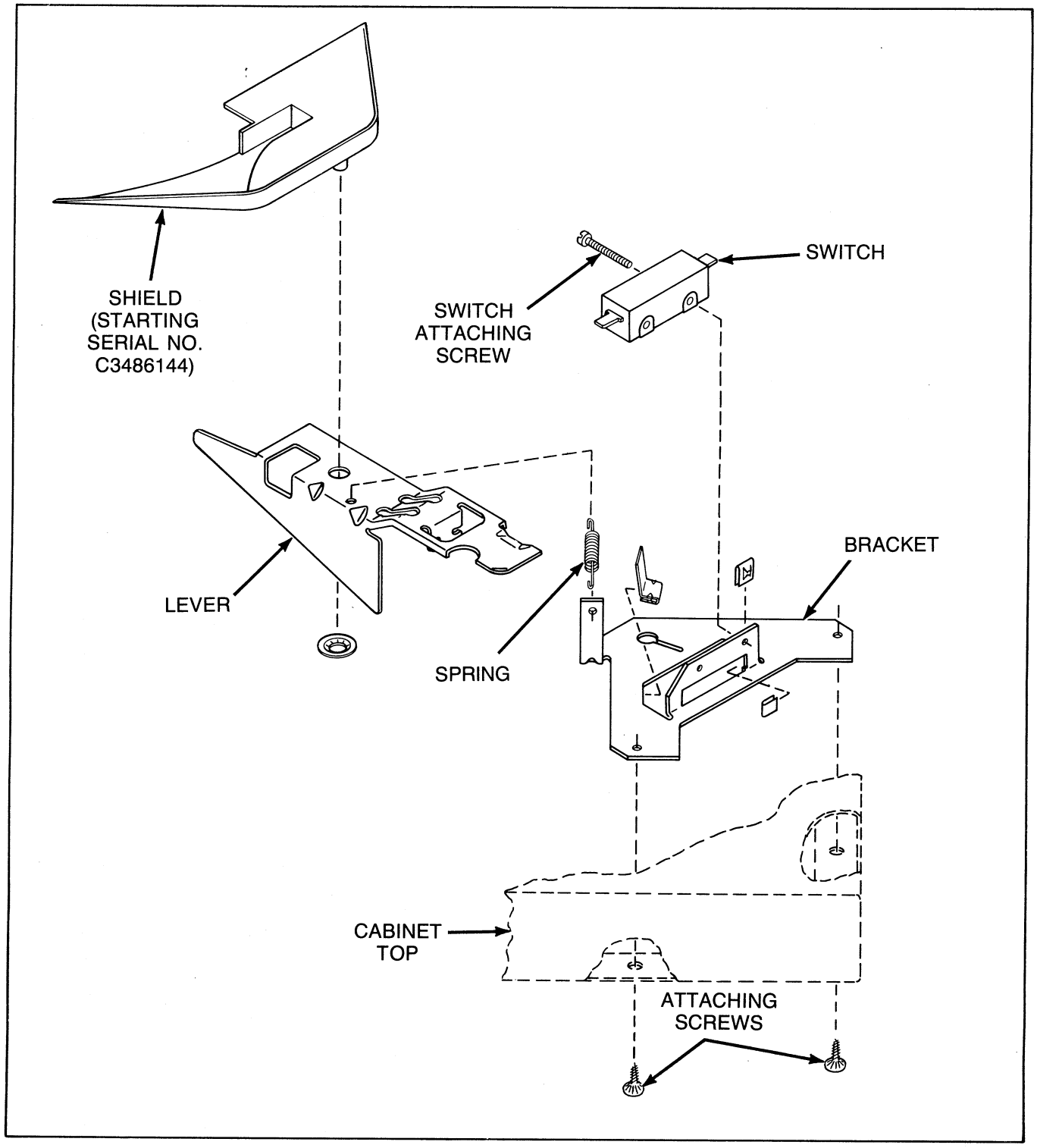


Figure 24

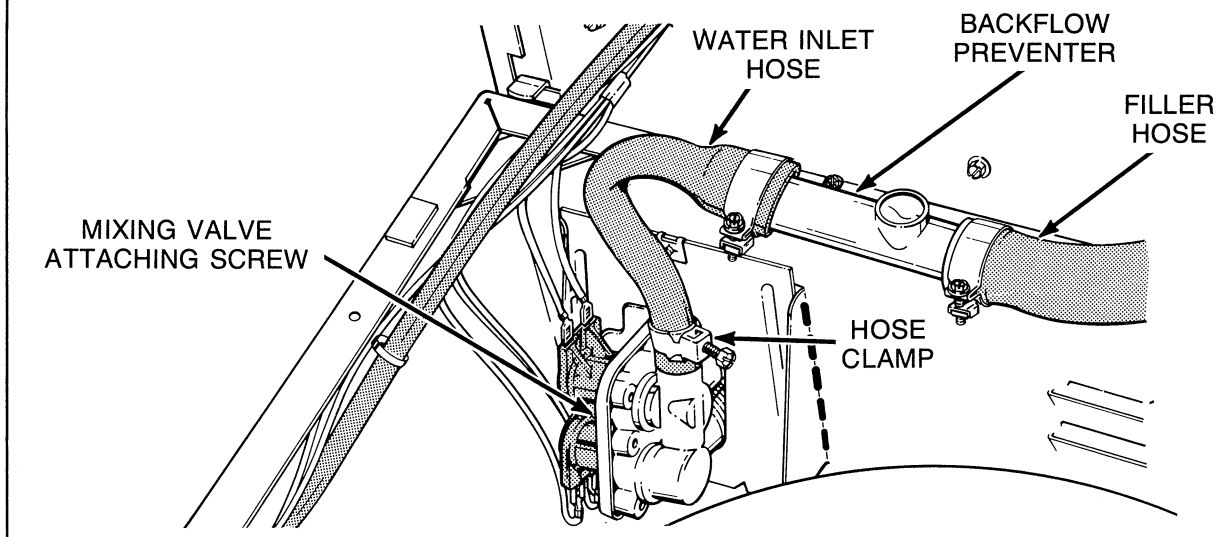
22. DOOR AND OUT-OF-BALANCE SWITCH AND BRACKET ASSEMBLY *(Refer to Figure 24)*

a. Remove front panel, *paragraph 13.*
b. Hinge cabinet top or remove, *paragraph 21.*
c. Remove two screws holding switch and bracket assembly to underside of front flange of cabinet top.
d. Disconnect wires from switch.

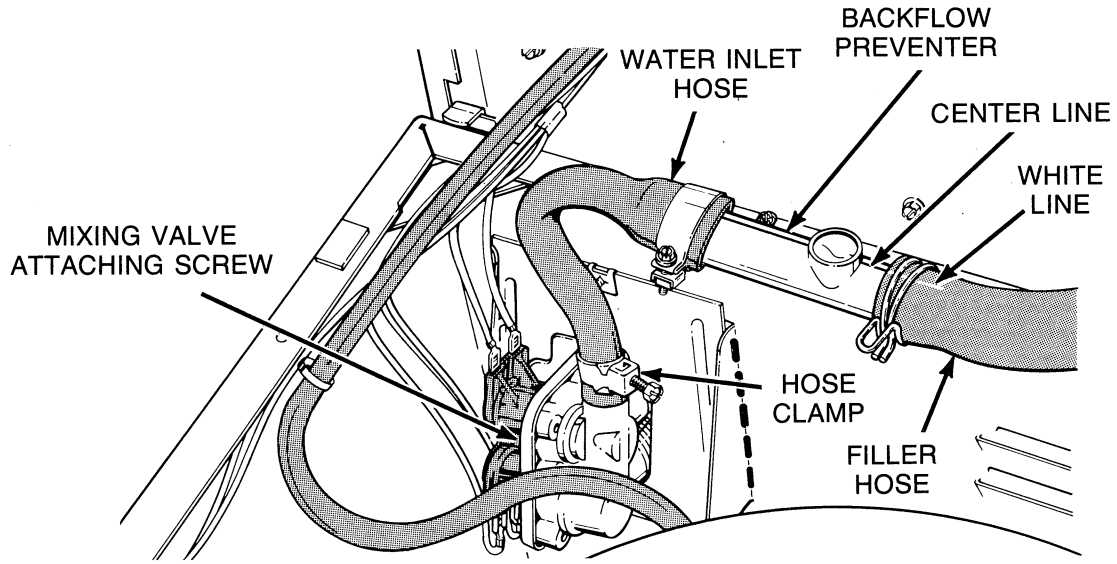
NOTE: Refer to appropriate wiring diagram when rewiring switch.

e. Remove two screws holding switch to bracket.

NOTE: After installing switch and bracket assembly, adjust per *paragraph 38.*



(Through Serial No. N3605084)



(Starting Serial No. N3605085)

Figure 25

23. MIXING VALVE ASSEMBLY

a. Hinge cabinet top or remove, *paragraph 21.*
b. Remove screw holding mixing valve to mounting bracket at rear of washer cabinet, *Figure 23.*

NOTE: When installing mixing valve, tab on bottom flange must be placed in positioning hole in mounting bracket.

c. Pull mixing valve out toward front of washer far enough to permit disconnecting water inlet hoses from mixing valve, *Figure 25.*
d. Disconnect wires from mixing valve solenoids.

NOTE: Refer to appropriate wiring diagram when rewiring solenoids.

24. WASHTUB AND LINT FILTER

a. Remove agitator hold-down cap and lift agitator out of washtub, *Figure 10.*
b. Hinge cabinet top or remove, *paragraph 21.*
c. Disconnect filler hose from back flow preventer, *Figure 25.*

NOTE: (Starting with serial no. N3605085), when installing filler hose, white line on hose must be aligned with center line of backflow preventer, *Figure 25.*

d. Remove eight clips holding outer tub cover to tub, *Figure 26,* lift cover off tub and set beside washer cabinet.

NOTE: When installing outer tub cover, always use a new cover gasket. Lubricate the gasket with a rubber lube or liquid soap to aid in assembly. Cover must be placed on outer tub so notch on top edge of outer tub cover is directly over left front clip hole in tub, *Figure 26.* Starting with this hole, place each spring clip in its respective hole and snap in place. See *Figure 26* for proper clip installation.

e. Remove four cap screws and washers holding washtub to hub, *Figure 27.*

IMPORTANT: Use caution when installing the cap screws to avoid chipping porcelain on the washtub.

f. Lift washtub and lint filter out of outer tub.

NOTE: When installing washtub, use a new gasket between tub and hub.

g. Remove the eight fasteners holding lint filter to washtub, *Figure 28.*

25. WATER SEAL ASSEMBLY

WARNING

If water is present in washtub, spin and pump out before removing agitator post.

NOTE: When installing lint filter, it is necessary to start the first fastener in the round hole, *Figure 29.* Place the remaining fasteners in their respective holes.

a. Remove front panel, *paragraph 13.*
b. Remove two cabinet top hold-down screws and hinge cabinet top or remove from washer, *paragraph 21.*
c. Remove agitator hold-down cap and lift agitator out of washtub.
d. Disconnect filler hose from backflow preventer, then remove the eight clips holding cover to outer tub, *Figure 26.*

NOTE: When reinstalling filler hose, white line on hose must be aligned with center line of backflow preventer, *Figure 25.*

e. Lift cover off outer tub and set beside washer cabinet and remove old gasket.
f. Remove the four cap screws holding washtub to hub, *Figure 27,* then lift washtub out of outer tub.

NOTE: Be sure all traces of old gasket are removed from bottom of washtub.

g. Remove four cap screws holding agitator post assembly to hub, then lift assembly from hub.
h. Straighten bent tab(s) on lockwasher, *Figure 29,* then remove hex nut using No. 237P4 Hex Wrench.

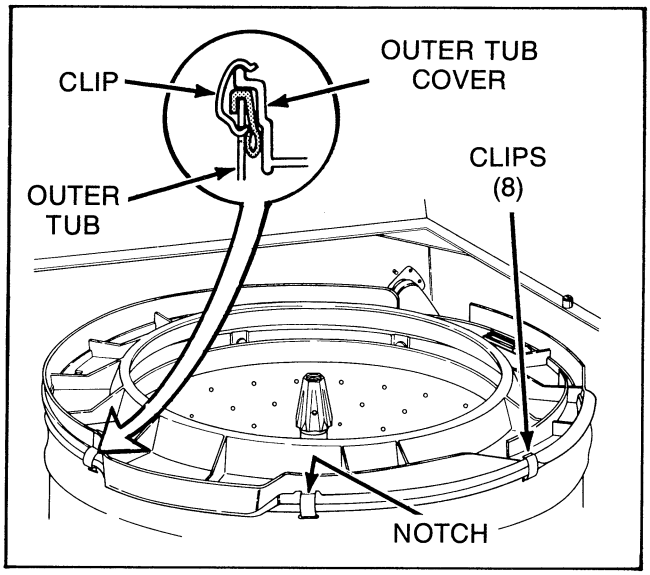


Figure 26

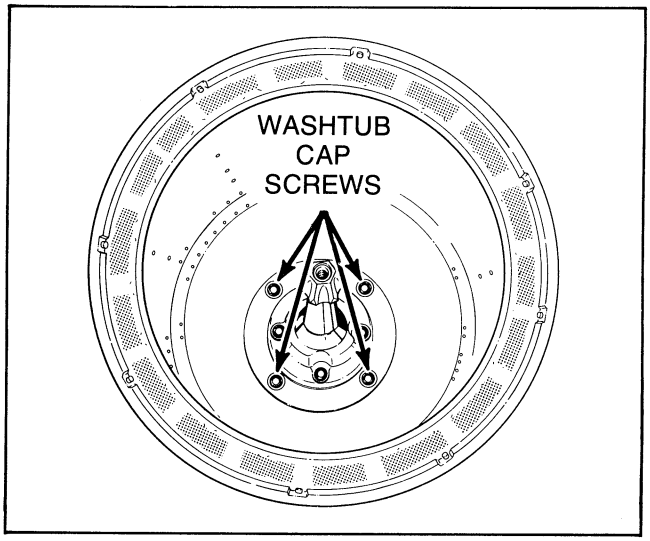


Figure 27

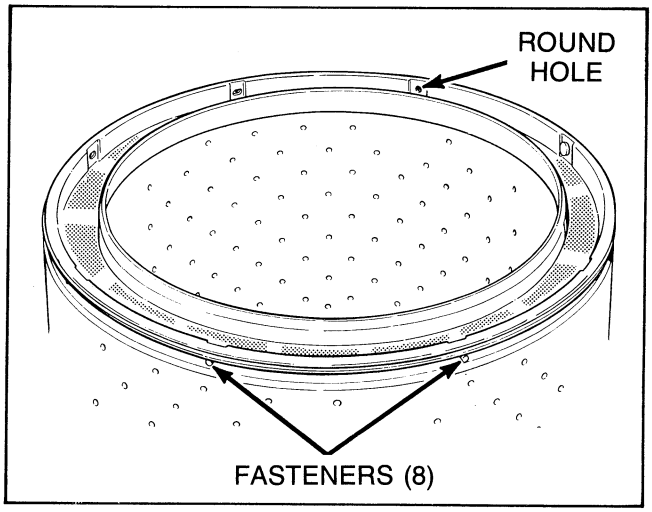


Figure 28

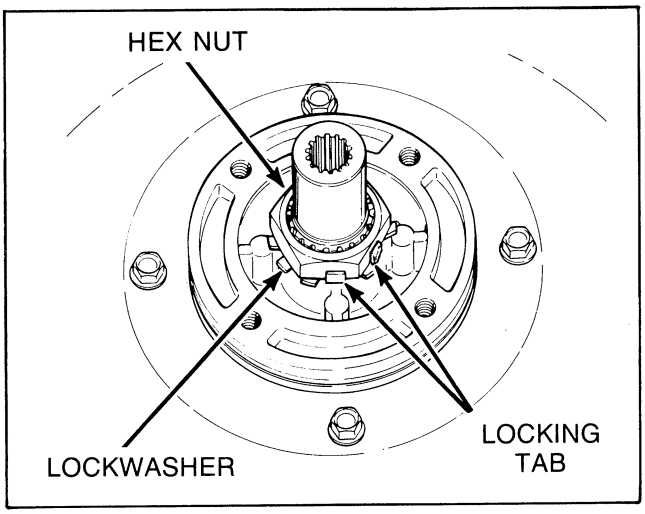


Figure 29

i. Remove hub from splines on transmission tube.

NOTE: It may be necessary to use a gear puller with No. 230P4 Guide Tool to remove hub.

j. Remove old seal from outer tub.

IMPORTANT: Use caution when removing old seal so as not to damage the tub flange or porcelain.

TO INSTALL NO. 356P3 WASHER SEAL KIT

IMPORTANT: Be sure the inner surface of the tub flange is clean of all foreign material before installing the new seal.

a. Apply a small amount of No. 27615 Sealant, (supplied in kit) around the outer surface of the tub flange, *Figure 30.*

CAUTION: DO NOT allow sealant to get in contact with the flinger located below the flanged area.

b. Apply a light film of a non-staining petroleum jelly (such as Vaseline®) to the bronze portion of water seal and to the outer surface of the stainless steel sleeve.

WARNING

Do not over lubricate!

c. Insert the stainless steel sleeve into the water seal from the bottom side of the seal, Figure 36, until the sleeve is flush with the bronze portion of the seal.
d. Leave the garter spring on the seal. Place the new seal over the outer tub flange (with seal lip on outside of tub flange). Then press the seal into the tub flange opening using moderate finger pressure.
e. Carefully apply a small amount of No. 27615 Sealant (supplied in kit) around the outer edge of seal and tub. (The area located just below the garter spring, *Figure 31).*

WARNING

Do not allow sealant to get in contact with the sealing surface of the water seal!

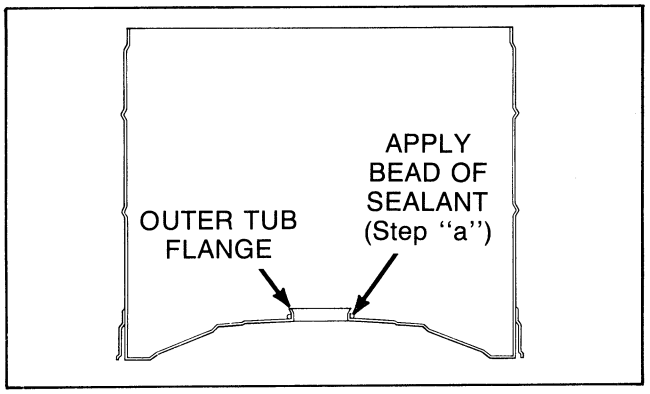


Figure 30

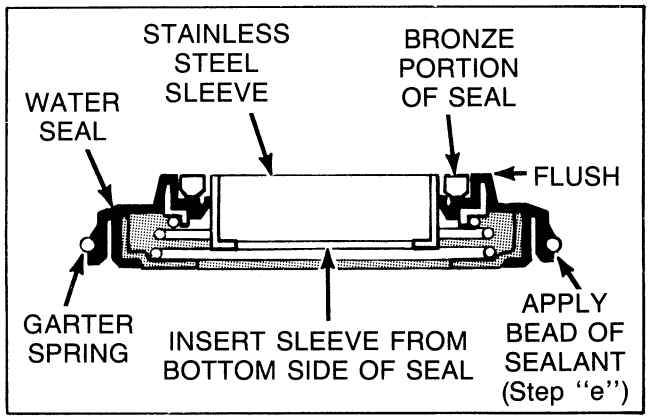


Figure 31

f. Lubricate the inner splines of the new hub assembly (supplied in kit) with No. 27604P Anti-Seize compound.
g. Carefully place the new hub assembly on splined transmission tube and install lockwasher and hex nut, *Figure 29.*

NOTE: Lock nut must be installed with beveled side down.

IMPORTANT: Torque hex nut down between 40 to 70 foot pounds (54.23 to 94.91 N-m). If torque wrench is not available, tap hex wrench with a hammer until hub turns or until nut will no longer tighten. After nut has been tightened, bend at least two locking tabs on lockwasher into place on hex nut, *Figure 29.*

h. Apply a small amount of a non-staining petroleum jelly (such as Vaseline®) to each of the sealing surfaces where washtub gasket will contact hub.
i. Carefully place the new washtub gasket (supplied in kit) on hub.

NOTE: Be sure holes in gasket are aligned with bolt holes in hub.

j. Apply a small amount of non-staining petroleum jelly (such as Vaseline®) to top surface of gasket where bottom of washtub will contact gasket.

NOTE: Be sure all traces of old gasket are removed from bottom of washtub.

k. Install washtub by grasping underside of lint filter and carefully lower washtub down onto gasket and hub.

IMPORTANT: Before setting tub into place, be sure bolt holes in washtub line up with holes in gasket and hub

l. Secure washtub to hub using four cap screws previously removed.

IMPORTANT: Use caution when tightening cap screws, to avoid chipping porcelain on the washtub.

NOTE: If Loctite was originally used between the agitator post and hub, then Loctite must be used again when replacing the agitator post. Be sure all traces of the Loctite has been removed from the underside of the agitator post. Apply approximately a 1/16 inch diameter continuous bead of No. 28434P Loctite to the embossed surfaces of either the agitator post or hub. Then continue on with step "m".

If gasket was originally used between agitator post and hub, then use the new gasket (supplied in kit) and install gasket and agitator post as follows:

1. Apply a small bead of Sealant, No. 27615, to each of the sealing surfaces where the agiator post gasket will contact the hub.
2. Carefully place the new agitator post gasket, No. 27020, (supplied in kit) on hub.

NOTE: Be sure holes in gasket are aligned with bolt holes in hub.

3. Apply 2 small beads of Sealant, No. 27615, to the top surface of gasket where bottom of agitator post casting will contact gasket.

NOTE: Be sure all traces of the old gasket are removed from the bottom of agitator post.

m. Carefully lower agitator post assembly down onto hub.

IMPORTANT: Before setting post in place, make sure splines on bottom end of agitator drive shaft line up with splines into coupling on transmission, and holes in agitator post line up with the bolt holes in hub.

NOTE: It may require tapping lightly on drive block to force splines on drive shaft into the coupling on transmission assembly.

n. Secure agitator post to hub using cap screws previously removed.

o. Carefully place new outer tub cover gasket (supplied in kit) around top rim of outer tub.

NOTE: When installing outer tub cover, lubricate the cover gasket with liquid soap to aid assembly. Cover must be placed on outer tub so notch on top edge of outer tub cover is directly over left front clip hole in tub, *Figure 26.* Starting with this hole, place each spring clip in its respective hole and snap into place, refer to *Figure 26* for proper clip installation.

p. Reinstall filler hose on back flow preventer.

NOTE: When reinstalling filler hose, white line on hose must be aligned with center line of backflow preventer, *Figure 25.*

q. Reinstall cabinet top and secure to washer cabinet using screws previously removed.
r. Reinstall front panel.
s. Replace agitator and tighten agitator hold-down cap.
t. Turn washer timer to the final spin, close loading door, start washer and let washtub spin for approximately 30 seconds to one minute.

IMPORTANT: Step "t" is necessary to allow the petroleum jelly, applied in step "b", a chance to run in on the seal surfaces before water is added to the washer.

26. OUTER TUB

a. Remove front panel, *paragraph 13.*
b. Remove two cabinet top hold-down screws and hinge cabinet top or remove, *paragraph 21.*
c. Remove agitator hold-down cap and lift agitator out of washtub.
d. Loosen hose clamp and disconnect filler hose from backflow preventer, then remove the eight clips holding cover to the outer tub, *Figure 26.*

NOTE: (Starting with Serial No. N3605085), when reinstalling filler hose, white line on hose must be aligned with center line of backflow preventer, *Figure 25.*

e. Remove cover from outer tub and set off to the side to avoid damage, then remove old gasket.

NOTE: When installing outer tub cover, always use a new cover gasket. Lubricate the gasket with liquid soap to aid in assembly. Cover must be placed on outer tub so notch on top edge of outer tub cover is directly over left front clip hole in tub, *Figure 26.* Starting with this hole, place each spring clip in its respective hole and snap in place. See *Figure 26,* for proper clip installation.

f. Remove four cap screws and washers holding washtub to hub, *Figure 27.*

IMPORTANT: Use caution when installing cap screws to avoid chipping porcelain on the washtub.

g. Lift washtub (with lint filter attached) out of outer tub.

NOTE: Be sure all traces of old gasket are removed from bottom of washtub.

h. Remove four cap screws holding agitator post to hub, *Figure 11.* Then remove assembly from hub.

i. Straighten bent tab(s) on lockwasher, *Figure 29,* then remove hex nut using No. 237P4 Hex Wrench.

j. Remove hub from splines on transmission tube.

NOTE: It may be necessary to use a gear puller with No. 230P4 Guide Tool to remove hub.

k. Remove old seal from outer tub.

IMPORTANT: Use caution when removing old seal so as not to damage the tub flange or porcelain.

NOTE: When reinstalling or replacing outer tub, always install a new No. 356P3 Washer Seal Kit, *paragraph 25.*

l. Reach in through front of motor mounting bracket and move idler lever to the left to release tension on belt.

IMPORTANT: Use caution when releasing the idler lever tension (and helper spring if present). If the springs are overstretched, it will affect the washer operation.

m. While holding idler lever, reach in and around right side of motor and run belt off right side of pulley.

IMPORTANT: When removing or reinstalling the complete outer tub into the washer (with transmission, balance ring and pivot dome attached), damage could occur to the idler lever if the idler spring is left hooked to the motor mounting bracket.

With the idler spring hooked to the motor mounting bracket, the idler lever extends out through the rear of the bracket. When removing or reinstalling the complete tub assembly, the idler lever is in the way and can be damaged (bent), or the idler pulley could be chipped. A bent idler lever will cause misalignment of the idler pulley with the drive belt, and a chipped idler pulley will damage the belt.

We recommend that before removing or reinstalling the complete assembly, you unhook the idler spring (and helper spring if present) and move the idler lever out of the way. This will prevent the possibility of idler lever or pulley damage.

n. Using the No. 229P4 Spring Hook Tool, unhook the five centering springs from lower edge of outer tub, *Figure 32.*

IMPORTANT: When removing centering springs, mark on side of outer tub what notch the spring was hooked into. Springs must be placed in the same notch when reinstalling. Do not overstretch springs.

o. Disconnect hoses between outer tub and pump assembly.

p. (Through Serial No. L3627520), remove pressure bulb from outer tub; (starting with Serial No. L3627521), remove hose clamp holding pressure hose to pressure accumulator. Then remove tape holding pressure hose to outer tub.

q. Grasp outer tub and lift complete tub assembly (with transmission, balance ring and pivot dome attached) straight up and out of washer cabinet.

(continued)

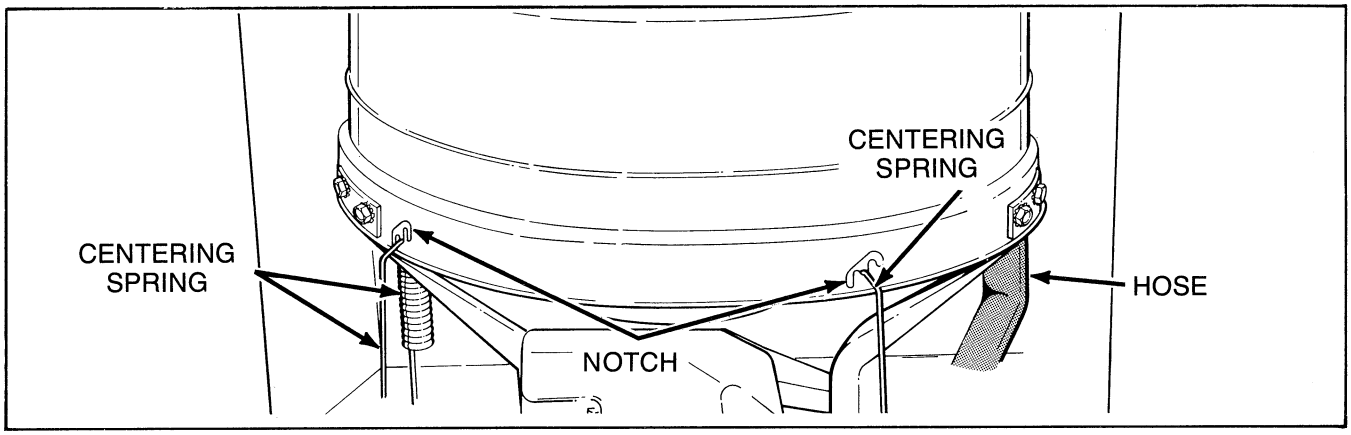


Figure 32

r. Turn the outer tub upside-down and set on protective padding.
s. Remove screws and lockwashers holding each support leg to outer tub, *Figure 33.* Then lift transmission, balance ring and pivot dome off tub.

NOTE: To prevent porcelain damage, leg plates must be installed on both sides of the outer tub flange when reinstalling support legs. (The thinner plate must be installed between leg and tub flange and the thicker plate must be installed on the outside of tub flange.) Do not overtighten the screws as this could cause stripping or porcelain damage.

t. (Starting with Serial No. L3627521), turn outer tub upright and remove the pressure accumulator and grommet.

NOTE: When installing the grommet into the outer tub, the thicker lip of the grommet must be installed to the outside of the tub. Lubricate the outer surface of the large opening of the accumulator with liquid soap to aid in assembling accumulator into the grommet.

27. DRIVE PULLEY AND HELIX

a. Remove two screws from bottom edge of front panel, *Figure 14.*
b. Pull bottom of panel away from washer until hold-down clips (located on top flange of panel) disengage from slots in cabinet top.
c. Remove two front mounting screws and loosen the rear mounting screw holding pump and bracket to washer base, *Figure 20.* Pivot entire pump assembly toward motor to loosen belt tension.
d. Run belt off motor pulley, then remove belt from pump pulley.

NOTE: After installing belt, adjust belt, *paragraph 37.*

e. Reach in through front of motor mounting bracket and move idler lever to the left to release tension on belt.

IMPORTANT: Use caution when releasing the idler lever tension. If the idler spring is overstretched, it will affect the washer operation.

f. While holding idler lever, reach in and around right side of motor and run belt off right side of large drive pulley, *Figure 16.*
g. Remove belt from motor pulley and pull belt out through front of motor mounting bracket.

NOTE: When reinstalling belt, there is no drive belt adjustment.

h. Disconnect motor wire harness from base wire harness at disconnect blocks, *Figure 22.*
i. Remove screw holding ground wire to washer base, *Figure 17.*
j. Remove four screws holding motor and mounting bracket to washer base, *Figure 17,* then lift complete assembly out of washer.

NOTE: When reinstalling motor and mounting bracket, tab on right side of mounting bracket must be placed in positioning hole in base. Mounting bracket must be shifted toward rear of washer to its limit of travel within the mounting bracket attaching screws.

k. Remove cap screw, washer and helix from bottom of input shaft of transmission assembly, *Figure 34.*

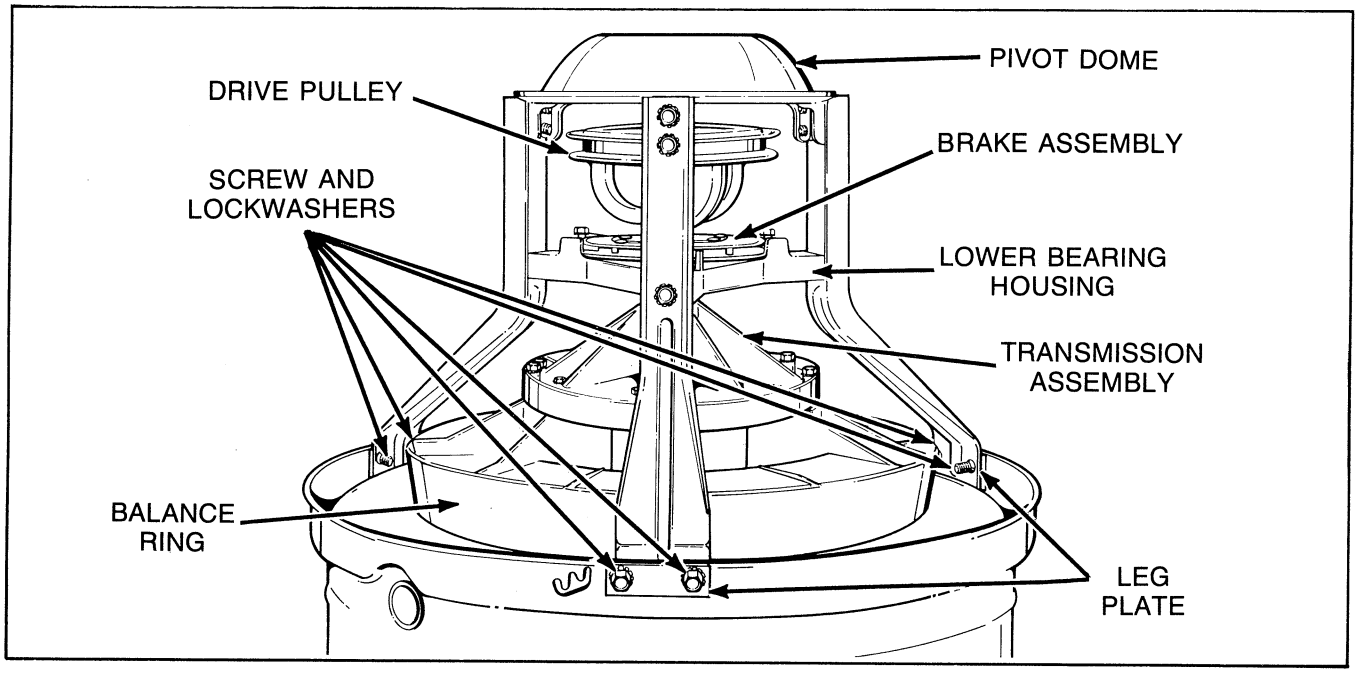


Figure 33

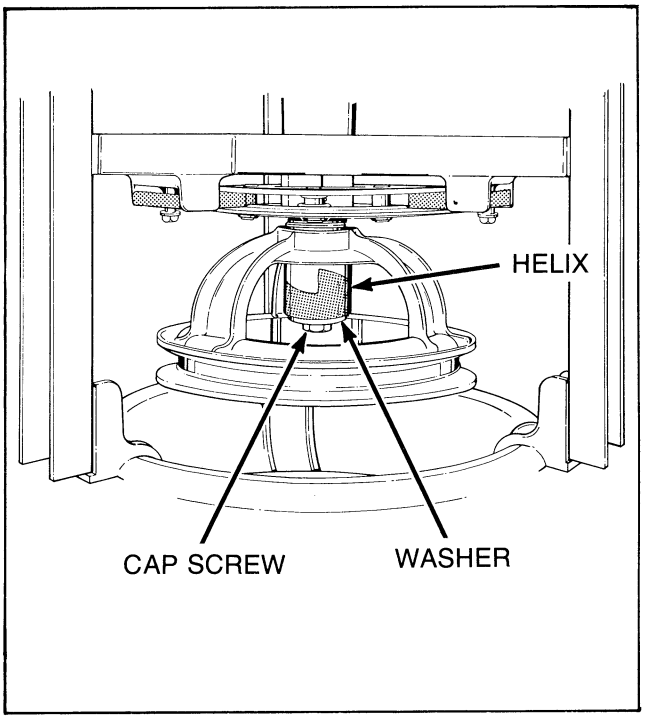


Figure 34

l. Remove drive pulley by tilting right side up and slide pulley out between right front and rear tub support legs.

IMPORTANT: When reassembling, large flat washer, bearing race, needle bearing and bearing race must be in place, see *Figure 35* for assembly sequence.

NOTE: When reassembling, lubricate the needle bearing with No. 21814 Lubricant and the helix ramps with No. 03200 Lubricant.

28. BRAKE ASSEMBLY

a. Remove drive pulley and helix, *paragraph 27.*
b. Using a right angle needle nose pliers, remove spring from around lower transmission tube (located inside brake assembly).

NOTE: Remove spring by turning in a counterclockwise direction (looking from lower end of input shaft of transmission assembly).

(continued)

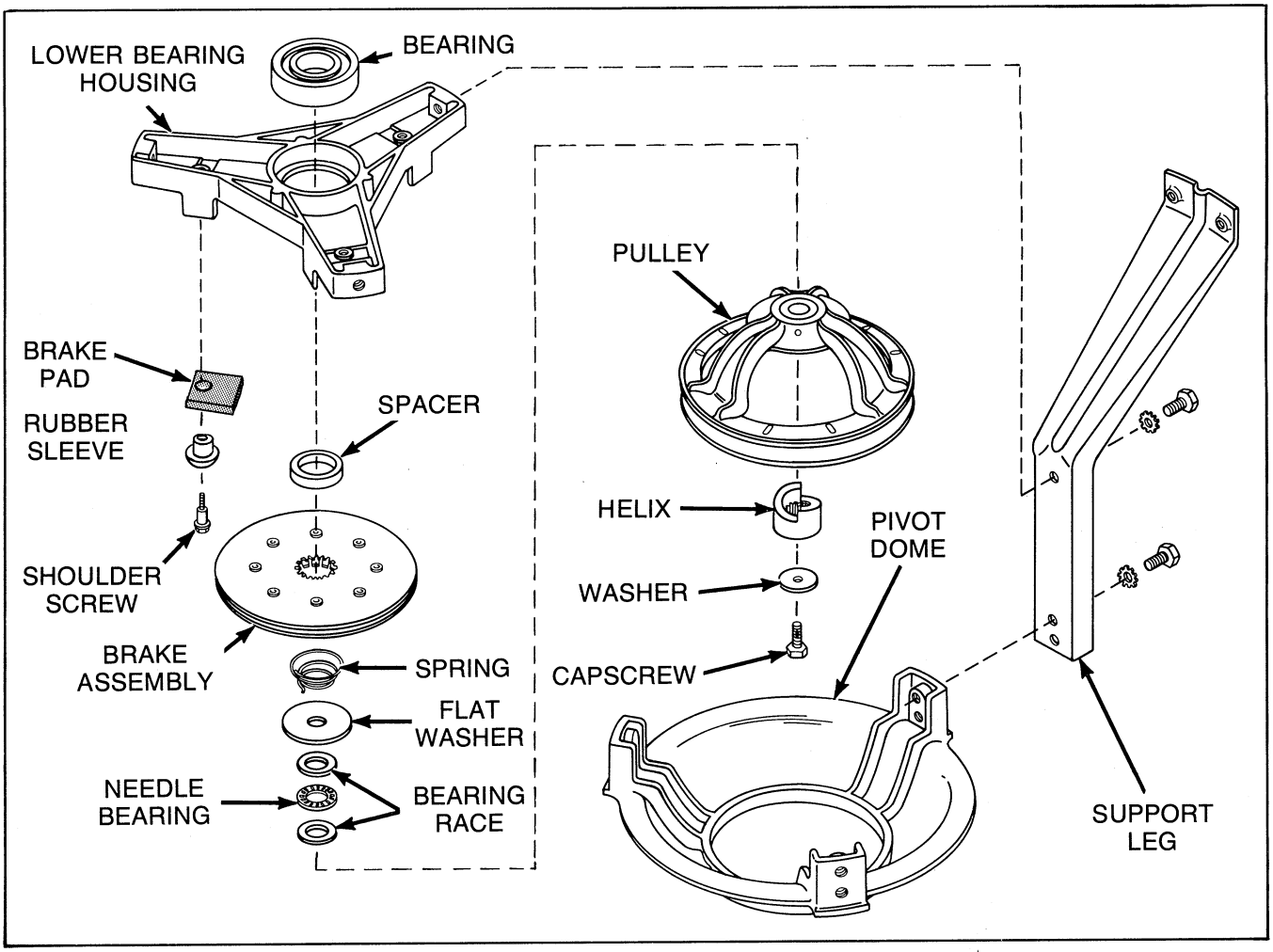


Figure 35

c. Remove three shoulder screws holding brake pads, rubber sleeves and brake assembly to lower bearing housing, *Figure 35,* then remove brake assembly, pads and spacer off bottom of transmission assembly.

IMPORTANT: When reinstalling new brake assembly, we recommend replacing the three brake pads. DO NOT replace just the worn pads.

NOTE: Refer to *Figure 35* for assembly sequence.

IMPORTANT: When installing spring, be sure it is inserted into groove in large splines of lower transmission tube. Use tool, Part No. 242P4, when installing spring.

29. LOWER BEARING HOUSING

a. Remove two screws from bottom edge of front panel, *Figure 14.*
b. Pull bottom of panel away from washer until hold-down clips (located on top flange of panel) disengage from slots in cabinet top.
c. Remove two cabinet top hold-down screws, and hinge cabinet top or remove, *paragraph 21.*
d. Remove agitator hold-down cap and lift agitator out of washtub.
e. Disconnect filler hose from backflow preventer, *Figure 25.*

NOTE: (Starting with Serial No. N3605085), when reinstalling filler hose, white line on hose must be aligned with center line of backflow preventer, *Figure 25.*

f. Reach in through front of motor mounting bracket and move idler lever to the left to release tension on belt.

IMPORTANT: Use caution when releasing the idler lever tension (and helper spring if present). If the idler springs are overstretched, it will affect the washer operation.

g. While holding idler lever, reach in and around right side of motor and run belt off right side of large drive pulley, *Figure 16.*
h. Pull belt out toward front of washer.

IMPORTANT: When removing or reinstalling the complete outer tub into the washer (with washtub, transmission, balance ring and pivot dome attached), damage could occur to the idler lever if the idler spring is left hooked to the motor mounting bracket.

With the idler spring hooked to the motor mounting bracket, the idler lever extends out through the rear of the bracket. When removing or reinstalling the complete tub assembly, the idler lever is in the way and can be damaged (bent), or the idler pulley could be chipped. A bent idler lever will cause misalignment of the idler pulley with the drive belt, and a chipped idler pulley will damage the belt.

We recommend that before removing or reinstalling the complete assembly, you unhook the idler spring (and helper spring if present) and move the idler lever out of the way. This will prevent the possibility of idler lever or pulley damage.

i. Using the No. 229P4 Spring Hook Tool, unhook the five centering springs from the lower edge of outer tub, *Figure 32.*

IMPORTANT: When removing the centering springs, mark on side of outer tub what notch the spring was hooked into. Springs must be placed in the same notch when reinstalling. Do not overstretch springs.

j. Disconnect hoses between outer tub and pump assembly.

CAUTION: There will always be some water that will remain in the outer tub, therefore, before removing the hoses from the pump, the hoses will have to be drained to prevent spillage on the floor.

k. (Through Serial No. L3627520), remove pressure bulb from outer tub; (Starting with Serial No. L3627521), remove hose clamp holding pressure hose to pressure accumulator and remove hose.
l. Grasp outer tub and lift tub (with washtub, transmission, balance ring and pivot dome attached) straight up and out of washer cabinet.
m. Turn complete tub assembly upside-down on protective padding.

CAUTION: When turning the complete tub assembly upside-down, be careful not to damage the out-of-balance switch trigger (located on outer tub cover).

n. Remove cap screw, washer and helix holding drive pulley to transmission shaft, *Figure 34.*
o. Remove drive pulley from transmission shaft, *Figure 35.*
p. Remove needle bearing, bearing races and large flat washer from transmission shaft, *Figure 35.*
q. Use a right angle needle nose pliers and remove spring from around lower transmission tube (located inside brake assembly).

NOTE: Remove spring by turning in a counterclockwise direction (looking at bottom end of shaft).

IMPORTANT: When installing spring, be sure it is inserted into groove in large splines of lower transmission tube. Use spring tool, No. 242P4, when installing spring.

r. Remove three shoulder screws and rubber sleeves holding brake pads to lower bearing housing, *Figure 35.*
s. Lift brake assembly, pads and spacer off transmission tube.
t. Remove three cap screws and lockwashers (if present) holding lower bearing housing to tub support legs, *Figure 35.*
u. Rotate bearing housing past legs, then carefully lift bearing housing off transmission tube.

NOTE: It may be necessary to loosen one leg from pivot dome to rotate housing. It may require tapping lightly on housing to loosen it from the transmission tube.

IMPORTANT: When installing the lower bearing housing, apply No. 27604P Anti-Sieze compound to the area of the transmission tube that will be contacting the bearing.

TO REMOVE BEARING

a. Support the bearing housing around the outside diameter of the bearing opening and carefully press the bearing out of the housing.
b. Clean all foreign material from inside diameter of the bearing opening.
c. Clean any foreign material from the outside diameter of the new bearing.
d. Apply a retaining compound (such as Loctite) to the outside diameter of the new bearing and carefully press new bearing into housing (with sealed side facing up).

IMPORTANT: Press new bearing into housing by pressing on the outer race of the bearing only, and press until bearing bottoms out in housing.

30. TRANSMISSION ASSEMBLY

a. Remove two screws from bottom edge of front panel, *Figure 14.*
b. Pull bottom of panel away from washer until hold-down clips (located on top flange of panel) disengage from slots in cabinet top, *Figure 14.*
c. Remove two cabinet top hold-down screws, *Figure 22,* and hinge cabinet top or remove, *paragraph 21.*
d. Remove agitator hold-down cap and lift agitator out of washtub.
e. Loosen hose clamp and disconnect filler hose from backflow preventer, *Figure 25.* Then remove the eight clips holding cover to outer tub, *Figure 26.*

NOTE: (Starting with Serial No. N3605085), when reinstalling filler hose, white line on hose must be aligned with center line of backflow preventer, *Figure 25.*

f. Remove cover from outer tub and set off to the side to avoid damage, then remove old gasket.

NOTE: When reinstalling outer tub cover, always use a new cover gasket. Lubricate the gasket with liquid soap to aid in assembly. Cover must be placed on outer tub so notch on top edge of outer tub cover is directly over left front clip hole in tub, *Figure 26.* Starting with this hole, place each spring clip in its respective hole and snap into place. See *Figure 26* for proper clip installation.

g. Remove four cap screws and washers holding washtub to hub, *Figure 27.*

IMPORTANT: Use caution when installing cap screws to avoid chipping porcelain on the washtub.

h. Lift washtub and lint filter out of outer tub.

NOTE: Be sure all traces of old gasket are removed from bottom of washtub.

i. Remove four cap screws holding agitator post to hub, *Figure 11,* and remove assembly from hub.
j. Straighten bent tab(s) on lockwasher, *Figure 29,* then remove hex nut using No. 237P4 Hex Wrench.
k. Remove hub from splines on transmission tube.

NOTE: It may be necessary to use a gear puller with No. 230P4 Guide Tool to remove hub.

l. Remove old seal from outer tub.

IMPORTANT: Use caution when removing old seal so as not to damage the tub flange or porcelain.

NOTE: When reinstalling or replacing the outer tub, we recommend installing a new No. 356P3 Washer Seal Kit, *paragraph 25.*

m. Reach in through front of motor mounting bracket and move idler lever to the left to release tension on belt.

IMPORTANT: Use caution when releasing the idler lever tension. If the idler spring is overstretched, it will affect the washer operation.

n. While holding idler lever, reach in and around right side of motor and run belt off right side of large drive pulley.

(continued)

IMPORTANT: When removing or reinstalling the complete outer tub into the washer (with transmission, balance ring and pivot dome attached), damage could occur to the idler lever if the idler spring is left hooked to the motor mounting bracket.

With the idler spring hooked to the motor mounting bracket, the idler lever extends out through the rear of the bracket. When removing or reinstalling the complete tub assembly, the idler lever is in the way and can be damaged (bent), or the idler pulley could be chipped. A bent idler lever will cause misalignment of the idler pulley with the drive belt, and a chipped pulley will damage the belt.

We recommend that before removing or reinstalling the complete assembly, you unhook the idler spring (and helper spring if present) and move the idler lever out of the way. This will prevent the possibility of idler lever or pulley damage.

o. Using the No. 229P4 Spring Hook Tool, unhook the five centering springs from lower edge of outer tub, *Figure 32.*

IMPORTANT: When removing the centering springs, mark on side of outer tub what notch the spring was hooked into. Springs must be placed in same notch when reinstalling. Do not overstretch springs.

p. Disconnect hoses between outer tub and pump assembly.

CAUTION: There will always be some water that will remain in the outer tub, therefore, before removing hoses from the pump, the hoses will have to be drained to prevent water spillage on the floor.

q. (Through Serial No. L3627520), remove pressure bulb from outer tub; (starting with Serial No. L3627521), loosen hose clamp holding pressure hose to pressure accumulator and remove hose. Then remove tape holding pressure hose to outer tub.
r. Grasp outer tub and lift complete tub assembly (with transmission, balance ring and pivot dome attached) straight up and out of washer cabinet.
s. Turn the outer tub upside-down and set on protective padding.
t. Remove cap screw, washer and helix holding drive pulley to transmission shaft. Then remove drive pulley, needle bearing, bearing races and large flat washer from transmission.
u. Using a right angle needle nose pliers, remove spring from around lower transmission tube (located inside brake assembly).

NOTE: Remove spring by turning in a counterclockwise direction (looking at bottom end of shaft).

IMPORTANT: When reinstalling spring, be sure it is inserted into groove in large spline of transmission tube. Use spring tool, No. 242P4, when installing spring.

v. Remove screws and lockwashers holding each support leg to outer tub, *Figure 33,* then lift pivot dome, brake assembly and lower bearing housing off transmission tube.

NOTE: It may be necessary to tap lightly on bearing housing to loosen it from the transmission tube.

IMPORTANT: when installing the lower bearing housing pivot dome and brake assembly, apply No. 27604P Anti-Sieze compound to the area of the transmission tube that will be contacting the bearing.

To prevent porcelain damage, leg plates must be installed on both sides of outer tub flange when reinstalling support legs. (The thinner plate must be installed between leg and tub flange and the thicker plate must be installed on the outside of tub flange.) Do not overtighten the screws as this could cause stripping or porcelain damage.

w. Remove four cap screws and lockwashers holding transmission assembly to balance ring.
x. Lift transmission assembly straight up and out of balance ring and upper bearing.

IMPORTANT: When replacing or reinstalling the transmission assembly, it is important that No. 27604P Anti-Sieze compound be applied to the area of the transmission tubes where they will be contacting the upper and lower bearings, *Figure 36.*

When reinstalling the transmission assembly, note there is a mark located on the outer edge of the balance ring. This mark indicates the heavy side of ring. This heavy side must be installed opposite the rack of the transmission assembly. Carefully lower transmission through balance ring and upper bearing. DO NOT DROP OR LOWER TRANSMISSION ASSEMBLY INTO POSITION TOO HARD as this can cause the bearing to move within the bearing housing which will cause vibration, noise, wear or no spin.

31. BALANCE RING

a. Remove transmission assembly, *paragraph 30.*
b. Lift balance ring off outer tub.

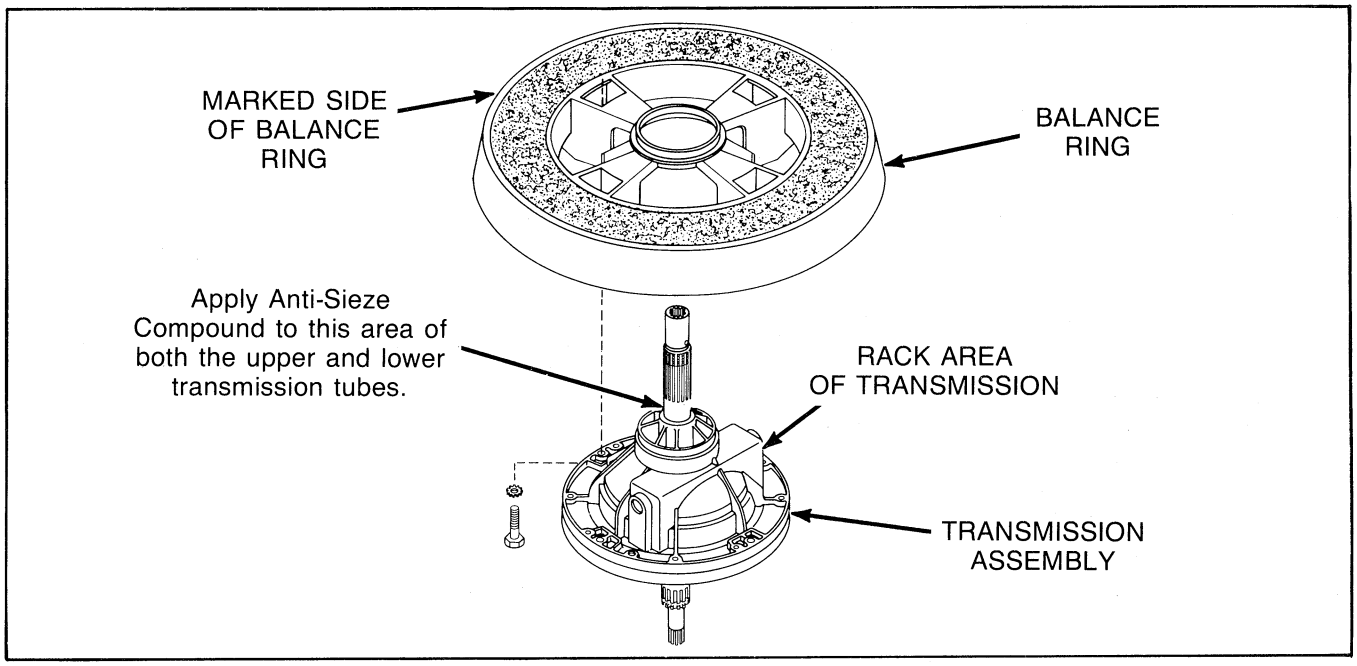


Figure 36

32. UPPER BEARING ASSEMBLY

a. Remove transmission assembly, *paragraph 30,* steps "a" through "s".

b. Remove screws and lockwashers holding each support leg to outer tub, *Figure 33.* Lift complete pivot dome (with drive pulley, brake assembly, lower bearing housing, transmission assembly and balance ring attached) off outer tub.

IMPORTANT: To prevent porcelain damage, leg plates must be installed on both sides of outer tub flange when reinstalling support legs. (The thinner plate must be installed between leg and tub flange and the thicker plate must be installed on the outside of tub flange.) Do not overtighten screws as this could cause stripping or porcelain damage.

c. Remove three capscrews holding upper bearing and housing to bottom of outer tub, *Figure 37.*

NOTE: Replace bearing and housing as an assembly, and be sure flinger is properly positioned between the outer tub and bearing assembly, *Figure 37.*

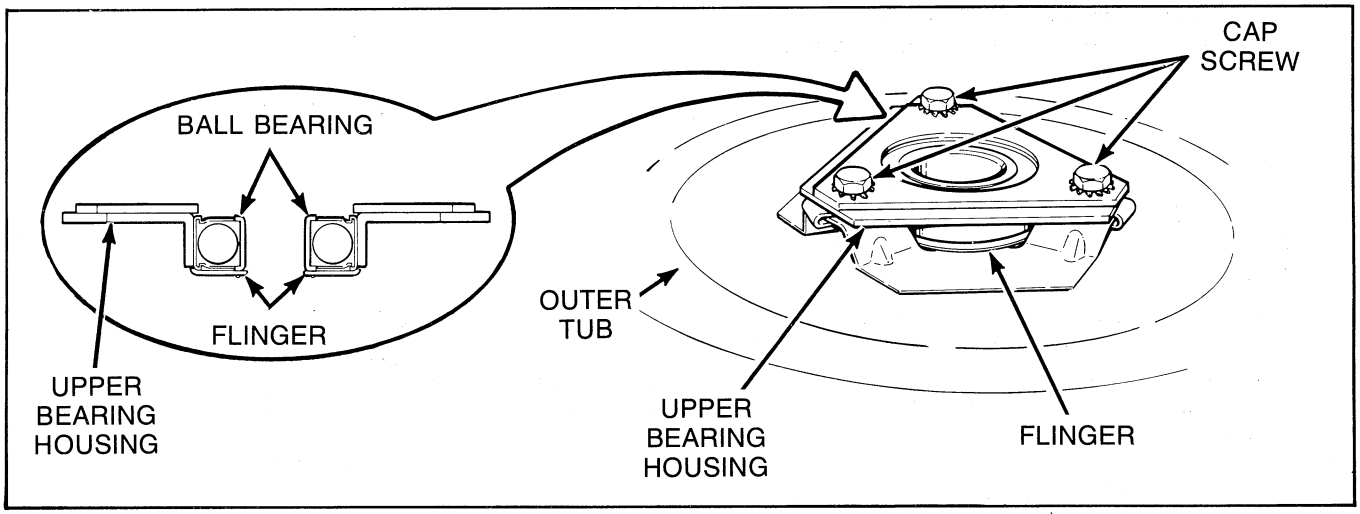


Figure 37

SECTION IV
Adjustments

33. TIMER KNOB INDICATOR

a. With timer knob indicator pointing toward top OFF position, depress knob and turn clockwise one increment at a time, checking to see if washer begins filling by pulling knob out after each "click".
b. When washer begins to fill, immediately push knob in to stop washer.
c. Depress red pointer and move it until the pointer is directly over the vertical line at the right side of the top OFF position.

34. LEVELING LEGS *(Refer to Figure 38)*

a. Loosen locknuts and thread leveling legs into washer base as far as possible.
b. Turn appropriate leveling leg(s) out of base only until washer is level. Keep washer as close to floor as possible.
c. Install rubber cups over leveling legs.

NOTE: The No. 155P3 Anchor Pad Kit can be used in place of the rubber cups where excessive vibration causes washer to move out of position.

IMPORTANT: All four legs must rest firmly on floor so weight of washer is evenly distributed. Washer must not rock.

d. Tighten locknuts securely against bottom of washer base.

IMPORTANT: DO NOT move washer at any time unless locknuts are securely tightened and the styrofoam shipping brace is in place over the agitator (to prevent damage to washer components). DO NOT slide washer across floor once the leveling legs have been extended, as legs and base could become damaged.

35. PRESSURE SWITCH *(Refer to Figure 39)*

NOTE: DO NOT ADJUST PRESSURE SWITCH IF WASHER IS WITHIN THE WARRANTY PERIOD.

The pressure switch on pressure-fill automatic washers is set at the factory for proper water fill levels. However, if there is a problem of over-filling or underfilling, the pressure switch can be adjusted.

The maximum water fill level can be increased by turning adjusting screw clockwise, and decreased by turning screw counterclockwise. 1/4 turn of adjusting screw represents approximately one inch (2.54 cm) increase or decrease of water level in tub.

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

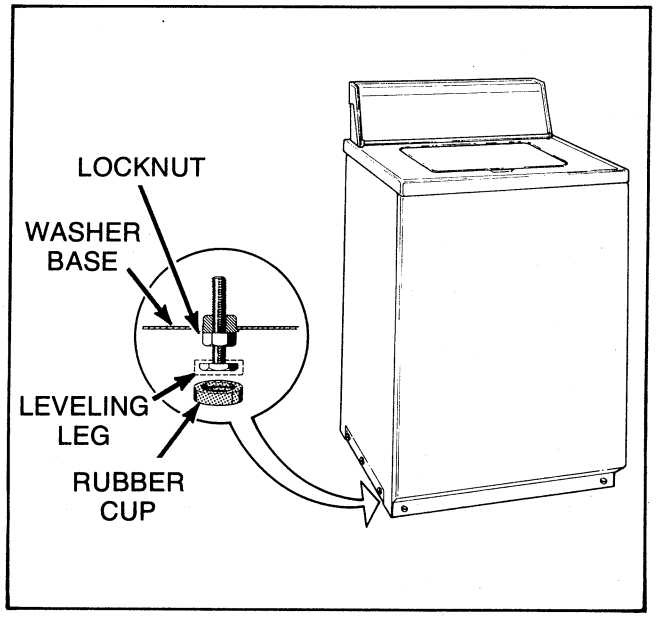


Figure 38

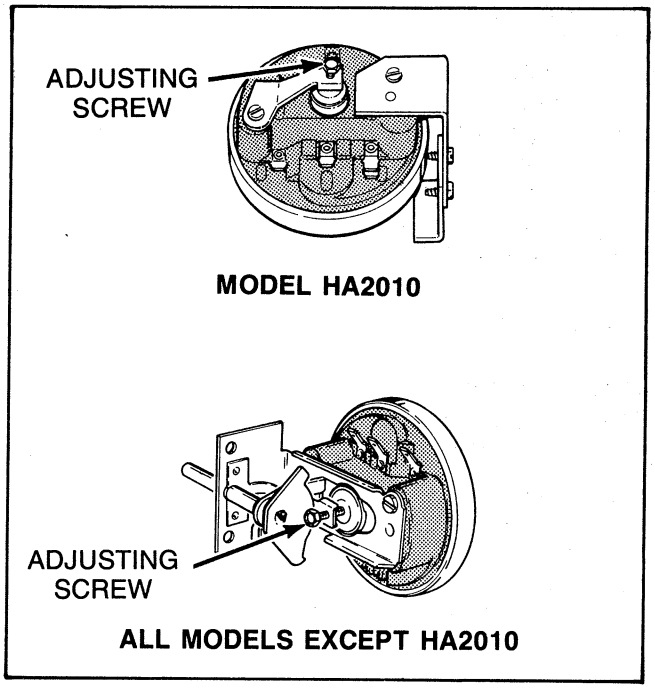


Figure 39

36. BELT - Agitate and Spin

No belt adjustment is required.

NOTE: When motor is installed in washer, motor and mounting bracket are shifted toward rear of washer to its limit of travel within the mounting bracket attaching screws.

37. BELT (Pump)

NOTE: Adjustment must be made after motor has been properly positioned, see *paragraph 36.*

a. Remove front panel, *paragraph 13.*
b. Loosen the two front mounting screws, *Figure 40,* then loosen the rear screw.
c. Shift front of pump mounting bracket to the right or left to obtain proper belt tension. Proper tension is when belt can be deflected approximately 1/2 inch (12.7 mm) from its normal position by applying moderate pressure (1-1/2 pounds - .675 kg.) to a point midway between pulleys, *Figure 41.*
d. After belt tension is obtained, tighten the three pump mounting bracket screws.

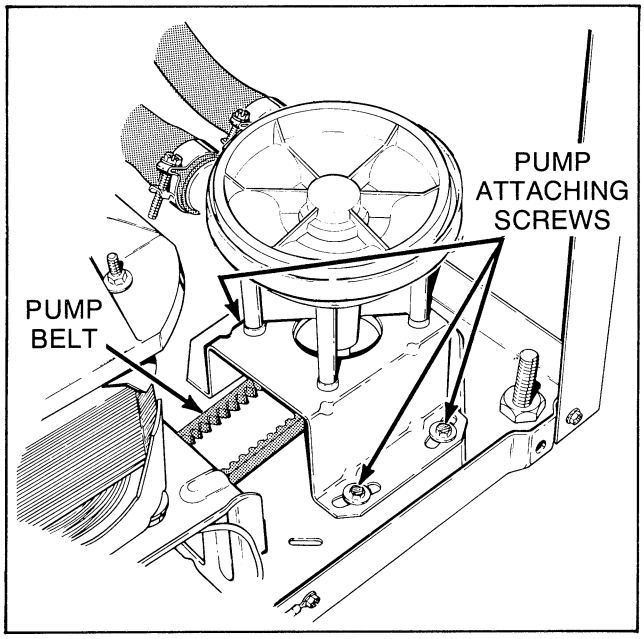


Figure 40

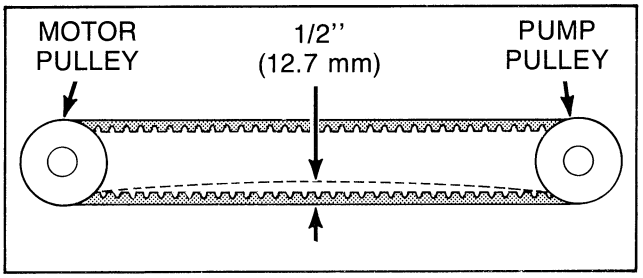


Figure 41

38. OUT-OF-BALANCE SWITCH TRIGGER

NOTE: The trigger is centered, *Figure 42,* on the mounting screw at the factory.

a. Remove front panel, *paragraph 13.*
b. Raise or remove cabinet top, *paragraph 21.*
c. Loosen screw holding trigger to tub cover, *Figure 42,* move trigger to the right (increases sensitivity) or to the left (decreases sensitivity).

IMPORTANT: If the trigger repeatedly trips the out-of-balance switch lever, check the centering of the agitator within the loading door opening. Centering springs may have to be positioned in the upper or lower notch (positioned in center notch at factory, *Figure 42,* to center the agitator within the door opening.

Example: If the springs are placed in the upper notch then the trigger must be moved to the extreme right for proper trigger operation.

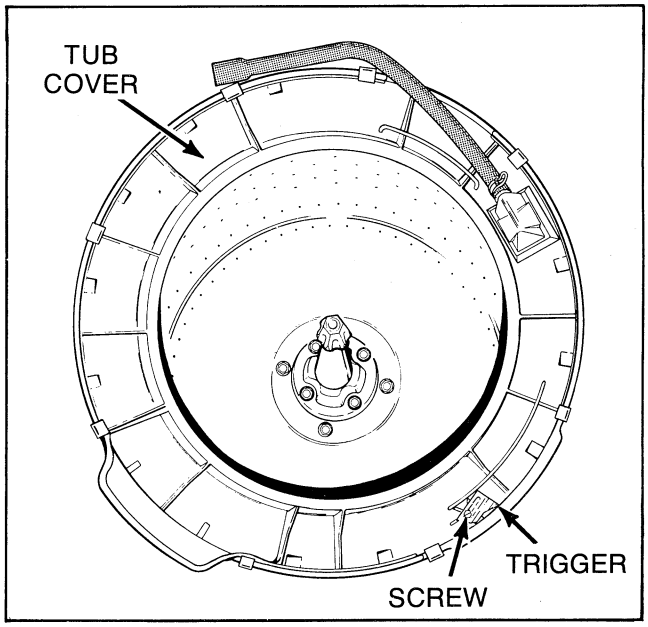


Figure 42

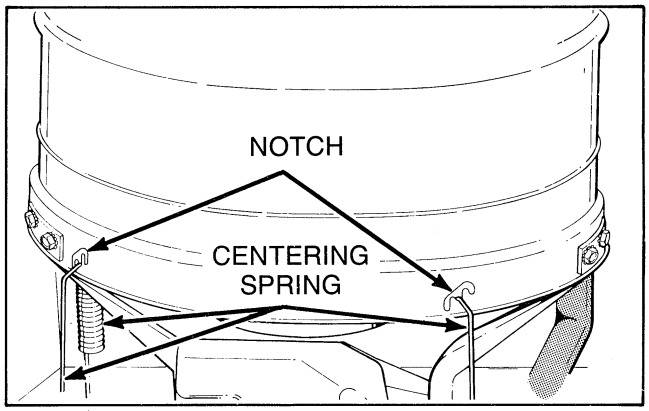


Figure 43

SECTION V
Service Helps

IMPORTANT: Refer to appropriate Wiring Diagram for aid in testing washer components.

39. NO HOT WATER

POSSIBLE CAUSE	TO CORRECT
Hot water supply valve is closed.	Open valve.
Water supply is cold.	Check water heater.
Kinked hot water inlet hose.	Straighten or replace hose.
Clogged mixing valve screen, or screen in outer end of inlet hose nearest water supply valve.	Disconnect hot water inlet hose, and clean or replace screen.
Inoperative hot water mixing valve solenoid.	Test solenoid and replace is inoperative.
Inoperative timer.	Test timer and replace if inoperative.
Inoperative temperature switch.	Test switch and replace if inoperative.
Inoperative pressure switch.	Test switch and replace if inoperative.
Clogged pressure hose.	Remove and clean hose.
Broken, loose, or incorrect wiring.	Refer to appropriate Wiring Diagram.

40. NO COLD WATER

POSSIBLE CAUSE	TO CORRECT
Cold water supply valve is closed.	Open valve.
Kinked cold water inlet hose.	Straighten or replace hose.
Clogged mixing valve screen, or screen in outer end of inlet hose nearest water supply valve.	Disconnect cold water inlet hose, and clean or replace screen.
Inoperative cold water mixing valve solenoid.	Test solenoid and replace if inoperative.
Inoperative timer.	Test timer and replace is inoperative.
Inoperative temperature switch.	Test switch and replace if inoperative.
Inoperative pressure switch.	Test switch and replace if inoperative.
Clogged pressure hose.	Remove and clean hose.
Broken, loose, and incorrect wiring.	Refer to appropriate Wiring Diagram.

41. NO WARM WATER

POSSIBLE CAUSE	TO CORRECT
No hot water.	Refer to *paragraph 39.*
No cold water.	Refer to *paragraph 40.*

42. WATER FILL DOES NOT STOP AT PROPER LEVEL

POSSIBLE CAUSE	TO CORRECT
Inoperative pressure switch.	Test switch and replace is inoperative.
Air leak in pressure hose.	Replace hose.
Sediment on or under mixing valve diaphragm, defective diaphragm, or armature binding in armature guide.	Disassemble and clean mixing valve. Replace deteriorated or not easily cleaned components. Refer to Parts Section in this manual for assembly sequence of valve.
Broken, weak or missing mixing valve armature spring.	Disassemble valve and replace spring. Refer to Parts Section in this manual for assembly sequence of valve.
A siphoning action started in washer will cause water to be siphoned from the washer during the cycle due to the end of the drain hose being lower than cabinet top of washer.	Install No. 297P3 Siphon Break Kit for rubber drain hose or No. 386P3 Siphon Break Kit for plastic drain hose.
Water in pressure hose.	Blow air through hose to remove water.
Broken, loose, shorted or incorrect wiring.	Refer to appropriate Wiring Diagram.

43. TIMER DOES NOT ADVANCE

POSSIBLE CAUSE	TO CORRECT
Timer is designed to pause during fill periods.	Allow completion of fill period.
Inoperative timer.	Test timer, and replace if inoperative.
Timer in "OFF" position of SOAK CYCLE.	Manually advance timer to SPIN.
Loading door is open.	Close loading door.
Washer will not fill.	Timer pauses until pressure switch is satisfied.
Timer motor lead wire off timer terminal.	Refer to appropriate Wiring Diagram and reattach wire.
Broken, loose, or incorrect wiring.	Refer to appropriate Wiring Diagram.

44. NO AGITATION

PROBABLE CAUSE	TO CORRECT
*Inoperative timer.	Test timer and replace if inoperative.
Inoperative action switch.	Test switch and replace if inoperative.
Inoperative motor.	Test motor and replace if inoperative.
Inoperative pressure switch.	Test switch and replace if inoperative.
Broken, loose, or incorrect wiring.	Refer to appropriate Wiring Diagram.
Loose or broken drive belt.	Adjust or replace belt.
Inoperative transmission assembly.	Replace transmission assembly.
Sheared motor pulley roll pin.	Remove drive motor, and replace roll pin and any other damaged parts.
Drive motor overload protector has cycled.	Refer to *paragraph 48.*
Bind in pump.	Replace pump.
Loading door is open or door switch is inoperative.	Close door and test switch and replace if inoperative.

*Timer is designed to pause (SOAK) during the HANDWASH/KNIT or DELICATE cycle.

45. CONSTANT AGITATION

POSSIBLE CAUSE	TO CORRECT
Inoperative timer.	Test timer and replace if inoperative.
Inoperative drive motor.	Test motor and replace if inoperative.
Shorted or incorrect wiring.	Refer to appropriate Wiring Diagram.

46. SLOW SPIN OR NO SPIN

POSSIBLE CAUSE	TO CORRECT
Inoperative timer.	Test timer and replace if inoperative.
Inoperative action switch.	Test switch and replace if inoperative.
Some model washers, the timer is programmed for SLOW spin in the DELICATE CYCLE regardless of the action switch setting.	Use a different cycle.
Loading door is open or door safety switch is inoperative.	Close loading door, or test switch and replace if inoperative.
Bind in water pump.	Replace pump.
Inoperative drive motor.	Test motor and replace is inoperative.
Loose or broken drive belt.	Adjust or replace spin belt.
Washer has gone OUT-OF-BALANCE.	Open loading door to reset OUT-OF-BALANCE switch.
No clearance or stuck brake pads.	Free sticky brake pads or replace pads.
Broken, loose, or incorrect wiring.	Refer to appropriate Wiring Diagram.

47. CONSTANT SPIN

POSSIBLE CAUSE	TO CORRECT
Inoperative timer.	Test timer and replace if inoperative.
Inoperative drive motor.	Test motor and replace if inoperative.
Excessive wear on brake pads, or missing brake pads	Replace brake pads.
Shorted or incorrect wiring.	Refer to appropriate Wiring Diagram.

48. DRIVE MOTOR OVERLOAD PROTECTOR CYCLES REPEATEDLY

POSSIBLE CAUSE	TO CORRECT
Excessive belt tension.	Adjust belts.
Inoperative motor overload protector.	Replace motor.
Bind in water pump.	Replace pump.
Bind in transmission.	Replace transmission.
Brake pads binding.	Free binding pads, or replace pads.

49. OUTER TUB DOES NOT EMPTY

POSSIBLE CAUSE	TO CORRECT
Kinked drain hose.	Straighten hose.
Inoperative water pump.	Replace pump.
Obstruction in outer tub outlet hose.	Remove obstruction.
Loose pump belt.	Adjust belt.

50. EXCESSIVE VIBRATION

POSSIBLE CAUSE	TO CORRECT
Unbalanced load in tub.	Stop washer, redistribute load, then restart washer.
Broken, disconnected or centering spring(s) out of adjustment.	Connect or replace centering spring(s). Spring should be located in center notch, *Figure 32.*
Washer is not properly leveled.	Adjust leveling legs.
Washer is installed on weak, "spongy", or built-up floor.	Relocate washer, or support floor to eliminate weak or "spongy" condition.
Incorrect or loose cabinet screws.	Replace with correct screws or tighten.

51. WATER LEAKING FROM OUTER TUB

POSSIBLE CAUSE	TO CORRECT
Leaking water seal in outer tub.	Replace water seal assembly, *paragraph 25.*
Hole in outer tub.	Replace outer tub.
Pressure hose bulb leaking.	Replace pressure hose and/or bulb.
Outer tub cover gasket leaking.	Replace gasket.

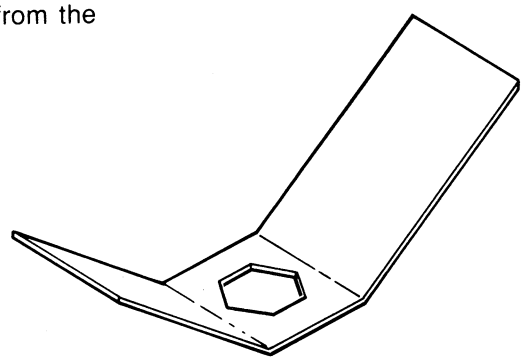
Special Tools

No. 357P3 Tool Kit

(Includes the five special tools shown below)

229P4
SPRING HOOK

Use for the removal of the five centering springs from the outer tub.

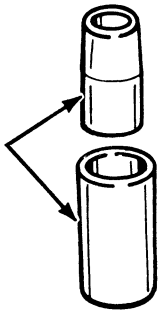


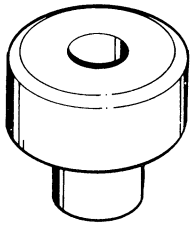
237P4
HEX WRENCH

Used to remove hex locknut from washtub hub.

242P4
BRAKE SPRING INSTALLER

Used to install brake spring.



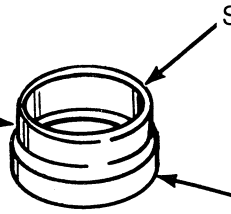


230P4
GUIDE SPINDLE

Used for the removal of the hub from the transmission.

241P4
SEAL INSTALLER

Used to install No. 356P3 Washer Seal Kit.



SECTION VI
Test Procedures

To check continuity through motor harness and motor. The items within the parenthesis are also being checked along with the wires.

TP – Thermal Protector, MS – Motor Switch, SW – Start Winding, HW – High Winding, LW – Low Winding.

WIRES	MOTOR SWITCH NORMAL	OHM READINGS	MOTOR SWITCH OPERATED MANUALLY	OHM READINGS
Yellow to White	Continuity (TP)	0	Continuity (TP)	O
Red to Brown	Continuity (MS, SW)	4-5	OPEN	Infinite
Pink to White	Continuity (MS, HW, TP)	1-2	Continuity (MS, LW, TP)	3-4
Blue to White	Continuity (HW, TP)	1-2	Continuity (HW, TP)	1-2

To check continuity through base harness, control harness and timer for motor start circuit. Timer terminals involved are shown within the parenthesis.

WIRES	TIMER SET FOR SPIN	TIMER SET FOR AGITATION
Blue to Brown	Continuity (K & G)	OPEN
Blue to Red	OPEN	Continuity (K & F)
Red to Yellow	Continuity (F & L)	OPEN
Brown to Yellow	OPEN	Continuity (G & L)

NOTES

SECTION VII
Cycle Sequence Charts

CYCLE	FUNCTION		WATER TEMP.	MOTOR SPEED	TIME FUNCTION	DEGREES FUNCTION
REGULAR	WASH FILL or AGITATE		H, W, C	F or S	15:00	90°
	PAUSE				:40	4°
	SPIN			F or S	1:00	6°
	SPIN and SPRAY		COLD	F or S	1:00	6°
	SPIN			F or S	1:00	6°
	PAUSE				:20	2°
	PAUSE or RINSE FILL (Timer Motor Runs)		W or C		:20	2°
	PAUSE or FILL		W or C		:20	2°
	RINSE FILL or AGITATE		W or C	F or S	5:40	34°
	PAUSE				:40	4°
	SPIN			F or S	5:00	30°
OFF					2:00	12°
PERMANENT PRESS	WASH FILL or AGITATE		H, W, C	F or S	9:00	54°
	PAUSE				:40	4°
	COOL DOWN	SPIN (Partial Drain)		FAST	1:00	6°
	(Pressure Switch Controlled)	FILL	COLD			
	PAUSE				:40	4°
	SPIN			F or S	:40	4°
	SPIN and SPRAY		COLD	F or S	1:00	6°
	SPIN			F or S	:40	4°
	PAUSE				:20	2°
	PAUSE or RINSE FILL (Timer Motor Runs)		W or C		:20	2°
	PAUSE or FILL		W or C		:20	2°
	RINSE FILL or AGITATE		W or C	F or S	4:40	28°
	PAUSE				:40	4°
	SPIN			F or S	5:00	30°
OFF					2:00	12°
	TOTAL				60:00	360°

KEY:

F = FAST
S = SLOW
H = HOT
W = WARM
C = COLD

Timer No. 27694 Cycle Sequence (Two Cycle-Mallory)

CYCLE	FUNCTION		WATER TEMP.	MOTOR SPEED	TIME (MIN. & SEC.)	DEGREES
REGULAR	WASH FILL or AGITATE		H,W,C	F or S	15:00	82.27
	PAUSE				1:14	6.75
	SPIN			F or S	1:00	5.48
	SPIN and SPRAY		COLD	F or S	1:00	5.48
	SPIN			F or S	1:00	5.48
	PAUSE				:18	1.65
	RINSE FILL (Timer Motor Runs)		W or C		:44	4.00
	PAUSE or FILL		W or C		:12	1.10
33:26	RINSE FILL or AGITATE		W or C	F or S	5:28	30.00
PLUS	PAUSE				1:14	6.75
FILL	SPIN				7:00	38.39
OFF					**2:00**	**10.97**
PERMANENT PRESS	WASH FILL or AGITATE		H,W,C	F or S	9:00	49.36
	PAUSE				1:14	6.75
	COOL DOWN	SPIN (Partial Drain)		FAST	1:00	5.48
	(Press. Sw. Controlled)	FILL	COLD		Variable	
	PAUSE				:50	4.55
	SPIN			F or S	:40	3.62
	SPIN and SPRAY		COLD	F or S	1:00	5.48
	SPIN			F or S	:40	3.67
	PAUSE				:18	1.65
	RINSE FILL (Timer Motor Runs)		W or C		:44	4.00
	PAUSE or FILL		W or C		:12	1.10
26:45	RINSE FILL or AGITATE		W or C	F or S	4:38	25.39
PLUS	PAUSE				1:14	6.75
FILL	SPIN			F or S	6:00	32.91
OFF					**2:00**	**10.97**
	TOTALS				**65:38**	**360.0**

KEY:

H = HOT
W = WARM
C = COLD
F = FAST
S = SLOW

Timer No. 28918 Cycle Sequence (Two Cycle)

CYCLE	FUNCTION		WATER TEMP.	MOTOR SPEED	TIME FUNCTION	DEGREES FUNCTION
PERMANENT PRESS	WASH FILL OR AGITATE		H,W,C	F or S	9:00	36°
	PAUSE				1:30	6°
	COOL DOWN (Pressure Switch Controlled)	SPIN (Partial Drain)		FAST	1:00	4°
		FILL	COLD			
	PAUSE				1:00	4°
	SPIN			F or S	1:30	6°
	SPIN & SPRAY		COLD	F or S	:30	2°
	SPIN			F or S	1:30	6°
	PAUSE				:30	2°
	RINSE FILL (Timer Motor Runs)		W or C		:30	2°
	PAUSE OR FILL		W or C		:30	2°
	RINSE FILL OR AGITATE		W or C	F or S	3:00	12°
	PAUSE				1:30	6°
	SPIN			F or S	4:00	16°
OFF					2:15	9°
DELICATE	WASH FILL OR SOAK		H,W,C		1:00	4°
	WASH FILL OR AGITATE		H,W,C	F or S	:45	3°
	WASH FILL OR SOAK		H,W,C		4:00	16°
	WASH FILL OR AGITATE		H,W,C	F or S	:45	3°
	WASH FILL OR SOAK		H,W,C		2:00	8°
	WASH FILL OR AGITATE		H,W,C	F or S	:45	3°
	PAUSE (SOAK)				1:30	6°
	COOL DOWN (Pressure switch controlled)	SPIN (Partial Drain)		FAST	1:00	4°
		FILL	COLD			
	PAUSE				1:00	4°
	SPIN			F or S	1:30	6°
	SPIN & SPRAY		COLD	F or S	:30	2°
	SPIN			F or S	1:30	6°
	PAUSE				:30	2°
	RINSE FILL (Timer Motor Runs)		COLD		:30	2°
	PAUSE OR FILL		COLD		:30	2°
	RINSE FILL OR AGITATE		COLD	F or S	1:00	4°
	PAUSE				1:30	6°
	SPIN			F or S	3:00	12°
OFF					2:30	10°
REGULAR	WASH FILL OR AGITATE		H,W,C	F or S	15:00	60°
	PAUSE				1:30	6°
	SPIN			F or S	1:30	6°
	SPIN & SPRAY		COLD	F or S	1:00	4°
	SPIN			F or S	1:30	6°
	PAUSE				:30	2°
	RINSE FILL (Timer Motor Runs)		W or C		:30	2°
	PAUSE OR FILL		W or C		:30	2°
	RINSE FILL OR AGITATE		W or C	F or S	5:00	20°
	PAUSE				1:30	6°
	SPIN			F or S	5:00	20°
OFF	TOTAL				2:30	10°

KEY

H = HOT
W = WARM
C = COLD
F = FAST
S = SLOW

Timer No.28093 Cycle Sequence (Three Cycle-Mallory)

CYCLE	FUNCTION		WATER TEMP.	MOTOR SPEED	TIME (MIN. & SEC.)	DEGREES
PERMANENT PRESS	WASH FILL or AGITATE		H,W,C	F or S	9:00	32.76
	PAUSE				1:50	6.70
	COOL DOWN	SPIN (Partial Drain)		FAST	1:00	3.64
	(Press. Sw. Controlled)	FILL	COLD		Variable	
	PAUSE				1:14	4.51
	SPIN			F or S	1:25	5.16
	SPIN and SPRAY		COLD	F or S	:40	2.44
	SPIN			F or S	1:25	5.16
	PAUSE				:27	1.64
	RINSE FILL (Timer Motor Runs)		W or C		1:02	3.75
	PAUSE or FILL		W or C		:22	1.31
28:13	RINSE FILL or AGITATE		W or C	F or S	3:00	10.92
PLUS	PAUSE				1:50	6.70
FILL	SPIN			F or S	6:00	21.84
OFF					**2:28**	**8.99**
DELICATE	WASH FILL or SOAK		H,W,C		1:00	3.64
	WASH FILL or AGITATE		H,W,C	F or S	:45	2.73
	WASH FILL or SOAK		H,W,C		3:30	12.74
	WASH FILL or AGITATE		H,W,C	F or S	:45	2.73
	WASH FILL or SOAK		H,W,C		2:00	7.28
	WASH FILL or AGITATE		H,W,C	F or S	:45	2.73
	PAUSE (Soak)				1:50	6.70
	COOL DOWN	SPIN (Partial Drain)		FAST	1:00	3.64
	(Press. Sw. Controlled)	FILL	COLD		Variable	
	PAUSE				1:14	4.51
	SPIN			F or S	1:30	5.46
	SPIN and SPRAY		COLD	F or S	:40	2.44
	SPIN			F or S	1:20	4.84
	PAUSE				:27	1.64
	RINSE FILL (Timer Motor Runs)		COLD		1:02	3.75
	PAUSE or FILL		COLD		:22	1.31
24:36	RINSE FILL or AGITATE		COLD	F or S	1:00	3.64
PLUS	PAUSE				1:50	6.70
FILL	SPIN			F or S	4:37	16.82
OFF					**2:28**	**8.99**
REGULAR	WASH FILL or AGITATE		H,W,C	F or S	15:00	54.56
	PAUSE				1:50	6.70
	SPIN			F or S	1:30	5.46
	SPIN and SPRAY		COLD	F or S	1:00	3.64
	SPIN			F or S	1:30	5.46
	PAUSE				:27	1.64
	RINSE FILL (Timer Motor Runs)		W or C		1:02	3.75
	PAUSE or FILL		W or C		:22	1.31
35:29	RINSE FILL or AGITATE		W or C	F or S	5:00	18.20
PLUS	PAUSE				1:50	6.70
FILL	SPIN			F or S	7:00	25.48
OFF					**2:28**	**8.99**
	TOTALS				**98:49**	**360.0**

KEY:

H = HOT
W = WARM
C = COLD
F = FAST
S = SLOW

Timer No. 28917 Cycle Sequence (Three Cycle)

CYCLE	FUNCTION		WATER TEMP.	MOTOR SPEED	TIME (MIN. & SEC.)	DEGREES
PERMANENT PRESS	WASH FILL or AGITATE		H,W,C	FAST	9:00	32.76
	PAUSE				1:50	6.70
	COOL DOWN	SPIN (Partial Drain)		FAST	1:00	3.64
	(Press. Sw. Controlled)	FILL	COLD		Variable	
	PAUSE				1:14	4.51
	SPIN			SLOW	1:25	5.16
	SPIN and SPRAY		COLD	SLOW	:40	2.44
	SPIN			SLOW	1:25	5.16
	PAUSE				:27	1.64
	RINSE FILL (Timer Motor Runs)		W or C		1:02	3.75
	PAUSE or FILL		W or C		:22	1.31
28:13	RINSE FILL or AGITATE		W or C	FAST	3:00	10.92
PLUS	PAUSE				1:50	6.70
FILL	SPIN			FAST	6:00	21.84
OFF					**2:28**	**8.99**
DELICATE	WASH FILL or SOAK		H,W,C		1:00	3.64
	WASH FILL or AGITATE		H,W,C	SLOW	:40	2.73
	WASH FILL or SOAK		H,W,C		3:30	12.74
	WASH FILL or AGITATE		H,W,C	SLOW	:45	2.73
	WASH FILL or SOAK		H,W,C		2:00	7.28
	WASH FILL or AGITATE		H,W,C	SLOW	:45	2.73
	PAUSE (Soak)				1:50	.670
	COOL DOWN	SPIN (Partial Drain)		FAST	1:00	3.64
	(Press. Sw. Controlled)	FILL	COLD		Variable	
	PAUSE				1:14	4.51
	SPIN			SLOW	1:30	5.46
	SPIN and SPRAY		COLD	SLOW	:40	2.44
	SPIN			SLOW	1:20	4.84
	PAUSE				:27	1.64
	RINSE FILL (Timer Motor Runs)		COLD		1:02	3.75
	PAUSE or FILL		COLD		:22	1.31
24:36	RINSE FILL or AGITATE		COLD	SLOW	1:00	3.64
PLUS	PAUSE				1:50	6.70
FILL	SPIN			SLOW	4:37	16.82
OFF					**2:28**	**8.99**
REGULAR	WASH FILL or AGITATE		H,W,C	FAST	15:00	54.56
	PAUSE				1:50	6.70
	SPIN			FAST	1:30	5.46
	SPIN and SPRAY		COLD	FAST	1:00	3.64
	SPIN			FAST	1:30	5.46
	PAUSE				:27	1.64
	RINSE FILL (Timer Motor Runs)		W or C		1:02	3.75
	PAUSE or FILL		W or C		:22	1.31
35:29	RINSE FILL or AGITATE		W or C	FAST	5:00	18.20
PLUS	PAUSE				1:50	6.70
FILL	SPIN			FAST	7:00	25.48
OFF					**2:28**	**8.99**
	TOTALS				**98.49**	**360.0**

KEY:

H = HOT
W = WARM
C = COLD
F = FAST
S = SLOW

Timer No. 29966 Cycle Sequence (Three Cycle)

CYCLE	FUNCTION		WATER TEMP.	MOTOR SPEED	TIME FUNCTION	DEGREES FUNCTION
PERMANENT PRESS	WASH FILL or AGITATE		H, W, C	F or S	9:00	27°
	PAUSE				2:00	6°
	COOL DOWN	SPIN (Partial Drain)		FAST	1:00	3°
	(Pressure Switch Controlled)	FILL	COLD			
	PAUSE				1:20	4°
	SPIN			F or S	1:40	2°
	SPIN and SPRAY		COLD	F or S	:30	1.5°
	SPIN			F or S	1:30	4.5°
	PAUSE				:40	2°
	PAUSE or RINSE FILL (Timer Motor Runs)		W or C		:40	2°
	PAUSE or FILL				:40	2°
	RINSE FILL or AGITATE		W or C	F or S	3:00	9°
	PAUSE				2:00	6°
	SPIN			F or S	5:00	15°
OFF					4:00	12°
KNIT/HANDWASH	WASH FILL or AGITATE		H, W, C	SLOW	2:00	6°
	WASH FILL or SOAK		H, W, C		5:00	15°
	WASH FILL or AGITATE		H, W, C	SLOW	1:00	3°
	WASH FILL or SOAK		H, W, C		5:00	15°
	WASH FILL or AGITATE		H, W, C	SLOW	1:00	3°
	PAUSE				2:00	6°
	COOL DOWN	SPIN (Partial Drain)		FAST	1:00	3°
	(Pressure Switch Controlled)	FILL	COLD			
	PAUSE				1:20	4°
	SPIN			SLOW	:40	2°
	SPIN and SPRAY		COLD	SLOW	:30	1.5°
	SPIN			SLOW	1:10	3.5°
	PAUSE				1:40	2°
	PAUSE or RINSE FILL (Timer Motor Runs)		COLD		:40	2°
	PAUSE or FILL				:40	2°
	RINSE FILL or AGITATE		COLD	SLOW	2:20	7°
	PAUSE				2:00	6°
	SPIN			SLOW	4:00	12°
	FUNCTION		WATER TEMP.	MOTOR SPEED	TIME FUNCTION	DEGREES FUNCTION
OFF					4:20	13°
SOAK	FILL or AGITATE		H, W, C	F or S	3:00	9°
	INFINITE SOAK (OFF)				2:00	6°
	SPIN			F or S	4:00	12°
OFF					3:40	11°
REGULAR	WASH FILL or AGITATE		H, W, C	F or S	15:00	45°
	PAUSE				1:40	5°
	SPIN			F or S	1:30	4.5°
	SPIN and SPRAY		COLD	F or S	1:00	3°
	SPIN			F or S	1:30	4.5°
	PAUSE				:40	2°
	PAUSE or RINSE FILL (Timer Motor Runs)		W or C		:40	2°
	PAUSE or FILL				:40	2°
	RINSE FILL or AGITATE		W or C	F or S	5:40	17°
	PAUSE				1:40	5°
	SPIN			F or S	5:00	15°
OFF					5:00	15°
	TOTAL				120:00	360°

KEY:

F = FAST
S = SLOW
H = HOT
W = WARM
C = COLD

Timer No. 27693 Cycle Sequence (Four Cycle-Mallory)

CYCLE	FUNCTION		WATER TEMP.	MOTOR SPEED	TIME (MIN. & SEC.)	DEGREES
PERMANENT PRESS	WASH FILL or AGITATE		H,W,C	F or S	9:00	24.84
	PAUSE				2:11	6.04
	COOL DOWN	SPIN (Partial Drain)		FAST	1:00	2.76
	(Press. Sw. Controlled)	FILL	COLD		Variable	
	PAUSE				1:32	4.25
	SPIN			F or S	:40	1.82
	SPIN and SPRAY		COLD	F or S	:53	2.46
	SPIN			F or S	1:07	3.06
	PAUSE				:30	1.38
	RINSE FILL (Timer Motor Runs)		W or C		1:20	3.70
	PAUSE or FILL		W or C		:21	.97
28.39	RINSE FILL or AGITATE		W or C	F or S	3:00	8.28
PLUS	PAUSE				2:11	6.04
FILL	SPIN			F or S	6:14	17.22
OFF					**4:00**	**11.04**
DELICATE	WASH FILL or AGITATE		H,W,C	F or S	2:00	5.52
	WASH FILL or SOAK		H,W,C		5:00	13.80
	WASH FILL or AGITATE		H,W,C	F or S	1:00	2.76
	WASH FILL or SOAK		H,W,C		5:00	13.80
	WASH FILL or AGITATE		H,W,C	F or S	1:00	2.76
	PAUSE				2:11	6.04
	COOL DOWN	SPIN (Partial Drain)		FAST	1:00	2.76
	(Press. Sw. Controlled)	FILL	COLD		Variable	
	PAUSE				1:32	4.25
	SPIN			F or S	:40	1.82
	SPIN and SPRAY		COLD	F or S	:53	2.46
	SPIN			F or S	:47	2.15
	PAUSE				:30	1.38
	RINSE FILL (Timer Motor Runs)		COLD		1:20	3.70
	PAUSE or FILL		COLD		:21	.97
32:39	RINSE FILL or AGITATE		COLD	F or S	2:20	6.43
PLUS	PAUSE				2:11	6.04
FILL	SPIN			F or S	6:14	17.22
OFF					**4:00**	**11.04**
SOAK	FILL or AGITATE		H,W,C	F or S	3:00	8.28
	INFINITE SOAK (Off)				2:11	6.04
	SPIN			F or S	7:00	19.32
OFF					**4:00**	**11.04**
REGULAR	WASH FILL or AGITATE		H,W,C	F or S	15:00	41.40
	PAUSE				2:11	6.04
	SPIN			F or S	1:30	4.14
	SPIN and SPRAY		COLD	F or S	1:00	2.76
	SPIN			F or S	1:30	4.14
	PAUSE				:30	1.38
	RINSE FILL (Timer Motor Runs)		W or C		1:20	3.70
	PAUSE or FILL		W or C		:21	.97
36:53	RINSE FILL or AGITATE		W or C	F or S	5:40	15.62
PLUS	PAUSE				2:11	6.04
FILL	SPIN			F or S	7:00	19.32
OFF					**4:00**	**11.04**
	TOTALS				**130.26**	**360.0**

KEY:

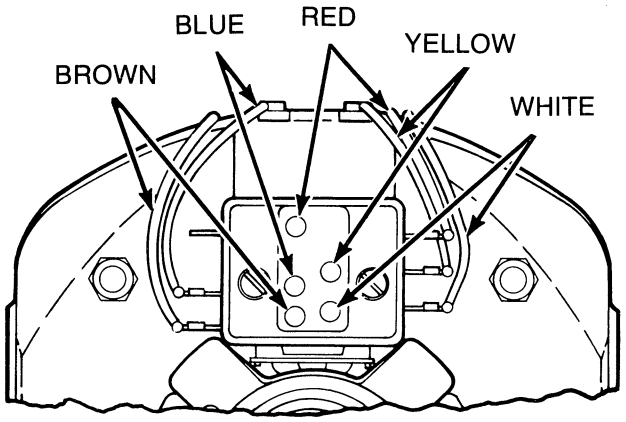
H = HOT
W = WARM
C = COLD
F = FAST
S = SLOW

Timer No. 28919 Cycle Sequence (Four Cycle)

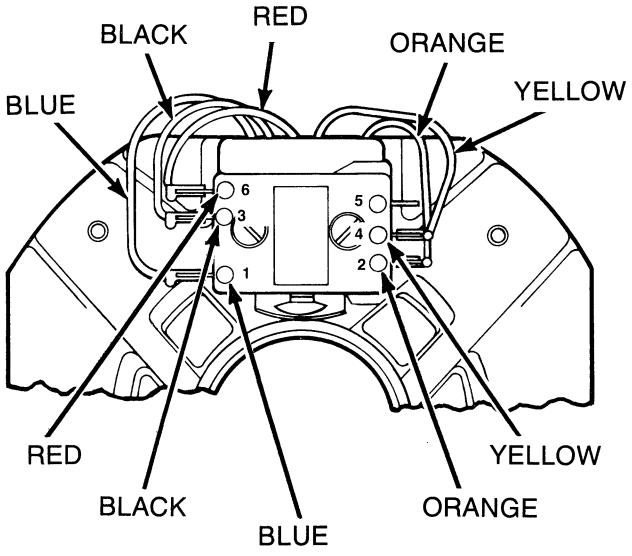
SECTION VIII

WIRING DIAGRAM

Internal Wiring of Washer Motor Switch

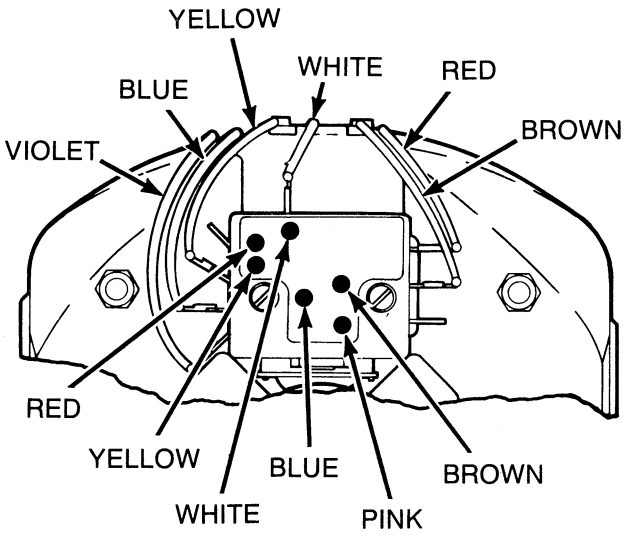


26758 Emerson Motor

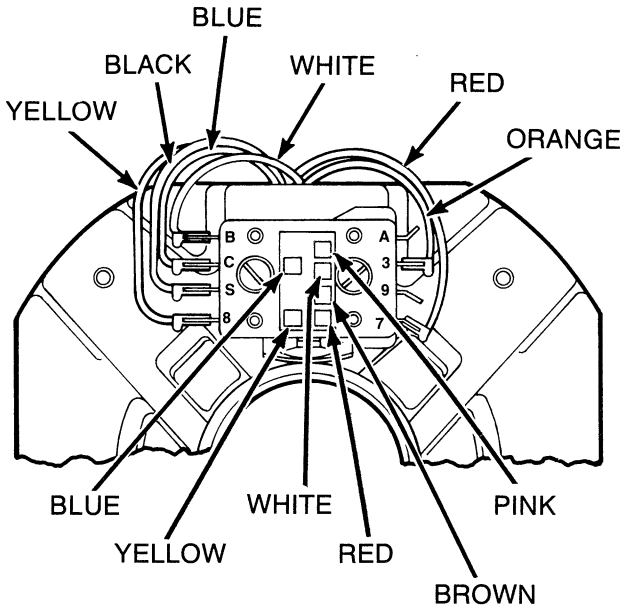


26758 General Electric Motor

1 Speed Motors

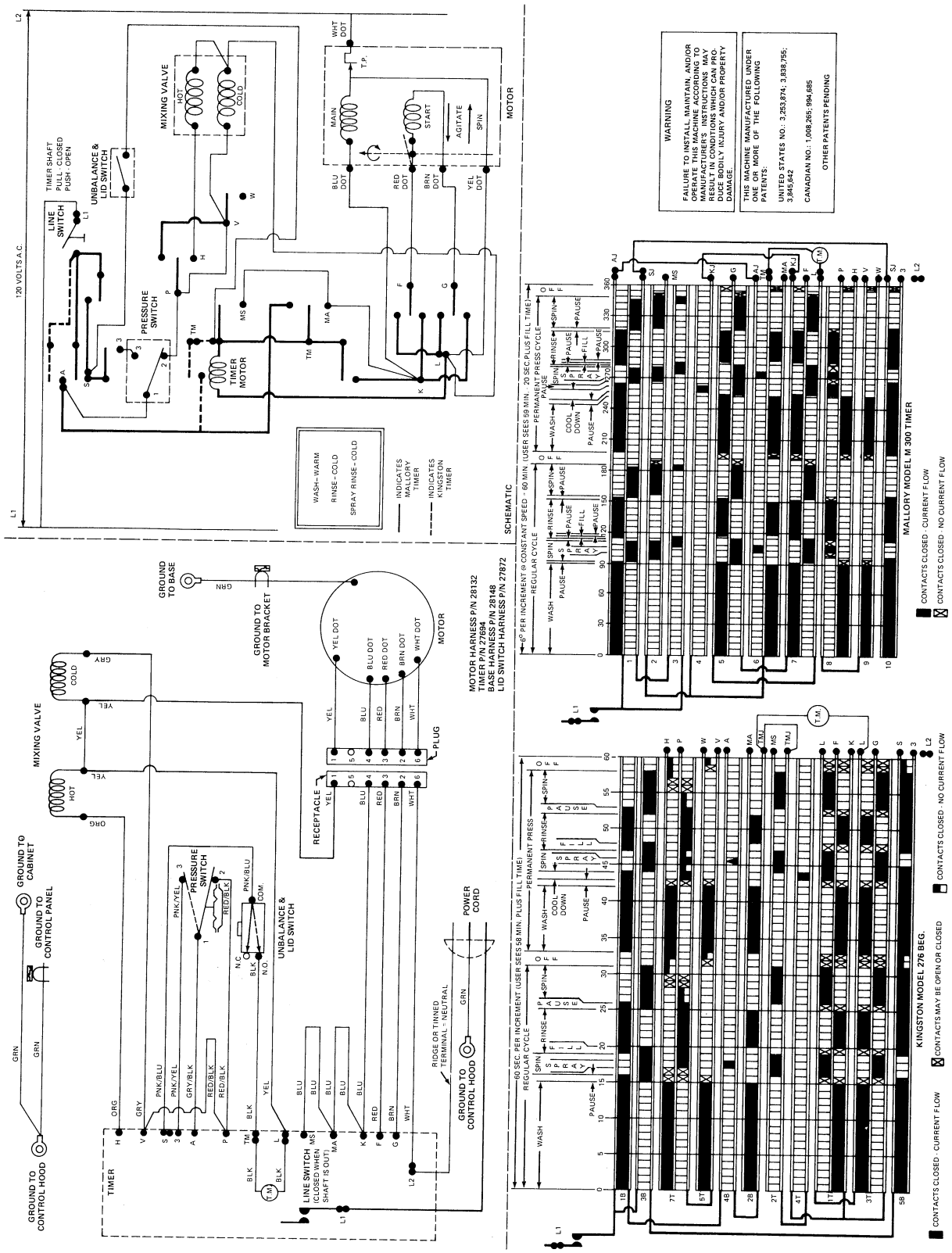


27179 Emerson Motor



27179 General Electric Motor

2 Speed Motors

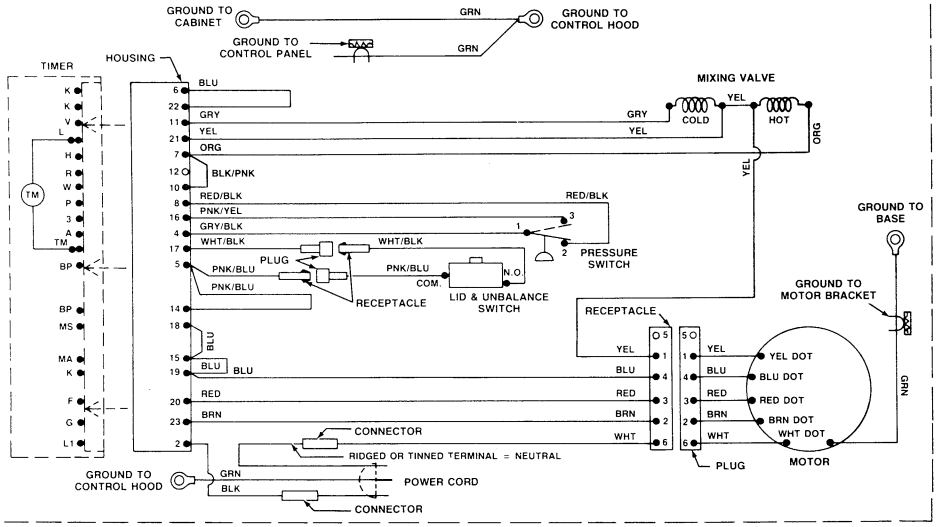


Model HA2010

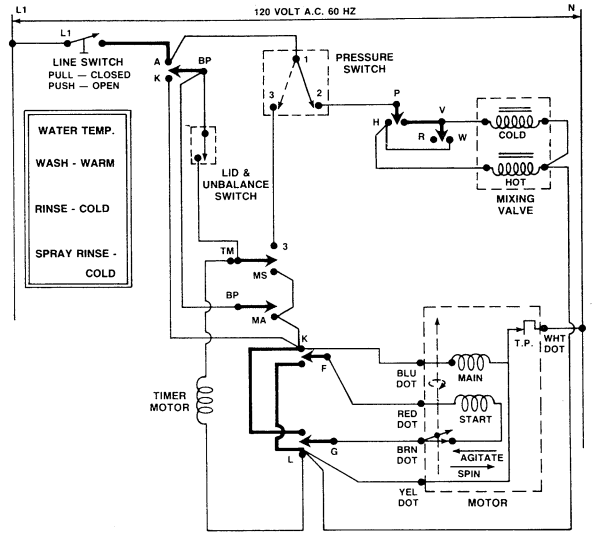
(through Serial No. B3533857)

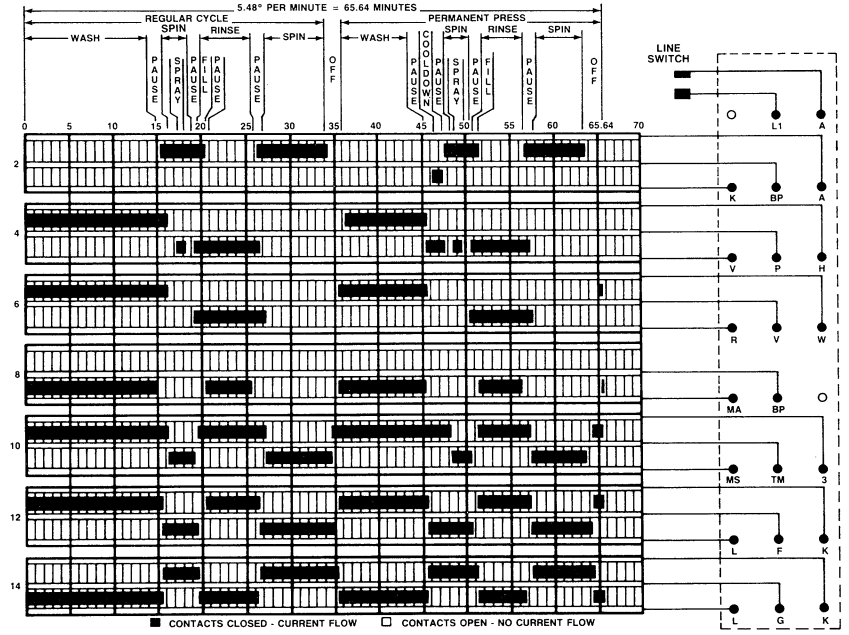
Model HA2010
(starting Serial No. B353858)

CONNECTION DIAGRAM



SCHEMATIC





WARNING

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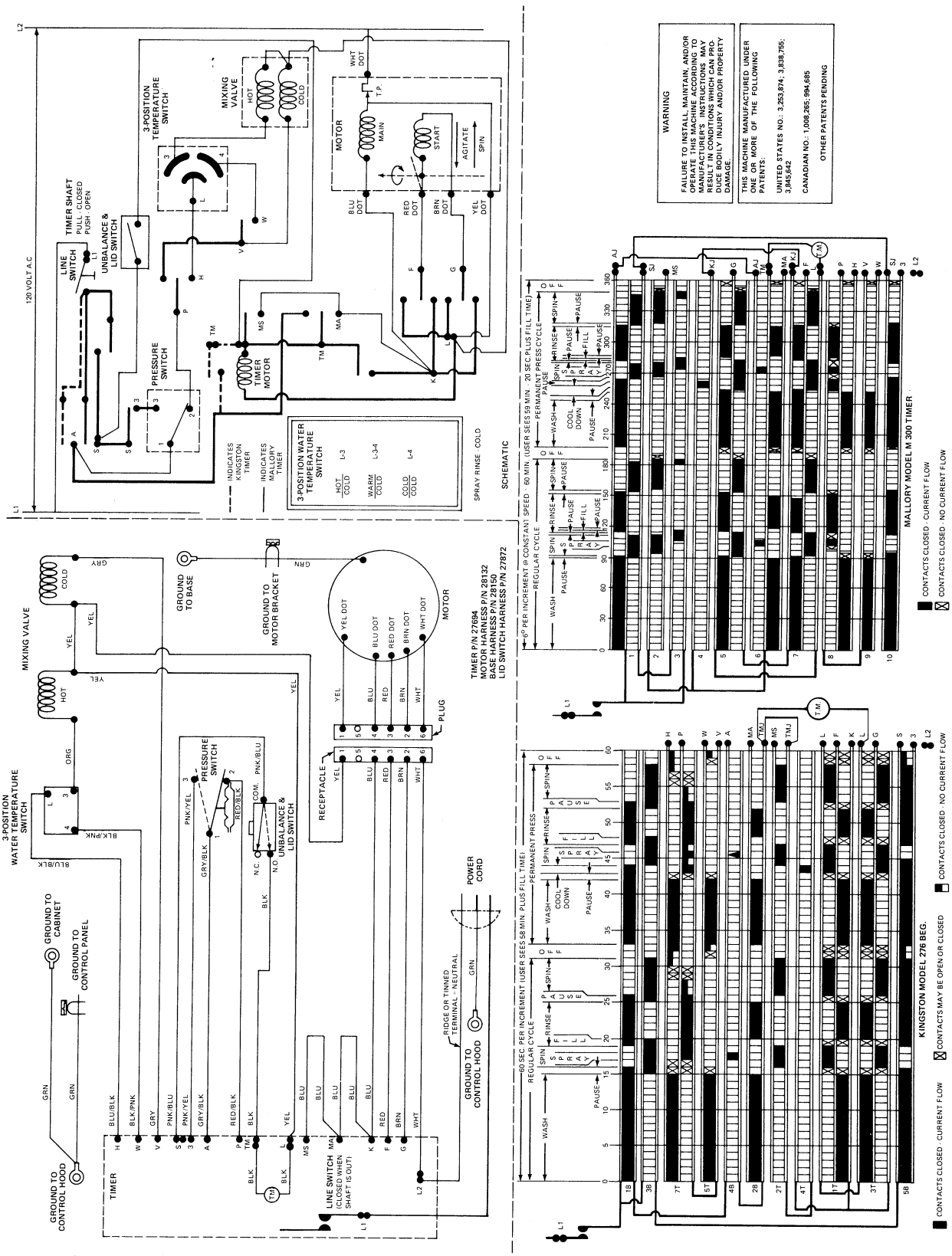
THIS MACHINE MANUFACTURED UNDER ONE OR MORE OF THE FOLLOWING PATENTS:

UNITED STATES NO.
3,253,874; 3,838,755; 3,845,642.

CANADIAN NO.
1,008,265; 994, 685
OTHER PATENTS PENDING.

PART No. 28957R2



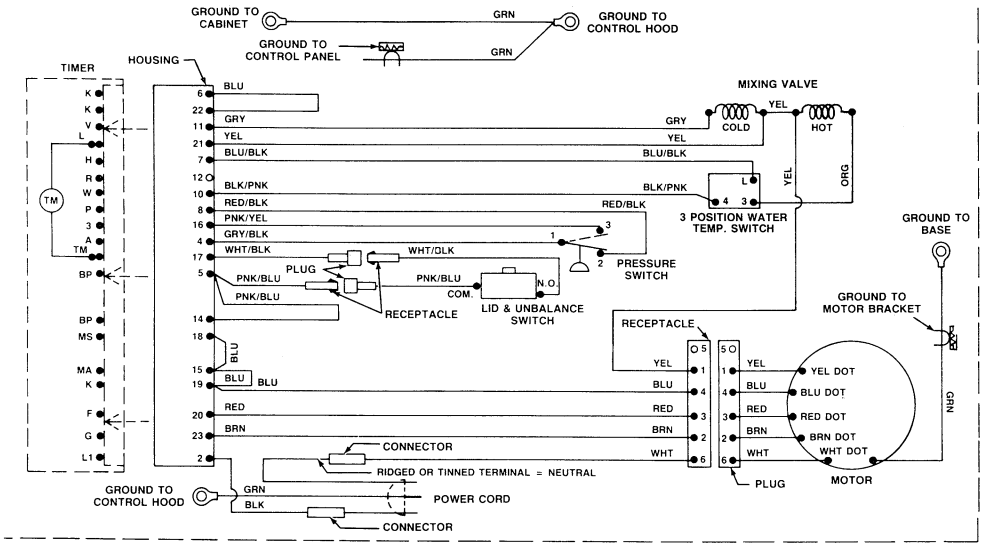
Models HA2300, HA3000, HA3001, HA4020, HA4021, HA4340, HA4341, HA5320 and HA5321

(through Serial No. B3533857)

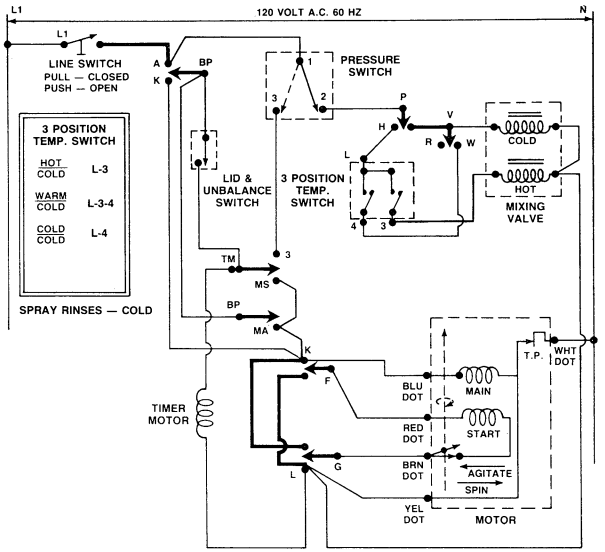
Models HA2300, HA3000, HA3001, HA4000 and HA4500

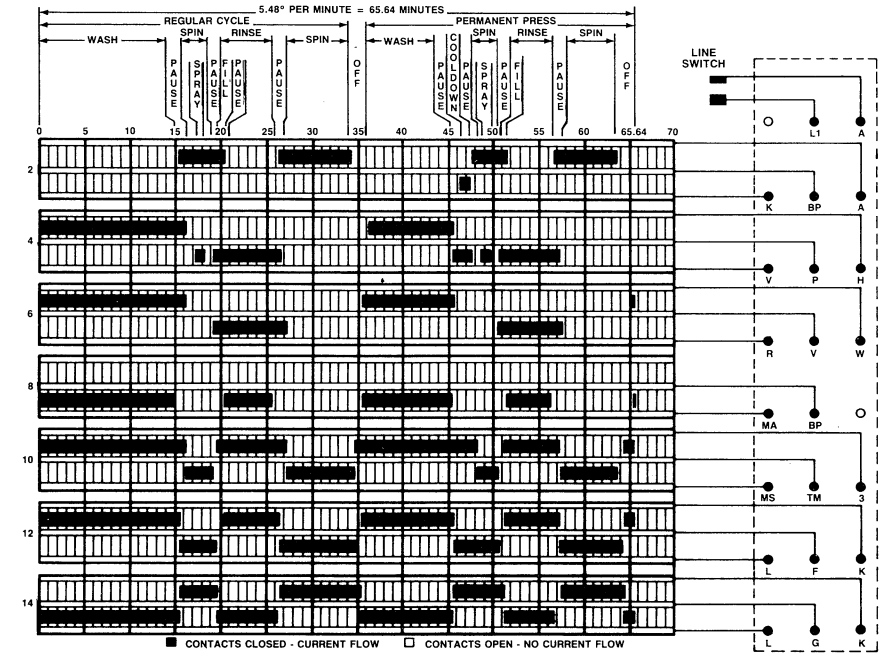
(starting Serial No. B353858)

CONNECTION DIAGRAM



SCHEMATIC





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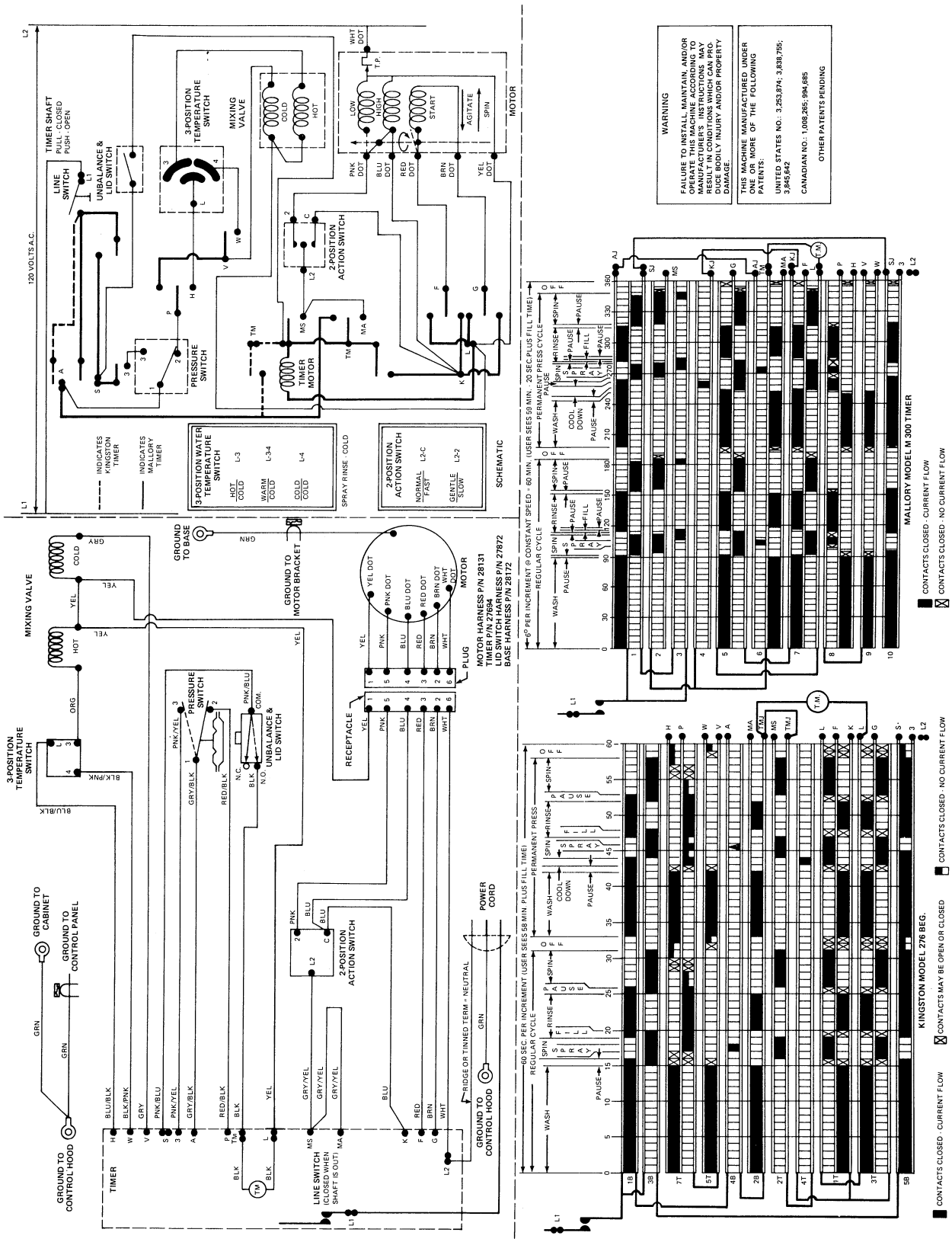
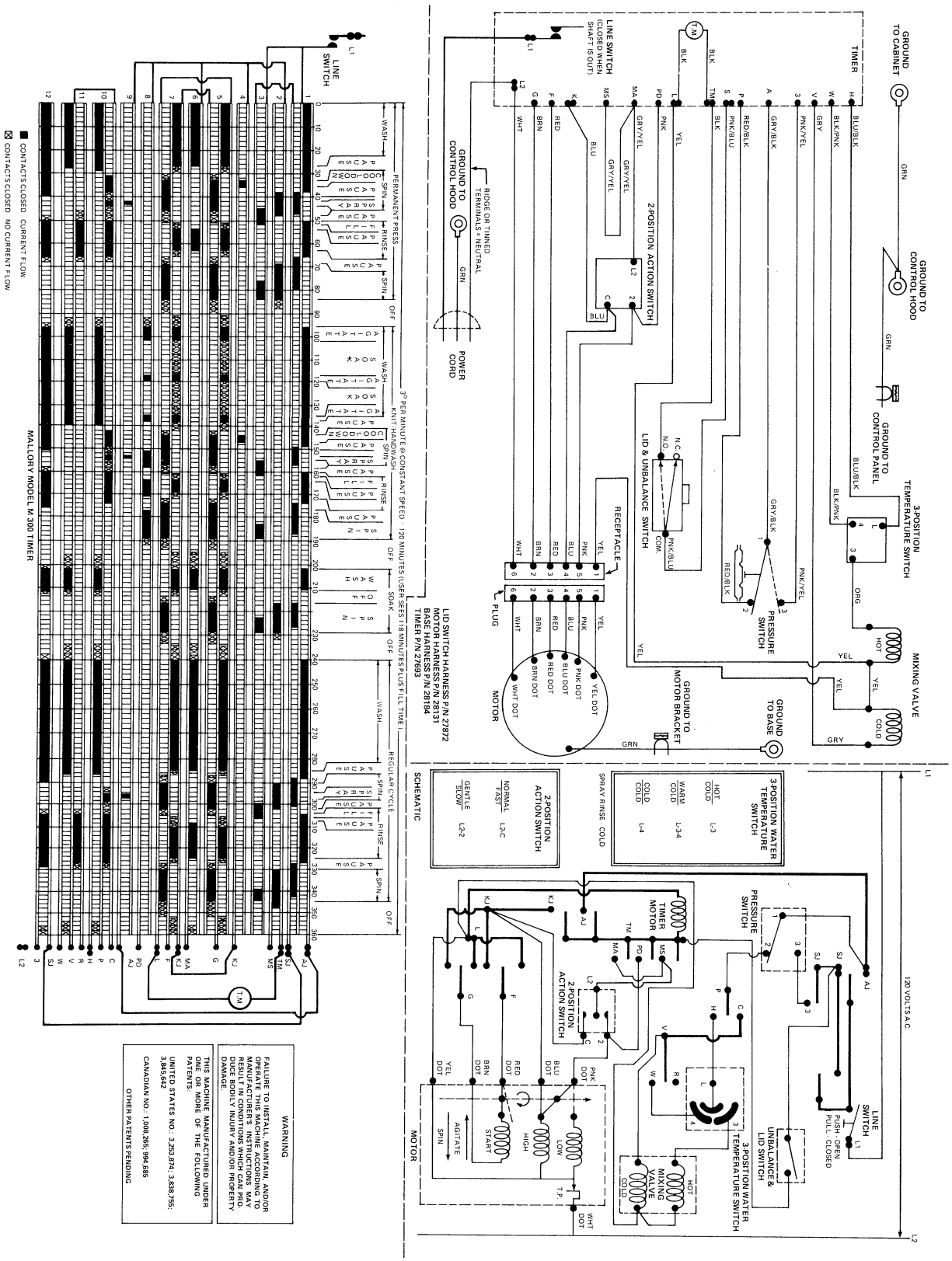
OTHER PATENTS PENDING.



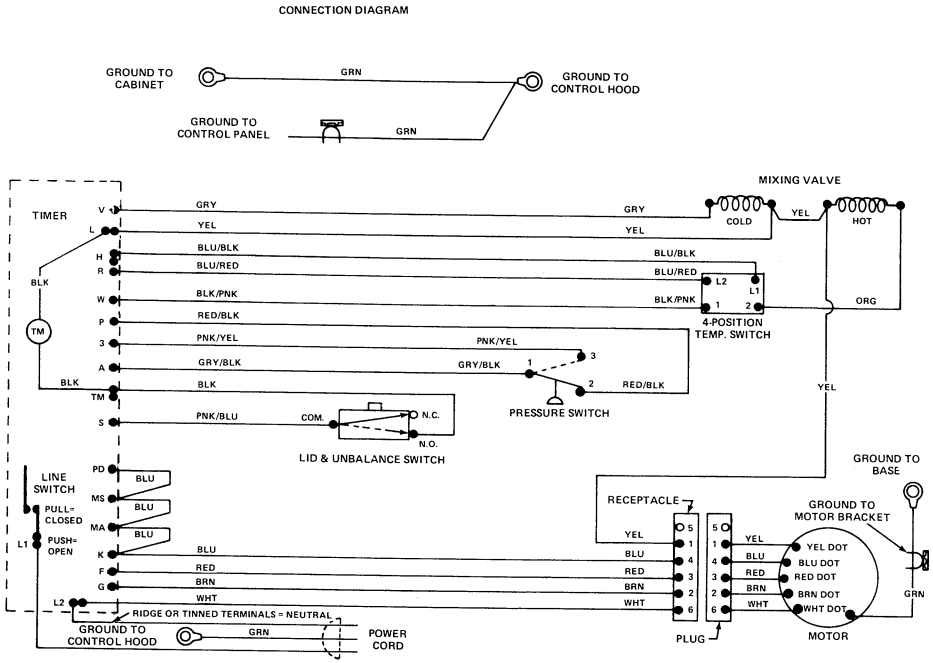
Models HA2410, HA2411, HA4260, HA4261, HA4370, HA4371 and HA6450

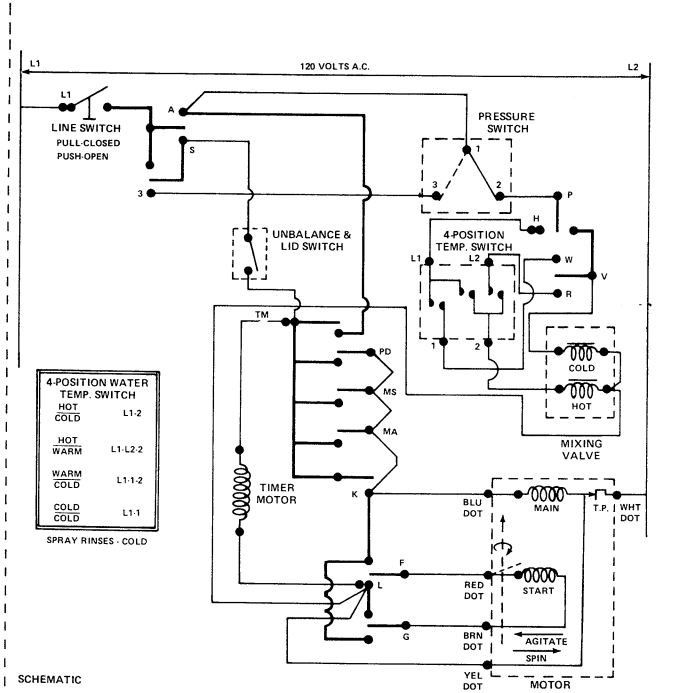


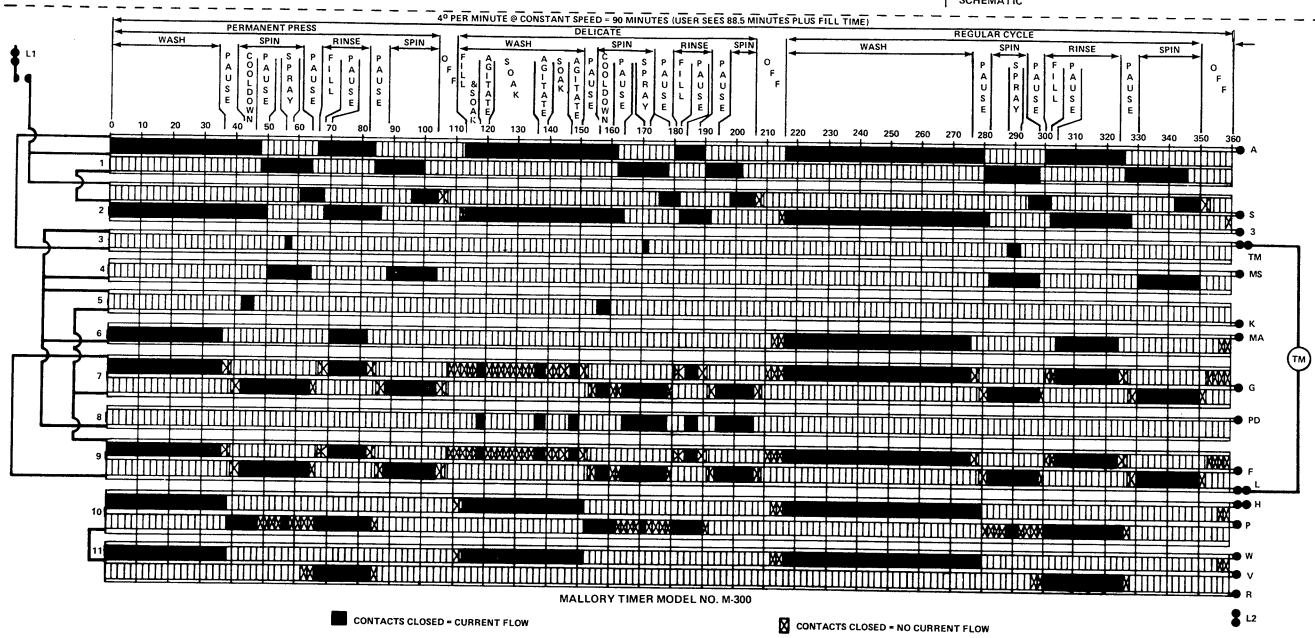
Models HA2620, HA2621, HA6470 and HA6471

Models HA4010, HA4011, HA4510 and HA4511

(through Serial No. B3533857)







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CANADIAN NO. 1,008,265; 994,685
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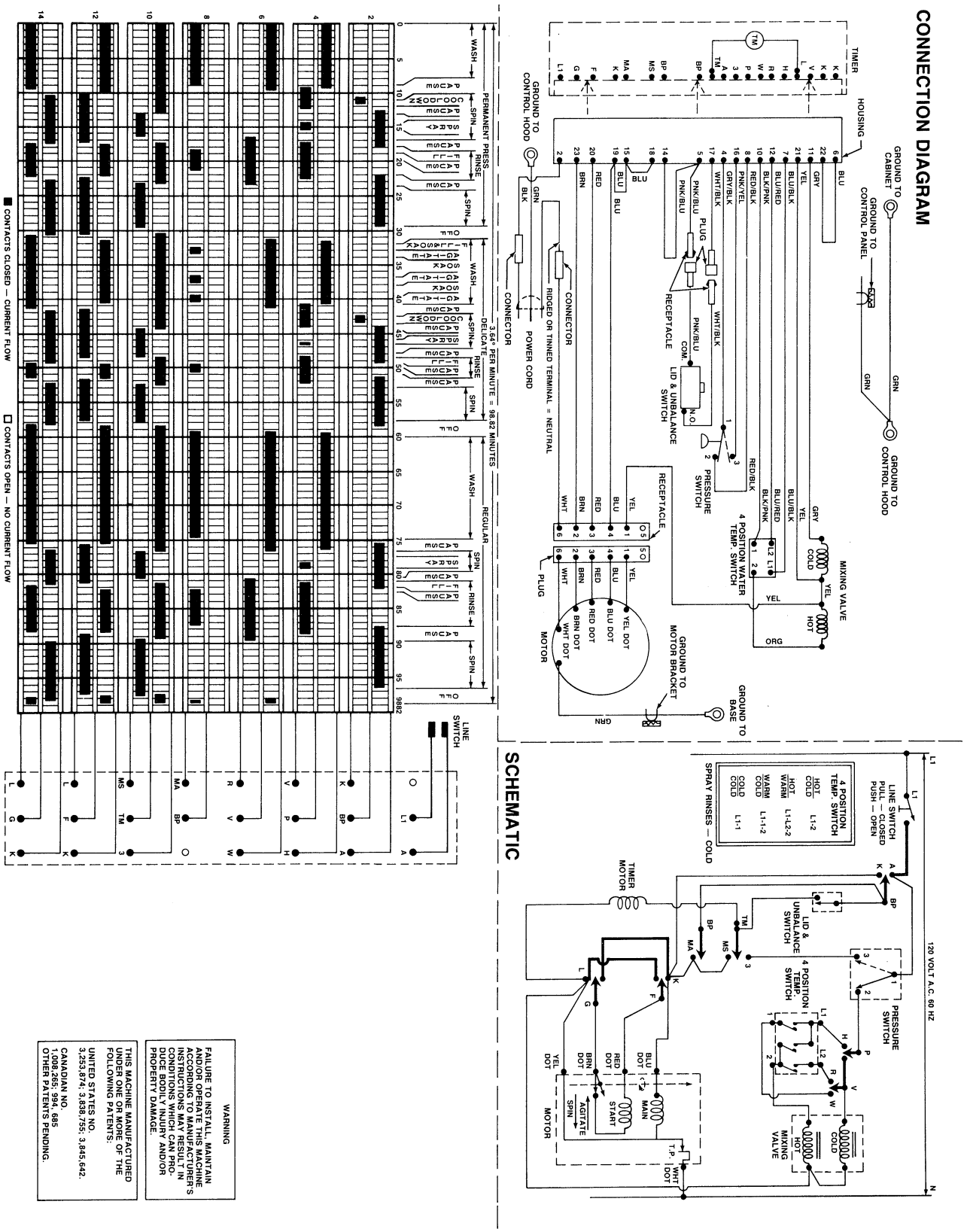


Models HA4010, HA4011, HA4510 and HA4511

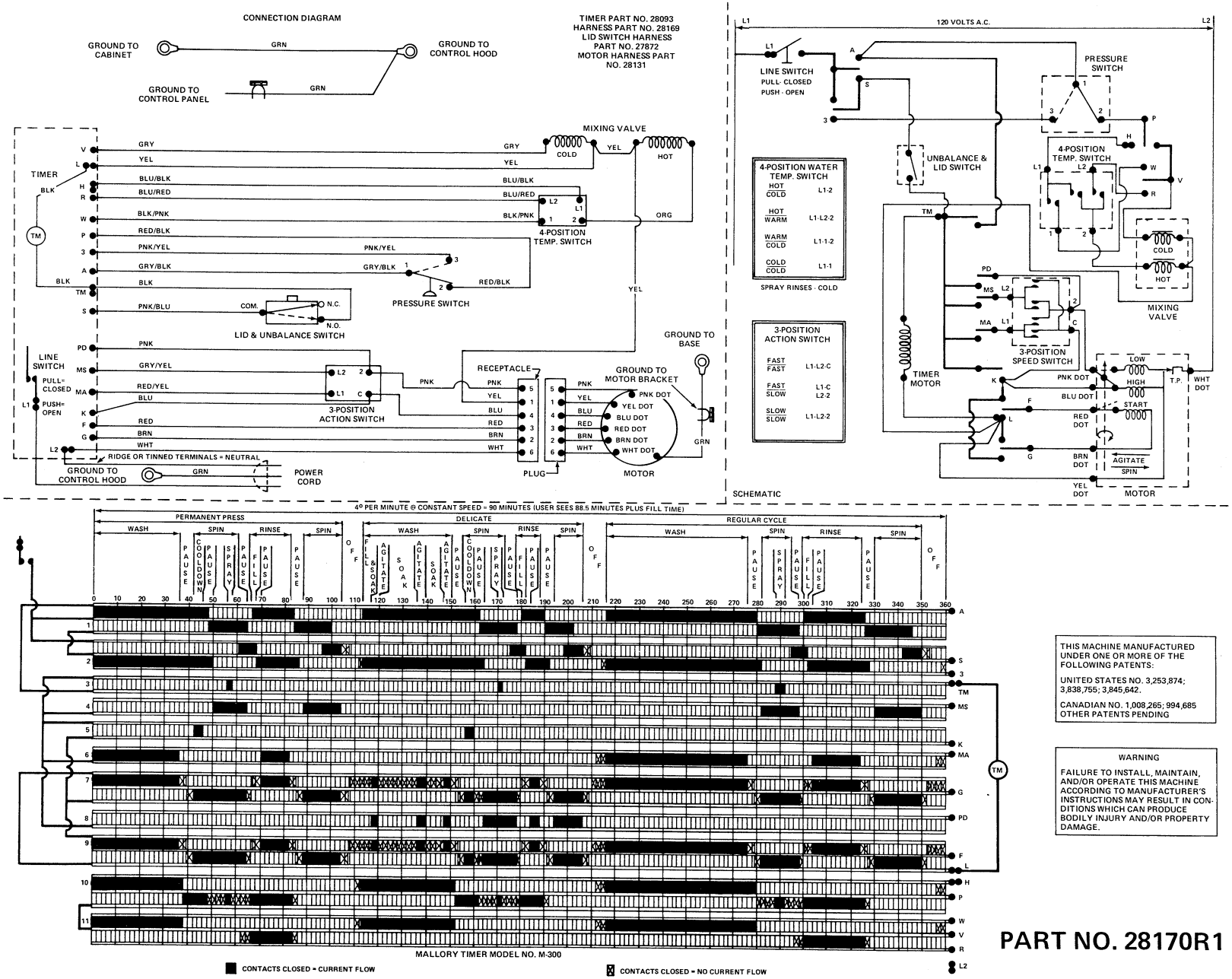
(starting Serial No. B3533858)

Models HA4210, HA4211, HA4520, HA6000 and HA6001

and Model HA4521

(through Serial No. B3533857)

(through Serial No. B3547780)



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CANADIAN NO. 1,008,265; 994,685 OTHER PATENTS PENDING

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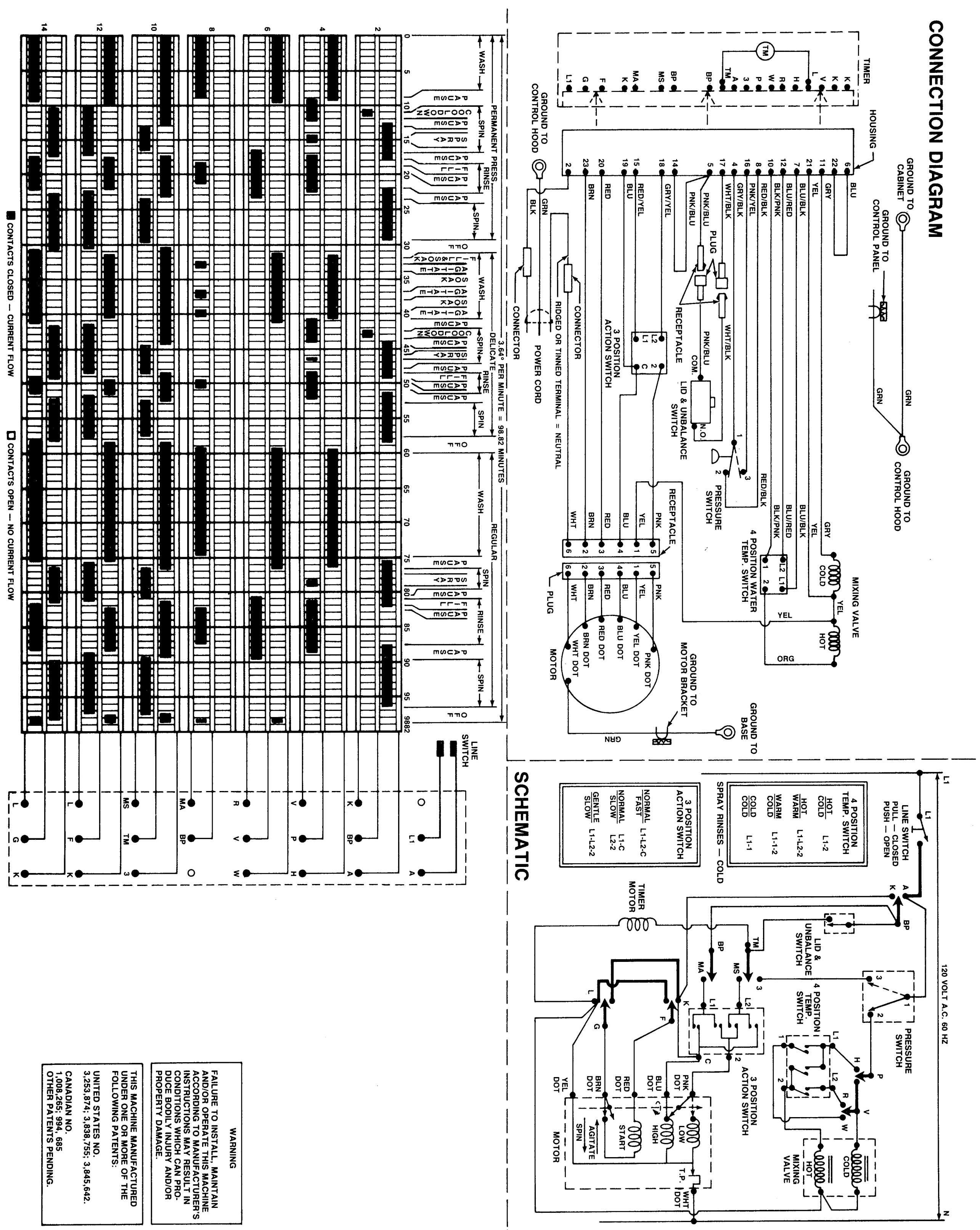
PART NO. 28170R1



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CANADIAN NO. 1,008,265; 994, 685
OTHER PATENTS PENDING.

Models HA4210, HA4211, HA4520, HA6000 and HA6001

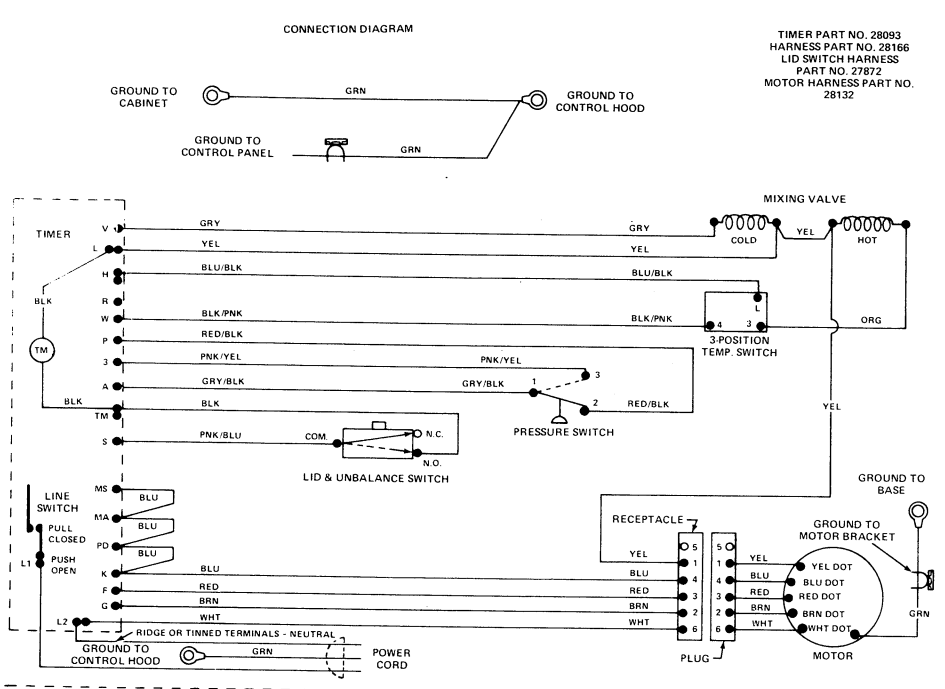
(starting Serial No. B3533858)

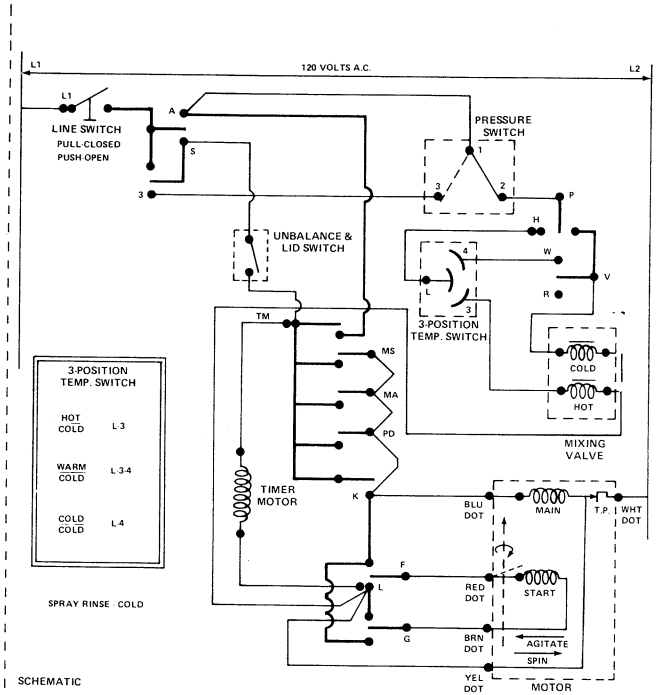
and Model HA4521

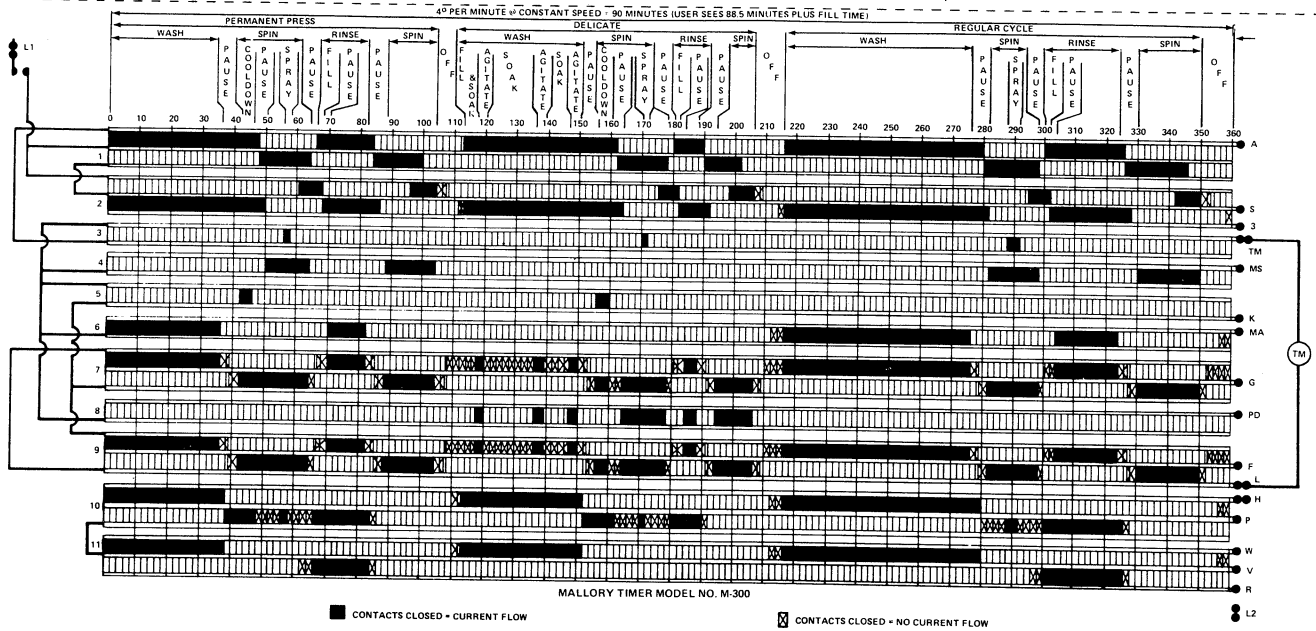
(starting Serial No. B3547781)

Models HA5000 and HA5001

(through Serial No. B3533857)







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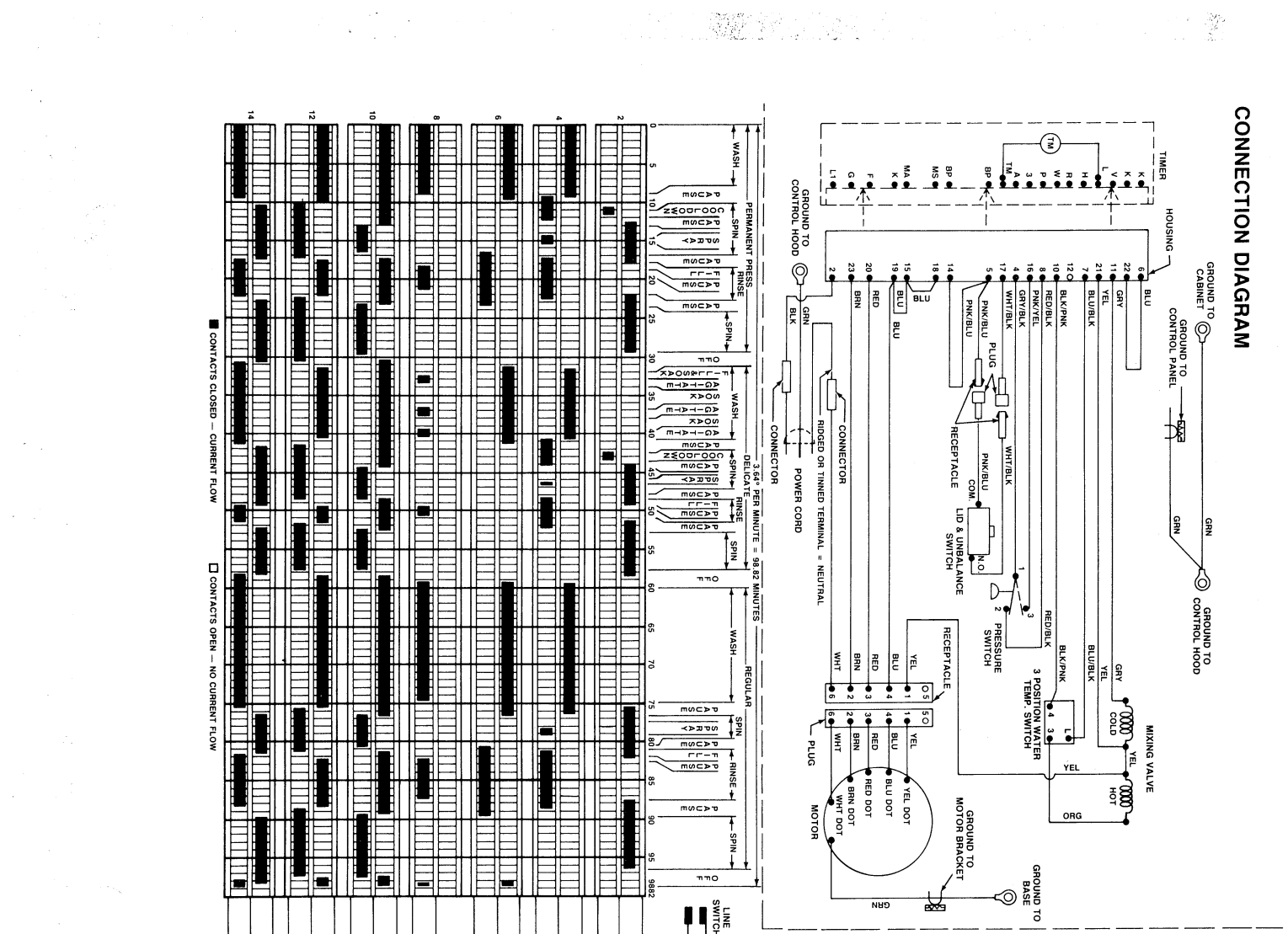

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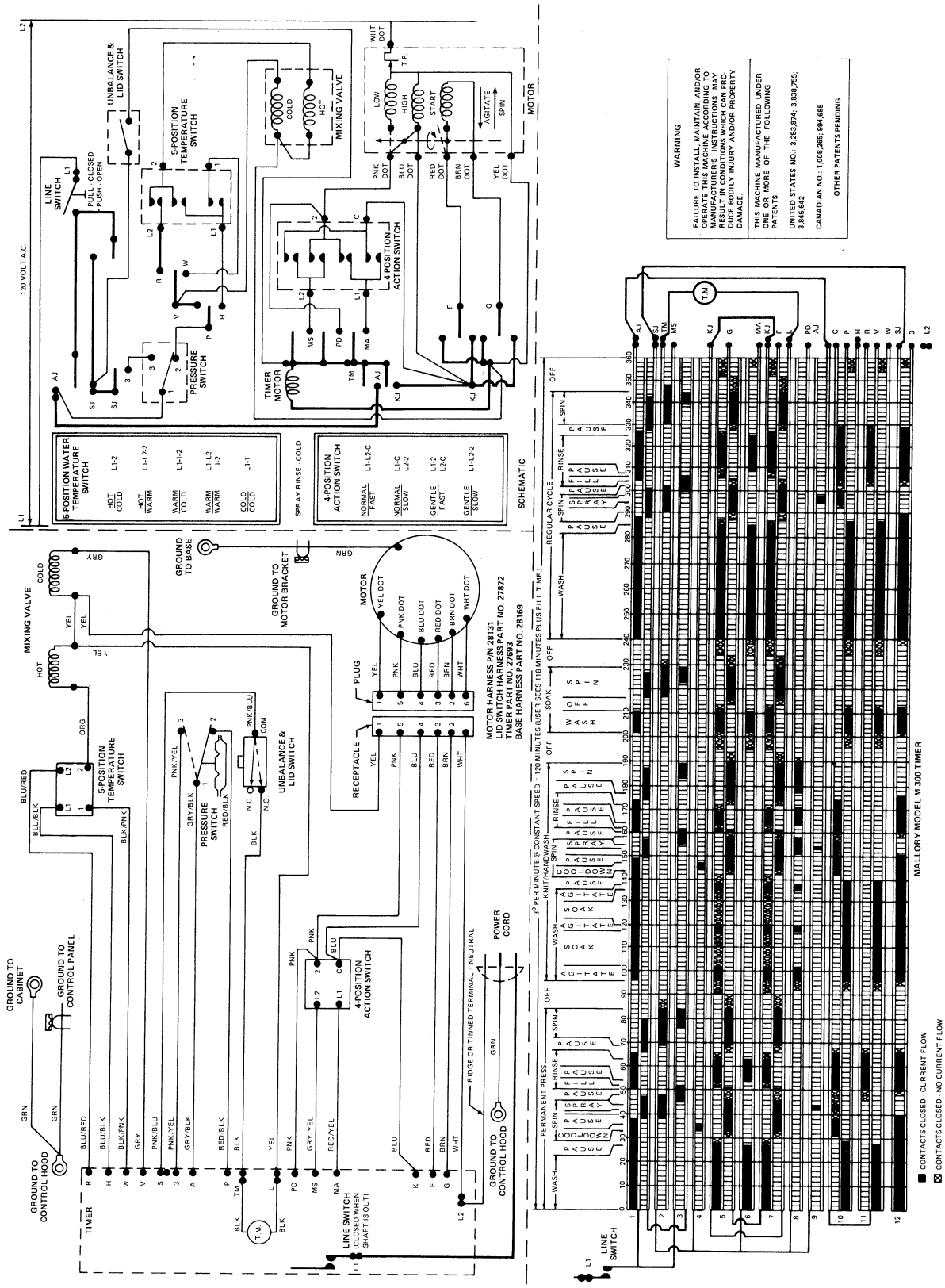
CANADIAN NO. 1,008,265; 994, 685

OTHER PATENTS PENDING.

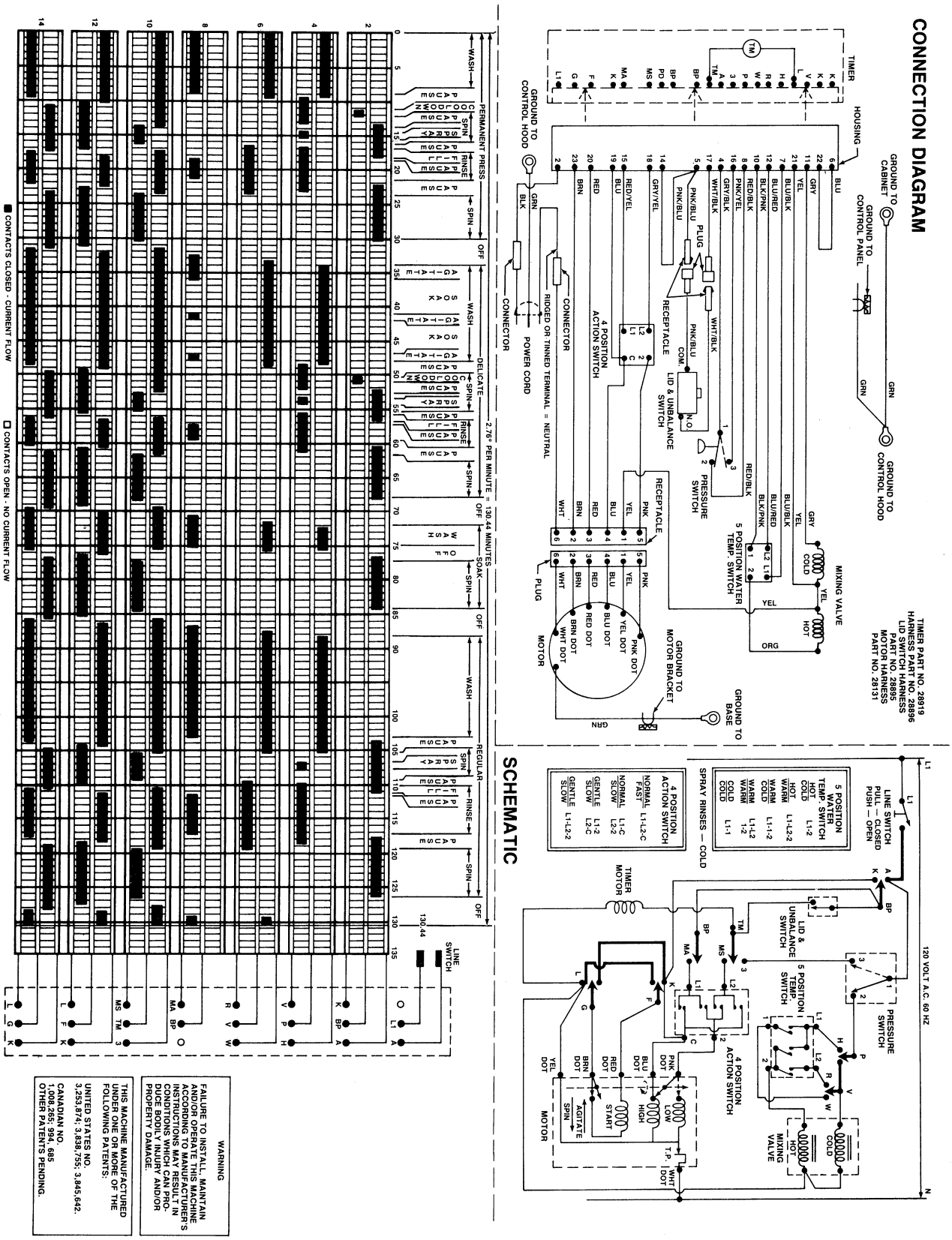
Models HA5000 and HA5001

(starting Serial No. B3533858)



Models HA7000, HA7001 and HA7221

(through Serial No. B3533857)

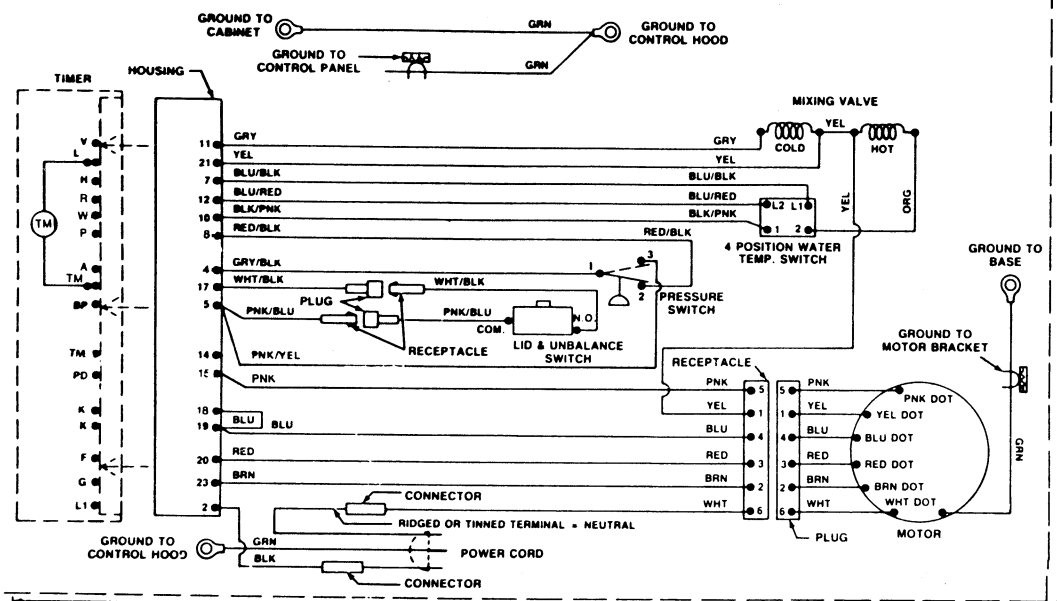


Models HA7000 and HA7001

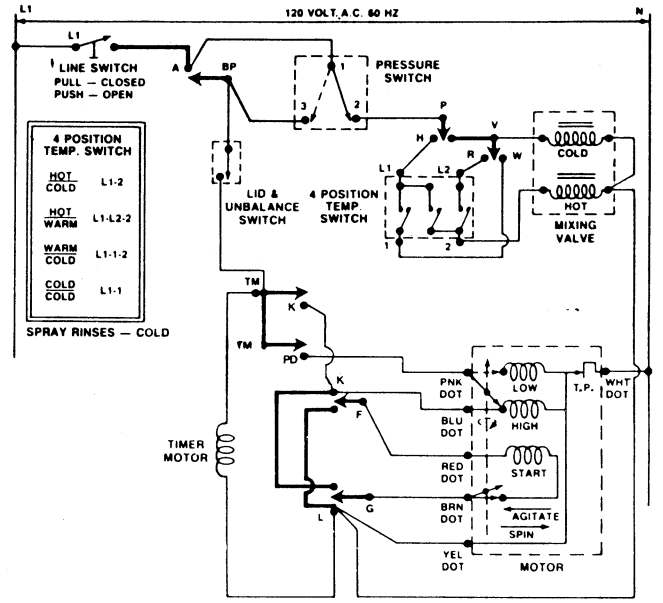
(starting Serial No. B3533858)

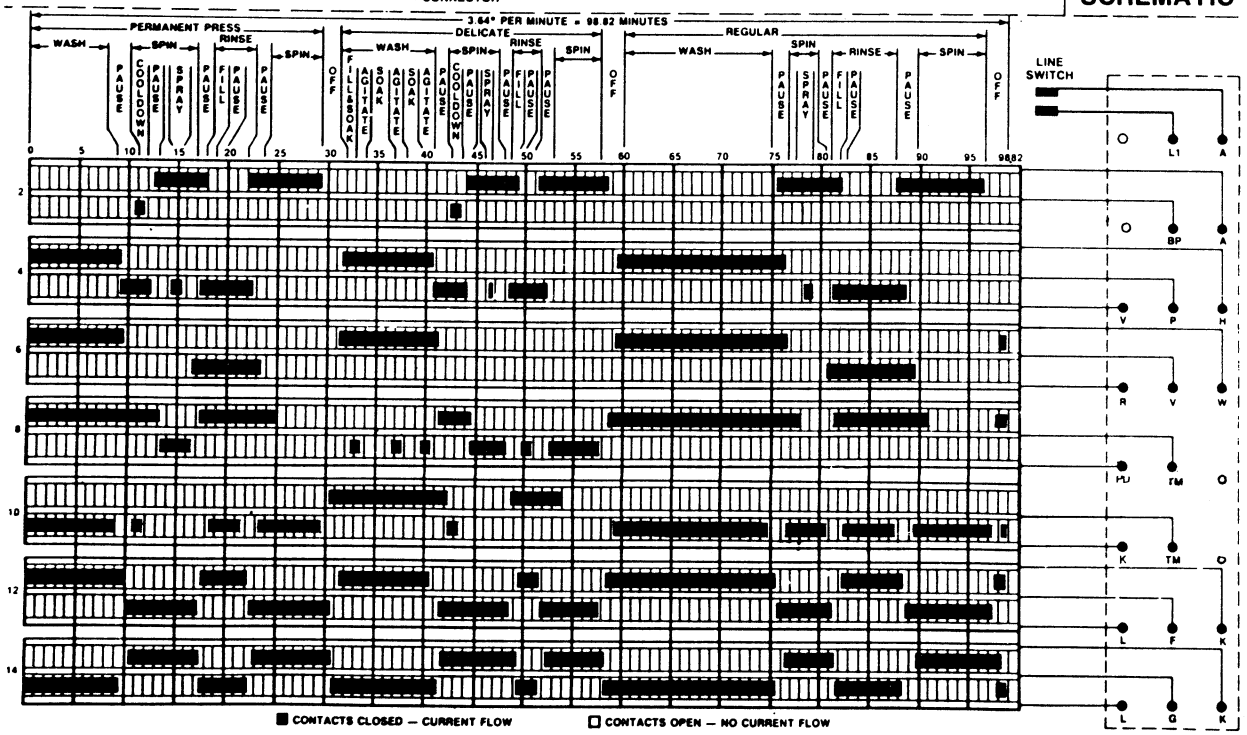
Models HA4590 and HA4591

CONNECTION DIAGRAM



SCHEMATIC





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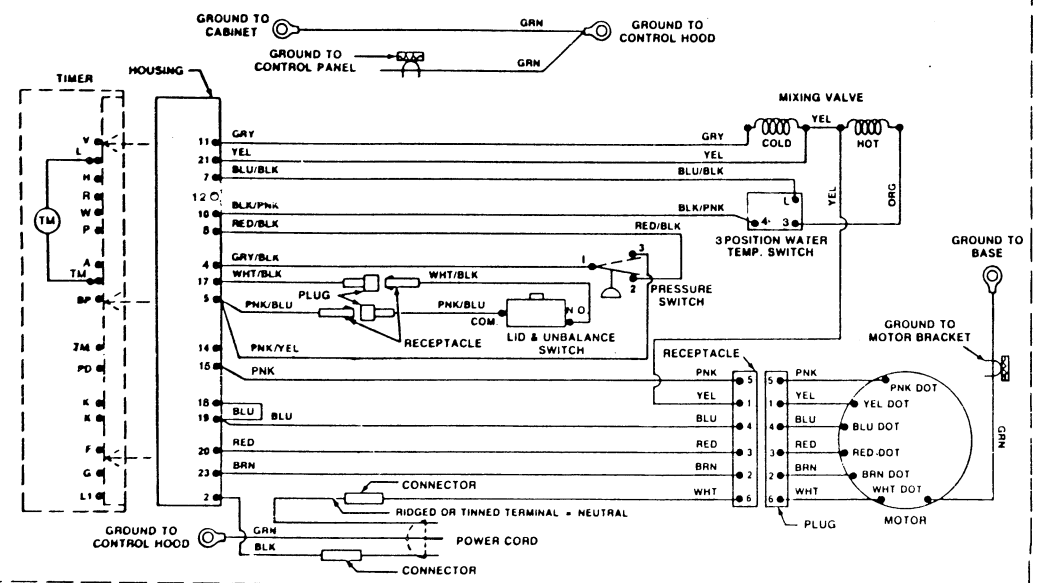
UNITED STATES NO
3,253,874, 3,838,755, 3 845 642

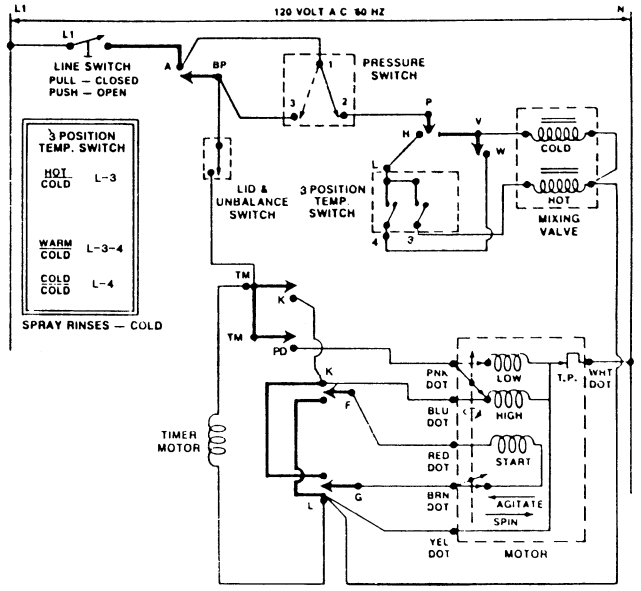
CANADIAN NO
1,008,265, 994, 685
OTHER PATENTS PENDING

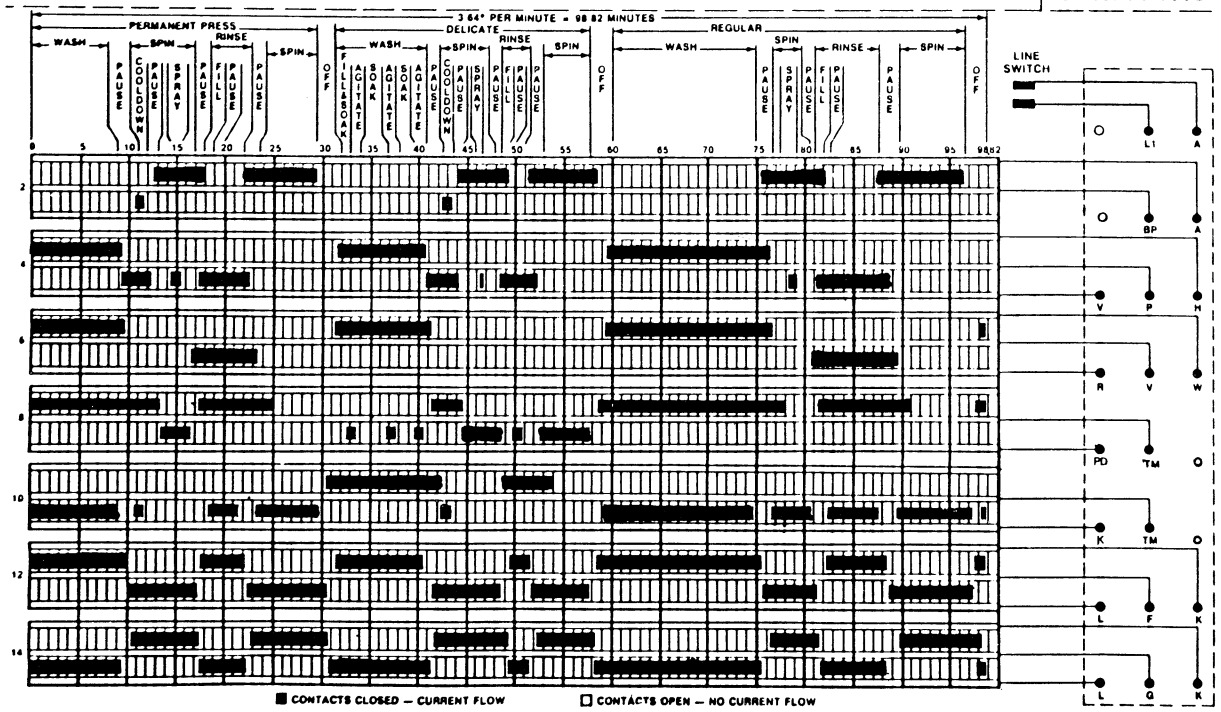
Models HA5590 and HA5591

CONNECTION DIAGRAM



SCHEMATIC





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CANADIAN NO
1,008,265; 994,685
OTHER PATENTS PENDING