REEVES® MOTODRIVE

INSTALLATION, OPERATION AND MAINTENANCE FOR SIZES: 300, 400, 500, 600

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

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NOTE: In the case sizes 300 and 400, the reference to MOTO DRIVE implies MOTO DRIVE and/or MAS-51 Drive, as applicable.

IMPORTANT REMINDERS

1. Change MOTO DRIVE unit speeds only when the unit is running.
2. REEVES MOTO DRIVE units are assembled to operate under requirements of the unit assembly number. MOTO DRIVE units with reducers should not be changed to a different assembly number without factory approval.
3. Some MOTO DRIVE units with reducers are shipped with reducers drained. *Do not operate unit before adding proper amount of lubricating oil.*
4. REEVES reducers are effectively vented. Do not allow reducer vent to become clogged.
5. Check your power supply with motor nameplate rating before making electrical connections.

DRIVE IDENTIFICATION

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

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

INSTALLATION

> 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. A rigid base is essential for mounting the MOTO DRIVE unit.
2. Mount and fasten the MOTO DRIVE unit into positior so that the output (variable speed) shaft of the MOTO DRIVE unit is in alignment with the driven shaft of the equipment. Use shims, when necessary, to obtain alignment. MOTO DRIVE shafts should turn freely when the unit is secured to the mounting.
3. Connect the MOTO DRIVE unit output shaft to the driven shaft of the equipment by desired method. Accurate alignment of the shafts is very important when couplings or gears are used. In addition to accurate shaft alignment, sprocket or pulley alignment on the shafts is important for chain or belt connections.
4. Lubricate the MOTO DRIVE unit as detailed in the lubrication section. (Lubrication instructions are also shown on the MOTO DRIVE nameplate.)
5. Connect electrical power to the MOTO DRIVE unit.

> DANGER
>
> **The user is responsible for conforming with 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.**

6. REEVES VARI-SPEED MOTO DRIVE unit is set for the specified speed range and tested at the factory. Following complete lubrication, MOTO DRIVE unit is ready for immediate use.
7. **NOTE:** Before placing unit with any reducer into operation, check to see that all instructions covering vent plug and oil level plugs have been completed.

NOTE: Change speeds only when unit is running.

OPERATION AND CARE

1. Keep belt contact surfaces of the discs clean.
2. When a 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. (Tension spring will then place minimum pressure on the belt.) See long-term storage instructions.
3. Correct lubrication is essential to good MOTO DRIVE unit operation as is periodically shifting the unit through its range to distribute the lubricant.

MOTOR AND PULLEY LUBRICATION

Use only a properly refined neutral mineral grease, free of acid, alkali and sulphur with a consistency corresponding to No. 1 NLGI. Type and grade of lubricants suitable for MOTO DRIVE units are suggested by the following list:

MOBIL OIL CORP. MOBILTEMP NO. 1; TEXACO NOVATEX NO. 1; SINCLAIR GREASE NO. 1; AMERICAN OIL CO. AMOLITH GREASE NO. 1; SHELL ALVANIA NO. 1.

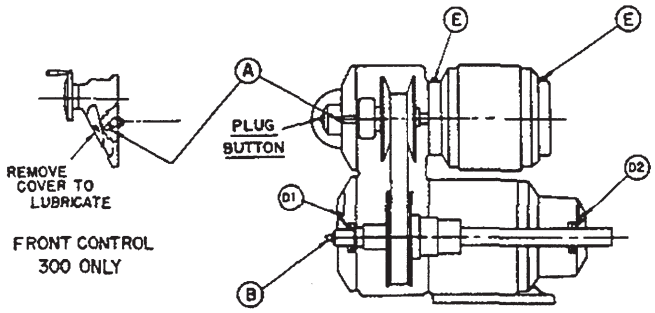


Diagram No. 1 MOTO DRIVE Lubrication Points

The following lubrication instructions apply to MOTO DRIVE units operating under normal conditions (40 to 60 hours a week, dry-dust free atmosphere).

1. Lubricate sliding discs at least at two-week intervals. Apply two or three effective grease gun strokes to lubrication fittings at points A and B, Dia. 1. Shift the drive through its entire speed range to distribute lubricant.

NOTE: An effective grease gun stroke is defined as that stroke of the grease gun after resistance to the flow of lubricant is experienced. This will ensure the lubricant is working through the system and that all voids will be filled with fresh clean lubricant.

2. Lubricate motor bearings at point (E) and MOTO DRIVE variable shaft bearings at points (D1) and (D2,) Diagram 1, in accordance with users general plant practice for lubricating ball bearing motors or at least once each 6 months for most installations. Apply lubricant until grease shows around the shaft at the bearing plates. Plugs at points (D1), (D2) and (E) must be removed and lubrication fitting installed to apply lubricant.

NOTE "C" FLOW UNITS WITH REDUCERS
Lubricate at (D1). No lubrication required at (D2).

"Z" FLOW UNITS WITH REDUCERS
Lubricate at (D2). No lubrication required at (D1).

3. The thrust bearing on the constant speed disc assembly is pre-lubricated and requires no further lubrication.

4. Shift unit completely through its speed range to distribute lubricant.

To ensure correct lubrication when operating under conditions other than normal, the drive should have added protection as recommended by the factory.

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	SAE Crankcase	SAE Gear	ISO Viscosity
Degrees F	Oil Grade	Oil Grade	Grade
100 to 140	50	90	220
40 to 100	40	85W	150
0 to 40	20	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 environments. 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. A run-in period of about one (1) week operation should be sufficient before the original lubricant is drained and refilled with new lubricant of recommended viscosity.

3. Lubricate right angle reducers with a type and grade of oil suitable for worm gear reducers as suggested by the following chart.

RECOMMENDED LUBRICANTS

AMBIENT TEMP.	LUBRICANT VISCOSITY GROUP				
	OUTPUT SHAFT SPEED				
	Up to 300 R. P. M.			Over 300 R. P. M.	
- 65°F. to 0°F.*	318.59				
- 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 PREMAGEAR EP AMOCO				460 WORM GEAR OIL	
ALTANTIC RICHFIELD CO. ARCO MINERAL GEAR OIL			90	140	
CARR OIL LUB 733 EP				140	
DARMEX IND. CORP. GEAR BOX OIL				DX-9140	
DUBOIS CHEMICAL CO. E.G.O. EP			90	140	
FISK F. 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	600W	SHC634 SUPER CYLIN-DER
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° special oil seals are required. All Group 63 Lubes must be changed after 300 hours of high temperature operation.

4. Lubricant should be drained and the gear case refilled every 750 hours of normal daily use; every 500 hours if operated continuously or in high temperatures. Group 63 lubricants must be changed very 300 hours of high temperature operations.

5. All bearings, operating above the oil level that are provided with a plug, should be lubricated with a good grade of ball bearing grease when changing gear lubricant. DO NOT OVER-LUBRICATE GREASE PACKED BEARINGS.

6. Right angle reducers are shipped with oil in the unit.

BELT REPLACEMENT

REEVES VARI-SPEED MOTO DRIVE unit is designed for easy servicing and replacement of belts.

Identify your MOTO DRIVE unit by style—"C" flow, Diagram No. 2 or "Z" flow, Diagram No. 4. Follow instructions given below that apply to your unit.

FOR "C" FLOW STYLE MOTO DRIVE units and for alternate "Z" flow style MOTO DRIVE assembly numbers 100-A, 100-AL, 100-AR, 111-A and 112-A. Unit assembly number is on MOTO DRIVE nameplate.

1. If MOTO DRIVE belt is in operating condition, shift MOTO DRIVE 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 (1), Diagram No. 2.

4. Remove four cap screws holding control assembly (2), and remove control assembly from the MOTO DRIVE unit, Diagram No. 2.

5. Remove sliding disc (3), Diagram No. 2 (thrust bearing and thrust bearing housing (11) is attached to (3), Diagram No. 3. Do not disturb position of the fixed disc on motor shaft.

NOTE: On No 600 MOTO DRIVE units only, remove control adaptor ring (6) from belt case before removing sliding disc assembly (3). Units with front control, see Item 12C.

6. Pull upper loop of the belt over the end of the fixed disc hub, see Diagram No. 3. 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 free 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).

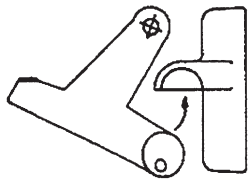
10. Spread the variable speed discs (5) and position the belt between the discs deep enough to secure belt slack; then loop the belt over the fixed disc hub.

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

11A. Replace control adaptor ring (6) (No. 600 only).

12. **(300 MOTO DRIVE units only)** Replace 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. (Ref. Part No. 42, Pg. 12) see pg. 22.

12A. **NOTE:** On No. 400 MOTO DRIVE units, the housing lugs will be above the prongs.



SIZE 400 ONLY

NOTE: Yoke may have pins or lugs to prevent improper engagement.

12B. **(500-600 MOTO DRIVE units only)** Replace control assembly (2) by inserting rollers into milled slots of thrust bearing housing (11) and guide pin into slot provided in control housing. (Ref. Part No. 42, Page 12.)

On the 500 front control the sliding disc and thrust bearing housing will be removed and replaced along with the complete control assembly.

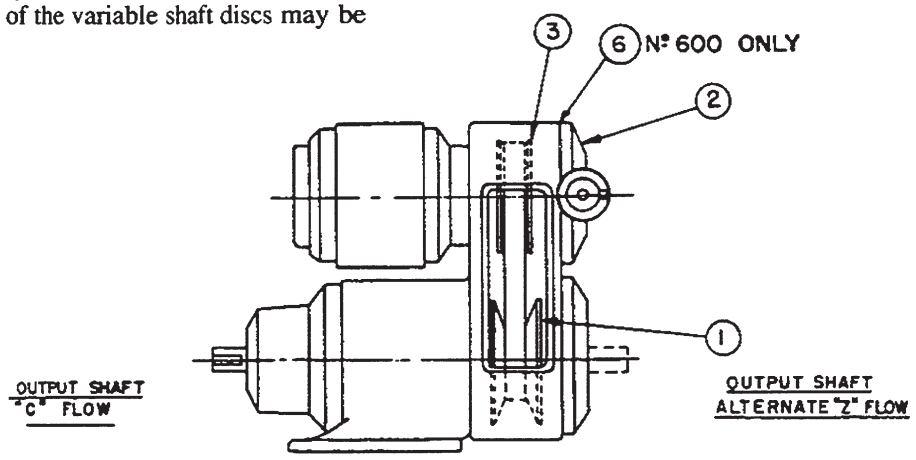


Diagram No. 2. Belt changing procedure, "C" flow

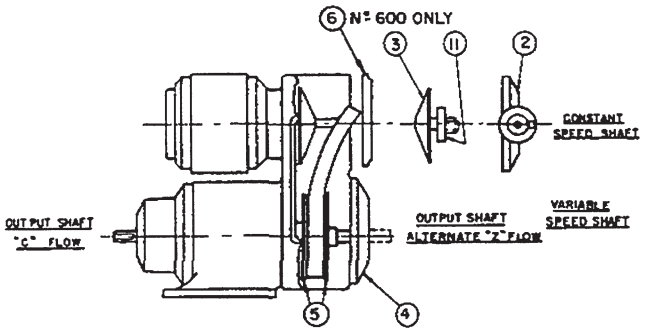


Diagram No. 3. Belt changing procedure, "C" flow

12C. On the 600 front control, separate the control and the disc assembly by removing the two fulcrum screws holding the shifting yoke to the thrust bearing housing. The control adaptor ring (6) may now be removed, followed by the disc assembly (3).
Reverse this procedure in assembly.
Bolt control housing to case.

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

13. Replace inspection plate (1).

14. Lubricate constant speed disc assembly at point "A," Diagram No. 1, and MOTO DRIVE is ready for operation.

15. Reconnect electrical service.

FOR "Z" FLOW STYLE MOTO DRIVE units except as noted for alternate "Z" flow style assemblies shown under "C" flow style MOTO DRIVE instructions.

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

2. Disconnect the 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.

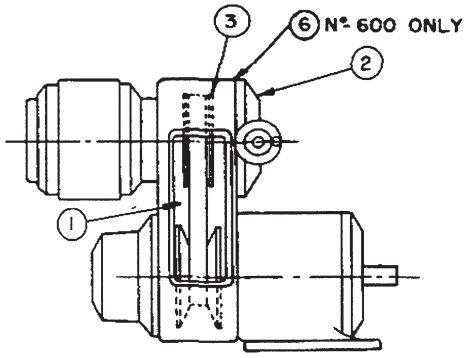


Diagram No. 4. Belt changing procedure, "Z" flow

3. Remove side inspection plates (1), Diagram No. 4.

4. Remove four cap screws holding control assembly (2) and remove control assembly from the MOTO DRIVE unit, Diagram No. 4.

NOTE: On No. 600 MOTO DRIVE units only, remove control adaptor ring (6) from belt case before removing sliding disc (3). Units with front control, see Item 13C.

5. Remove the sliding disc (3), Diagram No. 4. (Thrust bearing and thrust housing is attached to (3), Diagram No. 5. 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, Diagram No. 5. 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 the variable shaft bearing plate (4) after belt is freed from fixed disc hub (Diagram No. 5).

8. Remove the following parts from the variable shaft, Diagram No. 5:
(7)—Collar and bearing. Mark position of bearing on variable shaft.

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 send to RELIANCE Service Center for repair. Failure to observe these precautions could result in bodily injury.

(8)—Retaining ring

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.

(9)—Spring and cartridge assembly
(10)—Sliding disc.

9. Remove old belt from the case.

10. Place 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 plate (4). If unit is equipped with collar and bearing assembly, be sure to secure collar on eccentric part of bearing and secure with the set screws. Eccentric collar end of bearing goes on variable shaft first. Position bearing to mark.

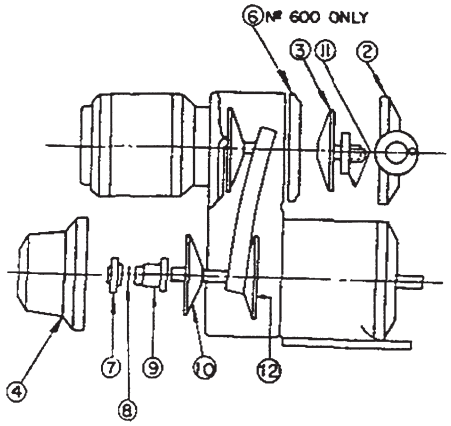


Diagram No. 5. Belt changing procedure "Z" flow

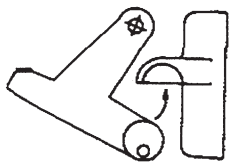
11. Spread the variable speed discs (10) and (12), (Diagram No. 5,) and position the belt between the discs deep enough to secure slack; then loop the belt over the fixed disc hub.

12. Replace sliding disc (3) with thrust bearing and housing, onto fixed disc hub.

12A. Replace control adaptor ring (6). (No. 600 only.)

13. **(300 MOTO DRIVE units only)** Replace 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. (Ref. Part No. 42, Pg. 13) see pg. 22.

13A. **NOTE:** On No. 400 MOTO DRIVE units, the housing lugs will be above the prongs.



SIZE 400 ONLY

13B. **(500-600 MOTO DRIVE units only)** Replace control assembly (2) by inserting rollers into milled slots of thrust bearing housing (11) and guide pin into slot provided in control housing. (Ref. Part No. 42, Pg. 13).

On the 500 front control the sliding disc and thrust bearing housing will be removed and replaced along with the complete control assembly.

13C. On the 600 front control, separate the control and the disc assembly by removing the two fulcrum screws holding the shifting yoke to the thrust bearing housing. The control adaptor ring (6) may now be removed, followed by the disc assembly (3). Reverse this procedure in assembly. Bolt control housing to case.

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

14. Replace inspection plate (1).

15. Lubricate constant speed disc assembly at point (A), Diagram No. 1, and MOTO DRIVE unit is ready for operation.

16. Reconnect electrical service.

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

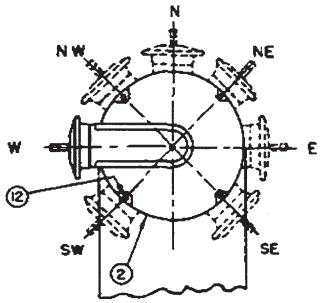


Diagram No. 6 Available handwheel positions

CHANGING HANDWHEEL LOCATION

Unless otherwise specified each MOTO DRIVE unit 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.

1. Remove four cap screws (12), Diagram No. 6.
2. Rotate the control housing (2), without separating the control assembly from the case, so that the handwheel is in the desired position.
3. Replace four cap screws.

NOTE: If the control housing becomes separated from the case, refer to Item 12 (300 MOTO DRIVE units) or Item 12A (for 400), 12B (500-600 MOTO DRIVE units) for "C" flow assemblies or Item (13 for 300), (13A for 400) 13B (500-600 MOTO DRIVE units) for "Z" flow assemblies.

DISC REMOVAL—CONSTANT SPEED

Removal of Constant Speed Disc Assembly.

1. Follow steps 1-6 of belt changing instructions.
2. Loosen two set screws that secure fixed disc to motor shaft.

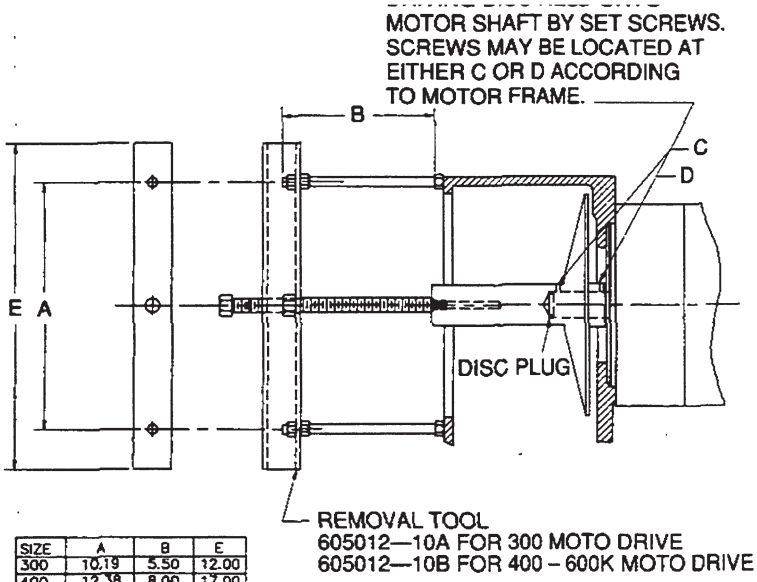
NOTE: On units using a motor adaptor, it will be necessary to remove the small steel plate secured to the adaptor with two (2) screws. This will allow access to the set screws located on the short hub of the fixed disc.

3. Remove fixed disc.

NOTE: This may be accomplished with the aid of a pulling device as shown in Diagram 7. Special Disc Pullers are available thru Renewal Parts.

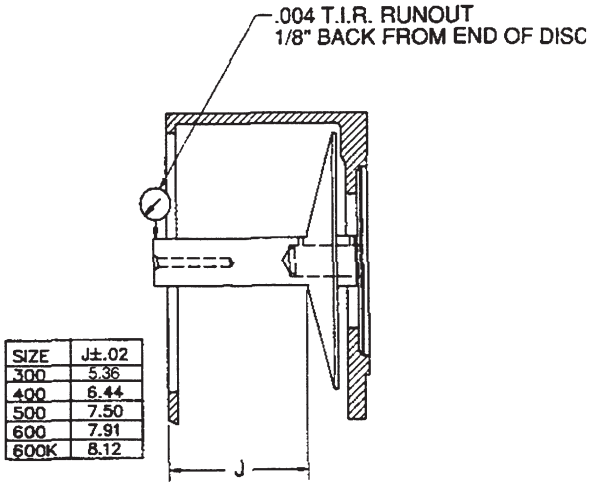
Size 050-300 PN 605012-10A
Size 400-600 PN 605012-10B

NOTE: Do not lose the disc plug (see Diagram 7) as this will be needed during reassembly.



SIZE	A	B	E
300	10.19	5.50	12.00
400	12.38	8.00	17.00
500	15.06	8.00	17.00
600	15.06	8.00	17.00
600K	15.06	8.00	17.00

CONSTANT DISC REMOVAL
DIAGRAM 7



SIZE	J±.02
300	5.36
400	6.44
500	7.50
600	7.91
600K	8.12

CONSTANT DISC INSTALLATION
SETTING "J" DIMENSION

DISC INSTALLATION—CONSTANT SPEED

1. Apply a small amount of heavy grease in the bottom of the disc bore. This is to provide a holding effect on the disc plug.
2. Insert disc plug into disc bore.
3. Check to be sure that motor shaft key is in proper position and that it is "staked" into keyway to prevent it walking back into the feathered area of motor shaft keyway.
4. Install fixed disc onto motor shaft and set proper "J" dimension for the respective size unit, see diagram above.
5. Tighten the two set screws to secure fixed disc to motor shaft.
6. Use dial indicater to measure radial runout of fixed disc hub. If TIR exceeds .004, loosen setscrews, remove and reinstall disc (set J dimension), tighten set screws and recheck.
7. Follow steps 11 through 15 of belt changing instructions to complete this installation.

DISC REMOVAL—VARIABLE SPEED ("C" Flow Unit)

1. Follow belt changing instructions steps 1 through 7.
2. Remove variable shaft bearing (78), (Diagram 8).
3. With belt removed, check for free movement between fixed disc and sliding disc.

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 send to RELIANCE Service Center for repair. Failure to observe these precautions could result in bodily injury.

4. Remove the retaining ring (73) (Diagram 8), washer and spring cartridge assembly.
5. Remove fixed disc (65), sliding disc (66) and spring cartridge (154).
6. Inspect spring cartridge for wear, corrosion, etc. Replace if necessary. See safety instructions for disposal of spring cartridge assembly.

NOTE: The spring cartridge may come off with the sliding disc. This is acceptable as they can be separated as required later.

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.

DISC INSTALLATION—VARIABLE SPEED ("C" Flow Unit)

1. Check to see that the retaining ring (70) is properly seated in its groove on the variable shaft.
2. Install the spring cartridge over the variable shaft. Smaller end of the cartridge goes on the shaft first.
3. Check to see that the lubrication grooves in the sliding disc are free from hard caked grease or other foreign materials. Hand pack this disc to ensure proper lubrication of the disc prior to start up.

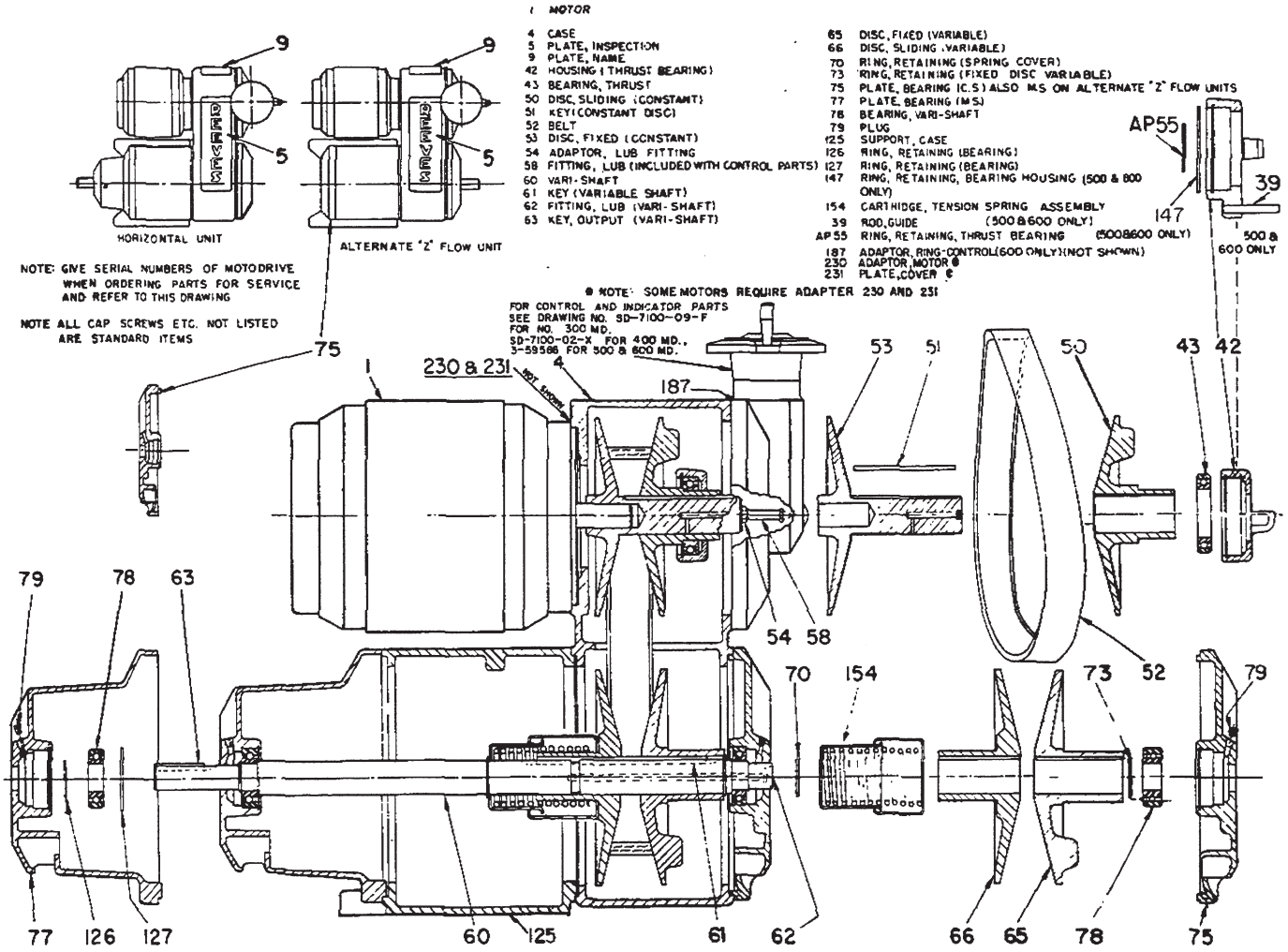


Diagram 8

4. Install sliding disc (66) onto variable shaft. See that the spring cartridge is properly seated onto the extended hub portion of this disc.
5. Wipe any excess grease from the sliding disc face.
6. Install the belt over the variable shaft and put into the belt case.
7. Install fixed disc (65).
8. Insert the retaining ring (73) into its groove in the variable shaft.
9. Install a new bearing on the variable shaft. Be careful not to damage the bearing during installation.
10. Install the bearing plate (75).
11. Refer to the belt changing instructions 10 through 15 to complete this reassembly.

DISC REMOVAL—VARIABLE SPEED ("Z" Flow Unit)

Refer to belt changing instructions for "Z" flow unit on page 6, steps 1-9. At this point, the fixed disc (65), diag. 8, may be removed.

DISC INSTALLATION—VARIABLE SPEED ("Z" FLOW UNIT)

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. Slide V/S fixed disc (65) over variable shaft and up against the retaining ring.
3. Place belt (52) into belt case loosely around variable shaft.
4. Slide V/S sliding disc (66) over variable shaft and against the fixed disc. Hand pack disc with proper lubricant prior to installing over variable shaft.
5. Install spring cartridge (154), retaining ring (70), collar and/or bearing as required.

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

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.

6. Install bearing plate.
7. Place the belt between the two discs and pull down toward the variable shaft. This is necessary so that sufficient belt slack is available to loop belt over the constant speed fixed disc hub.
8. Proceed as in steps 12 through 16 of the belt changing instructions to complete this reassembly.

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 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.

ADDITIONAL SERVICE INFORMATION

For assistance, contact the DODGE MASTER REEVES Service Department, Regional Service Centers or your local authorized service shop.

RECOMMENDATIONS FOR LONG-TERM STORAGE OF REEVES MOTO DRIVE

CAUTION

REEVES MOTO DRIVE units require preparation for long-term storage or storage in a condensing environment. In order to ensure serviceability after such storage, the unit must be protected in accordance with instructions included in the appropriate instruction manual under the heading "LONG-TERM STORAGE." Evidence of problems caused by improper storage conditions will void the warranty. Failure to observe this precaution can result in damage to, or destruction of the equipment.

GENERAL

Consult RELIANCE Electric Service Bulletin A-8013 ("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 for additional information on motors.

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

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. Coat disc faces and other exposed metal surfaces with corrosion-resistant coating. On size 300-600K, grease discs per instruction manual procedures.

   Tag unit to indicate belt must be reinstalled at startup.
3. Loosen screws on belt inspection plates and insert ¼" spacers to allow ventilation of belt, 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. Dissassemble MOTO DRIVE unit, thoroughly clean all corrosion resistant coatings form disc faces and shafts. Inspect all parts (disc, bearings, control and linkages, etc.) for free movement.
2. Reinstall variable speed belt.
3. Where applicable, grease discs per instruction manual.
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. All safety precautions must be followed.

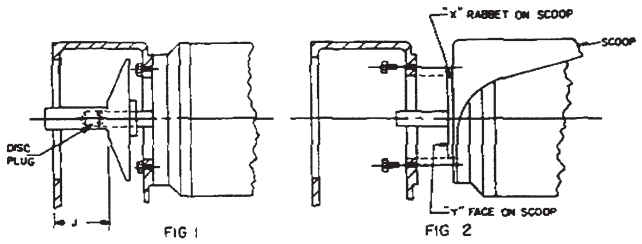


FIG 1 FIG 2

SIZE	300	400	500	600	600K
J	$5\frac{23}{64}$	$6\frac{7}{16}$	$7\frac{1}{2}$	$7\frac{29}{32}$	$8\frac{1}{8}$

All are $\pm$ 1/64

"C" FACE 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.

2. Refer to Belt Replacement Instructions for removal of control and constant speed sliding disc assembly.
3. Loosen two set screws and remove the fixed disc from motor shaft.

NOTE: Do not lose disc plug as this will be needed during assembly.

4. 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.

CAUTION:

Be sure motor shaft key is tightly in place in motor shaft keyway.

5. Place new motor into position and secure with four motor mounting screws to the MOTO DRIVE case.

NOTE: On units where a motor adaptor is used be sure the adaptor is installed properly between the case and motor before securing motor.

6. Replace constant speed fixed disc on motor shaft; be sure disc plug is in disc bore; locate position of disc as shown in Fig. 1 above, set "J" dimension and secure to motor shaft with the two set screws.
7. Refer to Belt Replacement Instructions for replacing constant speed sliding disc assembly and control.

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.

2. Refer to Belt Replacement Instructions for removal of control and constant speed sliding disc assembly.
3. Loosen two set screws and remove the fixed disc from motor shaft.

NOTE: Do not lose disc plug as this will be needed during assembly.

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 scoop by removing four mounting screws from inside the case.
5. Remove motor from scoop by removing four mounting screws from motor feet.

CAUTION

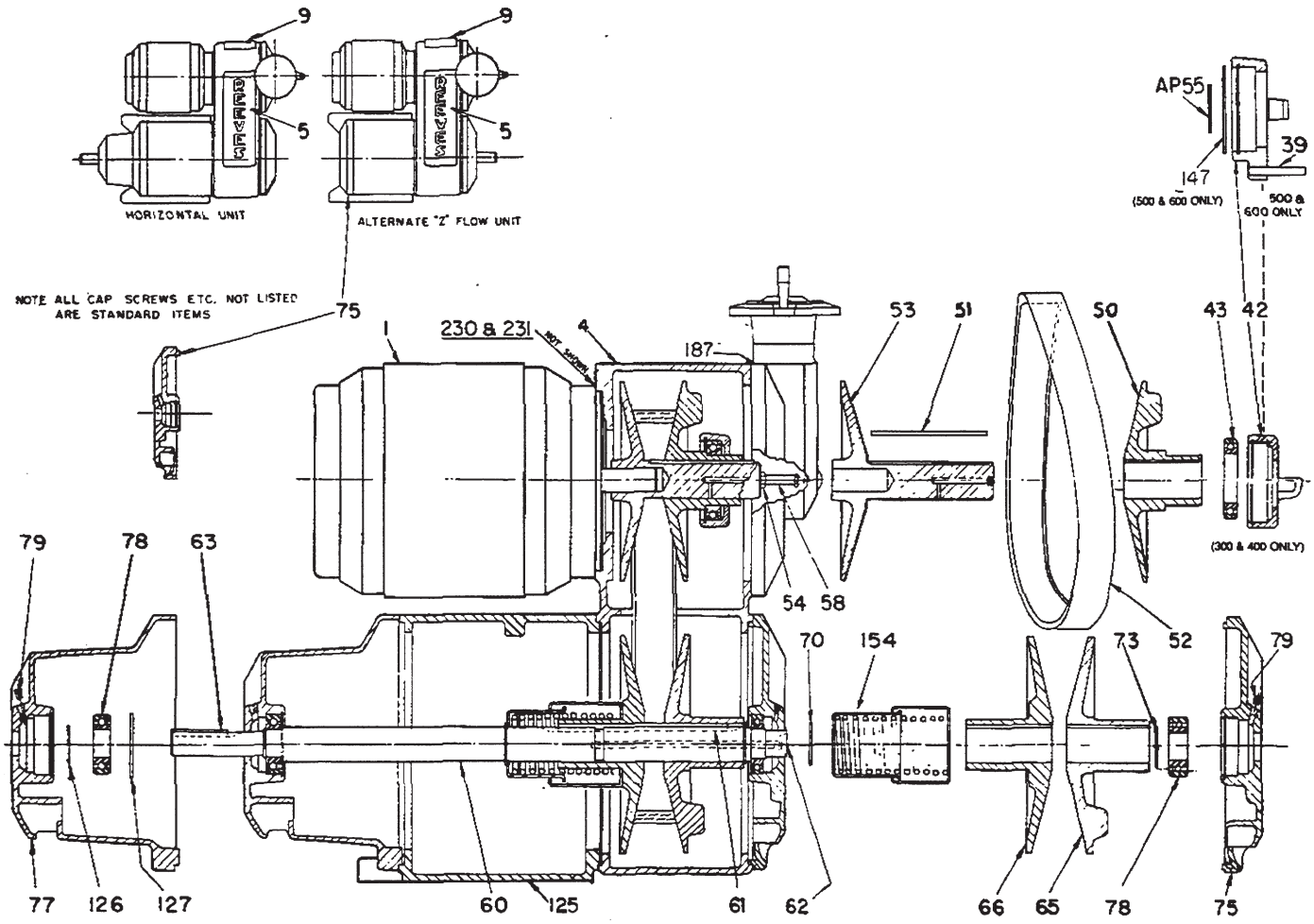
Be sure motor shaft key is tightly in place in motor shaft keyway.

6. Place motor on mounting pads of scoop. Secure motor to scoop with cap screws provided.
7. See Fig. 2 above. 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.
8. When the motor has been aligned properly and secured in place, drill the two front feet and pin in place with tapered pins.
9. Mount scoop and motor as a unit on the MOTO DRIVE case.
10. Replace constant speed fixed disc on motor shaft: be sure disc plug is in place in disc bore; locate position of disc as shown in Fig. 1 above and secure to motor shaft with two set screws.
11. Refer to belt replacement instructions for replacing constant speed sliding disc assembly and control.

PARTS LIST — FOR SIZES - 300 - 400 - 500 - 600 REEVES VARI-SPEED MOTO DRIVE UNITS

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



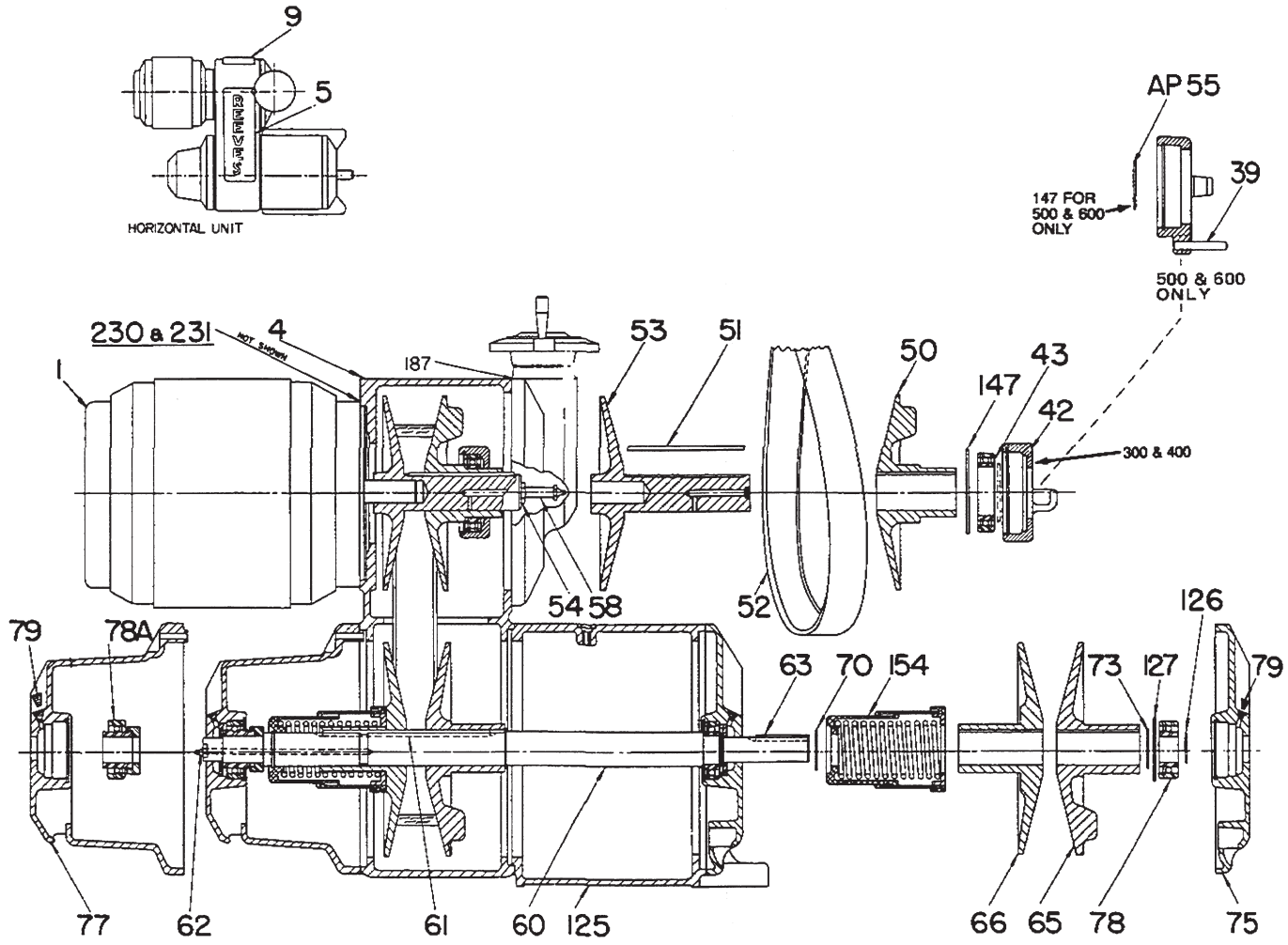
1	MOTOR
4	CASE
5	PLATE, INSPECTION
9	PLATE, NAME
39	ROD,GUIDE (500 & 600 ONLY)
42	HOUSING (THRUST BEARING)
43	BEARING, THRUST
50	DISC, SLIDING (CONSTANT)
51	KEY (CONSTANT DISC)
52	BELT
53	DISC, FIXED (CONSTANT)
54	ADAPTOR, LUB FITTING
58	FITTING, LUB (INCLUDED WITH CONTROL PARTS)
60	VARI-SHAFT
61	KEY(VARIABLE SHAFT)
62	FITTING, LUB (VARI-SHAFT)
63	KEY, OUTPUT (VARI-SHAFT)
65	DISC, FIXED (VARIABLE)
66	DISC, SLIDING, (VARIABLE)
70	RING, RETAINING (SPRING COVER)
73	RING, RETAINING (FIXED DISC VARIABLE)
75	PLATE, BEARING (C.S.) ALSO M.S. ON ALTERNATE "Z"FLOW UNITS
77	PLATE, BEARING (M.S.)
78	BEARING, VARI-SHAFT
79	PLUG
125	SUPPORT, CASE
126	RING, RETAINING (BEARING)
127	RING, RETAINING (BEARING)
147	RING, RETAINING, BEARING HOUSING (500 & 600 ONLY)
151	PLUG, BUTTON CASE SUPPORT
154	CARTRIDGE, TENSION SPRING ASSEMBLY
AP 55	RING, RETAINING, THRUST BEARING (500 & 600 ONLY)
187	ADAPTOR, RING-CONTROL(600 ONLY)(NOT SHOWN)
230	ADAPTOR, MOTOR (1)
231	PLATE, COVER (1)

(1) NOTE: SOME MOTORS REQUIRE ADAPTOR 230 AND PLATE 231

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

PARTS LIST—FOR SIZES - 300 - 400 - 500 - 600 REEVES VARI-SPEED MOTO DRIVE UNITS

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



1 MOTOR
4 CASE
5 PLATE, INSPECTION
9 PLATE, NAME
39 ROD, GUIDE (500 & 600 ONLY)
42 HOUSING (THRUST BEARING)
43 BEARING, THRUST
50 DISC, SLIDING (CONSTANT)
51 KEY (CONSTANT DISC)
52 BELT
53 DISC, FIXED (CONSTANT)
54 ADAPTOR, LUB FITTING
58 FITTING, LUB INCLUDED WITH CONT. PARTS
60 VARI-SHAFT
61 KEY (VARIABLE SHAFT)
62 FITTING, LUB (VARI-SHAFT)
63 KEY, OUTPUT (VARI-SHAFT)
65 DISC, FIXED (VARIABLE)
66 DISC, SLIDING (VARIABLE)
70 RING, RETAINING (SPRING COVER)
73 RING, RETAINING (FIXED DISC VARIABLE)
75 PLATE, BEARING (C.S.)
77 PLATE, BEARING (M.S.)
78 BEARING, VARI-SHAFT
78A BEARING & COLLAR (VARI-SHAFT)
79 PLUG
125 SUPPORT, CASE
126 RING, RETAINING (BEARING)
127 RING, RETAINING (BEARING)
147 RING, RETAINING, BEARING HOUSING (500 & 600 ONLY)
154 CARTRIDGE, TENSION SPRING ASSEMBLY
187 ADAPTOR, RING-CONTROL (600 ONLY)(NOT SHOWN)
230 ADAPTOR,MOTOR (1)
231 PLATE, COVER (1)

AP 55 RING, RETAINING, THRUST BEARING (500 & 600 ONLY)

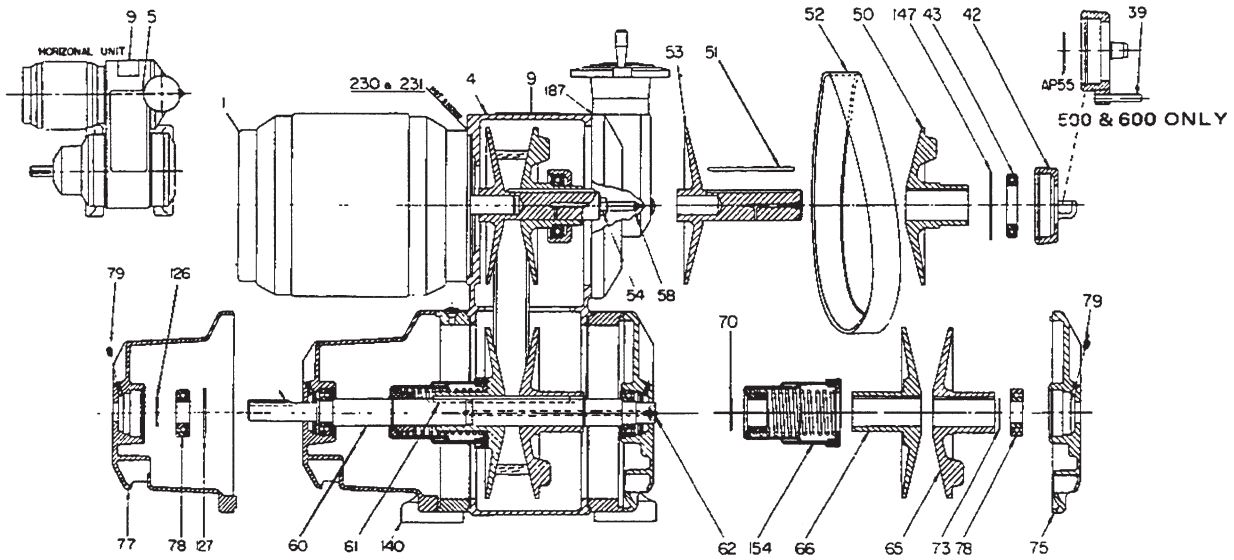
NOTE: ALL CAP SCREWS ETC. NOT LISTED ARE STANDARD ITEMS.

(1) NOTE SOME MOTORS REQUIRE ADAPTOR 230 & PLATE 231

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

PARTS LIST—FOR SIZES - 300 - 400 - 500 - 600 REEVES VARI-SPEED MOTO DRIVE UNITS

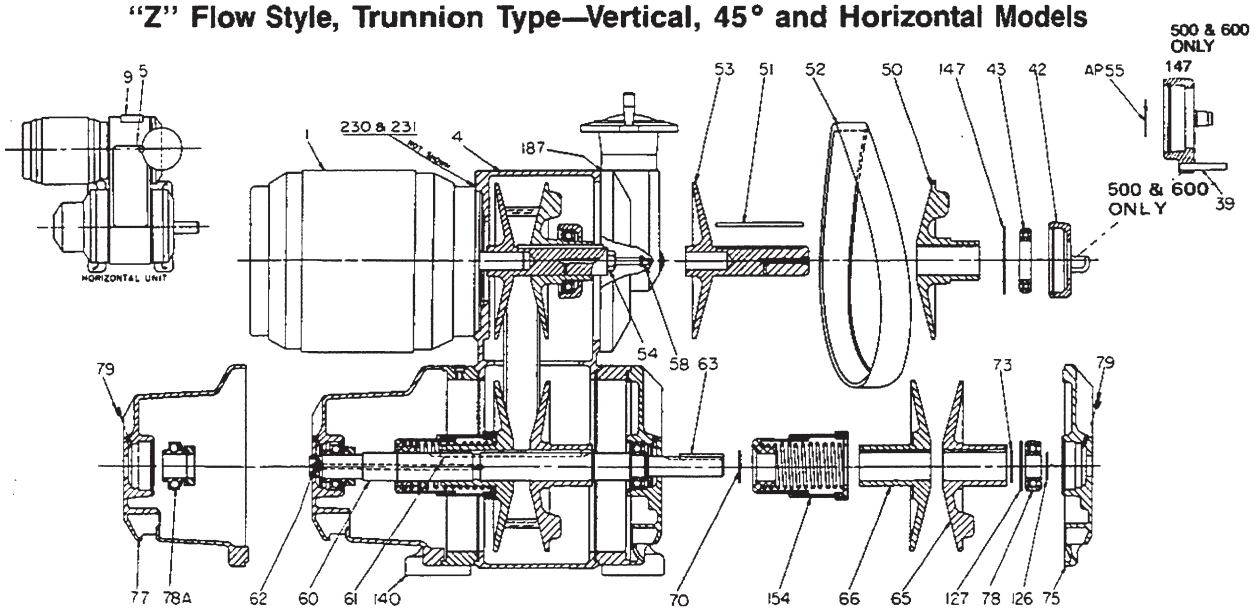
"C" Flow Style, Trunnion Type — Vertical, 45° and Horizontal Models



1 MOTOR
4 CASE
5 PLATE, INSPECTION
9 PLATE, NAME
39 ROD, GUIDE (500, 600 ONLY)
42 HOUSING (THRUST BEARING)
43 BEARING, THRUST
50 DISC, SLIDING (CONSTANT)
51 KEY (CONSTANT DISC)
52 BELT
53 DISC, FIXED (CONSTANT)
54 ADAPTOR, LUB FITTING
58 FITTING, LUB (INCLUDING WITH CONT. PARTS)
60 VARI-SHAFT
610 KEY(VARIABLE SHAFT)
62 FITTING, LUB (VARI-SHAFT)
63 KEY, OUTPUT (VARI-SHAFT)
65 DISC, FIXED (VARIABLE)
66 DISC, SLIDING (VARIABLE)
70 RING, RETAINING (SPRING COVER)
73 RING, RETAINING (FIXED DISC VARIABLE)
75 PLATE, BEARING (C.S.)
77 PLATE, BEARING (M.S.)
78 BEARING, VARI-SHAFT
79 PLUG
126 RING, RETAINING (BEARING)
127 RING, RETAINING (BEARING)
140 ADAPTOR, TRUNNION
147 RING, RETAINING (THRUST BEARING) (500 & 600 ONLY)
154 CARTDRIDGE, TENSION SPRING ASSEMBLY
AP55 RING, RETAINING THRUST BEARING (500 & 600 ONLY)
187 ADAPTOR, RING-CONTROL (600 ONLY)(NOT SHOWN)
230 ADAPTOR, MTR (1)
231 PLATE, COVER (1)

(1) NOTE SOME MOTORS REQUIRE ADAPTOR 230 & 231

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



1 MOTOR
4 CASE
5 PLATE, INSPECTION
9 PLATE, NAME
39 ROD, GUIDE (500 & 600 ONLY)
42 HOUSING (THRUST BEARING)
43 BEARNG THRUST
50 DISC SLIDING CONSTANT
51 KEY CONSTANT DISC
52 BELT
53 DISC, FIXED (CONSTANT)
54 ADAPTOR LUB FITTING
58 FITTING, LUB (Included w/control parts)
60 VARI-SHAFT
61 KEY (VARISHAFT)
62 FITTING LUB (VARI-SHAFT)
63 KEY OUTPUT (VARI-SHAFT)
65 DISC, FIXED (VARIABLE)
66 DISC SLIDING (VARIABLE)
70 RING, RETAINING (SPRING COVER)
73 RING, RETAINING (FIXED DISC VARIABLE)
75 PLATE (BEARING) (C.S.)
77 PLATE (BEARING) (M.S.)
78 BEARING (VARI-SHAFT)
78A BEARING & COLLAR (VARI-SHAFT)
79 PLUG
126 RING, RETAINING, BEARING
127 RING, RETAINING BEARING
140 ADAPTOR, TRUNNION
147 RING, RETAINING, BEARING HOUSING (500 & 600 ONLY)
154 CARTRIDGE, TENSION SPRING ASSEMBLY
AP 55 RING, RETAINING THRUST BEARING (500 & 600 ONLY)
187 ADAPTOR, RING CONTROL (600 ONLY) (NOT SHOWN)
230 ADAPTOR, MOTOR (MAX RANGE) (1)
231 PLATE, COVER (MAX RANGE) (1)

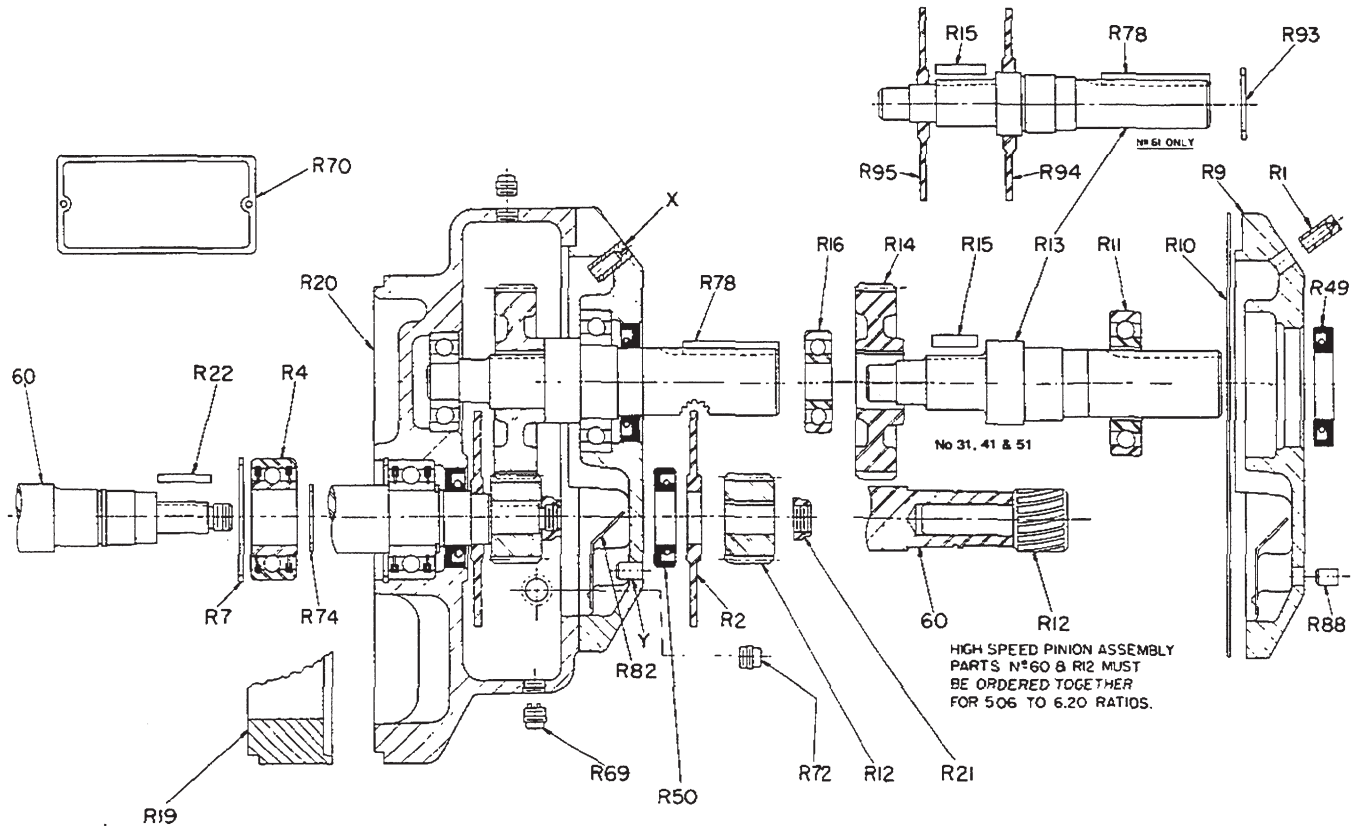
NOTE: ALL CAP SCREW ETC. NOT LISTED ARE STANDARD ITEMS.

(1) NOTE SOME MOTORS REQUIRE ADAPTOR 230 & PLATE 231

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

PARTS LIST—FOR SINGLE REDUCTION REDUCERS—SIZES 31, 41, 51, and 61

(300 - 400 - 500 - 600 size Moto Drive units)



60 SHAFT, VARIABLE
R1 PIN, VENT
R2 SLINGER, OIL (OUTPUT SHAFT UP ON ALL REDUCERS)
(OUTPUT SHAFT UP RIGHT & LEFT ON 51 REDUCER)
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 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
R74 RING, RETAINING (HIGH SPEED BEARING)
R78 KEY, OUTPUT SHAFT
R82 GUARD, SPLASH
R88 PIN, PLUG
R93 RING, RETAINING
R94 SLINGER, OIL (OUTPUT SHAFT TO R.,L., & DOWN ON 51 & 61 REDUCER)
R95 SLINGER, OIL (OUTPUT SHAFT TO R.,L., & DOWN ON NO 61 REDUCER
(OUTPUT SHAFT DOWN ON NO. 51 REDUCER)

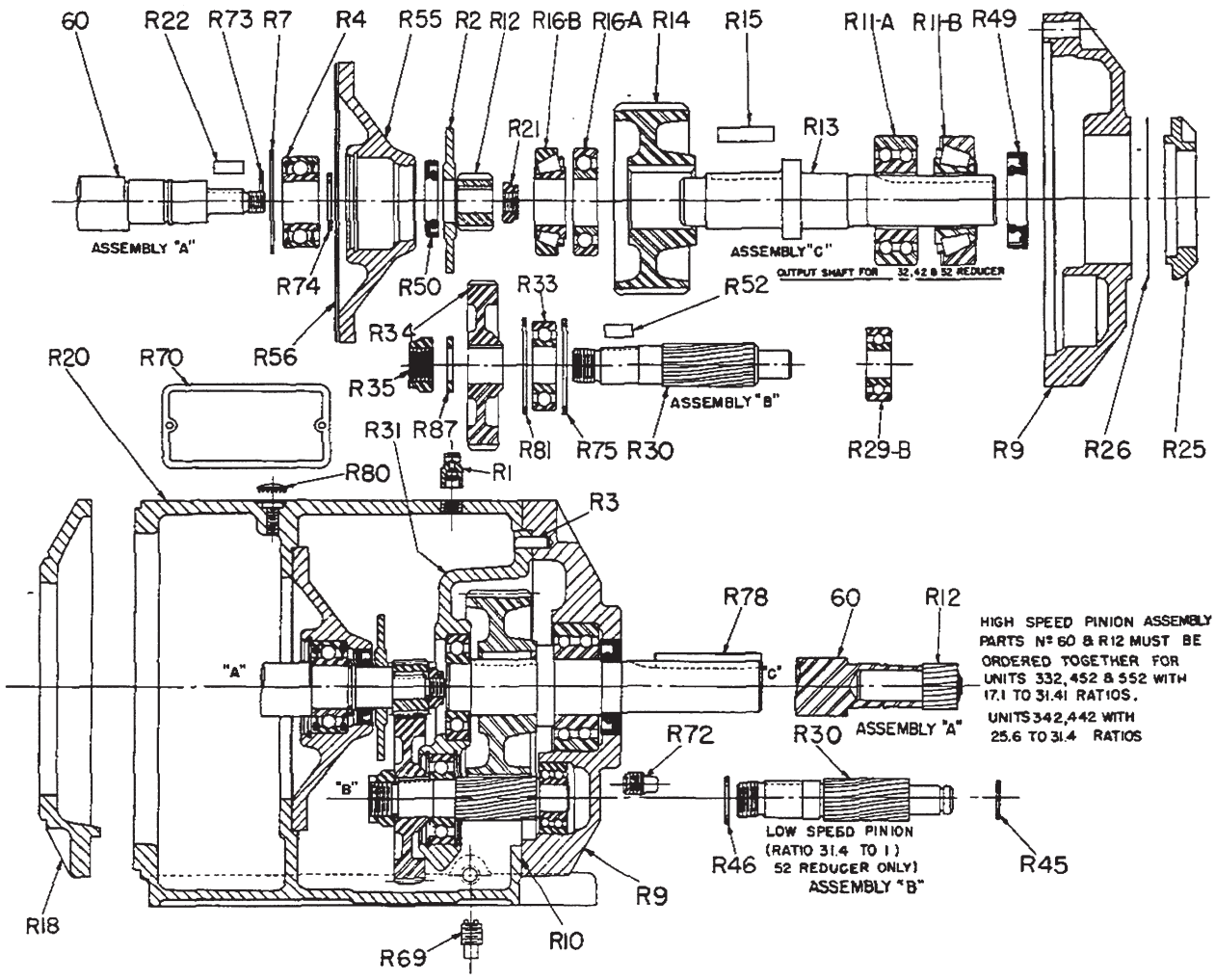
NOTE: ALL CAP SCREWS ETC., NOT LISTED ARE STANDARD ITEMS.

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

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

PARTS LIST—FOR DOUBLE REDUCTION REDUCERS—SIZES 32, 42, 52 and 52H

(300 - 400 - 500 - 600 size Moto Drive units)



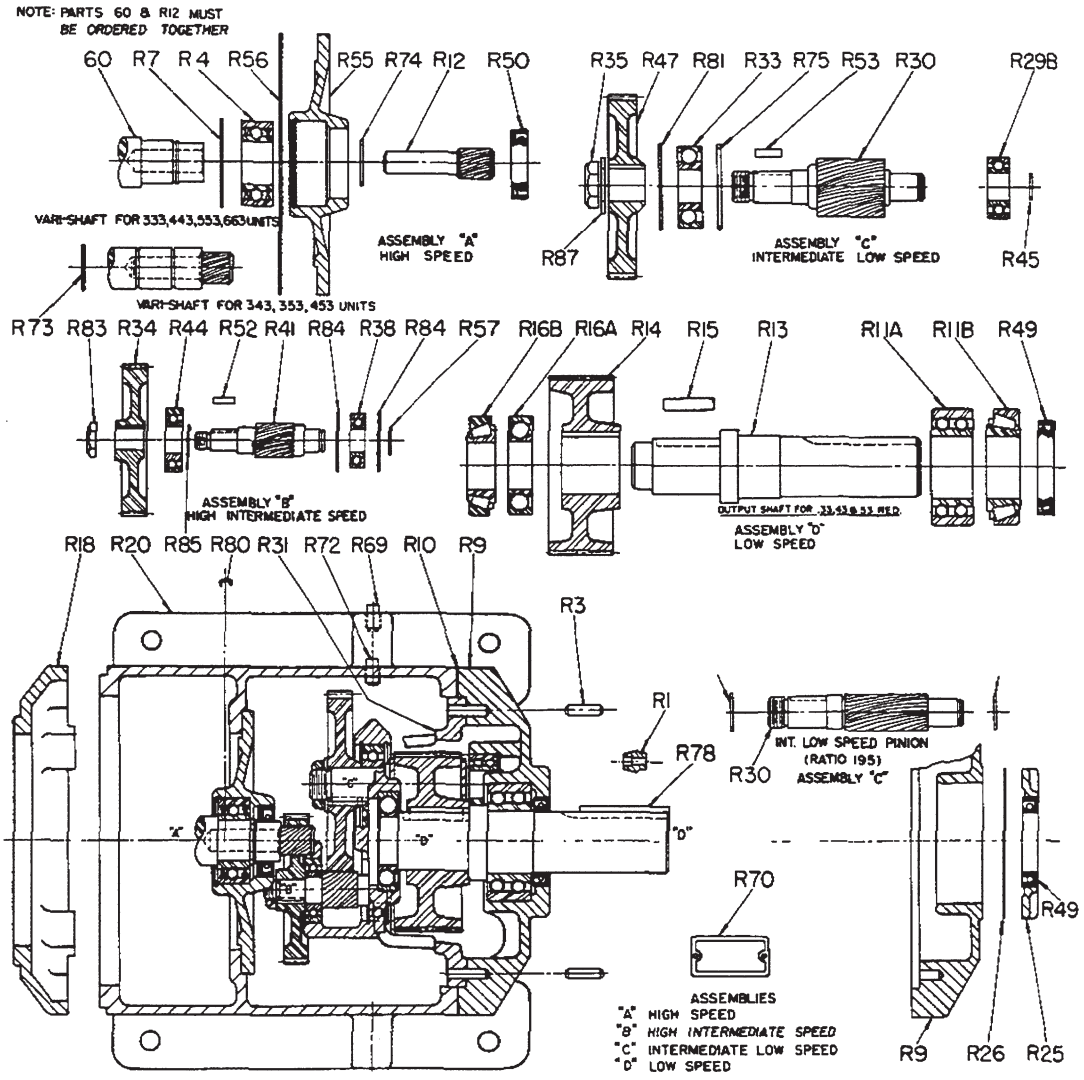
60	SHAFT, VARIABLE	R20	HOUSING, CASE SUPPORT	R69	PLUG, DRAIN (MAGNETIC)
R1	PLUG, VENT	R21	NUT, HIGH SPEED PINION	R70	PLATE, RATIO & LUBRICATION
R2	SLINGER, OIL (CEILING MTD. UNITS ONLY)	R22	KEY, HIGH SPEED PINION	R72	PLUG, OIL LEVEL
R3	PIN, DOWEL	R25	RETAINER, BEARING (42, 52 RED. ONLY)	R73	RING, RET. INNER H.S. BRG. (342,452 RED.)
R4	BEARING, HIGH SPEED	R26	SHIM, BEARING RETAINER (42, 52 RED ONLY)	R74	RING, RETAINING, OUTER H.S. BEARING
R7	RING, RET. H. S. BRG.	R29-B	BEARING, OUTER L.S. PINION	R75	RING, RETAINING, OUTER LOW SPEED PINION BEARING (42, 52 RED ONLY)
R9	HEAD, GEAR BOX	R30	PINION, LOW SPEED	R78	KEY, OUTPUT SHAFT
R10	GASKET, HEAD	R31	CENTERPIECE, GEAR	R80	PLUG, BUTTON (HOUSING, CASE SUPPORT)
R11-A	BRG. OUTER L. S. (32 RED. ONLY)	R33	BEARING, INNER L.S. PINION	R81	RING, RETAINING, INNER L.S. PINION BEARING
R11-B	BEARING,OUTER,LOW SPEED (42, 52,RED. ONLY)	R34	GEAR, HIGH SPEED	R87	WASHER, GEAR HIGH SPEED (52 RED. ONLY)
R12	PINION, HIGH SPEED	R35	NUT, LOW SPEED PINION		
R13	SHAFT, OUTPUT	R45	RING, RETAINING (42, 52 RED. ONLY)		
R14	GEAR, LOW SPEED	R46	RING, RETAINING (52 RED. RATIO 31.4 ONLY)		
R15	KEY, LOW SPEED GEAR	R49	SEAL, OIL-LOW SPEED		
R16-A	BEARING, INNER, LOW SPEED (32 RED. ONLY)	R50	SEAL,OIL-HIGH SPEED		
R-16B	BEARING, INNER, LOW SPEED (42, 52 RED. ONLY)	R52	KEY, HIGH SPEED GEAR		
R18	ADAPTOR, RING	R55	PLATE, BEARING (INTERNAL)		
		R56	GASKET, BEARING PLATE (INTERNAL)		

NOTE: ALL CAP SCREWS ETC., 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 TRIPLE REDUCTION REDUCERS—SIZES 33, 43, 53 and 53H

(300 - 400 - 500 - 600 size Moto Drive units)



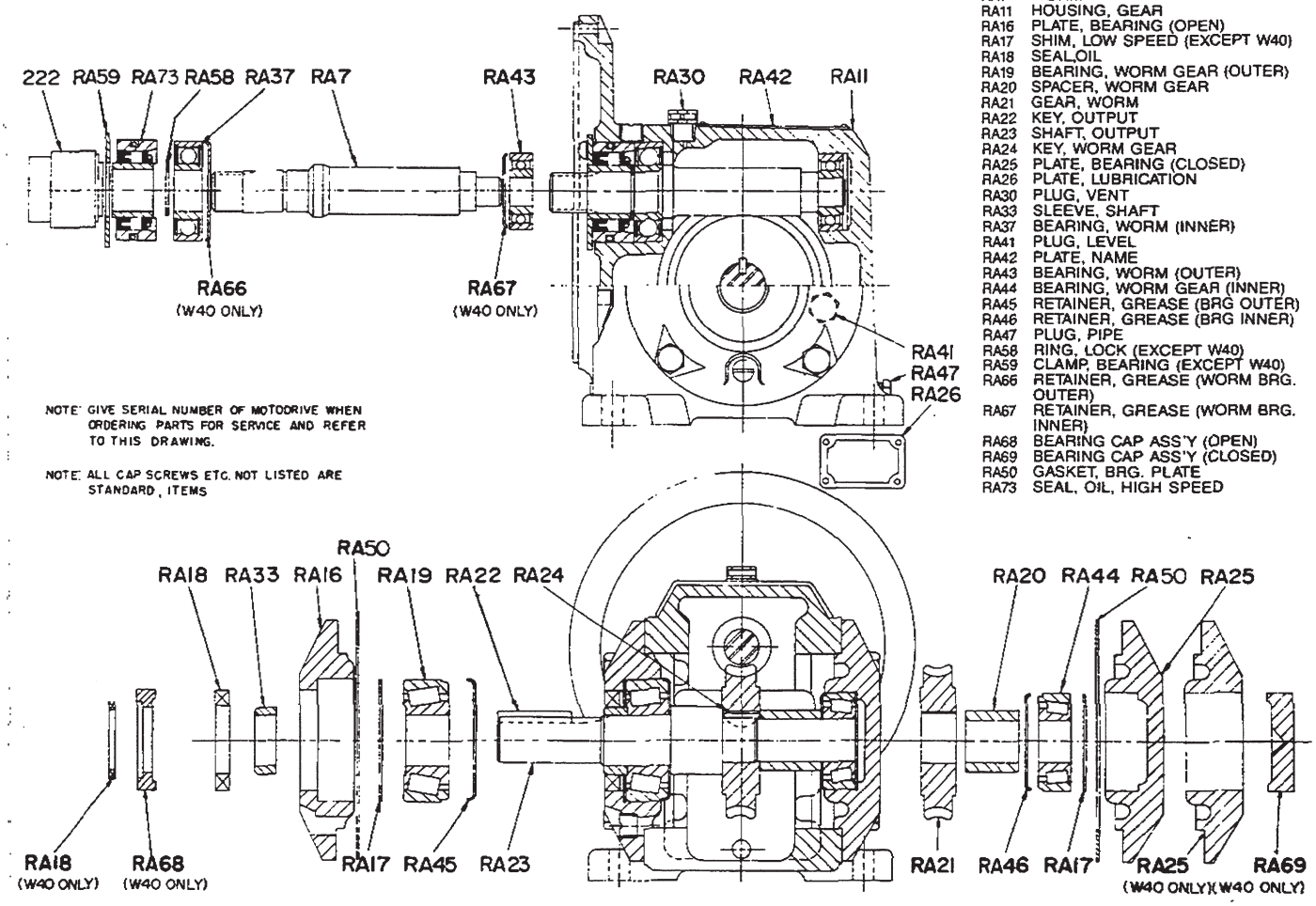
60	SHAFT, VARIABLE
R1	PLUG, VENT (ON TOP OF CASE SUPPORT HOUSING)
R3	PIN, DOWEL
R4	BEARING, HIGH SPEED
R7	RING, RETAINING, HIGH SPEED BEARING
R9	HEAD, GEARBOX
R10	GASKET, HEAD
R11A	BEARING, OUTER LOW SPEED (33 RED. ONLY)
R11B	BEARNG, OUTER LOW SPEED (43, 53 RED. ONLY)
R12	PINION, HIGH SPEED
R13	SHAFT, OUTPUT
R14	GEAR, LOW SPEED
R15	KEY, LOW SPEED GEAR
R16A	BEARING, INNER LOW SPEED 33 RED. ONLY)
R16B	BEARING, INNER LOW SPEED 43, 53 "—" RED. ONLY)
R18	ADAPTOR, RING
R20	HOUSING, CASE SUPPORT
R25	RETAINER, BEARING (43, 53 RED. ONLY)
R26	SHIM BEARING RETAINER (43, 53 RED. ONLY)
R29B	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
R38	BEARING, OUTER, INTERMEDIATE
R41	PINION, INTERMEDIATE
R44	BEARING, INNER, INTERMEDIATE
R45	RING, RETAINING, LOW SPEED PINION (43, 53 RED.)
R46	RING, RETAINING, INNER LOW SPEED PINION 53 REDUCERS
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, INT. PINION, OUTER
R69	PLUG, DRAIN (MAGNETIC)
R70	PLATE, RATIO & LUBRICATION
R72	PLUG, OIL LEVEL
R73	RING, RETAINING, INNER H.S. BEARING (343, 353, 453)
R74	RING, RETAING, OUTER H.S. BEARING
R75	RING, RETAINING, OUTER L.S. PINION BEARING (43, 53 RED. ONLY)
R78	KEY, OUTPUT SHAFT
R80	PLUG, BUTTON (HOUSING, CASE SUPPORT)
R81	RING, RETAINING, INNER L.S. PINION BEARING
R83	NUT, HIGH SPEED INTERMEDIATE GEAR
R84	RING, RETAINING, OUTER, INTERMEDIATE PINION BEARING (53 REDUCER 1 ONLY)
R85	RING, RETAINING, INNER, INTERMEDIATE PINION BEARING (43 & 53 RED. RA.159-195)
R87	WASHER, GEAR, INTERMEDIATE LOW SPEED (53 REDUCER ONLY)

NOTE: ALL CAP SCREWS ETC. 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 — W28 - W40 RIGHT ANGLE REDUCER

FOR No. 300-400 MOTO DRIVE UNITS



NOTE: GIVE SERIAL NUMBER OF MOTODRIVE WHEN ORDERING PARTS FOR SERVICE AND REFER TO THIS DRAWING.

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

222	COUPLING ASSEMBLY
RA7	WORM
RA11	HOUSING, GEAR
RA16	PLATE, BEARING (OPEN)
RA17	SHIM, LOW SPEED (EXCEPT W40)
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)
RA26	PLATE, LUBRICATION
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)
RA46	RETAINER, GREASE (BRG INNER)
RA47	PLUG, PIPE
RA58	RING, LOCK (EXCEPT W40)
RA59	CLAMP, BEARING (EXCEPT W40)
RA66	RETAINER, GREASE (WORM BRG. OUTER)
RA67	RETAINER, GREASE (WORM BRG. INNER)
RA68	BEARING CAP ASS'Y (OPEN)
RA69	BEARING CAP ASS'Y (CLOSED)
RA50	GASKET, BRG. PLATE
RA73	SEAL, OIL, HIGH SPEED

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

PARTS LIST — FOR C21 - C28 - C40 RIGHT ANGLE REDUCER

FOR No. 300 - 400 MOTO DRIVE UNITS

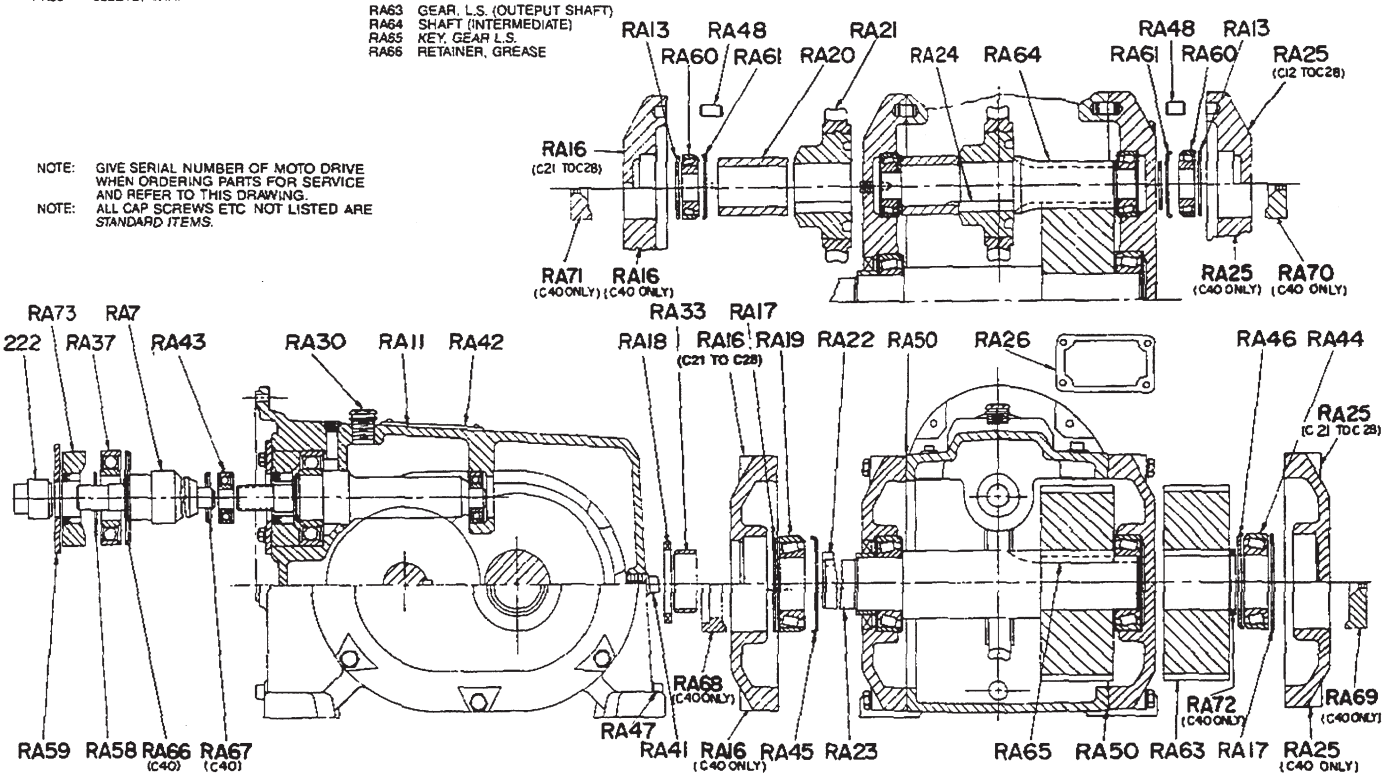
222 COUPLING ASSEMBLY
RA7 *WORM*
RA11 HOUSING, GEAR
RA13 SHIM, HIGH SPEED (EXCEPT C40)
RA16 PLATE, BEARING (OPEN)
RA17 SHIM, LOW SPEED (EXCEPT C40)
RA18 SEAL (OIL)
RA19 BEARING (OUTPUT SHAFT)
RA20 SPACER, WORM SHAFT (EXCEPT C40)
RA21 GEAR, WORM
RA22 *KEY, OUTPUT SHAFT*
RA23 SHAFT, OUTPUT
RA24 KEY, WORM GEAR
RA25 PLATE, BEARING (CLOSED)
RA26 PLATE, LUBRICATION
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 GREASE SEAL, BEARING OUTER
RA46 GREASE SEAL, BEARING INNER
RA47 PLUG, PIPE SQ. HEAD
RA48 PIN, DOWEL
RA50 GASKET, BRG. PLATE
RA58 *RING, LOCK (EXCEPT C40)*
RA59 CLAMP, BEARING (EXCEPT C40)
RA60 BEARING, INTERMEDIATE GEAR
RA61 GREASE SEAL BRG. (INTERMEDIATE GEAR)

RA63 GEAR, L.S. (OUTEPUT SHAFT)
RA64 SHAFT (INTERMEDIATE)
RA65 *KEY, GEAR L.S.*
RA66 RETAINER, GREASE

RA 67 RETAINER, GREASE.
RA 68 *BEARING CAP ASS'Y (OPEN)*
RA 69 BEARING CAP ASS'Y (CLOSE)
RA 70 BEARING CAP ASS'Y (INTERMEDIATE CO' SHAFT)
RA 71 BEARING CAP ASS'Y (INTERMEDIATE CO' SHAFT)
RA 72 SPACER, GEAR
RA 73 SEAL, OIL, HIGH SPEED

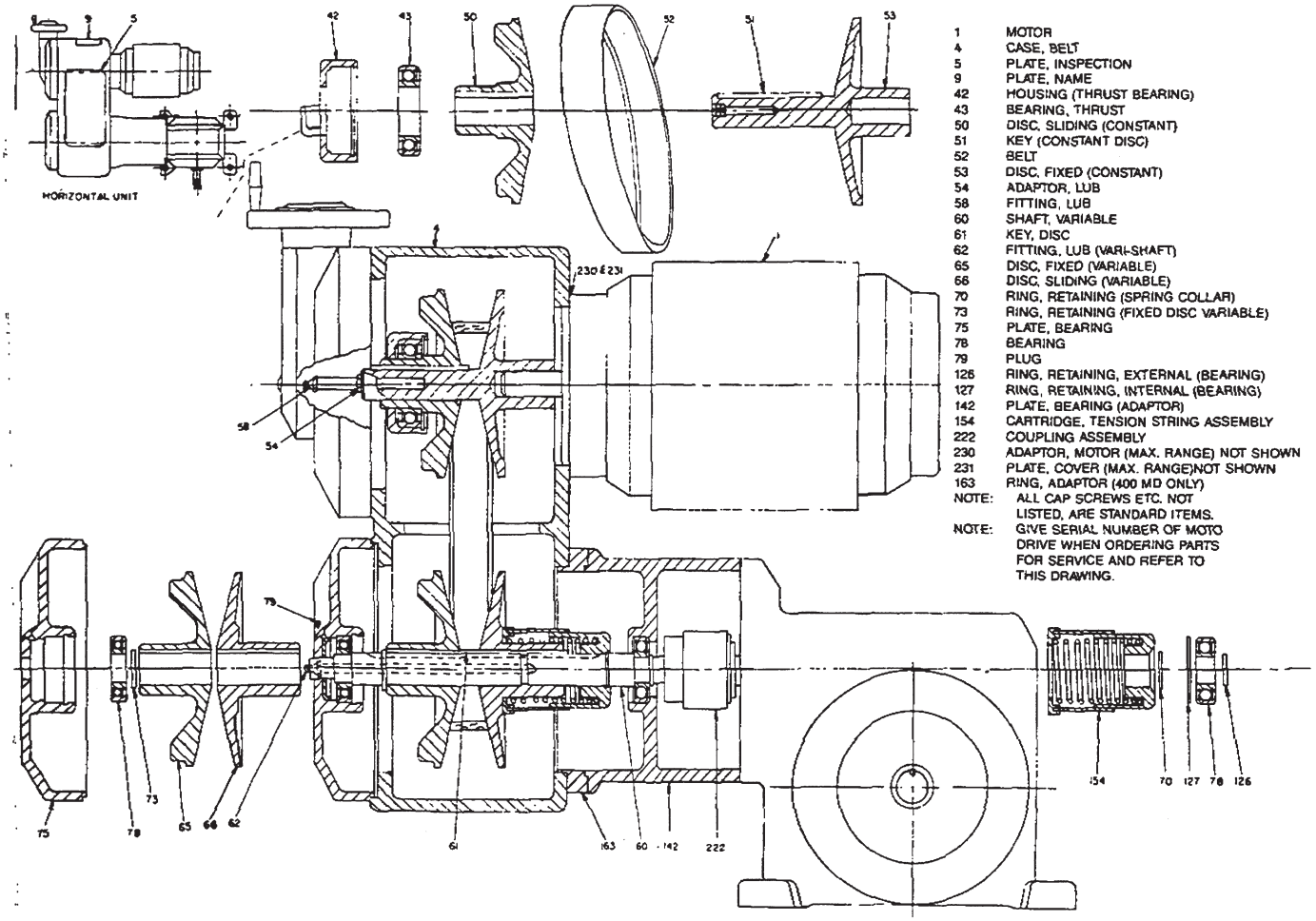
NOTE: GIVE SERIAL NUMBER OF MOTO DRIVE WHEN ORDERING PARTS FOR SERVICE AND REFER TO THIS DRAWING.
NOTE: ALL CAP SCREWS ETC NOT LISTED ARE *STANDARD ITEMS.*



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

PARTS LIST — FOR "C" FLOW FOR USE WITH "XL" RIGHT ANGLE REDUCER

FOR No. 300 - 400 MOTO DRIVE UNITS



1	MOTOR
4	CASE, BELT
5	PLATE, INSPECTION
9	PLATE, NAME
42	HOUSING (THRUST BEARING)
43	BEARING, THRUST
50	DISC, SLIDING (CONSTANT)
51	KEY (CONSTANT DISC)
52	BELT
53	DISC, FIXED (CONSTANT)
54	ADAPTOR, LUB
58	FITTING, LUB
60	SHAFT, VARIABLE
61	KEY, DISC
62	FITTING, LUB (VARI-SHAFT)
65	DISC, FIXED (VARIABLE)
66	DISC, SLIDING (VARIABLE)
70	RING, RETAINING (SPRING COLLAR)
73	RING, RETAINING (FIXED DISC VARIABLE)
75	PLATE, BEARING
78	BEARING
79	PLUG
126	RING, RETAINING, EXTERNAL (BEARING)
127	RING, RETAINING, INTERNAL (BEARING)
142	PLATE, BEARING (ADAPTOR)
154	CARTRIDGE, TENSION STRING ASSEMBLY
222	COUPLING ASSEMBLY
230	ADAPTOR, MOTOR (MAX. RANGE) NOT SHOWN
231	PLATE, COVER (MAX. RANGE)NOT SHOWN
163	RING, ADAPTOR (400 MD ONLY)
NOTE:	ALL CAP SCREWS ETC. NOT LISTED, ARE STANDARD ITEMS.
NOTE:	GIVE SERIAL NUMBER OF MOTO DRIVE WHEN ORDERING PARTS FOR SERVICE AND REFER TO THIS DRAWING.

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

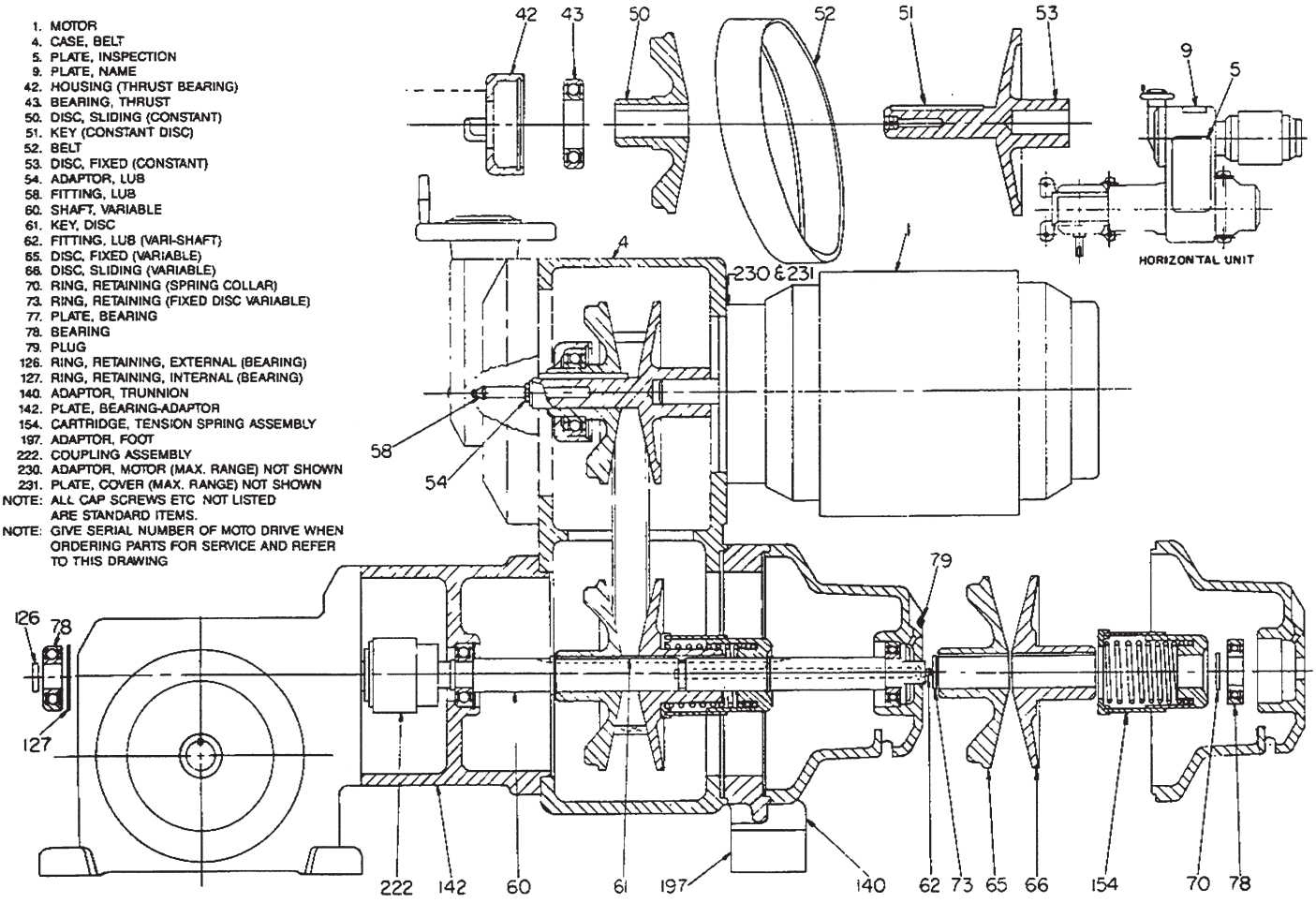
PARTS LIST — FOR "Z" FLOW FOR USE WITH "XL" RIGHT ANGLE REDUCER

FOR No. 300 - 400 MOTO DRIVE UNITS

1. MOTOR
4. CASE, BELT
5. PLATE, INSPECTION
9. PLATE, NAME
42. HOUSING (THRUST BEARING)
43. BEARING, THRUST
50. DISC, SLIDING (CONSTANT)
51. KEY (CONSTANT DISC)
52. BELT
53. DISC, FIXED (CONSTANT)
54. ADAPTOR, LUB
58. FITTING, LUB
60. SHAFT, VARIABLE
61. KEY, DISC
62. FITTING, LUB (VARI-SHAFT)
65. DISC, FIXED (VARIABLE)
66. DISC, SLIDING (VARIABLE)
70. RING, RETAINING (SPRING COLLAR)
73. RING, RETAINING (FIXED DISC VARIABLE)
77. PLATE, BEARING
78. BEARING
79. PLUG
126. RING, RETAINING, EXTERNAL (BEARING)
127. RING, RETAINING, INTERNAL (BEARING)
140. ADAPTOR, TRUNNION
142. PLATE, BEARING-ADAPTOR
154. CARTRIDGE, TENSION SPRING ASSEMBLY
197. ADAPTOR, FOOT
222. COUPLING ASSEMBLY
230. ADAPTOR, MOTOR (MAX. RANGE) NOT SHOWN
231. PLATE, COVER (MAX. RANGE) NOT SHOWN

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

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

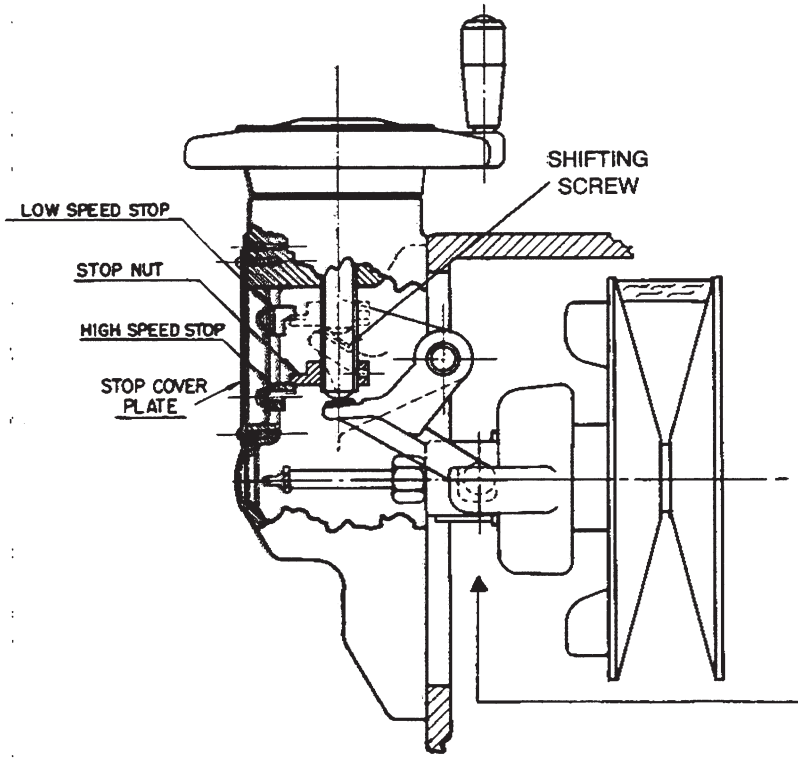


When ordering MOTO DRIVE replacement parts refer to this bulletin number and give serial number, assembly number, and unit size number.

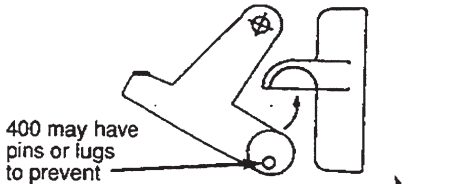
INSTRUCTIONS FOR SETTING MAXIMUM AND MINIMUM SPEED STOPS

STANDARD HANDWHEEL CONTROL

SIZE 300 and 400

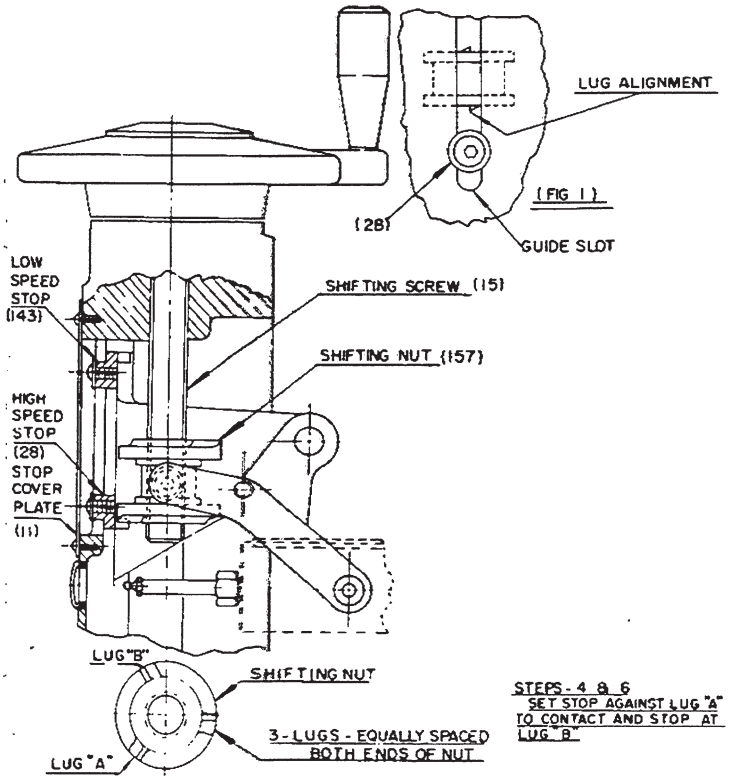


1. REMOVE STOP COVER PLATE FOR ACCESS TO SPEED CONTROL STOPS.
2. LOOSEN HIGH AND LOW SPEED STOPS; AND SPREAD THE STOPS TO MAXIMUM SEPARATION IN THE GUIDE SLOT.
3. INSPECT THE STOP NUT LOCATION ON THE SHIFTING SCREW. RE-POSITION IF NECESSARY, SO THAT APPROXIMATELY THREE FULL THREADS SHOW AT END OF SCREW.
4. START MOTO DRIVE UNIT 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 THREE 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.



NOTE: Size 300 shown.
On size 400, the Housing Lugs will be **above** the Yoke ears.

SIZES 500 and 600



1. REMOVE STOP COVER PLATE (11) FOR ACCESS TO SPEED CONTROL STOP.
2. LOOSEN BOTH HIGH (28) AND LOW (143) SPEED STOPS. SPREAD THE STOPS TO MAXIMUM SEPARATION IN THE GUIDE SLOT. TIGHTEN THE STOPS SLIGHTLY.

HIGH SPEED SETTING

3. START MOTO DRIVE AND SHIFT UNIT TO DESIRED **MAXIMUM OUTPUT SPEED.**
4. IMPORTANT. REVERSE SHIFTING SCREW ROTATION UNTIL THE NEXT LUG ON THE SHIFTING NUT IS IN ALIGNMENT WITH THE GUIDE SLOT AS INDICATED IN (FIG. 1). SLIDE THE HIGH SPEED STOP UPWARD UNTIL IT CONTACTS THE LUG AT THE THICKEST POINT ON THE SHIFTING NUT. SECURE STOP IN PLACE.

   NOTE THE SHIFTING NUT HAS THREE EQUALLY SPACED LUGS AT EACH END TO PERMIT A CLOSE SPEED CONTROL SETTING. THEREFORE, CAUTION MUST BE TAKEN TO INSURE PROPER CONTACT BETWEEN THE STOPS AND THE LUG ON THE SHIFTING NUT.

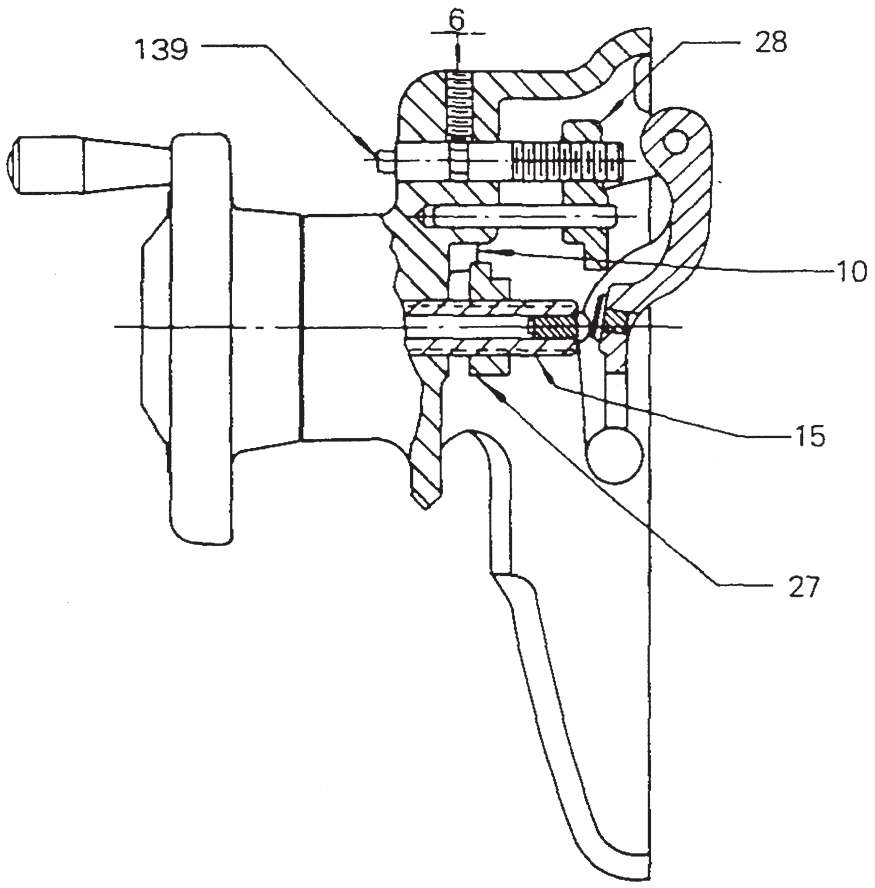
LOW SPEED SETTING

5. SHIFT MOTO DRIVE UNIT TO REQUIRED **MINIMUM OUTPUT SPEED.**
6. **IMPORTANT.** REVERSE SHIFTING SCREW ROTATION UNTIL THE NEXT LUG ON THE SHIFTING NUT IS IN ALIGNMENT WITH THE GUIDE SLOT AND DIRECTLY BELOW THE LOW SPEED STOP. SLIDE THE LOW SPEED STOP DOWNWARD UNTIL IT CONTACTS THE LUG ON THE SHIFTING NUT AT THE THICKEST POINT AND SECURE IN PLACE. USE THE SAME PRECAUTIONS AS USED IN SETTING THE HIGH SPEED STOP.
7. SHIFT UNIT THROUGH SPEED RANGE WITH CARE TO BE SURE THE STOPS ARE CONTACTING CORRECTLY AND SECURE TIGHTLY.
8. THE STOPS ARE SET CORRECTLY WHEN THE LUG ON THE SHIFTING NUT HITS THE STOP NUT BY APPROXIMATELY $\frac{1}{32}$".
9. REPLACE STOP COVER PLATE.

INSTRUCTIONS FOR SETTING MAXIMUM AND MINIMUM SPEED STOPS

FRONT HANDWHEEL CONTROL

SIZE 300



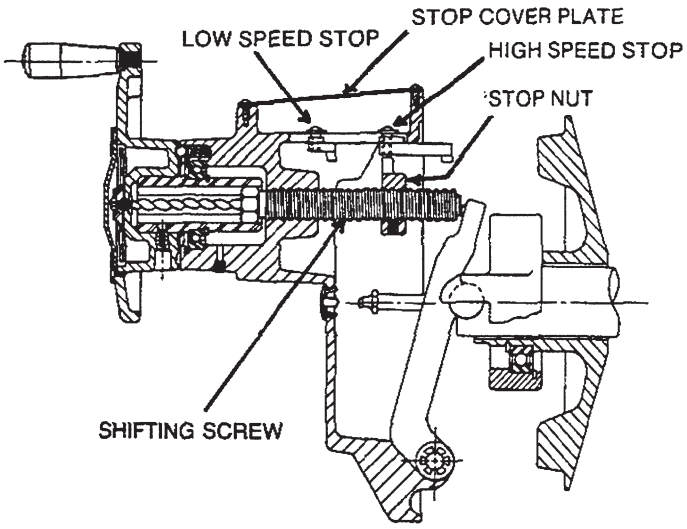
1. THE MINIMUM SPEED STOP MAY BE SET BY FIRST LOOSENING THE SET SCREW IN THE STOP NUT (27). SHIFT MOTO DRIVE TO THE DESIRED MINIMUM SPEED. TURN THE STOP NUT (27) ON THE SHIFTING SCREW (15) UNTIL IT COMES IN CONTACT WITH THE BUILT IN LOW SPEED STOP (10). TIGHTEN THE SET SCREW IN THE STOP NUT (27).

   NOTE: THERE ARE TWO GROOVES IN THE SHIFTING SCREW AND THREE SET SCREW HOLES IN THE STOP NUT WHICH PERMIT SMALL POSITION CHANGES OF THE STOP NUT TO OBTAIN A MORE EXACT SPEED CONTROL SETTING.

2. TO SET THE MAXIMUM SPEED STOP LOOSEN THE SET SCREW (6) IN THE TOP OF THE CONTROL HOUSING WHICH HOLDS THE ADJUSTABLE SCREW (139) IN PLACE.

NOTE: LOOSEN SCREW ONLY ENOUGH TO ENABLE THE ADJUSTABLE SCREW TO BE TURNED. FACING THE CONTROL TURN THE ADJUSTABLE SCREW (139) CLOCKWISE AND AT THE SAME TIME SHIFT THE MOTO DRIVE UNIT TO THE DESIRED MAXIMUM SPEED. THE STOP NUT (27) ON THE SHIFTING SCREW SHOULD CONTACT THE HIGH SPEED STOP (28) AT MAXIMUM SPEED. TIGHTEN SET SCREW (6) IN POSITION.

INSTRUCTIONS FOR SETTING MAXIMUM AND MINIMUM SPEED STOPS
FRONT HANDWHEEL CONTROL
SIZE 400



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. RE-POSITION IF NECESSARY SO THAT STOP NUT IS LOCATED APPROX. 3/4 INCH FROM END OF SHIFTING SCREW
4. START MOTO DRIVE UNIT 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 THREE 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.

SIZES 500 and 600

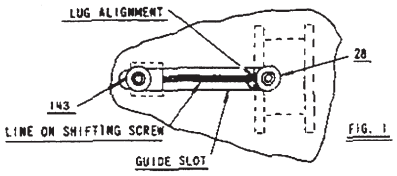


FIG. 1

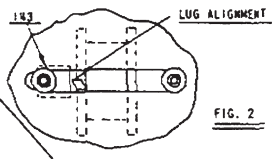


FIG. 2

1. REMOVE STOP COVER PLATE (11) FOR ACCESS TO SPEED CONTROL STOPS.
2. LOOSEN BOTH HIGH (28) AND LOW (143) SPEED STOPS. SPREAD THE STOPS TO MAXIMUM SEPARATION IN THE GUIDE SLOT. TIGHTEN THE STOPS SLIGHTLY.

HIGH SPEED SETTING

3. START MOTO DRIVE AND SHIFT UNIT SO THAT SHIFTING NUT IS LOCATED UNDER HIGH SPEED STOP SCREW AS SHOWN IN FIG. 1. ALIGN LUG ON SHIFTING NUT WITH GUIDE SLOT. USE A CHINA MARKING PENCIL AND DRAW A STRAIGHT LINE ON THE SHIFTING SCREW THREADS STARTING AT THE SHIFTING NUT LUG AND EXTENDING IT TOWARD THE LOW SPEED STOP AS FAR AS POSSIBLE. ROTATE SHIFTING SCREW AND REPEAT THIS PROCEDURE TO LOCATE THE OTHER TWO SHIFTING NUT LUGS. THESE LINES MUST BE LOCATED AS ACCURATE AS POSSIBLE IN ORDER TO CORRECTLY POSITION THE LUGS IN STEP 5.
4. SHIFT UNIT TO DESIRED **MAXIMUM OUTPUT SPEED.** CHECK AND DETERMINE IF LINES ON SHIFTING SCREW ARE VISABLE. IF NOT, SHIFT TOWARD LOW SPEED UNTIL LINES ARE VISABLE THROUGH GUIDE SLOT. EXTEND LINES PER STEP 3. AND THEN SHIFT UNIT TO DESIRED MAXIMUM SPEED.
5. **IMPORTANT** REVERSE SHIFTING SCREW ROTATION UNTIL THE NEXT LINE ON THE SHIFTING SCREW IS IN ALIGNMENT WITH THE GUIDE SLOT AS INDICATED IN FIG. 1. SLIDE THE HIGH SPEED STOP TOWARD THE CENTER OF THE SLOT UNTIL IT CONTACTS THE LUG ON THE SHIFTING NUT. SECURE STOP IN PLACE. MAKING CERTAIN STOP REMAINS IN CONTACT WITH LUG AS THE SCREW IS TIGHTENED.

NOTE: THE SHIFTING NUT HAS THREE EQUALLY SPACED LUGS TO PERMIT A CLOSE SPEED CONTROL SETTING. THEREFORE, CARE MUST BE TAKEN TO ENSURE PROPER CONTACT BETWEEN THE STOPS AND THE LUG ON THE SHIFTING NUT. IF THE ABOVE INSTRUCTIONS ARE FOLLOWED CAREFULLY THE CORRECT CONTACT SHOULD BE OBTAINED.

LOW SPEED SETTING

6. SHIFT MOTO DRIVE UNIT TO REQUIRED **MINIMUM OUTPUT SPEED.**
7. IMPORTANT. REVERSE SHIFTING SCREW ROTATION UNTIL THE NEXT LUG ON THE SHIFTING NUT OR LINE ON THE SHIFTING SCREW IS IN ALIGNMENT WITH THE GUIDE SLOT AS INDICATED IN FIG. 2. SLIDE THE LOW SPEED STOP TOWARD THE CENTER OF THE GUIDE SLOT UNTIL IT CONTACTS THE LUG ON THE SHIFTING NUT AT THE THICKEST POINT AND SECURE IN PLACE. USE THE SAME PRECAUTIONS AS USED IN SETTING THE HIGH SPEED STOP.
8. SHIFT UNIT THROUGH SPEED RANGE WITH CARE TO BE SURE THE STOPS ARE CONTACTING CORRECTLY AND SECURED TIGHTLY.
9. THE STOPS ARE SET CORRECTLY WHEN THE LUG ON THE SHIFTING NUT HITS THE STOP NUT BY APPROXIMATELY 1/32".
10. REPLACE STOP COVER PLATE.

ELECTRIC REMOTE CONTROL FOR 300 MOTO DRIVE UNITS

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 Parts List, Page 30.
2. Remove hex head cap screws and washers and 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).

NOTE: Before proceeding to step 10, 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.

10. Remove button head screw and washer from shifting shaft (15).
11. Remove cam (105).
12. Remove collar (56). This will permit removal of the shifting shaft.
13. 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 (15) into control housing (10).
2. Install the collar (56) onto shifting shaft.
3. Install cam (105).

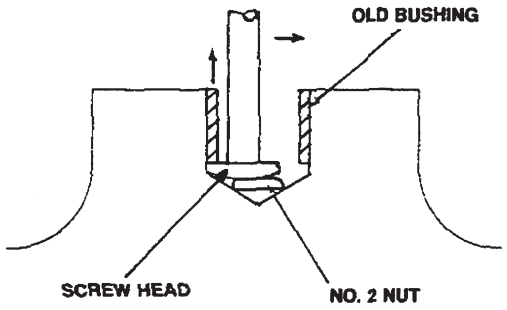
NOTE: Be sure cam is installed as indicated by markings in accordance with the note after step 9 of the disassembly instructions.

4. Secure cam with the washer and screw.
5. If gearmotor housing (E188) was previously removed, reinstall at this time and secure with the screws and washers.
6. 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 ¼" 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)



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

NOTE: Apply light coat of lubricant (NLGI No. 1) to gear teeth.

8. 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.
9. Reassemble the mounting plate assembly (E95) (complete) to the gearmotor housing (E188).
10. Install limit switch cams (E98).
11. Install yoke (23) and yoke pin (130).

NOTE: Apply light coat of lubricant (NLGI No. 1) to cam surface.

12. Reinstall complete control assembly onto the MOTO DRIVE unit.
13. Adjust limit switch cams in accordance with speed limit switch adjustment instructions.
14. 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 CONTROL 300 SIZE ONLY

Refer to Parts List on Page 30.

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.

HEAVY DUTY ERC WITH MASTER MOTOR FOR 400-600K MOTO DRIVE INSTRUCTIONS FOR ADJUSTING FRICTION CLUTCH

Refer to parts breakdowns on pages 31 & 32

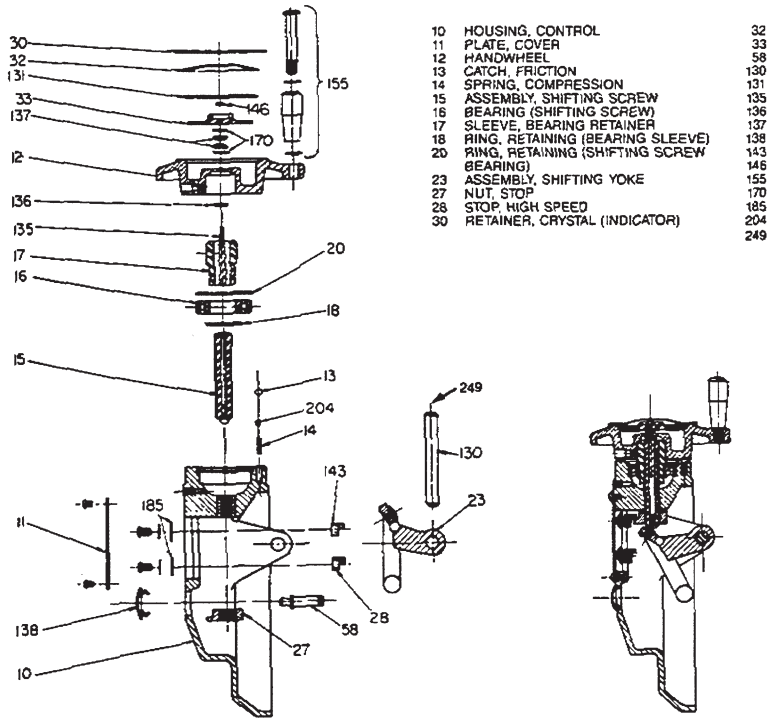
To adjust friction clutch:

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 ¼ 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.

PARTS LIST — FOR SIZES 300 and 400 REEVES VARI-SPEED MOTO DRIVE UNITS

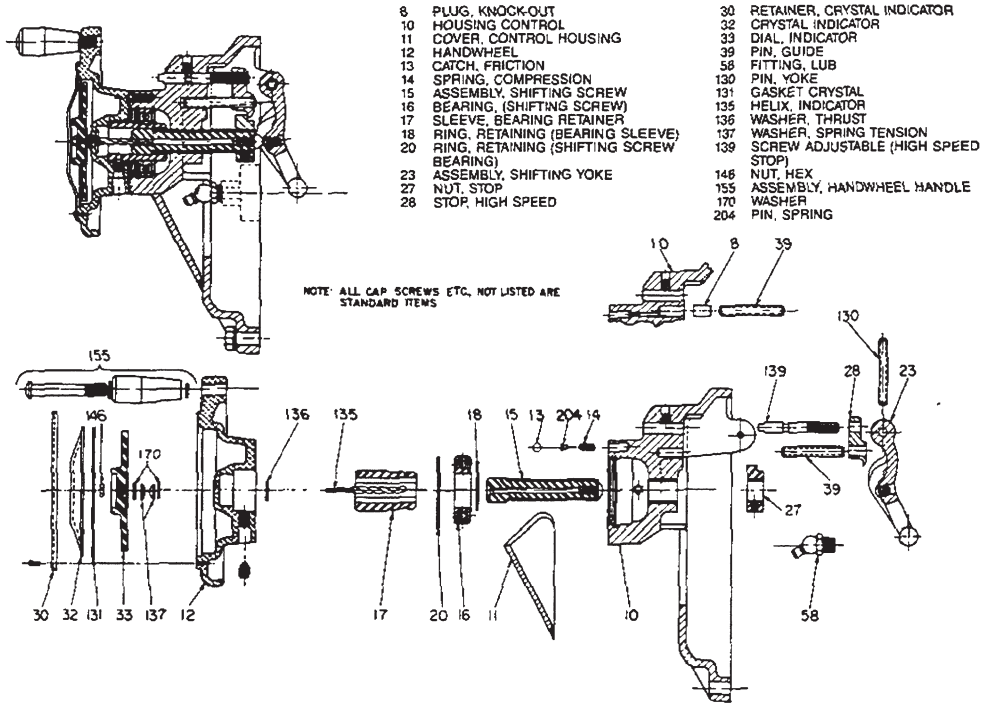
Standard Handwheel Control and Indicator



10	HOUSING, CONTROL	32	CRYSTAL, INDICATOR
11	PLATE, COVER	33	DIAL, INDICATOR
12	HANDWHEEL	58	FITTING, LUB
13	CATCH, FRICTION	130	PIN, YOKE
14	SPRING, COMPRESSION	131	GASKET, CRYSTAL
15	ASSEMBLY, SHIFTING SCREW	135	HELIX, INDICATOR
16	BEARING (SHIFTING SCREW)	136	WASHER, THRUST
17	SLEEVE, BEARING RETAINER	137	SPRING, TENSION WASHER
18	RING, RETAINING (BEARING SLEEVE)	138	PLUG, BUTTON
20	RING, RETAINING (SHIFTING SCREW BEARING)	143	STOP, LOW SPEED
23	ASSEMBLY, SHIFTING YOKE	146	NUT, HEX
27	NUT, STOP	155	ASSEMBLY, HANDWHEEL HANDLE
28	STOP, HIGH SPEED	170	WASHER
30	RETAINER, CRYSTAL (INDICATOR)	185	WASHER, EVERLOCK
		204	PIN, SPRING
		249	RING, CIRCULAR (400 ONLY)

SIZE 300

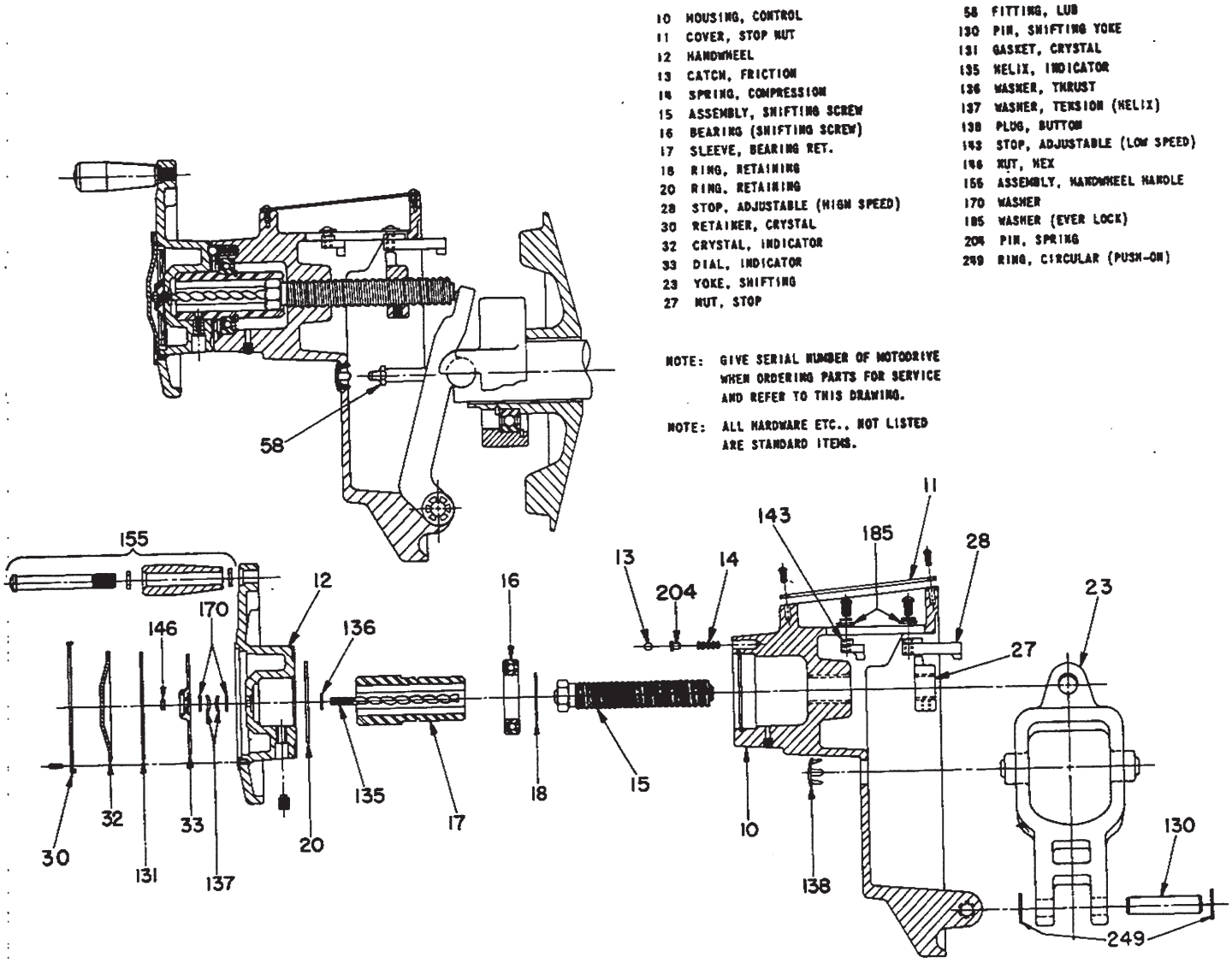
Front Handwheel Control and Indicator



8	PLUG, KNOCK-OUT	30	RETAINER, CRYSTAL INDICATOR
10	HOUSING CONTROL	32	CRYSTAL INDICATOR
11	COVER, CONTROL HOUSING	33	DIAL, INDICATOR
12	HANDWHEEL	39	PIN, GUIDE
13	CATCH, FRICTION	58	FITTING, LUB
14	SPRING, COMPRESSION	130	PIN, YOKE
15	ASSEMBLY, SHIFTING SCREW	131	GASKET CRYSTAL
16	BEARING, (SHIFTING SCREW)	135	HELIX, INDICATOR
17	SLEEVE, BEARING RETAINER	136	WASHER, THRUST
18	RING, RETAINING (BEARING SLEEVE)	137	WASHER, SPRING TENSION
20	RING, RETAINING (SHIFTING SCREW BEARING)	139	SCREW ADJUSTABLE (HIGH SPEED STOP)
23	ASSEMBLY, SHIFTING YOKE	146	NUT, HEX
27	NUT, STOP	155	ASSEMBLY, HANDWHEEL HANDLE
28	STOP, HIGH SPEED	170	WASHER
		204	PIN, SPRING

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

SIZE 400
Front Handwheel Control and Indicator



10 HOUSING, CONTROL
11 COVER, STOP NUT
12 HANDWHEEL
13 CATCH, FRICTION
14 SPRING, COMPRESSION
15 ASSEMBLY, SHIFTING SCREW
16 BEARING (SHIFTING SCREW)
17 SLEEVE, BEARING RET.
18 RING, RETAINING
20 RING, RETAINING
28 STOP, ADJUSTABLE (HIGH SPEED)
30 RETAINER, CRYSTAL
32 CRYSTAL, INDICATOR
33 DIAL, INDICATOR
23 YOKE, SHIFTING
27 NUT, STOP

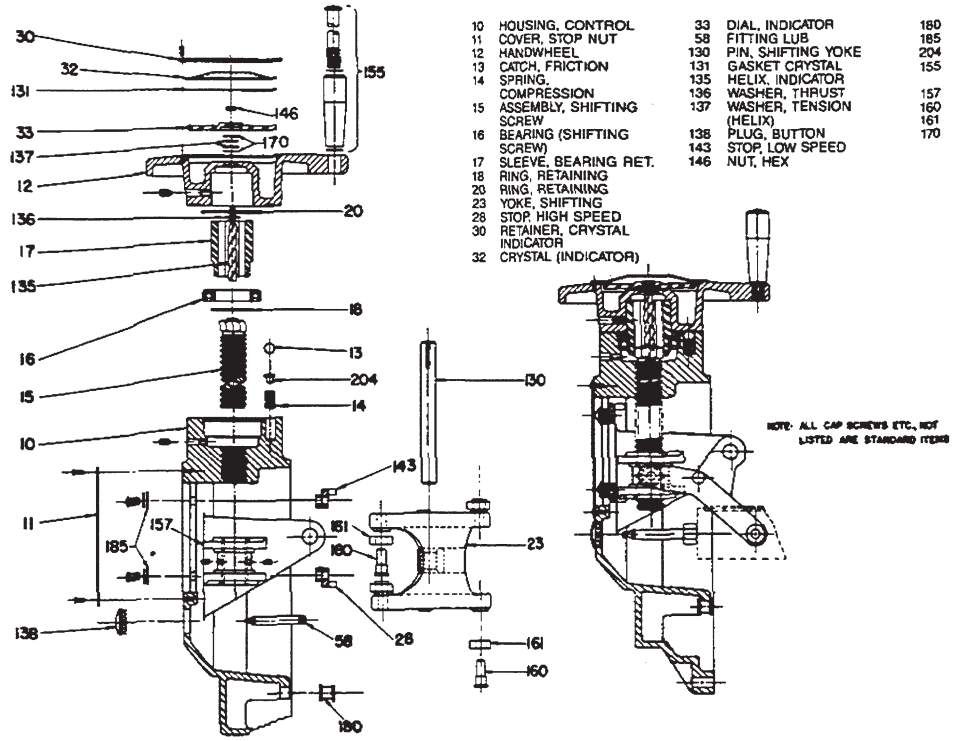
58 FITTING, LUB
130 PIN, SHIFTING YOKE
131 GASKET, CRYSTAL
135 HELIX, INDICATOR
136 WASHER, THRUST
137 WASHER, TENSION (HELIX)
138 PLUG, BUTTON
143 STOP, ADJUSTABLE (LOW SPEED)
146 NUT, HEX
155 ASSEMBLY, HANDWHEEL HANDLE
170 WASHER
185 WASHER (EVER LOCK)
204 PIN, SPRING
249 RING, CIRCULAR (PUSH-ON)

NOTE: GIVE SERIAL NUMBER OF MOTODRIVE WHEN ORDERING PARTS FOR SERVICE AND REFER TO THIS DRAWING.

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

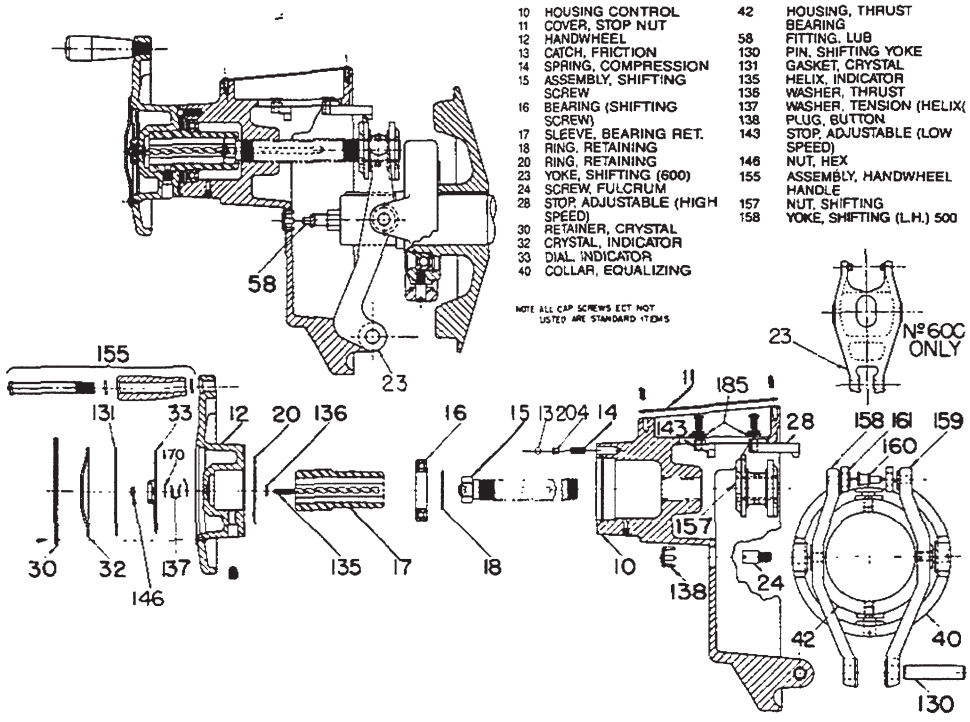
PARTS LIST — FOR SIZES 500 and 600 REEVES VARI-SPEED MOTO DRIVE UNITS

Standard Handwheel Control and Indicator



10 HOUSING, CONTROL
11 COVER, STOP NUT
12 HANDWHEEL
13 CATCH, FRICTION
14 SPRING, COMPRESSION
15 ASSEMBLY, SHIFTING SCREW
16 BEARING (SHIFTING SCREW)
17 SLEEVE, BEARING RET.
18 RING, RETAINING
20 RING, RETAINING
23 YOKE, SHIFTING
28 STOP, HIGH SPEED
30 RETAINER, CRYSTAL INDICATOR
32 CRYSTAL (INDICATOR)
33 DIAL, INDICATOR
58 FITTING LUB
130 PIN, SHIFTING YOKE
131 GASKET CRYSTAL
135 HELIX, INDICATOR
136 WASHER, THRUST
137 WASHER, TENSION (HELIX)
138 PLUG, BUTTON
143 STOP, LOW SPEED
146 NUT, HEX
180 BUSHING, NYLON
185 WASHER, EVERLOCK
204 PIN, SPRING
155 ASSEMBLY, HAND-WHEEL HANDLE
157 NUT, SHIFTING
160 PIN, FULCRUM
161 ROLLER, LINKAGE
170 WASHER

Front Handwheel Control and Indicator

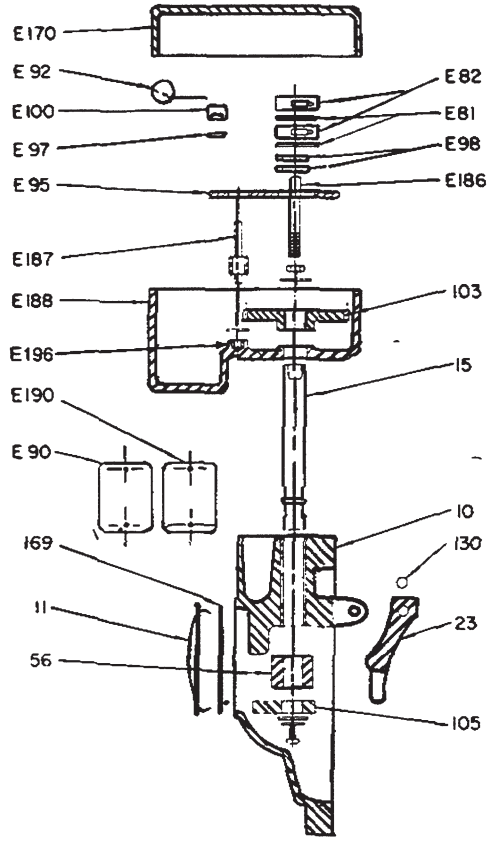


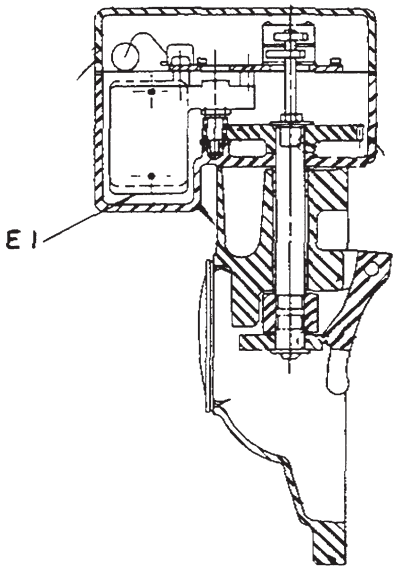
10 HOUSING CONTROL
11 COVER, STOP NUT
12 HANDWHEEL
13 CATCH, FRICTION
14 SPRING, COMPRESSION
15 ASSEMBLY, SHIFTING SCREW
16 BEARING (SHIFTING SCREW)
17 SLEEVE, BEARING RET.
18 RING, RETAINING
20 RING, RETAINING
23 YOKE, SHIFTING (600)
24 SCREW, FULCRUM
28 STOP, ADJUSTABLE (HIGH SPEED)
30 RETAINER, CRYSTAL
32 CRYSTAL, INDICATOR
33 DIAL, INDICATOR
40 COLLAR, EQUALIZING
42 HOUSING, THRUST BEARING
58 FITTING, LUB
130 PIN, SHIFTING YOKE
131 GASKET, CRYSTAL
135 HELIX, INDICATOR
136 WASHER, THRUST
137 WASHER, TENSION (HELIX(
138 PLUG, BUTTON
143 STOP, ADJUSTABLE (LOW SPEED)
146 NUT, HEX
155 ASSEMBLY, HANDWHEEL HANDLE
157 NUT, SHIFTING
158 YOKE, SHIFTING (L.H.) 500
159 YOKE, SHIFTING (R.H.) 500
160 PIN, FULCRUM
161 ROLLER, LINKAGE
170 WASHER
185 WASHER (EVER LOCK)
204 PIN, SPRING

NOTE ALL CAP SCREWS ECT 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 SIZE 300 ERC





E 1 MOTOR
10 HOUSING, CONTROL
11 COVER, STOP NUT
15 SHAFT, SHIFTING
23 YOKE, SHIFTING
56 COLLAR, SHAFT
E81 INSULATOR
E82 SWITCH, LIMIT
E90 COVER, CONNECTION
E92 CAPACITOR, MOTOR
E95 PLATE, MOUNTING
E97 MARKER, STRIP
E98 CAM, LIMIT SWITCH
E100 BLOCK, TERMINAL
103 GEAR, SHIFTING
105 CAM, SHIFTING
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

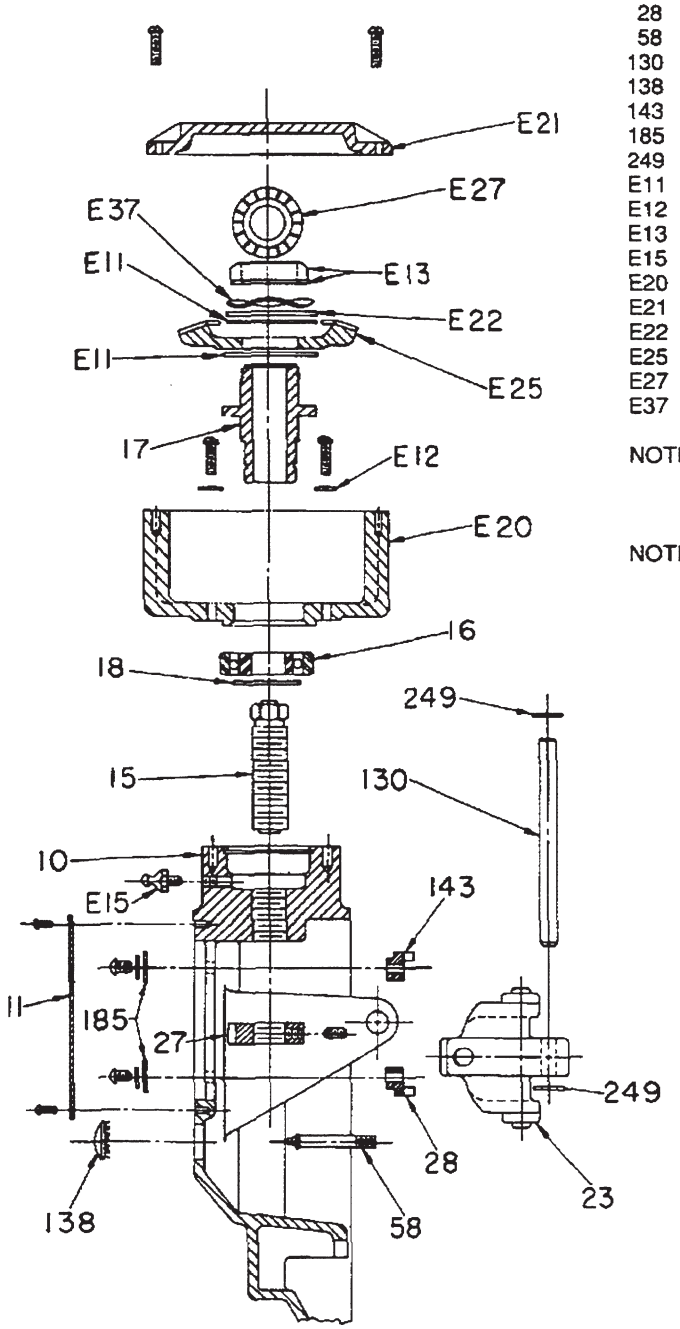
NOTE: GIVE IDENTIFICATION NUMBER & SIZE WHEN ORDERING PARTS FOR SERVICE AND REFER TO THIS DRAWING.

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

ERC FOR 300 MOTO DRIVE

PARTS LIST FOR ELECTRIC REMOTE CONTROL FOR REEVES® MOTO DRIVE® SIZE 400

(WITH EXPLOSION PROOF 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
58	FITTING, LUB
130	PIN, YOKE
138	PLUG, BUTTON
143	STOP, LOW SPEED
185	WASHER, EVERLOCK
249	RING, CIRCULAR (PUSH-ON)
E11	DISC, FRICTION
E12	SPRING, TENSION WASHER
E13	NUT & WASHER, LOCK
E15	FITTING, LUB
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.

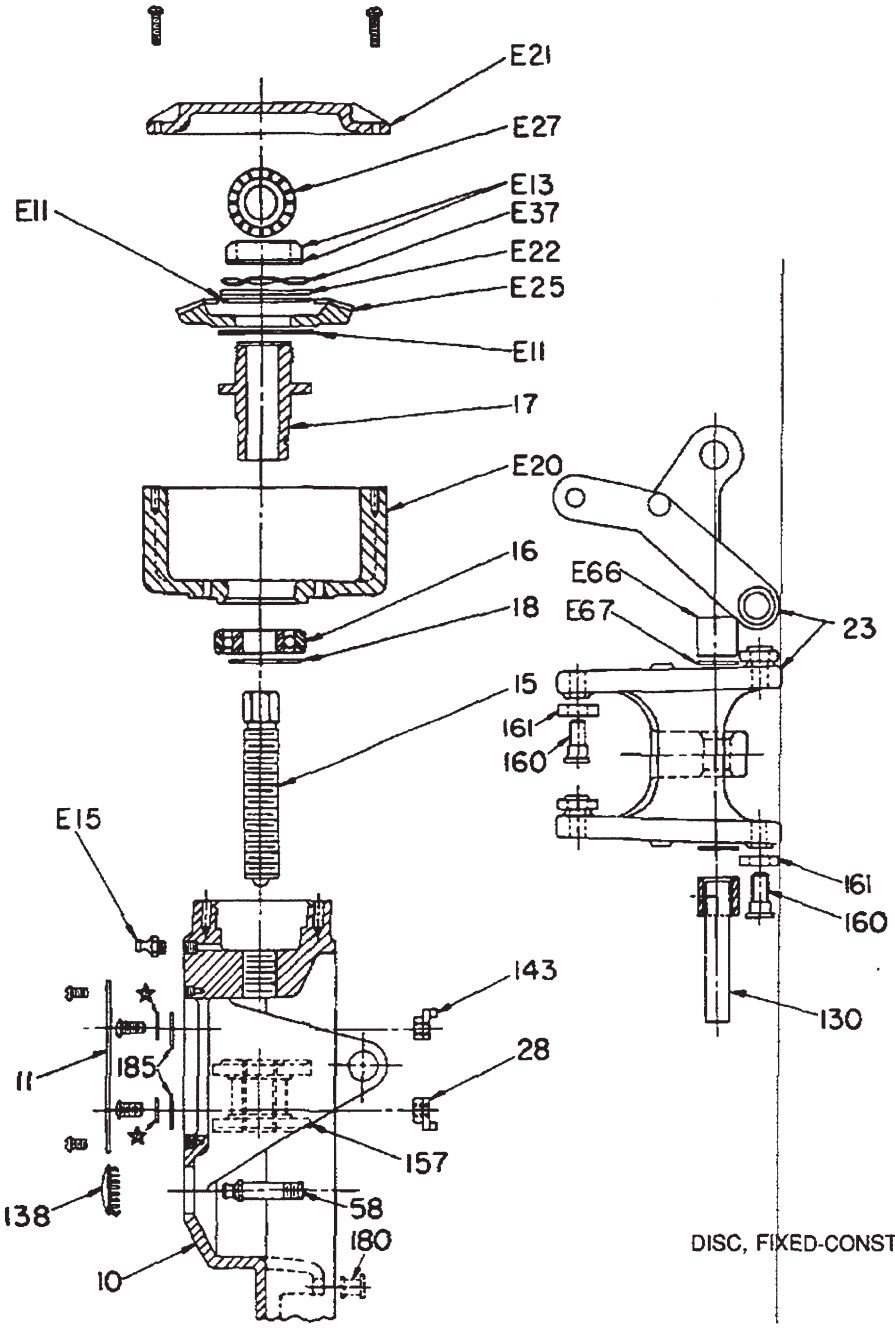
When ordering MOTO DRIVE replacement parts refer to this bulletin number and give serial number, assembly number, and unit size number.

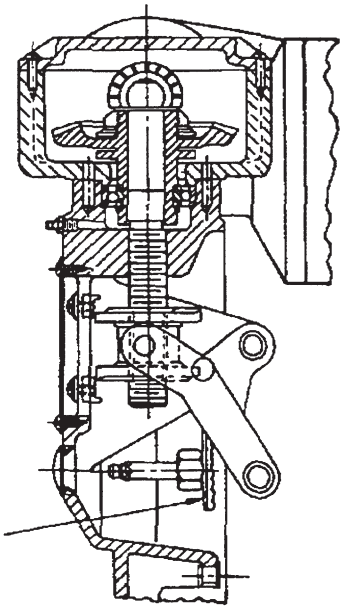
PARTS LIST FOR ELECTRIC REMOTE CONTROL FOR 500 & 600 MOTO DRIVE

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

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

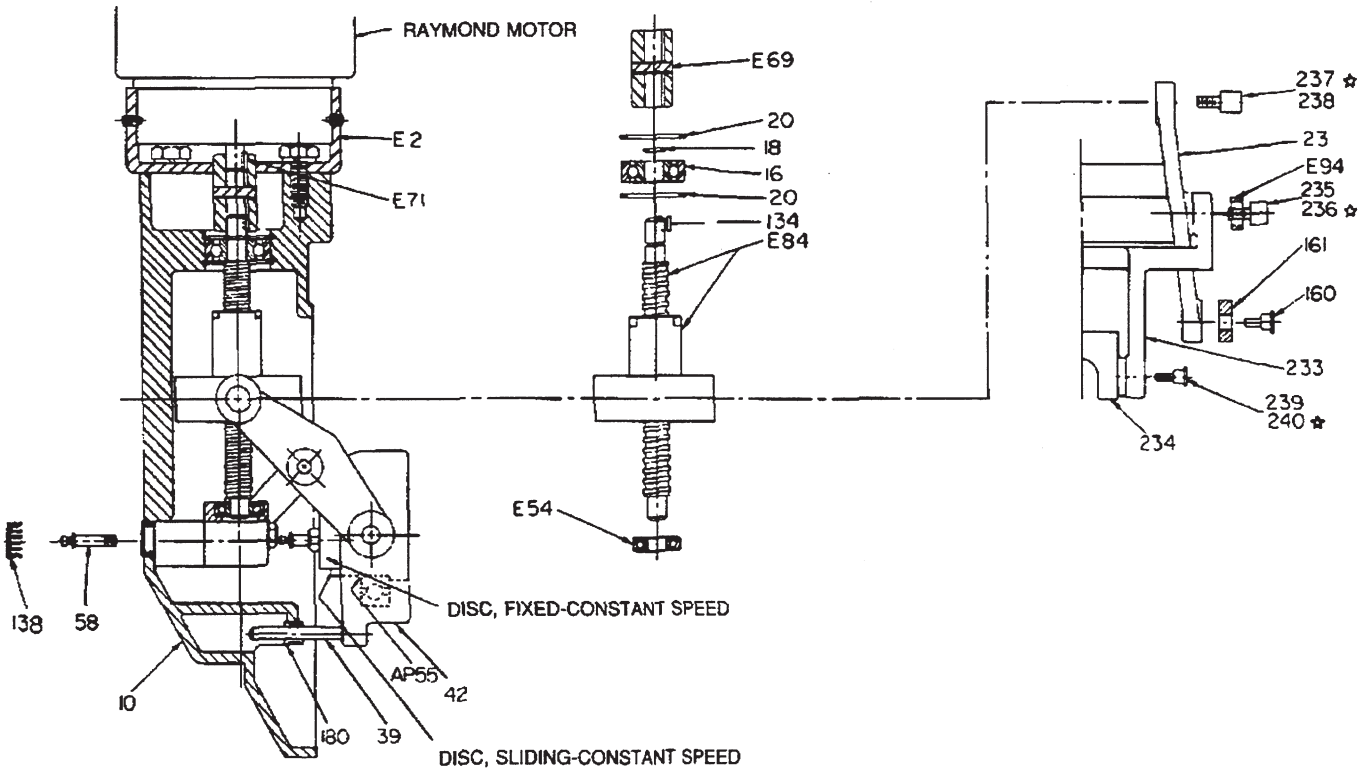
10	HOUSING, CONTROL
11	COVER, STOP NUT
15	SCREW, SHIFTING
16	BEARING, HUB
17	HUB, CLUTCH-FRICTION
18	RING, RETAINING
23	YOKE, SHIFTING (ASSEMBLY)
28	STOP, HIGH SPEED
58	FITTING, LUB
130	PIN, YOKE
138	PLUG, BUTTON
143	STOP, LOW SPEED
157	NUT, SHIFTING
160	PIN, FULCRUM
161	ROLLER, LINKAGE
180	BUSHING, NYLON
185	WASHER (EVERLOCK)
E11	DISC, FRICTION
E13	NUT & WASHER, LOCK
E15	FITTING, LUB
E20	BRACKET, MOTOR
E21	COVER, GEAR
E22	PLATE, PRESSURE
E25	GEAR, BEVEL
E27	PINION, BEVEL
E37	SPRING, TENSION WASHER
E66	RETAINER, YOKE
E67	WASHER, NYLON





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

PARTS LIST FOR ELECTRIC REMOTE CONTROL (BALL SCREW) WITH RAYMOND MOTOR FOR 400-600 MOTO DRIVE



10	HOUSING, CONTROL	160	PIN, FULCRUM	238	PIN, FULCRUM L.H.
*16	BEARING, HOUSING	161	ROLLER, LINKAGE	239	PIN, FULCRUM, R.H.
18	RING, RETAINING (EXTERNAL)	180	BUSHING, NYLON	240	PIN, FULCRUM L.H.
20	RING, RETAINING (INTERNAL)	232	LINK, SHIFTING	E2	BRACKET, MOTOR
23	YOKE, SHIFTING	233	YOKE, RETAINING	*E54	BEARING, SHIFT. SCREW
39	ROD, GUIDE	234	BRACKET, YOKE	E69	COUPLING
*42	HOUSING, THRUST BRG.	235	PIN, FULCRUM R.H.	E71	KEY, MOTOR
58	FITTING, LUB	236	PIN, FULCRUM L.H.	*E94	BEARING, NEEDLE
134	KEY, SHIFTING SCREW	237	PIN, FULCRUM R.H.	AP56	RING, RETAINING
138	PLUG, BUTTON				

☆NOTE: PARTS NOT SHOWN

* RECOMMENDED SPARE PARTS

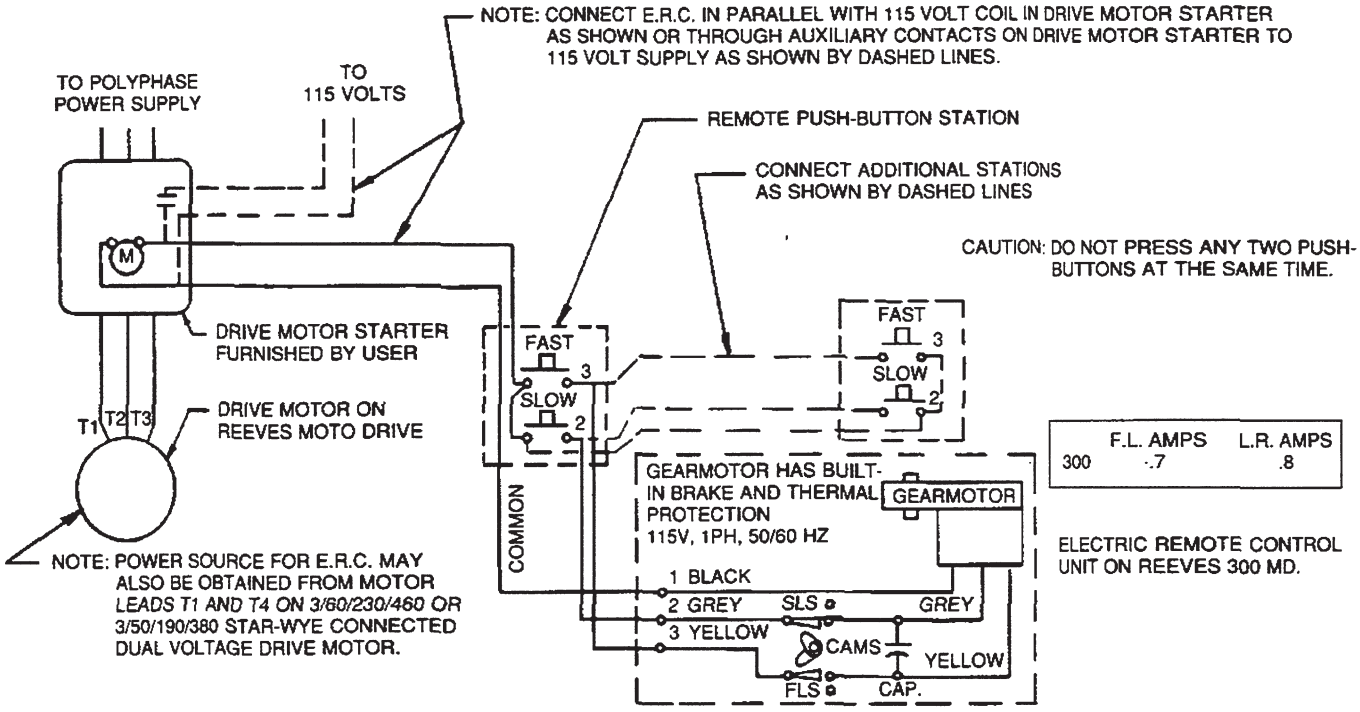
GIVE SERIAL NUMBER OF MOTO DRIVE WHEN ORDERING REPLACEMENT PARTS AND REFER TO THIS DRAWING NUMBER.

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

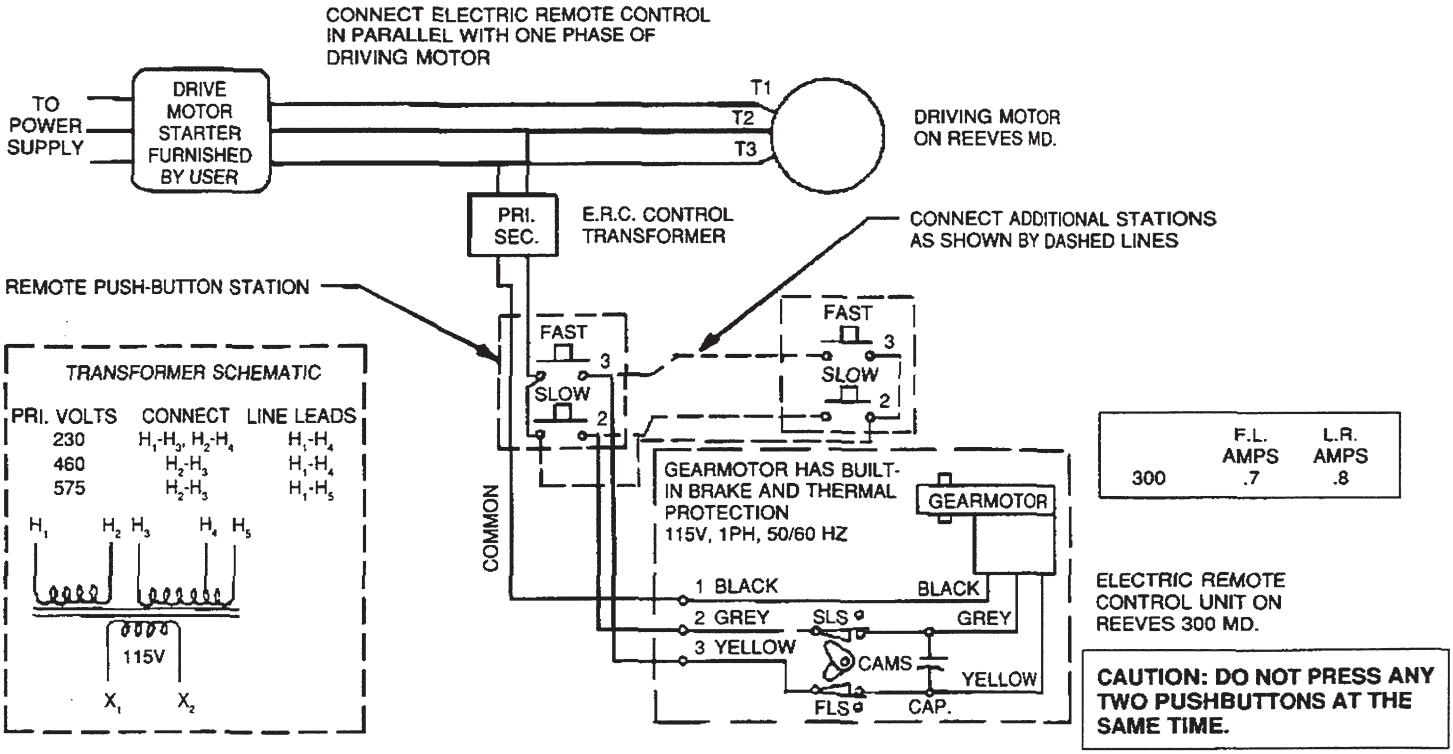
When ordering MOTO DRIVE replacement parts refer to this bulletin number and give serial number, assembly number, and unit size number.

ERC WIRING DIAGRAMS

Size 300 ERC

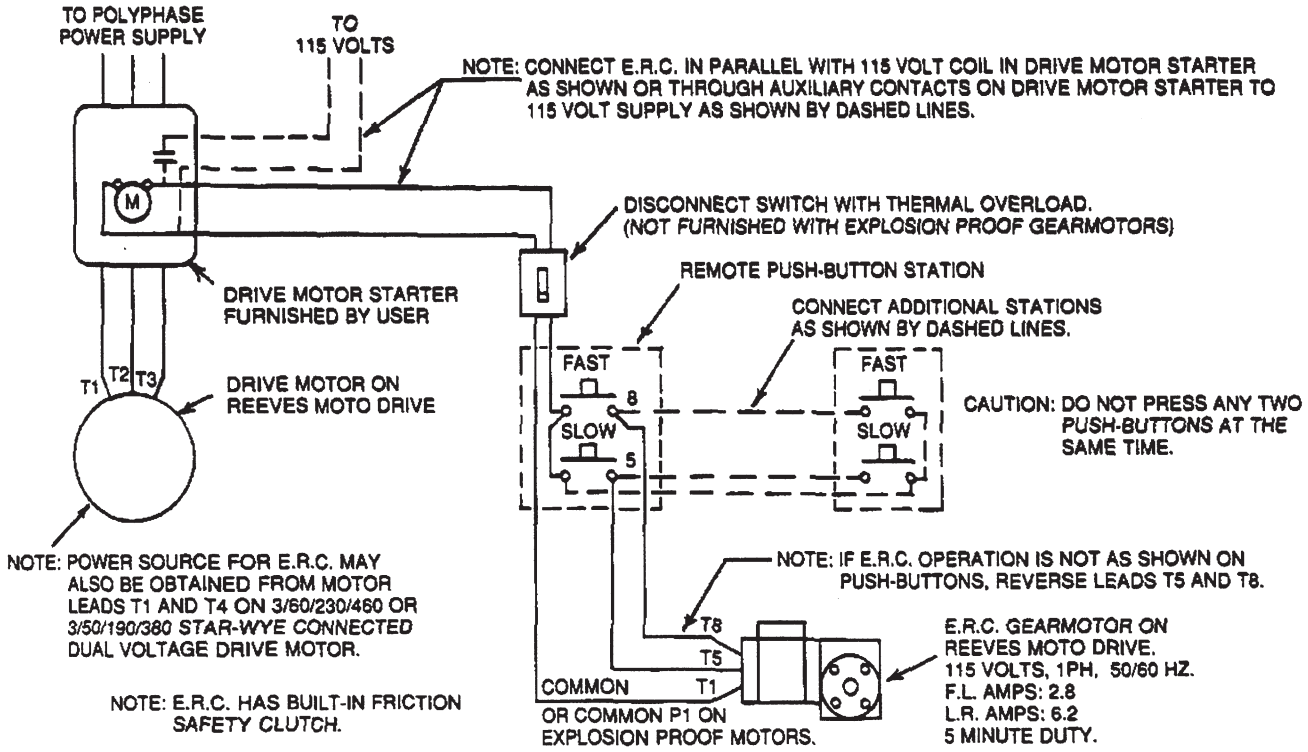


Size 300 ERC with Transformer

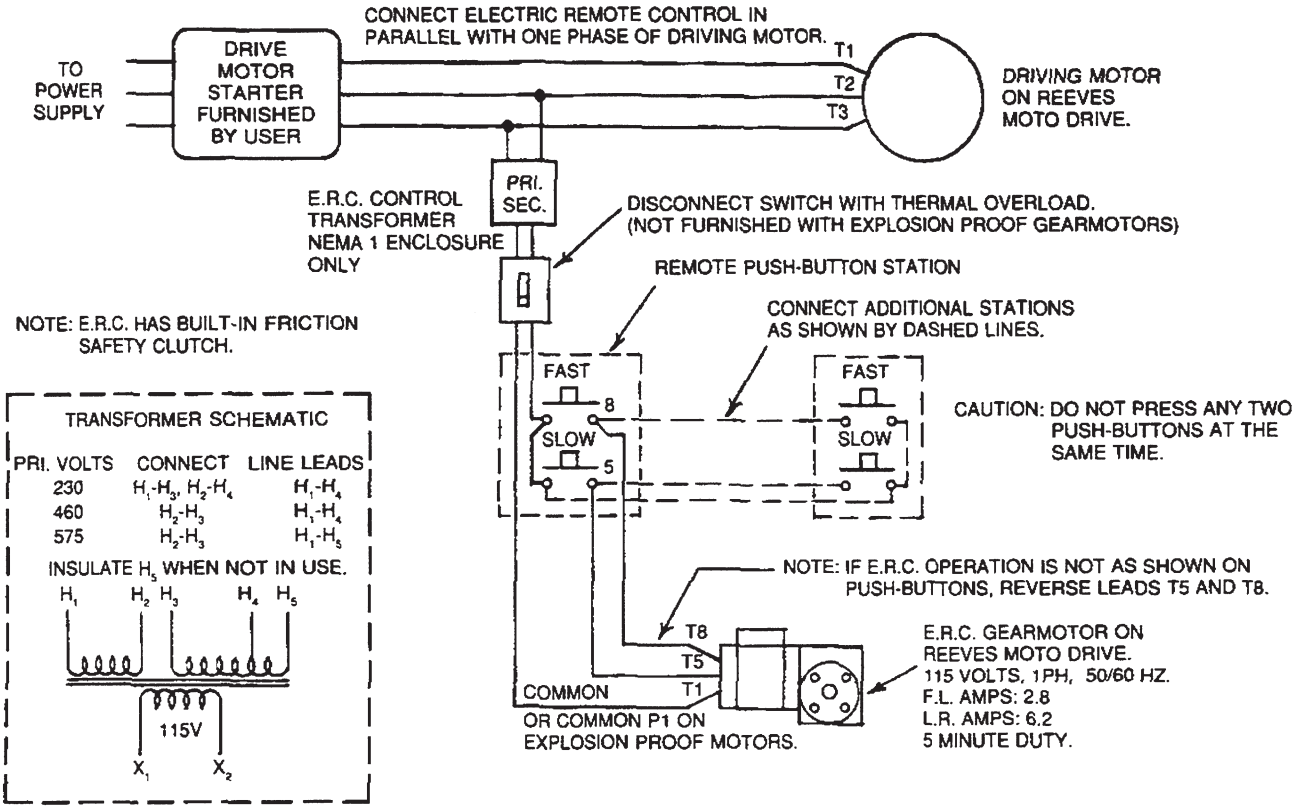


ERC WIRING DIAGRAMS

Size 400-600 ERC with MASTER Motor

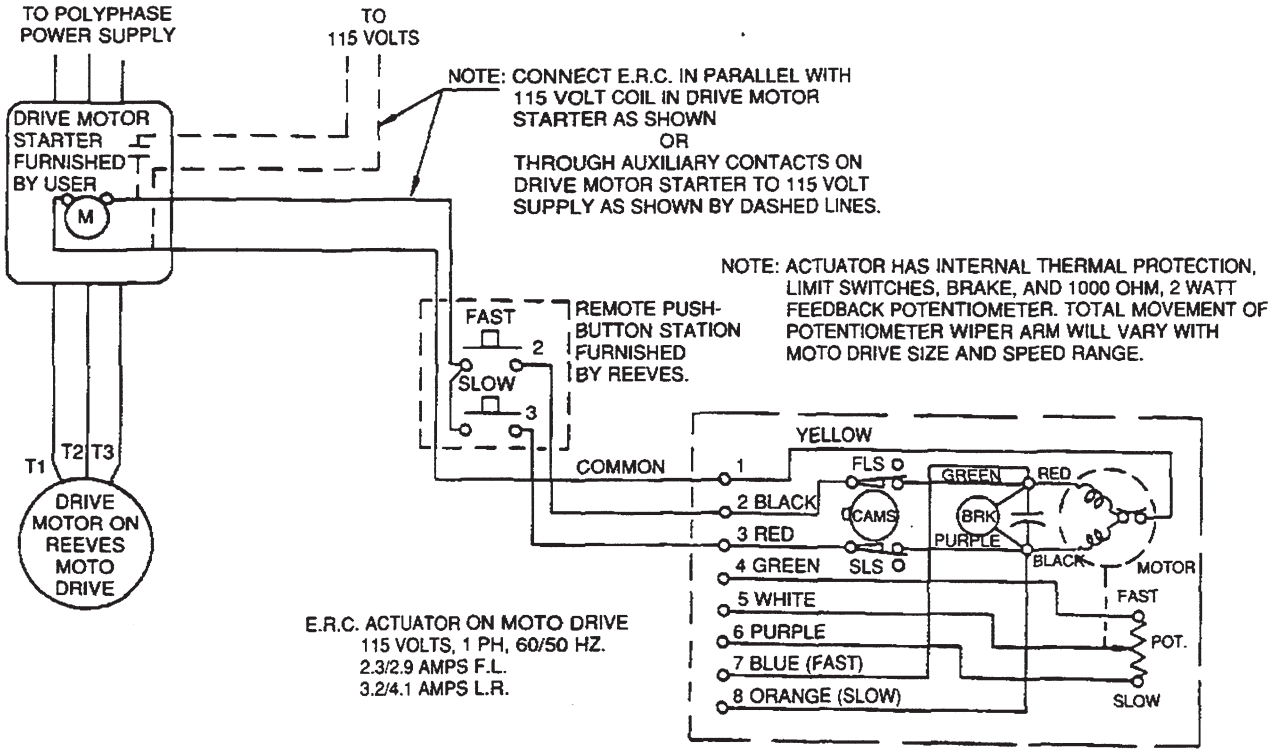


Size 400-600 ERC with MASTER Motor and Transformer

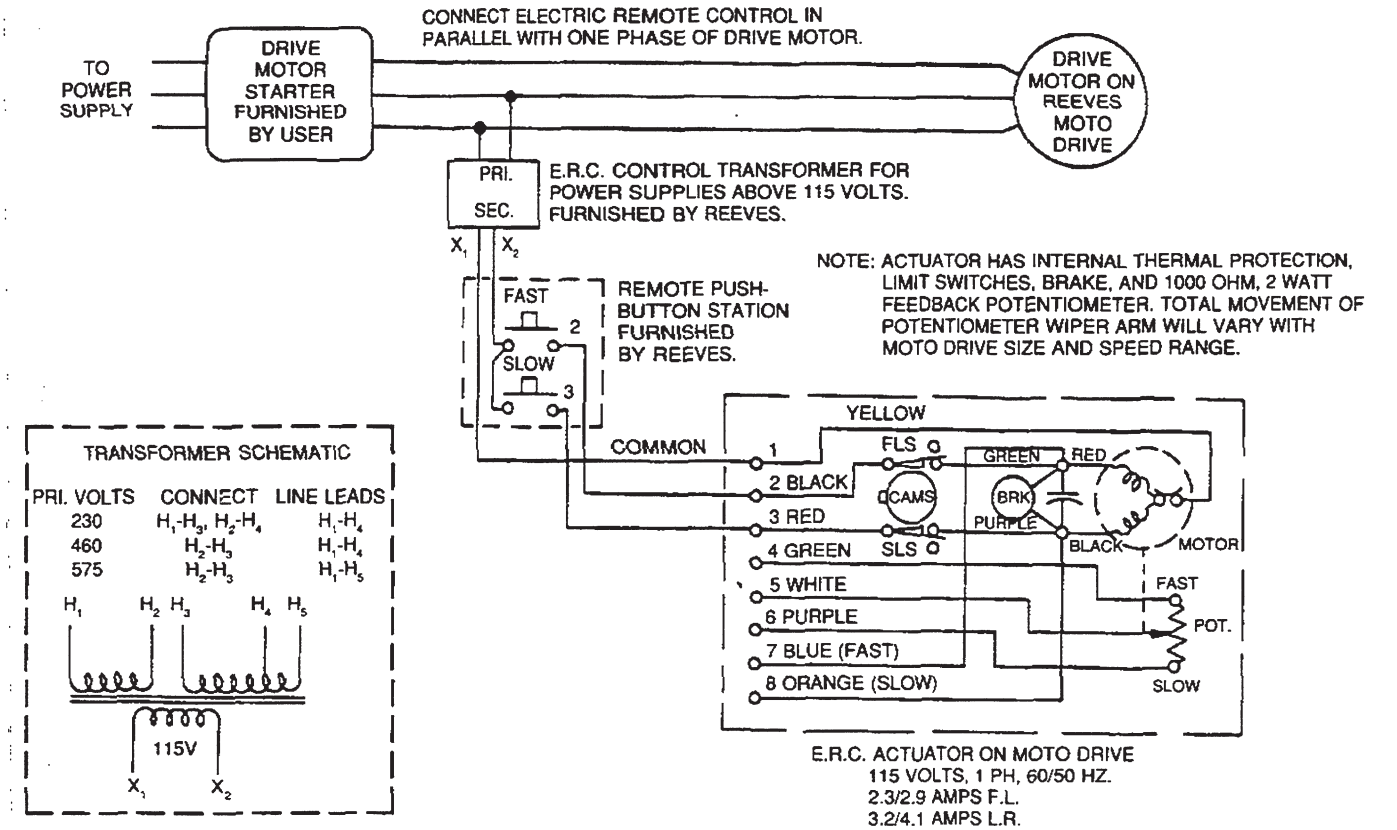


ERC WIRING DIAGRAMS

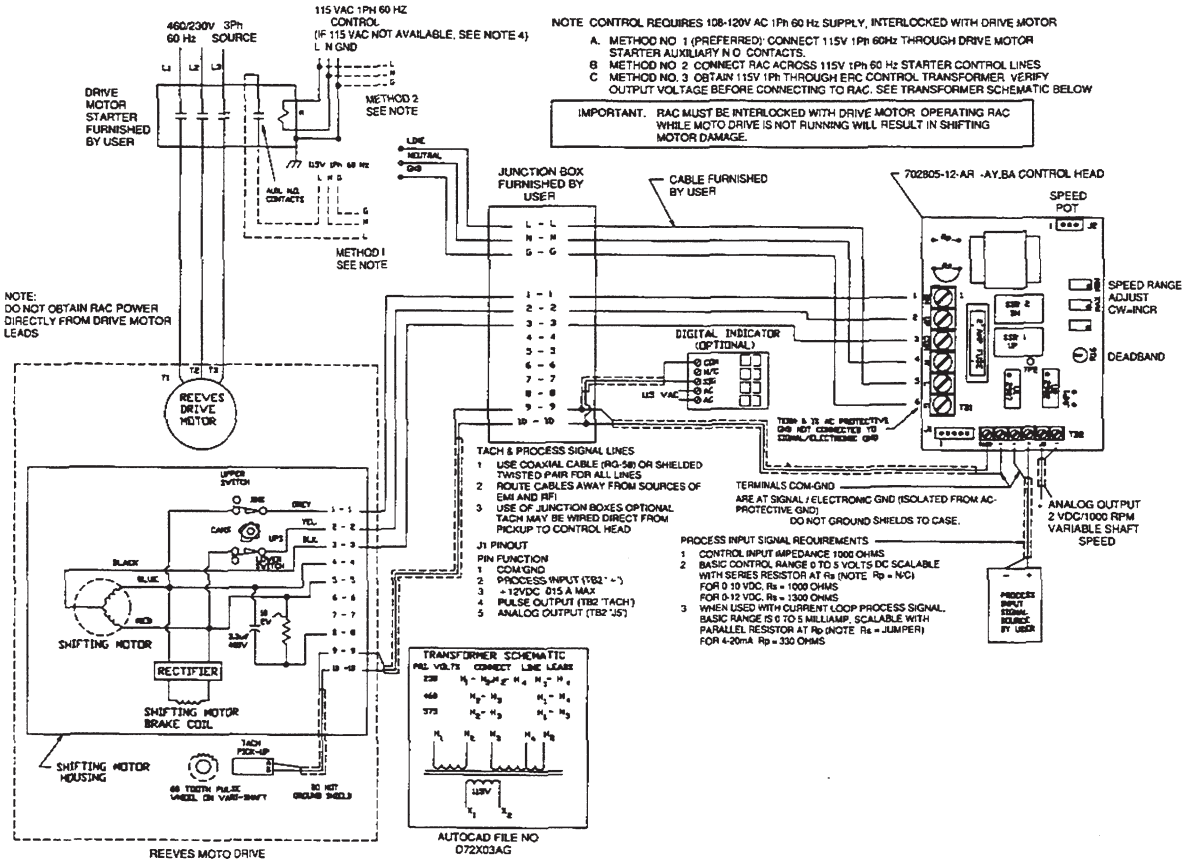
Size 400 thru 600 Ball Screw ERC with Raymond Actuator



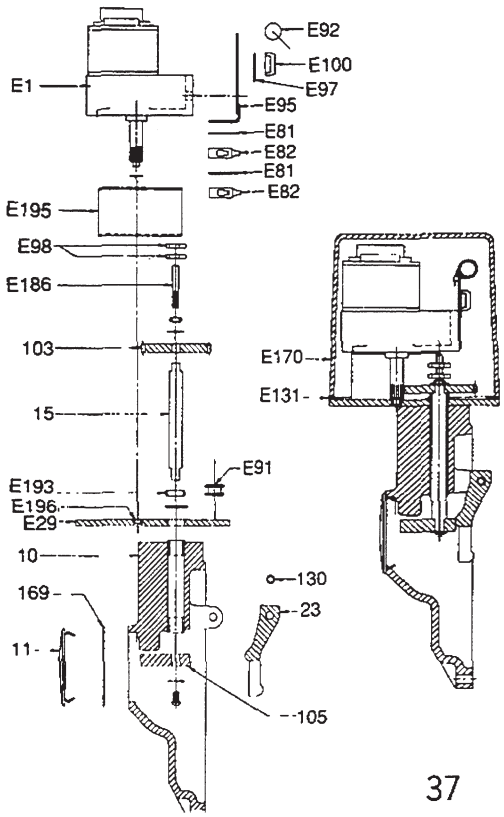
Size 400 thru 600 Ball Screw ERC with Raymond Actuator and Transformer



SIZE 300 RAC CONTROL SYSTEM WIRING DIAGRAM



PARTS LIST FOR 300 MOTO DRIVE® RAC SHIFTING MOTOR

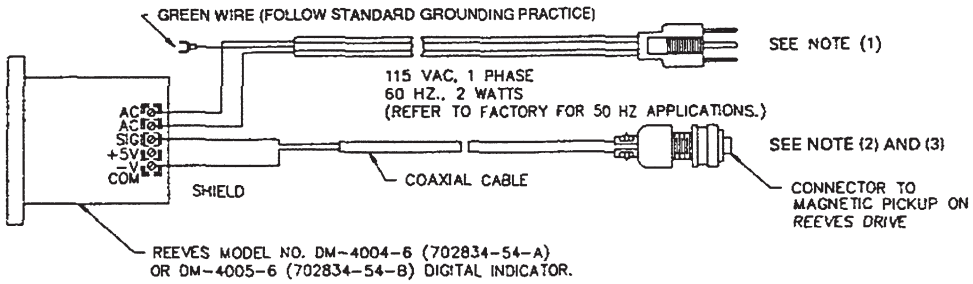


E1	MOTOR
10	HOUSING, CONTROL
11	COVER, STOP NUT
15	SHAFT, SHIFTING
23	YOKE, SHIFTING
E29	PLATE, BASE
E81	INSULATOR
E82	SWITCH, LIMIT
E92	CAPACITOR, MOTOR
E95	PLATE, MOUNTING
E97	STRIP, MARKER
E98	CAM, LIMIT SWITCH
E100	BLOCK, TERMINAL
103	GEAR, SHIFTING
105	CAM, SHIFTING
130	PIN, YOKE
E131	GASKET, COVER
169	GASKET, COVER, STOP NUT
E170	COVER, GEAR
E186	SHAFT, CAM
E193	SPACER, MOTOR
E195	PLATE, MOUNTING MOTOR
E196	BUSHING, PINION PILOT
E91	GROMMET, RUBBER

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

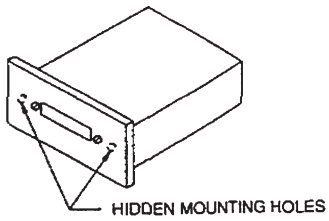
NOTE: ALL HARDWARE, ETC. NOT LISTED ARE STANDARD ITEMS.

DIGITAL INDICATOR CONNECTION DIAGRAM



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.