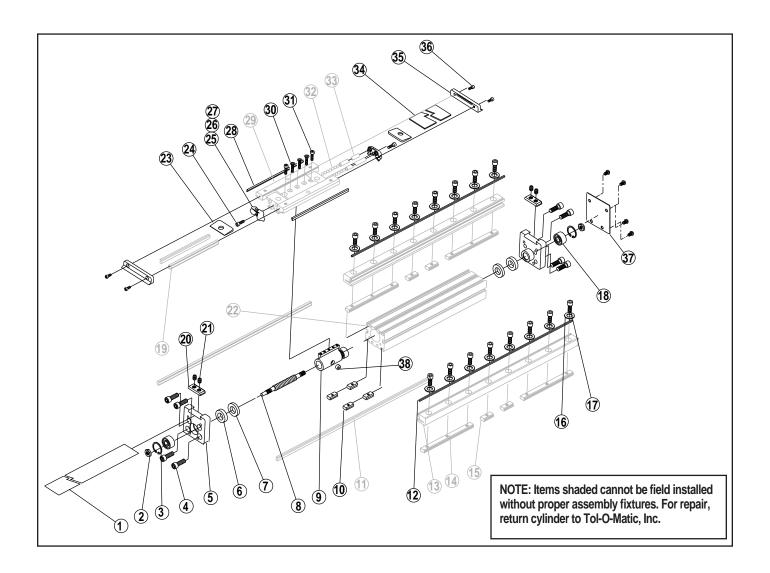


| 0 | | | | | | B3S | 510 | | | M3S10 | | | | | | | | | | В | 3 S 1 | 0 | | | M3S | 510 | |
|---|---------------|-----------|---------------------------------|---------|----------|---------|---------|----------|---------|---------|---------|---------|----------|---|------|-----------|-----------------|---------|----------|---------|--------------|----------|---------|---------|---------|---------|----------|
| 1111 3410-1239 Dust Band 1 | Parts Listing | | | B3SBN08 | B3SBNL08 | B3SSN01 | B3SSN02 | B3SSNA02 | B3SSN05 | M3SSN25 | M3SSN12 | M3SBN02 | M3SBNL02 | | | | | B3SBN08 | B3SBNL08 | B3SSN01 | B3SSN02 | B3SSNA02 | B3SSN05 | M3SSN25 | M3SSN12 | M3SBN02 | M3SBNL02 |
| 1** 3410-1239 Dust Band 1 | Item | Part No. | Description | | | | | | | | | | | Г | ltem | | | | | | | | | | | | |
| 2 0910-1482 Lock Nut 2 | 1*† | | | 1 | 1 | 1 | 1 | - | 1 | 1 | 1 | 1 | 1 | | | | | - | - | 1 | - | - | - | - | - | - | - |
| 2 03/3 10 <t< td=""><td><u> </u></td><td>3410-1262</td><td>Dust Band</td><td>-</td><td>-</td><td>-</td><td>-</td><td>1</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td></td><td></td><td></td><td></td><td>-</td><td>-</td><td>-</td><td>-</td><td>1</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></t<> | <u> </u> | 3410-1262 | Dust Band | - | - | - | - | 1 | - | - | - | - | - | | | | | - | - | - | - | 1 | - | - | - | - | - |
| 3 3410-1207 Snap Ring 2 | 2 | 0910-1482 | Lock Nut | 2 | 2 | 2 | 2 | 2 | 2 | - | - | - | - | | | | | 1 | 1 | - | - | - | - | - | - | - | - |
| 4 1024-7711 SHCS 8 8 8 7 - <t< td=""><td></td><td>4510-1052</td><td>Lock Nut</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>2</td><td>2</td><td>2</td><td>2</td><td></td><td></td><td></td><td></td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>1</td><td>-</td><td>-</td></t<> | | 4510-1052 | Lock Nut | - | - | - | - | - | - | 2 | 2 | 2 | 2 | | | | | - | - | - | - | - | - | - | 1 | - | - |
| 4 1024-7711 SHCS 8 <t< td=""><td>3</td><td>3410-1207</td><td>Snap Ring</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td></td><td></td><td></td><td></td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>1</td><td>-</td><td>-</td><td>-</td></t<> | 3 | 3410-1207 | Snap Ring | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | | | | - | - | - | - | - | - | 1 | - | - | - |
| 10:10:10:00 Machined Head 2 <td>4</td> <td>1024-7711</td> <td></td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> <td></td> <td></td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>1</td> <td>1</td> | 4 | 1024-7711 | | 8 | 8 | 8 | 8 | | | - | - | - | - | | | | | - | - | - | - | - | - | - | - | 1 | 1 |
| 0 0 10 12 | | 4510-1040 | SHCS | - | - | - | - | - | - | 8 | 8 | 8 | 8 | | 10 | | | 4 | 4 | 4 | 4 | 4 | 4 | - | - | - | - |
| 6 3410-1209 Spacer 1 1 1 2 1 | 5 | 3410-1200 | Machined Head | 2 | 2 | 2 | 2 | 2 | 2 | - | - | - | - | | | | | - | - | - | - | - | - | _ | | | 4 |
| 3410-1208 Spacer - 1 1 - 1 1 - 1 1 - 1 - 1 1 - 1 1 - 1 1 - 1 1 - 1 1 1 - 1 1 1 - 1 1 1 - - 1 1 1 - 1 1 1 - - - 1 1 1 - - - - - 1 1 1 - 1 1 | | 4410-1200 | MAchined Head | - | - | - | - | - | - | 2 | 2 | 2 | 2 | | 11 | | | 2 | 2 | 2 | 2 | - | 2 | 2 | 2 | 2 | 2 |
| 3410-1208 Spacer - - 1 1 - - - - - - 2 | 6 | 3410-1209 | Spacer | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | | | | | - | - | - | - | 2 | - | - | - | - | - |
| 7 3410-1218 Bumper 2 | | 3410-1208 | | - | - | 1 | 1 | - | 1 | 1 | 1 | - | - | | 12 | | | 2 | 2 | 2 | 2 | - | 2 | 2 | 2 | 2 | 2 |
| 3410-1201 Lead Screw, 1TPI, ACME - 1 - < | 7 | | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | | | | - | - | - | - | 2 | - | - | - | - | - |
| 3410-1202 Lead Screw, 1TPI, ACME - < | 8* | | Lead Screw, 8TPI, Ball | 1 | 1 | - | - | - | - | - | - | - | - | | 13 | | | 2 | 2 | 2 | 2 | - | 2 | 2 | 2 | 2 | 2 |
| 3410-1203 Lead Screw, 2TPI, ACME - < | | | | - | - | 1 | - | - | - | - | - | - | - | | | | | - | - | - | - | 2 | - | - | - | - | - |
| 3410-1204 Lead Screw, 5TPI, ACME - < | | | | - | - | - | 1 | - | - | - | - | - | - | | 14 | | | A/R | A/R | A/R | A/R | A/R | A/R | - | - | - | - |
| 3410-1204 Lead Screw, 5TPI, ACME - < | | 3410-1228 | Lead Screw, 2TPI, ACME, Anti-BL | ╞ | - | - | 1 | - | - | - | - | - | - | | | | | - | - | - | - | - | - | A/R | AR | A/R | A/R |
| 4410-1201 Lead Screw, 10mm, 2.5mm Lead - - - - 1 1 4410-1202 Lead Screw, 12mm, 12mm Lead - - - - 1 1 4410-1203 Lead Screw, 12mm, 25mm Lead - - - - 1 - <td></td> <td></td> <td></td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>1</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td></td> <td>15</td> <td></td> <td></td> <td>A/R</td> <td>A/R</td> <td>A/R</td> <td>A/R</td> <td>A/R</td> <td>A/R</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> | | | | - | - | - | - | - | 1 | - | - | - | - | | 15 | | | A/R | A/R | A/R | A/R | A/R | A/R | - | - | - | - |
| 4410-1202 Lead Screw, 12mm, 12mm Lead - - - - 1 - - 1 - - - 1 - - - 1 - - - 1 - - - 1 - - - - 1 - - - 1 - | | | | - | - | - | - | - | - | - | - | 1 | 1 | | | | | - | - | - | - | - | - | _ | | | |
| 4410-1203 Lead Screw, 12mm, 25mm Lead - - - 1 - - - 17 3410-1012 Socket Head Cap Screw AR | | | | - | - | - | - | - | - | - | 1 | - | - | | | | | | | | | | | AR | A/R | A/R | A/R |
| 9 3410-9062 Nut Bracket Assy, 2TPI 1 4410-1077 Socket Head Cap Screw AR AR AR AR | | | | - | - | - | - | - | - | 1 | - | - | - | | 17 | | | A/R | A/R | A/R | A/R | A/R | A/R | - | - | - | - |
| | 9 | | | - | - | - | 1 | - | - | - | - | - | - | | | | | | - | - | - | - | | | AR | A/R | A/R |
| | | | | - | - | - | - | - | 1 | - | - | - | - | | 18 | 4510-1060 | Contact Bearing | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

* Specify stroke when ordering. ¹ Available as Ball Nut/Lead Screw sub-assembly. Ball nut matched to lead screw.

[†] Available in Repair Kit No. 3410-9049



| | | | | | B3S | 510 | | | Γ | M3 | S10 | | | | | | B3S10 | | | | | | M35 | S10 | |
|------|-----------|-----------------------|---------|----------|---------|---------|----------|---------|---------|---------|---------|----------|------|-----------|-----------------------|---------|----------|---------|---------|----------|---------|---------|---------|---------|----------|
| | | | B3SBN08 | B3SBNL08 | B3SSN01 | B3SSN02 | B3SSNA02 | B3SSN05 | M3SSN25 | M3SSN12 | M3SBN02 | M3SBNL02 | | | | B3SBN08 | B3SBNL08 | B3SSN01 | B3SSN02 | B3SSNA02 | B3SSN05 | M3SSN25 | M3SSN12 | M3SBN02 | M3SBNL02 |
| Item | Part No. | Description | | | | | | | | | | | Item | Part No. | Description | | | | | | | | | | |
| 19 | 3410-1023 | Carrier Way | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 29 | 3410-1006 | Machined Carrier | 1 | 1 | 1 | 1 | 1 | - | - | - | - | - |
| 20 | 3410-1219 | Upper Clamp | 2 | 2 | 2 | 2 | 2 | 2 | - | - | - | - | | 4410-1006 | Machined Carrier | - | - | - | - | - | - | 1 | 1 | 1 | 1 |
| | 4410-1219 | Upper Clamp | - | - | - | - | - | - | 2 | 2 | 2 | 2 | 30 | 0515-1198 | Flathead Cap Screw | 3 | 3 | 3 | 3 | 3 | 3 | - | - | - | - |
| 21 | 0801-1256 | Set Screw | 4 | 4 | 4 | 4 | 4 | 4 | - | - | - | - | | 4415-1001 | Socket Head Cap Screw | - | - | - | - | - | - | 3 | 3 | 3 | 3 |
| | 4915-1044 | Set Screw | - | - | - | - | Ι | - | 4 | 4 | 4 | 4 | 31 | 0605-1046 | Socket Head Cap Screw | 2 | 2 | 2 | 2 | 2 | 2 | - | - | - | - |
| 22 | 3410-1221 | Machined Tube | 1 | 1 | 1 | 1 | - | 1 | - | - | - | - | | 4415-1001 | Socket Head Cap Screw | - | - | - | - | - | - | 2 | 2 | 2 | 2 |
| | 3410-1222 | Machined Tube | - | - | - | - | 1 | - | - | - | - | - | 32 | 3410-1009 | Ball | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 |
| | 4410-1221 | Machined Tube | - | - | - | - | Ι | - | 1 | 1 | 1 | 1 | - 33 | 3410-1019 | Ball Return Tube | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 23 | 3410-1047 | Upper Band Ramp | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 34† | 3410-1042 | Carrier Cover | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 24 | 0610-1077 | Socket Head Cap Screw | 2 | 2 | 2 | 2 | 2 | 2 | - | - | - | - | 35† | 3410-1011 | End Cap | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | 7906-1067 | Socket Head Cap Screw | - | - | - | - | - | - | 2 | 2 | 2 | 2 | 36 | 0605-1079 | Socket Head Cap Screw | 4 | 4 | 4 | 4 | 4 | 4 | - | - | - | - |
| 25 | 3410-1014 | Ball Return | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | 4905-1005 | Socket Head Cap Screw | - | - | - | - | - | - | 4 | 4 | 4 | 4 |
| 26 | 3410-1015 | Right Ball Race | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 37 | 3410-9052 | Head End Kit | 1 | 1 | 1 | 1 | 1 | 1 | - | - | - | - |
| 27 | 3410-1032 | Left Ball Race | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | | Head End Kit | - | - | - | - | - | - | 1 | 1 | 1 | 1 |
| 28† | 3410-1025 | Wiper | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 38 | 2403-1008 | Magnet | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

GENERAL CYLINDER DISASSEMBLY INSTRUCTIONS

Begin with a clean work area. Be sure all replacement parts are present and have no visual damage or defects. The following tools are recommended for proper disassembly and assembly (exact wrench sizes will vary depending upon cylinder size).

- Tin Snips
- Allen Wrench Set
- Open-end or Box Wrench Set and/or Sockets
- Retaining Ring Pliers
- Remove cylinder heads. Remove Head End Kit (37) from "dead" end of cylinder. Loosen Set Screws (21) and remove Upper Clamp (20). Remove SHCS (4). Unscrew Lock Nut (2) from Screw (8). Remove Head (5). Remove Contact Bearing (18) and Snap Ring (3) from Head. Repeat procedure for "live" end Head.
- Release carrier assembly. Remove Screws (36) from End Caps (35) and remove End Caps. Remove Carrier Cover (34), then remove Dust Band (1). Loosen screws (30) and (31) from Carrier (29) to release Carrier. Move Carrier assembly to the "dead" end of tube, stopping just as plastic Ball Return (25) is visible from end.

NOTE: Do NOT remove carrier (29) from Tube (22). Balls contained in rail way will fall out.

3. Remove lead screw sub-assembly. To release Nut Bracket Assy (9) from Carrier assembly, with a blunt object, push down slightly on lead screw to release Nut Bracket Assy (9) from plastic Ball Return (25). Remove lead screw sub-assembly from tube.

Ball Nut Style: Caution is required if removal of nut is necessary. Contact the factory for available parts and procedures.

Plastic Nut Style: Plastic nuts are factory pinned into the Nut Bracket and cannot be removed. If nuts are worn, a new Nut Bracket Assy must be ordered.

GENERAL CYLINDER ASSEMBLY INSTRUCTIONS 1. Install Lead Screw assembly and heads.

1. Install Lead Screw assembly and neads. Ball Nut or Plastic Nut Style: Grease Lead Screw (8) with Mobil HP. With Nut Bracket assembly (9) on Lead Screw, slide Bumper (7), Spacer (6), Head sub assembly {consisting of Head (5), Bearing (18), Retaining Ring (3)} and Lock Nut (2) onto Lead Screw "live end". Holding the Lead Screw tightly (care must be taken not to damage the lead screw threads) to prevent it from turning, tighten Lock Nut (2) to secure assembly. Slide "dead end" of Lead Screw (8) into Tube (22) until "live end" head is against face of tube. Secure "live end" Head (5) with 4 Screws (4). Slide Carrier (29) to center of Tube and secure Carrier to Nut Bracket with Screws (30 and 31). Move Carrier to "dead end" side of tube. Slide Bumper (7), Spacer (6), Head sub assembly (with bearing and retaining ring installed) and Lock Nut (2) onto Lead Screw shaft. Tighten Lock Nut (2) until Head (5) is snug to end of tube and head cannot be rotated back and forth about lead screw axis. Secure Head (5) with screws (4). Loosen screws holding "live end" head, move carrier to "live end" and retighten screws (4).

- 2. Lubricate Ballways. Before installing the top Dust Band (1), lubricate the ballways with Mobil HP grease.
- **3.** Aligning the Carrier. With the Head Bolts (4) snug, move the carrier until it reaches the internal bumper (7). Torque Head Bolts to 50-60 in-lbs (5.65-6.78 N-m). Repeat aligning procedure for the other end.
- 4. Trim and install Dust Band. Install Dust Band (1) over Carrier (29) centering it along the length of the cylinder. Slide Carrier Cover (34) into slots on top of Carrier. Apply Loctite #242 to Screws (36) and secure End Caps (35) to Carrier. With tin snips, cut ends of Dust Band (1) 1/16" in from outside edge of Head (5). Place a Upper Clamp (20) into Head slot over Dust Band. Apply Loctite #242 to Set Screws (21) and insert into Upper Clamp. Torque Set Screws to 20-30 in-lbs to secure Dust Band (1).
- Test Procedure: The torque required to rotate the Lead Screw (6) should not exceed the following limits.

MAXIMUM BREAKAWAY REQUIREMENTS:Cylinder SizeTorqueB3S10 (1")25 in-oz.Check and/or readjust unit to conform to specifica-
tion requirements. Retest.

6. Clean unit thoroughly before installing.

REVERSE PARALLEL DISASSEMBLY INSTRUCTIONS

- 1. Remove the non-bearing half Cover (14) from the Drive Case (9) by removing the four Button Head Cap Screws (1).
- Remove the Cover (2) from the Drive Case by removing the four Button Head Cap Screws (1). (The Bearing Block (4) and out board bearing (3) are attached to the cover with four BHCS (1).)
- Release the tension on the belt by loosening Socket Head Cap Screws (8) and remove the belt from the two pulleys.
- 4. Remove the Trantorque (5) from Pulley (7) and remove Pulley (7) from lead screw.
- 5. Remove Socket Head Cap Screw (12) and Jam Nuts (10) to detach motor from Drive Case (9).
- 6. If applicable, remove Adapter Plate from the motor by removing the four Flat Head Cap Screws.
- Unfasten the Drive Case (9) from the drive head of the BC3S by removing the four Socket Head Cap Screws (8). NOTE: Drive Case can be mounted in four different positions. Observe the position of the Drive Case before disassembling.

REVERSE PARALLEL ASSEMBLY INSTRUCTIONS

- Secure Drive Case (9) to the drive head of the BC3S with four Socket Head Cap Screws (8). Use Loctite #242 on the screws. NOTE: Drive Case can be mounted in four different positions. Position the Drive Case in the same position as it was prior to disassembly.
- 2. Make sure the pulley bore and the shaft are clean and completely free of oil by wiping the surfaces with a clean cloth and solvent.
- Replace the Pulley (7) onto the shaft approximately .060 in (1.5mm) from the inner wall of the Drive Case (9). Secure the Pulley (7) to lead screw with Trantorque (5). Place the outer sleeve of the Trantorque approximately in the center of the Pulley.
- 4. Torque the Trantorque (5) with a calibrated torque wrench to 125 in-lbs. (14.2 N-m).
- 5. If applicable, mount Adapter Plate to the motor. Use Loctite #242 on screws.

- Position motor into drivecase (9). Apply Loctite #242 on the threads of the screws(12). Secure the motor to the Drive Case (9) with Screws (12) and Nuts (10) provided.
- 7. Place belt (6) over actuator and motor pulleys (13).
- Secure the Bearing (3) to Lower Half Drive Case Cover (2) with four BHCS (1). Use Loctite #242 on the BHCS. Slide cover plate with bearing onto end of lead screw and tighten cover with four BHCS (1).
- 9. Position the motor within the slots provided to produce tension on the belt. Tighten Screws (12) to lock motor into place.
- 10. Mount the Drive Case Cover (14) to the Drive Case (9) with four BHCS (1). Apply Loctite #242 on the threads of the screws.

RAIL BEARING LUBRICATION

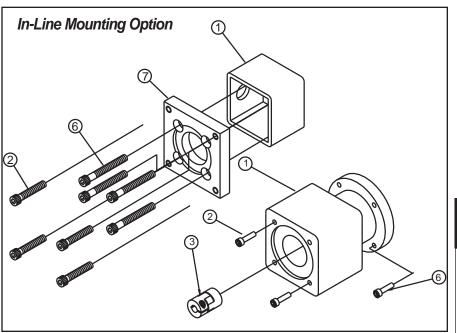
The bearing system is prelubricated at the factory with a high quality Mobil HP grease. Relubrication is recommended every .5-1 million cycles using Mobil HP grease for optimal bearing performance. To relubricate, remove Set Screws (21) and Upper Clamp (20). Lift back Dust Band (1) and apply grease directly to the stationary ball ways.

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 $\label{eq:christo-Lube} Christo-Lube \ensuremath{\$} is a registered trademark of Lubrication Technology, Inc., www.lubricationtechnology.com$

Loctite® is a registered trademark of the Loctite Corporation, www.loctite.com

Magnalube®-G is a registered trademark of the Carleton-Stuart Corporation, www.magnalube-g.com



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|-----------------------|-------|------------------|------------|------|---------------------------|------|-------------------------|-------------------|--------------|--|
| 6 | MRV23 | MRB, MRS23 | MRS, MRB34 | | MRV23 w/GH J20,21 | | MRB, MRS34 w/GH J30,31 | MRV23 w/GH J20,21 | MRB23 wGHK20 | |
| DESCRIPTION | | | | | | | | | | |
| Spacer | - | 1 | - | | _ | | _ | _ | _ | |
| MTR/ADAP — Spacer | 1 | - | | | _ | | 1 | - | _ | |
| MTR/ADAP — Spacer | - | _ | - | | - | | _ | - | _ | |
| MTR/ADAP — Spacer | - | - | - | | - | | _ | - | _ | |
| MTR/ADAP — Spacer | - | - | Ι | | 1 | | _ | 1 | 1 | |
| Spacer | - | - | 1 | | _ | | _ | - | _ | |
| SHCS 10-24 x .88 | 4 | - | 4 | | 4 | | _ | 4 | 4 | |
| SHCS 10-24 x .75 | - | - | - | | - | | 4 | - | - | |
| SHCS 10-24 x .50 | - | 4 | - | | _ | | _ | - | _ | |
| CPLR — MRB34 | 1 | - | - | | _ | | _ | - | - | |
| CPLR — MRS34 | - | _ | - | | _ | | _ | _ | - | |
| CPLR — MRV34 | - | _ | 1 | | _ | | _ | _ | - | |
| CPLR — MRB23,MRS23 | - | 1 | - | | _ | | _ | - | _ | |
| CPLR — MRS23 | - | - | - | | _ | | _ | - | - | |
| CPLR-MRB40 | - | _ | - | | _ | | _ | - | - | |
| CPLR-MRV23 | 1 | - | - | | - | | _ | 1 | - | |
| CPLR—GEARHEAD | - | - | - | | - | | _ | - | - | |
| CPLR—GEARHEAD | | | | | 1 | | 1 | - | 1 | |
| PLT — MRB40 | - | - | - | | - | | _ | - | - | |
| SFHCS 1/4-20 x 7/8 LG | _ | - | - | | - | | _ | - | - | |
| SHCS,#10-24X1.75 | - | 4 | - | | - | | _ | _ | - | |
| SHCS, 1/4-24 x .75 | 4 | - | - | | - | | 4 | - | - | |
| SHCS, 1/4-20 x 2.25 | - | - | 4 | | - | | _ | - | - | |
| SHCS 10-24 x .88 | | | | | 4 | | - | 4 | 4 | |
| | | | | | | | | | | |

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Parts Listing

PART No.

3410-1290

3410-1350

3420-1353

3420-1350 3420-1352

3410-1293

1024-7711

0910-1314

0915-1016

3600-9219

3600-9209

3600-6174

3600-9204

3600-9208

3600-9042

3600-6163 3420-9041

3600-9213

3410-1445

6000-1731

0910-1450

0910-1314

1308-1071

1024-7711

3410-1294

3410-1295

ITEM

1

2

3

4

5

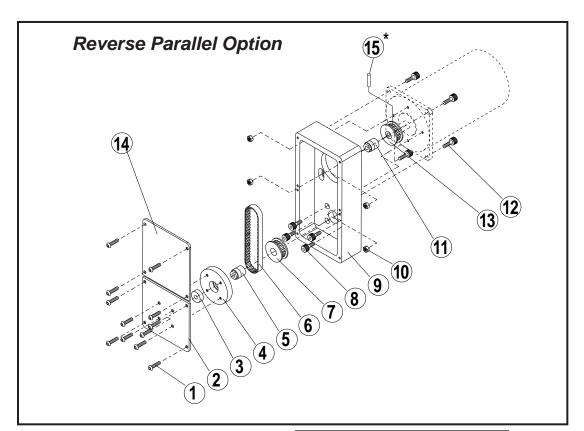
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| TOL-O-MATIC • URL: http://www.tolomatic.com | • Email: help@tolomatic.com • Fa | Fax: (763) 478-8080 • Toll Free: 1- | -800-328-2174 |
|---|----------------------------------|-------------------------------------|---------------|
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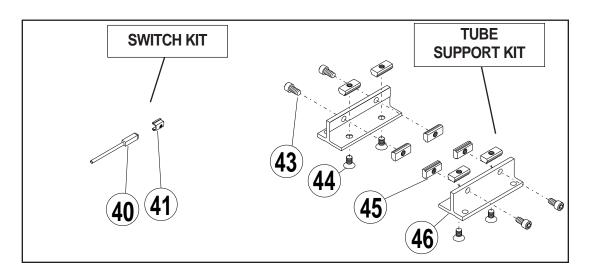
MTR MNT PLT

MTR MNT PLT



| | | | 1: | 1 Ra | tio | | | 2:1Ratio | | | | | | | |
|------|---------------------------------------|------------------------------------|--------------|--------------|--------------|--------------|----------------|--------------|--------------|--------------|--------------|----------------|--|--|--|
| | ley pinned onto m s <i>Listing</i> | otor | RP_1(MRB23X) | RP_1(MRB34X) | RP_1(MRS23X) | RP_1(MRS34X) | , RP_1(MRV23X) | RP_2(MRB23X) | RP_2(MRB34X) | RP_2(MRS23X) | RP_2(MRS34X) | , RP_2(MRV23X) | | | |
| ITEM | PART No. | DESCRIPTION | | * | | | * | | * | | | * | | | |
| 1 | 0510-1249 | Button Head Screw | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | | | |
| 2 | 3410-1360 | Cover | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | |
| 3 | 0510-1109 | Bearing | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | |
| 4 | 0510-1108 | Bearing Block | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | |
| 5 | 0510-1111 | Trantorque | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | |
| 6 | 0510-1112 | Belt, 1/5P, 3/8 W, 11" L, 55 teeth | 1 | 1 | 1 | 1 | 1 | _ | - | _ | _ | - | | | |
| | 0510-1113 | Belt, 1/5P, 3/8 W, 13" L, 65 teeth | - | - | - | Ι | Ι | 1 | 1 | 1 | 1 | 1 | | | |
| 7 | 0515-1191 | Pulley 18th .625 Bore | 1 | 1 | 1 | 1 | 1 | Ι | - | - | - | — | | | |
| | 0510-1110 | Pulley 36th | - | - | - | - | - | 1 | 1 | 1 | 1 | 1 | | | |
| 8 | 0915-1016 | Socket Head Cap Screw | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | | |
| 9 | 0510-1102 | Case 23 Frame Stepper | 1 | - | 1 | - | - | 1 | - | 1 | - | - | | | |
| | 0510-1246 | Case 23 Frame Servo | | | | | 1 | | | | | 1 | | | |
| | 0510-1104 | Case 34 Frame Stepper | - | 1 | - | 1 | - | - | 1 | - | 1 | - | | | |
| 10 | 2506-1007 | Jam Nut | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | | |
| 11 | 0510-1111 | Trantorque .250 Bore | 1 | - | 1 | - | - | 1 | - | 1 | - | - | | | |
| | 0515-1181 | Trantorque .375 Bore | - | - | - | 1 | - | - | - | - | 1 | - | | | |
| 12 | 0707-1010 | Socket Head Cap Screw | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | | |
| | 1024-7711 | SHCS #10-24 X .88 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | | |
| 13 | 0515-1192 | Pulley 18th .750 Bore | - | - | - | 1 | - | - | - | - | 1 | - | | | |
| | 0515-1191 | Pulley 18th | 1 | | 1 | | | 1 | | 1 | | | | | |
| | 0515-1190 | Pulley 18th Ø.50 Bore | | 1* | | | 1* | | 1* | | | 1* | | | |
| 14 | 3410-1361 | Cover Non-Brg. Half | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | |
| 15 | 1930-1032 | Roll Pin | | 1 | | | | | 1 | | | | | | |

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OPTIONAL ACCESSORY ASSEMBLY INSTRUCTIONS

- TUBE SUPPORTS. Four T-Nuts (45) are required on each side of the Tube (23), two T-Nuts on bottom of Tube and two in lower slots on tube sides. Tube Supports should be secured at the required distances determined for the application to prevent Tube deflection. Apply Loctite #242 to Screws (44) and secure Tube Supports (46) to Tube aligning holes in T-Nuts with holes in Tube Supports.
- 2. Switches. Secure Switch (40) to magnet side of Tube with Switch Clamp (41) and Set Screw (42).

3. SWITCHES

NOTE: Form A Reed Switches should not be used in TTL logic circuits. A voltage drop caused by the L.E.D. indicator will result.For applications where TTL circuits are used, please contact the factory.

WARNING: An ohmmeter is recommended for testing Reed Switches. NEVER use an incandescent light bulb as a high current rush may damage the switch.

Reed and TRIAC switches are only recommended for signalling position, not directly powering solenoids. For shifting a solenoid, a relay or resistor is recommended between it and the Reed Switch. Switch ratings must not be exceeded at any time.

NOTE: For Hall Effect Switch Magnet, be sure the S pole of the magnet (indicated with black dot) is facing toward the switch (down).

NOTE: The side of the switch with the groove indicates the sensing surface. This must face toward the magnet.

For complete Switch Performance Data, refer to the Tol-O-Matic Fluid Power catalog # 9900-4000.

TO ORDER RETROFIT KITS:

SW (then the model number and base size, and code for type of switch needed.

Optional Accessories Parts Listing

| Item | B3S10 Part No. | | Description | QTY. |
|------|-------------------|-----------|--|------|
| | | | SWITCH KIT | |
| 41 | 3410-9999 | | Switch Hardware Kit | A/R |
| 40 | 3600-9082 | | Switch, Reed, Form A, 5M Wire | A/R |
| | 3600-9083 | | Switch, Reed, Form A, Male Connect | A/R |
| | 3600-9084 | | Switch, Reed, Form C, 5M Wire | A/R |
| | 3600-9085 | | Switch, Reed, Form C, Male Connect | A/R |
| | 3600-9086 | | Switch, Triac, 5M Wire | A/R |
| | 3600-9087 | | Switch, Triac, Male Connect | A/R |
| | 3600-9988 | | Switch, Sourcing(PNP), Hall Effect, 5M | A/R |
| | 3600-9989 | | Switch, Sourcing(PNP), Hall Effect, MA | A/R |
| | 3600-9090 | | Switch, Sinking(NPN), Hall Effect, 5M | A/R |
| | 3600-9091 | | Switch, Sinking(NPN), Hall Effect, MAL | A/R |
| | | TUB | E SUPPORT KIT | |
| 43 | 0801-1251 | 4410-1005 | SHCS, 10-24 x .44/ M5 x 10 | 4 |
| 44 | 3410-1046 | 4410-1014 | SFHCS, 10-24 x .38/ M5 x 10 | 4 |
| 45 | 3410-1013 | 4410-1013 | BC315 Nut | 8 |
| 46 | 3410-1044 | 3410-1044 | Tube Support | 2 |

EXAMPLE: SWB3S10BT

Where **SW** is the switch kit, **B3S** is the model, **10** is the 1" size, and **BT** is a Form C Reed Switch with 5-meter lead.

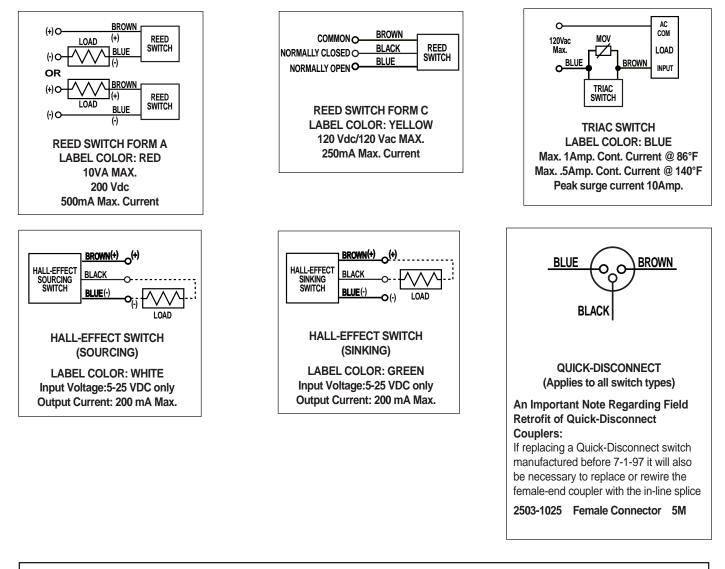
All Switch Kits come with 1 switch and mounting hardware.

| HARDWARE ONLY KIT: | QUICK | -DISCONNECTS: |
|--------------------|-----------|---------------------|
| 3410-9999 | 2503-1025 | Female Connector 5M |

For complete Switch Performance Data, refer to the Tol-O-Matic Fluid Power Catalog #9900-4000.

NOTE: The side of the switch with the groove indicates the sensing surface. This must face toward the magnet.

Universal Switch Wiring Diagrams and Label Color Coding



SWITCH TYPE CODE

- BT (Form C Reed Switch with 5-meter lead)
- $\textbf{BM} \quad (Form \ C \ Reed \ Switch \ with \ 5\text{-meter} \ lead \ and \ QD)$
- RT (Form A Reed Switch with 5-meter lead)
- $\textbf{RM} \quad (Form \ A \ Reed \ Switch \ with \ 5\text{-meter} \ lead \ and \ QD)$
- **CT** (TRIAC Switch with 5-meter lead)

- $\textbf{CM} \quad (\text{TRIAC Switch with 5-meter lead and QD})$
- **KT** (Hall-effect Switch (Sinking) 5-meter lead)
- $\textbf{KM} \quad (Hall\text{-effect Switch (Sinking) 5-meter lead and QD)}$
- TT (Hall-effect Switch (Sourcing) 5-meter lead)
- TM (Hall-effect Switch (Sourcing) 5-meter lead and QD)



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