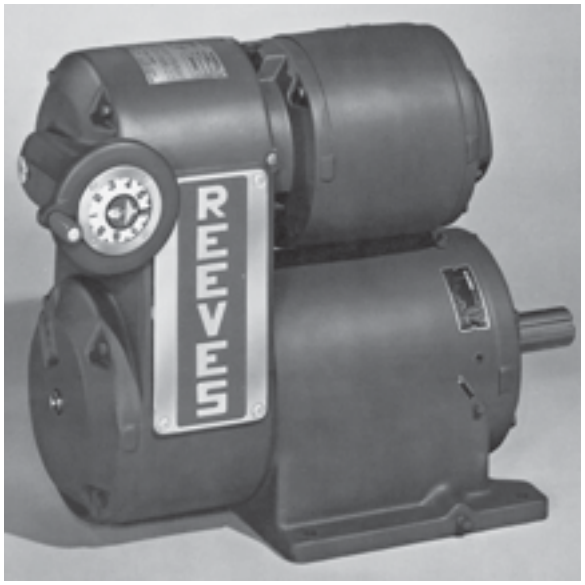
REEVES® X-V MOTODRIVE

INSTALLATION, OPERATION AND MAINTENANCE FOR SIZES: B050, B100, B200 C050, C100, C200



WARNING: Because of the possible danger to person(s) or property which may result from improper use of products, it is important that correct procedures be followed. Products must be used in accordance with the Engineering information specified in the catalog. Proper installation, operation and maintenance procedures must be observed. The instructions in the instruction manuals must be followed. Inspections should be made as necessary to assure safe operation under prevailing conditions. Proper guards and other suitable safety devices or procedures as may be desirable or as may be specified in safety codes should be provided, and are neither provided by Master Power Transmission nor are the responsibility of Master Power Transmission. This unit and its associated equipment must be installed, adjusted and maintained by qualified personnel who are familiar with the construction and operation of all the equipment in the system and the potential hazards involved. When risk to persons or property may be involved, a failsafe device must be an integral part of the driven equipment beyond the speed reducer output shaft.

MASTER® POWER TRANSMISSION

3300 Tenth St. / Columbus, IN 47201 / (812) 376-1100
www.master-pt.com

GENERAL

DANGER

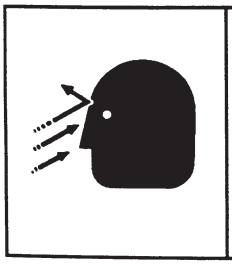
Only qualified personnel familiar with the construction and operation of this equipment and the hazards involved should install, adjust, operate, and/or service this equipment. Read and understand this manual in its entirety before proceeding. Failure to observe this precaution could result in severe bodily injury or loss of life.

The REEVES MOTO DRIVE unit is a mechanical variable speed unit designed to provide infinitely variable speed through as much as 10-1 speed variation. This variation is accomplished by means of a manually adjusted hand control, an electrical remote control unit or an air operated device called "AIRTROL®." By changing the position of the constant speed adjustable disc and with the opposite reaction of the spring loaded disc on the variable shaft, the relative pitch diameters of the discs are shifted thus varying the speed of the MOTO DRIVE unit output shaft. A specially designed belt is used.

IMPORTANT SAFETY REMINDERS

DANGER

1. To avoid electrical shock, disconnect electrical service prior to any maintenance on the unit. Failure to observe these precautions could result in severe bodily injury or loss of life.
2. Change speeds only when the unit is running.
3. MOTO DRIVE units should not be changed to a different assembly without factory approval.
4. Units with parallel reducers are shipped with reducers drained, and right angle reducers are shipped with oil. Do not operate unit before adding proper amount of lubricating oil.
5. REEVES reducers are effectively vented. Do not allow reducer vent to become clogged.
6. Check your power supply with motor nameplate rating before making electrical connections.



WARNING

Extreme care must be used in removing spring cartridge assembly. Cartridge can separate resulting in uncontrolled release of spring, resulting in severe personal injury or death. Keep all body parts and personnel clear of projection path should sudden release occur. See safety instructions for removal and disposal of spring cartridge.

INSTALLATION

1. A rigid base is essential for mounting the MOTO DRIVE unit.
2. Mount and fasten the unit into position so that the output (Variable Speed) shaft of the unit is in alignment with driven shaft of equipment. Use shims, when necessary, to obtain alignment. Shafts of the MOTO DRIVE unit should turn freely when it is secured to the mounting.
3. Connect the output shaft of the MOTO DRIVE unit to the driven shaft of the equipment by desired method. Accurate alignment of the shafts is very important when flexible couplings or gears are used. In addition to accurate shaft alignment, sprocket or pulley alignment on the shafts to chain or belt connections is imperative.
4. Connect electrical power to the unit.

DANGER

The user is responsible for conforming to the National Electrical Code and all other applicable local codes. Wiring practices, grounding, disconnects and overcurrent protection are of particular importance. Failure to observe these precautions could result in severe bodily injury or loss of life.

5. REEVES MOTO DRIVE units are set for the specified speed range and tested at the factory. Following proper electrical connections and lubrication, the drive is ready for immediate use.

OPERATION AND CARE

1. Keep belt contact surfaces of the disc clean.
2. When the MOTO DRIVE unit is not to be operated for a period of 30 days or more, before final stopping of the unit, shift into low speed position. (Spring pressure against the belt is at its minimum in this position.) See **"Recommendations for Long-Term Storage"** on page 4.

LUBRICATION INSTRUCTIONS

PARALLEL REDUCER LUBRICATION

CAUTION

NOTE: REEVES parallel reducers are shipped without oil and must be filled before use! Failure to fill the reducer will result in damage to the reducer and void the warranty!

Fill reducer with a good grade of non-detergent oil. Select the proper viscosity based on ambient temperature from the following chart:

Ambient Temp. Degrees F	SAE Gear Oil Grade	ISO Viscosity Grade
100 to 140	90	220
40 to 100	85W	150
0 to 40	80W	68
Below 0	Consult Factory	

Oil level is indicated by red oil level plug. Remove red level plug and fill reducer slowly until oil runs out of level hole. Verify oil level every 60 days by removing red level plug. Refill as required.

All reducers are vented. Double and triple stage parallel reducers are shipped with a black plastic plug in the vent hole. Remove this plug and replace with vent plug attached to red lube tag. Single parallel reducers have pin vents installed in the gearhead. Ensure that all vents are free and clear.

Drain and refill gearbox with new oil every 6 months under normal factory enbironments. Hot, wet or dirty conditions may require more frequent changes.

RIGHT ANGLE REDUCER LUBRICATION

1. The gear case is shipped with a solid plug in the vent hole. This plug must be removed and the attached vented plug installed according to location described in diagrams on attached lubrication tag.
2. Lubricant should be drained and gearcase refilled after the first 250 hours of operation.
3. Lubricate right angle reducers with a type and grade of oil suitable for worm gear reducers as suggested by the chart below.

MASTER XL
RECOMMENDED LUBRICANTS

AMBIENT TEMP.	LUBRICANT VISCOSITY GROUP OUTPUT SHAFT SPEED				
	Up to 300 R.P.M.			Over 300 R.P.M.	
– 45° F. to + 20° F.*	318.60			318.59	
– 5° F. to + 55° F.*	318.61			318.60	
+15° F. to + 110° F.	318.62			318.62	
+100° F. to + 165° F.	318.63			318.63	
VISCOSITY GROUP 318.	59	60	61	62	63
AMOCO OIL CO. AMOCO PERMAGEAR EP AMOCO				460 WORM GEAR OIL	
ATLANTIC RICHFIELD CO. ARCO MINERAL GEAR OIL			90	140	
CARR OIL CO. LUB 733 EP				140	
DARMEX IND. CORP. GEAR BOX OIL				DX-9140	
DUBOIS CHEMICAL CO. E.G.O. EP			90	140	
FISKE BROTHERS LUBRIPLATE APG			90	140	
GULF OIL CO. TRANSGEAR LUBE			220	460	680
E.F. HOUGHTON CO, MP GEAR OIL			90	140	
KEYSTONE LUB., CO.				WG-A	
MOBIL OIL CORP. AVREX MOBIL FLUID EXTRA HECLA MOBILUBE CYLINDER OIL	903	423	HD90		SHC634 SUPER CYLIN-DER 600W
PHILLIPS PET. CO PHILUBE			90	140	
SHELL OIL CO. AEROSHELL FLUID	4	5-L			
TEXACO VANGUARD				460	
ULTRA CHEM CHEM LUBE				140	

*For temperatures below +10°F. special oil seals are required.

4. Lubricant should be drained and the gear case refilled every 1500 hours or six months thereafter. Group 63 lubricants must be changed every 300 hours of high temperature operations.
5. Bearings in these reducers which are above the operating oil level are provided with a plug. They should be lubricated with a good grade of ball bearing grease when changing gear lubricant, DO NOT OVER-LUBRICATE GREASE PACKED BEARINGS.
6. These reducers are shipped with oil in the unit.

DRIVE IDENTIFICATION

When inquiring about or ordering replacement parts for a REEVES MOTO DRIVE, always specify the drive ID number and other nameplate information.

NOTE: If the nameplate is unreadable or missing, the MOTO DRIVE unit's original ID number is stamped into the beltcase underneath one of the inspection plates.

PREVENTATIVE MAINTENANCE

Under normal conditions the X-V MOTO DRIVE unit requires little maintenance. However, the following suggestions will keep the drive at top efficiency.

1. Reducer lubrication should be maintained per instruction tags and service manuals.
2. The motor bearings should be relubricated (where applicable) in accordance with motor maintenance and service instructions. Plugs must be removed and lubrication fittings installed.
3. It is recommended the following inspections be performed annually:

   A. Check the general running condition of the unit. Listen for unusual noise or vibration. Check reducer (where applicable) for signs of possible leakage.

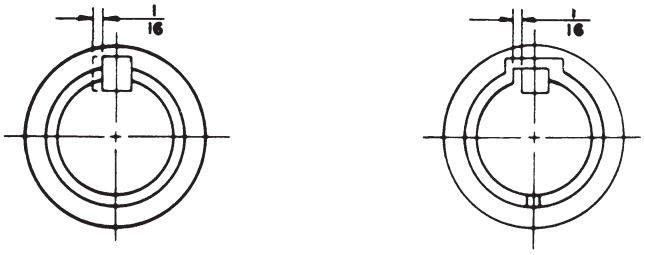
   B. Check the belt contact surface of the discs to see that they are dry and clean.

   C. Check the belt for signs of wear, such as frayed or torn edges, and major cracks in the bottom of the cogs.

   D. The XV bushings are designed as an easily replacement wear element and require periodic replacement.

   Check the constant speed and variable speed sliding disc bushings and key for signs of excessive wear or abuse. If the rotational clearance between the bushing keyway and key exceeds 1/16" (see Diagram 1), the bushings and key should be replaced. (See bushing replacement instructions for proper procedure.)

NOTE: Rotational clearance must be checked with sliding disc located on shaft in its normal operating location.



CONSTANT END VARIABLE END

DIAGRAM NO. 1

Bushing/key kits are available through your nearest REEVES Distributor.

E. If the bushing are in good condition, lubricate with a good grade of ball bearing or silicone grease.

NOTE: See "Prelubricating the Bushings" for proper protection.

F. Recheck torque on clamp collar screw. Proper torque should be 200 in. lbs. Access to the clamp collar screw (252) is through the inspection plate opening on the size 050 and 100. For the size 200 remove the small steel plate in the motor adapter. See drawing on page 6. Always use a wrench in new condition on the clamp collar screw.

NOTE: Access to the above mentioned parts can be obtained by following belt changing instructions.

RECOMMENDATIONS FOR LONG-TERM STORAGE

GENERAL

Consult Reliance Service Bulletin A-8013-3 ("Recommendations for Long-Term Storage of Gearmotors, MOTO DRIVES and Motors") for general storage instructions, and instructions specific to motors and gear reducers. Also see Service Bulletin B-8078-3 for additional information on motors.

Follow all general recommendations for motors and reducers in addition to the following instructions specific to REEVES MOTO DRIVE units.

MOTO DRIVE

1. Where long-term storage is expected, a MOTO DRIVE unit should be ordered with Chromalife discs.
2. For storage of all MOTO DRIVE units, remove the variable speed belt and store in a relaxed condition. Consult **"Belt Replacement Instructions"** section of appropriate service manual supplied with unit. This will prevent distortion and crushing of the belt from spring force. Recoat disc faces and other exposed metals surfaces with corrosion resistant coating.

   Tag unit to indicate belt must be reinstalled at startup.
3. Loosen screws on side inspection plates and insert 1/4" spacers to allow ventilation of bearings and seals during storage.
4. Prepare motor and reducer per referenced instructions.
5. Cover units and store, preferably in a heated and dry (non-condensing) area.

RETURN TO SERVICE:

1. Disassemble MOTO DRIVE unit, thoroughly clean all corrosion resistant coatings from disc faces and shafts. Inspect all parts (discs, bearings, control and linkages, etc.) for free movement.
2. Ensure that disc bushings are lubricated as detailed under "**Prelubricating the Bushings.**"
3. Reinstall variable speed belt.
4. Drain and refill reducer with recommended lubricant. Clean vents.
5. After start-up, check bearing temperatures for indication of excessive heating indicating lubricant contamination or oxidation.
6. For detailed handling, installation and maintenance instructions, see manuals furnished with individual units.

BUSHING REPLACEMENT SLIDING DISC ASSEMBLIES

BUSHING REMOVAL

1. Remove constant speed and variable speed sliding discs by following all instructions in the sections of this manual.
2. On sliding constant disc, remove key.
3. Collapse each bushing with long nose pliers and remove from bore. See Diagram 2.

INSTALLING REPLACEMENT BUSHINGS

1. Parts must be free of dirt, paint, rust, metal chips and shavings and any other substances which would cause the bushings to have an interference fit.

REPLACEMENT BUSHING KITS

SIZE	CONSTANT	VARIABLE
050	415112-65WA	415112-65MF
100	415112-65WB	415112-65MG
200	415112-65WC	415112-65MH

2. Collapse bushing and insert flange end into bore of sliding disc. (Diagram No. 2, Fig.1)
3. Push bushing carefully into the disc bore until bushing flange snaps into groove as shown. (Diagram No. 2, Fig. 2)
4. Seat the bushings by running your finger full circle inside the bushing I.D. using caution at the keyway and split portion of the bushing.
5. Turn disc around and repeat steps 2, 3 and 4. Each sliding disc will have two bushings inserted into the bore of the disc.

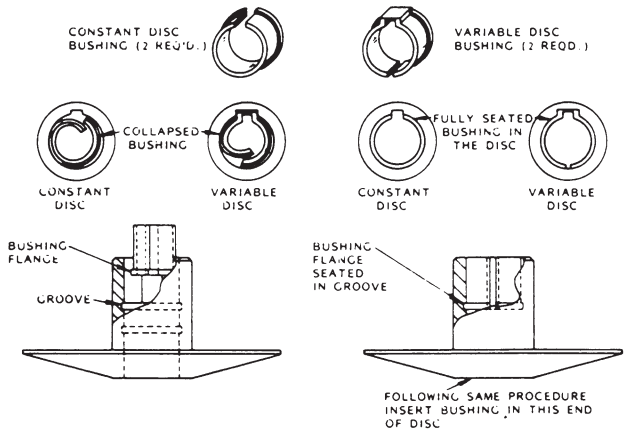


FIGURE 1 **FIGURE 2**

DIAGRAM 2

6. The constant disc key must be inserted into the constant sliding disc with the tang on key pushed into the hole in disc. (See Diagram 3)

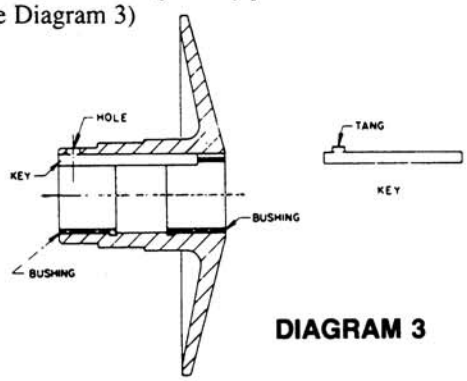


DIAGRAM 3

PRELUBRICATING THE BUSHINGS

1. Fill cavity between the bushing and coat the bushing surfaces. Use a good grade of ball bearing or silicone grease

2. Apply the same lubricant sparingly to the driving disc hub or shaft.

3. When installing the sliding disc on the driving disc hub or shaft, wipe off any excess lubricant.

4. Special care must be taken that no lubricant is left between the disc flanges which may contact the driving belt surfaces.

5. Follow steps 10 thru 13 of belt replacement instructions to complete this installation. For "C'" flow unit also follow instructions under variable disc installation.

BELT REPLACEMENT

REEVES MOTO DRIVE units are designed for easy servicing and replacement of belts.

Identify your MOTO DRIVE unit by style — "C" flow, Diagram No. 4, or "Z" flow, Diagram No. 5. Follow instructions given below that apply to your unit.

For the "C" FLOW STYLE and for alternate "Z" flow style units reference assembly numbers 100-A, 100-AL, 100-AR, 111-A and 112-A. Unit assembly number is on each unit nameplate. Refer to Diagram 4.

1. If the belt on the MOTO DRIVE unit is in operating condition, shift the unit, while running, to high speed position.

2. **Disconnect Electrical Service to Unit**

WARNING
To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Failure to observe these precautions could result in bodily injury.

3. Remove side inspection plate (not shown).

4. Remove four cap screws holding control assembly (2), and remove control assembly from the unit.

5. Remove sliding disc (3), (thrust bearing and thrust bearing housing (11) is attached to (3)). Do not disturb position of the fixed disc on motor shaft.

6. Pull upper loop of the belt over the end of the fixed disc hub. On some units additional spreading of the variable shaft discs may be necessary to gain enough belt slack for the belt to clear the fixed disc hub.

7. Remove variable shaft bearing plate (4) after belt is removed from fixed disc hub.

8. Free the belt from the variable discs (5) and remove from the case.

9. Place the new belt into the case, positioned loosely around the variable speed discs (5), and replace bearing plate (4).

10. Spread the variable speed discs (5) and position the belt between the discs deep enough to secure belt slack; then loop the belt over the fixed disc hub.

11. Replace sliding disc (3) with attached thrust bearing and housing onto fixed disc hub.

12. Replace control assembly (2). Prongs on the shifting yoke can be properly positioned in the plugs on the thrust bearing housing (11), only when the housing lugs are below the prongs. Except as noted below.

    NOTE: (Size 100 Handwheel only). Shifting yoke is positioned properly when the prongs of the yoke are below the thrust bearing housing (11) lugs.

    NOTE: At this time it is advisable to spin the disc by hand so that the belt can assume its normal position and tension.

13. Replace inspection plate (not shown).

    NOTE: No additional adjustment is required for correct belt alignment.

14. Reconnect electrical service.

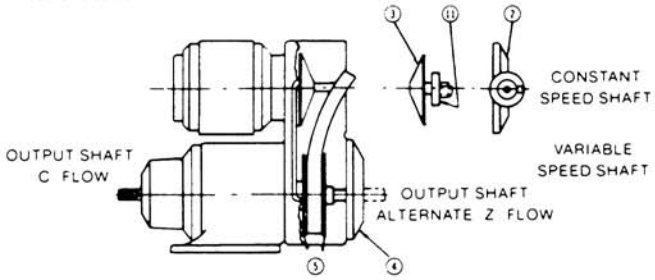


DIAGRAM NO. 4 "C" FLOW

For the "Z" flow style MOTO DRIVE units (except as noted for alternate "Z" flow style assemblies shown under "C" flow style MOTO DRIVE unit instructions), refer to Diagram 5.

1. If the belt on the MOTO DRIVE unit is in operating condition, shift the unit, while running, to high speed position.

2. **Disconnect Electrical Service to Unit.**

WARNING
To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Failure to observe these precautions could result in bodily injury.

3. Remove side inspection plate (not shown).

4. Remove four cap screws holding control assembly (2), and remove control assembly from the unit.
5. Remove sliding disc (3). (Thrust bearing and thrust bearing housing (11) is attached to (3).) Do not disturb position of the fixed disc on motor shaft.
6. Pull upper loop of the belt over the end of the fixed disc hub. On some units additional spreading of the variable shaft discs may be necessary to gain enough belt slack for belt to clear the fixed disc hub,
7. Remove the variable shaft bearing plate (4) after belt is moved from fixed disc hub.
8. Remove the following parts from the variable shaft.
   (a) Bearings or collar bearing. (On lock collar bearings, note bearing position so it may be reinstalled in exactly the same location.)

WARNING

Extreme care must be used in removing the spring cartridge assembly. Inspect for clearance between spring cartridge and retaining ring. If there is no clearance, DO NOT PROCEED. The spring cartridge may be ruptured. Do not attempt to remove the retaining ring. Reassemble unit and contact your distributor for repair information Failure to observe these precautions could result in bodily injury.

   (b) Retaining ring
   (c) Spring and cartridge assembly (Size 050 X-V only: spring and collar)
   (d) Sliding disc
9. Remove old belt from the case.
10. Place the new belt into the case, positioned loosely around the variable shaft and replace sliding disc (10), spring and cartridge assembly (9), retaining ring (8), collar and bearing (7), and bearing (7), and bearing plate (4).
11. Spread the variable speed discs (10) and position the belt between the discs, deep enough, to secure slack; then loop the belt over the fixed disc hub.
12. Replace constant speed sliding disc (3) with thrust bearings and housing onto fixed disc hub.
13. Install control assembly (2). Prongs on the shifting yoke can be properly positioned in the lugs on the thrust bearing housing (11) only when the housing lugs are below the prongs, except as noted below.

NOTE: (Size 100 Handwheel only) Shifting yoke is positioned properly when the prongs of the yoke are below the thrust bearing housing (11) lugs.

NOTE: At this time it is advisable to spin the disc by hand so the belt can assume its normal postition and tension.

14. Replace inspection plate (1) (not shown).

NOTE: No additional adjustment is required for correct belt alignment.

15. Reconnect electrical service.

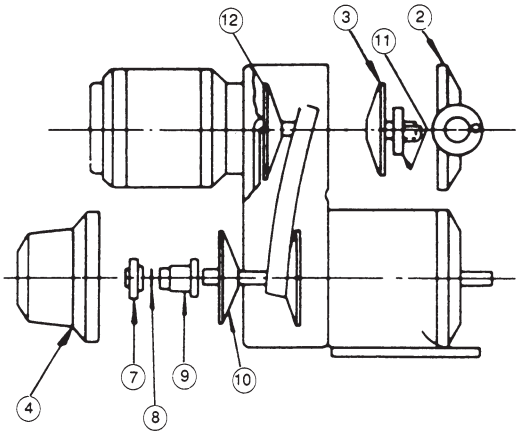
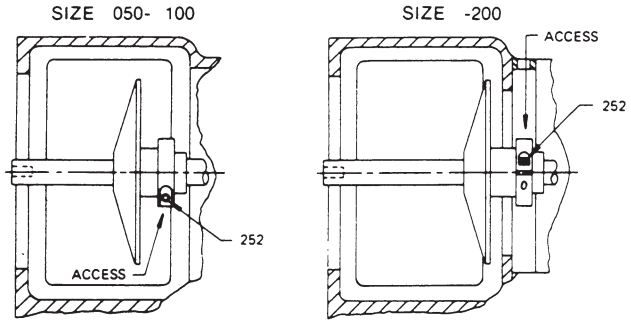


DIAGRAM NO. 5 "Z" FLOW

CONSTANT DISC REMOVAL

1. Follow **Belt Replacement** instructions Steps 1 through 6.
2. Loosen clamp screw in the clamp collar around the fixed disc hub. New units use a T-30 TORX socket head screw (suitable wrenches available at any automotive or industrial supply outlet, or use an APEX 49C - TX30). Older units use a 3/16 hex socket (Allen head) screw, for which a suitable wrench is an APEX SZ-12-A-6.



ACCESS TO CLAMP COLLAR SCREW IS THROUGH REEVES INSPECTION OPENING.

ACCESS TO CLAMP COLLAR SCREW IS THROUGH MOTOR ADAPTOR INSPECTION COVER OPENING.

DIAGRAM NO. 6 FIGURE 1

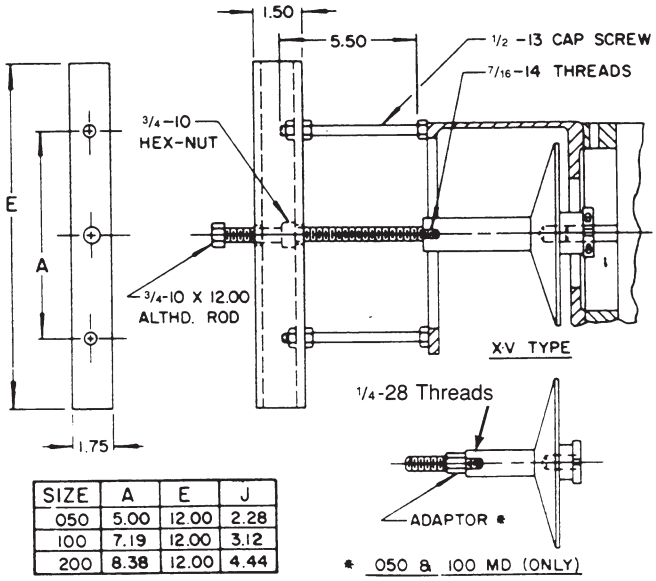
3. Remove fixed disc. This may be accomplished with the aid of a pulling device as shown in Diagram No. 6, Figure 2. Special disc pullers are available from our Parts Distributors, Part No. 605012-10A.

CONSTANT DISC INSTALLATION

1. Before installing new fixed disc, be sure motor shaft is free of burrs and corrosion. You may want to check motor shaft runout, which should not exceed .002 T.I.R. (Total Indicator Reading.)

   NOTE: No motor shaft key or disc plug is required.

2. To install fixed disc, slide on motor shaft until the proper "J" dimension for the respective size unit is met to within ± 1/32. (Note: "J" Dimension is measured from belt case (surface "Y") along the fixed disc extension to the flat portion of the disc face.). Tighten clamp collar screw to 200 In. Lbs. Diagram No. 6, Figure 3.



SIZE	A	E	J
050	5.00	12.00	2.28
100	7.19	12.00	3.12
200	8.38	12.00	4.44

DIAGRAM 6 FIGURE 2

3. Place dial indicator 1/8 to 1/4 inch from end of fixed disc hub and indicate. Fixed disc hub runout should not exceed .004 T.I.R. Diagram No. 6, Figure 3.

4. If fixed disc hub runout does exceed .004 T.I.R., loosen clamp collar, remove fixed disc, rotate disc 90° and repeat steps 2 and 3 above.

   NOTE: It is very important that the proper "J" dimension and fixed disc shaft runout be maintained to ensure maximum belt and component life.

5. Follow steps 9 through 14 of Belt Replacement Instructions to complete this installation. (Steps 10 through 15 for Z Flow).

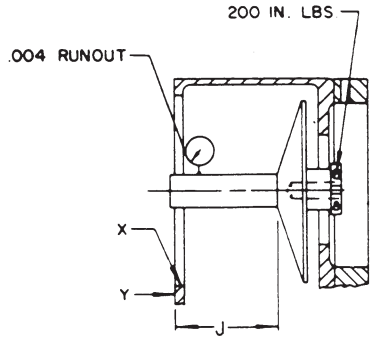


DIAGRAM 6 FIGURE 3

VARIABLE DISC REMOVAL

Refer to Parts List Pages 24 & 25

1. Follow belt replacement instructions steps 1 through 8. (Steps 1 through 9 for Z Flow).

2. Remove variable shaft bearing (78) (C Flow).

WARNING

Extreme care must be used in removing the spring cartridge assembly. Inspect for clearance between spring cartridge and retaining ring. If there is not clearance, DO NOT PROCEED. The spring cartridge may be ruptured. Do not attempt to remove the retaining ring. Reassemble and contact your distributor for repair information. Failure to observe these precautions could result in bodily injury.

3. Remove retaining ring (73) (C Flow).

4. Remove fixed disc (65) (C Flow).

5. Remove belt.

6. Remove sliding disc (66) (C Flow).

   NOTE: The spring cartridge may come off with the sliding disc. They can be separated as required later.

SAFETY INSTRUCTIONS SPRING CARTRIDGE STORAGE AND DISPOSAL

WARNING

Cartridge contains spring under compression. When not installed in drive, handle with extreme care. Ensure that uncontrolled expansion will not result in bodily injury!

STORAGE: Store with some method of axial retention to prevent uncontrolled expansion.

DISPOSAL: Preferred method is to dispose of spring in free (uncompressed) state. However, do not attempt to remove compressed spring from cartridge without some method of controlling spring expansion, such as piloted press fixture or a long (5 times cartridge length minimum) threaded rod with oversize end plates and nuts. Use such fixture to carefully compress cartridge, then remove steel can and expand spring to free length.

Alternatively, dispose of cartridge with chain or threaded rod fastened through center hole to prevent uncontrolled expansion of spring.

VARIABLE DISC INSTALLATION

C-Flow—Refer to Parts List Page 25

1. Check to see that the retaining ring (70) is properly seated in its groove on the variable shaft.

2. Install the spring cartridge (154) over the variable shaft. Small bore of the cartridge goes on the shaft first.

3. After lubricating (see "Prelubricating the Bushings") install sliding disc (66) onto variable shaft. See that the spring cartridge is properly seated onto the extended hub portion of this disc.
4. Wipe any excess grease from the variable shaft and sliding disc face.
5. Install belt—position loosely around variable shaft.
6. Install the fixed disc (65).
7. Insert the retaining ring (73) into its groove in the variable shaft.
8. Install a new bearing (78) on the variable shaft. Be careful not to damage the bearing during installation. Press only on the inner face.
9. Install the bearing plate (75).
10. Refer to the belt replacement instructions 10 through 14 to complete this reassembly.

Z-Flow—Refer to Parts List Page 24

1. Check to be sure retaining ring (73) is in its proper position on variable shaft (60) and seated in the retaining ring groove.
2. After lubricating (see "Prelubricating the Bushings") slide V/S fixed disc (65) over variable shaft and up against the retaining ring.
3. Place belt into belt case loosely around variable shaft.
4. Slide V/S sliding disc (66) over variable shaft and against the fixed disc.
5. Install spring cartridge (154) (see note 2), retaining ring (70), collar and/or bearing (78A) as required (see note 1).

   NOTE 1: If unit is equipped with collar and bearing assembly, be sure to secure collar on eccentric part of bearing and secure with the setscrews. Eccentric collar goes on variable shaft first and then the bearing.

   NOTE 2: The spring cartridge is properly installed when the large end is placed over the sliding disc hub, making contact with the shoulder on the disc. 050 size has separate spring (68) and spring collar (69).

6. Install bearing plate (77).
7. Place the belt between the two (2) discs and pull down toward the variable shaft. This is necessary so that sufficient belt slack is available to loop over the constant speed fixed disc hub.
8. Proceed as in steps 11 through 15 of the belt replacement instructions to complete this reassembly.

VARIABLE SHAFT REMOVAL NO REDUCER UNIT

Follow the variable disc removal instructions for "C" or "Z" flow units whichever applies.

Remove retaining ring (127).

Variable shaft may now be removed from the unit.

The variable shaft bearing (78) may be removed if required.

VARIABLE SHAFT INSTALLATION NO REDUCER UNIT

1. Press the wide variable shaft bearing (78) onto shaft (60).

   NOTE: This bearing is a double shield bearing and requires no additional lubrication. It is properly installed when installed on the output end of the variable shaft and against the shoulder.
2. Install retaining ring (126) onto shaft thus locking bearing onto shaft.
3. Insert the variable shaft into the belt case and case housing support assembly.

   NOTE: Make certain that variable shaft bearing is properly seated in the bearing bore.
4. Install retaining ring (127). This locks the shaft into the output bearing plate.
5. Follow steps for Variable Disc Installation. This will complete this installation.

MOTOR REPLACEMENT

1. **Disconnect electric service to unit.**

WARNING
To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Failure to observe these precautions could result in bodily injury.

2. Refer to Constant Disc Instructions for removal of control and constant disc assembly. Steps 1–3.
3. Remove motor—by removing four motor mounting screws from inside the case.

WARNING
Equipment being removed may be too heavy to control manually. Support it by external means. Failure to observe these precautions could result in bodily injury.

4. Place new motor into position and secure with four motor mounting screws to the MOTO DRIVE unit case.
5. On units where a motor adaptor is used be sure the adaptor is installed properly between the case and motor before securing motor.

Refer to Constant Disc Installation to complete replacement.

SCOOP MOUNTING

1. **Disconnect electrical service to unit.**

WARNING
To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Failure to observe these precautions could result in bodily injury.

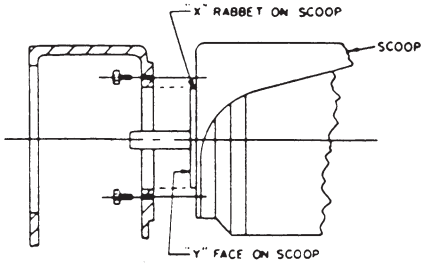


FIGURE 2

DIAGRAM 6 FIGURE 4

2. Refer to Constant Disc Instructions for removal of control and constant disc assembly (Steps 1–3).
3. Remove scoop by removing four mounting screws from inside the case.

WARNING
Equipment being removed may be too heavy to control manually. Support it by external means. Failure to observe these precautions could result in bodily injury.

4. Remove motor from scoop by removing four mounting screws from motor feet.
5. Place new motor on mounting pads of scoop. Secure motor to scoop with cap screws provided.
6. Place dial indicator on the motor shaft and indicate surfaces "X' (mounting rabbet on scoop) and "Y" (the face of mounting scoop). The total indicator reading in either case should not exceed .004 inches. Use shim stock under motor feet to align motor with mounting rabbet or scoop. The shim stock under the motor feet should not exceed .060 under any one foot. See Diagram 6, Figure 4.
7. When the motor has been aligned properly and secured in place, drill the two front feet and pin in place with taper pin.
8. Mount scoop and motor as a unit on the MOTO DRIVE unit case.

   Refer to Constant Disc Installation to complete replacement.

HAND CONTROL ASSEMBLY

CHANGING HAND CONTROL LOCATION STANDARD CONTROL (DIAGRAM 7) (SIZE 050)

Should it become necessary to relocate the hand control assembly, it can be accomplished quickly and easily by:

1. Remove four screws (12) from control housing (2).
2. Rotate the control housing to the desired position without removing it from belt case and secure.

   NOTE: Be sure that the shifting yoke is centered on the yoke pin and that the lugs are properly positioned into (not under) the ears of the thrust bearing housing.

   NOTE: After relocating the hand control assembly, it may be found that the indicator now appears to read upside down. If this is undesirable, the following instructions should be followed.

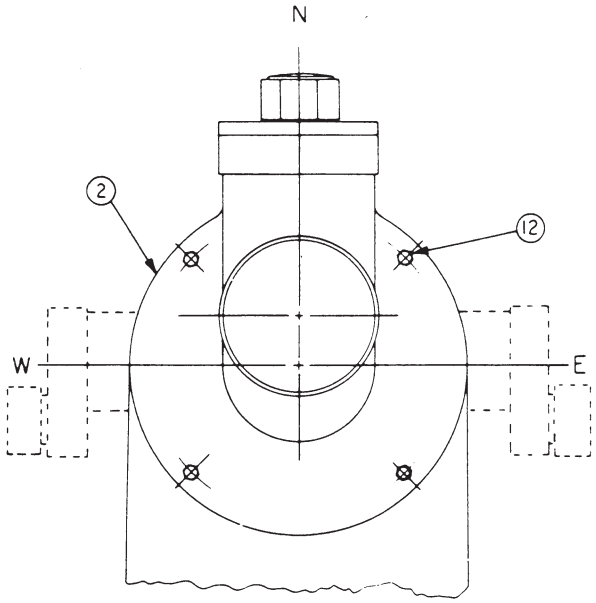


DIAGRAM 7

CHANGING INDICATOR POSITION SIZE 050 STANDARD CONTROL (DIAGRAM 8)

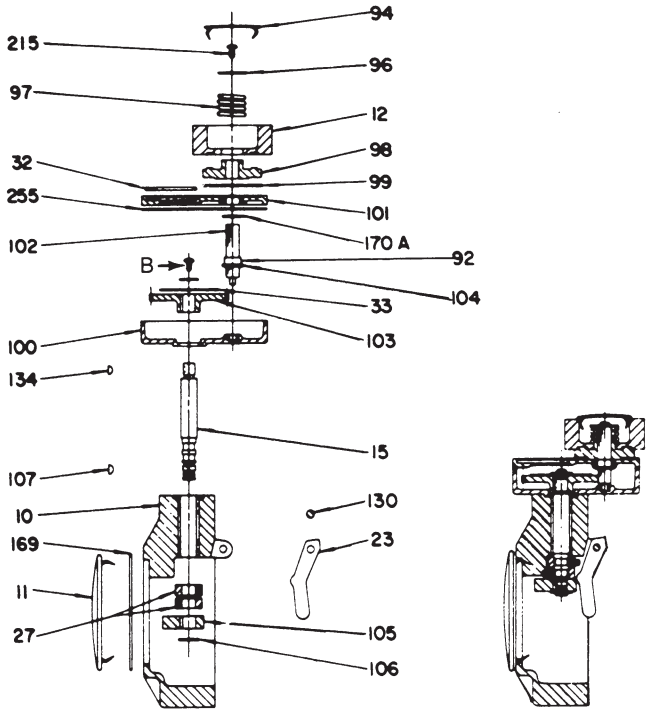
1. Shift unit, while running, until low speed stop is reached and shut unit off.
2. Remove four screws ("A" in Diagram 13) and lift handwheel and indicator cover (101) from control.
3. Make a mark on the indicator dial and on the inside of the gear housing (100) for the purpose of synchronizing speed and dial setting when reassembled.
4. Remove screw "B" from center of gear (103) and remove gear and dial.
5. Remove four hex head screws located under gear (103).

6. Turn gear housing (100) to desired position and replace four hex head screws.
7. Replace gear (103) and indicator dial, being careful to properly position dial according to marks referred to in step 3 of this instruction.

   Synchronizing indicator

   a. Loosen screw "B" in center of indicator dial and turn dial until #1 comes to center of dial window.

   b. Tighten screw "B" and replace handwheel and indicator cover.



10 HOUSING, CONTROL
11 COVER, STOP NUT
12 HANDWHEEL
15 SHAFT, SHIFTING
23 YOKE, SHIFTING
27 NUT, STOP
32 CRYSTAL, INDICATOR
33 DIAL, INDICATOR
92 COLLAR, PINION
94 PLUG, BUTTON (HANDWHEEL)
96 WASHER
97 SPRING
98 HUB
99 WASHER, FRICTION
100 HOUSING, GEAR
101 COVER, HOUSING, GEAR
102 PINION
103 GEAR, SHIFTING
104 RING, RETAINING
105 CAM, SHIFTING
106 RING, RETAINING
107 KEY, CAM
130 PIN, YOKE
134 KEY, GEAR
169 GASKET, COVER STOP NUT
170A WASHER, PINION
215 SCREW, BUTTON HEAD
255 GASKET, COVER HOUSING GEAR

NOTE GIVE IDENT NUMBER AND SIZE WHEN ORDERING PARTS FOR SERVICE AND REFER TO THIS DRAWING.

NOTE ALL CAP SCREWS ETC NOT LISTED ARE STANDARD ITEMS

DIAGRAM 8

COMPLETE DISASSEMBLY
SIZE 050
STANDARD CONTROL (DIAGRAM 8)

1. If the MOTO DRIVE unit is in operation, shift the unit to low speed position while it is running.
2. **Disconnect electrical power from unit.**

WARNING

To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Failure to observe these precautions could result in bodily injury.

3. Remove the control housing (10).
4. Remove hex head cap screws that secure the handwheel and cover assembly (101) to control and remove assembly. (Be careful not to damage the gasket (255).

   NOTE: Should it become necessary to further disassemble the handwheel and cover assembly, proceed with steps 5, 6 and 7.
5. Remove plug button (94).
6. Remove screw (215). This will further permit the removal of the washer (96), spring (97), handwheel (12), hub (98), friction washer (99), and the pinion (102).

   NOTE: The pinion will have a retaining ring (104) pressed onto it. Also pinion collar (92) located on pinion collar is a slip fit.
7. The crystal indicator (32) may be removed if absolutely necessary; however, it is somewhat difficult due to it being glued into the cover (101). Care should be taken.
8. Remove the button head screw (B) from the shifting shaft (15).
9. Remove the washer, indicator dial (33), gear (103) and key (134), from shifting shaft (15).

   NOTE: Shifting shaft (15) may at this point slip into the control housing. Don't be alarmed as it will not fall out completely.
10. Remove hex head screws. Gear housing (100) may now be removed.
11. Remove yoke pin (130) and yoke (23).

    NOTE: At this point, observe the position of the cam (105). Mark it in such a way that it can be reassembled exactly as it was removed, otherwise the control will function backwards.

    At low speed position the point of the cam (105) will be to the right-hand side of the control (looking from the inside).
12. Remove retaining ring (106) from bottom of shifting shaft (15).
13. Remove cam (105) and key (107).
14. Loosen set screws in stop nuts (27) and remove stop nuts. Shifting shaft (15) may now be pushed up through the control housing and removed.

REASSEMBLY
SIZE 050
STANDARD CONTROL (DIAGRAM 8)

1. Lightly coat the shifting shaft (15) with lubricant and insert into control housing (10).
2. Position the two stop nuts (27) on the shifting shaft and secure loosely with set screws. Do not tighten set screws at this time.
3. Install woodruff key (107) in bottom of shifting shaft (15) and install cam (105) and secure with retaining ring.

   NOTE: Be sure cam is installed per the note after step No. 11 of the disassembly instructions.
4. Install yoke (23) and yoke pin (130).
5. Position gear housing (100) as desired and secure with the hex head screws.

   NOTE: It is possible to install this item upside down. Be sure it is installed per diagram 8 with the pinion boss up.
6. Install woodruff key (134) into upper portion of shifting shaft (15) and assemble the gear (103) onto the shaft.
7. Install the indicator dial (33) washer, and screw.
8. Assemble handwheel assembly and cover assembly per diagram 8, and secure together with screw. Be sure pinion collar (92) is in place.
9. Install handwheel and cover assembly onto the indicator housing. Be sure gasket (255) is in place. Also make sure pinion (102) is properly seated and meshed with its mating gear.
10. Install completely assembled hand control onto the MOTO DRIVE unit. Insure the shifting yoke engages thrust bearing housing ears without binding. Adjust stop nuts (27) and indicator dial (33) per minimum and maximum speed setting instructions.

DISASSEMBLY
SIZE 050
FRONT CONTROL (DIAGRAM 9)

1. If the MOTO DRIVE unit is in operation, shift the unit to low speed position while it is running.
2. **Disconnect electrical power from unit.**

WARNING
To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Failure to observe these precautions could result in bodily injury.

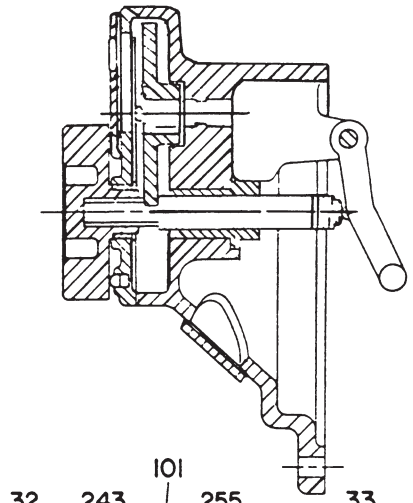
3. Remove control assembly from the belt case.
4. Remove the four screws from the handwheel and cover assembly and remove the cover assembly. Parts numbered (101) cover, (32) crystal, (12) handle, (13) friction catch and (104) retaining ring will make up the cover assembly. (Be careful not to damage the gasket (255).)
5. Remove the screw from the gear shaft (108). This will permit the removal of the washer (170), the indicator (33) and the gear (103).
6. Remove the gear shaft (108) by loosening the set screw located on the control housing.
7. Remove the yoke pin (130) and the yoke (23).
8. Remove the stop nut (27) from the end of the shifting screw (15) and remove shifting screw.
9. Should it be necessary to remove the adjustable stop (28), remove the set screw in the side of the control housing (10) and remove stop and adjusting screw (139). Guide pin (39) need not normally be removed.

REASSEMBLY
SIZE 050
FRONT CONTROL (DIAGRAM 9)

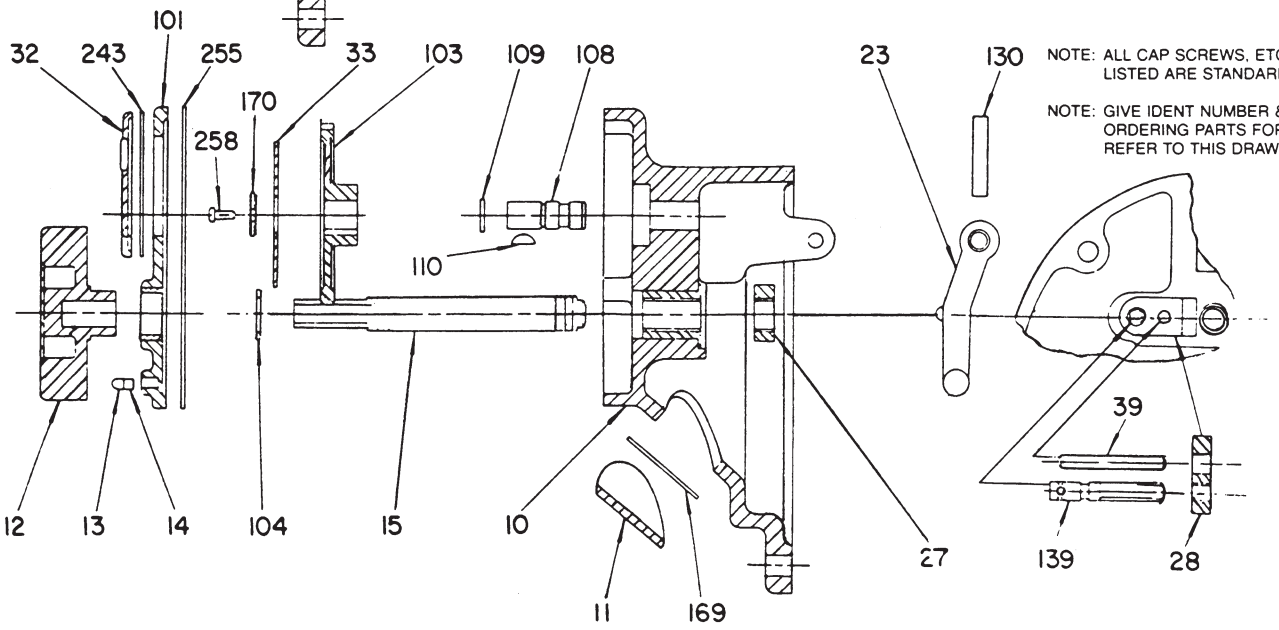
1. Reverse steps 2 through 8 of Disassembly Instructions.
   a. Apply light coat of lubricant to the shifting screw (15) and the gear (103) during reassembly.

   NOTE: Be sure shifting yoke is properly engaged in the lug of the thrust bearing housing. The yoke should go into the lugs from the top.
2. Adjust the stop nut and adjustable stop in accordance with the speed setting instructions in this manual.

FRONT CONTROL ASSEMBLY
050



10	HOUSING CONTROL
11	COVER, STOP NUT
12	HANDWHEEL
13	PLUNGER, FRICTION
14	SPRING, FRICTION PLUNGER
15	SCREW, SHIFTING
23	YOKE, SHIFTING
27	NUT, STOP
28	STOP, ADJUSTABLE
32	CRYSTAL, INDICATOR
33	DIAL, INDICATOR
39	ROD, GUIDE
101	COVER, HOUSING, GEAR
103	GEAR, SHIFTING
104	RING, RETAINING
108	SHAFT, GEAR (INDICATOR)
109	RING, RETAINING
110	KEY
130	PIN, YOKE
139	SCREW, ADJUSTING (STOP)
169	GASKET, COVER STOP NUT
170	WASHER
243	GASKET, INDICATOR CRYSTAL
255	GASKET, COVER HOUSING GEAR
258	SCREW, INDICATOR DIAL



NOTE: ALL CAP SCREWS, ETC. NOT LISTED ARE STANDARD ITEMS.

NOTE: GIVE IDENT NUMBER & SIZE WHEN ORDERING PARTS FOR SERVICE AND REFER TO THIS DRAWING.

DIAGRAM 9

AVAILABLE HANDWHEEL POSITIONS		
MOTO DRIVE MODELS	STANDARD POSITIONS	OPTIONAL POSITIONS
VERTICAL	W	NW, N, NE, & E
45° RIGHT	E	SE, NE, N, & NW
45° LEFT	W	SW, NW, N, & NE
HORIZ. RIGHT	N	NW & W
HORIZ. LEFT	N	NE & E

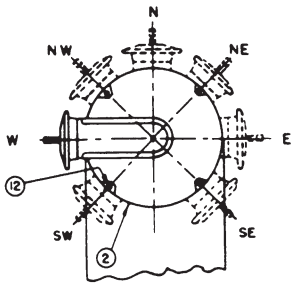


DIAGRAM 10

CHANGING HANDWHEEL LOCATION SIZE 100 & 200 STANDARD CONTROL (DIAGRAM 10)

Unless otherwise specified each MOTO DRIVE is shipped with the control assembly positioned so that the control handwheel is in the standard position according to the unit model.

Changing the control handwheel location is a simple procedure, if one of the optional positions is more suitable for your application.

1. Remove four cap screws (12), Diagram No. 10
2. Rotate the control housing (2), without separating the control assembly from the case, so that the handwheel is in the desired position.

   NOTE: If the control housing becomes separated from the case, refer to item 12 on belt replacement instructions.

DISASSEMBLY SIZE 100-200 (DIAGRAM 11 & 12) STANDARD RIGHT ANGLE & FRONT CONTROL

1. If the MOTO DRIVE unit is in operation, shift the unit to low speed position while it is running.
2. Disconnect electrical power from unit.

WARNING

To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Failure to observe these precautions could result in bodily injury.

3. Remove the complete control assembly from the belt case.

   NOTE: At this point, refer to Diagram 11 or 12 depending on type of control and note items (13), (204) and (14).

   Take care during the following procedures not to lose the items. They will fall out of the housing during the next step.

4. Remove set screw (168) from handwheel (12) hub. This will permit the removal of the complete handwheel and indicator sub-assembly.

CAUTION

Take care not to bend or break the helix (135) as it protrudes from the indicator assembly.

NOTE: The above three steps result in our having two sub-assemblies, (1) handwheel and indicator sub-assembly and (2) the control sub-assembly.

For the purpose of these instructions we will treat each separately.

HANDWHEEL AND INDICATOR DISASSEMBLY

1. Remove the four screws that secure the crystal indicator retainer (30) and remove the retainer (30), crystal (32) and gasket (131).
2. Remove the jam nut (146).
3. Holding onto the helix (135) from the bottom, remove indicator (33) by turning it counterclockwise. This is threaded onto the upper portion of the helix.
4. Remove a flat washer (170), two tension washers (137) and the other flat washer (170).
5. Remove the helix (135) from the handwheel. Note the thrust washer (136). Do not lose this item.

HANDWHEEL AND INDICATOR REASSEMBLY

1. Install the thrust washer (136) over the threads of the helix (135).
2. Insert threaded end of helix up through the handwheel (12).
3. Install one flat washer (170), two tension washers (137) and the other flat washer (170) over the protruding threads of the helix.

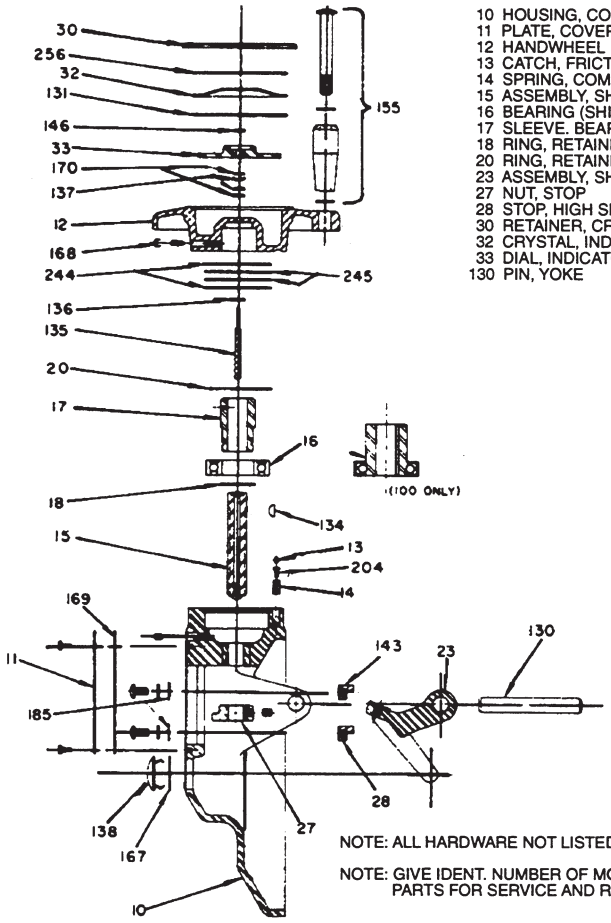
   NOTE: The spring washers should be positioned back to back for proper tension.

4. Holding the helix from beneath, thread the indicator (33) onto the helix. Tighten indicator down snugly, then back indicator off one full turn.
5. Install jam nut (146) and secure.
6. Install gasket (131), crystal (32) and crystal retainer (30).

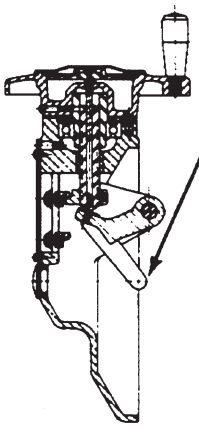
   NOTE: Do not tighten screws completely as the crystal indicator must be adjusted for low speed when complete control assembly is mounted on the unit. See speed adjustment procedures.

PARTS LIST — FOR SIZE 100 & 200 REEVES VARI-SPEED MOTO DRIVE

Handwheel Control and Indicator



10 HOUSING, CONTROL
11 PLATE, COVER
12 HANDWHEEL
13 CATCH, FRICTION
14 SPRING, COMPRESSION
15 ASSEMBLY, SHIFTING SCREW
16 BEARING (SHIFTING SCREW)
17 SLEEVE. BEARING RETAINER (200 ONLY)
18 RING, RETAINING (BEARING SLEEVE - 200 ONLY)
20 RING, RETAINING (SHIFTING SCREW BEARING)
23 ASSEMBLY, SHIFTING YOKE
27 NUT, STOP
28 STOP, HIGH SPEED
30 RETAINER, CRYSTAL (INDICATOR)
32 CRYSTAL, INDICATOR
33 DIAL, INDICATOR
130 PIN, YOKE
131 GASKET, CRYSTAL
134 KEY, SHIFTING SCREW (100 ONLY)
135 HELIX, INDICATOR
136 WASHER, THRUST
137 SPRING, TENSION WASHER
138 PLUG. BUTTON
143 STOP, LOW SPEED
146 NUT, HEX
155 ASSEMBLY, HANDWHEEL HANDLE
167 GASKET, PLUG BUTTON
168 PLUG BUTTON (HANDWHEEL SET SCREW)
169 GASKET, COVER STOP NUT
170 WASHER
185 WASHER, EVERLOCK
204 PIN, SPRING
244 GASKET, NEOPRENE
245 GASKET, MYLAR
256 GASKET, RETAINER



HANDWHEEL SIZE 100 ONLY

Ears of shifting yoke engage lugs of thrust bearing housing from below.

Others — ears engage lugs from above.

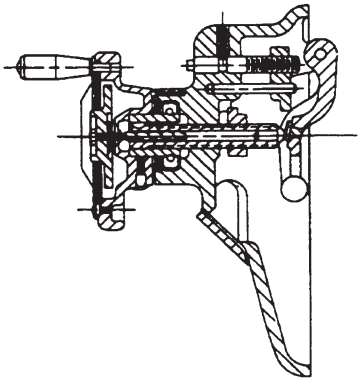
DIAGRAM 11

NOTE: ALL HARDWARE NOT LISTED ARE STANDARD ITEMS.

NOTE: GIVE IDENT. NUMBER OF MOTO DRIVE WHEN ORDERING PARTS FOR SERVICE AND REFER TO THIS DRAWING.

FRONT CONTROL ASSEMBLY — 100-200

10 HOUSING, CONTROL
11 COVER, CONTROL HOUSING
12 HANDWHEEL
13 CATCH, FRICTION
14 SPRING, COMPRESSION
15 ASSEMBLY, SHIFTING SCREW
16 BEARING (SHIFTING SCREW)
17 SLEEVE. BEARING RETAINER (200 ONLY)
18 RING, RETAINING (BEARING SLEEVE - 200 ONLY)
20 RING, RETAINING (SHIFTING SCREW BEARING)
23 ASSEMBLY, SHIFTING YOKE
27 NUT, STOP
28 STOP, HIGH SPEED
30 RETAINER, CRYSTAL (INDICATOR)
32 CRYSTAL (INDICATOR)
33 DIAL, INDICATOR
39 ROD, GUIDE
130 PIN, YOKE
131 GASKET, CRYSTAL
134 KEY, SHIFTING SCREW (100 ONLY)
135 HELIX (INDICATOR)
136 WASHER, THRUST
137 WASHER, TENSION (HELIX)
138 PLUG. BUTTON / 100 ONLY)
139 SCREW, ADJUSTABLE (HIGH SPEED STOP)
146 NUT, HEX (CADMIUM PLATED)
155 HANDLE, PIN 8. WASHERS
167 GASKET, PLUG BUTTON (100 ONLY)
169 GASKET, COVER STOP NUT
170 WASHER
204 PIN, SPRING
244 GASKET, NEOPRENE
245 GASKET, MYLAR
256 GASKET, RETAINER
257 PLUG, BUTTON (HANDWHEEL)
NOTE: GIVE IDENT. NUMBER & SIZE WHEN ORDERING PARTS FOR SERVICE AND REFER TO THIS DRAWING.



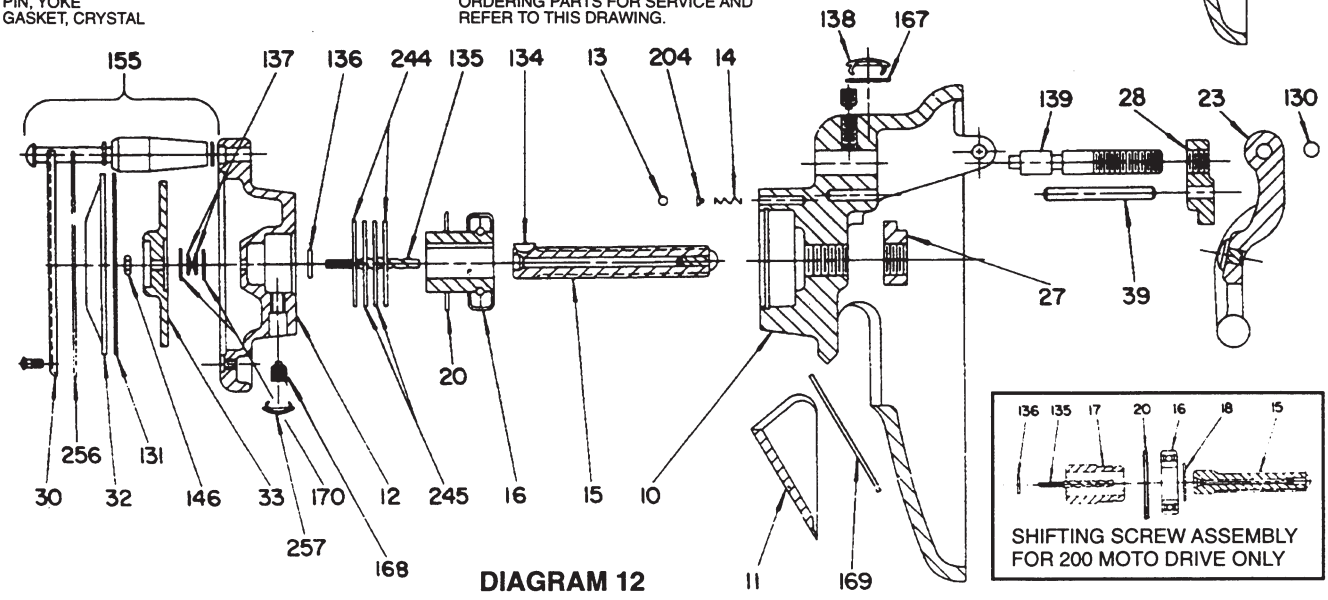


DIAGRAM 12

SHIFTING SCREW ASSEMBLY FOR 200 MOTO DRIVE ONLY

CONTROL HOUSING DISASSEMBLY

1. Remove retaining ring (20).
2. Remove bearing retainer sleeve (17) and bearing (16).

   100 Size — This assembly is manufactured as a complete assembly and no additional disassembly is possible.

   200 Size — The sleeve and bearing are separate items on this size and may be disassembled by removing retaining rings (18).
3. Remove yoke pin (130) and yoke (23).
4. Remove set screw and washer (185) securing the adjustable high and low speed stop nuts (143 and 28) and remove from slots in control housing.
5. Remove set screw from stop nut (27) and remove nut from shifting screw (15).
6. The shifting screw (15) may now be removed by turning it counterclockwise. This is threaded into the control housing (10).

   NOTE: Size 100 only — A woodruff key is installed in the head of the shifting screw. Take care not to lose this as it must be in place during reassembly or the control will not function properly.

CONTROL HOUSING REASSEMBLY

1. Install shifting screw (15) into housing (10) by turning clockwise. Turn screw into housing approximately two thirds of the length of the threads.

a. A light coat of lubricant on the shifting screw threads is recommended.

   NOTE: 100 Size only — Be sure woodruff key is in place on the head end of the shifting screw.

2. 200 Size only — Assemble bearing (16) to bearing retainer sleeve (17) and secure with retaining ring (18).
3. Install bearing and sleeve assembly into control housing.

   NOTE: 100 Size — Be sure the woodruff key and keyway engage each other.

   200 Size — Be sure hex head of shifting screw (15) properly engages with the sleeve (17).
4. Secure with retaining ring (20).
5. Screw the stop nut (27) onto the shifting screw until the threads just come through the nut. The lug on the stop nut (27) should be positioned opposite the handwheel on the standard control and toward the handwheel on the front control. Line up set screw hole with flat on shifting screw and secure. Further adjustment of this will be covered in the speed adjusting instruction.
6. Standard Control — Insert nuts (143 and 28) into slots in control housing and secure with screw and washer (185). Front Control — Thread adjustment screw (139) into high speed stop (28). Ensure that guide hole in (28) is positioned over guide rod (39).
7. Install yoke (23) and yoke pin (130). Be sure hard steel rivet in yoke is positioned toward shifting screw.

HANDWHEEL & INDICATOR TO CONTROL HOUSING ASSEMBLY

1. Lay control housing with yoke side down.
2. Insert compression spring (14), spring pin (204) and friction catch (13) into hole provided. These must be held in place by hand temporarily.
3. Pick up the handwheel and indicator assembly. Note the square end of the helix (135); this must be aligned squarely with the square hole found in the end of the shifting screw (15).

   NOTE: The square hole in the shifting screw is provided by a nylon insert pressed into the shifting screw. This is referred to as the helix guide.
4. Insert helix (135) into helix guide squarely and push handwheel into position over the bearing retainer sleeve (17). Be sure friction catch does not fall out during this assembly procedure.
5. Keeping light pressure by the handwheel so as not to lose the friction catch, line up set screw hole in handwheel (12) with matching hole in bearing retainer sleeve (17) and secure with set screw.
6. Coat shifting screw threads and adjusting screw threads with light coat of clear grease.

   NOTE: 200 only — be sure the ears of the shifting yoke engage the lugs of the thrust bearing housing from the top.

   100 Handwheel only — Be sure the ears of the shifting yoke engage the lugs of the thrust bearing housing from below.
7. Install complete control assembly onto belt case. Insure shifting yoke properly engages ears on thrust bearing housing.
8. Final adjustment of the control assembly should be made in accordance with the speed setting instruction in the manual.

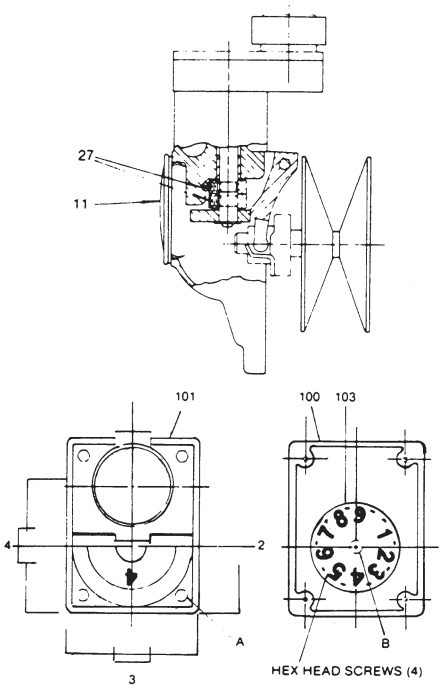


DIAGRAM 13

MINIMUM AND MAXIMUM SPEED SETTING

SIZE 050
STANDARD CONTROLS (DIAGRAM 13)

1. Remove stop nut cover (11) for access to speed control. Don't lose or damage gasket.
2. Loosen set screws in stop nuts (27).
3. Start MOTO DRIVE unit and adjust to maximum output speed as indicated on the unit nameplate.
4. Rotate upper stop nut (27) until contact is made with built-in lug or long set screw in the housing. Contact will be on the left-hand side of lug facing the control.
5. Tighten set screws.
6. Adjust the MOTO DRIVE unit to minimum output speed as indicated on the nameplate.
7. Rotate lower stop nut (27) until contact is made with the built-in lug or long set screw in the housing. Contact will be on the right-hand side of the lug facing control.
8. Tighten setscrews.
9. Shut off the unit and check the indicator for correct position. The "#1" should be directly under the reference line on the crystal indicator. If not, proceed with the following.
10. Note and mark the location of the reference line on the indicator housing (100).
11. Remove the four screws (A) from the cover assembly (101) and remove.
12. Loosen screw (B) and rotate the indicator dial (103) until the "#1" is in line with the mark in step "10" above.
13. Tighten screw (B) and reinstall indicator cover and handwheel assembly (101).
14. Reinstall stop nut cover (11).

SIZE 100 and 200
STANDARD CONTROL (DIAGRAM 14)

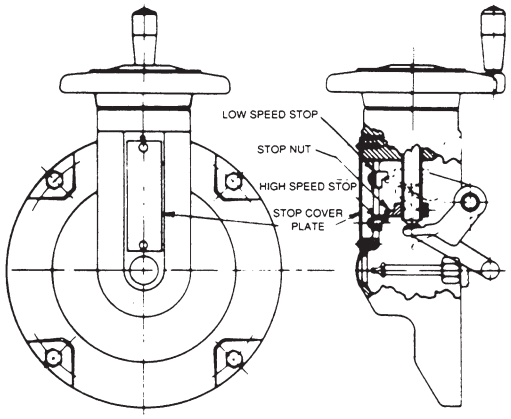


DIAGRAM 14

1. Remove stop cover plate for access to speed control stops.
2. Loosen high and low speed stops; and spread the stops to maximum separation in the guide slot.
3. Inspect the stop nut location on the shifting screw. Reposition if necessary, so that approximately three full threads show at end of screw.
4. Start MOTO DRIVE and adjust to required maximum output speed.
5. Slide the high speed stop into the position where contact between the stop and stop nut occurs, and secure in place. Note two grooves, in the shifting screw, and two set screw holes in the stop nut, permit small position changes of the stop nut to give a more exact speed control setting.
6. Adjust MOTO DRIVE unit to required minimum output speed.
7. Slide the low speed stop into the position where contact with the stop nut occurs; and secure in place.
8. Be sure screws holding high and low speed stops and stop nuts are tight.
9. Replace stop cover plate.

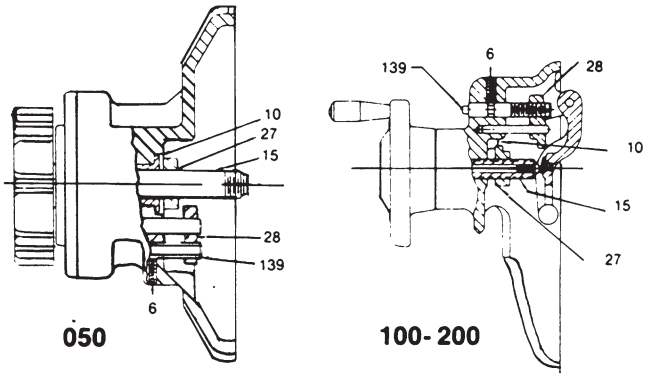


DIAGRAM 15

SIZE 050 – 100-200
FRONT CONTROLS (DIAGRAM 15)

1. Remove control access covers.
2. Remove the setscrew in the stop nut (27).
3. Start the MOTO DRIVE unit and shift it to minimum speed as indicated on the nameplate.
4. Adjust the stop nut (27) until it makes contact with the built-in low speed stop (10).
5. Line up a setscrew hole in the stop nut with the flat on the shifting screw (15) and secure with setscrew.
6. Loosen setscrew (6).

CAUTION
Do not remove this set screw. Loosen only enough to permit free rotation of the adjusting screw (139).

7. Shift the MOTO DRIVE unit to maximum speed as indicated on the nameplate.

   NOTE: Depending upon the previous setting of the high speed stop, it may be necessary to turn the adjusting screw (139) in a counterclockwise direction at the same time the unit is being shifted toward maximum speed.

8. After maximum speed is reached, adjust the high speed stop (28) so that the stop nut (27) will just strike the side of the stop (28) as the unit is advanced toward high speed.

   NOTE: If too much contact between the stop and the stop nut exists, the unit will not return to low speed.

9. After the desired maximum speed has been adjusted and assurance has been made that the unit will return to low speed, tighten setscrew (6).
10. Recheck maximum speed setting and then return unit to minimum speed.
11. Shut off unit.
12. Adjust indicator dial.

A. 050 (See Diagram 9)

1. Remove crystal indicator (32).
2. Loosen screw securing indicator dial (33) and adjust dial so that "#1" will be directly under the reference mark on the crystal indicator.
3. Tighten screw and reinstall crystal.

B. 100-200 (See Diagram 12).

1. Loosen crystal indicator retainer (30) and position the reference line of the crystal (32) directly over the "#1" on the dial (33).
2. Resecure the retainer.

ELECTRIC REMOTE CONTROL

DISASSEMBLY

WARNING
To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Failure to observe these precautions could result in bodily injury.

1. See Diagram 16, Page 20
2. Remove complete control assembly from MOTO DRIVE unit.
3. Remove four hex head machine screws and washers.
4. Remove gearmotor housing cover (E170.)
5. Remove the two limit switch cams (E98) from the cam shaft (E186).
6. Remove the socket head screws and washers from mounting plate (E95). The complete mounting plate assembly may now be removed.

   NOTE: The motor (E1), capacitor (E92), limit switches (E82), terminal block (E100) are all attached to the mounting plate. These can be removed as required by simply removing the necessary hardware for the specific item.

7. Remove control pinion (E187) from gearmotor housing (E188).

   NOTE: There is a washer on the control pinion. Do not lose this item.

8. Loosen hex nut and remove cam shaft (E186) and washer.
9. Remove shifting gear (103).
10. 050 only—Remove woodruff key (49).

    NOTE: Before proceeding to step 11, note position of the cam (105). Mark the cam in such a way as to insure reassembly in exactly the same position. If the cam is installed upside down, the control will operate backwards.

11. Remove button head screw and washer from shifting shaft (15).

    NOTE: On the 050 size only, screw and washer are replaced by a retaining ring. (106).

12. Remove cam (105).
13. 050 only—Remove woodruff key (50).
14. Remove collar (56). This will permit removal of the shifting shaft.
15. Remove yoke pin (130) and yoke (23) if required.

REASSEMBLY

NOTE: Apply a light coat of lubricant (NLGI No. 1) to the shifting shaft (15).

1. Insert shifting shaft (15) into control housing (10).
2. Install the collar (56) onto shifting shaft.
3. 050 only — Install woodruff key (50).
4. Install cam (105).

   NOTE: Be sure cam is installed as indicated by markings in accordance with the note after step 10 of the disassembly instructions.

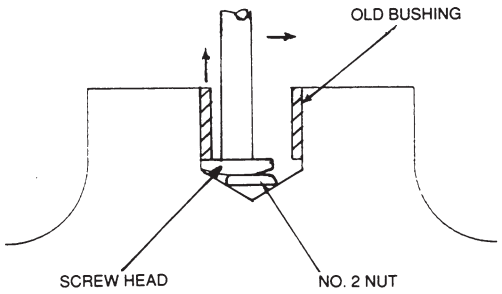
5. Secure cam with either the retaining ring (050 only) or the washer and screw.
6. If gearmotor housing (E188) was previously removed, reinstall at this time and secure with the screws and washers.

7. 050 only — insert woodruff key (49) into shifting shaft.
8. Install shifting gear (103) and secure with the cam shaft (E186), jam nut and washer.

   NOTE: When replacing shifting gear 103, replace pinion pilot bushing E196 (supplied) in order to maintain proper gear mesh alignment. Remove the old bushing, drive the new bushing in flush. Grease bushing and gear teeth.

   To remove old bushing on ERC's with bushing set in blind hole:

   Pry old bushing out with rivet head, hook or No. 6 screw head ground to 1/4" O.D. Insert through bushing bore and pry bushing out. it may be necessary to drop a No. 2 nut into hole to pry against. (See drawing)



9. With washer installed on control pinion, insert this assembly into the gearmotor housing (E188).

   NOTE: Apply light coat of clean grease to gear teeth.
10. If the component's motor (E1), capacitor (E92), terminal block (E100), and/or limit switches (E82) and the limit switch spacers (E81) were previously removed from the mounting plate (E95), reassemble at this time.
11. Reassemble the mounting plate assembly (E95) (complete) to the gearmotor housing (E188).
12. Install limit switch cams (E98).
13. Install yoke (23) and yoke pin (130).

    NOTE: Apply light coat of lubricant (NLGI No. 1) to cam surface.
14. Reinstall complete control assembly onto the MOTO DRIVE unit. Check position on yoke prongs.
15. Adjust limit switch cams in accordance with speed limit switch adjustment instructions.
16. Secure gearmotor housing cover (E170). Apply light coat of RTV between cover and housing.

    NOTE: See appropriate wiring diagram at the end of this manual for correct connections.

LIMIT SWITCH ADJUSTMENT HEAVY DUTY ELECTRIC REMOTE CONTROL SIZES 050-100-200

Reference Diagram No. 16

1. Remove gearmotor housing cover (E170).
2. Limit switch cams (E98) can be positioned by rotating on shaft. (Slight interference fit).
3. Check data plate on the unit for minimum and maximum rpm.

   NOTE: Limit switches may be set for any speed within the limits as noted on the data plate.
4. Start unit and adjust the speed electrically to the minimum data plate rpm.

   NOTE: Observe direction of cam shaft (E186) so that the cam may be adjusted on the correct side of the switch lever. The cam shaft should turn CCW for lower speed and CW for high speed.
5. Adjust the top limit switch cam (E98) so that the limit switch just actuates.

   NOTE: A very faint click may be heard that would indicate opening and closing of limit switch.

CAUTION:
Be sure cam is on correct side of switch arm for proper operation in direction selected. See note after step 4 above.

6. Adjust speed toward high speed slightly and then return control to low speed. This will check previous setting.
7. Adjust the speed of the unit to the desired high speed limit not exceeding data plate speed.

   NOTE: If the unit is being adjusted under a no load condition, multiply desired rpm by 1.05 and adjust to this figure. This will allow for pull down under load.
8. Adjust the lower limit switch cam as in steps 5 and 6.

   NOTE: When this cam is properly adjusted it should be approaching its respective limit switch from the opposite direction of that of the upper cam.
9. After rechecking both limits for proper adjustment, reinstall gearmotor housing cover (E170). Apply light coat of RTV between cover and housing.

ERC WITH MASTER GEARMOTOR FOR 200 MOTO DRIVE UNIT INSTRUCTIONS FOR ADJUSTING FRICTION CLUTCH

DANGER
Subsequent steps require rotating parts and/or electrical circuits to be exposed. Stay clear if unit must be running or disconnect and lockout or tag power source if contact must be made. Failure to observe these precautions could result in severe bodily injury or loss of life.

Refer to parts breakdowns on page 21

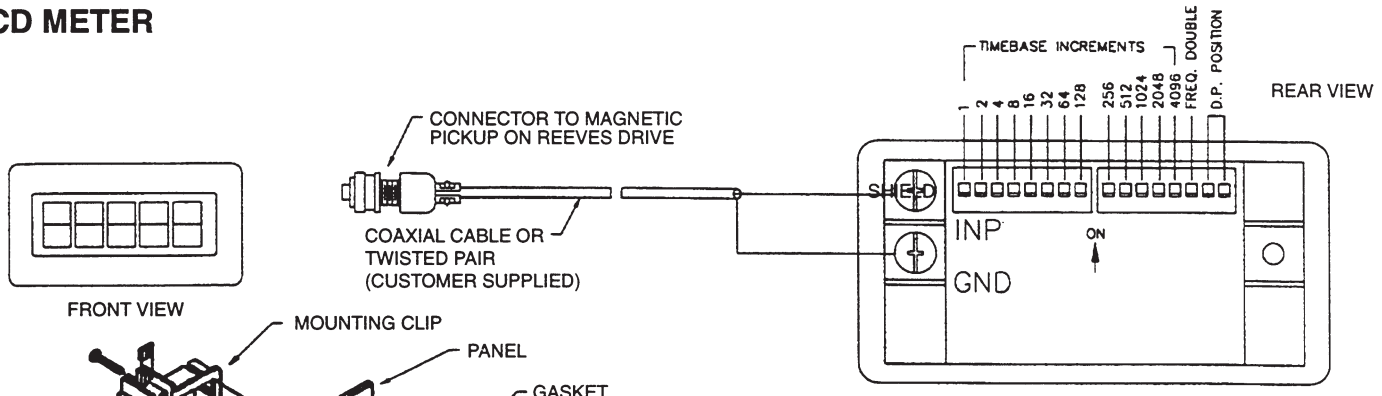
To adjust friction clutch:

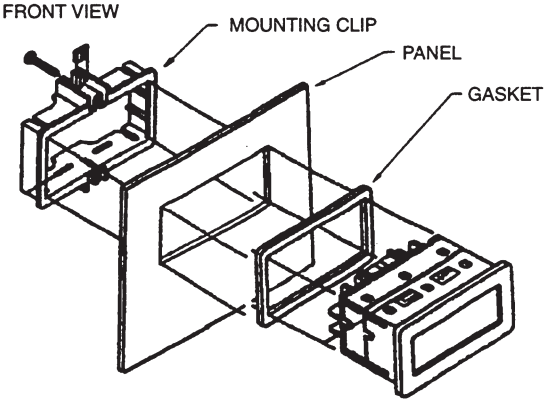
1. Friction clutch may be adjusted by removing gear guard cover (E21).
2. Check friction washers (E11). Replace if worn.
3. To adjust, tighten spring nut (E13) until clutch will shift MOTO DRIVE unit running under no load. Turn (E13) clockwise to tighten clutch.
4. Tighten spring nut (E13) an additional 1/4 turn.
5. Tension is correct when clutch will not slip while shifting MOTO DRIVE unit under load, but slips when shifting screw hits high or low speed stops.

NOTE: This is a dry clutch — do not fill housing (E20) with oil or grease! A small amount of grease should be applied to teeth of gears (E25) and (E27), but grease must be kept away from clutch.

DIGITAL INDICATOR CONNECTION DIAGRAM

LCD METER





REF.: SD7100-10-G DIMENSION SHEET

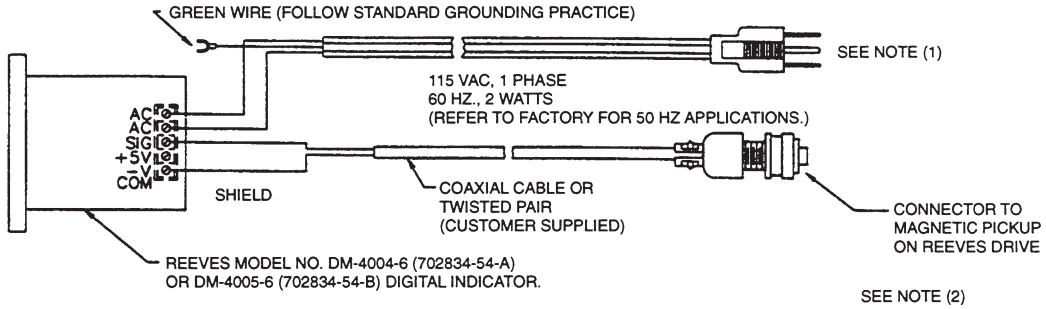
NOTE:

1. STANDARD CONNECTOR FOR NON-EXPLOSION PROOF PICKUPS SHOWN. AMPHENOL TYPE MS 3106A-10SL-4S.
2. EXPLOSION PROOF PICKUP HAS 3-18" WIRE LEADS AND 1/2" INTERNAL PIPE THREAD. WIRE PER CODE AND APPROVED XP WIRING PRACTICE. CONNECT WIRES: WHITE TO "INP," BLACK TO "GND," GREEN TO PROTECTIVE GROUND.
3. INDICATOR MEETS NEMA 4X/IP65 REQUIREMENTS WHEN PROPERLY INSTALLED WITH GASKET AND MOUNTING CLIP. SEE INSTRUCTIONS PACKED WITH INDICATOR.
4. INDICATOR SCALING: (DETAILED INSTRUCTIONS PACKED W/INDICATOR) BASIC SETTING: SET TIMEBASE INCREMENT (TBIT)

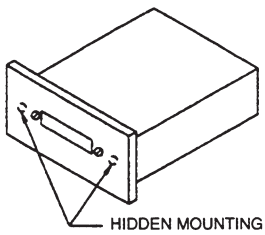
$$TBIT = \frac{DR \times DDP \times 15360}{RPM \times PPR}$$

WHERE: DR = DESIRED READING
DDP = DECIMAL POINT
RPM = DRIVE OUTPUT SPEED AT DR MULTIPLIED BY DRIVE REDUCER RATIO
PPR = TEETH ON PULSE WHEEL (60 STD., 40 XP ONLY)

LED METER



CAUTION:
DO NOT CONNECT ANY OTHER POWER SOURCE TO THE +5V SUPPLY TERMINAL.



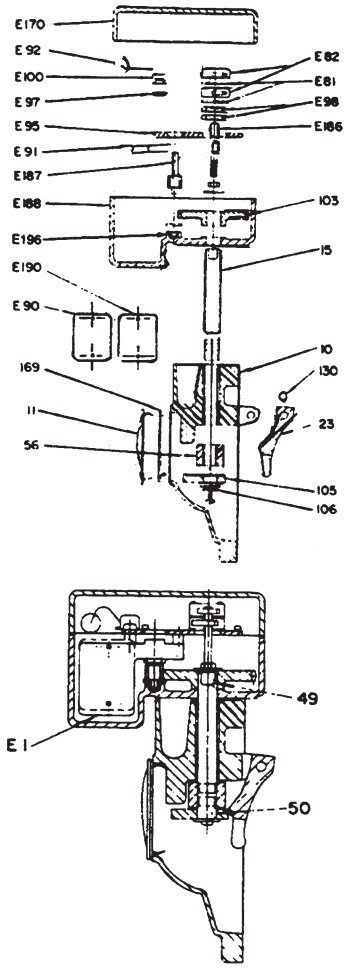
REMOVE 2 SCREWS FROM FRONT OF LENS.
REMOVE LENS TO EXPOSE TWO HIDDEN MOUNTING HOLES.

REF.: D42000-39-J INSTRUCTIONS & SD-7100-10-B DIMENSION SHEET.

NOTE:

1. 6 FT. OF 3-WIRE POWER CORD AND 3-PRONG PLUG. FOLLOW PROPER GROUNDING PRACTICE. POWER CORD IS NOT PROVIDED ON INDICATORS FURNISHED IN NEMA 4X OR EXPLOSION PROOF HOUSINGS.
2. STANDARD CONNECTOR FOR NON-EXPLOSION PROOF PICKUPS SHOWN. AMPHENOL TYPE MS 3106A-10SL-4S.
3. EXPLOSION PROOF PICKUP HAS 3-18" WIRE LEADS AND 1/2" INTERNAL PIPE THREAD. WIRE PER CODE AND APPROVED XP WIRING PRACTICE. CONNECT WIRES: WHITE TO "SIGNAL," BLACK TO "COM," GREEN TO PROTECTIVE GROUND.

PARTS LIST FOR ELECTRIC REMOTE CONTROL ON REEVES MOTO DRIVE SIZES 050, 100, 200



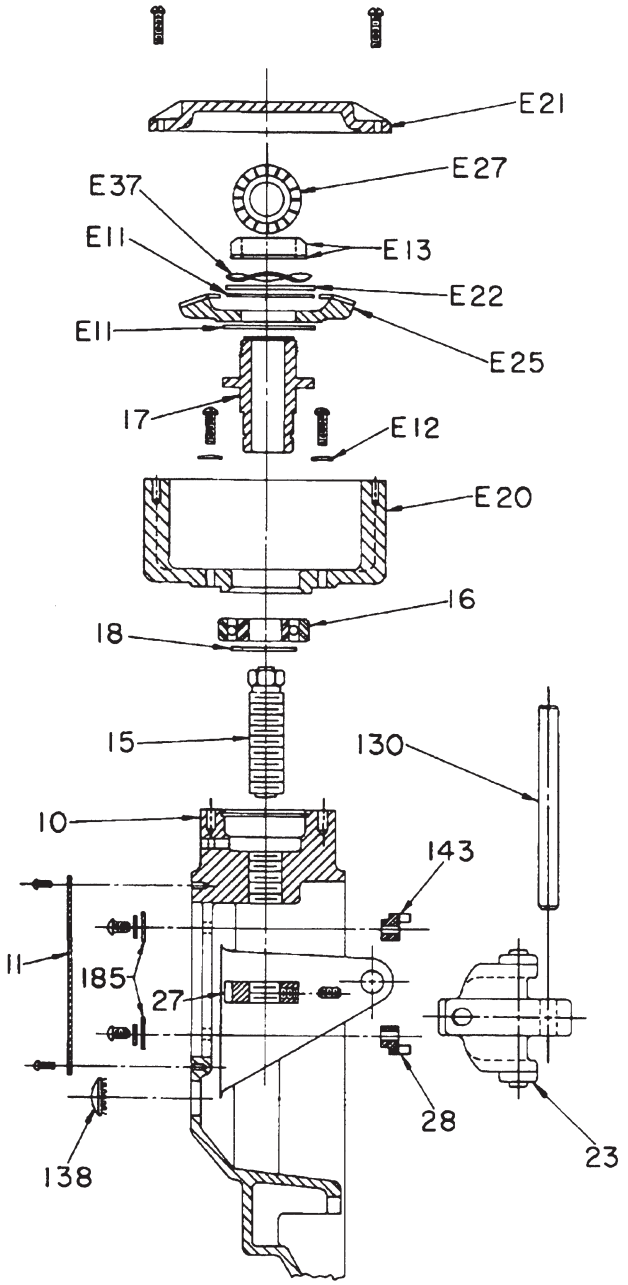
E 1 MOTOR
10 HOUSING, CONTROL
11 COVER, STOP NUT
15 SHAFT, SHIFTING
23 YOKE, SHIFTING
49 KEY, WOODRUFF (050 ONLY)
50 KEY, WOODRUFF (050 ONLY)
56 COLLAR, SHAFT
E81 INSULATOR
E82 SWITCH, LIMIT
E90 COVER, CONNECTION
E91 GROMMET, RUBBER (100 ONLY)
E92 CAPACITOR, MOTOR
E95 PLATE, MOUNTING
E97 MARKER, STRIP
E98 CAM, LIMIT SWITCH
E100 BLOCK, TERMINAL
103 GEAR, SHIFTING
105 CAM, SHIFTING
106 RING, RETAINING (050 ONLY)
130 PIN, YOKE
169 GASKET, COVER STOP NUT
E170 COVER, GEARMOTOR
E186 SHAFT, CAM
E187 PINION, CONTROL
E188 HOUSING, GEARMOTOR
E190 GASKET, COVER, CONNECTION
E196 BUSHING, PINION PILOT

NOTE: GIVE IDENTIFICATION NUMBER & SIZE WHEN ORDERING PARTS FOR SERVICE AND REFER TO THIS DRAWING.

NOTE: ALL HARDWARE, ETC. NOT LISTED ARE STANDARD ITEMS.

DIAGRAM NO. 16

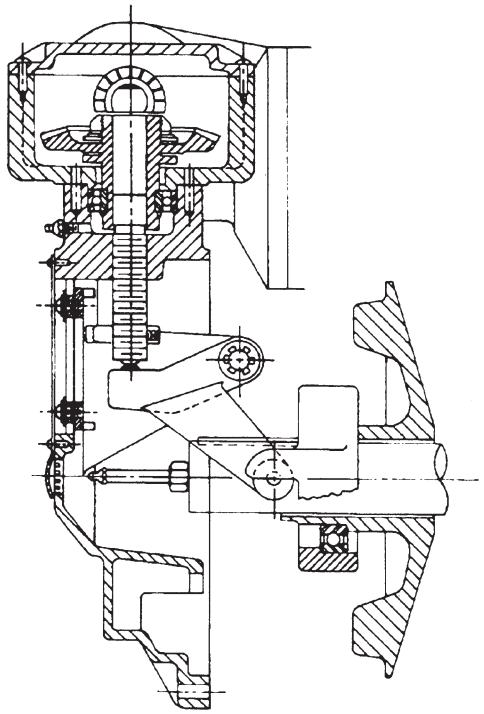
PARTS LIST FOR ELECTRIC REMOTE CONTROL FOR REEVES® MOTO DRIVE®SIZE 200
(WITH MASTER® GEARMOTOR)



10	HOUSING, CONTROL
11	COVER, STOP NUT
15	SCREW, SHIFTING
16	BEARING, HUB
17	HUB, CLUTCH-FRICTION
18	RING, RETAINING
23	YOKE, SHIFTING (ASSEMBLY)
27	NUT, STOP
28	STOP, HIGH SPEED
130	PIN, YOKE
138	PLUG, BUTTON
143	STOP, LOW SPEED
185	WASHER, EVERLOCK
E11	DISC, FRICTION
E12	SPRING, TENSION WASHER
E13	NUT & WASHER, LOCK
E20	BRACKET, MOTOR
E21	COVER, GEAR
E22	PLATE, PRESSURE
E25	GEAR, BEVEL
E27	PINION, BEVEL
E37	SPRING, TENSION WASHER

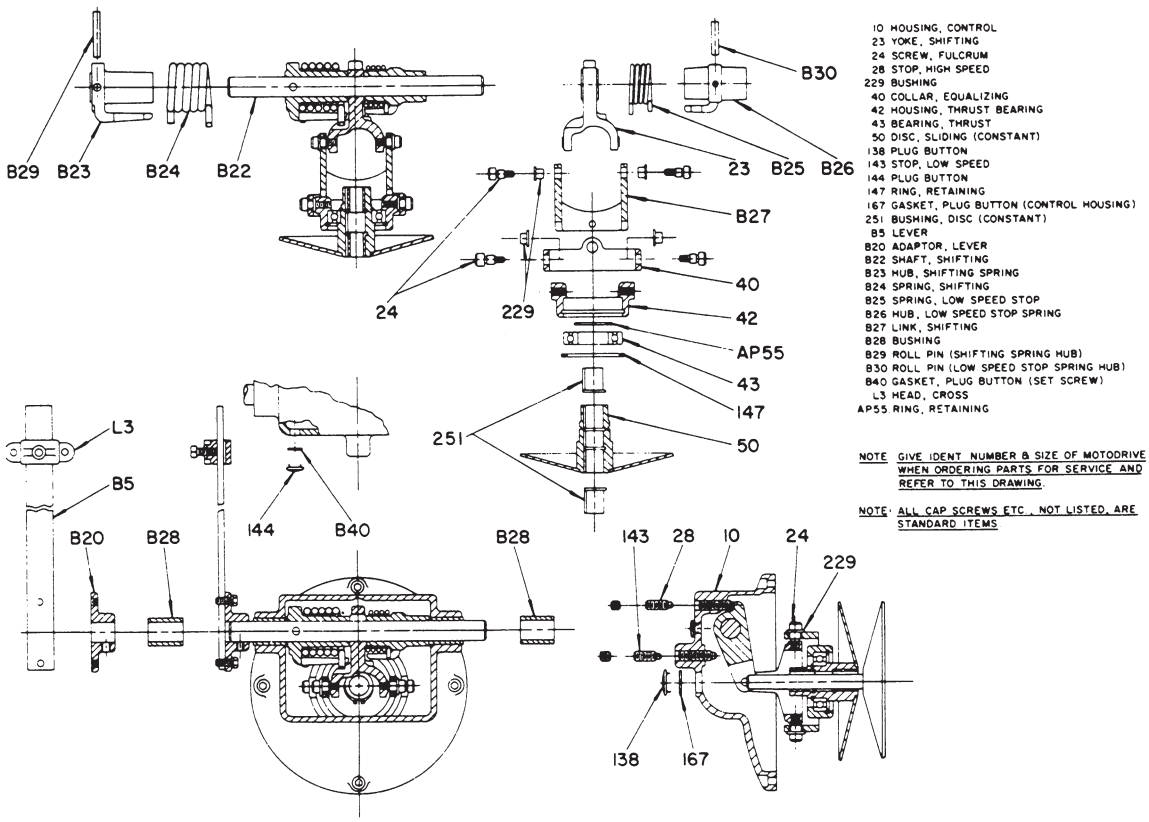
NOTE: GIVE SERIAL NUMBER OF MOTO DRIVE WHEN ORDERING REPLACEMENT PARTS AND REFER TO THIS DRAWING NUMBER.

NOTE: ALL HARDWARE NOT LISTED ARE STANDARD ITEMS.



When ordering Moto Drive replacement parts refer to this bulletin number and give serial number, assembly number, and unit size number.

PARTS LIST FOR MECHANICAL AUTOMATIC CONTROL FOR SIZE 100



10 HOUSING, CONTROL
23 YOKE, SHIFTING
24 SCREW, FULCRUM
28 STOP, HIGH SPEED
229 BUSHING
40 COLLAR, EQUALIZING
42 HOUSING, THRUST BEARING
43 BEARING, THRUST
50 DISC, SLIDING (CONSTANT)
138 PLUG BUTTON
143 STOP, LOW SPEED
144 PLUG BUTTON
147 RING, RETAINING
167 GASKET, PLUG BUTTON (CONTROL HOUSING)
251 BUSHING, DISC (CONSTANT)
B5 LEVER
B20 ADAPTOR, LEVER
B22 SHAFT, SHIFTING
B23 HUB, SHIFTING SPRING
B24 SPRING, SHIFTING
B25 SPRING, LOW SPEED STOP
B26 HUB, LOW SPEED STOP SPRING
B27 LINK, SHIFTING
B28 BUSHING
B29 ROLL PIN (SHIFTING SPRING HUB)
B30 ROLL PIN (LOW SPEED STOP SPRING HUB)
B40 GASKET, PLUG BUTTON (SET SCREW)
L3 HEAD, CROSS
AP55 RING, RETAINING

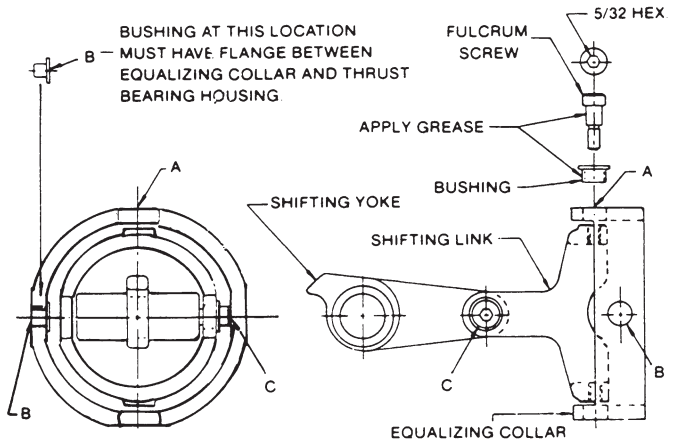
NOTE GIVE IDENT NUMBER & SIZE OF MOTODRIVE WHEN ORDERING PARTS FOR SERVICE AND REFER TO THIS DRAWING.

NOTE: ALL CAP SCREWS ETC., NOT LISTED, ARE STANDARD ITEMS

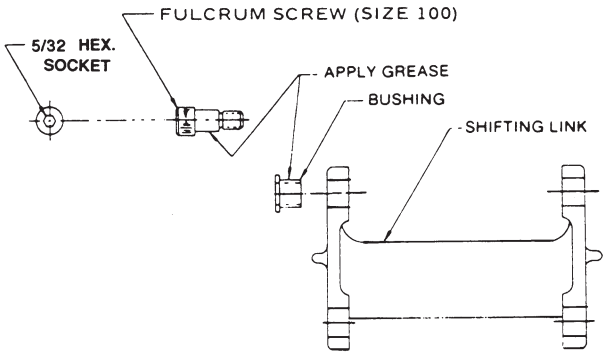
Moto Drive Unit Size	Fulcrum Screw Size	Recommended Torque
100	1/4" - 20	100-125 in. lbs.

1. Apply light coat of ball bearing grease to outside diameter of fulcrum screw and bushing.
2. Insert bushing and fulcrum screw into hole of shifting link and tighten as specified.

Note: (6) Six fulcrum screws & bushings are required for complete assembly.

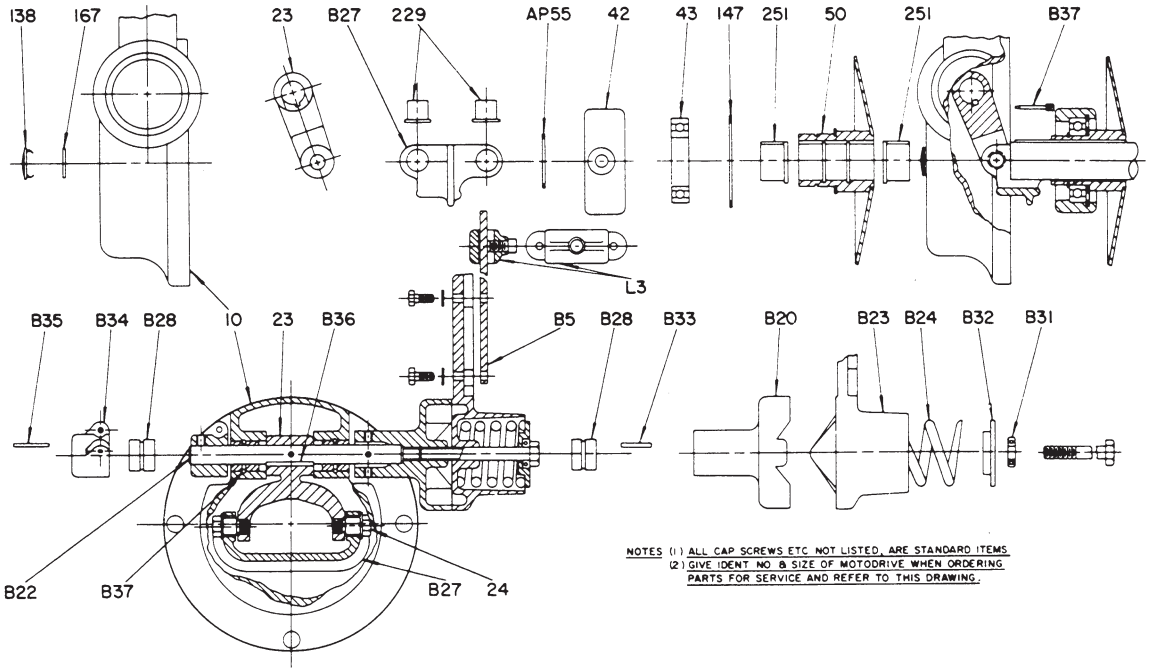


Note: (4) Four fulcrum screws & bushings are required for complete assembly.



PARTS LIST FOR MECHANICAL AUTOMATIC CONTROL FOR SIZE 200

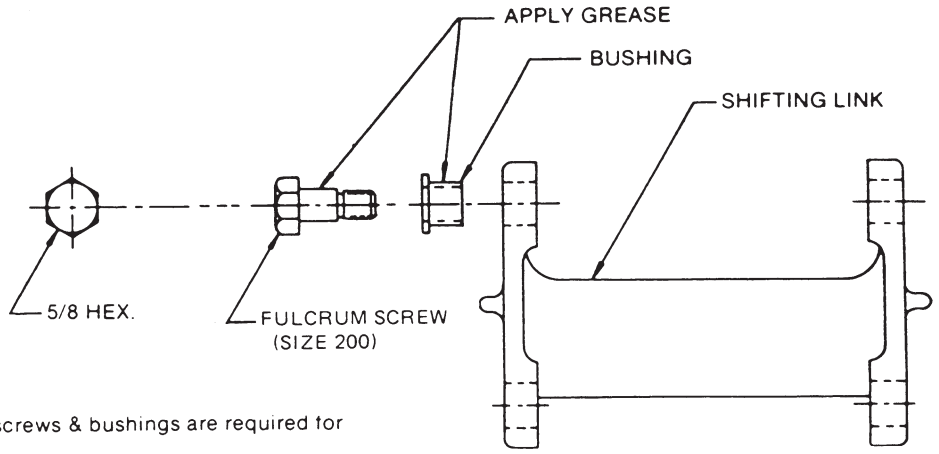
10 HOUSING, CONTROL
23 YOKE, SHIFTING
24 SCREW, FULCRUM
229 BUSHING
42 HOUSING, THRUST BEARING
43 BEARING, THRUST
50 DISC, SLIDING (CONSTANT)
138 PLUG, BUTTON
147 RING, RETAINING
167 GASKET, PLUG BUTTON
251 BUSHING, DISC (CONSTANT)
B5 EXTENSION, BREAK LEVER
B20 HUB, BREAK LEVER CAM
B22 SHAFT, SHIFTING
B23 CAM, BREAK LEVER
B24 SPRING
B27 LINK, SHIFTING
B28 BUSHING
B31 BEARING
B32 RETAINER, SPRING
B33 KEY, (HUB)
B34 STOP
B35 KEY, (STOP)
B36 KEY, (YOKE)
B37 SCREW, LOCKING
L3 HEAD, CROSS
AP55 RING, RETAINING



NOTES (1) ALL CAP SCREWS ETC. NOT LISTED, ARE STANDARD ITEMS.
(2) GIVE IDENT NO & SIZE OF MOTODRIVE WHEN ORDERING PARTS FOR SERVICE AND REFER TO THIS DRAWING.

Moto Drive Unit Size	Fulcrum Screw Size	Recommended Torque
200	1/2" - 13	250 - 300 in. lbs.

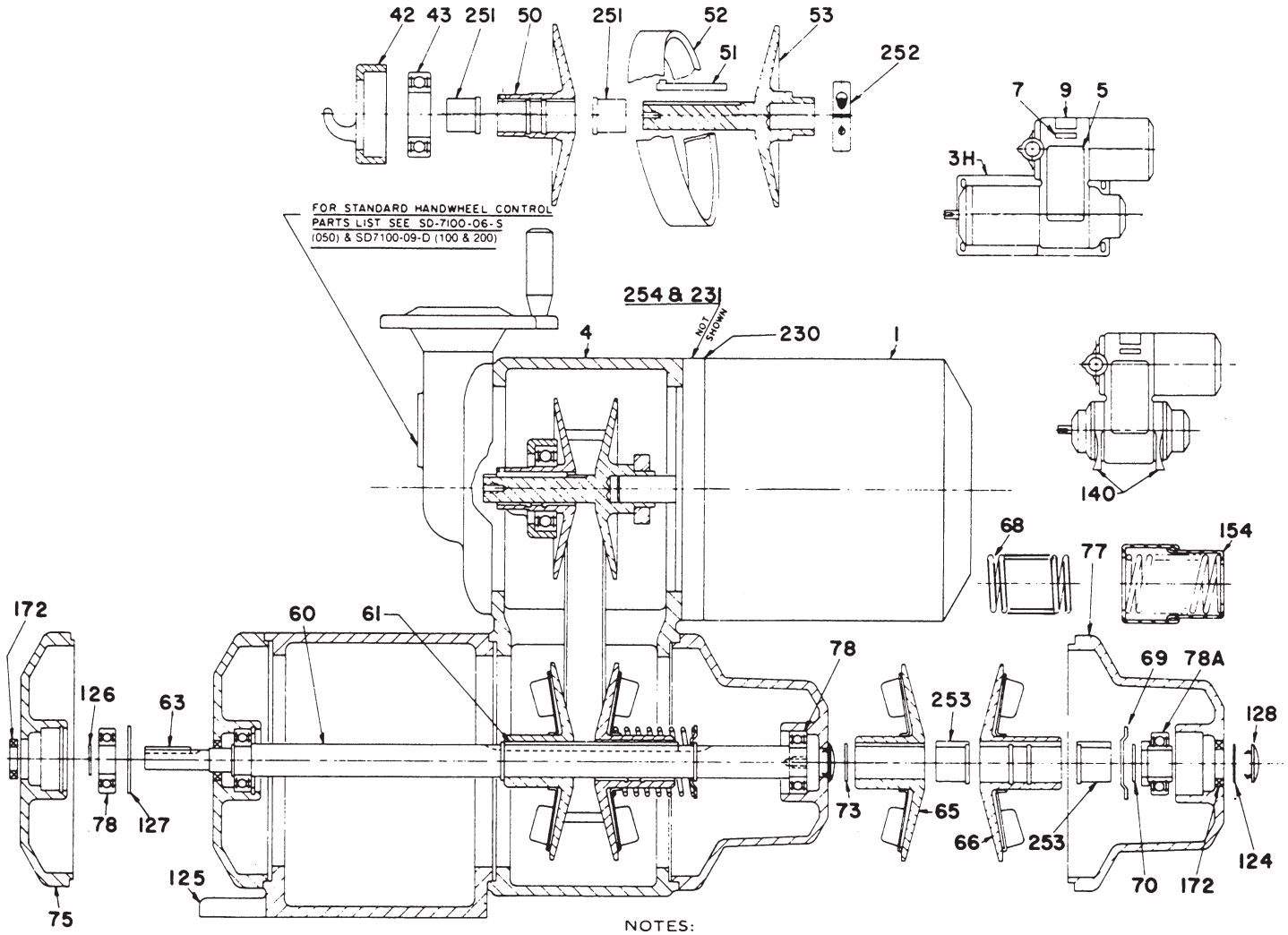
1. Apply light coat of ball bearing grease to outside diameter of fulcrum screw and bushing.
2. Insert bushing and fulcrum screw into hole of shifting link and tighten as specified.



Note: (4) Four fulcrum screws & bushings are required for complete assembly.

PARTS LIST — FOR SIZES 050 - 100 - 200

"Z" Flow Style — Vertical, 45° and Horizontal Models



NOTES:

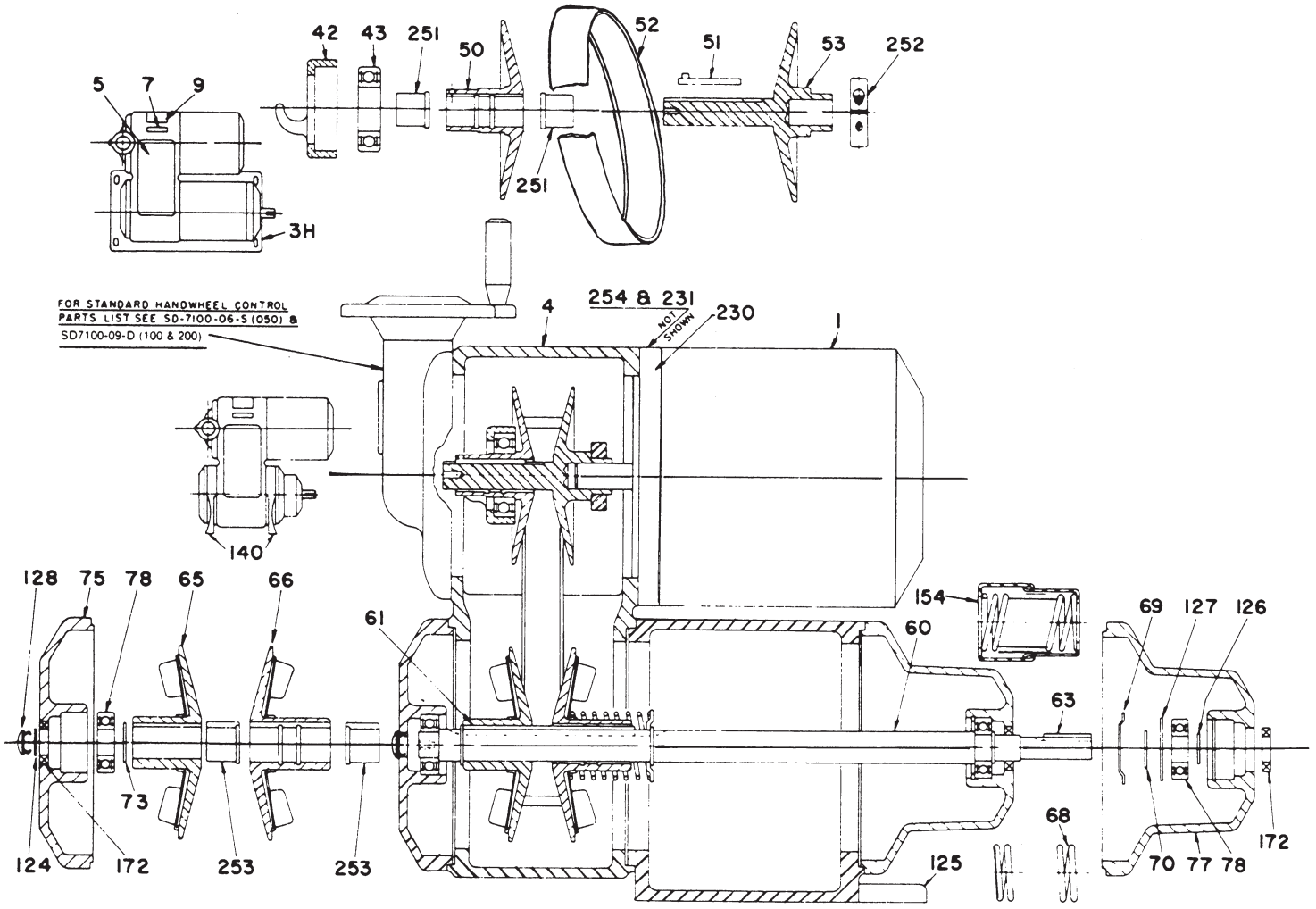
(1.) ALL CAP SCREWS ETC. NOT LISTED, ARE STANDARD ITEMS.
(2.) GIVE IDENT. NO. & SIZE OF MOTO DRIVE WHEN ORDERING PARTS FOR SERVICE AND REFER TO THIS DRAWING.

1 MOTOR
4 CASE, BELT
5 PLATE, INSPECTION
7 PLATE, SPECIFICATION (050 ONLY)
9 PLATE, NAME
42 HOUSING (THRUST BEARING)
43 BEARING, THRUST
50 DISC, SLIDING (CONSTANT)
51 KEY (CONSTANT DISC)
52 BELT
53 DISC, FIXED (CONSTANT)
60 SHAFT, VARIABLE
61 KEY, DISC
63 KEY, OUTPUT
65 DISC, FIXED (VARIABLE)
66 DISC, SLIDING (VARIABLE)
68 SPRING (DISC) (050 ONLY)
69 COLLAR (SPRING) (050 ONLY)
70 RING, RETAINING (SPRING COLLAR)
73 RING, RETAINING (FIXED DISC VARIABLE)
75 PLATE, BEARING
77 PLATE, BEARING
78 BEARING (050 & 100 2-REQ.) (200 1-REQ.)
124 GASKET, PLUG BUTTON (050 & 100 ONLY)
125 SUPPORT, CASE
126 RING, RETAINING (BEARING)
127 RING, RETAINING (BEARING)
128 PLUG, BUTTON (050 & 100 ONLY)
154 CARTRIDGE, SPRING ASS'Y. (100 & 200 ONLY)
172 SEAL, VARI-SHAFT (050 & 100 1-REQ.) (200 2-REQ.)
230 ADAPTOR, MOTOR (200 ONLY)
231 PLATE, COVER (200 ONLY)
251 BUSHING, DISC (CONSTANT)
252 COLLAR, CLAMP
253 BUSHING, DISC (VARIABLE)
254 GASKET, COVER (MOTOR ADAPTOR) (200 ONLY)
78A BEARING & COLLAR (200 1-REQ.)
3H BASE (100 HORIZONTAL ONLY)
140 ADAPTER, TRUNNION

When ordering Moto Drive unit replacement parts refer to this bulletin number and give serial number, assembly number, and unit size number.

PARTS LIST — FOR SIZES 050 - 100 - 200

"C" Flow Style — Vertical, 45° and Horizontal Models



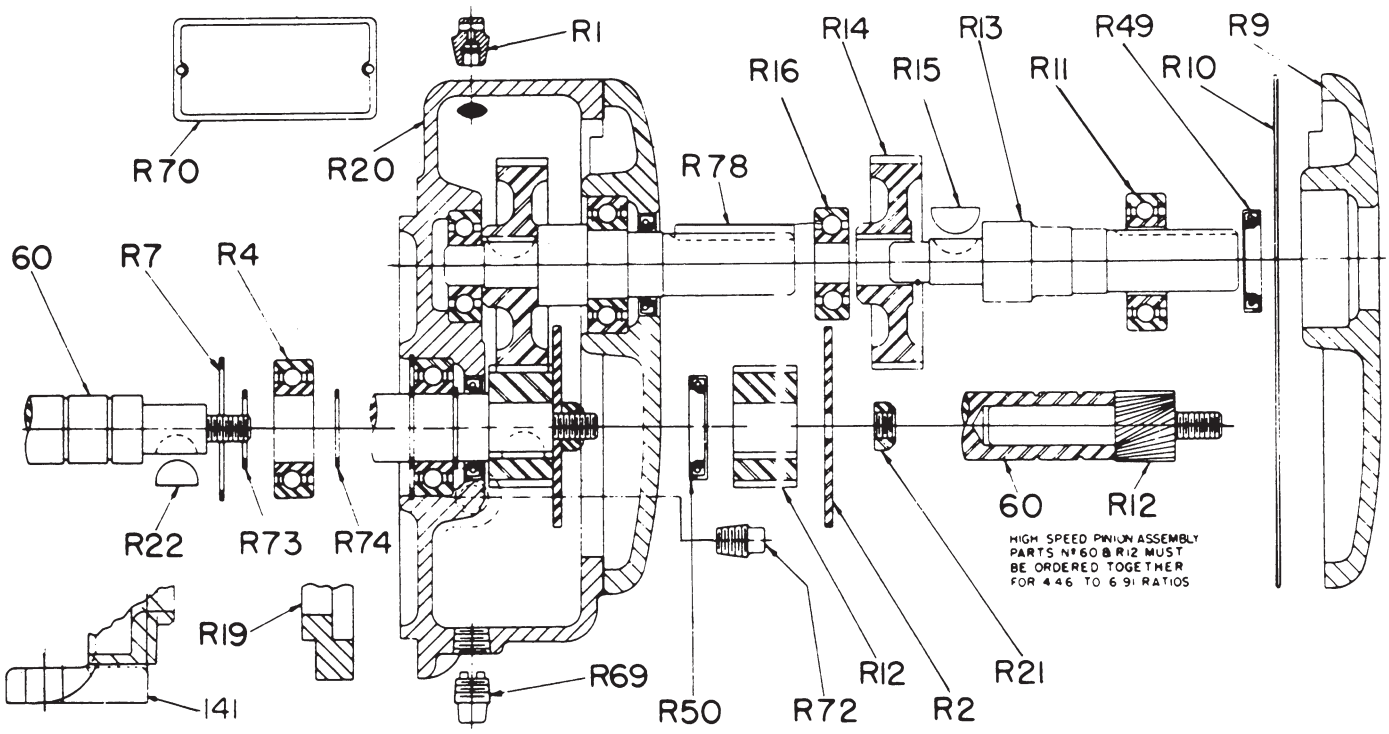
NOTES:

(1.) ALL CAP SCREWS ETC. NOT LISTED, ARE STANDARD ITEMS.
(2.) GIVE IDENT. NO. & SIZE OF MOTO DRIVE WHEN ORDERING PARTS FOR SERVICE AND REFER TO THIS DRAWING.

1 MOTOR
4 CASE, BELT
5 PLATE, INSPECTION
7 PLATE, SPECIFICATION (050 ONLY)
9 PLATE, NAME
42 HOUSING (THRUST BEARING)
43 BEARING, THRUST
50 DISC, SLIDING (CONSTANT)
51 KEY (CONSTANT DISC)
52 BELT
53 DISC, FIXED (CONSTANT)
60 SHAFT, VARIABLE
61 KEY, DISC
63 KEY, OUTPUT
65 DISC, FIXED (VARIABLE)
66 DISC, SLIDING (VARIABLE)
68 SPRING (DISC) (050 ONLY)
69 COLLAR (SPRING) (050 ONLY)
70 RING, RETAINING (SPRING COLLAR)
73 RING, RETAINING (FIXED DISC VARIABLE)
75 PLATE, BEARING
77 PLATE, BEARING
78 BEARING (050 & 100 2-REQ.) (200 1-REQ.)
124 GASKET, PLUG BUTTON (050 & 100 ONLY)
125 SUPPORT, CASE
126 RING, RETAINING (BEARING)
127 RING, RETAINING (BEARING)
128 PLUG, BUTTON (050 & 100 ONLY)
154 CARTRIDGE, SPRING ASS'Y. (100 & 200 ONLY)
172 SEAL, VARI-SHAFT (050 & 100 1-REQ.) (200 2-REQ.)
230 ADAPTOR, MOTOR (200 ONLY)
231 PLATE, COVER (200 ONLY)
251 BUSHING, DISC (CONSTANT)
252 COLLAR, CLAMP
253 BUSHING, DISC (VARIABLE)
254 GASKET, COVER (MOTOR ADAPTOR) (200 ONLY)
3H BASE (100 HORIZONTAL ONLY)
140 ADAPTER, TRUNNION

When ordering Moto Drive unit replacement parts refer to this bulletin number and give serial number, assembly number, and unit size number.

PARTS LIST — FOR SINGLE REDUCTION REDUCER — SIZE 111



60	SHAFT, VARIABLE
R1	PLUG, VENT
R2	SLINGER, OIL
*R4	BEARING, HIGH SPEED
R7	RING, RETAINING, HIGH SPEED BEARING
R9	HEAD
*R10	GASKET, HEAD
*R11	BEARING—OUTER, LOW SPEED
R12	PINION, HIGH SPEED
R13	SHAFT, OUTPUT
R14	GEAR, LOW SPEED
R15	KEY, LOW SPEED GEAR
*R16	BEARING—INNER, LOW SPEED
R19	ADAPTOR, RING (TRUNNION TYPE ONLY. REDUCER ON MOTOR SIDE)
R20	HOUSING
R21	NUT, HIGH SPEED SHAFT
R22	KEY, HIGH SPEED PINION
*R49	SEAL, OIL, LOW SPEED
*R50	SEAL, OIL, HIGH SPEED
R69	PLUG, DRAIN (MAGNETIC)
R70	PLATE, RATIO & LUBRICATION
R72	PLUG, OIL LEVEL
R73	RING, RETAINING, HIGH SPEED BEARING
R74	RING, RETAINING, HIGH SPEED BEARING
R78	KEY, OUTPUT SHAFT
141	ADAPTOR TRUNNION

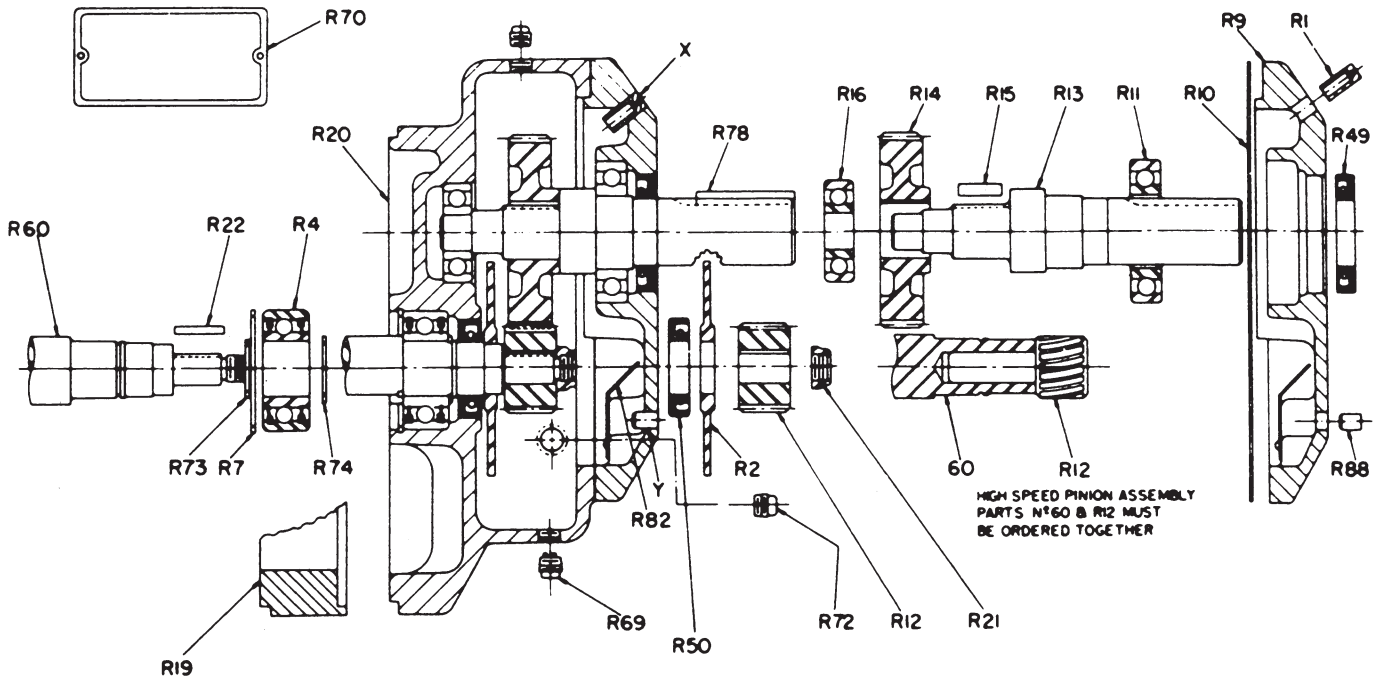
*Recommended spares

NOTE: All cap screws, etc. not shown are standard items.

NOTE: The Moto Drive unit size is a numerical prefix to the size reducer such as size 051, 111, 221, etc.

Always include unit size, serial number and assembly number from a nameplate when ordering parts.

PARTS LIST— FOR SINGLE REDUCTION REDUCER — SIZES 051, 121, 221



60	SHAFT, VARIABLE
R1	PIN, VENT
R2	SLINGER, OIL (OUTPUT SHAFT UP ON ALL REDUCERS)
*R4	BEARING, HIGH SPEED
R7	RING, RETAINING, HIGH SPEED BEARING
R9	HEAD, GEARBOX
*R10	GASKET, HEAD
*R11	BEARING—OUTER, (LOW SPEED)
R12	PINION, HIGH SPEED
R13	SHAFT, OUTPUT
R14	GEAR, LOW SPEED
R15	KEY, LOW SPEED GEAR
*R16	BEARING—INNER, (LOW SPEED)
R19	ADAPTOR, RING (USE FOR MOTO DRIVE WITH RED. M.S.—TRUN. TYPE ONLY)
R20	HOUSING, GEAR
R21	NUT, HIGH SPEED SHAFT
R22	KEY, HIGH SPEED PINION
*R49	SEAL, OIL, (LOW SPEED)
*R50	SEAL, OIL, (HIGH SPEED)
R69	PLUG, DRAIN (MAGNETIC)
R70	PLATE, RATIO & LUBRICATION
R72	PLUG, OIL LEVEL
R73	RING, RETAINING, (HIGH SPEED BEARING)
R74	RING, RETAINING, (HIGH SPEED BEARING)
R78	KEY, OUTPUT SHAFT
R82	GUARD, SPLASH
R88	PIN, PLUG

NOTE: VENT PIN WILL BE LOCATED AT EITHER "X" OR "Y" DEPENDING ON ASSEMBLY OF UNIT.

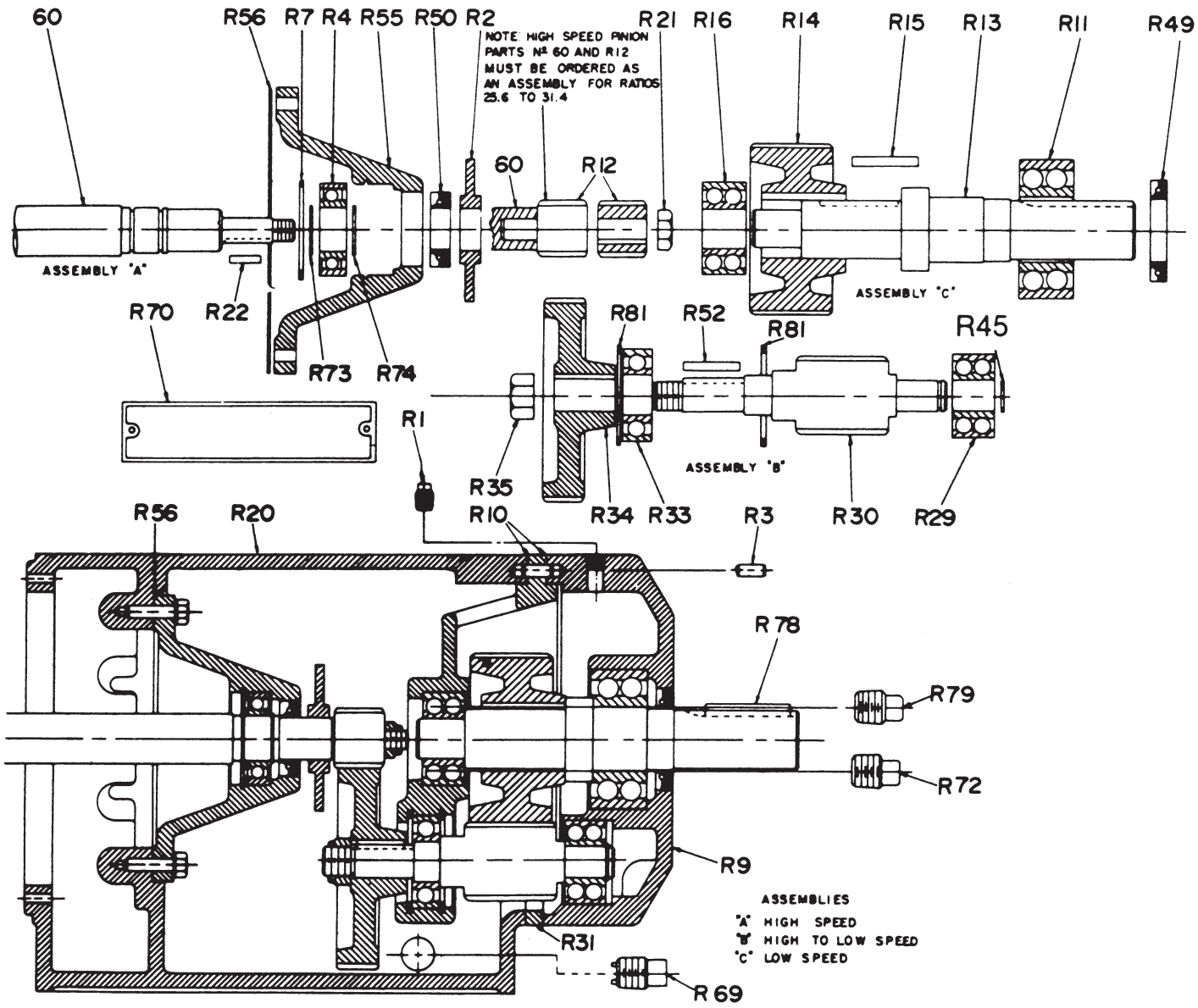
*Recommended spares

NOTE: All cap screws, etc. not shown are standard items.

NOTE: The Moto Drive unit size is a numerical prefix to the size reducer such as size 051, 111, 221, etc.

Always include unit size, serial number and assembly number from a nameplate when ordering parts.

PARTS LIST — DOUBLE REDUCTION REDUCER — SIZE 052



60	SHAFT, VARIABLE	*R16	BEARING—INNER, LOW SPEED		
R1	PLUG, VENT	R20	HOUSING	R55	RETAINER, HIGH SPEED BEARING
R2	SLINGER, OIL	R21	NUT, HIGH SPEED PINION	*R56	GASKET, BEARING RETAINER
R3	PIN, DOWEL	R22	KEY, HIGH SPEED PINION	R69	PLUG, DRAIN (MAGNETIC)
*R4	BEARING, HIGH SPEED	*R29	BEARING, OUTER, LOW SPEED PINION	R70	PLATE, RATIO & LUBRICATION
R7	RING, RETAINING, HIGH SPEED BEARING	R30	PINION, LOW SPEED	R72	PLUG, OIL LEVEL
R9	HEAD, GEARBOX	R31	CENTERPIECE	R73	RING, RETAINING, HIGH SPEED BEARING
*R10	GASKET, HEAD	*R33	BEARING, INNER, LOW SPEED PINION	R74	RING, RETAINING, HIGH SPEED BEARING
*R11	BEARING—OUTER, LOW SPEED	R34	GEAR, HIGH SPEED	R78	KEY, OUTPUT SHAFT
R12	PINION	R35	NUT, LOW SPEED PINION	R79	PLUG, OIL FILLER
R13	SHAFT, OUTPUT	*R49	SEAL, OIL, LOW SPEED	R81	RING, RETAINING (CENTERPIECE INNER BEARING)
R14	GEAR, LOW SPEED	*R50	SEAL, OIL, HIGH SPEED	R45	RING, RETAINING (OUTER PINION BEARING)
R15	KEY, LOW SPEED GEAR	R52	KEY, HIGH SPEED GEAR		

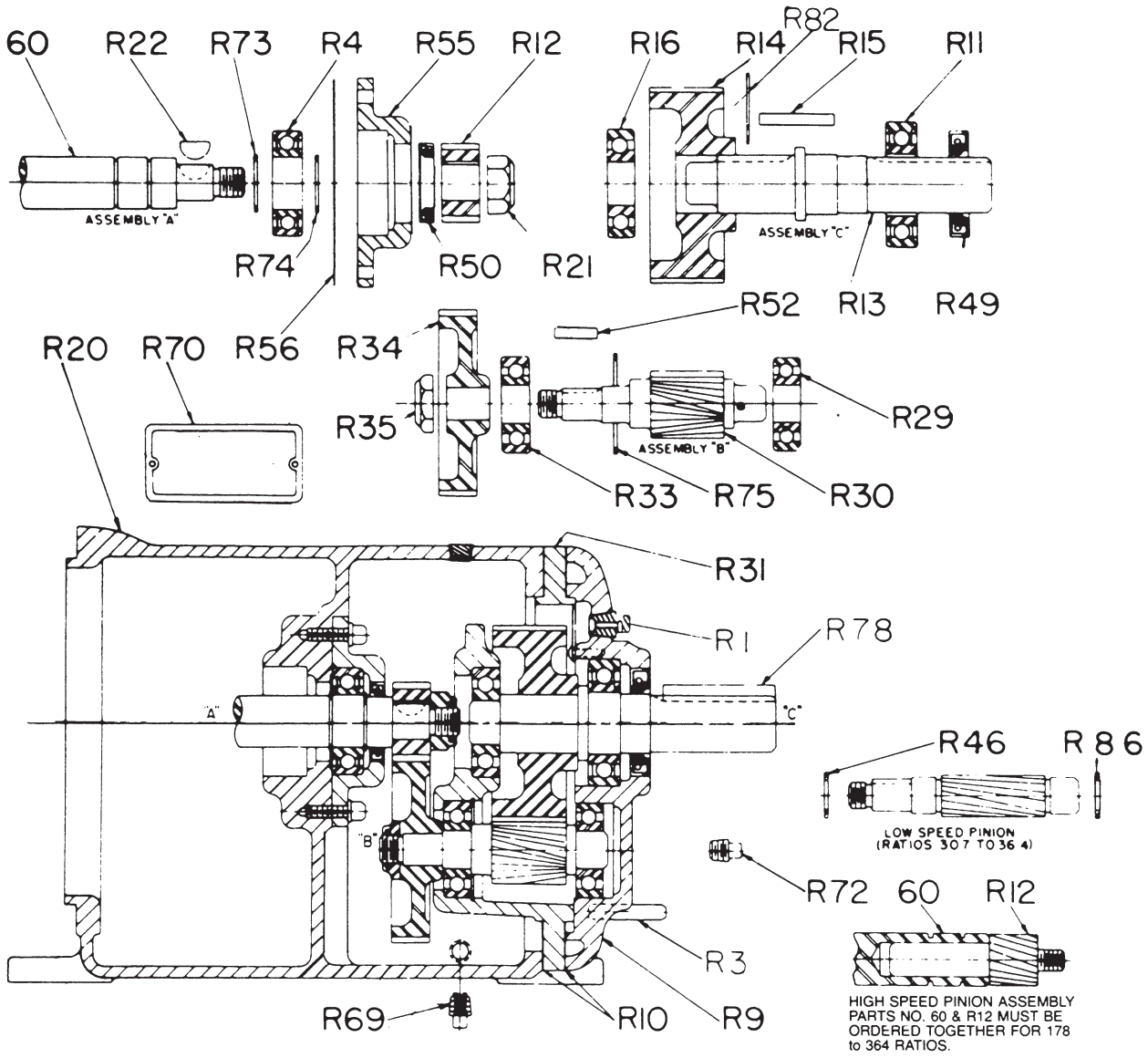
*Recommended spares

NOTE: All cap screws, etc. not shown are standard items.

NOTE: The Moto Drive unit size is a numerical prefix to the size reducer such as size 052, 112, etc.

Always include unit size, serial number and assembly number from a nameplate when ordering parts.

PARTS LIST — FOR DOUBLE REDUCTION REDUCER — SIZE 112



60	SHAFT, VARIABLE
R1	PLUG, VENT
R3	PIN, DOWEL
*R4	BEARING, HIGH SPEED
R9	HEAD, GEARBOX
*R10	GASKET, HEAD & CENTERPIECE
*R11	BEARING—OUTER, LOW SPEED
R12	PINION, HIGH SPEED
R13	SHAFT, OUTPUT
R14	GEAR, LOW SPEED
R15	KEY, LOW SPEED GEAR
*R16	BEARING—INNER, LOW SPEED
R20	HOUSING—CASE SUPPORT
R21	NUT, HIGH SPEED PINION
R22	KEY, HIGH SPEED PINION
*R29	BEARING—OUTER, LOW SPEED PINION
R30	PINION, LOW SPEED
R31	CENTERPIECE
*R33	BEARING, INNER, LOW SPEED PINION
R34	GEAR, HIGH SPEED
R35	NUT, LOW SPEED PINION
R46	RING, RETAINING, LOW SPEED PINION, INNER
*R49	SEAL, OIL, LOW SPEED
*R50	SEAL, OIL, HIGH SPEED
R52	KEY, HIGH SPEED GEAR
R55	RETAINER, HIGH SPEED BEARING
*R56	GASKET, BEARING RETAINER
R69	PLUG, DRAIN (MAGNETIC)
R70	PLATE, RATIO & LUBRICATION
R72	PLUG, OIL LEVEL
R73	RING, RETAINING, HIGH SPEED BEARING, INNER
R74	RING, RETAINING, HIGH SPEED BEARING, OUTER
R75	RING, RETAINING, LOW SPEED PINION BEARING
R78	KEY, OUTPUT SHAFT
R82	GUARD, SPLASH
R86	RING, RETAINING OUTER LOW SPEED PINION

*Recommended spares

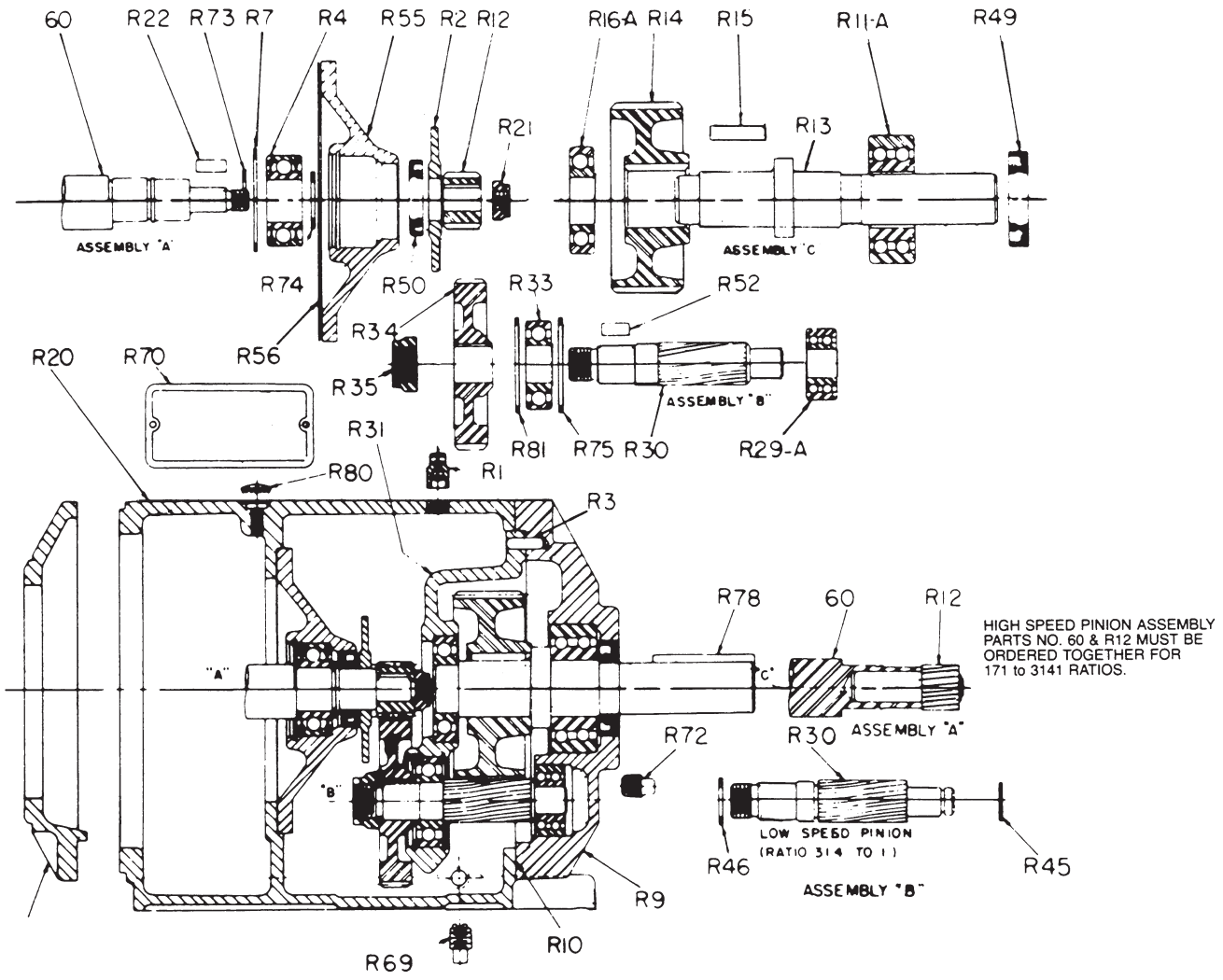
NOTE: All cap screws, etc. not shown are standard items.

NOTE: Assemblies A, B and C are for reference only. The parts are not sold as an assembly.

NOTE: Size 112 and 113 Reducers cannot be ceiling (upside down) mounted.

Always include unit size, serial number and assembly number from a nameplate when ordering parts.

PARTS LIST — FOR DOUBLE REDUCTION REDUCER — SIZES 122, 222, 232



60	SHAFT, VARIABLE
R1	PLUG, VENT
R2	SLINGER, OIL (CEILING MTD UNITS ONLY)
R3	PIN, DOWEL
*R4	BEARING, HIGH SPEED
R7	RING, RETAINING, HIGH SPEED BEARING
R9	HEAD, GEARBOX
*R10	GASKET, HEAD
*R11-A	BEARING, OUTER, LOW SPEED
R12	PINION, HIGH SPEED
R13	SHAFT, OUTPUT
R14	GEAR, LOW SPEED
R15	KEY, LOW SPEED GEAR
*R16-A	BEARING, INNER, LOW SPEED
R18	ADAPTOR, RING
R20	HOUSING, CASE SUPPORT
R21	NUT, HIGH SPEED PINION
R22	KEY, HIGH SPEED PINION
*R29-A	BEARING, OUTER, LOW SPEED PINION
R30	PINION, LOW SPEED
R31	CENTERPIECE, GEAR
*R33	BEARING, INNER, LOW SPEED PINION
R34	GEAR, HIGH SPEED
R35	NUT, LOW SPEED PINION
R45	RING, RETAINING
R46	RING, RETAINING
*R49	SEAL, OIL, LOW SPEED
*R50	SEAL, OIL, HIGH SPEED
R52	KEY, HIGH SPEED GEAR
R55	PLATE, BEARING (INTERNAL)
*R56	GASKET, BEARING PLATE (INTERNAL)
R69	PLUG, DRAIN (MAGNETIC)
R70	PLATE, RATIO & LUBRICATION
R72	PLUG, OIL LEVEL
R73	RING, RETAINING, INNER HIGH SPEED BEARING
R74	RING, RETAINING, OUTER HIGH SPEED BEARING
R75	RING, RETAINING, OUTER LOW SPEED PINION BEARING
R78	KEY, OUTPUT SHAFT
R80	PLUG, BUTTON (HOUSING, CASE SUPPORT)
R81	RING, RETAINING INNER LOW SPEED PINION BEARING

*Recommended spares

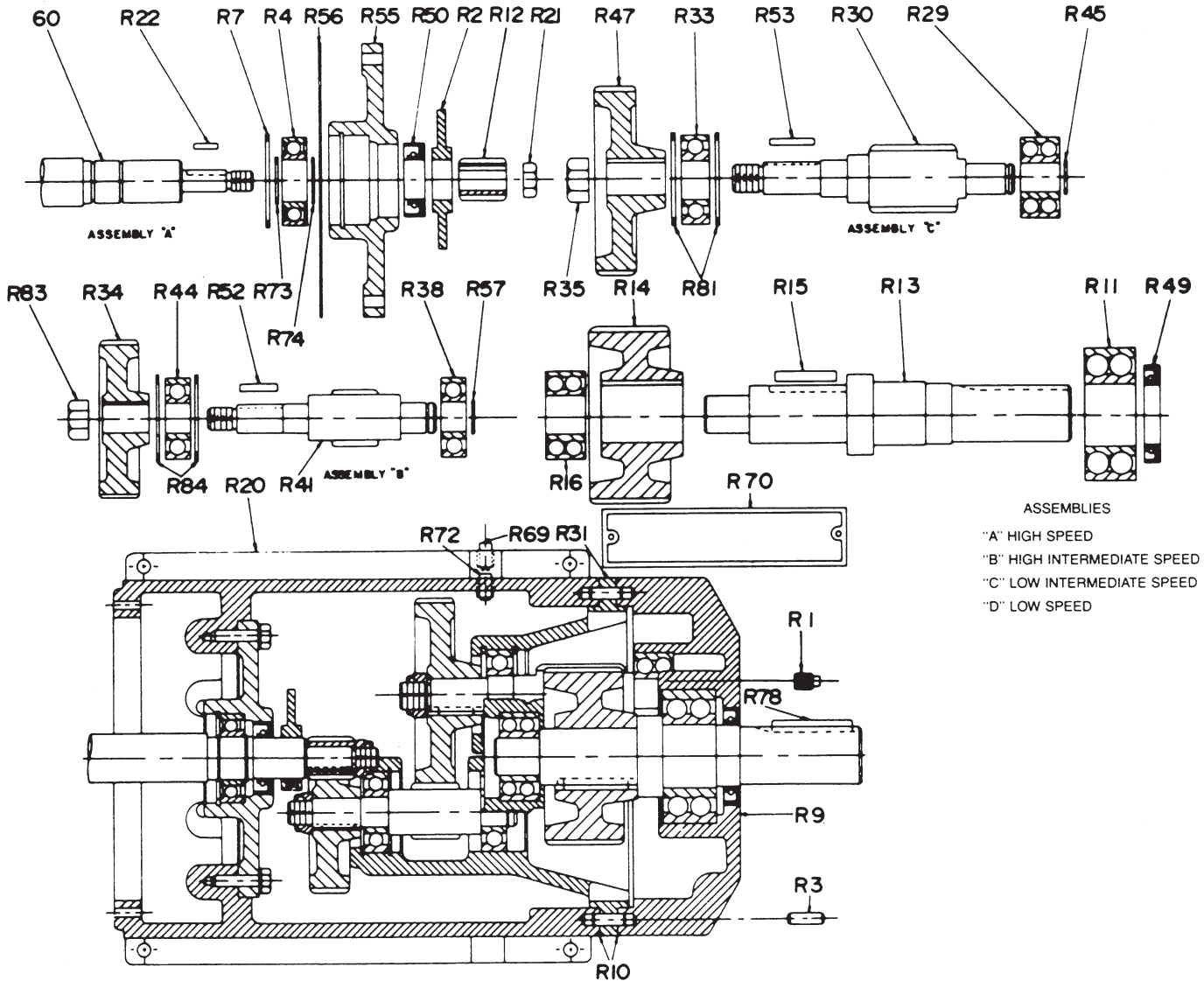
NOTE: All cap screws, etc. not shown are standard items.

NOTE: The Moto Drive unit size is a numerical prefix to the size reducer such as size 122, 222, 232 etc.

NOTE: Assemblies A, B and C are for reference only. The parts are not sold as an assembly.

Always include unit size, serial number and assembly number from a nameplate when ordering parts.

PARTS LIST — FOR TRIPLE REDUCTION REDUCER — 053



60 SHAFT, VARIABLE
R1 PLUG, VENT
R2 SLINGER, OIL
R3 PIN, DOWEL
*R4 BEARING, HIGH SPEED
R7 RING, RETAINING
R9 HEAD, GEARBOX
*R10 GASKET, HEAD
*R11 BEARING-OUTER, LOW SPEED
R12 PINION, HIGH SPEED
R13 SHAFT, OUTPUT
R14 GEAR, LOW SPEED
R15 KEY, LOW SPEED
*R16 BEARING—INNER, LOW SPEED
R20 HOUSING
R21 NUT, HIGH SPEED PINION
R22 KEY, HIGH SPEED PINION
*R29 BEARING, OUTER LOW SPEED PINION
R30 PINION, LOW SPEED
R31 CENTERPIECE
*R33 BEARING, INNER LOW SPEED PINION
R34 GEAR, HIGH SPEED

R35 NUT, LOW SPEED PINION
*R38 BEARING, OUTER INTERMEDIATE
R41 PINION, INTERMEDIATE
*R44 BEARING, INNER INTERMEDIATE
R45 RING, RETAINING, LOW SPEED PINION
R47 GEAR, INTERMEDIATE
*R49 SEAL, OIL, LOW SPEED
*R50 SEAL, OIL, HIGH SPEED
R52 KEY, HIGH SPEED GEAR
R53 KEY, INTERMEDIATE GEAR
R55 PLATE, BEARING (INTERNAL)
*R56 GASKET, BEARING PLATE (INTERNAL)
R57 RING, RETAINING, INTERMEDIATE PINION
R69 PLUG, DRAIN (MAGNETIC)
R70 PLATE, RATIO AND LUBRICATION
R72 PLUG, OIL LEVEL
R78 KEY, OUTPUT SHAFT
R81 RING, RETAINING INNER LOW SPEED PINION BEARING
R83 NUT, HIGH SPEED INTERMEDIATE GEAR
R84 RING, RETAINING, INNER INTERMEDIATE PINION BEARING
R73 RING, RETAINING, HIGH SPEED BEARING
R74 RING, RETAINING, HIGH SPEED BEARING

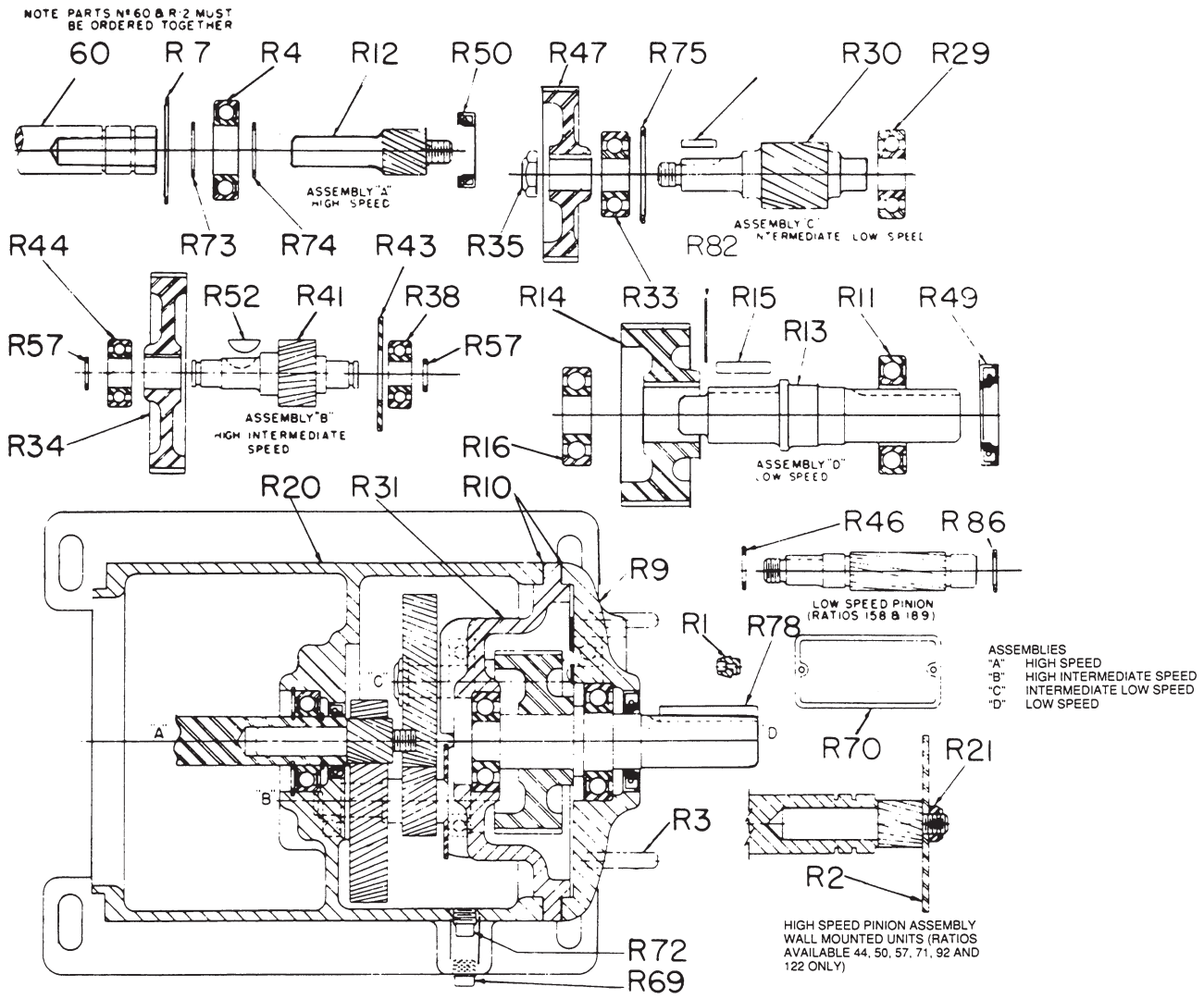
*Recommended spares

NOTE: All cap screws, etc. not shown are standard items.

NOTE: Assemblies A, B, C and D are for reference only. The parts are not sold as an assembly.

Always include unit size, serial number and assembly number from a nameplate when ordering parts.

PARTS LIST — FOR TRIPLE REDUCTION REDUCER — SIZE 113



60	SHAFT, VARIABLE
R1	PLUG, VENT
R2	SLINGER, OIL
R3	PIN, DOWEL
*R4	BEARING, HIGH SPEED
R7	RING, RETAINING, HIGH SPEED BEARING
R9	HEAD
*R10	GASKET, HEAD & CENTERPIECE
*R11	BEARING—OUTER, LOW SPEED
R12	PINION, HIGH SPEED
R13	SHAFT, OUTPUT
R14	GEAR, LOW SPEED
R15	KEY, LOW SPEED GEAR
*R16	BEARING—INNER, LOW SPEED
R20	HOUSING—CASE SUPPORT
R21	NUT, HIGH SPEED
*R29	BEARING, OUTER, LOW SPEED PINION
R30	PINION, LOW SPEED
R31	CENTERPIECE
*R33	BEARING—INNER, LOW SPEED PINION
R34	GEAR, HIGH SPEED
R35	NUT, LOW SPEED PINION
*R38	BEARING—OUTER, INTERMEDIATE
R41	PINION, INTERMEDIATE
R43	PLATE, THRUST, INTERMEDIATE BEARING
*R44	BEARING—INNER, INTERMEDIATE
R46	RING, RETAINING, LOW SPEED PINION, INNER
R47	GEAR, INTERMEDIATE
*R49	SEAL, OIL, LOW SPEED
*R50	SEAL, OIL, HIGH SPEED
R52	KEY, HIGH SPEED GEAR
R53	KEY, INTERMEDIATE GEAR
R57	RING, RETAINING, INTERMEDIATE BEARINGS
R69	PLUG, DRAIN (MAGNETIC)
R70	PLATE, RATIO & LUBRICATION
R72	PLUG, OIL LEVEL
R73	RING, RETAINING, HIGH SPEED BEARING, INNER
R74	RING, RETAINING, HIGH SPEED BEARING, OUTER
R75	RING, RETAINING, LOW SPEED PINION BEARING
R78	KEY, OUTPUT SHAFT
R82	GUARD, SPLASH
R86	RING, RETAINING OUTER, LOW SPEED PINION

*Recommended spares

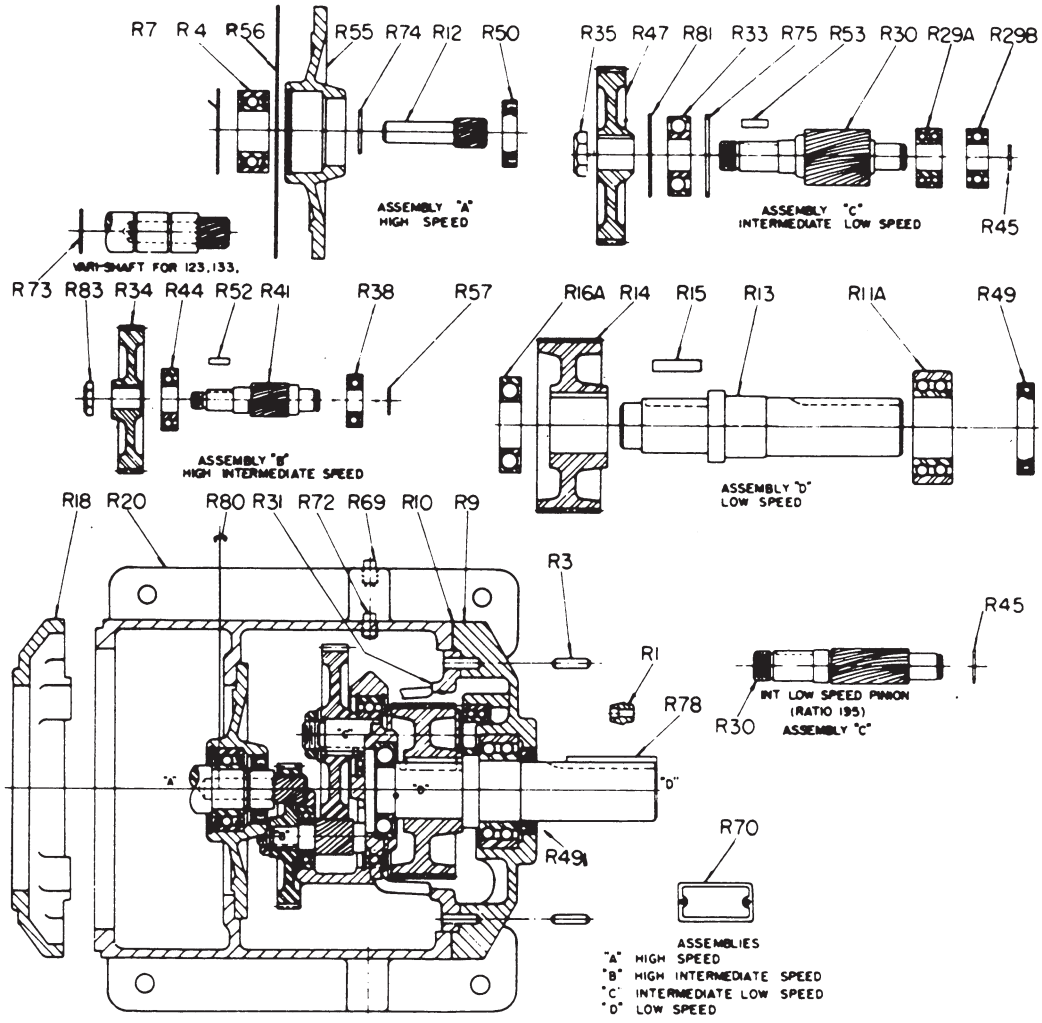
NOTE: All cap screws, etc. not shown are standard items.

NOTE: Assemblies A, B, C and D are for reference only. The parts are not sold as an assembly.

NOTE: Size 112 and 113 Reducers cannot be ceiling (upside down) mounted.

Always include unit size, serial number and assembly number from a nameplate when ordering parts.

PARTS LIST — FOR TRIPLE REDUCTION REDUCER —SIZES 123, 223, 133, 233, 243



60 SHAFT, VARIABLE
R1 PLUG, VENT (ON TOP OF CASE SUPPORT HOUSING)
R3 PIN, DOWEL
*R4 BEARING, HIGH SPEED
R7 RING, RETAINING, HIGH SPEED BEARING
R9 HEAD, GEARBOX
*R10 GASKET, HEAD
*R11A BEARING—OUTER LOW SPEED
R12 PINION, HIGH SPEED
R13 SHAFT, OUTPUT
R14 GEAR, LOW SPEED
R15 KEY, LOW SPEED GEAR
*R16A BEARING—INNER LOW SPEED
R18 ADAPTOR RING
R20 HOUSING, CASE SUPPORT
*R29A BEARING, OUTER, LOW SPEED PINION (23 REDUCER ONLY)
*R29B BEARING, OUTER LOW SPEED PINION (33 REDUCER ONLY)
R30 PINION, LOW SPEED
R31 CENTERPIECE, GEAR
*R33 BEARING, INNER, LOW SPEED PINION
R34 GEAR, HIGH SPEED
R35 NUT, LOW SPEED PINION
*R38 BEARING, OUTER, INTERMEDIATE
R41 PINION, INTERMEDIATE
*R44 BEARING, INNER, INTERMEDIATE
R45 RING, RETAINING, LOW SPEED PINION (23, RED.)
R47 GEAR, INTERMEDIATE
*R49 SEAL, OIL, LOW SPEED
*R50 SEAL, OIL, HIGH SPEED
R52 KEY, HIGH SPEED GEAR
R53 KEY, INTERMEDIATE GEAR
R55 PLATE, BEARING (INTERNAL)
*R56 GASKET, BEARING PLATE (INTERNAL)
R57 RING, RETAINING, INTERNAL PINION, OUTER
R69 PLUG, DRAIN (MAGNETIC)
R70 PLATE, RATIO & LUBRICATION
R72 PLUG, OIL LEVEL
R73 RING, RETAINING, INNER HIGH SPEED BEARING
R74 RING, RETAINING, OUTER HIGH SPEED BEARING
R75 RING, RETAINING, OUTER LOW SPEED PINION BEARING OUTER (RED. ONLY)
R78 KEY, OUTPUT SHAFT
R80 PLUG, BUTTON (HOUSING, CASE SUPPORT)
R81 RING, RETAINING INNER LOW SPEED PINION BEARING)
R83 NUT, HIGH SPEED INTERMEDIATE GEAR

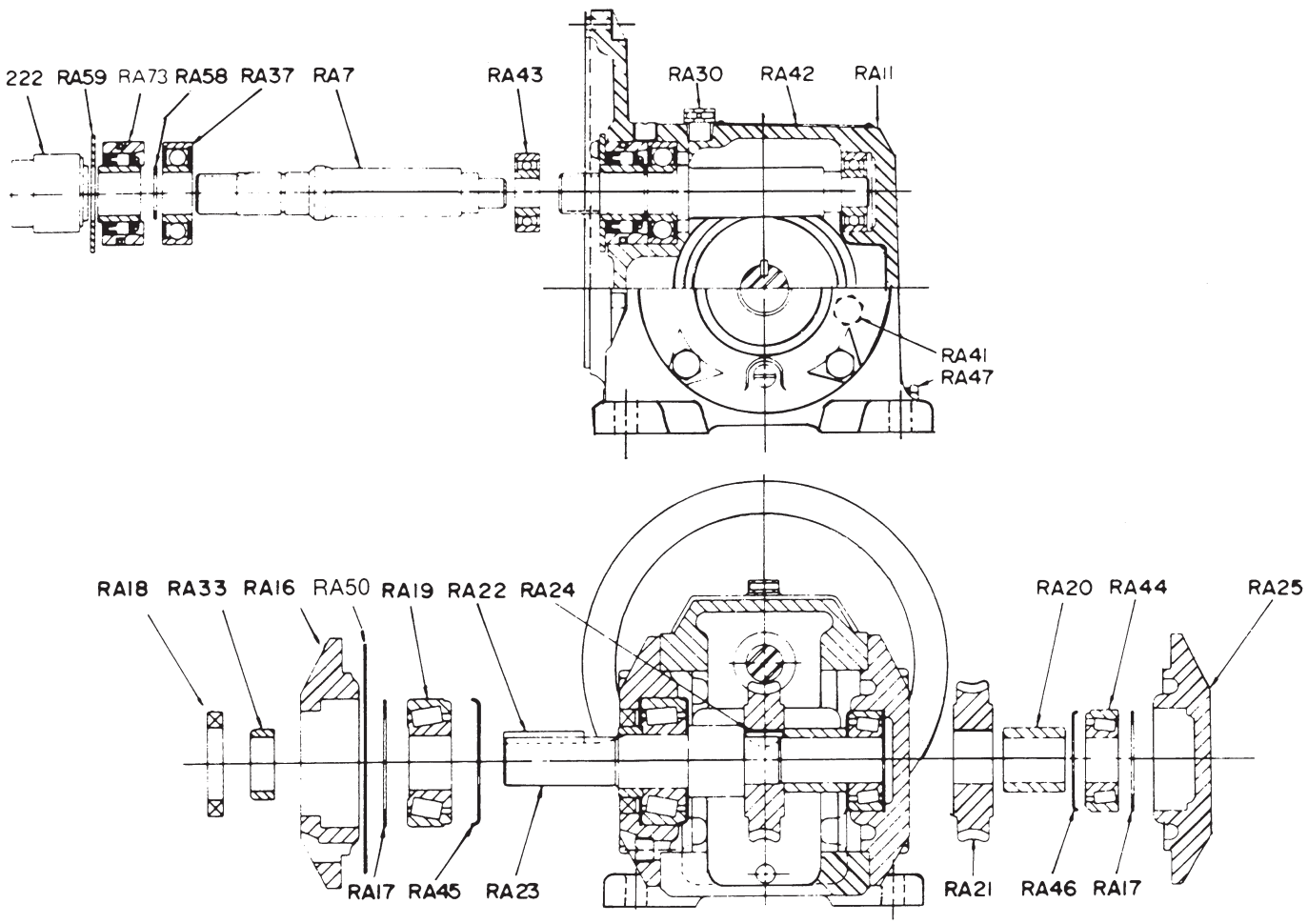
*Recommended spares

NOTE: All cap screws, etc. not shown are standard items.

NOTE: Assemblies A, B, C and D are for reference only. The parts are not sold as an assembly.

Always include unit size, serial number and assembly number from a nameplate when ordering parts.

PARTS LIST — FOR RIGHT ANGLE REDUCERS — SIZES W12-W16-W21-W28



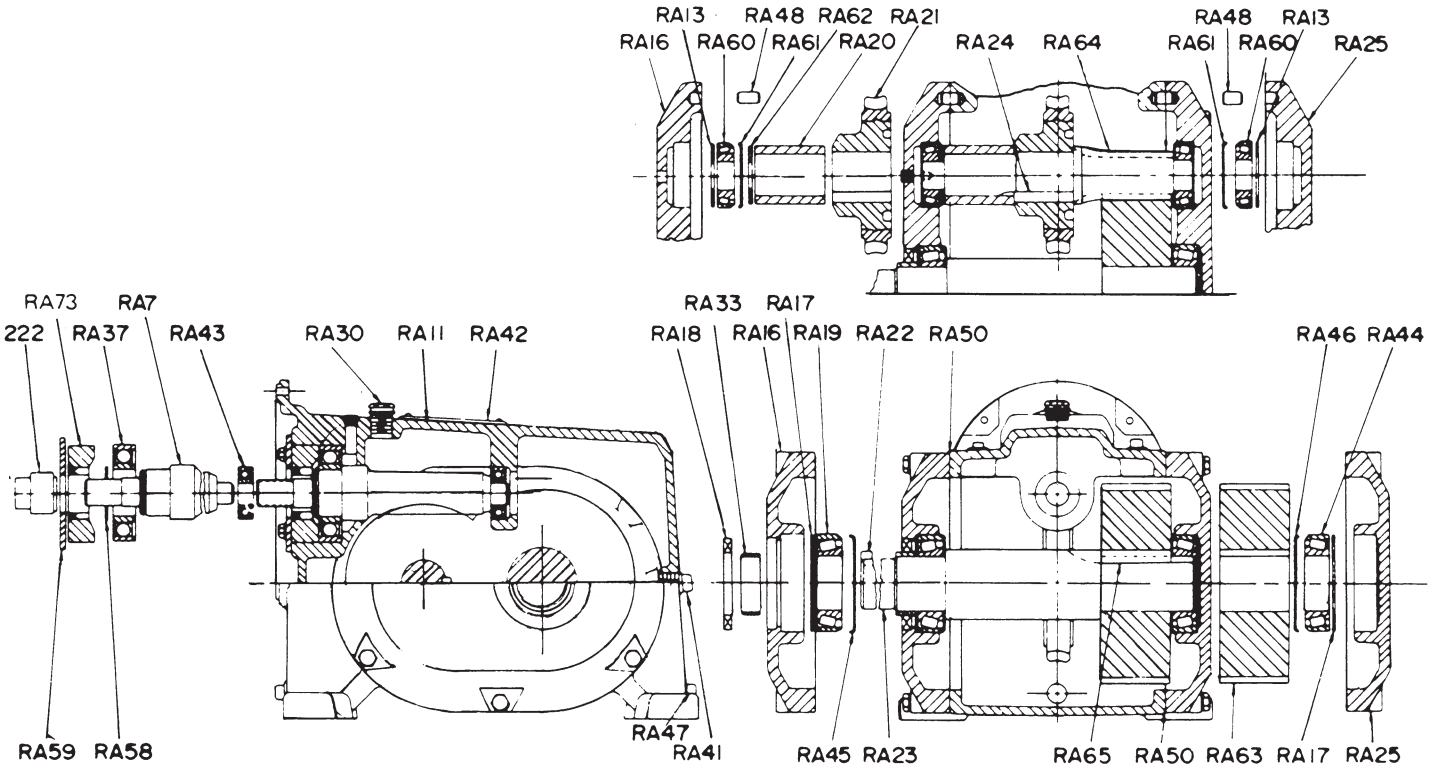
222	COUPLING ASSEMBLY
RA7	WORM
RA11	HOUSING, GEAR
RA16	PLATE, BEARING (OPEN)
RA17	SHIM, LOW SPEED
*RA18	SEAL, OIL
RA19	BEARING, WORM GEAR (OUTER)
RA20	SPACER, WORM GEAR
RA21	GEAR, WORM
RA22	KEY, OUTPUT
RA23	SHAFT, OUTPUT
RA24	KEY, WORM GEAR
RA25	PLATE, BEARING (CLOSED)
RA30	PLUG, VENT
*RA33	SLEEVE, SHAFT
*RA37	BEARING, WORM (INNER)
RA41	PLUG, LEVEL
RA42	PLATE, NAME
*RA43	BEARING, WORM (OUTER)
*RA44	BEARING, WORM GEAR (INNER)
RA45	RETAINER, GREASE (BRG. OUTER) VERTICAL OUTPUT SHAFT
RA46	RETAINER, GREASE (BRG. INNER) VERTICAL OUTPUT SHAFT
RA47	PLUG, PIPE
RA58	RING, LOCK
RA59	CLAMP, BEARING
*RA73	OIL SEAL, ASSM. HIGH SPEED
RA50	GASKET, BEARING HOUSING (2)

*Recommended spares

NOTE. All cap screws, etc not listed are standard items.

When ordring parts always supply complete nameplate data.

PARTS LIST — FOR RIGHT ANGLE COMBINATION REDUCER — SIZES C12-C16-C21-C28-C40



222	COUPLING ASSEMBLY
RA7	WORM
RA11	HOUSING, GEAR
RA13	SHIM, HIGH SPEED
RA16	PLATE, BEARING (OPEN)
RA17	SHIM, LOW SPEED
*RA18	SEAL, (OIL)
*RA19	BEARING, (OUTPUT SHAFT)
RA20	SPACER, WORM GEAR
RA21	GEAR, WORM
RA22	KEY, OUTPUT SHAFT
RA23	SHAFT, OUTPUT
RA24	KEY, WORM GEAR
RA25	PLATE, BEARING (CLOSED)
RA30	PLUG, VENT
*RA33	SLEEVE, SHAFT
*RA37	BEARING, WORM (INNER)
RA41	PLUG, LEVEL SQ. HEAD
RA42	PLATE, NAME
*RA43	BEARING, WORM (OUTER)
*RA44	BEARING, (OUTPUT SHAFT)
RA45	RETAINER, GREASE BEARING OUTER VERTICAL OUTPUT SHAFT
RA46	RETAINER, GREASE BEARING INNER VERTICAL OUTPUT SHAFT
RA47	PLUG, PIPE SQ. HEAD
RA48	PIN, DOWEL
*RA50	GASKET, BEARING HOUSING
RA58	RING, LOCK
RA59	CLAMP, BEARING
*RA60	BEARING, INTERMEDIATE GEAR
RA61	GREASE SEAL BEARING (INTERMEDIATE GEAR) VERTICAL OUTPUT SHAFT
RA62	COLLAR, SPACING
RA63	GEAR, LOW SPEED (OUTPUT SHAFT)
RA64	SHAFT (INTERMEDIATE)
RA65	KEY, GEAR LOW SPEED
RA73	OIL SEAL ASSM., HIGH SPEED

*Recommended spares

(1) RA18 and RA33 sold only as a set.

NOTE: All cap screws, etc. not listed are standard items.

(2) Includes items RA18, RA33, RA50 & RA73.

When ordering parts always supply complete nameplate data.

TROUBLESHOOTING

CONTROL ASSEMBLY
HAND CONTROL

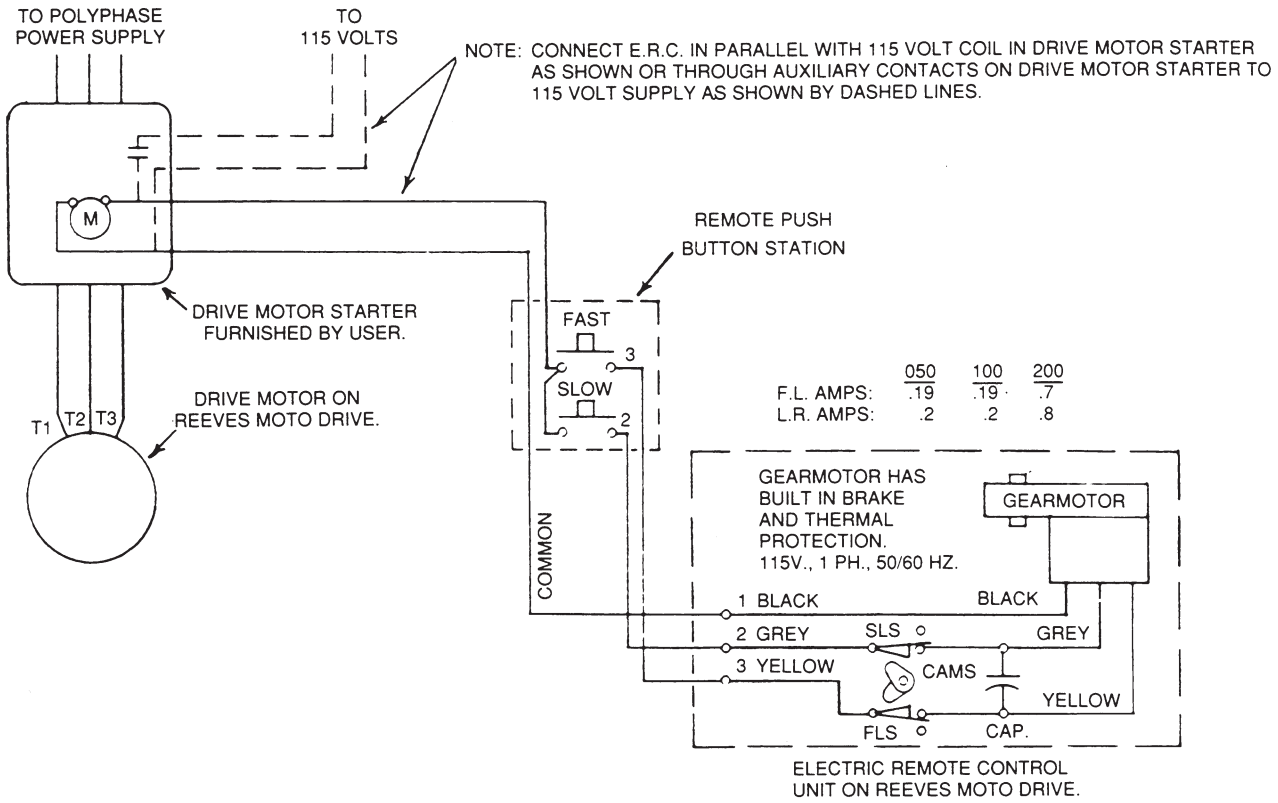
Problem	Cause	Corrective Action
Standard Control Size 050		
1. Handle turns but unit fails to respond.	Internal gearing stripped	Replace damaged parts
2. Breakover mechanism breaks over before reaching the limits of range.	Incorrect stop adjustment Shifting shaft binding Disc binding	Readjust stops Free up and lubricate Replace bushings, clean up hub
3. Dial indicator inaccurate	Incorrectly set Dial loose on gear	Readjust Readjust and tighten
4. Control operates backwards.	Cam installed upside down	Reinstall cam correctly
Standard Control Sizes 100-200		
1. Indicator fails to operate	Jam nut loose Threads stripped in dial Adjustment incorrect Helix broken Helix guide stripped	Readjust mechanism, tighten Replace indicator dial Readjust Replace helix and adjust Replace shifting screw
Front Control 050 Size		
1. Indicator fails to operate	Gear teeth stripped Set screw too tight on indicator gear shaft	Replace gear and/or pinion Loosen set screw
2. Control creeps toward low speed	Friction catch worn or missing	Replace handwheel and cover assembly
Front Control Sizes 100-200 (Front Only)		
1. Indicator fails to operate	Jam nut loose Threads stripped in dial Adjustment incorrect Helix broken Helix guide stripped	Readjust mechanism, tighten Replace indicator dial Readjust Replace helix and adjust Replace shifting screw

ELECTRIC REMOTE CONTROL
Sizes 050-100-200 Sizes

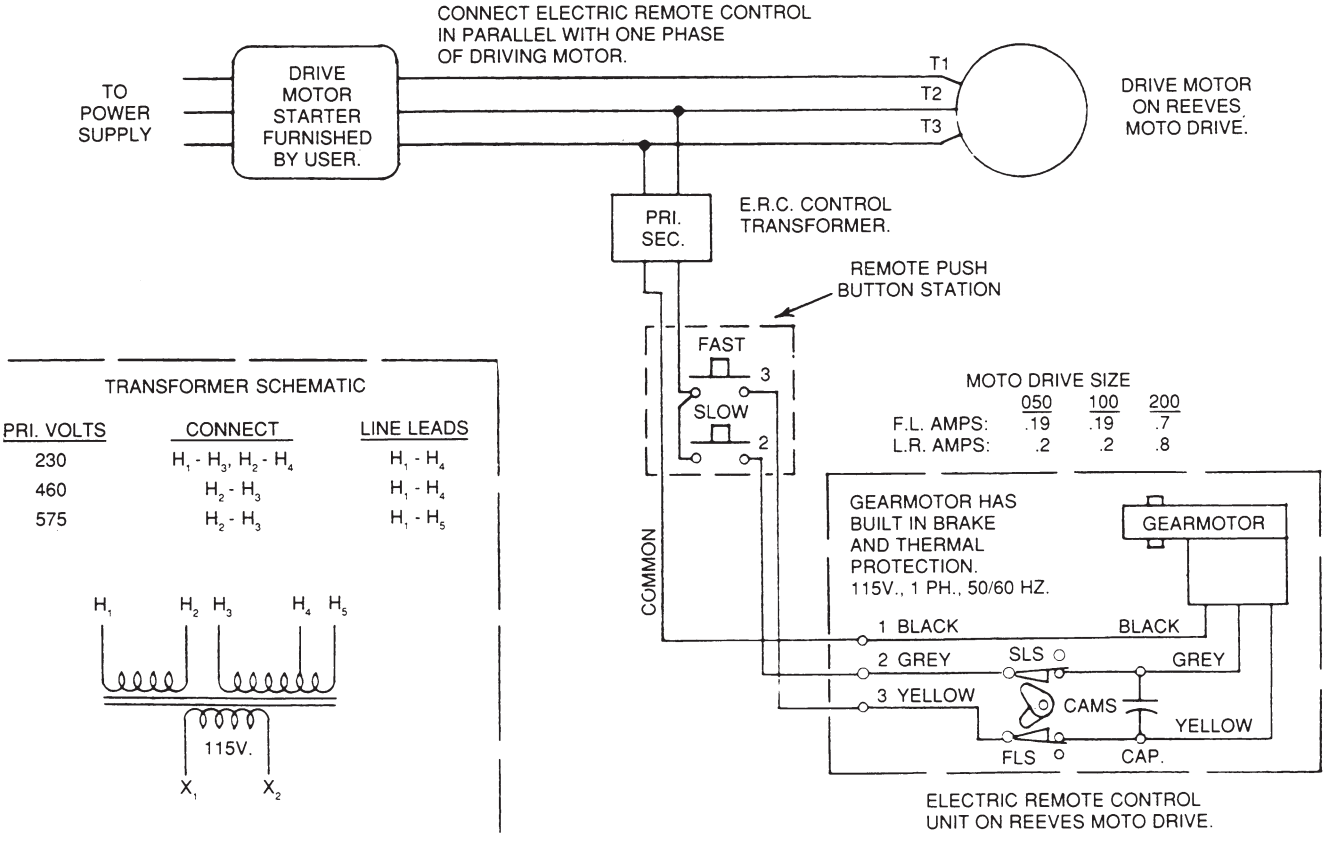
Problem	Cause	Corrective Action
1. Control Completely Inoperative	Wired incorrectly Failed motor Failed capacitor/broken wire Failed limit switches	Check wiring diagram Replace Replace Replace
2. Control Operates Backwards	Wired incorrectly. Cam installed upside down	Check wiring diagram Reverse cam
3. Motor runs but MOTO DRIVE doesn't shift	Pinion and/or gear stripped Failed gearmotor	Replace defective parts Replace

WIRING DIAGRAM ELECTRIC REMOTE CONTROL

CONNECTION DIAGRAM SIZES 050-100-200 115V - 1 PH

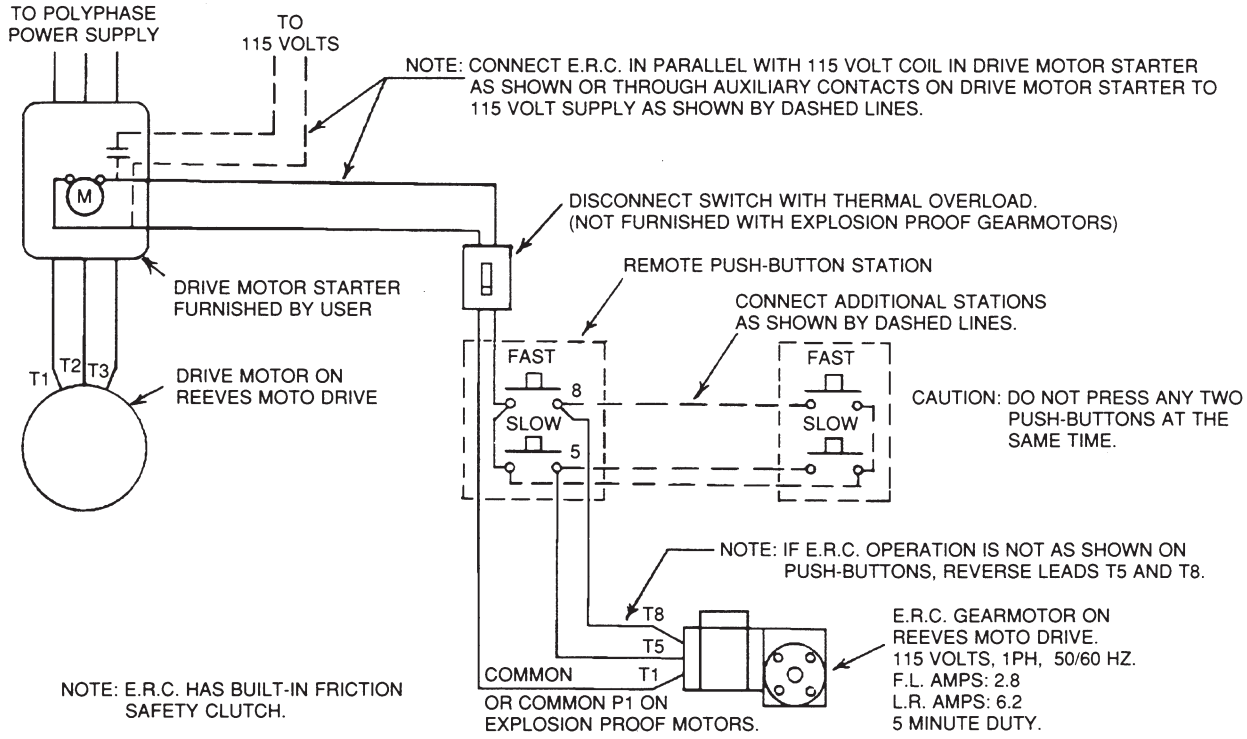


CONNECTION DIAGRAM SIZES 050-100-200 115V - 1 PH/WITH TRANSFORMER

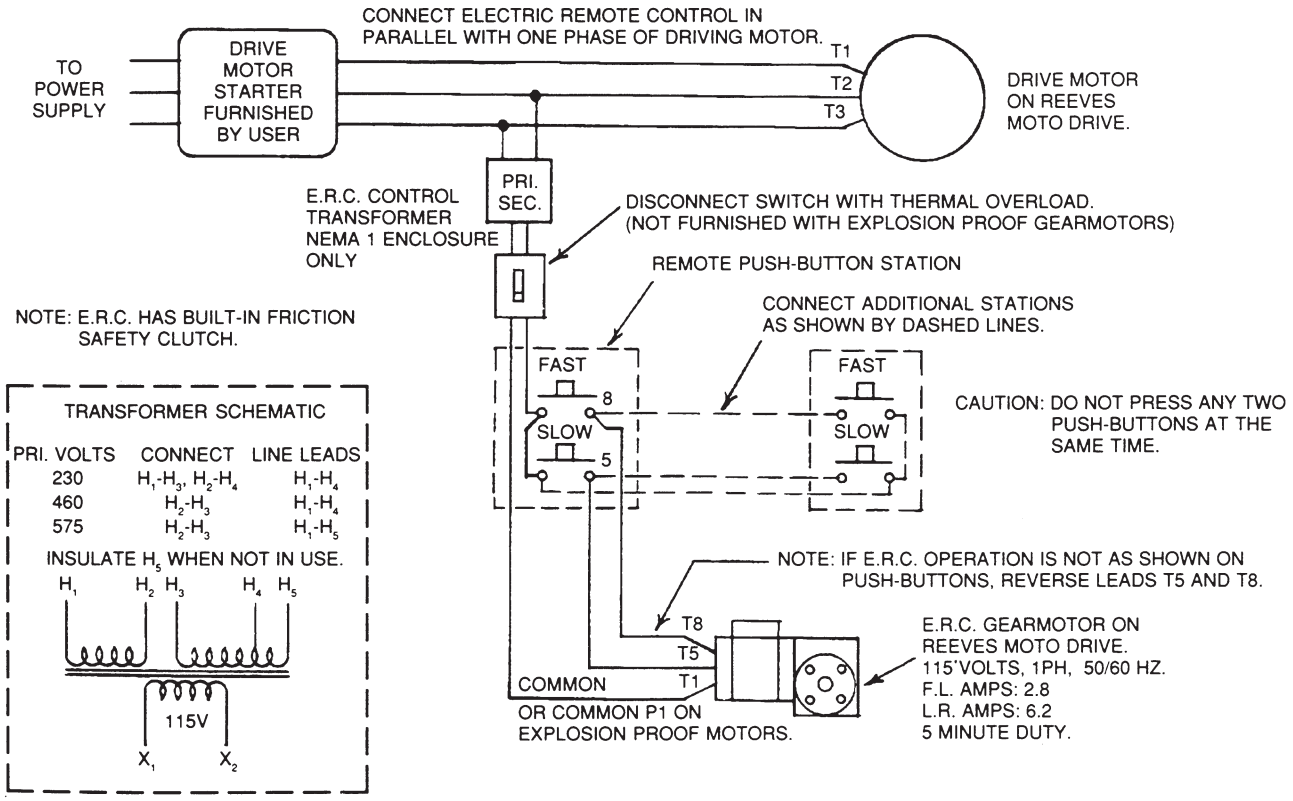


ERC WIRING DIAGRAMS

Size 200 ERC with MASTER Motor Wiring



Size 200 ERC with MASTER Motor and Transformer

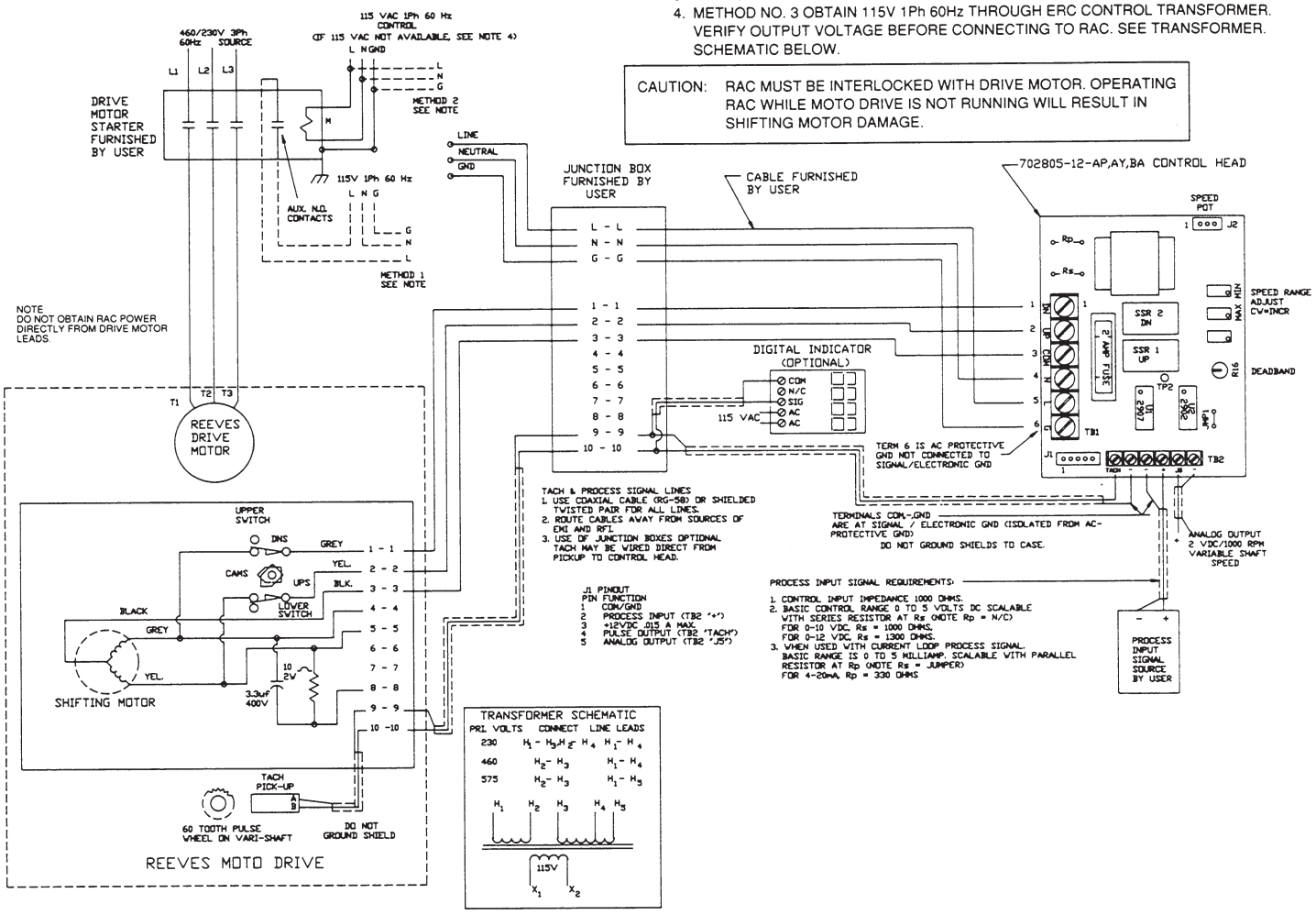


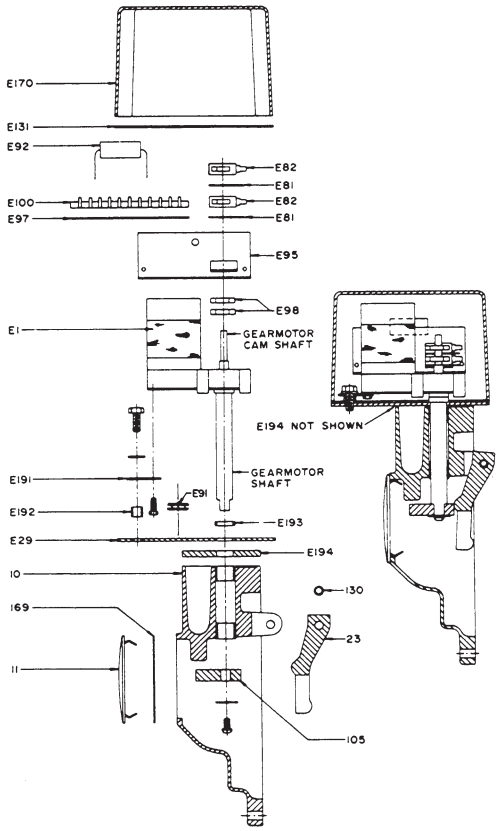
RAC CONTROL SYSTEM WIRING DIAGRAM

NOTES:

1. CONTROL REQUIRES 108-120V AC 1Ph 60Hz SUPPLY.
2. METHOD NO. 1 (PREFERRED) CONNECT 115V 1Ph 60Hz THROUGH DRIVE MOTOR STARTER AUXILIARY N.O. CONTACTS.
3. METHOD NO. 2 CONNECT RAC ACROSS 115V 1Ph 60Hz STARTER CONTROL LINES.
4. METHOD NO. 3 OBTAIN 115V 1Ph 60Hz THROUGH ERC CONTROL TRANSFORMER. VERIFY OUTPUT VOLTAGE BEFORE CONNECTING TO RAC. SEE TRANSFORMER. SCHEMATIC BELOW.

CAUTION: RAC MUST BE INTERLOCKED WITH DRIVE MOTOR. OPERATING RAC WHILE MOTO DRIVE IS NOT RUNNING WILL RESULT IN SHIFTING MOTOR DAMAGE.





PARTS LIST FOR 100/200 MOTO DRIVE® RAC SHIFTING MOTOR

E1	MOTOR
10	HOUSING, CONTROL
11	COVER, STOP NUT
23	YOKE, SHIFTING
E29	PLATE, BASE
E81	INSULATOR
E82	SWITCH, LIMIT
E92	CAPACITOR, MOTOR
E95	PLATE, MOUNTING
E97	MARKER, STRIP
E98	CAM, LIMIT SWITCH
E100	BLOCK, TERMINAL
105	CAM, SHIFTING
130	PIN, YOKE
E131	GASKET, COVER
169	GASKET, COVER, STOP NUT
E170	COVER, GEAR
E191	BRACKET, TORQUE ARM
E192	SPACER, BRACKET, TORQUE ARM
E193	SPACER, MOTOR
E194	PLATE, ADAPTER (100 MOTO DRIVE ONLY)
E91	GROMMET, RUBBER

NOTE: GIVE IDENT. NUMBER AND SIZE WHEN ORDERING PARTS FOR SERVICE AND REFER TO THIS DRAWING.

NOTE: ALL HARDWARE, ETC. NOT LISTED ARE STANDARD ITEMS.

REDUCER BEARING KITS

FOR USE WITH REEVES MOTO DRIVES WITH REEVES PARALLEL REDUCERS

Each kit includes all reducer bearings for size listed.

MOTO DRIVE SIZE	RATIO	KIT PART NUMBER
051	ALL	41511244FA
052	ALL	41511244FB
052	ALL	41511244FC
111	ALL	41511244FD
112	ALL	41511244FE
113	ALL	41511244FF
121	ALL	41511244FG
122, 222	ALL	41511244FJ
123, 223	ALL	41511244FK
133	ALL	41511244FP
221	ALL	41511244FH
231	ALL	41511244FM
232	ALL	41511244FN
233	ALL	41511244FP
243	38.4-86.5	41511244FV
243	106-195	41511244FW

REDUCER SEAL AND GASKET KITS

Each kit contains Ref. #R49 Output Seal, Ref. #R50 Input Seal and all necessary gaskets.

MOTO DRIVE SIZE	KIT PART NUMBER
051	41511244A
052, 053	41511244B
111	41511244C
112	41511244D
113	41511244E
121	41511244F
122,123, 222, 223	41511244G
221	41511244H
231	41511244J
232	41511244K
133, 233	41511244K
243	41511244M

CONSTANT DISC KITS

MOTOR SHAFT MOUNTING

Kit contains Ref. #43 Thrust Bearing, Ref. #50 Sliding Disc, Ref. #51 Key, Ref. #53 Fixed Disc, Ref. #251 Bushings and Ref. #252 Clamp Collar.

MOTO DRIVE SIZE	DISC BORE/ MOTOR FRAME	STANDARD KIT	CHROMALIFE KIT (1)
B050	5/8"-56C	41511265TD	41511265TE
B100	7/8"-56CZ/140TC	41511265TJ	41511265TK
B200	7/8"-56CZ/140TC 1 1/8"-180TC	41511265TL 41511265TN	41511265TM 41511265TP

(1) Disc faces are chrome plated for use in enviroments with excessive moisture or extremely corrosive elements.

VARIABLE DISC KITS

VARIABLE SHAFT MOUNTING

Variable discs are available individually or as a kit containing both discs. When purchased as a kit, each kit contains Ref. #61 Shaft Key, Ref. #65 Fixed Disc, Ref. #66 Sliding Disc, Ref. #70 Retaining Ring and Ref. #253 Bushings.

SIZE	STANDARD DISC KIT	REF. #65 DISC	REF. #66 DISC (1)	CHROMALIFE DISC KIT	REF. #65 DISC	REF. #66 DISC (1)
B050	41511244EA	60500707R	41511265TR	41511244ES	60500707S	41511265TS
B100	41511244EB	60500707T	41511265TT	41511244ER	60500707V	41511265TV
B200	41511244EC	70280701C	41511265TW	41511244EP	70280701D	41511265TX

(1) Ref. #66 is a kit containing Ref. #61 Shaft Key, Ref. #66 Sliding Disc, Ref. #70 Retaining Ring and Ref. #253 Bushings.

REPLACEMENT SPRING ASSEMBLIES

SIZE	REF. #154 CARTRIDGE	REF. #68 SPRING	REF. #69 COLLAR
B050	- - - - -	S9285104	D3160003
B100	605003 51M	- - - - -	- - - - -
B200	D1380042	- - - - -	- - - - -

STANDARD RIGHT ANGLE HANDWHEEL CONTROL
PART NUMBER LISTING

SIZE 050
REPLACEMENT PARTS

Ref. No.	Description	Qty.	Size 050
10	Housing	1	70281506B
11	Cover	1	60502202A
12	Handwheel	1	60501401A
15	Shift Shaft	1	D9060083
23	Shift Yoke	1	D9950067
27	Stop Nut	2	D6395027
32	Crystal	1	41511201A
33	Dial	1	D3800065
92	Pinion Collar	1	41510108A
94	Plug Button	1	41510757B
96	Washer	1	41511158A
97	Spring	1	70283201L
98	Hub	1	60501701A
99	Washer	1	41511158A
100	Gear Housing	1	60501602A
101	Gear Hsg. Cover	1	60500531A
102	Pinion	1	41510684C
103	Shifting Gear	1	D5620070
104	Ret. Ring	1	41510801C
105	Shifting Cam	1	D1320113
106	Ret. Ring	1	F04127
107	Cam Key	1	F02221
130	Yoke Pin	1	F05301
134	Gear Key	1	F02221
169	Gasket	1	41510205E
170A	Washer	1	FZ5681
215	Screw	1	FZ3410
255	Gasket	1	41510207A

SIZE 100-200
REPLACEMENT PARTS

Ref. No.	Description	Qty.	100	200
10	Housing	1	D5930057	08950734C
11	Plate, Cover	1	D3480022	D3480009
12	Handwheel	1	D5740012	D5740020
13	Catch, Friction	1	F01464	F01465
14	Spring	I	D9285067	D9285068
15	Shifting Screw	1	41510860A	D7765007
16	Bearing, Sh. Screw	1	41511288A	07914701AB
17	Sleeve, Brg. Ret.	1	—	D9180009
18	Ring, Retaining	1	—	F04018
20	Ring, Retaining	1	F0450	F04004
23	Yoke, Shifting	1	60503564A	D9950005
27	Nut, Stop	1	D6395012	41510608C
28	Stop, HS	1	D9450009	D9450003
30	Ret., Crystal	1	D7140020	D7140025
32	Crystal	1	D3610004	D3610004
33	Dial	1	D3800011	D3800011
130	Pin, Yok	1	F03489	F03490
131	Gasket, Crystal	1	D5450039	D5450039
134	Key, Sh. Screw	1	F02218	—
135	Helix	1	D5850025	D5850027
136	Washer, Thrust	1	FZ3387	FZ3387
137	Washer, Spring	2	S9330012	S9330012
138	Plug, Button	1	D6930032	FZ3605
143	Stop, LS	1	D9450008	D9450003
146	Nut, Hex	1	FZ2566	FZ2565
155	Handle Assembly	1	41511265JH	41511265JJ
167	Gasket, Plug Button	1	D5450009	D5450026
168	Plug Button	1	FZ3603	FZ3603
169	Gasket	1	41510207D	D5450037
170	Washer	2	FZ3386	FZ3386
185	Washer	2	FZ3347	FZ3380
204	Pin, Spring	1	D6580001	D6580002
244	Gasket, Neoprene	2	41510205A	41510205B
245	Gasket, Mylar	2	41510206A	41510206B
256	Gasket, Retainer	1	60501322A	60501322B

REEVES MOTO DRIVE REBUILD KITS

MOTO DRIVES WITH MASTER XL REDUCERS

Note: For complete rebuild, both kits listed must be ordered.

MOTO DRIVE SIZE	ASSEMBLY	REBUILD KIT (1) MOTO DRIVE	REBUILD KIT (2) REDUCER
05W12	C & Z	41511244JN	41164246BM
05W16	C & Z	41511244JN	41164246BN
05C12	C & Z	41511244JN	41164246BT
1W16	C & Z	41511244JR	41164246BN
1W21	C & Z	41511244JR	41164246BP
1W21	C ASSY. 173 &174 HORIZ.	41511244JP	41164246BP
1C16	C & Z	41511244JR	41164246BV
1C21	C & Z	41511244JR	41164246BW
1C21	ASSY. 173 &174 HORIZ.	41511244JP	41164246BW
1C28	C & Z	41511244JR	41164246BX
1C28	C ASSY. 173 &174 HORIZ.	41511244JP	41164246BX
2W21	C	41511244JX	41164246BP
2W21	Z	41511244JW	41164246BP
2W28	C	41511244JX	41164246BR
2W28	Z	41511244JW	41164246BR
2C21	C	41511244JX	41164246BW
2C2 I	Z	41511244JW	41164246BW
2C28	C ASSY. 173 &174 HORIZ.	415112441V	41164246BX
2C28	Z	41511244JW	41164246BX
2C28	C ASSY. 170 & 171 VERT.	41511244JX	41164246BX
2C40	C ASSY. 173 &174 HORIZ.	415112441T	41164246BY
2W40	Z	415112441S	41164246BS
2C40	Z	415112441S	41164246BY
2W40	C	41511244JY	41164246BS
2C40	C ASSY. 170 &171 VERT.	41511244JY	41164246BY

(1) Kit includes belt, disc bushings and beltcase bearings. Also order reducer rebuild kit to obtain complete MOTO DRIVE overhaul kit.

(2) Kit includes all reducer bearings, seal and gasket kit, bearing shim kits and gear lube.

REEVES MOTO DRIVE REBUILD KITS

REEVES MOTO DRIVE WITH PARALLEL REDUCERS

Kit includes beltcase bearings, reducer bearings, belt disc bushings (where applicable), shims (where applicable), and reducer seals and gaskets.

SIZE C FLOW	ASSEMBLY	
	Z FLOW	
050	41511244HA	41511244HA
051	41511244HB	41511244HB
052	41511244HC	41511244HC
053	41511244HD	41511244HD
100	41511244HE	41511244HE
111	41511244HF	41511244HF
112	41511244HG	41511244HG
113	41511244HH	41511244HH
121	41511244HJ	41511244HJ
122	41511244HK	41511244HL
123	41511244HM	41511244HN
133	41511244HP	41511244HR
200	41511244HS	41511244HT
221	41511244HV	41511244HW
222	41511244HX	41511244HZ
223	41511244JA	41511244JB
231	41511244JC	41511244JD
232	41511244JE	41511244JF
233	41511244JG	41511244JH
243 38.4-86.5 RATIO	41511244JJ	41511244JK
243 106-195 RATIO	41511244JL	41511244JM