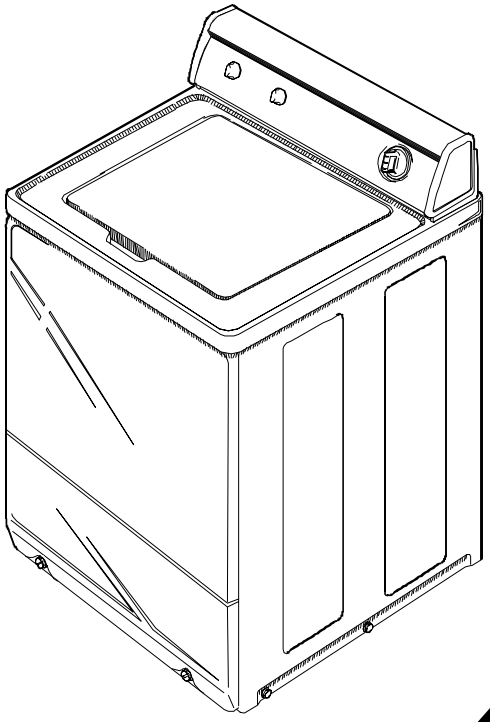
GE Consumer Home Services Training

TECHNICAL SERVICE GUIDE

Top Load Washer



WDSS4120

PUB # 31-9081 07/01

IMPORTANT SAFETY NOTICE

The information in this service guide is intended for use by individuals possessing adequate backgrounds of electrical, electronic, and mechanical experience. Any attempt to repair a major appliance may result in personal injury and property damage. The manufacturer or seller cannot be responsible for the interpretation of this information, nor can it assume any liability in connection with its use.

WARNING

If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or death. If you smell gas:

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in the building.
- Immediately call the gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach the gas supplier, call the fire department.

WARNING

To avoid personal injury, disconnect power before servicing this product. If electrical power is required for diagnosis or test purposes, disconnect the power immediately after performing the necessary checks.

RECONNECT ALL GROUNDING DEVICES

If grounding wires, screws, straps, clips, nuts, or washers used to complete a path to ground are removed for service, they must be returned to their original position and properly fastened.

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Important Safety Information

⚠ WARNING

To reduce the risk of fire, electric shock, serious injury or death to persons when using your washer, follow these basic precautions:

- Read all instructions before using the washer.
- Refer to the Grounding Instructions in the Installation Manual for the proper grounding of the washer.
- Do not wash articles that have been previously cleaned in, washed in, soaked in, or spotted with gasoline, dry-cleaning solvents, or other flammable or explosive substances as they give off vapors that could ignite or explode.
- Do not add gasoline, dry-cleaning solvents, or other flammable or explosive substances to the wash water. These substances give off vapors that could ignite or explode.
- Under certain conditions, hydrogen gas may be produced in a hot water system that has not been used for two weeks or more. Hydrogen gas is explosive. If the hot water system has not been used for such a period, before using a washing machine or combination washer-dryer, turn on all hot water faucets and let the water flow from each for several minutes. This will release any accumulated hydrogen gas. The gas is flammable, do not smoke or use an open flame during this time.
- Do not allow children to play on or in the washer. Close supervision of children is necessary when the washer is used near children. This is a safety rule for all appliances.
- Before the washer is removed from service or discarded, remove the door to the washing compartment.
- Do not reach into the washer if the wash tub is moving.
- Do not install or store the washer where it will be exposed to water and/or weather.
- Do not tamper with the controls.
- Do not repair or replace any part of the washer, or attempt any servicing unless specifically recommended in the User-Maintenance instructions or in published user-repair instructions that you understand and have the skills to carry out.
- To reduce the risk of an electric shock or fire, do not use an extension cord or an adapter to connect the washer to the electrical power source.
- Use your washer only for its intended purpose, washing clothes.
- Always disconnect the washer from electrical supply before attempting any service. Disconnect the power cord by grasping the plug, not the cord.
- Install the washer according to the Installation Instructions. All connections for water, drain, electrical power and grounding must comply with local codes and be made by licensed personnel when required. Do not do it yourself unless you know how!
- To reduce the risk of fire, clothes which have traces of any flammable substances such as vegetable oil, cooking oil, machine oil, flammable chemicals, thinner, etc. or anything containing wax or chemicals such as in mops and cleaning cloths, must not be put into the washer. These flammable substances may cause the fabric to catch on fire by itself.
- Do not use fabric softeners or products to eliminate static unless recommended by the manufacturer of the fabric softener or product.
- Keep your washer in good condition. Bumping or dropping the washer can damage safety features. If this occurs, have your washer checked by a qualified service person.
- Replace worn power cords and/or loose plugs.
- Be sure water connections have a shut-off valve and that fill hose connections are tight. Close the shut-off valves at the end of each wash day.
- Loading door must be closed any time the washer is in operational fill, tumble, or spin. Do not attempt to bypass the loading door switch by permitting the washer to operate with the loading door open.
- Always read and follow manufacturer's instructions on packages of laundry and cleaning aids. Heed all warnings or precautions. To reduce the risk of poisoning or chemical burns, keep them out of the reach of children at all times (preferably in a locked cabinet).
- Always follow the fabric care instructions supplied by the garment manufacturer.
- Never operate the washer with any guards and/or panels removed.

Important Safety Information

- Do not operate the washer with missing or broken parts.
- Do not bypass any safety devices.
- Failure to install, maintain, and/or operate this washer according to the manufacturer's instructions may result in conditions which can produce bodily injury and/or property damage.

NOTE: The Warning and Important Safety Instructions appearing in this manual are not meant to cover all possible conditions and situations that may occur. Common sense, caution and care must be exercised when installing, maintaining, or operating the washer.

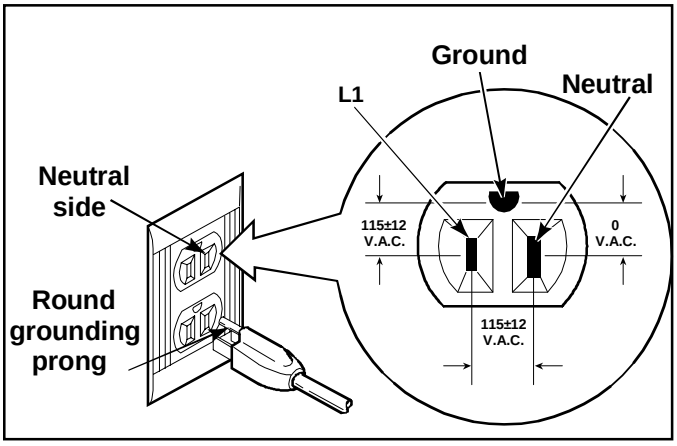
Always contact your dealer, distributor, service agent or the manufacturer about any problems or conditions you do not understand.

Proper Grounding and Polarization of 120 Volts Wall Outlets

For the safety of our customers and the service technician ALL appliances have a three–prong power cord and MUST be connected to a properly polarized AND grounded wall outlet.

This information was written for those who do not understand grounding and polarization of a wall outlet.

A 120 volt wall outlet must always be wired as shown below.



Explanation

Polarization–This means that the larger slot must be neutral and the small slot must be hot (live).

Mispolarized–The outlet is miswired so that the larger slot is hot (live) and the smaller slot is neutral.

Grounded–This means the round hole connection is connected to earth ground through a connection to the main power panel.

Ungrounded–The round hole connection is not complete to earth ground and/or the main power panel.

Grounding Instructions

⚠ WARNING

- To avoid the risk of electrical shock or death, do not alter the plug.
- Do not remove grounding prong when installing grounded appliance in a home that does not have three wire grounding receptacle. Under no condition is grounding prong to be cut off or removed. It is the personal responsibility of the consumer to contact a qualified electrician and have properly grounded three prong wall receptacle installed in accordance with appropriate electrical codes
- To avoid the risk of electrical shock or death, this equipment must be grounded.

This equipment **MUST** be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. This unit is equipped with a cord having a grounding wire with a grounding plug. The plug must be plugged into an outlet that is properly installed and grounded.

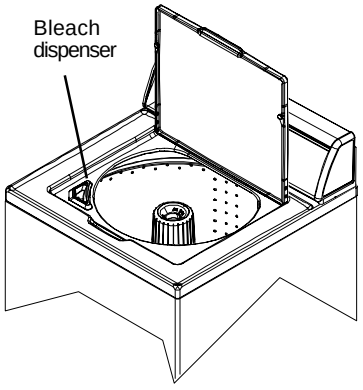
Consult a qualified electrician or servicer if grounding instructions are not completely understood, or if doubt exists as to whether the equipment is properly grounded.

Do not use an extension cord. If the product power cord is too short, have a qualified electrician install a three-slot receptacle. This unit should be plugged into a separate 60 hertz circuit with the electrical rating as shown in the appropriate drawing. Models operate with a 120 supply voltage.

Dispensers

Bleach Dispenser

Bleach dispenser is located in left front corner under loading door.



Use only liquid bleach in dispenser. To use powdered bleach, add to wash tub with detergent.

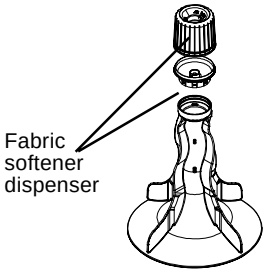
Carefully and slowly, pour recommended amount of bleach into dispenser during first washer fill. See table.

Be careful not to spill undiluted bleach. It is a strong chemical and can damage cabinet finishes and some fabrics if not properly diluted. Follow bleach manufacturer's label for proper use.

LOAD SIZE	BLEACH (Max Amt.)
SUPER PLUS	1 cup
LARGE	1 cup
MEDIUM	3/4 cup
SMALL	1/2 cup

Fabric Softener Dispenser

Fabric softener dispenser is located on top of agitator. Dispenser automatically releases liquid fabric softener at proper time during rinse cycle.



Fabric Softener Use Tips

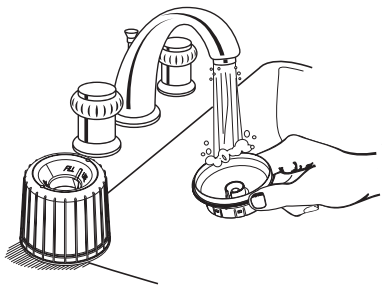
- Liquid fabric softeners are dispensed during final rinse. Do not combine with bleach, bluing, starch, detergents, soaps, or packaged water conditioners during rinse.
- Do not use fabric softener in dispenser during DOUBLE WASH cycle.
- Do not mix powdered detergent with liquid softener in dispenser or softener will become gummy.

To use dispenser, follow these steps:

1. Pour liquid fabric softener into dispenser, using amount recommended on package.

2. Add water up to fill level, but do not exceed tip of fill arrow indicator. **FABRIC SOFTENER MUST BE DILUTED FOR USE.**
   - Do not stop washer during first spin or dispenser will empty too soon.
   - Never pour fabric softener directly onto clothes or spots and stains may result. To remove softener stains, soak in soapy solution or rub stain with soap and wash garment as usual.
   - For best softener performance, set water level to medium or higher.

3. **Clean softener dispenser after each use.** Remove dispenser housing from agitator by squeezing lower part of dispenser and pulling up on housing while tilting slightly to expose dispenser cup. Rinse dispenser housing and cup in hot soapy water.



Clean funnel shape in top of agitator and inside of agitator. Use small brush on hole and slots in two funnel rings for thorough cleaning.

After cleaning, re-install dispenser cup. Push dispenser housing directly down onto top of agitator until firmly snapped together. To prevent build-up, fill dispenser with clean water in wash cycles when not using softener.

Moving and Storage

Cold Storage and Non-Use Periods

⚠ WARNING

Explosive hydrogen gas may be produced in a hot water system that has not been used for two weeks or more. Before using washer, if hot water system has not been used for such a period, turn on all hot water faucets and let water flow for several minutes to release accumulated hydrogen gas. Hydrogen gas is flammable: Do not smoke or use an open flame when flushing water lines.

Cold Weather Care

If washer is delivered when outside temperature is below freezing or if washer is stored in unheated room or area during cold months, **do not operate until washer has warmed to room temperature. Do not install or operate washer where temperatures will drop below freezing.**

Cold Weather Storage

If washer must be stored in seasonal home or storage building, use one of the following storage methods.

METHOD 1

1. Turn off water supply faucets and disconnect hoses. Drain water from both hoses.
2. Add one gallon of non-toxic RV antifreeze (available from hardware or recreational vehicle dealers) to washer tub.
3. Push in cycle selector knob and turn to SPIN.
4. Pull knob out and let washer spin for 1–2 minutes to drain water. Some antifreeze will also be lost. (If you have a septic system, contact antifreeze manufacturer and make sure it will not harm system.)
5. Push in cycle selector knob to stop washer. Dry inner wash tub, disconnect electrical plug, and close washer lid. If moving washer, disconnect drain hose. Move and store washer ONLY in upright position. To remove antifreeze after storage, run washer through a complete cycle using ½ cup of detergent. DO NOT ADD CLOTHES TO CYCLE.

METHOD 2

1. Push in cycle selector knob and turn to SPIN. Run through complete spin cycle to remove excess water.
2. When spin cycle is complete, push in cycle selector knob to stop washer.
3. Turn off water supply faucets and disconnect hoses. Drain water from both hoses.
4. Dry inner wash tub, disconnect electrical plug, and close washer lid. If moving washer, disconnect drain hose. Move and store washer ONLY in upright position.
5. It is normal for some water to remain inside pump. To prevent damage to washer and pump if remaining water freezes, allow washer to warm to 24 to 48 hours after removing from storage, so water can thaw before use.

Vacations and Extended Non-Use

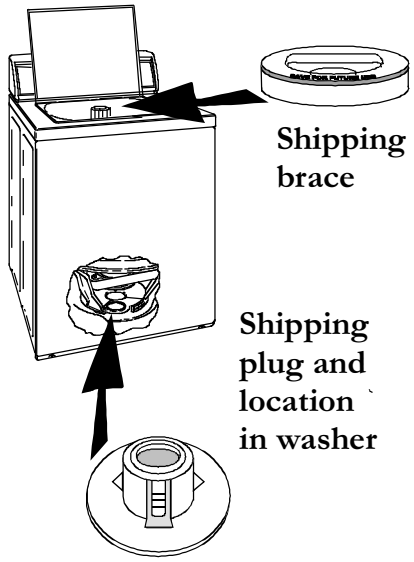
IMPORTANT: To avoid possible property damage from flooding, turn off water supply to washer during extended periods of non-use.

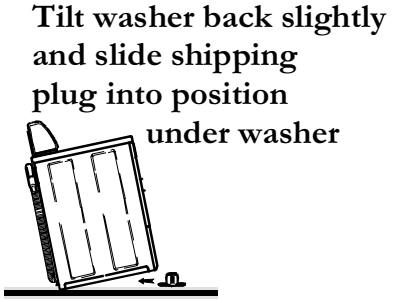
To prevent mold or mildew, leave lid open so moisture inside machine can evaporate.

When closing your home for extended periods, have service technician drain washer to avoid stagnant water. Unplug cord from electrical outlet. Disconnect hoses from faucets.

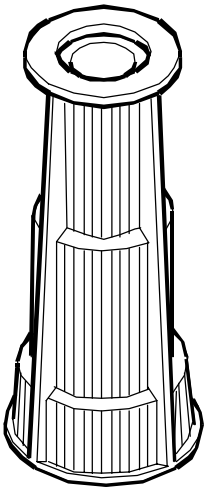
Moving Washer to New Location

Replace shipping plug under motor and shipping brace in tub. Refer to *Installation Instructions* for proper procedures whenever washer is moved. See illustration.

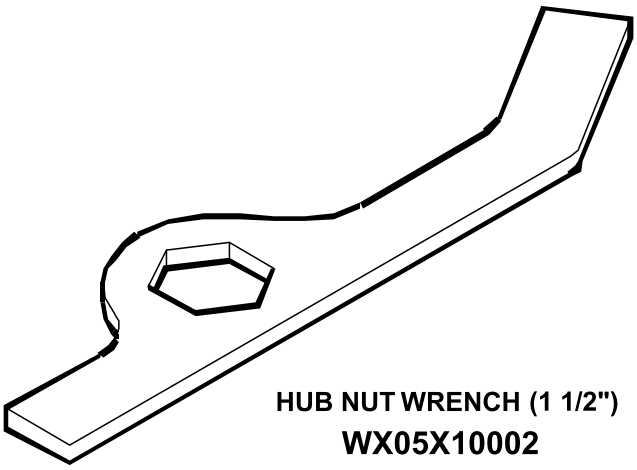




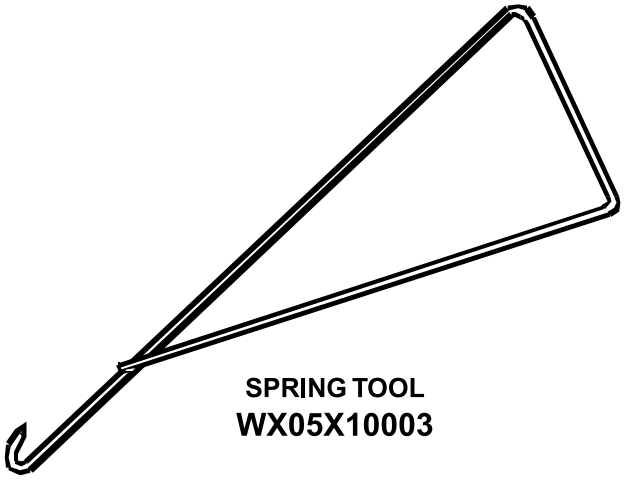
Speciality Tools



SEAL TOOL
WX05X10001



HUB NUT WRENCH (1 1/2")
WX05X10002



SPRING TOOL
WX05X10003

ANTI-SEIZE COMPOUND	**WH60X10005**
SILICONE LUBRICANT	**WH60X10006**

General Information

The washer uses a reversing type motor, a special drive belt and an idler assembly. The idler assembly applies tension to the outside of the drive belt. However, the loading door must be closed for the washer to agitate or spin.

During agitation, the motor runs in a counterclockwise direction. The spring tension on the idler pulley applies tension required to reduce the slack on the drive belt and maintain maximum belt to motor pulley contact. This eliminates belt slippage and ensures an efficient wash action, even with extra large loads.

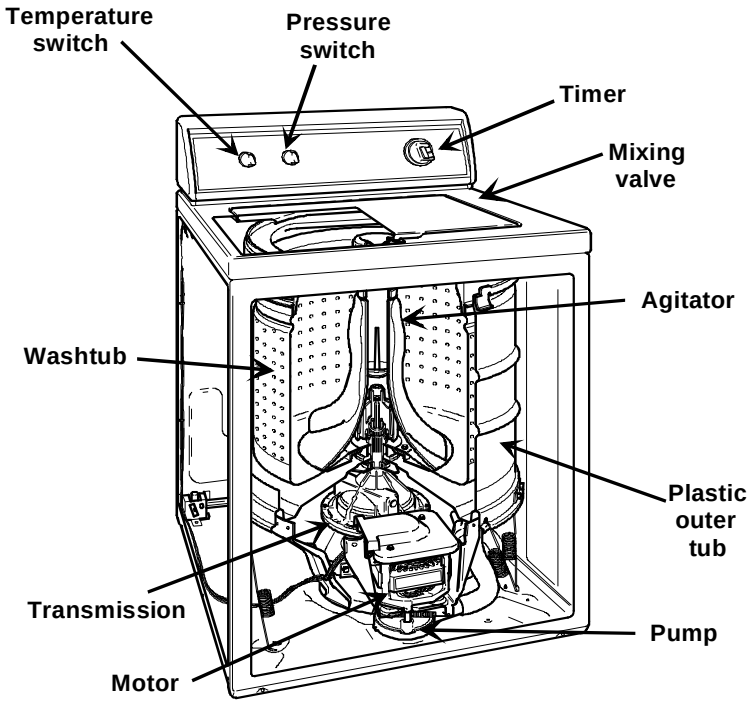
The belt drives the transmission drive pulley in a counterclockwise direction. The pulley drives the helix which is attached to the input shaft of the transmission. This causes the input shaft to turn inside of a roller clutch which is pressed into the transmission cover.
This roller clutch acts as a bearing in a counterclockwise direction allowing the transmission gears to operate. The transmission's rack and pinion gear design produces a 210° agitation stroke at the output shaft of the transmission which drives the agitator. The brake assembly remains locked during the agitation mode since no pressure is applied to it by the transmission drive pulley. **NOTE: During the gentle cycle, it is normal for the washer to stop agitating and pause periodically.**

After the wash agitation is completed, the timer advances into the first spin. During spin, the motor reverses turning in a clockwise direction to spin the water out of the washtub. The combination of water, washtub and load weight cause the drive belt tension on the idler side of the belt to overtake the idler spring pressure allowing the belt to slack on the opposite side. This reduces the belt to pulley contact and allows slipping between the belt and pulley.

As water is removed by the direct drive pump and the momentum of the washtub increases, the idler spring tension gradually overcomes the belt tension removing the belt slack. This eventually increases the belt to pulley contact until maximum spin speed is achieved.

The drive pulley turns clockwise riding up the ramps of the helix, exerting pressure on the brake and forcing it to release from brake pads. The helix drives the input shaft of the transmission, and when the input shaft turns in a clockwise direction the roller clutch locks onto the shaft causing the entire transmission assembly to turn. None of the gears in the transmission are operating at this time. The hub of the washtub is attached to the transmission tube and rotates with the transmission assembly. The centrifugal force created by the spinning washtub causes water to be extracted from the clothes.

Water is introduced during the first spin to "SPRAY" the garments and remove suds from them. The initial spin is followed by rinse agitation to rinse away any detergent residue. The washer fills and then agitates like the wash portion of the cycle. Following rinse agitation, a final spin extracts the rinse water from the clothes preparing them for the dryer.



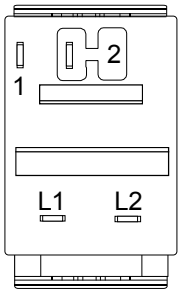
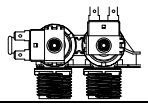
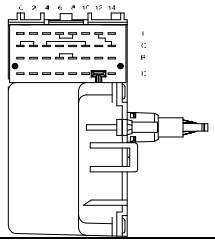
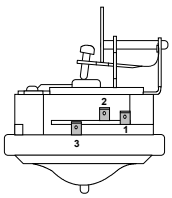
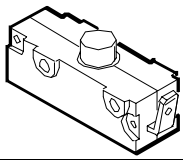
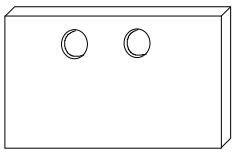
Washer—Technical Information
WDSS4120

Model	WDSS4120
Power Source	
Voltage AC	120 VAC 60 Hz
Amperage (Single Unit)	10 A
Motor horsepower	1/2
Dimensions	
Cabinet	
Height–overall	43”
Height of cabinet	36”
Width	27”
Depth	28”
Clearance–washer lid	17 1/2”
Weight	
Crated	193 lbs.
Wash cycles	12
Water temperatures	4
Warm water mix	60% cold
	40% hot
Water level	Variable
Lowest 6.75 +/- 1”	
Highest 14.25 +/- .75”	
Water usage	
Small setting – per fill	12 gallons
Medium	17 gallons
Large	20 gallons
Ex-large	24 gallons
Total water usage - small	21-25 gallons
Ex-large	47-50 gallons
Features	
Self-cleaning lint filter	
210° Agitation stroke	
Fabric softener dispenser	
Extra rinse	
Motor speed	2 speed
Spin speed (revolutions per minute)	640/427 RPM
Agitation speed (strokes per minute)	
Normal	69 SPM
Delicate	46 SPM
NOTE: Normal basket index is approximately ¼”	

Component Testing Information

⚠ WARNING

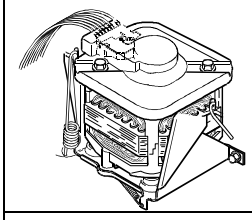
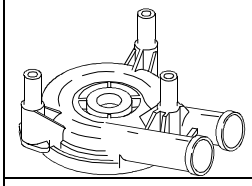
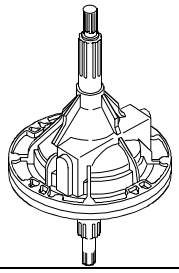
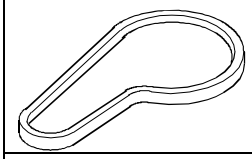
To avoid risk of electrical shock, personal injury, or death, disconnect power to washer before servicing, unless testing requires it.

Illustration	Component	Test Procedure	Results
	Temperature switch	Disconnect wires from component to properly measure the resistance of the component. Place switch in the following positions and measure across the terminals below: Hot / Cold L1-2 Warm / Warm L1-1, L1-2, L2-2 L2-1, L2-L1, 1-2 Warm / Cold L1-1, L1-2, 1-2 Cold / Cold L1-1	 >1 Ω >1 Ω >1 Ω >1 Ω
	Mixing valve	Measure resistance of terminals on each valve. Resistance across each valve.	Approximately 1000 Ω ± 10%
	Timer	Verify input and output voltage is present. Verify wiring is correctly connected to the timer.	See timing sequence chart for functional description of the component.
	Pressure switch	Do not disconnect the pressure hose from pressure switch to perform measurements. Measure resistance across the following terminals on the pressure switch: Terminal 1 to 2 Terminal 1 to 3	**Refer to wiring diagram/schematic for correct contacts.** **Air pressure that actuates switch is determined by the water level of the tub.** Continuity (no pressure) Continuity (pressure)
	Lid switch–SPST	Disconnect wire terminals from switch. Test terminals with switch closed. Test terminals with switch open.	 Continuity >1 Ω Infinite 1 MΩ
	Brake pad kit	If washtub does not stop spinning within seven seconds after opening loading door. If brake pads make noises.	Replace all three brake pads. Apply a thin layer of silicone lubricant on pads.

Component Testing Information

⚠ WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to washer before servicing, unless testing requires it.

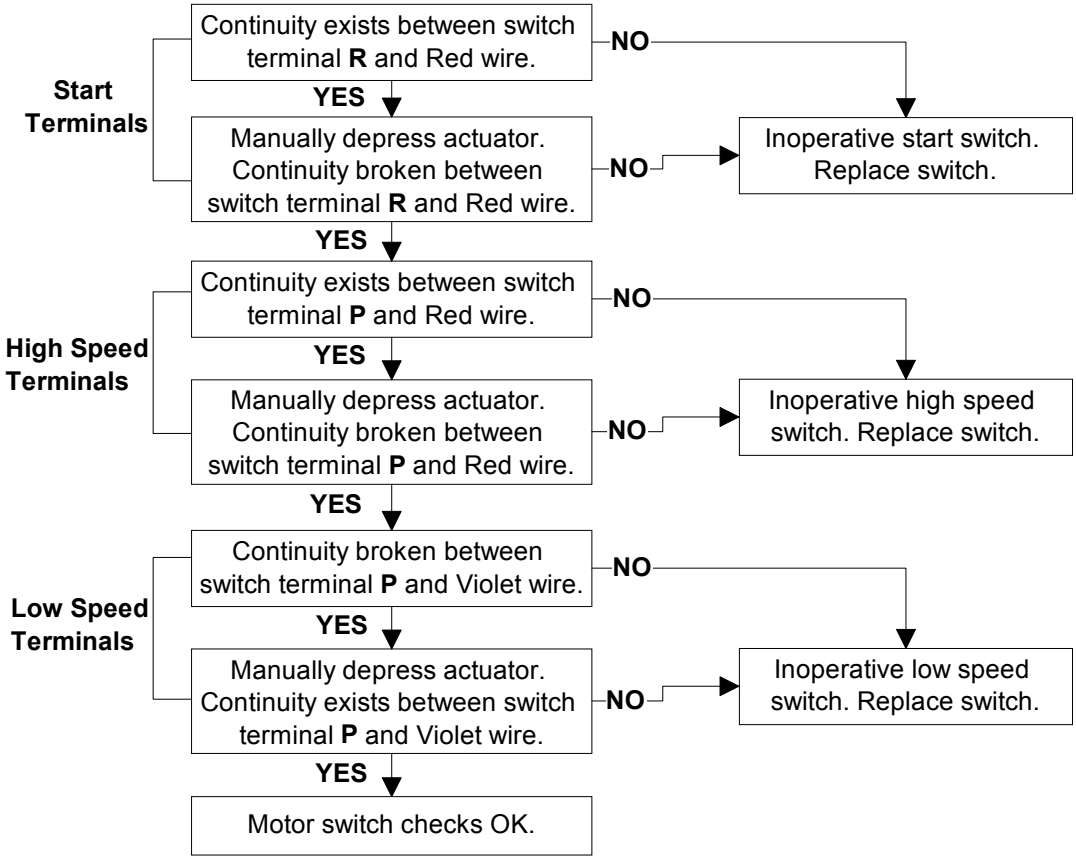
Illustration	Component	Test Procedure	Results
	Motor	Type of motor: Two speed	**See following section "Internal Motor Diagram and Schematic" for correct wiring contacts.**
	Drain pump	Verify drain pump is not clogged or damaged.	Remove clog and verify proper operation. Replace drain pump if damaged.
	Transmission assembly	Type of transmission: 640 rpm	If transmission locks-up, replace.
	Drive belt	Type of drive belt: 640 rpm Refer to "Parts Manual" for proper pulley size.	Refer to "Parts Manual", to verify which drive belt and pulley size is required.
	Power Cord	Measure resistance of wires.	Continuity should be indicated on each wire. Verify polarity and grounding.

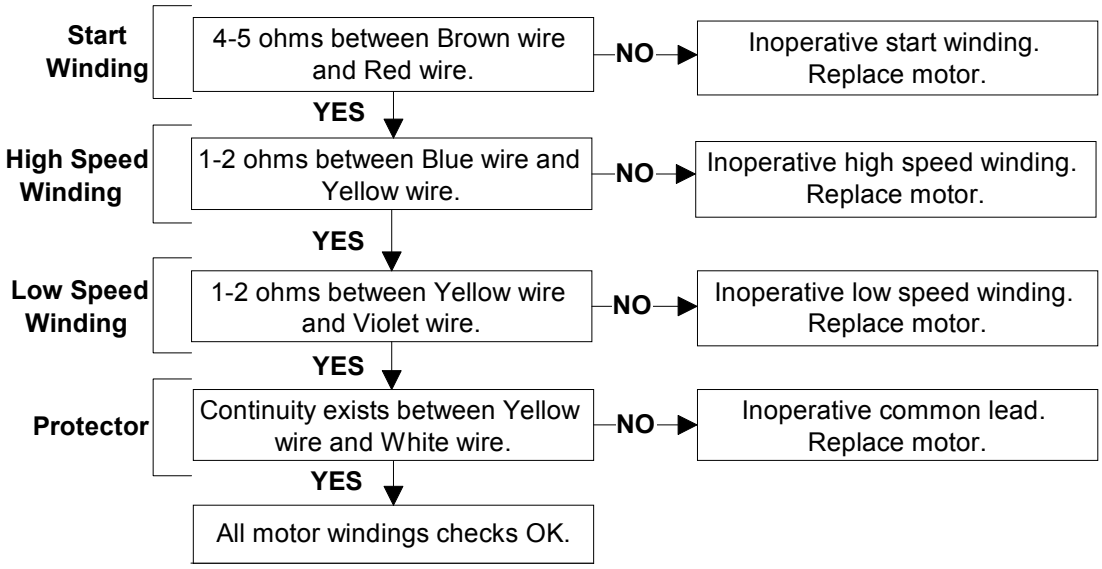
Internal Motor Diagram and Schematic

⚠ WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to washer before servicing, unless testing requires it.

One or Two Speed Motors

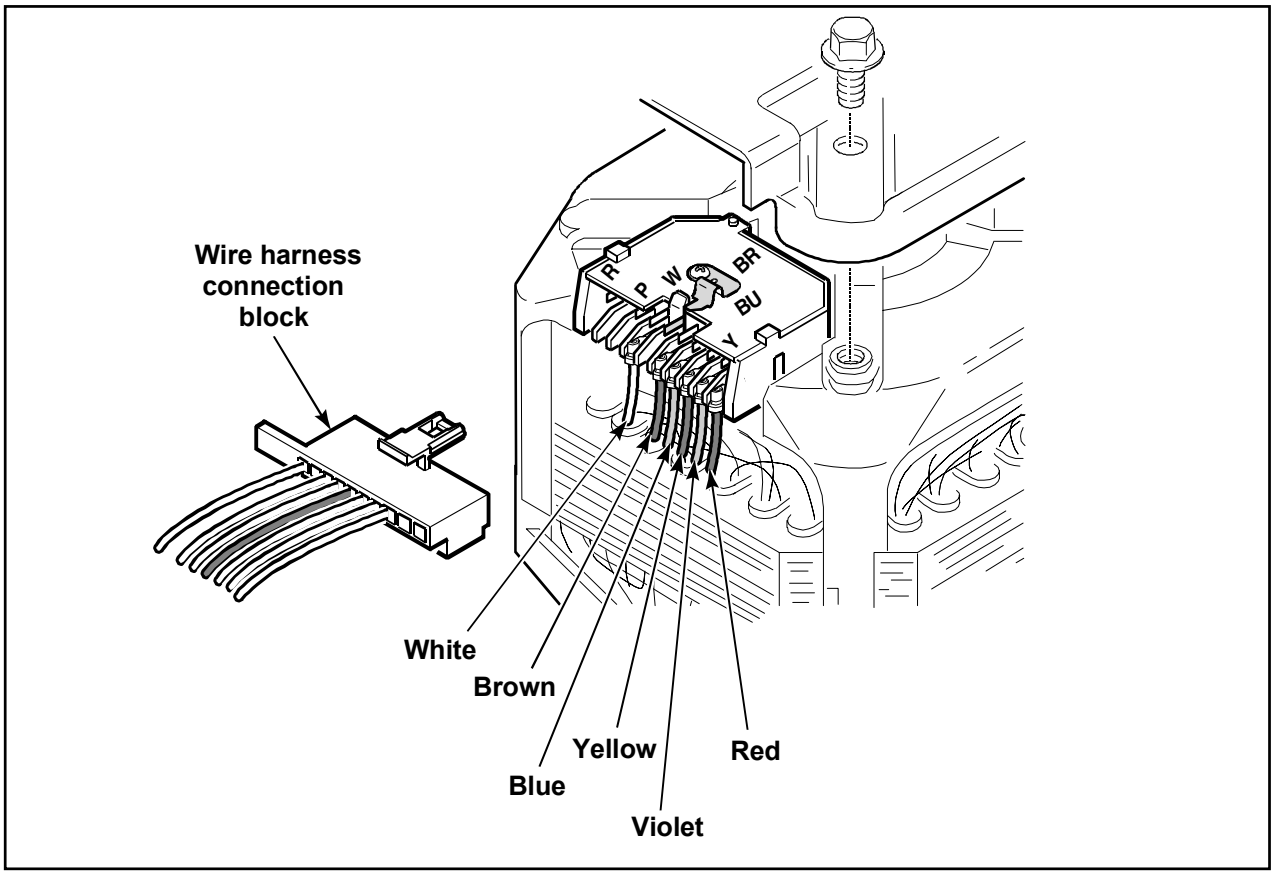


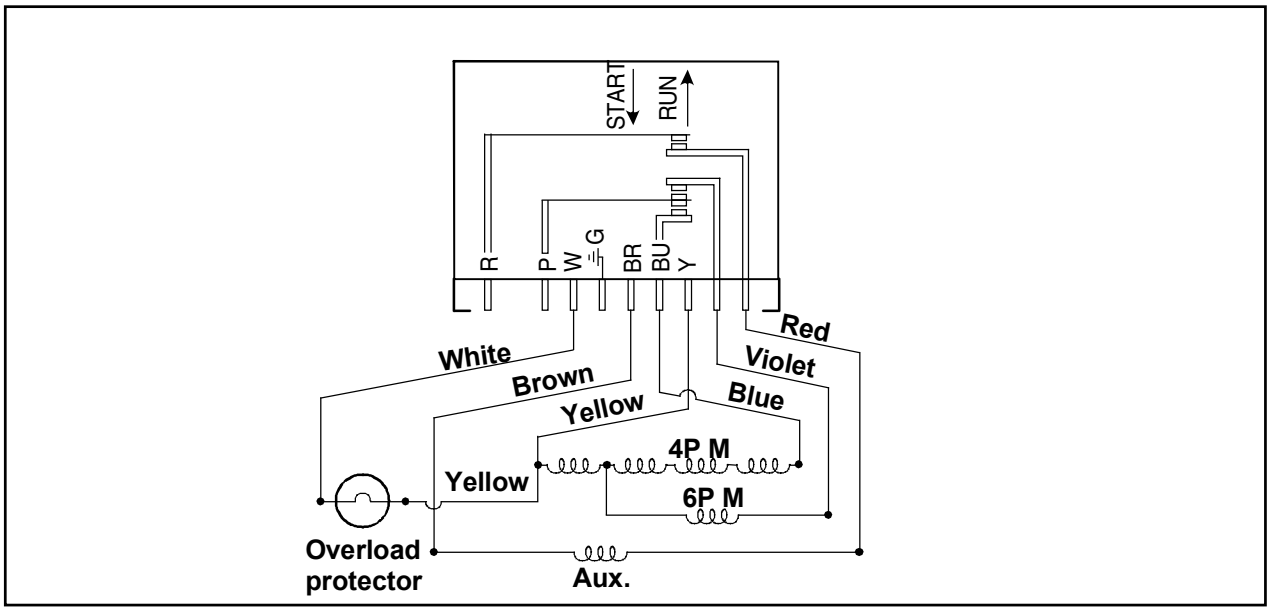


Internal Motor Diagram and Schematic

⚠ WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to washer before servicing, unless testing requires it.



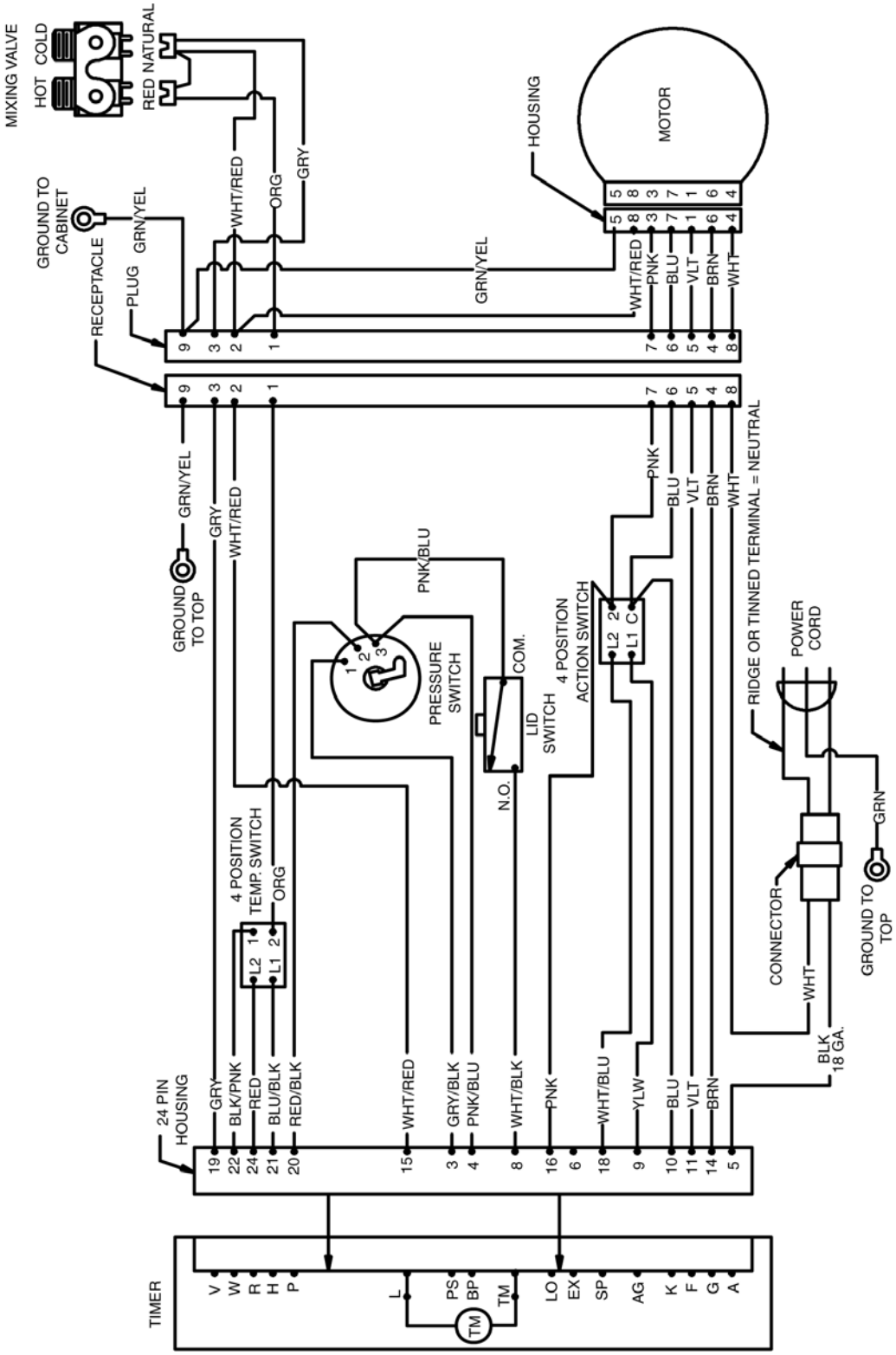


Motor Assembly
(two speed motor)

Wiring Diagram

WARNING

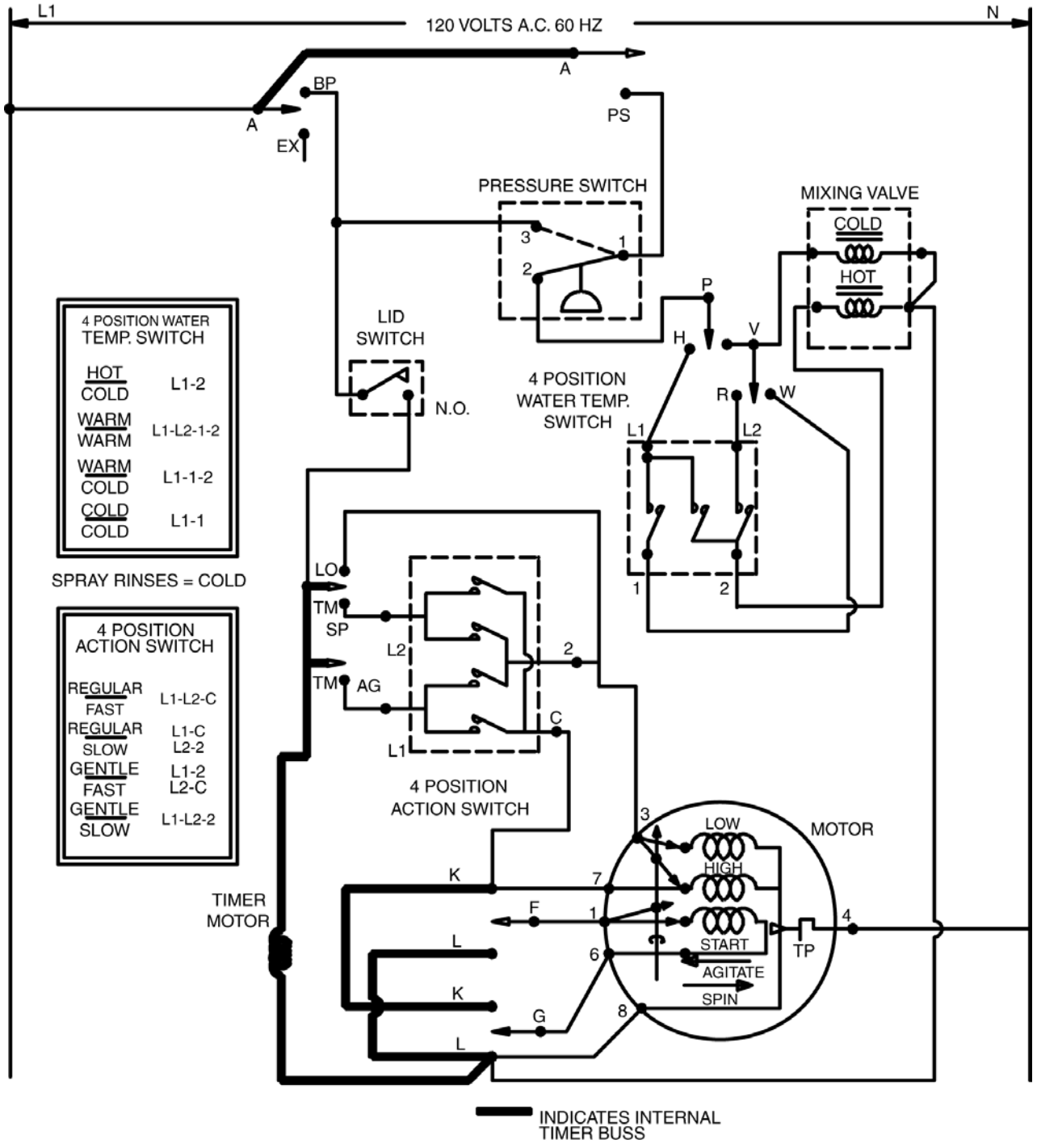
To avoid risk of electrical shock, personal injury, or death, disconnect power to washer before servicing, unless testing requires it.



Schematic

WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to washer before servicing, unless testing requires it.



Timer Cycle Chart

WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to washer before servicing, unless testing requires it.

CYCLE / FUNCTION	WATER TEMPERATURE SELECT	MOTOR SPEED	CYCLE TIME hh:mm:ss
SOAK			
Fill & Agitate	hot, warm, & cold	S	0:02:22
Soak	hot, warm, & cold	-	0:12:04
Spin	-	S	0:02:51
			0:17:17
OFF	-	-	0:03:43
PREWASH			
Fill & Agitate	hot, warm, & cold	F	0:05:04
Pause	-	-	0:00:29
Spin	-	S	0:02:31
Pause	-	-	0:00:29
			0:08:33
REGULAR			
Wash: Fill & Agitate	hot, warm, & cold	F	0:14:04
Pause	-	-	0:00:29
Spin	-	F	0:02:38
Spin & Spray	cold	F	0:00:27
Spin	-	F	0:02:26
Pause	-	-	0:00:29
Rinse: Fill & Agitate	warm, & cold	F	0:02:31
Pause	-	-	0:00:29
Spin	-	F	0:05:31
			0:29:04
Pause for Extra Rinse	-	-	0:00:32
Rinse: Fill & Agitate	warm, & cold	F	0:02:28
Pause	-	-	0:00:29
Spin	-	F	0:05:44
			0:09:13
OFF	-	-	0:03:43
PERMANENT PRESS/KNITS			
Wash: Fill & Agitate	hot, warm, & cold	F	0:08:04
Pause	-	-	0:00:29
Spin	-	S	0:02:38
Spin & Spray	cold	S	0:00:27
Spin	-	S	0:02:26
Pause	-	-	0:00:29
Rinse: Fill & Agitate	warm, & cold	F	0:02:31
Pause	-	-	0:00:29
Spin	-	F	0:05:31
			0:23:04
Pause for Extra Rinse	-	-	0:00:32
Rinse: Fill & Agitate	warm, & cold	F	0:02:28
Pause	-	-	0:00:29
Spin	-	F	0:05:44
			0:09:13
OFF	-		0:03:43

CYCLE / FUNCTION	WATER TEMPERATURE SELECT	MOTOR SPEED	CYCLE TIME hh:mm:ss
DELICATE			
Wash: Fill & Soak	hot, warm, & cold	-	0:02:11
Agitate	hot, warm, & cold	S	0:00:27
Soak	hot, warm, & cold	-	0:02:33
Agitate	hot, warm, & cold	S	0:00:27
Soak	hot, warm, & cold	-	0:02:33
Agitate	hot, warm, & cold	S	0:00:27
Soak	hot, warm, & cold	-	0:02:55
Spin	-	S	0:02:38
Spin & Spray	cold	S	0:00:27
Spin	-	S	0:02:26
Pause	-	-	0:00:29
Rinse: Fill & Agitate	cold	S	0:02:31
Pause	-	-	0:00:29
Spin	-	S	0:02:31
			0:23:04
Pause for Extra Rinse	-	-	0:00:32
Rinse: Fill & Agitate	cold	S	0:02:28
Pause	-	-	0:00:29
Spin	-	S	0:02:44
			0:06:13
OFF	-	-	0:03:43
Quick Wash			
Wash: Fill & Agitate	hot, warm, & cold	F	0:05:04
Pause	-	-	0:00:29
Spin	-	F	0:02:38
Spin & Spray	cold	F	0:00:27
Spin	-	F	0:02:26
Pause	-	-	0:00:29
Rinse: Fill & Agitate	warm, & cold	F	0:02:31
Pause	-	-	0:00:29
Spin	-	F	0:02:44
			0:17:17
OFF	-	-	0:03:43

Troubleshooting Procedures

⚠ WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to washer before servicing, unless testing requires it.

1. No hot water.	
Possible Cause	**Result**
Hot water supply faucet is closed.	Open faucet.
Water supply is cold.	Check water heater Verify hot water hose is connected to hot side of inlet valve.
Kinked hot water inlet hose.	Straighten or replace hose.
Clogged mixing valve screens, or screens in inlet hose closes to supply faucet.	Disconnect inlet hose and clean or replace screen.
Clogged pressure hose.	Remove and clean or replace hose
Failed pressure switch.	Test switch and replace if failed.
Failed temperature switch.	Test switch and replace if failed.
Failed hot water side of mixing valve solenoid.	Test solenoid and replace if failed.
Failed timer.	Test timer and replace if failed.
Failed electronic control.	Test electronic control and replace if failed.
Broken, loose, shorted or incorrect wiring.	Refer to appropriate wiring diagram.

2. No cold water.	
Possible Cause	**Result**
Cold water supply faucet is closed.	Open faucet.
Kinked hot water inlet hose.	Straighten or replace hose.
Clogged mixing valve screens, or screens in inlet hose closes to supply faucet.	Disconnect inlet hose and clean or replace screen.
Clogged pressure hose.	Remove and clean or replace hose
Failed pressure switch.	Test switch and replace if failed.
Failed temperature switch.	Test switch and replace if failed.
Failed cold water side of mixing valve solenoid.	Test solenoid and replace if failed.
Failed timer.	Test timer and replace if failed.
Failed electronic control.	Test electronic control and replace if failed.
Broken, loose, shorted or incorrect wiring.	Refer to appropriate wiring diagram.

3. No warm water.	
Possible Cause	**Result**
No hot water.	See "**No Hot Water**" chart.
No cold water.	See "**No Cold Water**" chart.
Failed mixing valve.	Test mixing valve and replace if failed.

Troubleshooting Procedures

⚠ WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to washer before servicing, unless testing requires it.

4. Water fill does not stop at proper level.	
Possible Cause	**Result**
Failed pressure switch.	Test switch and replace if failed.
Air leak in pressure hose	Replace pressure hose.
Water in pressure hose.	Blow air through hose to remove water.
Broken, weak, or missing mixing valve armature spring.	Replace mixing valve.
Sediment on or under mixing valve diaphragm, failed diaphragm, or armature binding in armature guide.	Replace mixing valve.
A siphoning action started in washer will cause water to be siphoned from washer during cycle. Caused by drain hose being lower than washer cabinet top.	Provide an air gap between drain hose and drain standpipe. Make certain drain standpipe is at least 33” in height.
Failed electronic control.	Test electronic control and replace if failed.
Broken, loose, shorted or incorrect wiring.	Refer to appropriate wiring diagram.

5. Timer does not advance.	
Possible Cause	**Result**
Timer is designed to pause during fill periods. Some cycles have pause (delicate cycle).	Allow completion of fill period.
Loading door is open.	Close loading door. Loading door MUST be closed anytime the washer is set to agitate or spin.
Washer will not fill.	Timer pauses until pressure switch is satisfied.
Verify washer is not siphoning during rinse cycle.	Provide an air gap between drain hose and drain standpipe.
Failed timer.	Test timer and replace if failed.
Broken, loose, shorted, or incorrect wiring.	Refer to appropriate wiring diagram.

6. Motor does not operate.	
Possible Cause	**Result**
Power cord not plugged in, blown fuse or tripped circuit breaker at circuit panel.	Verify electrical power is present at outlet and unit is plugged in. There is no internal fuse in the washer.
Loading door not closed or failed switch.	Close door or test switch and replace if failed.
Motor overload protector has cycled.	Wait two to three minutes for overload protector to reset. If overload protector cycles repeatedly, see following chart.
Binding in upper or lower motor bearings.	Remove belt and determine if motor shaft will spin. Replace motor if shaft is locked up.
Motor is dead, electrical power is present.	Test motor switch and windings.
Motor start functions fail or motor only hums.	Test motor start switch and start windings.
Timer improperly set.	Reset timer or try another cycle.
Failed timer.	Test timer and replace if failed.
Failed electronic control.	Test electronic control and replace if failed.
Broken, loose, shorted or incorrect wiring.	Refer to appropriate wiring diagram.

Troubleshooting Procedures

⚠ WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to washer before servicing, unless testing requires it.

7. Washer smokes, overheats, and cycles on overload protector or switch actuator kicks in and out.	
Possible Cause	**Result**
Belt is tacky and does not allow proper slipping.	Check belt and replace if failed.
Belt tension is too tight and does not allow proper slipping.	Verify idler spring is properly connected. Verify proper belt and pulley are installed.
Motor start functions fail.	Test switch functions.
Bind in water pump.	Replace pump.
Brake pads are binding.	Free binding pads or replace pads.
Brake, transmission or motor have locked up and will not turn.	Verify all components move freely. Correct binding component.
Failed timer.	Test timer and replace if failed.
Incorrect voltage.	Contact local utility company, or have a qualified electrician check power supply voltage.

8. No agitation.	
Possible Cause	**Result**
Failed timer. Timer is designed to pause (SOAK) during DELICATE cycle.	Test timer and replace if failed.
Failed pressure switch.	Test switch and replace if failed.
Loose or broken drive belt.	Adjust or replace drive belt.
Failed transmission assembly.	Replace failed transmission assembly.
Sheared motor pulley roll pin.	Remove drive motor and replace roll pin and any other damaged components.
Motor overload protector has cycled.	Wait two to three minutes for overload protector to reset. If overload protector cycles repeatedly, see following chart.
Bind in water pump.	Replace pump.
Loading door not closed or failed switch.	Close door or test switch and replace if failed.
Failed timer.	Test timer and replace if failed.
Failed electronic control.	Test electronic control and replace if failed.
Broken, loose, shorted or incorrect wiring.	Refer to appropriate wiring diagram.

9. Constant agitation.	
Possible Cause	**Result**
Failed timer.	Test timer and replace if failed.
Failed electronic control.	Test electronic control and replace if failed.
Shorted or incorrect wiring.	Refer to appropriate wiring diagram.

Troubleshooting Procedures

⚠ WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to washer before servicing, unless testing requires it.

10. Slow spin or no spin.	
Possible Cause	**Result**
Some model washers, timer is programmed for SLOW spin in DELICATE cycle regardless of action switch setting.	Use a different cycle.
Loading door not closed or failed switch.	Close door or test switch and replace if failed.
Bind in water pump.	Replace pump.
Loose or broken drive belt.	Adjust or replace drive belt.
Oil on drive belt.	Replace drive belt
Sheared motor pulley roll pin.	Remove drive motor and replace roll pin and any other damaged components.
Motor overload protector has cycled.	Wait two to three minutes for overload protector to reset. If overload protector cycles repeatedly, see following chart.
No clearance or stuck brake pads.	Free sticky brake pads or replace brake pads.
Failed transmission assembly.	Replace failed transmission assembly.
Failed timer.	Test timer and replace if failed.
Failed electronic control.	Test electronic control and replace if failed.
Broken, loose, shorted or incorrect wiring.	Refer to appropriate wiring diagram.

11. Constant spin.	
Possible Cause	**Result**
Washtub does not stop spinning within seven seconds after loading door is open.	Replace brake pads. Tighten Helix Bolt if loose.
Excessive wear on brake pads, or missing brake pads.	Replace brake pads.
Failed timer.	Test timer and replace if failed.
Failed electronic control.	Test electronic control and replace if failed.
Broken, loose, shorted or incorrect wiring.	Refer to appropriate wiring diagram.

12. Washer stops in middle of cycle or quits after a couple loads — intermittent.	
Possible Cause	**Result**
Belt is tacky and does not allow proper slipping.	Check belt and replace if failed.
Belt tension is too tight and does not allow proper slipping.	Verify idler spring is properly connected. Verify proper belt and pulley are installed.
Motor overload protector has cycled.	Wait two to three minutes for overload protector to reset. If overload protector cycles repeatedly, see following chart.
Brake, transmission or motor have locked up and will not turn.	Verify all components move freely. Correct binding component.
Motor switch functions fail.	Test switch functions.
Failed timer.	Test timer and replace if failed.
Broken, loose, shorted or incorrect wiring.	Refer to appropriate wiring diagram.

Troubleshooting Procedures

⚠ WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to washer before servicing, unless testing requires it.

13. Washer locks-up or binding.	
Possible Cause	**Result**
Excessive drive belt tension.	Replace drive belt and/or idler spring.
Bind in upper or lower bearing.	Replace bearing.
Bind in water pump.	Replace pump.
Bind in transmission.	Replace transmission.
Brake pads are binding.	Free binding pads or replace pads.
Incorrect voltage.	Contact local utility company, or have a qualified electrician check power supply voltage.

14. Outer tub does not empty.	
Possible Cause	**Result**
Kinked drain hose.	Straighten drain hose.
Failed water pump.	Replace water pump.
Obstruction in outer tub outlet hose.	Remove obstruction.

15. Excessive vibration.	
Possible Cause	**Result**
Washer is not properly leveled.	Adjust leveling legs for proper leveling.
Unbalance load in the tub.	Stop washer, redistribute load and restart the washer.
Broken or disconnected centering springs.	Connect or replace centering springs.
Washer is installed on weak, “spongy”, carpeted or built-up floor.	Relocate washer, or support floor to eliminate weak or “spongy” condition.
Loose or damaged leveling legs.	Tighten or replace leveling legs.
Damage base (wash was dropped).	Replace base assembly.
Lubricant on pivot dome or broken friction ring.	Remove lubricant and replace damage components.
Liquid filled balance ring leaking.	Replace balance ring.
Shipping plug not removed.	Remove shipping plug.
Rubber feet not installed.	Install rubber feet.

16. Water leaking from outer tub.	
Possible Cause	**Result**
Water seal leaking on outer tub.	Replace hub and seal kit assembly.
Hole in outer tub.	Replace outer tub.
Pressure hose or accumulator leaking.	Replace hose and/or accumulator.
Outer tub cover gasket leaking.	Replace gasket.
Tub-to-pump hose leaking at clamp.	Tighten hose clamp.
Obstruction in drain causing water to overflow over tub cover.	Remove obstruction in drain hose.

Disassembly Procedures

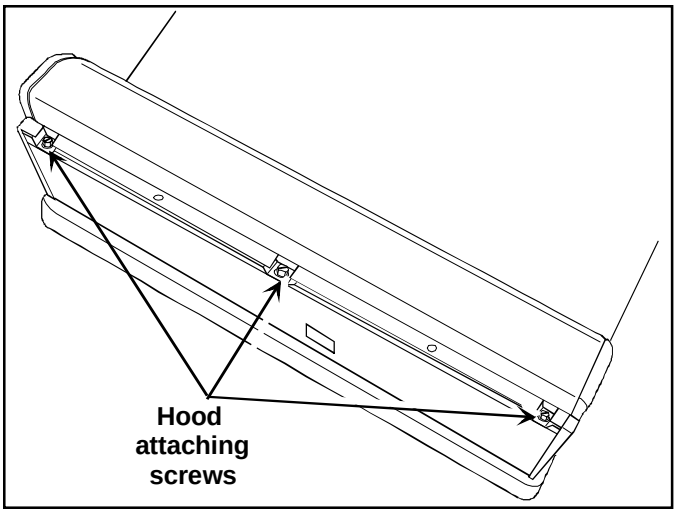
⚠ WARNING To avoid risk of electrical shock, personal injury, or death, disconnect power to unit before servicing.

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

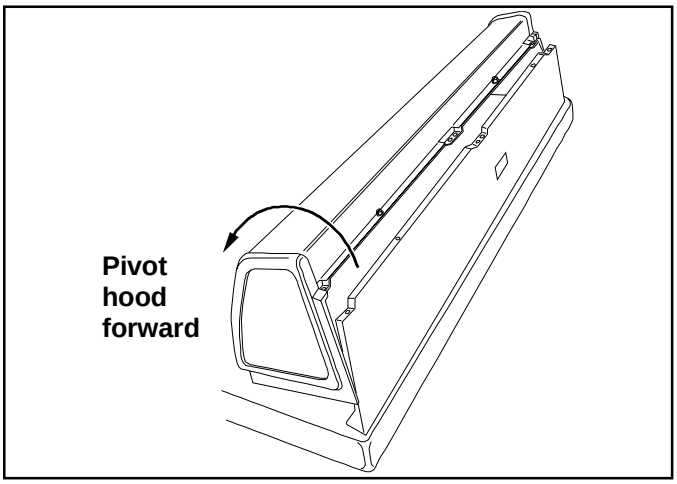
NOTE: To avoid damaging or scratching the surface a soft cloth should be placed over the top of the unit.

Control Hood Assembly

1. Remove screws securing control hood assembly to control hood rear panel.



2. Rotate hood assembly forward.



3. Remove bottom of control hood from clips located on cabinet top.
4. Disconnect wires from components and carefully remove components from control hood assembly.
5. Reverse procedure to reassemble.

NOTE: See appropriate wiring diagram when rewiring components.

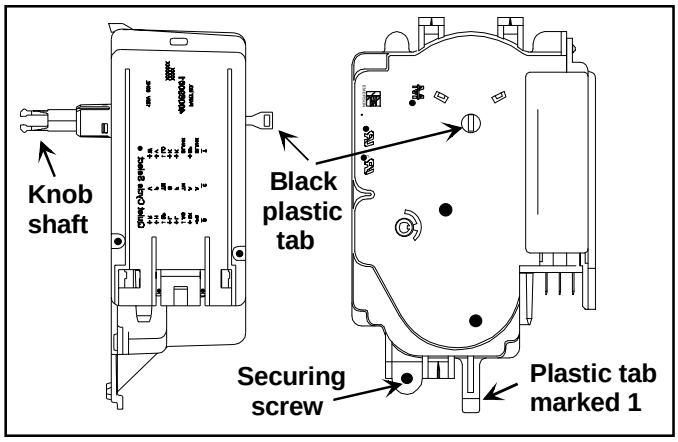
Control Hood End Panels

- Remove screws securing end panels to control mounting plate.

Timer

1. Loosen control hood assembly, see "Control Hood Assembly" procedure steps 1 and 2.
2. Remove timer knob from timer shaft by pulling black plastic tab located on the back of timer outward to release knob, then remove timer knob skirt.

NOTE: Slide a soft cloth under the knob skirt, wrapping the entire skirt and pull gently away from the control panel.



3. Remove screws securing timer to control hood mounting plate.
4. Disconnect wire harness terminal plug from timer by lifting locking tab and pulling terminal plug away from timer.
5. Lift plastic tab marked 1 located above securing screw and sliding timer to the side releasing tabs securing timer to control hood mounting plate.
6. Reverse procedure to reassemble.

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

Disassembly Procedures

⚠ WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit before servicing.

Before attaching wire harness terminal blocks to timer, verify all male terminals on timer are straight and are capable of accepting terminals from wire harness terminal blocks.

NOTE: When installing timer, verify timer is installed correctly and is securely mounted to control mounting plate.

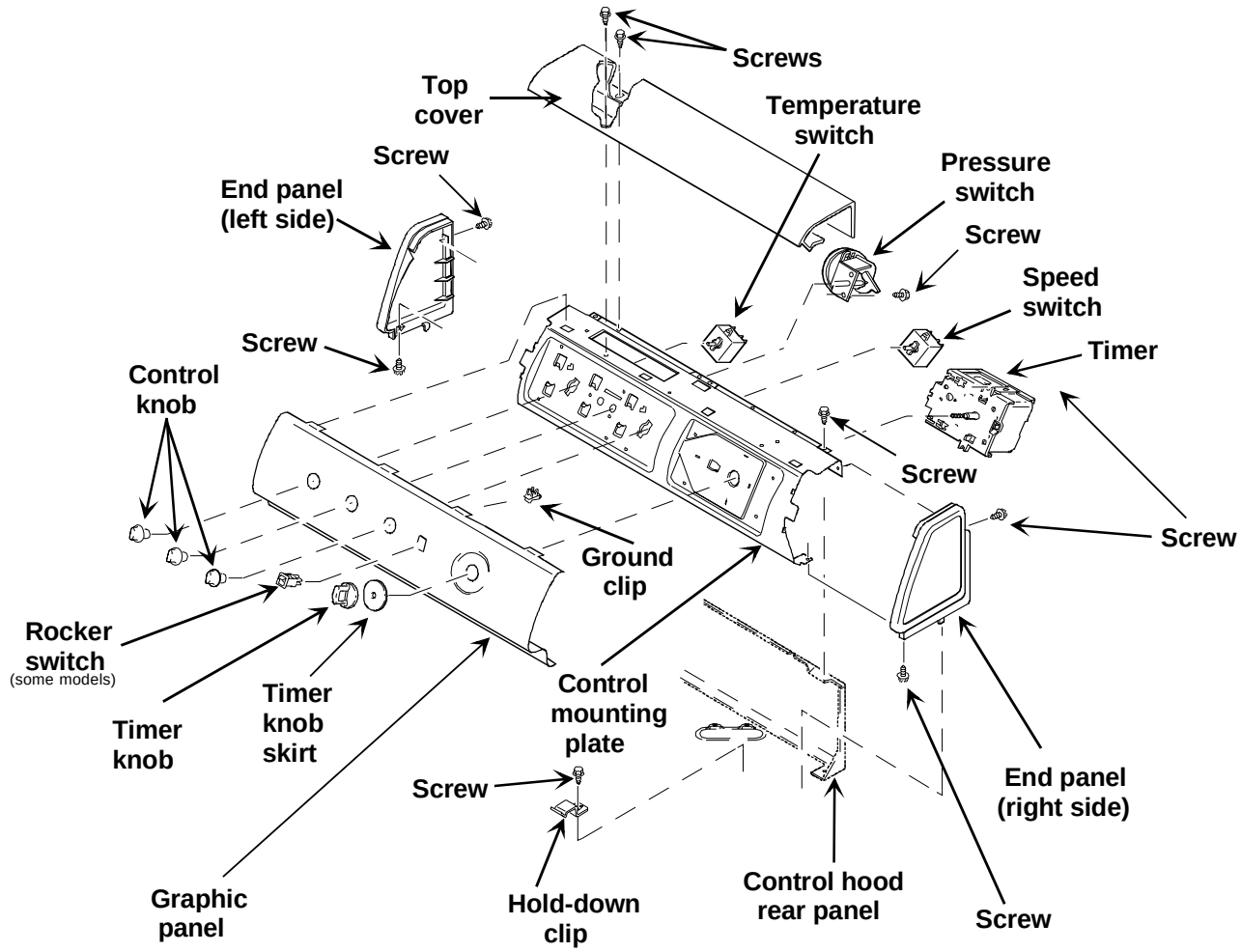
⚠ CAUTION

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

Temperature and Speed Switch

1. Loosen control hood assembly, see "Control Hood Assembly" procedure steps 1 and 2.
2. Slide a soft cloth under the knob, wrapping the entire knob and pull gently away from the control panel.
3. Disconnect wires from switch terminals.
4. From the front, press inward on black plastic tabs next to the switch shaft and rotate switch to release switch from control hood mounting plate.
5. Reverse procedure to reassemble.

NOTE: See appropriate wiring diagram when rewiring components.



Typical Control Panel Assembly

Disassembly Procedures

⚠ WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit before servicing.

Pressure Switch

1. Loosen control hood assembly, see “Control Hood Assembly” procedure steps 1 and 2.
2. Disconnect wires and plastic hose from pressure switch.
3. Remove screws securing pressure switch to control hood mounting plate.
4. Reverse procedure to reassemble.

NOTE: See appropriate wiring diagram when rewiring components.

NOTE: Before connecting hose to pressure switch, blow air through pressure hose to remove any condensation that may have accumulated in the hose.

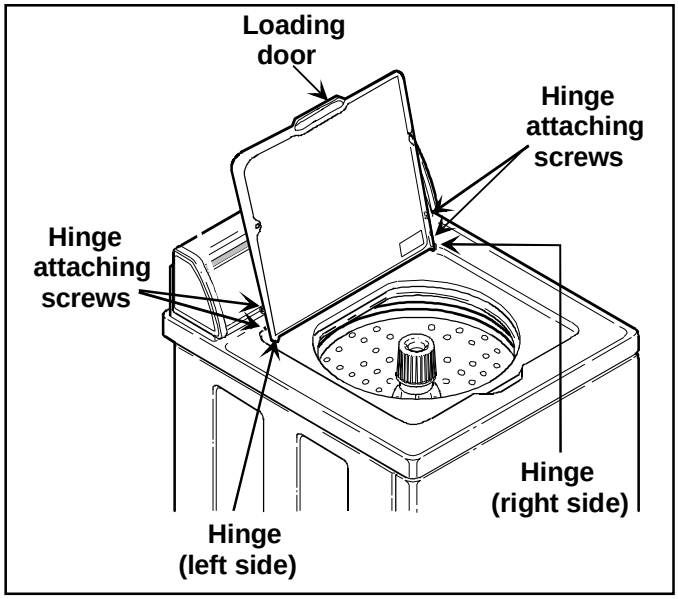
Graphic Panel

1. Remove all knobs from switches.
2. Loosen control hood assembly, see “Control Hood Assembly” procedure steps 1 and 2.
3. Disconnect wires from components and carefully remove components from control hood assembly, see component removal procedure listed earlier.
4. Remove screws securing top cover to control mounting plate and remove top cover.
5. Remove screws securing end panels (each side) and remove end panels.
6. Remove grounding clip secured to metal tab on graphic panel.
7. Bend tabs on graphic panel (located inside of control hood) straight out towards the rear.
8. Remove graphic panel from front of control mounting plate.
9. Reverse procedure to reassemble.

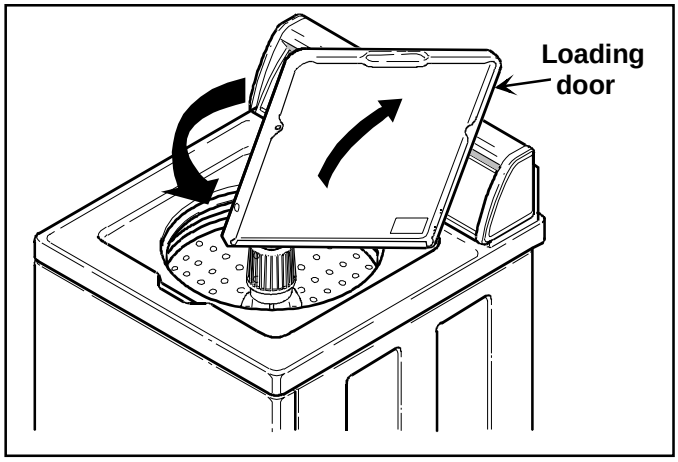
NOTE: See appropriate wiring diagram when rewiring components.

Loading Door

1. Open loading door.
2. Remove screws securing left hinge to door and remove hinge.



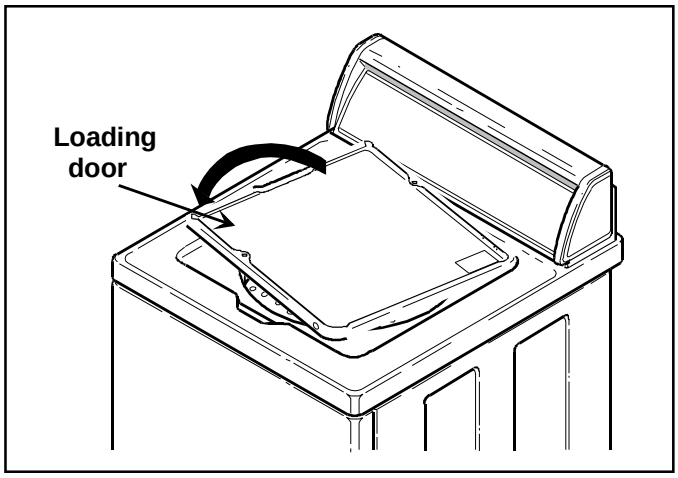
3. Raise loading door to a vertical position, disengage loading door from loading door clip by swing left side of door toward front of washer.



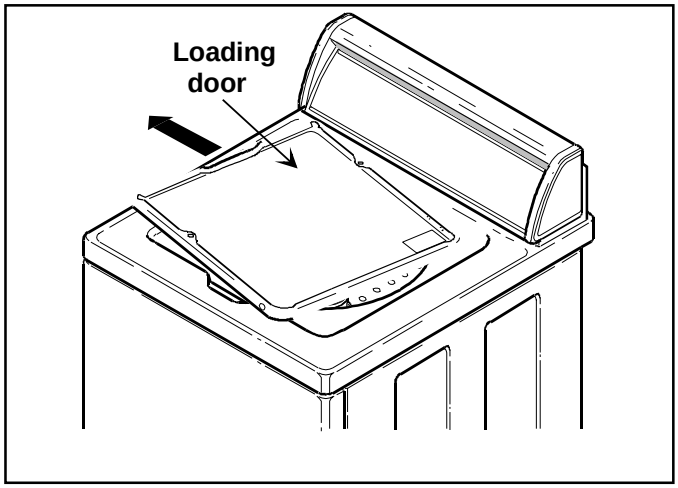
4. Rotate loading door so door is upside down.

Disassembly Procedures

⚠ WARNING To avoid risk of electrical shock, personal injury, or death, disconnect power to unit before servicing.



5. Maneuver loading door from washer cabinet top.



6. Remove screws securing right hinge and remove loading door.
7. Reverse procedure to reassemble.

Agitator

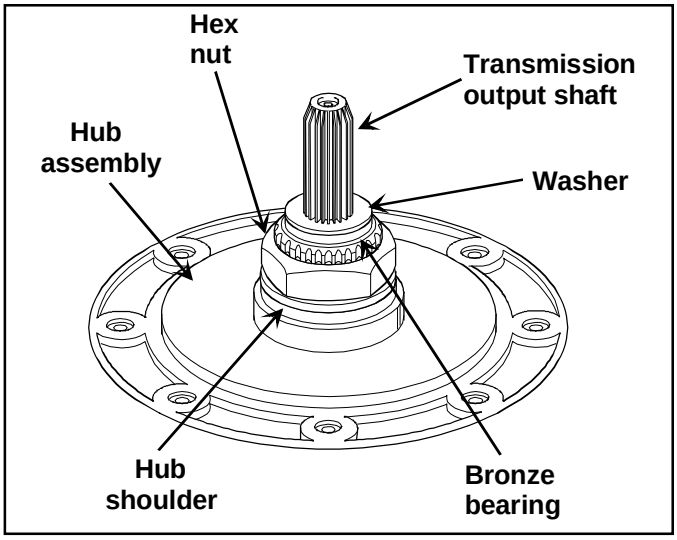
1. Open loading door.
2. Remove agitator by placing hands under agitator lip and pull upward, if agitator is stuck or stubborn use agitator belt WX5X1326 under bottom edge of agitator.
3. Using a rocking motion (side-to-side) carefully lift agitator up off drive bell.
4. To reassemble place agitator on top of drive bell. Slowly rotate agitator until fingers on underside of agitator line up with large slots on drive bell.
5. A sharp blow on top of agitator, with the palm of your hand, will force agitator down onto drive bell, allowing fingers on underside of agitator to lock under bottom edge of drive bell.

NOTE: Do not push agitator onto drive bell any further than necessary.

Agitator, Drive Bell and Seal Assembly

NOTE: If water is present in washtub, remove water before attempting to remove drive bell.

1. Remove agitator, see “Agitator” procedure.
2. Remove plug and $^{7}/_{16}$" bolt from top of drive bell.
3. Using care pry drive bell upward off transmission shaft.
4. Remove old seal from hub assembly by:
   a. Placing a flat bladed screwdriver between bottom edge of seal and hub.
   b. Using washtub bolts as a pry area, pop off lower seal bead.
   c. Grasping bottom of seal and pulling straight up freeing upper seal bead.

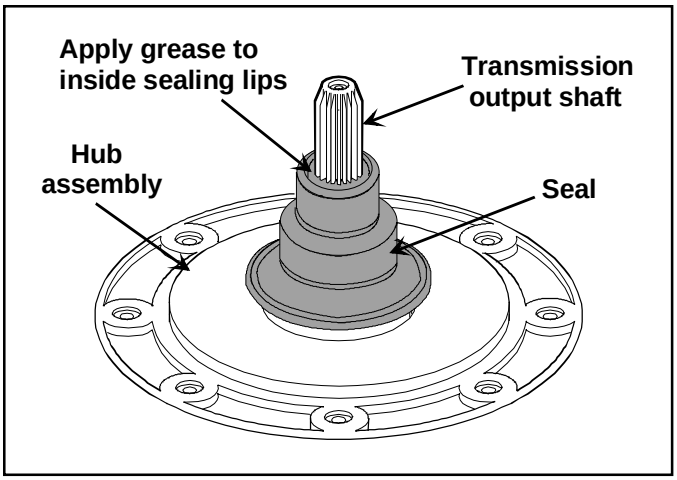


5. Clean all foreign material from seal mounting area of hub assembly, bronze bearing and washer.
6. Lubricate new seal with liquid soap or soapy water to aid in assembly of seal onto hub.

Disassembly Procedures

⚠ WARNING To avoid risk of electrical shock, personal injury, or death, disconnect power to unit before servicing.

7. Apply a small amount of supplied grease to inside sealing lips of seal.

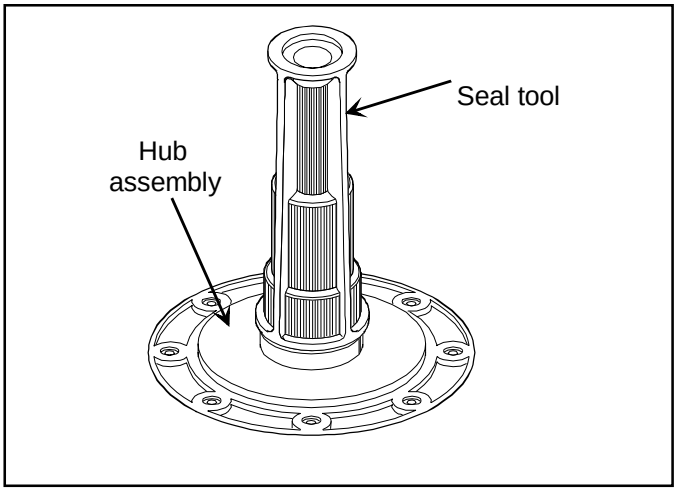


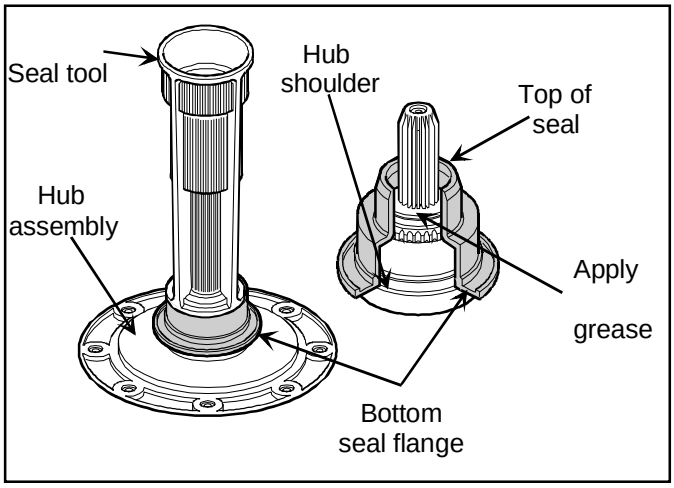
NOTE: DO NOT allow any lubricants to come in contact with outside surface of seal

8. Apply remainder of supplied grease to exposed surface of washer between transmission output shaft and seal.
9. Place new drive bell seal onto hub and push into position using large end of WX05X10001 Seal Tool.

NOTE: Using a small pocket mirror, check entire circumference of bottom seal flange to verify seal is pressed down against shoulder on hub; there should be no gap!

10. Turn WX05X10001 Seal Tool upside-down and place the small end over transmission output shaft and onto the seal.
11. Push down on tool with a quick motion until it bottoms out and the top of seal is fully seated.





Installing Drive Bell

1. Position new drive bell over transmission output shaft. Rotate drive bell until splines in drive bell line up with splines on transmission output shaft.
2. Screw $^{7}/_{16}$" bolt into transmission output shaft until it bottoms out.
3. Using a wrench or socket, tighten bolt **CLOCKWISE** to force drive bell down onto transmission shaft until drive bell bottoms out on shaft. Tighten new shoulder screw between 60 to 80 inch-pounds.
4. Place new plug over hole in drive bell and firmly press into place using the palm of your hand.

NOTE: It may be necessary to insert the end of a paper clip or thin blade screwdriver along side of plug as it is pressed into drive bell to release entrapped air.

NOTE: When fully seated plug should not extend above drive bell more than 1/8 inch (3.2 mm).

5. Place agitator on top of drive bell. Slowly rotate agitator until fingers on underside of agitator line up with large slots on drive bell.
6. A sharp blow on top of agitator, with the palm of your hand, will force agitator down onto drive bell, allowing fingers on underside of agitator to lock under bottom edge of drive bell. Do not push agitator onto drive bell any further than necessary.

NOTE: Failure to lubricate the seal will cause the washer to squeak in agitation.

Disassembly Procedures

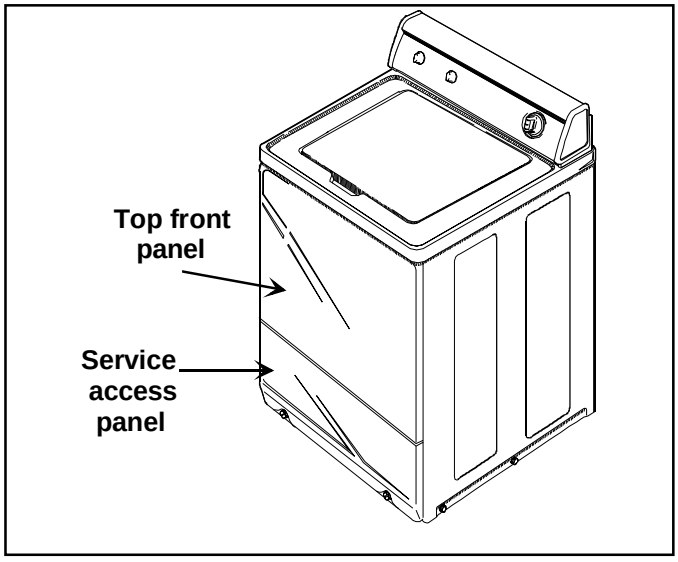
⚠ WARNING To avoid risk of electrical shock, personal injury, or death, disconnect power to unit before servicing.

Service Access Panel

NOTE: Screws located at bottom edge of service access panel do not have to be removed as the holes in service access panel are slotted on most models. Earlier models require removal of bottom screws.

NOTE: Top edge of service access panel is held in place by two spring clips located on bottom flange of front panel.

1. Insert putty knife between service access panel top and bottom edge of front panel (approximately three inches in on each side).
2. Push in on putty knife and at the same time pull top edge of service access panel away from front of washer. Repeat for opposite side.
3. Lift service access panel upward off screws and set panel aside.
4. Reverse procedure to reassemble.



Front Panel

NOTE: Service access panel must be removed first to remove front panel.

NOTE: Top edge of front panel is held in place by two spring clips located on bottom flange of the cabinet top.

1. Remove screws securing bottom of front panel.
2. Lift the bottom of front panel outward to release the spring clips and set panel aside.
3. Reverse procedure to reassemble.

Panel Locators

- Remove screws securing panel locators to side flanges of front panel.

Brace

- Remove brace from front panel by swinging one end towards bottom of front panel and remove brace.

Motor and Mounting Bracket

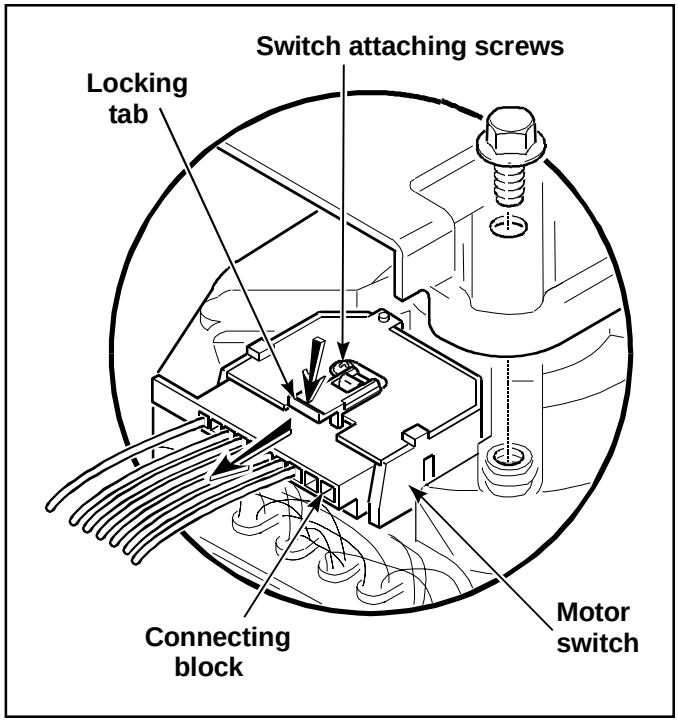
1. Remove service access panel, see “Service Access Panel” procedure.

NOTE: There will always be some water that will remain in outer tub, before removing hoses from pump, hoses must be pinched off or drained to prevent water spillage.

2. Loosen hose clamps and remove hoses from pump assembly.
3. Unhook idler spring from clip on front of the motor mounting bracket.

NOTE: Use care when releasing idler lever tension. If idler spring is overstretched, washer operation will be affected.

4. Reach in and around left side of motor and remove belt off large drive pulley.
5. Disconnect wire harness from motor switch by pressing down on locking tab on top of connection block and at the same time, pull connection block away from motor switch.

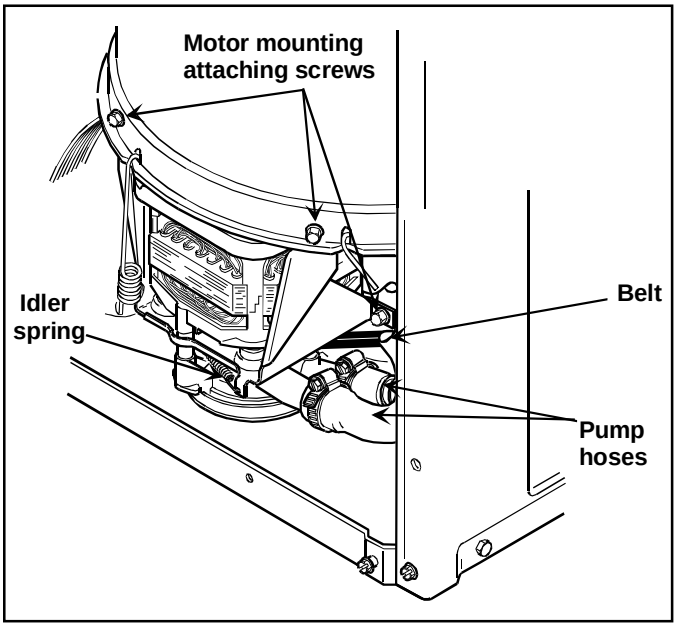


6. Remove bolts securing motor and mounting bracket

Disassembly Procedures

⚠ WARNING To avoid risk of electrical shock, personal injury, or death, disconnect power to unit before servicing.

to lower outer tub flange and to "milk-stool" assembly.



7. Lift complete assembly out of washer.

NOTE: Lay motor on its side. Observe belt configuration around rear pump leg. Belt **MUST** encircle rear pump leg when reassembling.

8. Reverse procedure to reassemble.

Pump and Belt Removal

1. Remove motor, see “Motor and Mounting Bracket” procedure.
2. Remove screws securing pump assembly to motor.

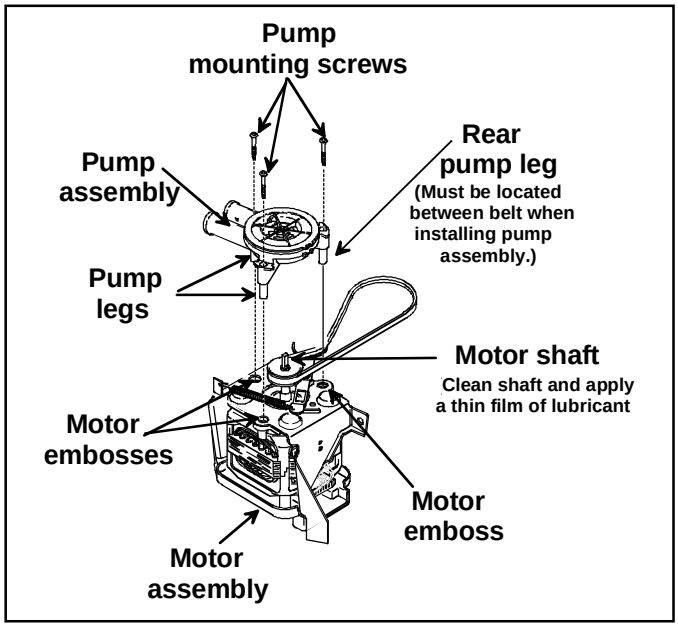
Reassembly of Pump and Belt

NOTE: Install pump and belt together. Drive belt MUST be replaced with belt WH01X10159 for proper washer operation.

1. Remove any corrosion or foreign material from motor shaft.
2. Apply a thin film of lubricant to the end and sides of motor shaft.

NOTE: This lubricant helps keep moisture out of the hub area and prevents corrosion.

3. Align belt on motor pulley and tension pulley as illustrated.



4. Align pump impeller hub with motor shaft. Verify belt encircles rear pump leg. Slide pump onto motor shaft until legs touch the embosses on the motor housing before securing.

NOTE: Tighten screws to 35 inch-pounds maximum. DO NOT overtighten screws!

5. Install motor and pump assembly into washer, see “Motor and Mounting Bracket” procedure.

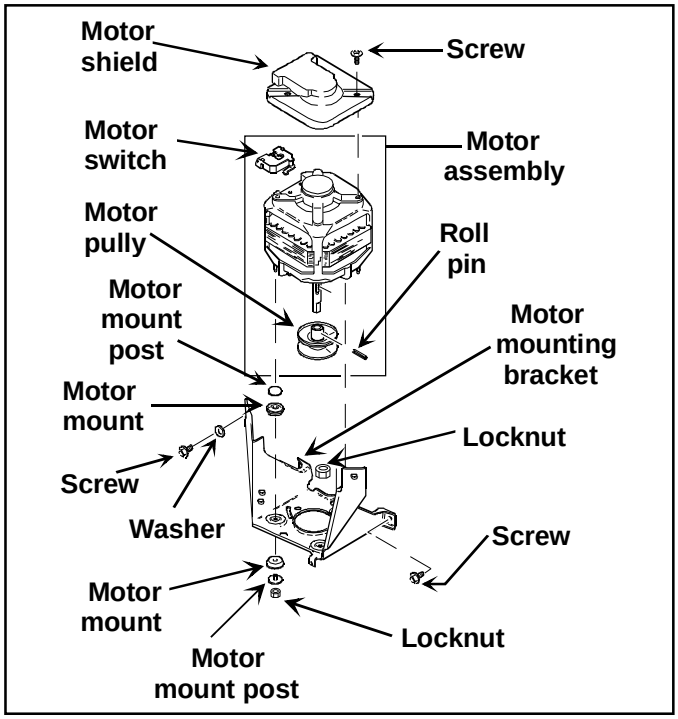
NOTE: After installing motor and pump assembly in the washer and all hoses have been secured, along with reconnecting idler spring. Add at least one quart of water to washtub to lubricate pump seals. Running a pump without water will damage the seals.

Disassembly Procedures

⚠ WARNING To avoid risk of electrical shock, personal injury, or death, disconnect power to unit before servicing.

Motor Disassembly

1. Remove nuts, steel washers, spacers and rubber mounts securing motor to mounting bracket.



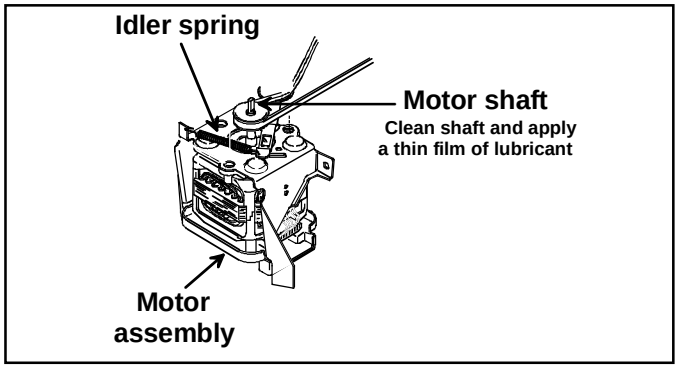
2. Lift motor off mounting bracket and remove remaining rubber mounts and steel washers from motor mounting studs.

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

NOTE: When assembling motor to motor bracket, it is extremely important to make sure the motor is centered on isolator pads and all fasteners are evenly torqued.

Idler Lever and Pulley

1. Remove motor, see “Motor and Mounting Bracket” procedure.



NOTE: Lay motor on its side. Observe belt configuration around rear pump leg. Belt **MUST** encircle rear pump leg when reassembling.

2. Remove nut, washer, and bolt securing idler lever and pulley to motor mounting bracket.
3. Apply a light film of lubricant to area of idler lever that makes contact with motor mounting bracket.

NOTE: DO NOT OVER LUBRICATE! Excess lubricant can be thrown into pivot dome area during normal washer operation. Any lubricant on the pivot dome, base or friction ring will affect washer operation.

4. Reverse procedure to reassemble.

Motor Drive Pulley

1. Remove idler lever and pulley steps 1–3, see “Idler Lever and Pulley” procedure.
2. Lay motor assembly on its side.

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

3. Reverse procedure to reassemble.

Disassembly Procedures

⚠ WARNING

To avoid risk of electrical shock, personal injury, or death, disconnect power to unit before servicing.

Cabinet Top

1. Remove control hood assembly, see “Control Hood Assembly” procedure.
2. Remove front panel, see “Front Panel” procedure.
3. Remove screws securing cabinet top.
4. Tape loading door closed.
5. Lift front of cabinet top slightly and pull forward to disengage from rear hold-down brackets.
6. Pull cabinet top forward far enough to permit disconnecting ground wires from top left rear corner gusset of washer cabinet.
7. Disconnect wire terminals from door switch.

NOTE: See appropriate wiring diagram when rewiring components.

8. Lift cabinet top off washer and set along side the washer cabinet on a protective padding.

NOTE: DO NOT lay cabinet top flat because it will damage the door switch lever.

9. Reverse procedure to reassemble.

Door Switch

1. Remove front panel, see “Front Panel” procedure.
2. Remove screws securing cabinet top.
3. Tape loading door closed and lift cabinet top to a vertical position by hinging it on the rear hinges.

NOTE: Cabinet top is self supporting, a small chain may be used for additional support.

4. Disconnect wires from door switch.
5. Remove screw securing door switch assembly to underside of cabinet top.

NOTE: See appropriate wiring diagram when rewiring components.

6. Remove screws securing switch to switch holder.
7. Remove switch from switch holder.
8. Reverse procedure to reassemble.

Water (mixing) Valve

1. Disconnect water inlet hoses.
2. Remove screw securing mixing valve bracket.
3. Pull mixing valve bracket and valve out the back of washer.
4. Disconnect quick disconnect terminals from mixing valve solenoid terminals.

NOTE: See appropriate wiring diagram when rewiring components.

5. Reverse procedure to reassemble.

NOTE: In warm water setting, both solenoids are energized. The valves open 100% and the valve orifice size meters the water to a 60% cold water and 40% hot water mix.

Disassembly Procedures

⚠ WARNING To avoid risk of electrical shock, personal injury, or death, disconnect power to unit before servicing.

Tub Cover and Gasket

1. There are eight tub cover hold-down tabs which snap over the outer tub flange. Push downward on tub cover, this will release the tension on the hold-down tab on the tub cover. Pull out on the flap and at the same time lift upward on cover to unsnap hold-down tabs from outer tub flange. One by one, disengage each of the eight hold-down tabs from outer tub flange and remove cover.
2. Remove tub cover from outer tub and remove old gasket from tub cover.

NOTE: When installing outer tub cover, always use a new cover gasket.

NOTE: Clean and remove any foreign material in gasket groove of outer tub cover and outer tub flange.

3. Press gasket down into gasket groove of tub cover. Avoid pressing gasket past ends of hold-down tabs.

NOTE: Care must be taken not to twist or bunch gasket in any one area to avoid leaks after assembly.

4. Install gasket past ends of hold-down tabs to bottom of gasket groove.
5. Lower cover and press down firmly on top of tub cover until tabs snap over edge of outer tub flange.
6. Cross over to opposite side of tub cover and press down firmly on top of hold-down tabs until tabs snap over edge of outer tub flange. Continue with this crisscross pattern, until tub cover is fully seated. Visually check each tab area again to ensure cover is seated.

Washtub and Balance Ring

1. Open loading door.
2. Remove agitator, see “Agitator” procedure.
3. Loosen cabinet top, see “Cabinet Top” procedure steps 2 through 4.
4. Hinge cabinet top open to gain access.
5. Loosen and remove hose clamp and fill hose from outer tub cover.
6. Remove tub cover, see “Tub Cover and Gasket” procedure, steps 1 through 2.
7. Remove bolts and washers securing washtub to hub.
8. Lift washtub and balance ring out of outer tub.

NOTE: When removing washtub and balance ring, DO NOT lift up on balance ring damage may occur. Grasp top flange of washtub and remove from outer tub.

9. Reverse procedure to reassemble.

NOTE: When installing washtub, verify lint filter is between underside of washtub and hub.

Outer Tub

1. Remove agitator, see “Agitator” procedure.
2. Loosen cabinet top, see “Cabinet Top” procedure steps 2 through 4.
3. Remove tub cover and gasket, see “Tub Cover and Gasket” procedure.
4. Loosen and remove hose clamp securing pump hose to pump. This will allow water to be drained from the unit.
5. Remove washtub and balance ring, see “Washtub and Balance Ring” procedure.
6. Remove large hex nut, then remove spline insert from transmission tube.

NOTE: Use new spline insert each time the hex nut is removed. DO NOT reuse the old insert as hex nut may loosen during the washer operation.

7. Remove hub from splines on transmission shaft.

NOTE: It may be necessary to use a gear puller to remove hub.

8. Remove old water seal from outer tub.

NOTE: Use care when removing old seal so as not to damage tub flange.

NOTE: When reinstalling or replacing outer tub, always install a new Hub and Seal Kit.

9. Using Spring Hook Tool, WX05X10003, unhook six springs from lower edge of outer tub.

NOTE: When installing springs, verify spring hook is fully seated in hole in tub skirt. Mark the word “FRONT” on front side of outer tub so complete tub module can be reinstalled in same position.

10. Grasp outer tub and lift complete tub module assembly up and out of washer cabinet.
11. Turn outer tub upside-down and set on a protective padding.

Disassembly Procedures

⚠ WARNING To avoid risk of electrical shock, personal injury, or death, disconnect power to unit before servicing.

12. Loosen hose clamp and remove hose from bottom of outer tub.
13. Loosen hose clamp and remove pressure hose from pressure bulb.
14. Remove screws and lockwashers securing counterweight and each support leg to outer tub "milk-stool" assembly. Lift transmission, "milk-stool" assembly and counterweight off tub.
15. Remove screws securing outer tub bottom to plastic outer tub.
16. Turn outer tub upright and remove pressure bulb and grommet.
17. Reverse procedure to reassemble.

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

Drive Pulley, Helix and Brake

1. Remove outer tub, see Outer Tub" procedure, steps 1 through 11.
2. Remove screw, washer and helix securing drive pulley to input shaft and transmission assembly.
3. Lift drive pulley up and off input shaft of transmission assembly.

NOTE: When reinstalling pulley, place a small amount of lubricant on top side of the drive pulley that will be contacting large flat washers. Lubricate helix ramps and bore with a small amount of lubricant.

DO NOT OVER LUBRICATE! Excess lubricant can be thrown into pivot dome area during normal washer operation. Any lubricant on pivot dome, base or friction ring will affect washer operation. This condition will persist until lubricant is removed.

4. Remove bolts securing brake pads and brake assembly to "milk-stool" assembly. Remove brake assembly and pads off bottom of "milk-stool" assembly.

NOTE: When reinstalling brake assembly, replace all three brake pads. DO NOT replace worn pads only. Apply a small amount of silicone lubricant (WH60X10006) to both sides of each brake pad where it will contact brake assembly.

DO NOT OVER LUBRICATE! Excess lubricant can be thrown into pivot dome area during normal washer operation. Any lubricant on pivot dome, base or friction ring will affect washer operation. This condition will persist until lubricant is removed.

5. After brake is installed, put washer through the following check to verify brake is operating properly.
   a. Turn off electrical power to washer.
   b. Turn drive pulley one complete revolution in agitation directly, then push drive pulley up against brake.
   c. Check for a .030 (.76 mm) minimum gap between drive pulley and helix ramp surfaces.

NOTE: If gap is less than .030 (.76 mm), brake may not stop washtub from spinning in required seven seconds because brake will not close properly.

   d. Turn on electrical power to washer and start washer in the final spin operation.

NOTE: After installing complete tub module in washer and all hoses have been reconnected, add at least one quart of water to washtub to lubricate pump seals. **Running a pump without water will ruin the seals.**

After washtub has been spinning for two minutes, normal spin speed should be 427 ± 25 RPM SLOW speed and 640 ± 25 RPM FAST speed on two speed models. If not, the cause could be dragging brake pads. If problems occur with steps (c) or (d), remove brake assembly and correct problem.

Disassembly Procedures

⚠ WARNING To avoid risk of electrical shock, personal injury, or death, disconnect power to unit before servicing.

"Milk-Stool" and Bearing Assembly

1. Remove outer tub, see Outer Tub" procedure, steps 1 through 11.
2. Remove screw, washer and helix holding drive pulley to input shaft and transmission assembly.
3. Lift drive pulley up and off input shaft of transmission assembly.

NOTE: When reinstalling pulley, place a small amount of lubricant on top side of the drive pulley that will be contacting large flat washers. Lubricate helix ramps and bore with a small amount of lubricant.

DO NOT OVER LUBRICATE! Excess lubricant can be thrown into pivot dome area during normal washer operation. Any lubricant on pivot dome, hose or friction ring will affect washer operation. This condition will persist until lubricant is removed.

4. Remove bolts securing brake pads and brake assembly to "milk-stool" assembly. Remove brake assembly and pads off bottom of "milk-stool" assembly.

NOTE: When reinstalling brake assembly, replace all three brake pads. DO NOT replace worn pads only. Apply a small amount of silicone lubricant (WH60X10006) to both sides of each brake pad where it will contact brake assembly.

DO NOT OVER LUBRICATE! Excess lubricant can be thrown into pivot dome area during normal washer operation. Any lubricant on pivot dome, base or friction ring will offset washer operation. This condition will persist until lubricant is removed.

5. After brake is installed, put washer through the following check to verify brake is operating properly.
   a. Turn off electrical power to washer.
   b. Turn drive pulley one complete revolution in agitation direction, then push drive pulley up against brake.
   c. Check for a .030 (.76 mm) minimum gap between drive pulley and helix ramp surfaces.

NOTE: If gap is less than .030 (.76 mm), brake may not stop washtub from spinning in required seven seconds because brake will not close properly.

   d. Turn on electrical power to washer and start washer in the final spin.

NOTE: After installing complete tub module in washer and all hoses have been reconnected, add at least a quart of water to washtub to lubricate pump seals. Running a pump without water will ruin the seals.

After washtub has been spinning for two minutes, normal spin speed should be 427 ± 25 RPM SLOW speed and 640 ± 25 RPM FAST speed on two speed models. If not, the cause could be dragging brake pads. If problems occur with steps (c) or (d), remove brake assembly and correct problem.

6. Remove bolts securing counterweight and each support leg to outer tub. Lift transmission, "milk-stool" assembly and counterweight off tub.

NOTE: It may be necessary to tap lightly on the "milk-stool" assembly to loosen it from transmission tube.

Torque screws between 100 to 150 inch-pounds.

7. Remove screws and washers securing counterweight to leg on "milk-stool" assembly.
8. Reverse procedure to reassemble.

Disassembly Procedures

⚠ WARNING To avoid risk of electrical shock, personal injury, or death, disconnect power to unit before servicing.

Transmission Assembly

1. Remove outer tub, see Outer Tub" procedure, steps 1 through 11.
2. Remove screws securing each support leg to outer tub. Lift "milk-stool" assembly, and brake assembly off transmission tube.

NOTE: It may be necessary to tap lightly on "milk-stool" assembly to loosen it from transmission tube.

When installing lower bearing, "milk-stool" assembly and brake assembly, apply Anti-Seize Compound (WH60X10005) to area of transmission tube that will be contacting bearing.

Do not overtighten screws as this could cause stripping or damage. Torque screws between 100 to 150 inch-pounds.

NOTE: When replacing or reinstalling transmission assembly, it is important that Anti-Seize Compound (WH60X10005) be applied to area of the transmission tubes where they will be contacting upper and lower bearings.

Carefully lower transmission through upper bearing. DO NOT DROP OR LOWER TRANSMISSION ASSEMBLY INTO POSITION TOO HARD. This can cause bearing to move which will cause vibration, noise, wear or no spin.

Upper Bearing Assembly

1. Remove transmission assembly, see "Disassembly of Transmission Assembly" procedure.
2. Remove screws securing each support leg to outer tub.
3. Lift complete "milk-stool" assembly (with drive pulley, brake assembly, lower bearing, and transmission assembly attached) off outer tub.

NOTE: Do not overtighten screws as this could cause stripping or damage.

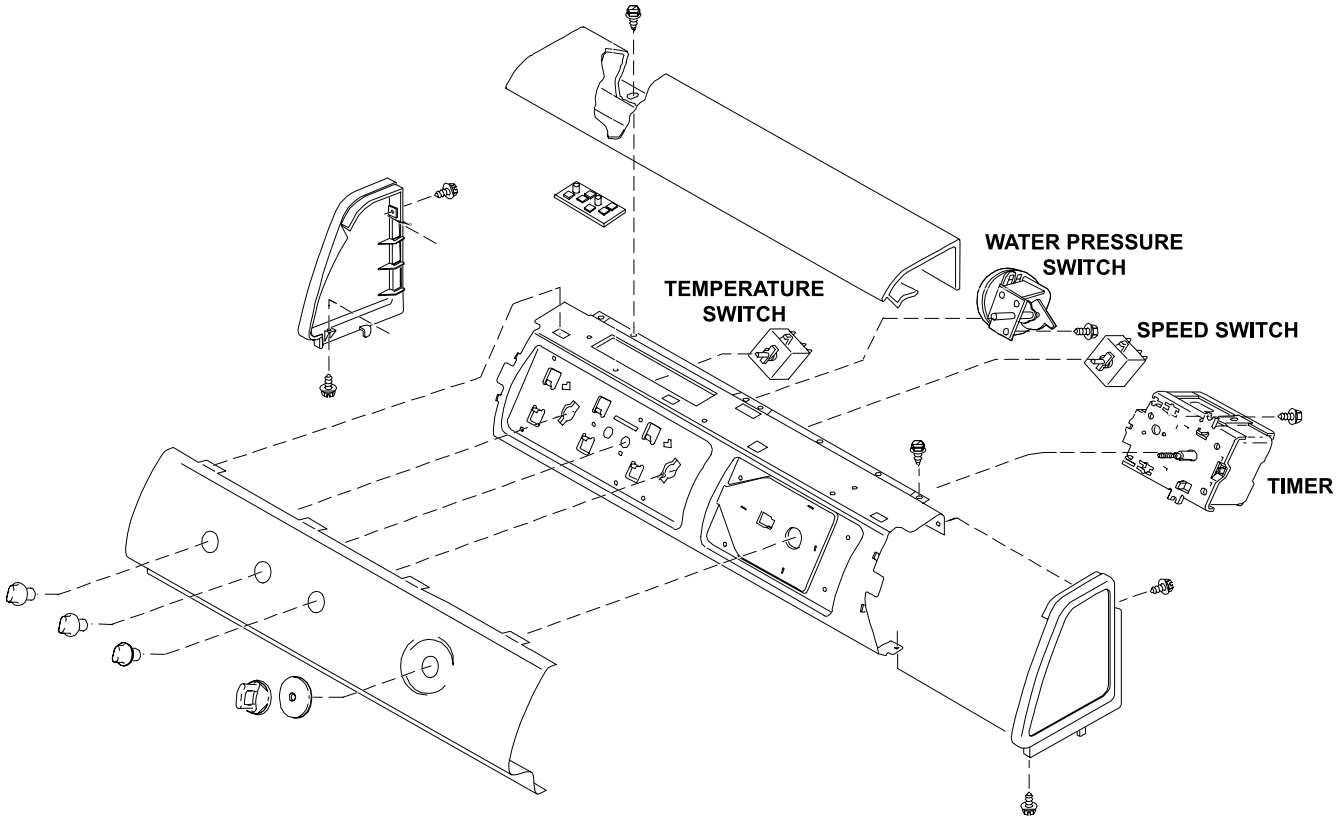
4. Remove screws securing upper bearing and housing to bottom of outer tub.

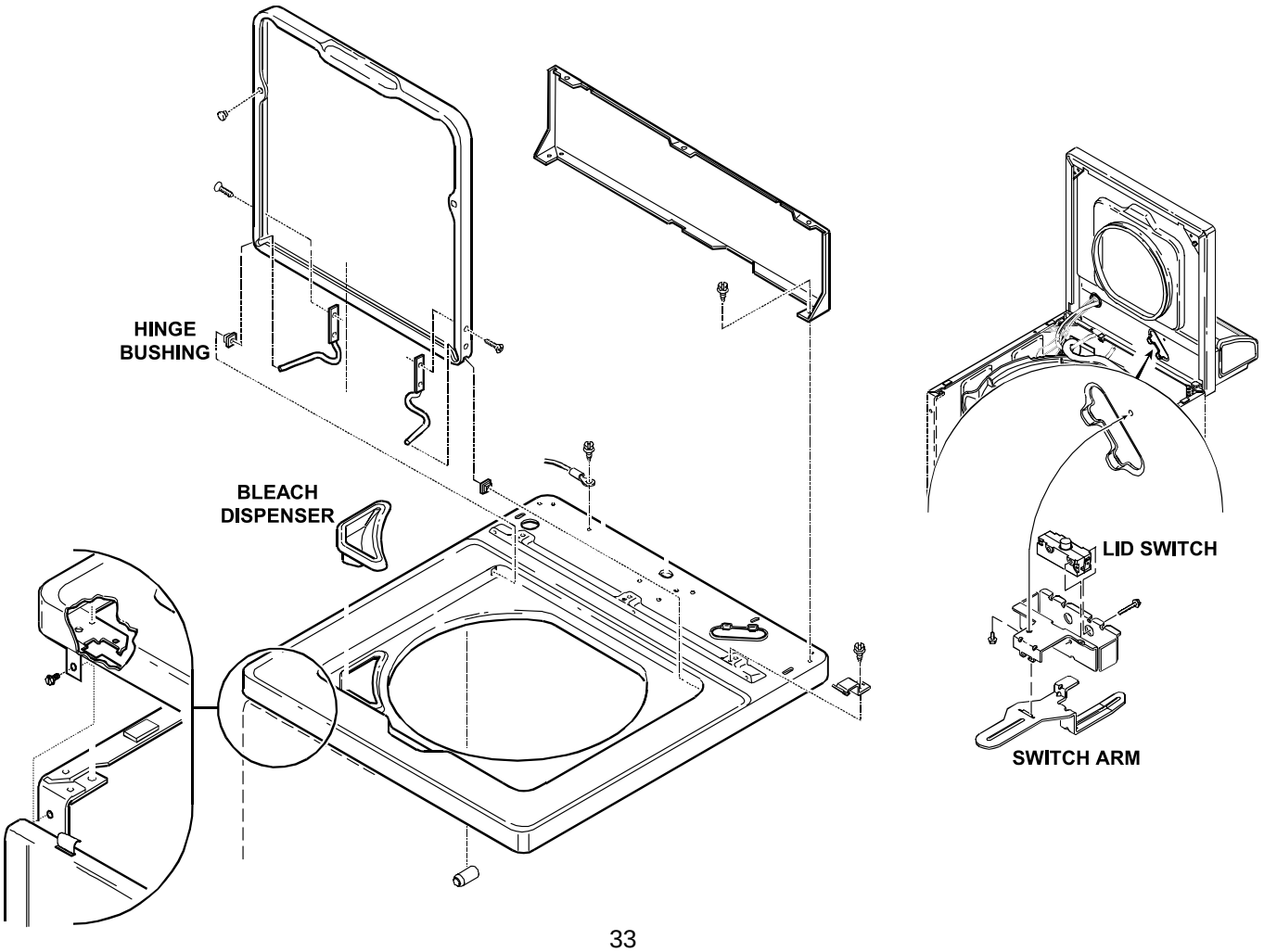
NOTE: Replace bearing and housing as an assembly. When upper bearing assembly is reinstalled, threads of cap screws must be secured with a retaining compound.

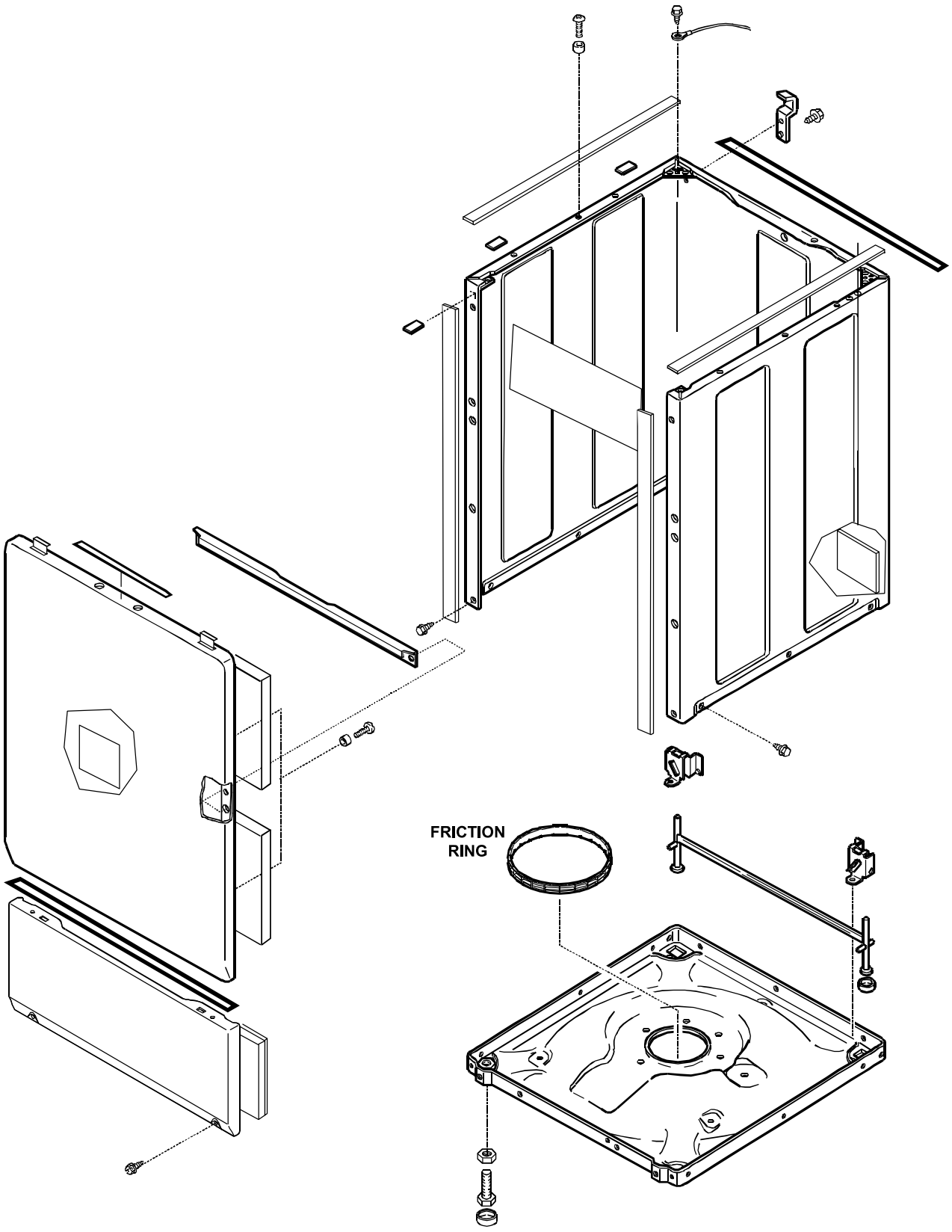
Friction Ring

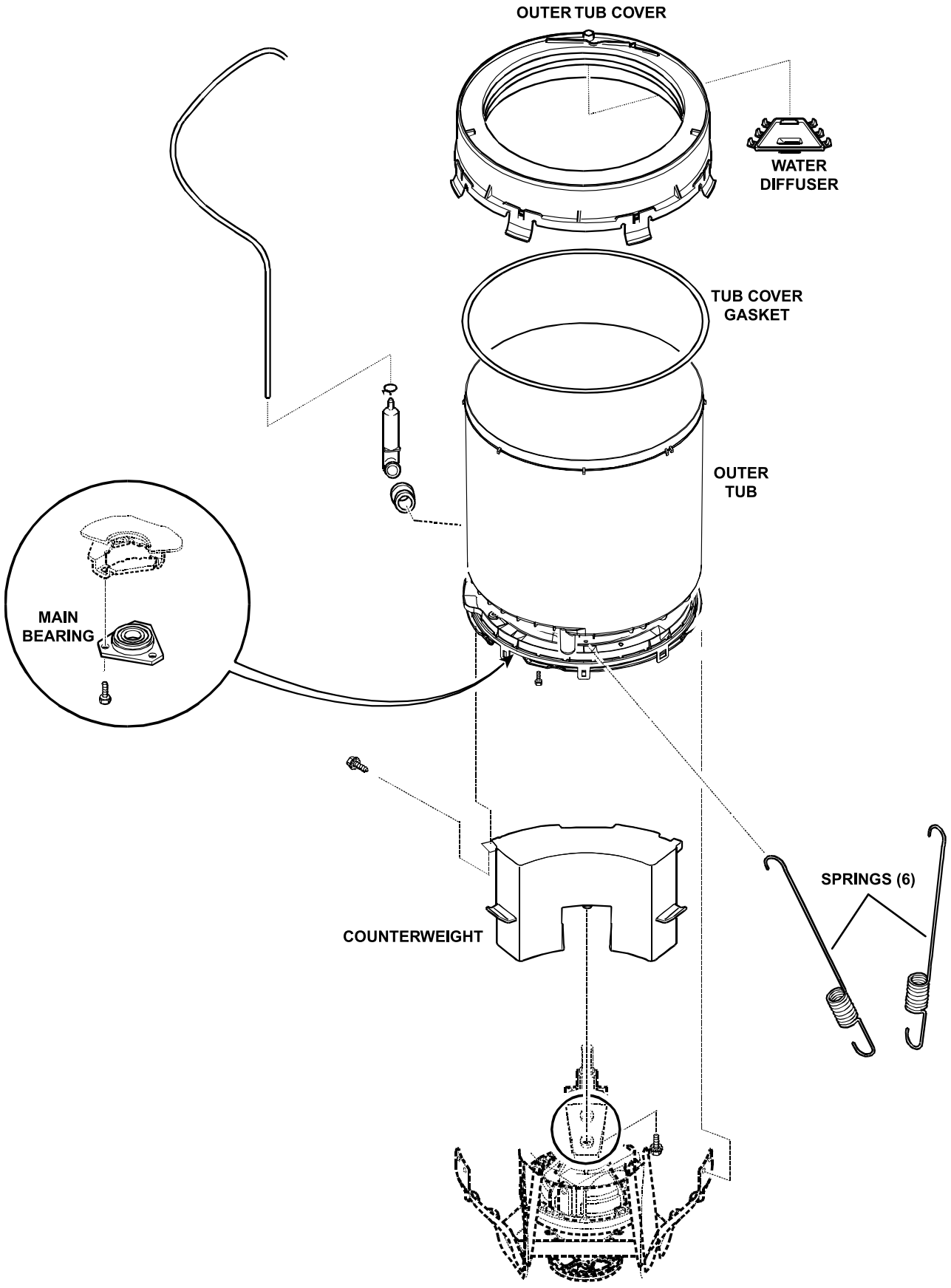
1. Remove outer tub, see "Outer Tub" procedure steps 1 through 11.
2. Remove friction ring and replace with new friction ring.
3. Reverse procedure to reassemble.

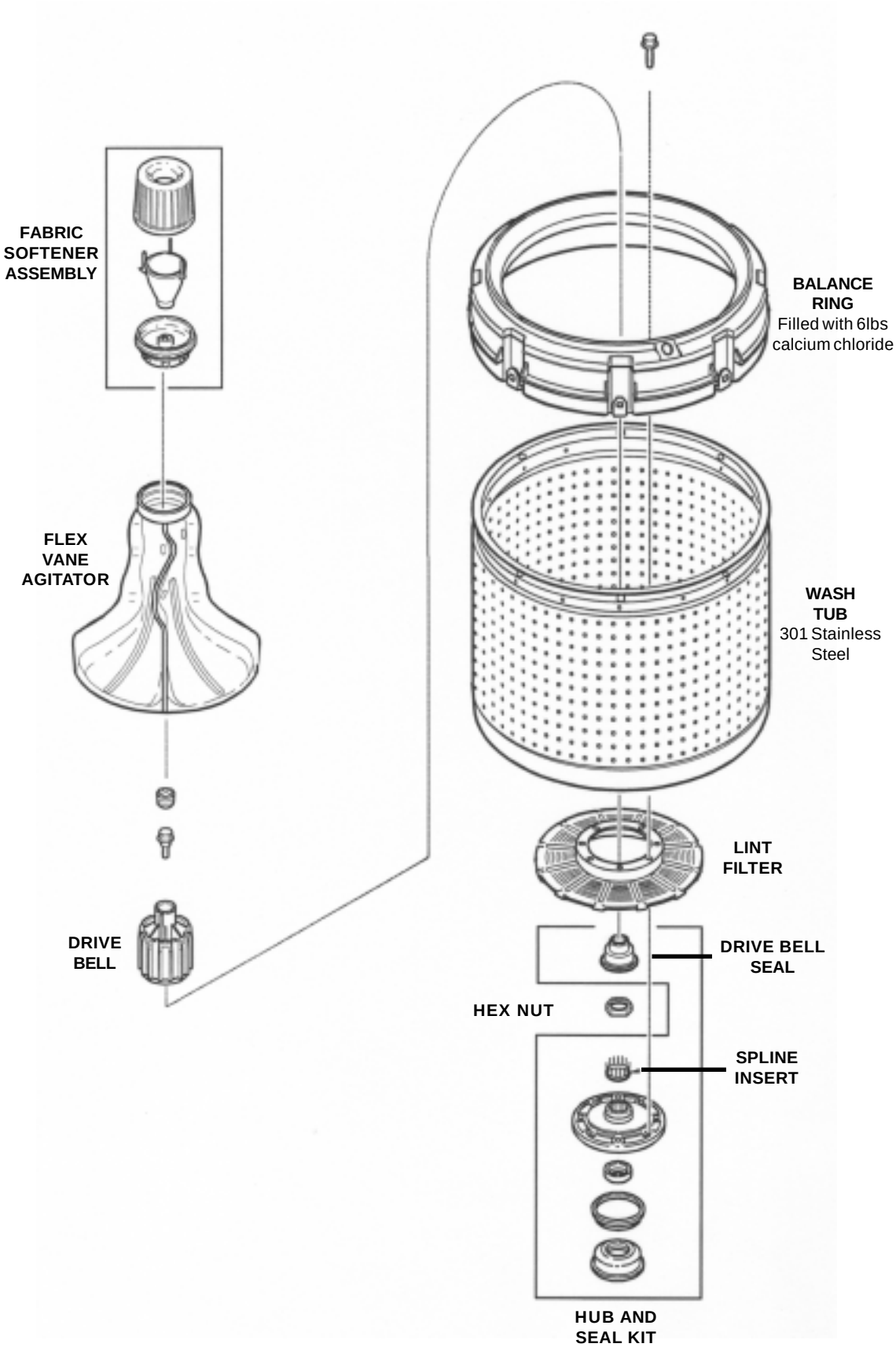
NOTE: When installing module springs, make sure spring hooks are fully seated in the holes.

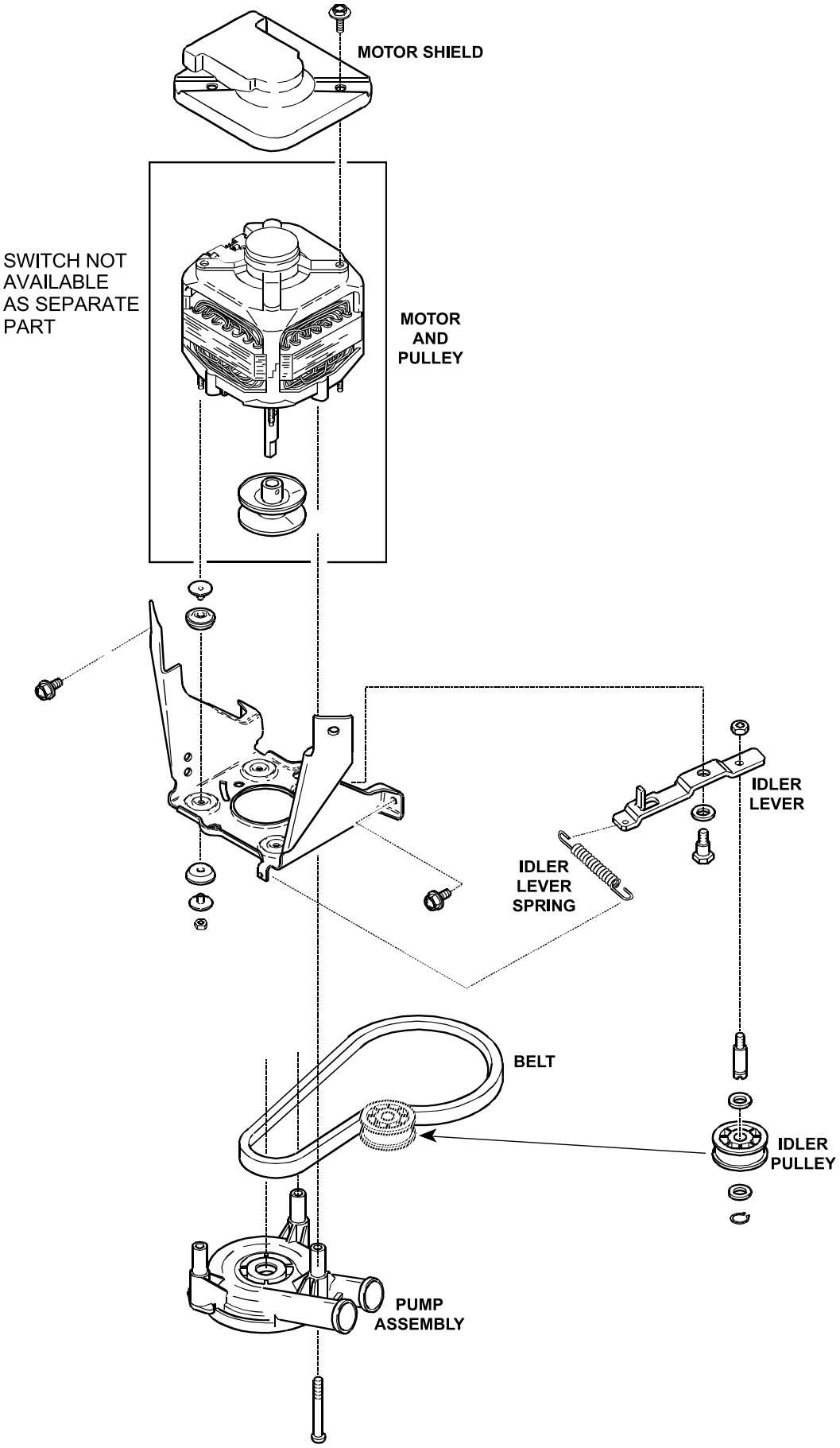

WATER PRESSURE SWITCH
TEMPERATURE SWITCH
SPEED SWITCH
TIMER

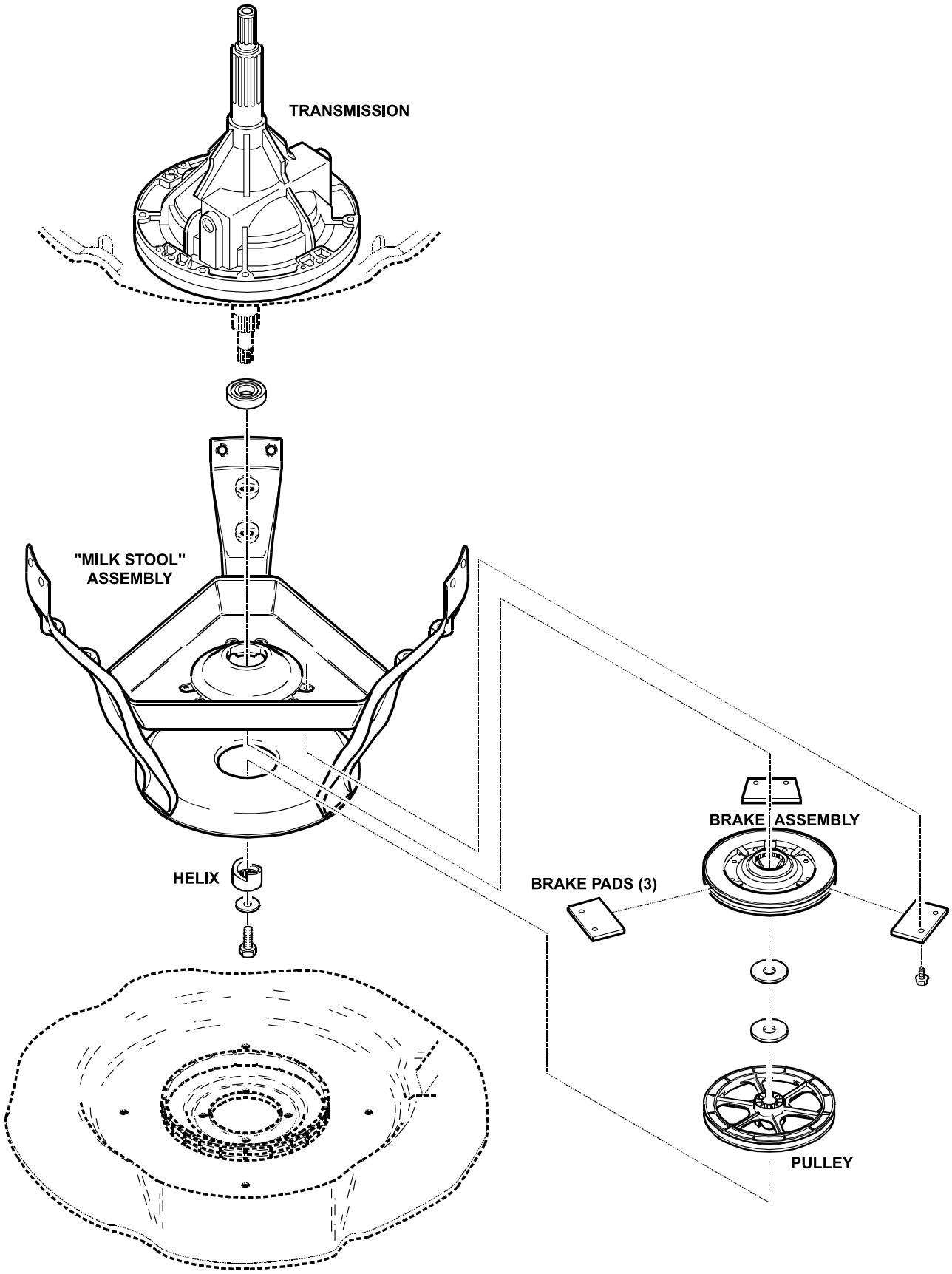

HINGE BUSHING
BLEACH DISPENSER
LID SWITCH
SWITCH ARM


FRICTION
RING


OUTER TUB COVER
WATER DIFFUSER
TUB COVER GASKET
OUTER TUB
MAIN BEARING
SPRINGS (6)
COUNTERWEIGHT


FABRIC SOFTENER ASSEMBLY
FLEX VANE AGITATOR
DRIVE BELL
BALANCE RING
Filled with 6lbs calcium chloride
WASH TUB
301 Stainless Steel
LINT FILTER
DRIVE BELL SEAL
HEX NUT
SPLINE INSERT
HUB AND SEAL KIT


MOTOR SHIELD
SWITCH NOT AVAILABLE AS SEPARATE PART
MOTOR AND PULLEY
IDLER LEVER
IDLER LEVER SPRING
BELT
IDLER PULLEY
PUMP ASSEMBLY


TRANSMISSION
"MILK STOOL"
ASSEMBLY
HELIX
BRAKE ASSEMBLY
BRAKE PADS (3)
PULLEY

Instructions for Installing WH49X10027 Brake Pad Kit

⚠ WARNING

- Disconnect power to washer before servicing
- Never start washer with guards and/or panels removed
- Always reconnect ground wires after servicing

WH49X10027 Brake Pad Kit parts:

Qty	Description
1	Instructions
6	Screws
3	Brake Pads

Installation

1. Before installing brake pads, apply a coating of silicone grease (WH60X10006) to the top and bottom surfaces of each brake pad.
2. When lubricating brake pads, make sure to keep area around screw holes free of grease. This ensures that the underside of screws makes direct contact with brake pad surface.

Instruction Sheet for Installation of Hub and Seal Kit WH01X10151

⚠ WARNING

To avoid risk of electrical shock, personal injury or death; disconnect power to washer before servicing, never start washer with guards and/or panels removed, and always reconnect ground wires after servicing.

WH01X10151 Hub and Seal Kit parts:

Qty	Description
1	Hub and Seal Sub Assembly
4	Screws
1	Spline Insert
1	Gasket (Tub Cover)
1	Drive Bell and Seal Kit
1	Instructions

The following items are not included but required:

Qty	Part Number	Description
1	WH60X15	Sealant (Red 3M800)
1	WH60X10006	Anti-Seize Compound
1	Obtain Locally	Petroleum Jelly (Vaseline®)

Installation Preparation

1. Refer to pub #31-9081 service guide and remove washtub.
2. Remove drive bell and seal following instructions supplied in WH43X10024 Drive Bell and Seal Kit.
3. Remove large hex nut, using Hex Wrench part WX05X10002. See Figure 1.
4. Remove and discard spline insert from transmission tube.

IMPORTANT: Use new spline insert (supplied in kit) when reinstalling large hex nut. DO NOT reuse an old spline insert because large hex nut may loosen during washer operation.

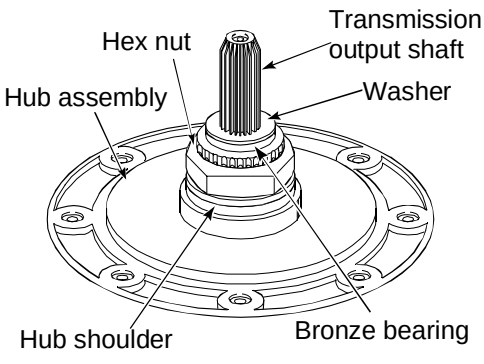


Figure 1

5. Remove hub assembly from splines on transmission tube.

NOTE: A gear puller may be necessary to remove hub assembly

6. Remove water seal from outer tub.

IMPORTANT: Use caution when removing seal so as not to damage outer tub flange.

7. Thoroughly clean all foreign material from inner surface of outer tub flange.

IMPORTANT: All foreign material must be removed from inner surface of outer tub flange before installing Hub and Seal Kit.

8. Apply a small amount of sealant, WH60X15 around outer surface of tub flange and to the seal (Figure 2). See Figure 3, sealant arrow step 8.

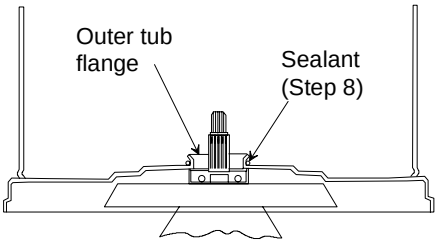


Figure 2

9. Apply a light film of nonstaining petroleum jelly (such as Vaseline®) to bronze portion of water seal and to outer surface of stainless steel sleeve. See Figure 3.

IMPORTANT: DO NOT over lubricate!

10. Insert stainless steel sleeve into water seal from bottom of water seal until stainless steel sleeve is flush with bronze portion of water seal. See Figure 3.
11. Leaving garter spring on water seal, place new water seal over outer tub flange (with seal lip on outside of tub flange). Then press seal into tub flange opening using moderate finger pressure.
12. Carefully apply a small amount of sealant, WH60X15 around outer edge of water seal and tub (area located just below garter spring). See Figure 3.

IMPORTANT: DO NOT allow sealant to contact sealing surface of water seal because it will cause a water leak.

13. Lubricate inner splines of new hub assembly (supplied in kit) with anti-seize compound WH60X10006.
14. Carefully place new hub assembly on splined transmission tube.

IMPORTANT: Firmly push hub assembly down against outer seal and hold in this position during the next three steps.

15. While holding hub assembly down, place new spline insert (with fingers pointing upward) over transmission tube until it bottoms out on hub assembly.
16. Place large hex nut over transmission tube (with larger inside bevel toward spline insert) then finger tighten large hex nut.
17. Torque large hex nut between 40 and 70 foot pounds (5.56 and 9.73 Kgm).

NOTE: If torque wrench is not available, place hex wrench, WX05X10002 over large hex nut, then tap hex wrench with a hammer until hub assembly turns or until large hex nut will no longer tighten.

NOTE: If a lint filter was originally installed between washtub and hub assembly, then it must be reinstalled before installing washtub in washer. Proceed to step 18.

18. Grasp top flange of washtub and carefully lower washtub down onto lint filter (or gasket) and hub assembly.

IMPORTANT: Before setting washtub into place, make sure holes in hub assembly are aligned with holes in lint filter (or gasket).

19. Secure washtub to hub assembly using cap screws supplied in kit.
20. Install Outer Tub Cover Gasket supplied in kit. Refer to pub #31-9081 for installation instructions.
21. Reassemble outer tub cover onto washtub.
22. Install seal, drive bell and agitator. Following instructions supplied in WH43X10024 Drive Bell and Seal Kit.
23. Reinstall cabinet top and front panel.
24. Pour one quart of water into bottom of washtub to lubricate pump.
25. Close loading door, set washer timer to final spin, start washer and allow empty washtub to spin for 30 to 60 seconds.

IMPORTANT: Setting washer to spin allows petroleum jelly (applied to bronze portion of water seal) a chance to cover seal surface before a full tub of water is added to washer.

NOTE: Allow WH60X15 sealant to set for 15 minutes before filling tub with water from time sealant is applied. Customer can wash clothes at this time.

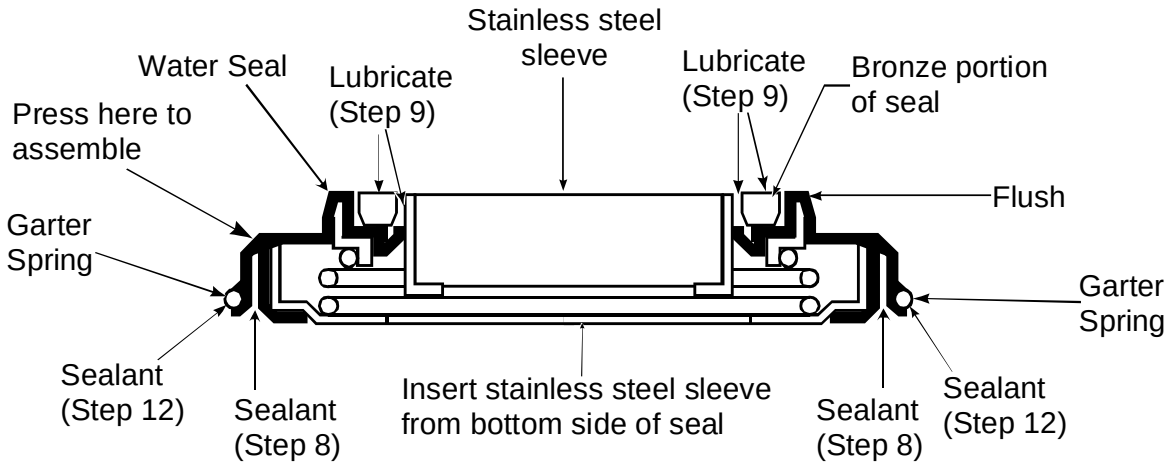


Figure 3

Instructions Sheet for Installing Drive Bell and Seal Kit WH43X10024

Parts Required:

Quantity	Item
1	Seal
1	Plug
1	Shoulder Screw
1	Drive Bell
1	Seal, Bell Drive
1	Grease
1	Instructions Sheet

Procedures:

⚠ WARNING

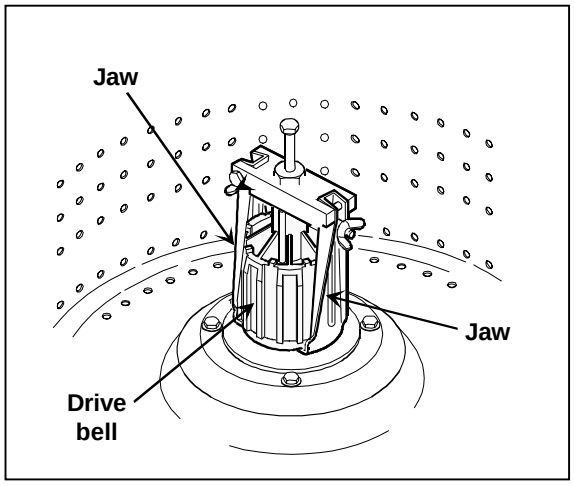
To avoid risk of electrical shock, fire, explosion, serious injury or death:

- Disconnect power before servicing.
- Never start the washer with any guards or panels removed.
- Whenever ground wires are removed during servicing, ground wires must be reconnected to ensure proper grounding.

Drive Bell and Seal Assembly

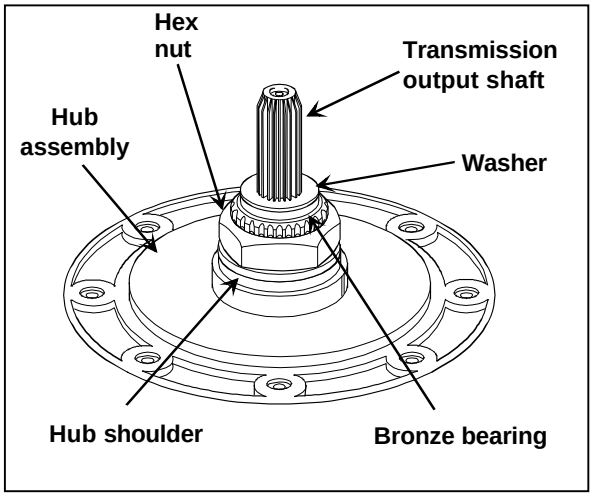
NOTE: If water is present in washtub, remove water before attempting to remove drive bell.

1. Remove agitator, using a rocking motion (side-to-side) to remove agitator Use WX05X1326 agitator belt to remove agitator if necessary.
2. Remove plug (if present), screw (and "O" ring if present) from top of drive bell.
3. Using a hub puller, remove the drive bell from the transmission shaft .

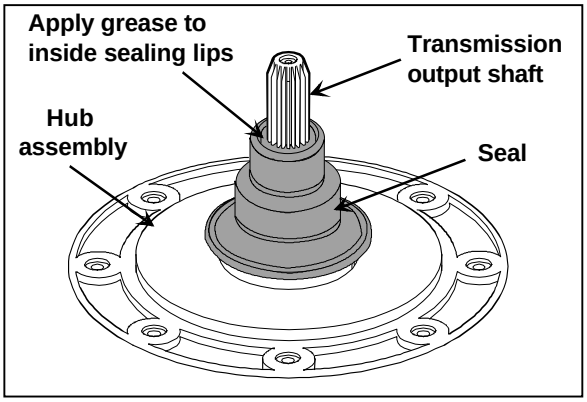


4. Remove old seal from the hub assembly by:
   a. Placing a flat bladed screwdriver between the bottom edge of the seal and hub.
   b. Using washtub bolts as a pry area, pop off lower seal bead.
   c. Grasping bottom of seal and pulling straight up freeing upper seal bead.

5. Clean all foreign material from seal mounting area of hub assembly, bronze bearing and washer.

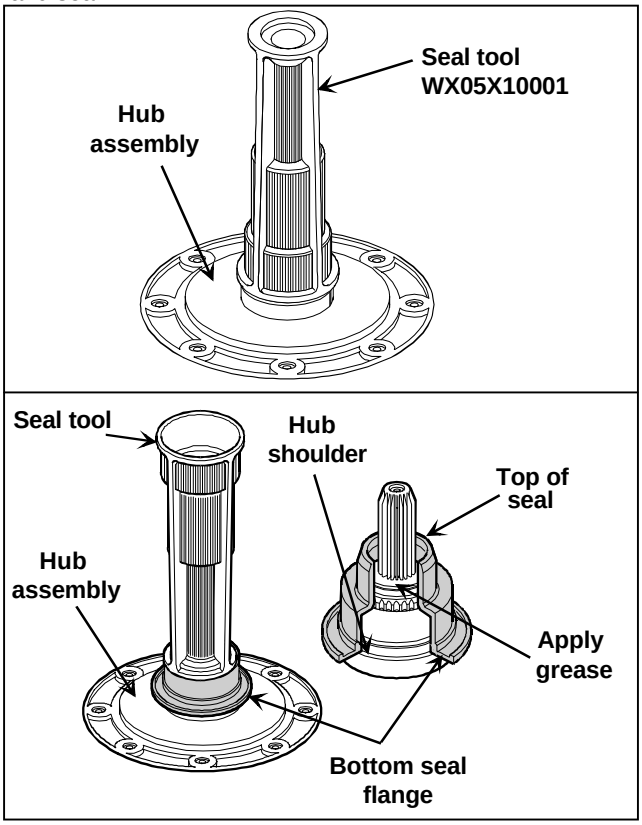


Lubricate new seal with liquid soap or soapy water to aid in assembly of seal onto hub.



6. Apply a small amount of supplied grease to the inside sealing lips of seal.
NOTE: DO NOT allow any lubricants to come in contact with outside surface of seal

7. Apply remainder of supplied grease to exposed surface of washer between transmission output shaft and seal.



8. Place new drive bell seal onto hub and push into position using large end of Seal Tool.

NOTE: Using a small pocket mirror, check entire circumference of bottom seal flange to verify seal is pressed down against shoulder on hub; there should be no gap!

9. Turn the Seal Tool upside-down and place the small end over the transmission output shaft and onto the seal.
10. Push down on tool with a quick motion until it bottoms out and the top of seal is fully seated.

Installing Drive Bell

1. Position the new drive bell over the transmission output shaft. Rotate drive bell until splines in drive bell line up with splines on transmission output shaft.
2. Thread shoulder screw down through hole in top of drive bell and into transmission shaft.

NOTE: Use of “O” ring is no longer required.

NOTE: Tighten new shoulder screw between 60 to 80 inch-pounds (6.86 to 9.15 N-m).

3. Place new plug over hole in drive bell and firmly press into place using the palm of your hand.

NOTE: It may be necessary to insert the end of a paper clip along side of plug as it is pressed into drive bell to release entrapped air.

NOTE: When fully seated plug should not extend above drive bell more than 1/8 inch (3.2 mm).

4. Place agitator on top of drive bell. Slowly rotate agitator until fingers on underside of agitator lineup with large slots on drive bell.
5. A sharp blow on top of agitator with the palm of your hand will force agitator down onto drive bell, allowing fingers on underside of agitator to lock under bottom edge of drive bell.

NOTE: Do not push agitator onto drive bell any