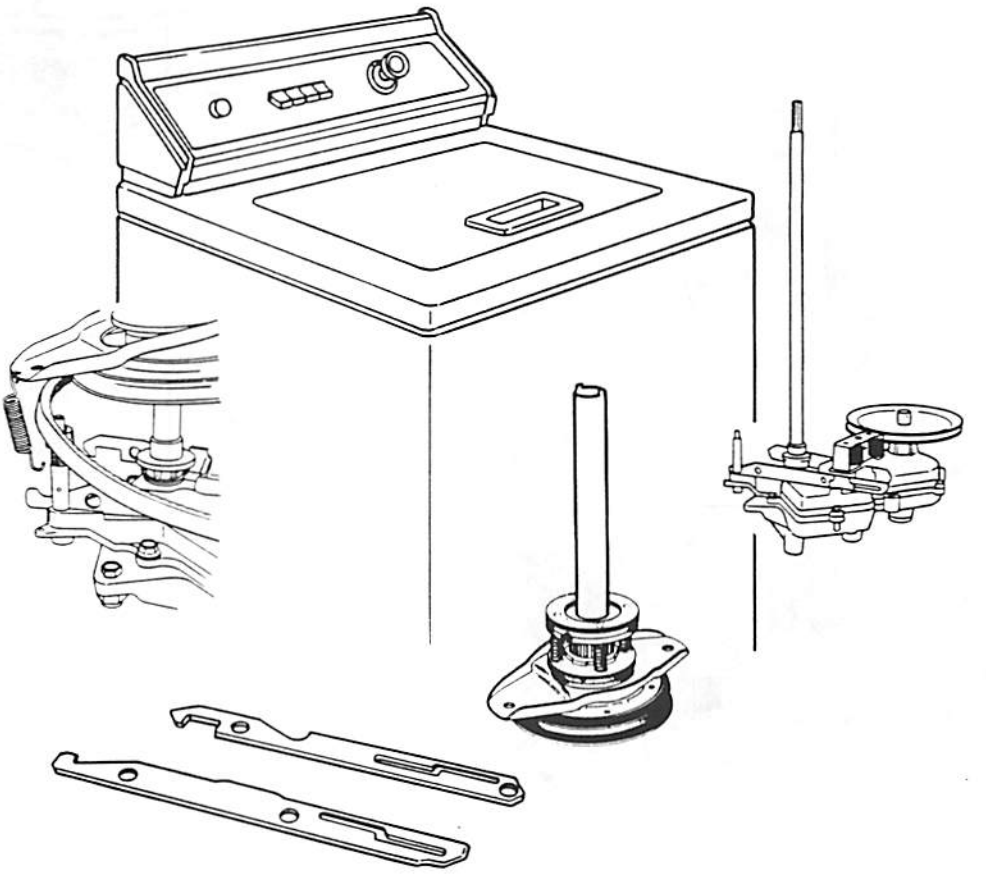
AUTOMATIC WASHER

STUDY COURSE

Belt Drive Models

UNDERSTANDING AUTOMATIC WASHER:
● MECHANICAL COMPONENTS



MODULE 3

LIT787771 Rev. A

CHAPTER 1
MECHANICAL COMPONENTS

The mechanical components of an automatic washer include the cabinet, suspension, spin-basket drive, and braking mechanism, as well as the gearcase. These are the components that most often determine the useful life of the washer.

GEARCASE AND SUPERSTRUCTURE

For purposes of describing the construction and functions of these mechanical assemblies, they will be divide into two major operating units—the gearcase assembly (which controls agitation for the wash and rinse functions) and the spin basket drive and brake assembly, or superstructure, (for spin and braking).

Both of these units have separate pulleys driven by a common motor and a flexible V-belt to provide a deep, nonslip drive. The function of these two units is controlled by the control magnet assembly (wig wag) and two cam bars mounted on top of the gearcase, as shown in Fig. 1. Each unit operates independently; they *never* operate at the same time on a properly adjusted machine.

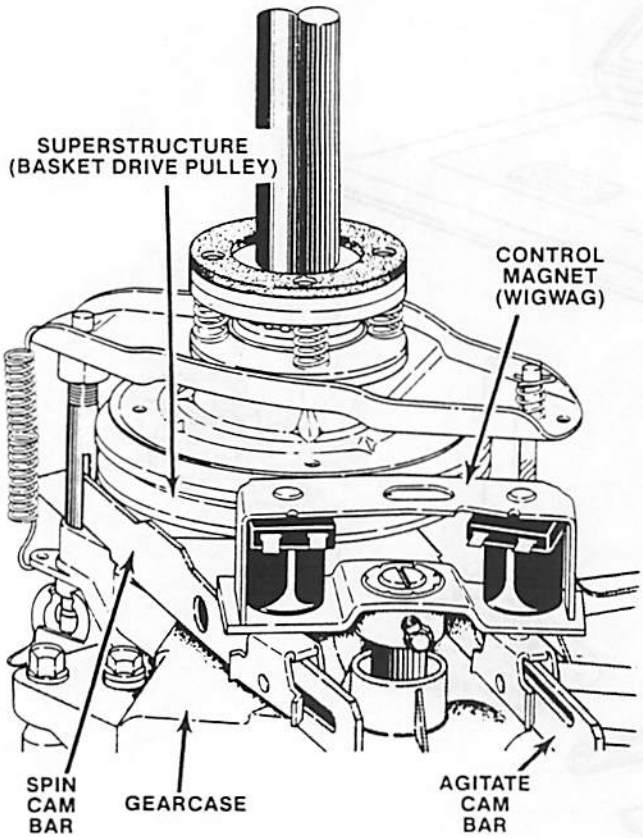


Fig. 1. Gearcase and superstructure assembly.

GEARCASE ASSEMBLY

The main function of the gearcase assembly is to provide a means for driving the agitator—first in one direction, then in the other—providing the necessary washing action. The size of the arc in which the agitator travels in each direction, and the number of oscillations (strokes) it makes per minute, is determined by the particular design of the gears in the gearcase assembly, the size of the pulleys, and the motor speed which drives these gears. Many automatic washers are equipped with a normal-stroke gear case which drives the agitator in a 195° arc, approximately 68 oscillations per minute at high motor speed.

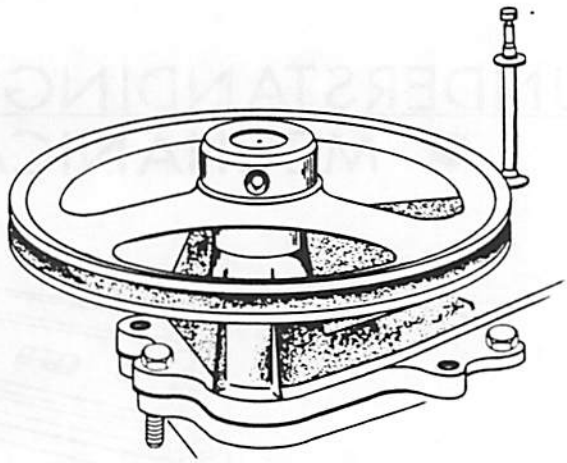


Fig. 2. Gearcase drive pulley.

The gears in the gearcase are driven by a large pulley secured to the top of the main drive pinion be means of a self-locking set screw. This pulley (Fig. 2) is known as the main drive pulley. Fig. 3 illustrates the gearcase assembly after the pulley has been removed and the cover raised prior to complete disassembly.

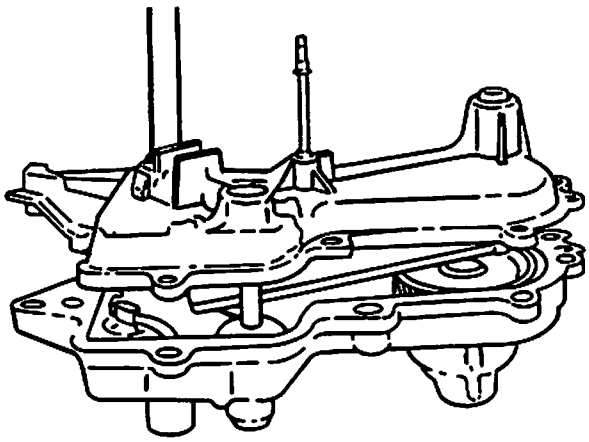


Fig. 3. Gearcase assembly.

The main drive pinion meshes with the main drive gear (Fig. 4), which is mounted on a one-inch diameter stud.

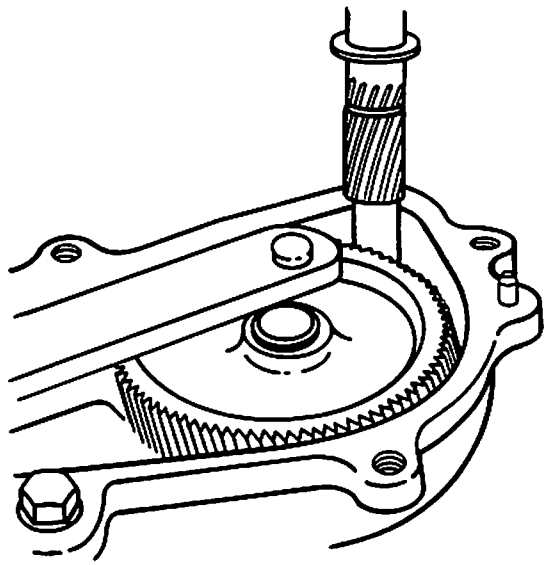


Fig. 4. Main drive pinion and gear.

The main drive gear is coupled to the sector gear (section of a total gear) illustrated in Fig. 5, by means of a heavy steel connecting rod as shown in Fig. 6. Therefore, as the main drive gear rotates the sector gear oscillates. Since the sector gear meshes with the

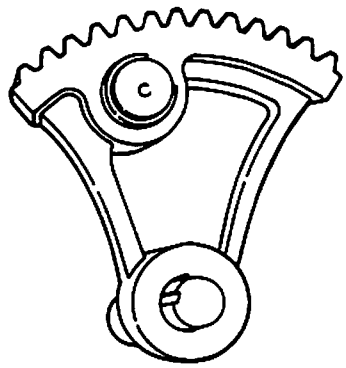


Fig. 5. Sector gear.

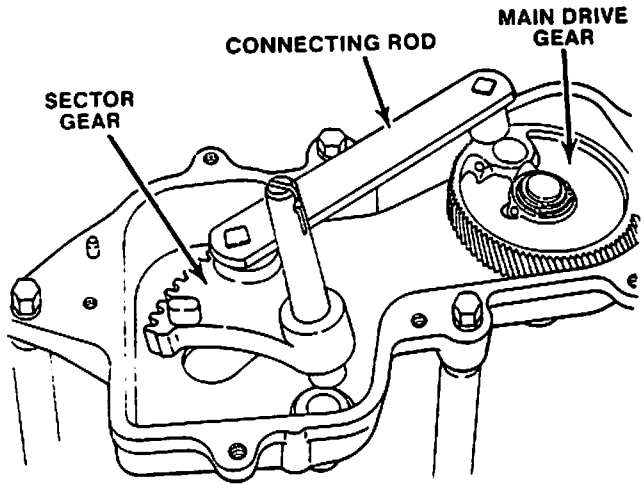


Fig. 6. Gearcase, showing gears and connecting rod.

agitator gear (Fig. 7), this gear will turn first in one direction and then in the other.

To begin agitation, the agitator gear fork moves downward, causing two of the slots in the bottom of the agitator gear to engage the drive pin in the agitator shaft as shown in Fig. 8. Thus, the agitator shaft will oscillate as the sector gear moves the agitator gear, providing the washing action (or agitation).

Both the agitator shaft and the gear-fork shaft are equipped with compression springs which constantly exert a downward pressure. The agitator gear fork is raised by means of the agitator cam bar. This action disengages the agitator gear from the drive pin in the shaft, stopping the action.

The agitator cam bar is mounted on top of the gearcase and is controlled by the plunger which moves up and down in the agitator solenoid.

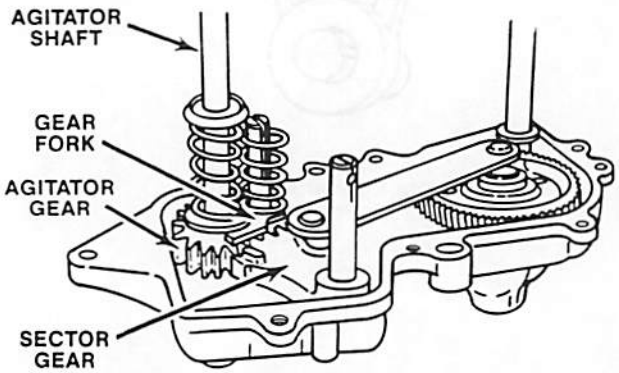


Fig. 7. Complete gearcase assembly.

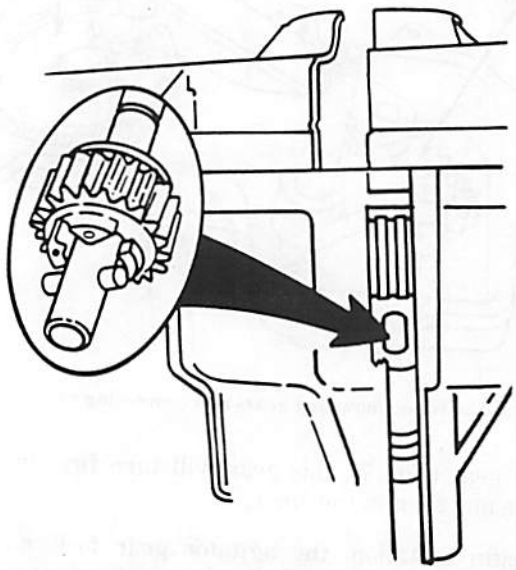


Fig. 8. Agitator gear engaged with agitator drive shaft pin.

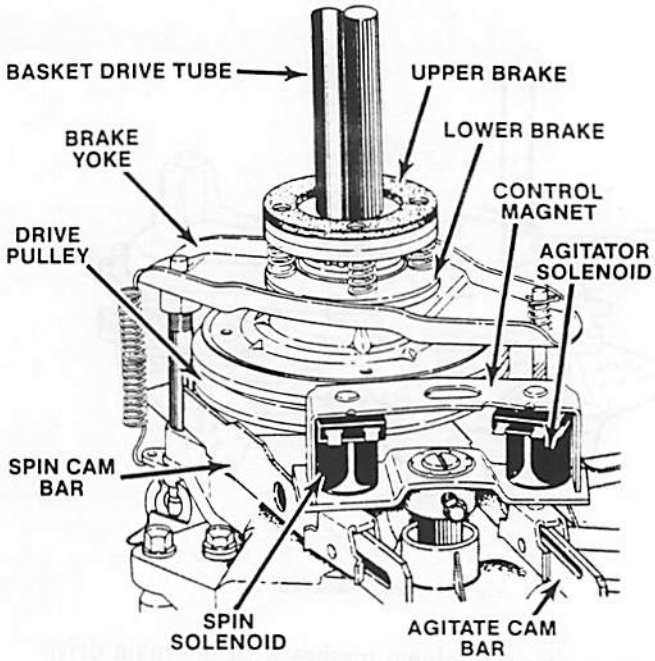


Fig. 9. Basket drive and brake assembly (superstructure).

BASKET DRIVE AND BRAKE ASSEMBLY (Superstructure)

Parts making up the superstructure on top of the gearcase are associated with the basket drive (spin) and braking. The same belt and motor pulley that supplies the power to the agitator drive pulley also drives the basket drive pulley. The basket drive pulley is a part of the basket drive and brake assembly (Fig. 9). It slips over the agitator shaft and rests on the basket support collar on top of the gearcase assembly.

The basket drive pulley is always turning clockwise whenever the machine motor is running. This pulley turns freely on the basket drive tube. Mounted directly above the pulley on the drive tube is the basket drive disc (Fig. 10). A clutch lining which makes contact with the basket drive pulley during SPIN is mounted on the drive disc.

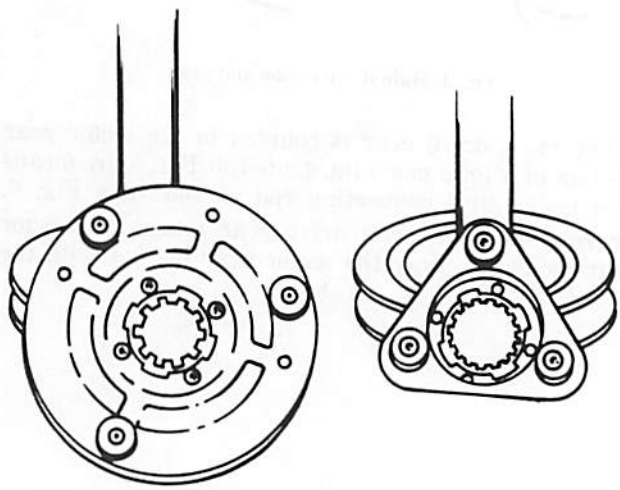


Fig. 10. Two types of basket drive discs.

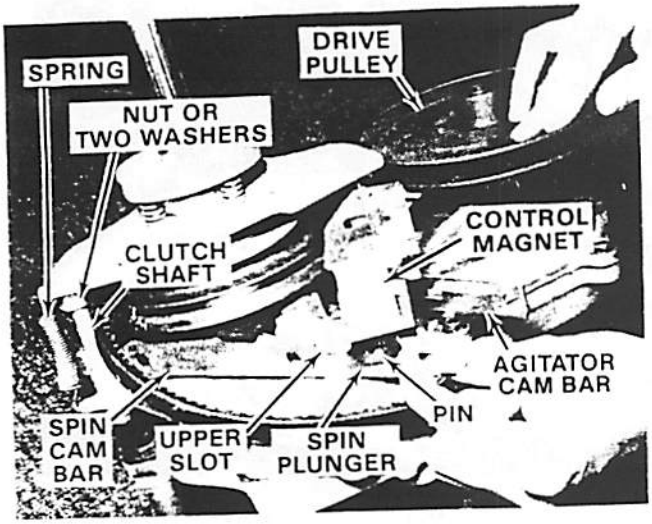


Fig. 11. Superstructure showing cam bar.

Like the agitator solenoid and cam bar, when the spin solenoid is energized its plunger is pulled upward by magnetic attraction. The bottom end of this plunger straddles the spin cam bar, as shown in Fig. 11. A pin through this plunger rides in the slot in the cam bar. The pin in the plunger moves to the upper portion of the slot in the cam bar when the solenoid is energized. Since the control magnet assembly is moving back and forth with the sector gear, this pin pulls the cam bar away from the basket clutch shaft. Because the opposite end of the cam bar is tapered and inserted in a slot in the basket clutch shaft, it causes the brake yoke to move downward. This causes the basket clutch to come into contact with the revolving basket drive pulley. Pressure is provided by the clutch and brake pressure springs.

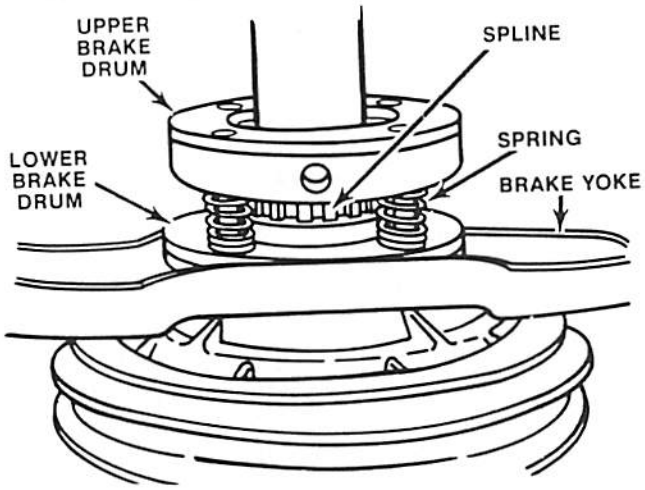


Fig. 12. Upper and lower brake drum assembly.

The upper and lower brake drum assemblies turn with the basket drive disc since they are splined to its hub, as shown in Fig. 12. When the spin solenoid is energized, the brake linings do not contact the braking surfaces, since the brake yoke is not applying pressure to the brake. The brake lining may be riveted to the drum or it may be free floating.

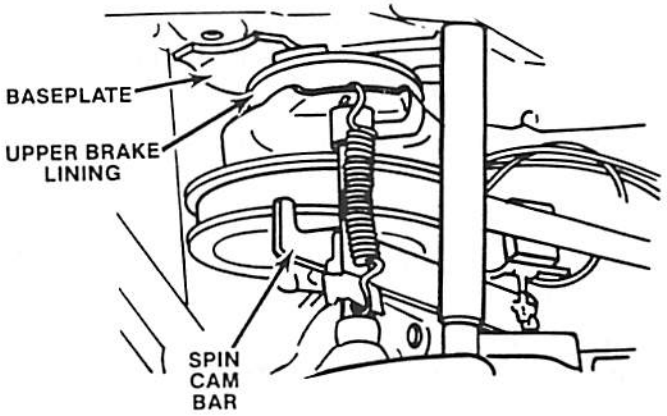


Fig. 13. Braking action.

The upper brake drum is secured to the basket drive tube by a self-locking screw. This tube always turns when the basket drive disc is engaged with the basket drive pulley.

At the end of each SPIN period, the timer switch contacts break the circuit to the spin solenoid. When this action occurs, the plunger in the solenoid drops, since there is no longer any magnetic force pulling it upward. The pin in this plunger then rides in the lower portion of the slot in the spin cam bar and pushes the cam bar forward. The tapered end of the cam bar lifts the basket clutch shaft. This forces the brake yoke upward, separating the basket clutch from the basket pulley.

At the same time, the upward force of the brake yoke brings it in contact with the lower brake lining. The entire superstructure is moved upward by this action causing the upper brake lining to contact the base plate assembly as shown in Fig. 13.

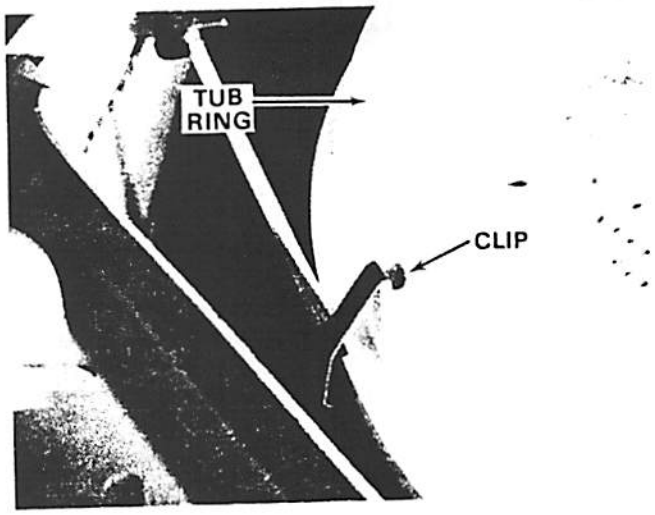


Fig. 14. Tub ring removal.

These two simultaneous braking actions bring the basket to a fast, smooth stop. Four compression springs between the two brake drums provide the necessary force for both upper and lower braking action.

GEARCASE AND SUPERSTRUCTURE REMOVAL

To remove the gearcase and superstructure, the following procedure should be used.

1. Disconnect the power source.
2. Remove the agitator cap, agitator, and the tub ring (Fig. 14).

   NOTE: On older machines that used an agitator drive lug, it is necessary to remove the lug before disassembly can be continued. The drive lug is removed by using a drive lug puller. Hot water poured over the lug will expand it and ease its removal.

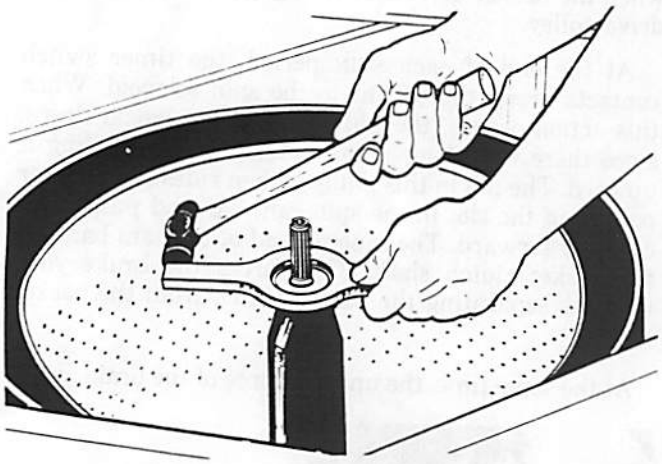


Fig. 15. Spanner nut removal.

3. Using the spanner wrench as shown in Fig. 15, remove the spanner nut. Next use a screwdriver blade to expand the slot in the tapered basket drive block; this releases the drive block from the spin tube. It is at times easier to remove the wash basket and drive block as illustrated in Fig. 16. Now lay the washer on its front on a padded surface, remove the belt from the motor pulley and the pump from the gearcase.
4. Disconnect all electrical wires from the control magnet solenoids.
5. Take out the three screws that secure the gearcase to the baseplate.

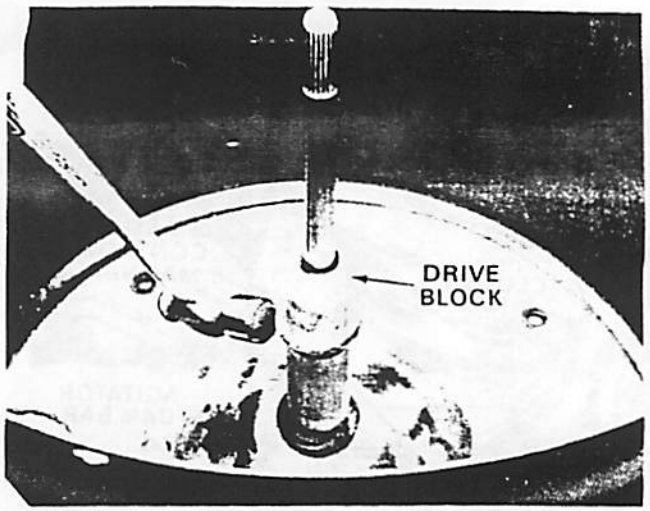


Fig. 16. Drive block removal.

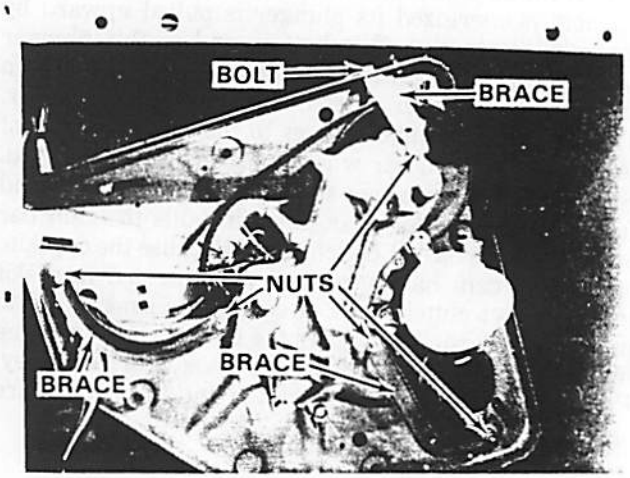


Fig. 17. Support brace removal.

6. Remove the gearcase support braces attached to both the gearcase and baseplate, as shown in Fig. 17. NOTE: It is important for proper machine function that these braces be reinstalled during reassembly. Noise and damage to the machine can otherwise result.

The complete gearcase and superstructure assembly can now be pulled from the bottom of the machine.

Separating the Superstructure From the Gearcase— First remove the hairpin and retaining spring from the brake shoe yoke support (Fig. 18). Current machines use a plastic retainer which snaps into the brake yoke, the yoke support then snaps into the plastic retainer. Take the brake shoe yoke spring off or unsnap the plastic retainer. Now the complete basket drive and brake assembly will slip off of the agitator shaft as can be seen in Fig. 19.

Next, take out the cap screw holding the cam bar brake spring (Fig. 20) and lift it off. Then remove the screw that holds the control magnet to the sector gear

shaft. Lift the control magnet and cam bars off. Using a special tool, slide the cam bars through the agitator control shaft and the basket clutch shaft as shown in Fig. 21. The special tool gives you leverage to overcome the spring pressure on the agitator fork shaft. Loosen the set screw from the main drive pulley and take it off.

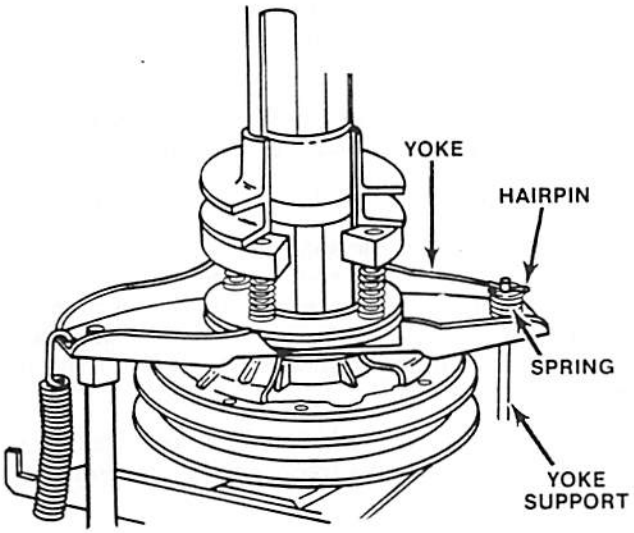


Fig. 18. Retaining spring removal.

Loosen the set screw from the basket support collar and slide the collar off over the agitator shaft. Many automatics use a fiberite collar bearing like the one shown in Fig. 21. This combination support collar and thrust bearing eliminates the metal support collar and set screw. The collar bearing sits in place on top of the support ring, attached to the agitator shaft.

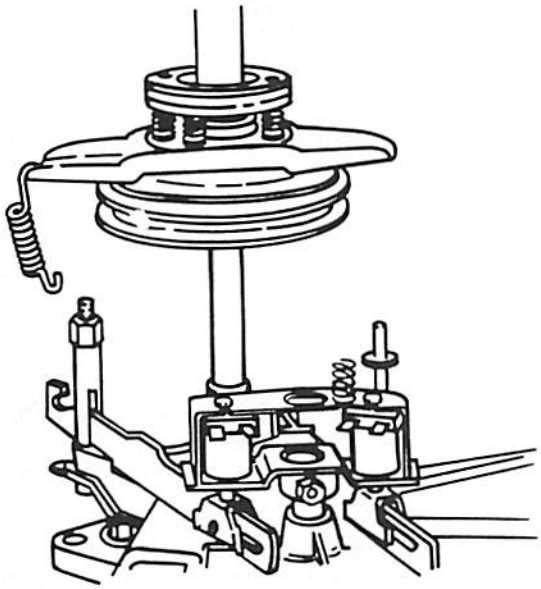


Fig. 19. Removing a portion of the superstructure.

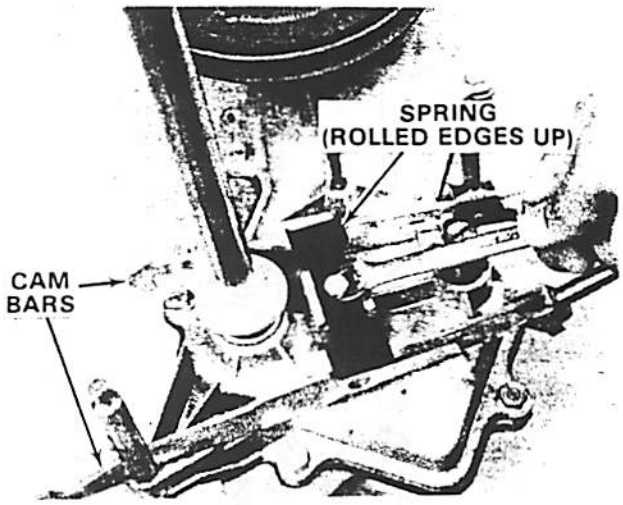


Fig. 20. Removing cap screw from cam bar brake spring.

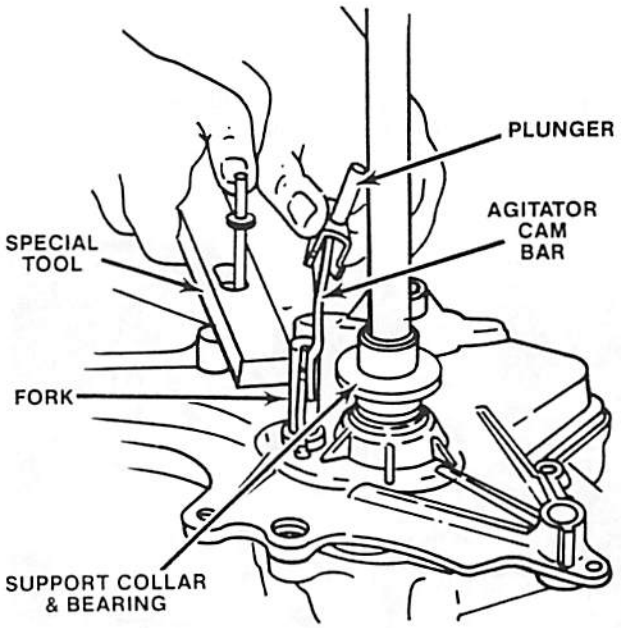


Fig. 21. Cam bar removal.

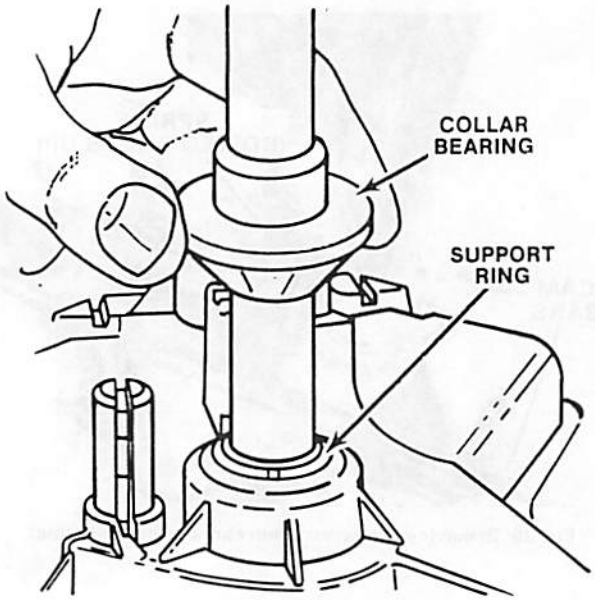


Fig. 22. Collar-bearing support ring.

In the close-up view of the agitator shaft in Fig. 22 the collar bearing is lifted up. We can now see the collar-bearing support ring. The support ring splits apart into two separate halves. A screwdriver placed in the slots on each side of the support ring will allow for removal of the ring halves from the agitator shaft.

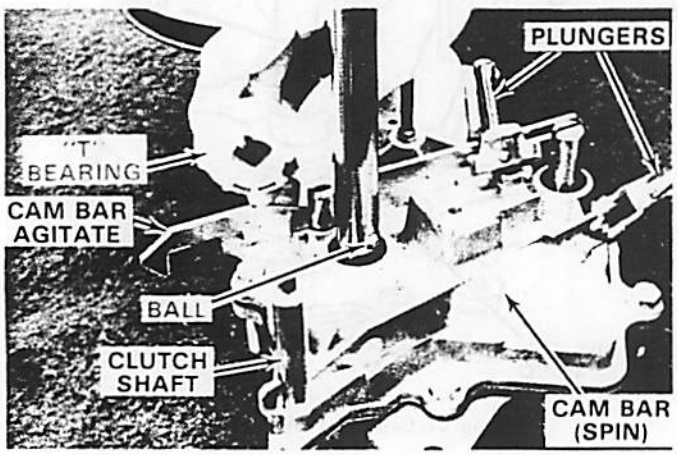


Fig. 23. "T" bearing-steel ball.

Current machines use a steel ball (Fig. 23) mounted in a hole in the agitator shaft. The "T" bearing has a groove in it so that when you slide it down the agitator shaft, the groove fits over the steel ball. Be careful, as this steel ball may fall out of the hole in the agitator shaft. The gearcase is now free and easy to work with. After removing the cap screws holding the cover to the gearcase, lift the cover off. Careful prying with a screwdriver may be necessary to release the cover from the dowel pins positioning it to the case. Use extreme care so as not to damage the mating surfaces.

Rebuilding the Gearcase

To completely rebuild a gearcase the following procedure is recommended. First, disassemble the gearcase and clean all parts in a solvent. Wire brushing will help. It is important that the case be as clean as possible; any dirt or grit can quickly ruin a bearing or shaft. Blow out the pinion, sector, agitator, and fork shaft holes to remove any hidden dirt or metal particles. **Be sure to wear safety glasses while doing this.**

Visually examine these parts for excessive wear:

Pinion Gear—Insert the shaft of the pinion gear in the cover bearing—there should be no play. A slight scoring of the shaft at the bearing is acceptable as long as the area is not undersized. Teeth areas of the gear should appear to have uniform wear and be free of sharp nicks.

Main Drive Gear—Teeth should appear to have uniform wear and should be free of pitting, broken areas, and sharp nicks.

Connecting Rod—Be sure the studs are securely staked (fastened) to the bar. The stud should show no appreciable wear.

Sector Gear—Teeth should have uniform wear and be free of pitting and sharp nicks. Check the connecting rod hole for wear. A slight amount of play is acceptable but the hole should not be egg shaped. Make sure the shaft is tight in the gear.

Agitator Gear—If the gear is badly rounded where it slides on the drive pin, replace it. A *small* amount of wear will not affect gear operation.

Agitator Shaft—The plating on the shaft should not be scored or damaged in the seal or bearing area. The drive pin on the end of the shaft should not have excessive wear.

Gear Case Cover—Check the cam bar slots for broken sides. If the pinion bearing is worn, only the bearing need be replaced. If the cam bar has worn the cover in the area of the gear fork, a special hardened steel washer should be used. The washer fits over the gear fork shaft between the cam bar and cover.

Micellaneous Items—Carefully check such things as the agitator shaft, thrust washer, and bearing for distortion. Inspect cam bars, pins, and plungers for wear.

Reassemble the gearcase using only *new parts* where required. Refill the gearcase with 12 to 15 ounces of S.A.E. No. 60, *nondetergent* motor oil (check specifications) before installing the cover. Prior to securing the

cover bolts, make sure that the pinion has at least ⅛-inch *vertical* travel. This will insure adequate clearance between the pinion bearing and pinion washer after the cover bolts are tightened.

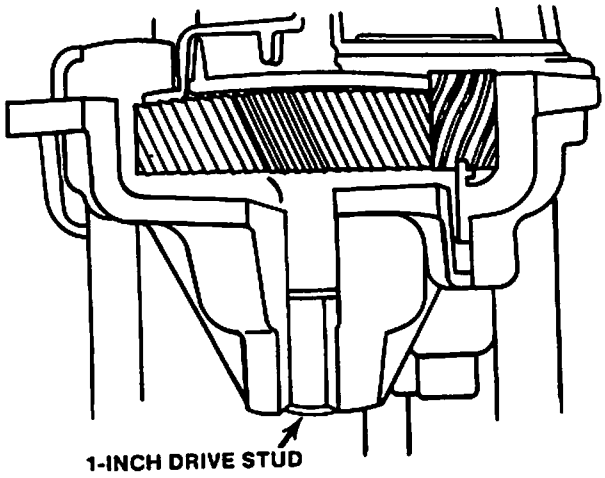


Fig. 24. Gearcase with one-inch drive gear stud.

GEARCASE ADJUSTMENT PROCEDURE

Two general types of gearcases have been used. They can be recognized by the size of the drive gear studs and the presence or absence of an eccentric adjustment screw. Those gearcases with a 1-inch drive gear stud (Fig. 24) require no gear adjustment. Gearcases with a ¾-inch eccentric drive gear stud are adjusted in the following manner *if the repair is made in a shop.*

Turn the eccentric to the low side (Fig. 25) and check the pinion for freeness.

To adjust the eccentric stud, hold the locking nut with one wrench and turn the stud with another. Adjust the stud until the main drive pinion pulley has a slight drag when turned by hand. NOTE: Do not cause excessive bind or drag between the pinion and main drive gear by over adjusting the stud. You could damage the gear teeth. A final adjustment requires the use of a wattmeter. Such a meter *must* be installed in series with a test stand motor. Because of motor wattage variances, the "no-load" wattage must be subtracted from a total reading. Mark a line on the glass at the reading with the motor running with no load, then add 200 watts to this reading and make another line on the glass. The wattage *should not exceed* the second line on the meter face when the gearcase eccentric is properly adjusted.

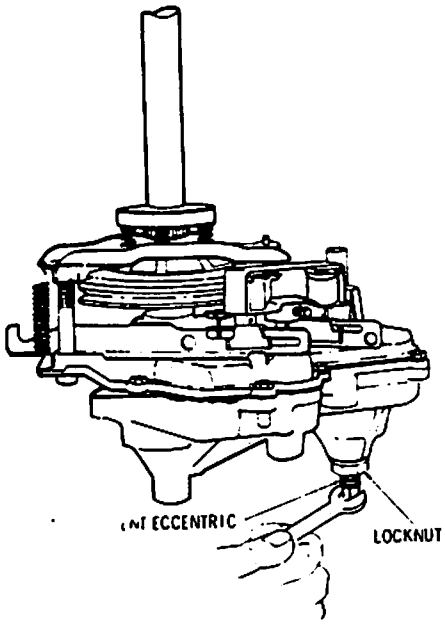


Fig. 25. Eccentric adjustment.

After the gearcase has been adjusted, allow it to operate for at least ½ hour before checking for noise level. Readjust the eccentric slightly to correct any unusual noise while observing the wattmeter.

To check the eccentric adjustment *in the home*, fill the washer with water and let it agitate. If, with the machine agitating under a full load of water, there is a knocking sound in the gearcase, the adjustment is too loose. If this occurs, readjust the eccentric stud until the knocking stops. Ease off the adjustment, as much as possible without permitting a knock. Then tighten the locking nut.

NOTE: The gearcase should not be carried or handled by the agitator shaft. The spring between the agitator gear and cover will allow upward travel of the shaft. If the shaft is pulled up too far, the thrust bearing washer may cock out of position and prevent the shaft from proper seating on the bearing.

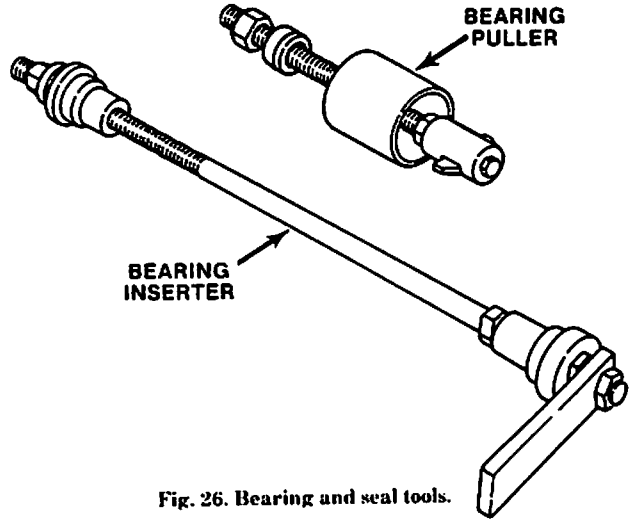


Fig. 26. Bearing and seal tools.

REPLACING CENTERPOST BEARINGS AND SEALS

When installing the gearcase and superstructure, always check the tub centerpost bearings. Worn centerpost bearings and seals should be replaced.

Removal of and replacements of the upper and lower bearings and seals is accomplished by using the special tools illustrated in Fig. 26. Using the puller tool the bearings and seals are removed as illustrated in Fig. 27.

NOTE: Before installing new centerpost bearings and seals, it is important that the inner wall of the entire tube centerpost be cleaned with a wire brush or similar tool. As there is no seal directly above the lower bearing any foreign matter left in the centerpost could fall into the bearing area.

Using the special bearing inserter tool, install a single lip seal *(with the seal lip up)* in the top of the centerpost. Then press a new bearing only into the top and bottom of the centerpost. This is illustrated in Fig. 28.

Install a new single lip seal into the bottom of the centerpost beneath the bearing, being sure that the lip of the seal is up. Add approximately ½ ounce of Rykon No. 2 grease in the lower bearing section before installing the gearcase and superstructure.

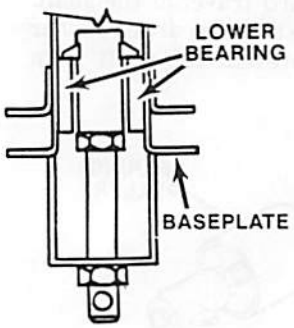


Fig. 27. Bearing and seal removal.

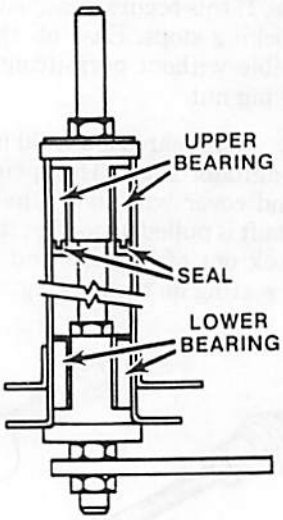


Fig. 28. Bearing and seal insertion.

Install the gearcase and superstructure, being careful not to damage the new centerpost seals when inserting the top of the basket drive tube through them.

Before installing the agitator shaft seal and top centerpost seal, add *turbine* oil in each cavity to a level just above the bearing. Each cavity has a seal installed just below to retain the oil.

Install the agitator shaft seal and the top centerpost seals with the lip up.

Checking Centerpost and Gearcase Alignment

With the machine completely reassembled (not including agitator), check the alignment of the gearcase with the centerpost bearings in the following manner:

The spin cam bar must be advanced to the spin position. Push up on the spin control solenoid plunger and rotate the main drive pulley until the cam bar advances to the spin position (Fig. 29).

Then, lift the basket and release it. When released, the basket should return to its original position if the gearcase alignment is correct.

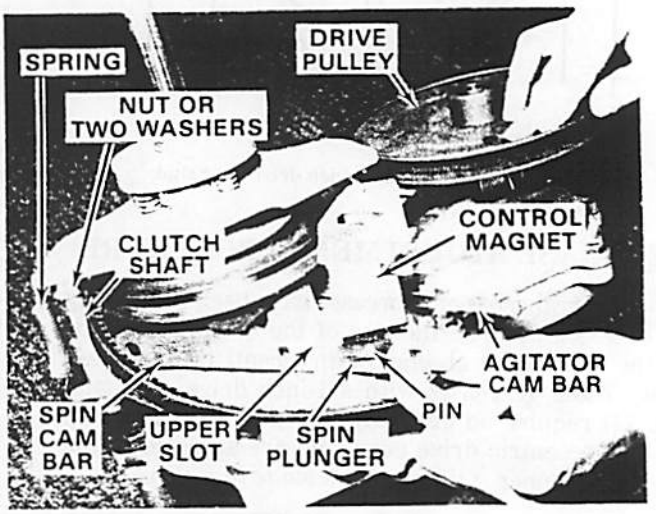


Fig. 29. Advancing spin cam bar.

Misalignment can be corrected by loosening the belt tension, the three gearcase mounting screws and the three support braces. This allows the agitator shaft and spin tube to properly align themselves in the centerpost bearings. Retighten the three gearcase mounting screws and braces. Then readjust the belt tension.

If the basket does not readily move up and down, correct the problem by loosening one gearcase mounting screw at a time until misalignment is relieved. If the misalignment occurs at the gearcase mounting screw

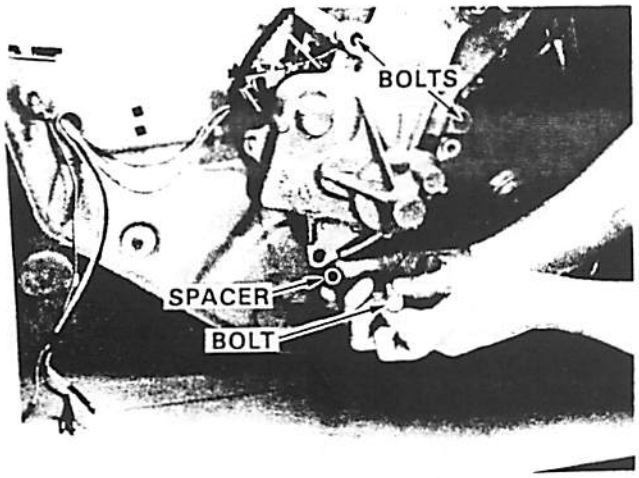


Fig. 30. Spacer replacement.

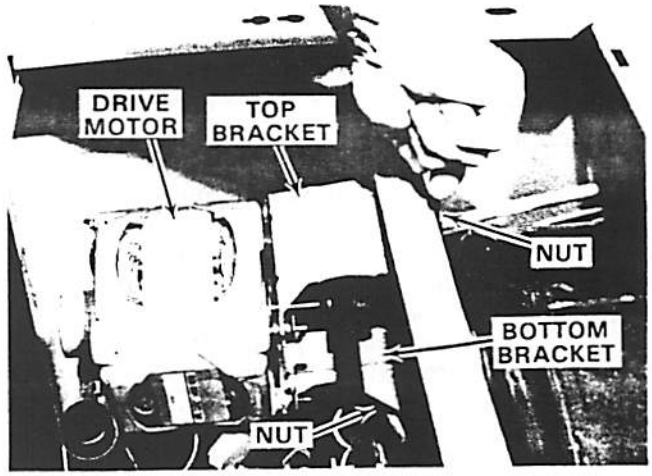


Fig. 31. Loosening motor mounting nut.

where the support spacer (Fig.30) is inserted, replace the spacer. However, if it takes place at one of the other two gearcase supports, shim them as needed. Special horseshoe shim washers are available for this purpose.

Complete the reinstallation of the gearcase and superstructure by heating the drive lug, *if used*, in hot water so that the lug can be positioned with 2 or 3 light taps of a hammer. The drive lug *must fit* the shaft tightly to prevent noisy operation.

Drive Belt Replacement

Remove the rear access panel and loosen the nut holding the motor mounting bracket in the slotted baseplate hole, as shown in Fig. 31.

Rotate the motor to the right to relieve the belt tension, and remove the belt from the motor pulley. Then move the motor to the left as far as the baseplate slot will permit.

The spin cam bar must be advanced to the spin position. Push up on the spin control solenoid plungner and rotate the main drive pulley until the cam bar advances to the spin position.

Fig. 32. Brake yoke spring removal.

Remove the brake yoke spring. Grasp the bottom loop of the spring with a pair of pliers and disengage the spring from the hole in the upper gearcase cover, as shown in Fig. 32.

Remove the three gearcase support braces from the gearcase. It will be necessary to loosen the nuts at the baseplate ends of the braces. These braces must be replaced after the belt replacement is completed.

Remove the two pump mounting bolts and swing the pump clear of the gearcase. When replacing the pump, make certain that the pump lever is engaged in the notch in the agitator cam bar before securing the pump to the gearcase. *Use only the pump bolts with the special retaining washer to mount the pump.* Take out the gearcase mounting screw which has the spacer. Remove the spacer.

Use a puller as shown in Fig. 33 to raise the clutch shaft sufficiently to clear the cam bar. (Channel-lock pliers can also be used in place of the puller) slide the cam bar out of the clutch shaft. Then remove the puller, allowing the shaft to fall. Insert the new belt through the gap between the shaft and the yoke and reinsert the cam bar.

Replace the spacer and position the new belt over the pulleys. Replace the pump and the three support braces. A socket speed wrench is an excellent timesaving tool.

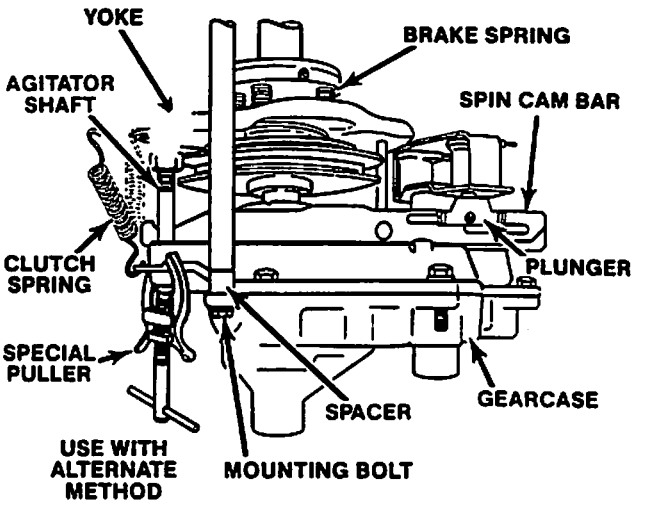


Fig. 33. Raising clutch shaft with puller.

DRIVE BELT ADJUSTMENT

With the belt positioned properly over the pulleys, adjust the belt tension. Insert a hammer handle or some other lever between the motor mounting brackets, as shown in Fig 34. Rotate the motor to the left as far as it will go. Tighten the nut holding the motor mounting bracket. Check the tension of the belt; it should deflect about ½ inch, midway between the two pulleys.

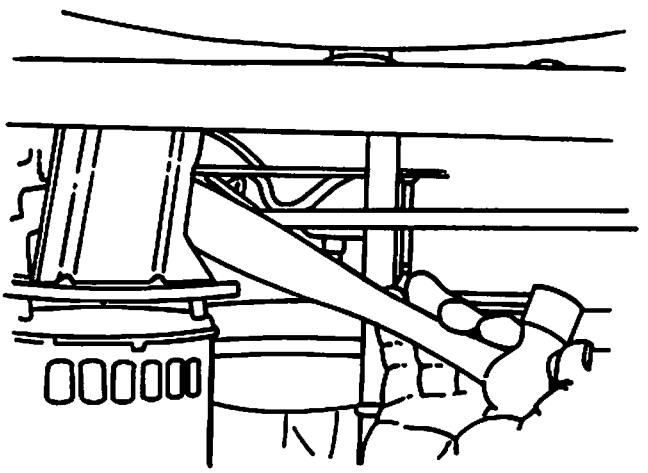


Fig. 34. Belt tension adjustment.

BASKET DRIVE CLUTCH ADJUSTMENT

To adjust the clutch after service, start the machine in agitation so that the clutch is disengaged and then stop it.

Adjust the nut on the basket clutch shaft, as shown in Fig. 35, to obtain clearance of 1/16 inch between the clutch lining and the clutch surface when the clutch is disengaged. On those automatics that use three clutch pads on the basket drive discs it is necessary to line up one of the three pads with the clutch shaft before making the adjustment.

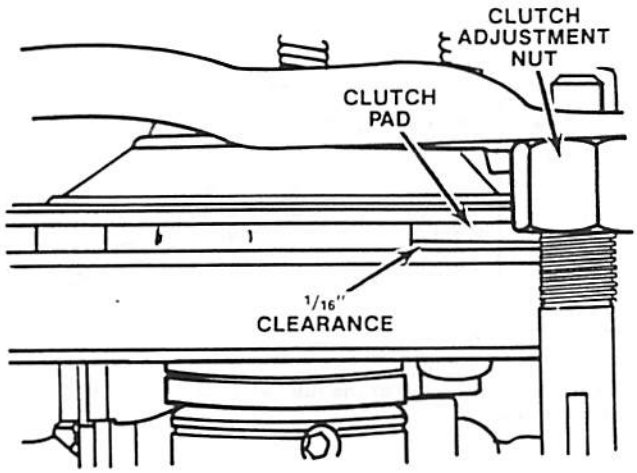


Fig. 35. Clutch adjustment.

AGITATORS

Agitators used on automatic washers are molded from either bakelite or polypropylene. Although the shapes of the agitators may vary among models, there are only two different means of driving the agitators.

Many agitators are driven by a hexagon tapered drive lug which is pressed onto the agitator shaft. A hex head stud screws into the top of the agitator shaft. The agitator cap screws onto the top of the stud and holds the agitator down. Always make sure the rubber washer is between the agitator and cap.

Another method of driving agitators is by utilizing an agitator which is pressed directly onto the splined agitator shaft, eliminating the drive lug. This type agitator can be used on automatics with drive lugs by removing the lug. Fig. 36 shows some typical agitators.

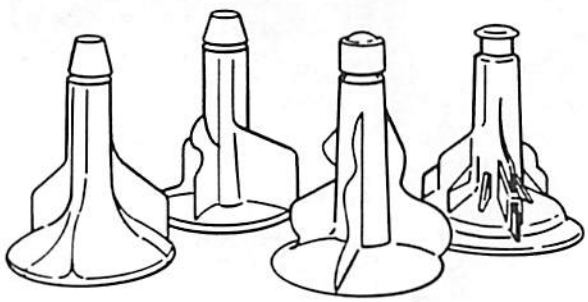


Fig. 36. Typical agitators.

SPIN BASKET

The porcelain-finished basket is perforated to allow free-flow draining. A conical-shaped bottom with a high centerpost provides a clean smooth surface that does not trap sediment and soil deposits.

If the basket is loose on the spin tub, it will cause excessive noise. Correct by tightening the spanner nut. Make sure the spin tube ears are positioned in the drive block notches. Any wear in the drive block notches requires replacement.

Examine the inside of the basket to be certain that there are no sharp edges or perforations that might cause clothing damage. If rough spots are found, sand or buff them off. Seal the sanded areas with epoxy.

TUB

Two types of tubs are used—porcelain or "Duratite" (a plastic). They cause almost no service problems.

BASEPLATE

The baseplate provides the mounting for the tub, gearcase assembly, and main motor. The baseplate is suspended from the top of the cabinet assembly by three suspension rods, as shown in Fig. 37. These rods are mounted in a manner that permits limited movement of the mechanism without transmitting vibration to the cabinet.

Each suspension rod is fitted with a rubber ball at its upper and lower ends. These suspension balls are under tension when enclosed between the socket and cap. The flexing of the ball permits a limited amount of movement to the baseplate assembly.

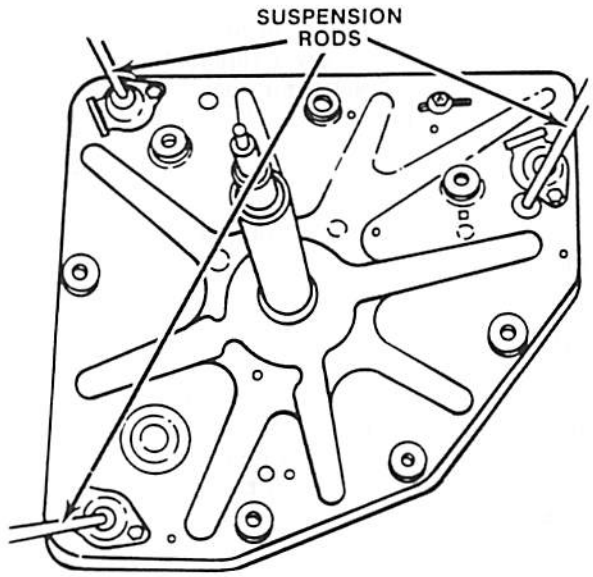


Fig. 37. Baseplate and suspension rods.

SNUBBER

A snubber (Fig. 38) is used on each machine to reduce the motion of the baseplate and tub assembly during spin acceleration. The snubber should prevent an unbalanced load from causing the baseplate to strike the cabinet.

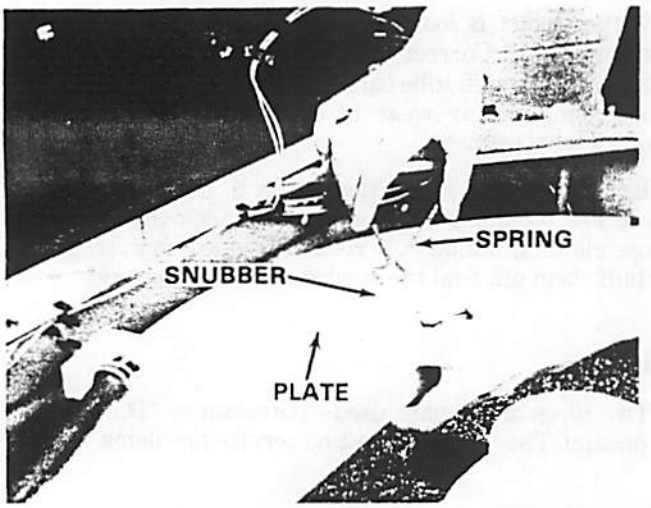


Fig. 38. Snubber assembly.

The snubber assembly consists of a tempered-steel wire spring secured to the right rear corner gusset of the cabinet, and a snubber pad that presses against the top of the tub ring.

If there is excessive vibration or noise due to a worn, loose, or oily snubber, the snubber pad *must* be replaced. To replace it, unlatch and raise the top assembly. Then lift up the snubber spring and remove the snubber pad.

Checking Centerpost Bearings and Seals

Because of oversudsing, lack of lubricant, or normal wear, it is sometimes necessary to replace the centerpost bearings and seals. To check for such wear, raise the top, and grasp the agitator cap with one hand and the spin basket with the other hand. Hold the basket firmly, and vigorously shake the agitator back and forth. A worn bearing will click slightly or feel loose. This condition can cause a noise complaint and/or torn clothing.

Tub Ring

The tub ring, or splash shield, is seated on top of the tub. The tub ring is held in place by four clips, as shown in Fig. 39. The clip located at the trough area is shorter than the other three. A rubber gasket is used to provide a cushion between the tub ring and the tub,

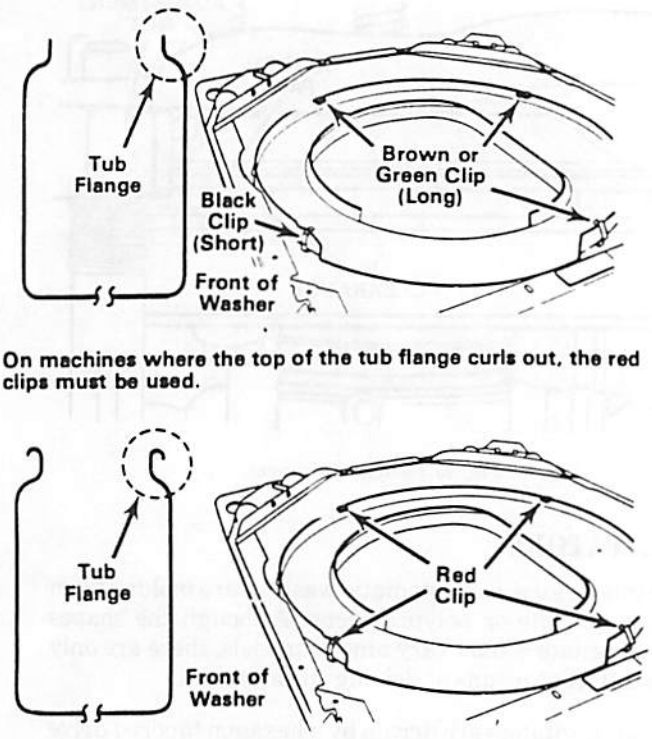


Fig. 39. Tub ring mounting.

(Fig. 40). The gasket provides a tight seal around the top rim to prevent water from going out over the top of the tub during the spinning function and helps to prevent water from splashing over during agitation.

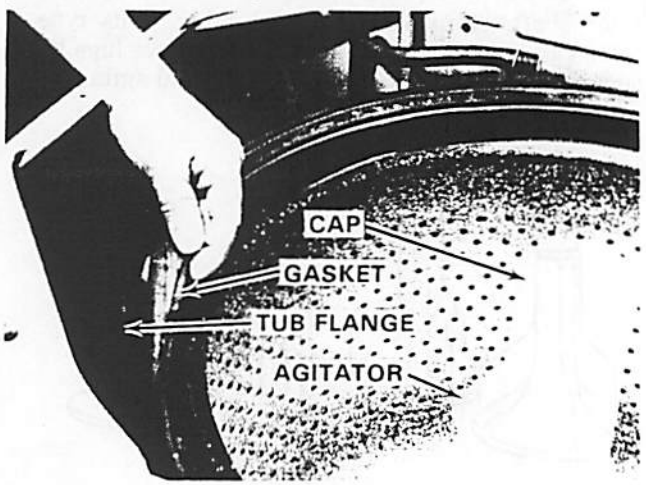


Fig. 40. Tub ring gasket.

HINGED TOP

The cabinet top is hinged at the rear to provide access for servicing many of the components of the automatic washer. To raise the hinged top assembly, raise the lid, grasp the top assembly at the front of the lid opening, pull slightly forward and raise the top upward, as shown in Fig. 41. It will pivot back on its hinges.

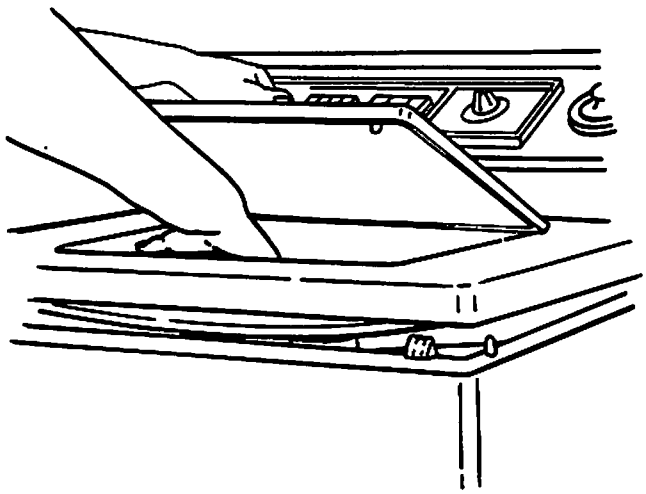


Fig 41. Raising the hinged top.

LATE PRODUCT CHANGES IN LARGER CAPACITY WASHERS

Changes have been phased into production on all large-capacity models. The modifications involve the basket, baseplate, superstructure, and gearcase.

The basket is the same size as previous large capacity baskets, except that it has a shorter centerpost. The baseplate centerpost is also shorter. A revised standard 14-pound gearcase and superstructure assembly is used in the modified large capacity unit.

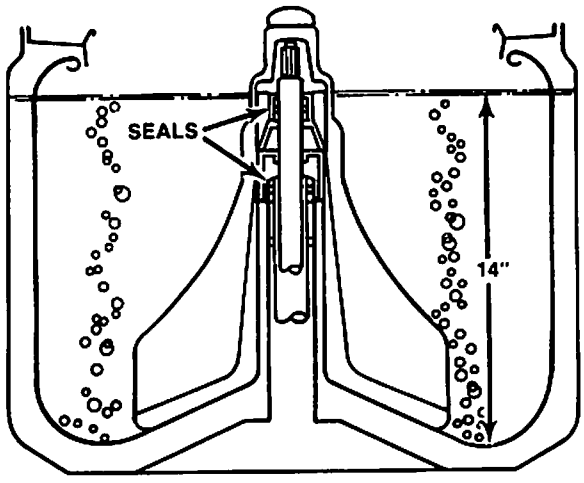


Fig. 42. High water seals.

With the basic tub and basket size remaining the same, the high water level in the modified large capacity unit is still about fourteen inches in the basket. Using the standard gearcase, superstructure, and shorter centerpost now places the water level above the centerpost and agitator seals (Fig. 42).

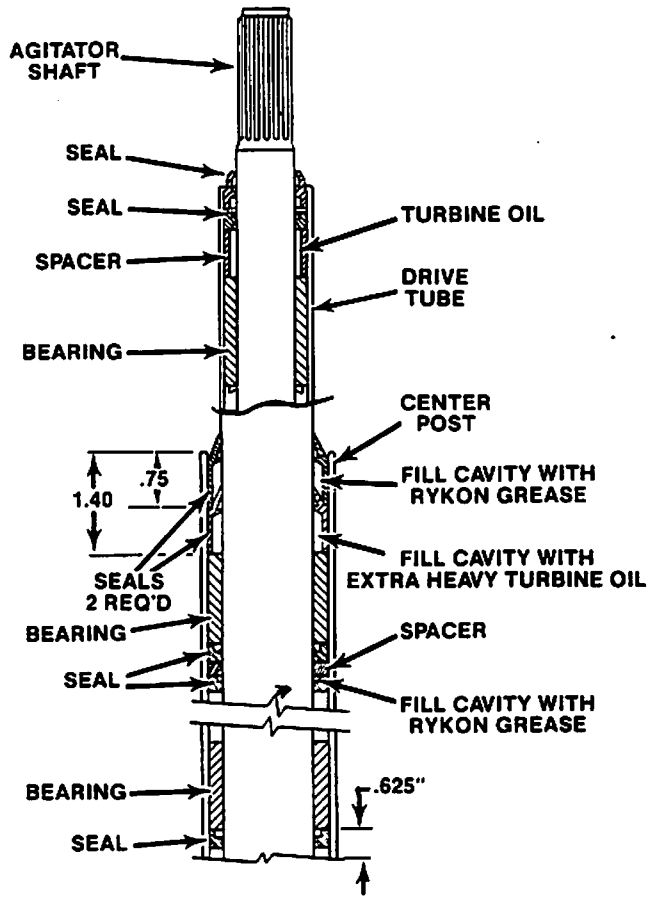


Fig. 43. Centerpost and agitator bearings and seals.

To prevent water from entering the centerpost or agitator shaft areas, three seals have been added and the location of two (2) bearings has been changed. The upper centerpost bearing is pressed in about $\frac{5}{8}$ inch deeper. This allows room for two upper centerpost seals (Fig. 43). The position of the agitator bearing in the spin tube has also been lowered $\frac{5}{8}$ of an inch and a second seal has been added to this area. A third new seal is the spin tube shield. The shield is slipped over the spin tube and rests about one-half inch above the centerpost. The shield forms an air pocket in the basket centerpost. This keeps water from entering the centerpost seal area (Fig. 44).

A new replacement bearing kit is available (Fig. 45). In addition to the bearings and bottom seals, the kit contains two upper seals. As before, the agitator shaft seals will be provided separately. The spin tube shield is also listed as a separate component.

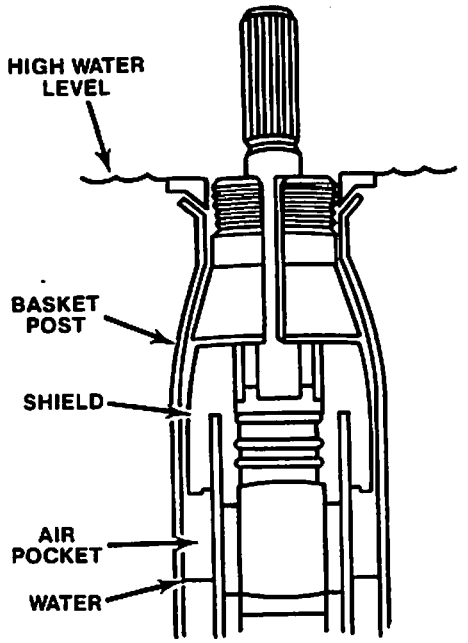


Fig. 44. Spin tube shield.

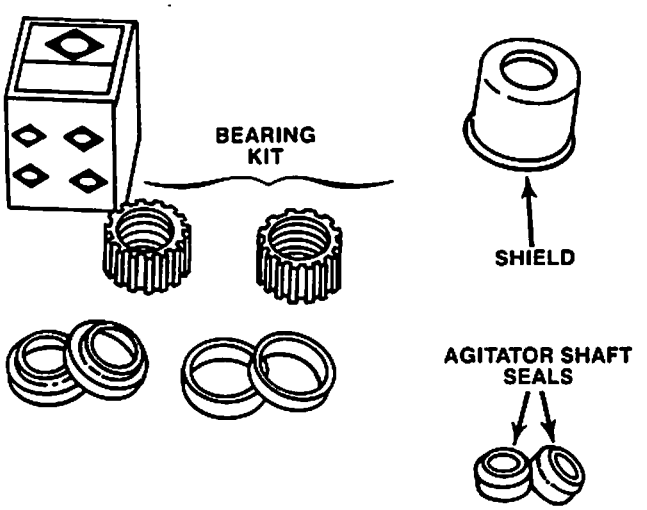


Fig. 45. Bearing and seal kits.

Revised bearing tools and seal installers are required for the modified unit. Because of the upper bearing position and the additional seal, a deeper bearing puller cap and a longer screw are needed to pull the bearing. The shoulder on the upper mandrel has been lengthened to properly seat the upper bearing. Procedures for using the revised tools are unchanged. The new bearing tools are available from Robinair through your local parts distributor.

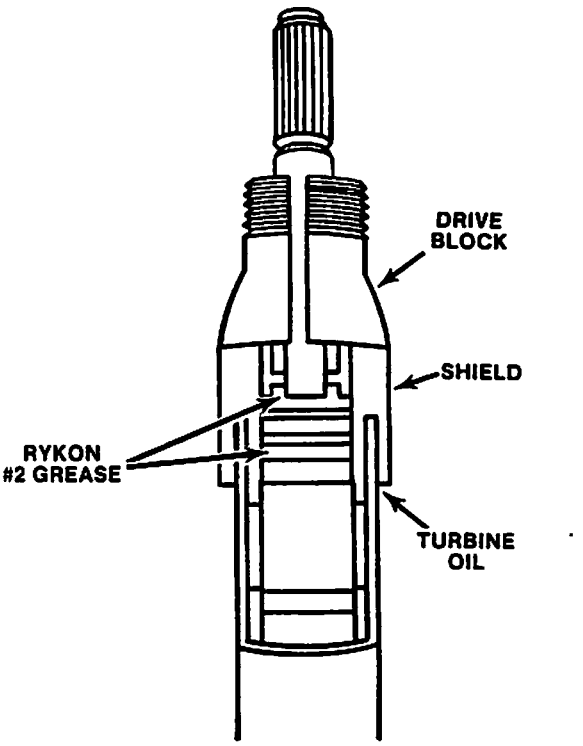


Fig. 46. Spin-tube shield installation and lubrication.

As before, cover both the centerpost bearing and agitator shaft bearing with turbine oil and install the first of two upper seals with the new seal installer. Thoroughly lubricate the inner surfaces of the second seal with Rykon No. 2 grease. Install these as in the past (Fig 46). All seals must be correctly installed. To install the spin tube shield, lightly lubricate the inner lip of the shield with Rykon No. 2. Place the shield about one and a half inches down on the spin tube. Seating the drive block on the spin tube ears will properly position the shield.

NOTE: This unit uses the large capacity flat bottom drive block.

SUMMARY

Generally speaking, it is the mechanical components that determine the useful life of the washer. The two major operating units are the gearcase and the superstructure. The gearcase controls the agitation function while the superstructure controls the basket during spin and braking. The two units are driven by a common motor and belt, however, the units never work simultaneously. The control magnet assembly in conjunction with two cam bars controls the independent operation of the units.

Due to the configuration of the gears in the gearcase, the agitator gear rotates first in one direction and then in the opposite direction. During agitation, the agitator solenoid pulls the agitation cam bar, allowing the agitator gear to engage with two pins on the agitator shaft and causing the agitator shaft to rotate with the agitator gear. At the end of the spin period, or if the lid is opened during spin, the circuit to the spin solenoid is opened. This action causes the cam bar to move forward, forcing the brake yoke upward and separating the basket clutch from the drive pulley. It also causes the upper and lower brake linings to engage, bringing the basket to a fast, smooth stop.

Before reassembly of the gearcase, examine all gears for excessive wear or sharp nicks. A hardened steel washer is available to repair a worn gearcase cover. A wattmeter should be used when making the final gearcase adjustment.

When transporting a gearcase it should not be carried by the agitator shaft. It is possible to dislodge the thrust bearing washer which would prevent the shaft from proper seating on the bearing.

Before installing the gearcase, always check the condition of the centerpost bearings and seals, and replace them if they show the slightest wear.

After installation of the gearcase and superstructure, it is imperative that the alignment of the gearcase and centerpost be checked. If the spin basket is loose on the spin tube it will cause excessive noise. If the drive block notches are worn the drive block must be replaced. The snubber is used to reduce baseplate and tub assembly motion during machine operation.