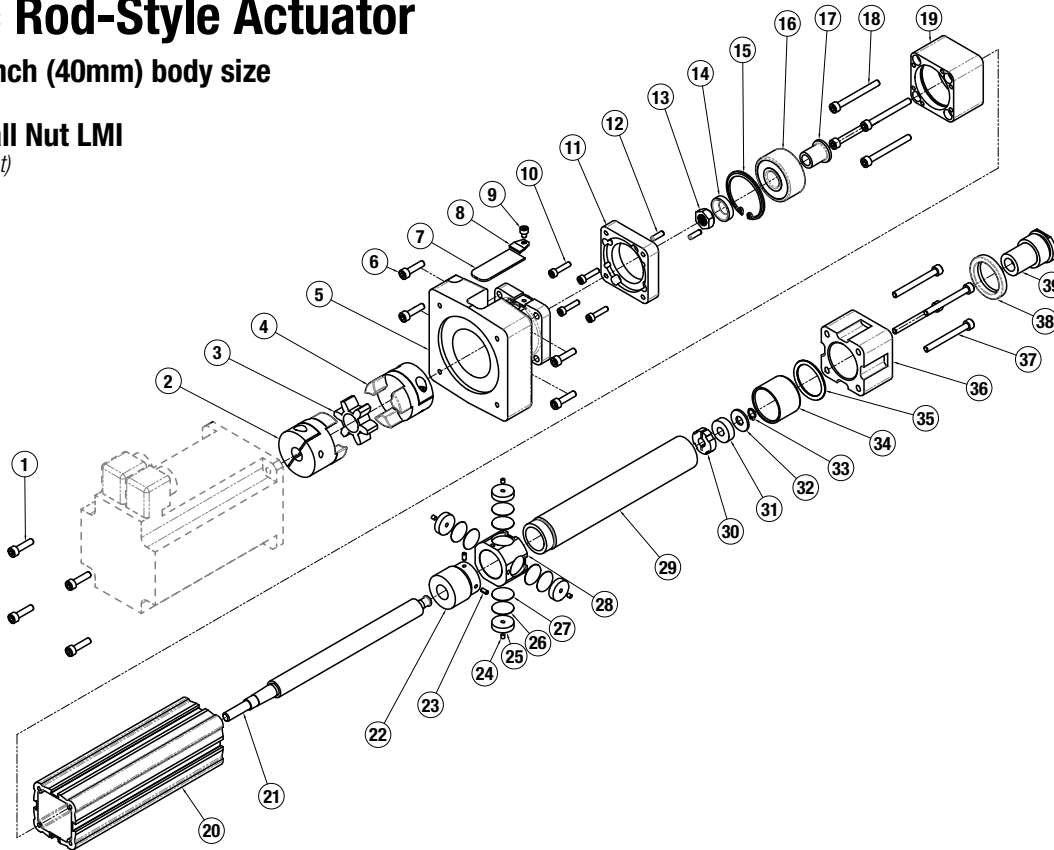


### Electric Rod-Style Actuator

RSA24 1.5-inch (40mm) body size

**Solid Nut, Ball Nut LMI**

(Inline motor mount)



ITEM	PART NO.	DESCRIPTION	SN02	SN04	SN08	BN02	BN05	BZ10
1.	CONFIGURED	MOTOR MOUNT FASTENERS	4	4	4	4	4	4
2.	3600-6196	COUPLER HALF	1	1	1	1	1	1
3.	CONFIGURED	SPIDER	1	1	1	1	1	1
4.	CONFIGURED	COUPLER HALF	1	1	1	1	1	1
5.	CONFIGURED	MOTOR SPACER	1	1	1	1	1	1
6.	CONFIGURED	MOTOR SPACER FASTENERS	4	4	4	4	4	4
7.	CONFIGURED	COVER	1	1	1	1	1	1
8.	1906-1022	COVER CLAMP	1	1	1	1	1	1
9.	1124-1159	SOCKET HEAD CAP SCREW	1	1	1	1	1	1
10.	0602-1029	SOCKET HEAD CAP SCREW	4	4	4	4	4	4
11.	1124-1319	ADAPTOR PLATE	1	1	1	1	1	1
12.	1930-1024	DOWEL PIN	2	2	2	2	2	2
*13.	1124-1082	SPHERICAL NUT	1	1	1	1	1	1
*14.	1124-1092	SPHERICAL WASHER	1	1	1	1	1	1
15.	2100-1010	RETAINING RING	1	1	1	1	1	1
16.	3420-1222	BEARING	1	1	1	1	1	1
17.	1124-1044	LEADSCREW SLEEVE	1	1	1	1	1	1
18.	2212-1095	SOCKET HEAD CAP SCREW	4	4	4	4	4	4
19.	CONFIGURED	BEARING PLATE	1	1	1	1	1	1
20.	CONFIGURED	CYLINDER BODY	1	1	1	1	1	1
21.	CONFIGURED	LEADSCREW	1	1	1	1	1	1
22.	CONFIGURED	NUT	1	1	1	1	1	1
23.	0915-1157	ROLL PIN	1	1	1	1	1	1
24.	0905-1109	MAGNET	4	4	4	4	4	4
25.	2124-1120	NUT COUPLER BEARING	4	4	4	4	4	4
26.	1124-1181	SHIM	AR	AR	AR	AR	AR	AR
27.	1124-1182	SHIM	AR	AR	AR	AR	AR	AR
28.	CONFIGURED	NUT COUPLER	1	1	1	1	1	1

ITEM	PART NO.	DESCRIPTION	SN02	SN04	SN08	BN02	BN05	BZ10
29.	CONFIGURED	THRUST TUBE	1	1	1	1	1	1
*30.	1124-1315	BUSHING	1	1	1	1	1	1
31.	2124-1091	BUMPER	1	1	1	1	1	1
32.	2120-1018	WASHER	1	1	1	1	1	1
33.	0910-1198	RETAINING RING	1	1	1	1	1	1
34.	2115-1023	BEARING	1	1	1	1	1	1
35.	2115-1020	O-RING	1	1	1	1	1	1
36.	1124-1002	HEAD	1	1	1	1	1	1
36.	2115-1002	HEAD (METRIC)	1	1	1	1	1	1
37.	0601-1144	SOCKET HEAD CAP SCREW	4	4	4	4	4	4
38.	2115-1030	WIPER	1	1	1	1	1	1
39.	1124-1006	ROD END	1	1	1	1	1	1
39.	2115-1006	ROD END (METRIC)	1	1	1	1	1	1

\*These parts are not compatible with actuators manufactured before January 2003.

\*\*Parts revised on October 21, 2005, when ordering a new nut assembly kit, #1124-9051 must be ordered. (Kit includes 4 magnets #0905-1109 and 4 coupler/nut bearings #2124-1120)

See page 3 for roller screw/nut parts listing

† Part number varies depending on YMH (Your Motor Here). Contact help@tolomatic.com for replacement part number.

† Must indicate stroke length when ordering. Configured code is the preferred ordering method: **R L S R S A 1 6** **S K** **Y M**

**EXAMPLE: R L S R S A 1 6 S N 0 1 S K 2 1 2 5 Y M**

Replacement Lead Screw

Model & Size

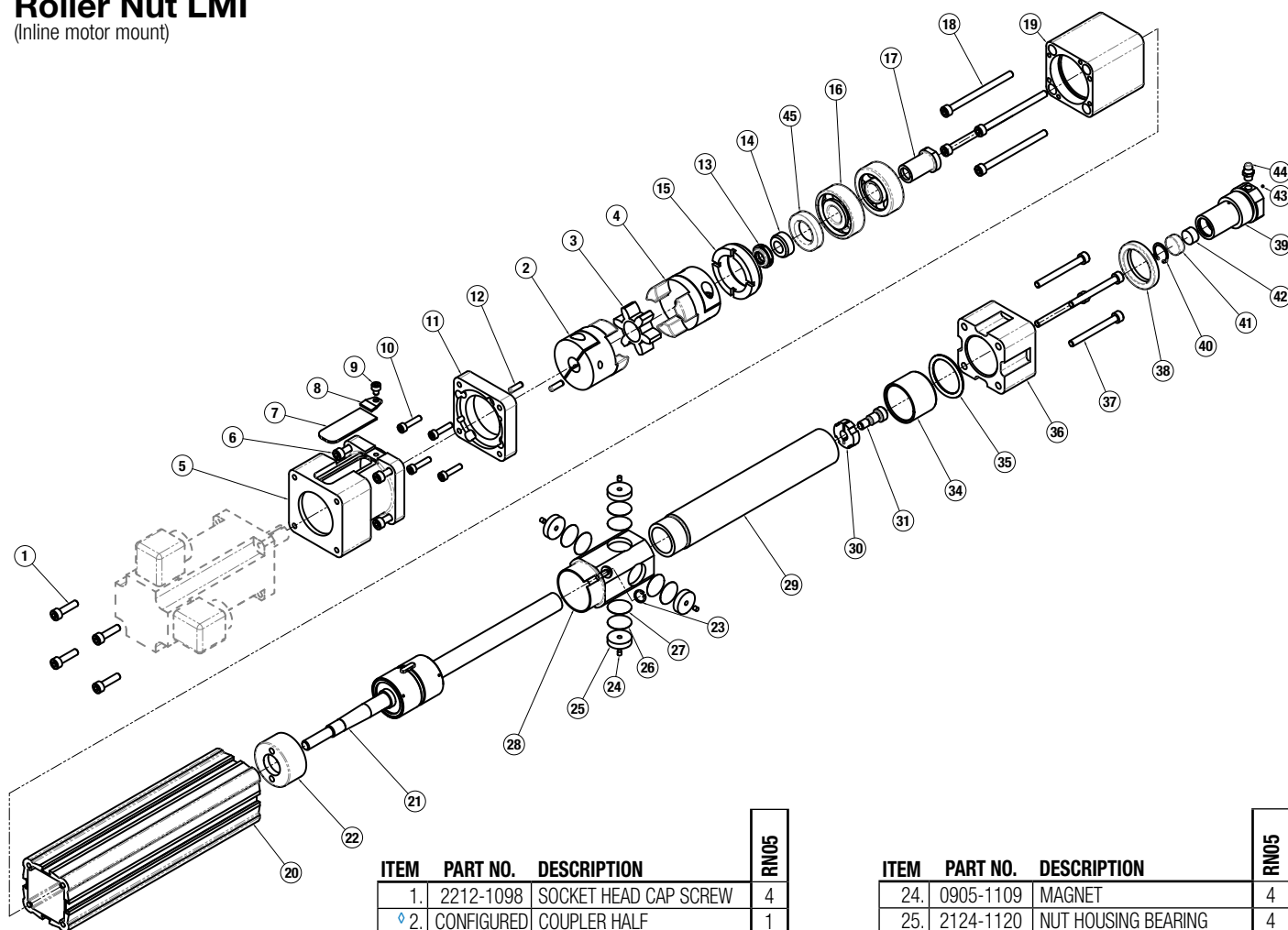
Nut Style & Size

Stroke Length

Motor Code

# Roller Nut LMI

(Inline motor mount)



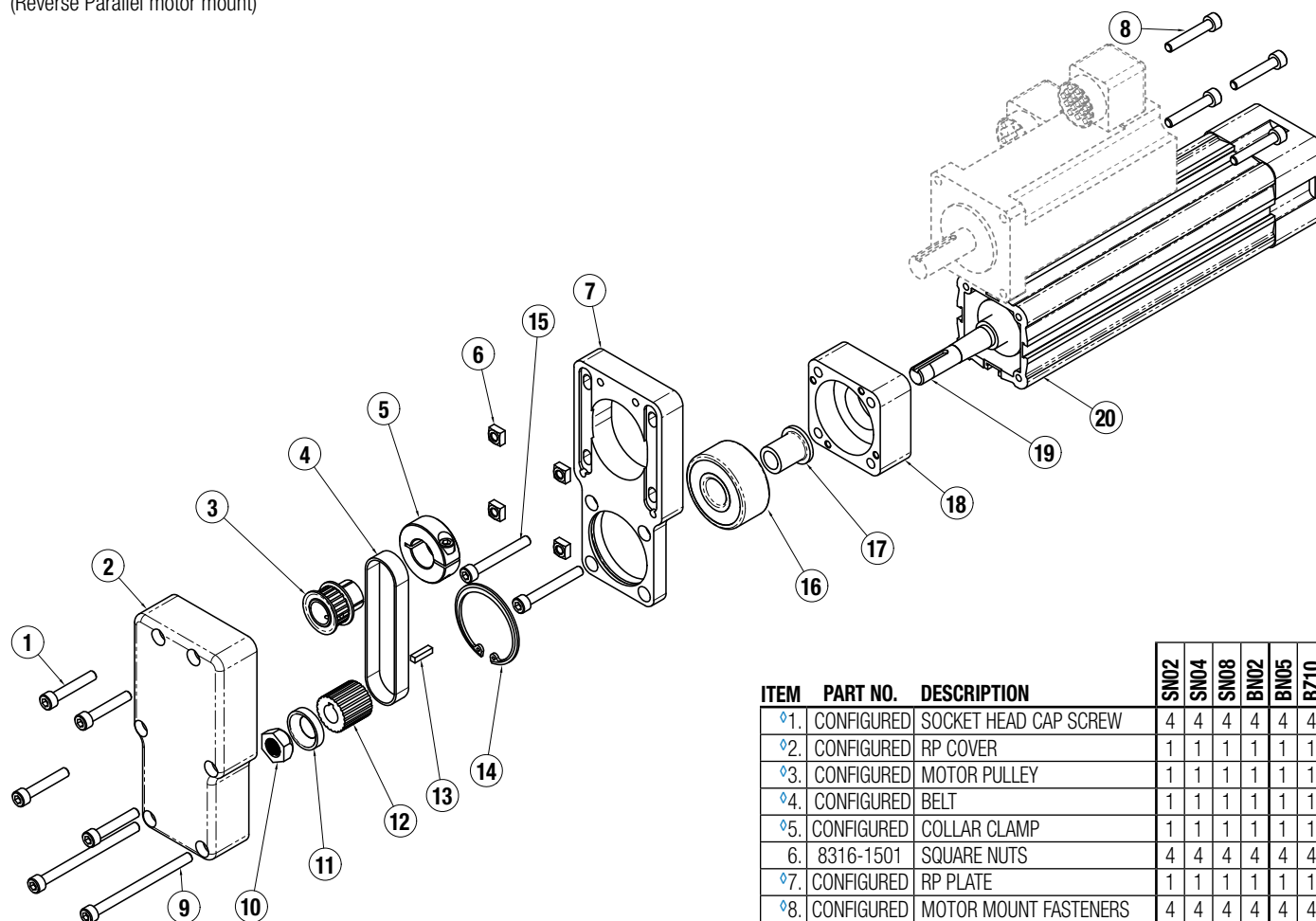
ITEM	PART NO.	DESCRIPTION	RN05
1.	2212-1098	SOCKET HEAD CAP SCREW	4
2.	CONFIGURED	COUPLER HALF	1
3.	3600-6325	SPIDER	1
4.	3600-6297	COUPLER HALF	1
5.	CONFIGURED	MOTOR SPACER	1
6.	2212-1098	SOCKET HEAD CAP SCREW	4
7.	3410-1120	COVER	1
8.	1906-1022	CLAMP	1
9.	1124-1159	SOCKET HEAD CAP SCREW	1
10.	0602-1029	SOCKET HEAD CAP SCREW	4
11.	CONFIGURED	ADAPTOR PLATE	1
12.	1930-1024	DOWEL PIN	2
13.	0602-1157	LOCK NUT	1
14.	1124-1310	SPACER	1
15.	1124-1303	LOCK RING	1
16.	2722-2020	BEARING	2
17.	1124-1309	LEADSCREW SLEEVE	1
18.	2212-1100	SOCKET HEAD CAP SCREW	4
19.	CONFIGURED	BEARING PLATE	1
20.	1124-1300	CYLINDER BODY	1
21.	1124-1322	LEADSCREW/ROLLER NUT	1
22.	1124-1307	NUT HOUSING COVER	1
23.	1001-1023	RETAINING RING	1

ITEM	PART NO.	DESCRIPTION	RN05
24.	0905-1109	MAGNET	4
25.	2124-1120	NUT HOUSING BEARING	4
26.	1124-1181	SHIM	AR
27.	1124-1182	SHIM	AR
28.	1124-1306	NUT HOUSING	1
29.	1124-1301	THRUST TUBE	1
30.	1124-1315	BUSHING	1
31.	1124-1314	SHOULDER BOLT	1
34.	2115-1023	BEARING	1
35.	2115-1020	O-RING	1
36.	CONFIGURED	HEAD	1
37.	2212-1095	SOCKET HEAD CAP SCREW	4
38.	2115-1030	WIPER	1
39.	CONFIGURED	ROD END	1
40.	1001-1199	RETAINING RING	1
41.	2733-1011	STRIKE PLATE	1
42.	2733-1009	BUMPER	1
43.	0520-1284	BALL	1
44.	0100-1601	ZERK FITTING	1
45.	1124-1320	BEARING SEAL	1

♦ Part number varies depending on YMH (Your Motor Here). Contact [help@tolomatic.com](mailto:help@tolomatic.com) for replacement part number.

**Solid Nut, Ball Nut RP**

(Reverse Parallel motor mount)



ITEM	PART NO.	DESCRIPTION	SN02	SN04	SN08	BN02	BN05	BZ10
1.	CONFIGURED	SOCKET HEAD CAP SCREW	4	4	4	4	4	4
2.	CONFIGURED	RP COVER	1	1	1	1	1	1
3.	CONFIGURED	MOTOR PULLEY	1	1	1	1	1	1
4.	CONFIGURED	BELT	1	1	1	1	1	1
5.	CONFIGURED	COLLAR CLAMP	1	1	1	1	1	1
6.	8316-1501	SQUARE NUTS	4	4	4	4	4	4
7.	CONFIGURED	RP PLATE	1	1	1	1	1	1
8.	CONFIGURED	MOTOR MOUNT FASTENERS	4	4	4	4	4	4
9.	CONFIGURED	SOCKET HEAD CAP SCREW	2	2	2	2	2	2
*10.	1124-1082	SPHERICAL LOCK NUT	1	1	1	1	1	1
*11.	1124-1092	SPHERICAL WASHER	1	1	1	1	1	1
12.	CONFIGURED	ACTUATOR PULLEY	1	1	1	1	1	1
13.	CONFIGURED	KEY	1	1	1	1	1	1
14.	2100-1010	RETAINING RING	1	1	1	1	1	1
15.	0601-1144	SOCKET HEAD CAP SCREW	2	2	2	2	2	2
16.	3420-1222	BEARING	1	1	1	1	1	1
17.	1124-1044	LEADSCREW SLEEVE	1	1	1	1	1	1
18.	CONFIGURED	BEARING PLATE	1	1	1	1	1	1
19.	CONFIGURED	LEADSCREW	1	1	1	1	1	1
20.	1124-1300	CYLINDER BODY	1	1	1	1	1	1

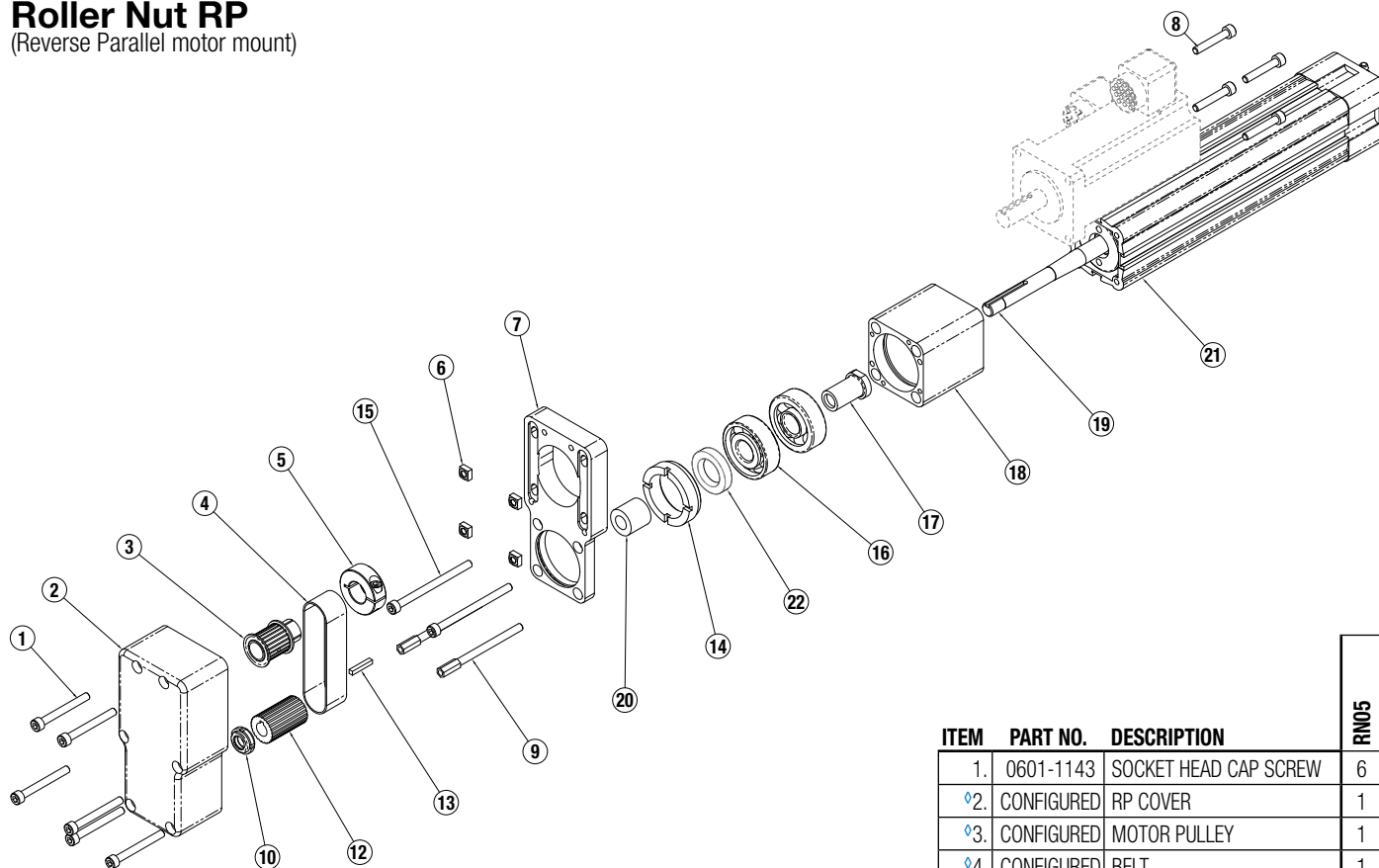
\*These parts are not compatible with actuators manufactured before January 2003.

♦ Part number varies depending on YMH (Your Motor Here). Contact [help@tolomatic.com](mailto:help@tolomatic.com) for replacement part number.

See page 6 for roller screw/nut parts listing

**Roller Nut RP**

(Reverse Parallel motor mount)



ITEM	PART NO.	DESCRIPTION	RND5
1.	0601-1143	SOCKET HEAD CAP SCREW	6
◊2.	CONFIGURED	RP COVER	1
◊3.	CONFIGURED	MOTOR PULLEY	1
◊4.	CONFIGURED	BELT	1
◊5.	CONFIGURED	COLLAR CLAMP	1
6.	8316-1501	SQUARE NUTS	4
◊7.	CONFIGURED	RP PLATE	1
◊8.	CONFIGURED	MOTOR MOUNT FASTENERS	4
9.	1124-1357	BOLT W/ INTERNAL THREAD	2
10.	0602-1157	LOCK NUT	1
◊12.	CONFIGURED	ACTUATOR PULLEY	1
13.	2100-1021	KEY	1
14.	1124-1303	LOCK RING	1
15.	2212-1100	SOCKET HEAD CAP SCREW	2
16.	2722-2020	BEARING	2
17.	1124-1309	LEADSCREW SLEEVE	1
◊18.	CONFIGURED	BEARING PLATE	1
19.	1124-1321	LEADSCREW	1
20.	1124-1323	SPACER	1
21.	1124-1300	CYLINDER BODY	1
22.	1124-1320	BEARING SEAL	1

◊ Part number varies depending on YMH (Your Motor Here). Contact [help@tolomatic.com](mailto:help@tolomatic.com) for replacement part number.

**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.

- Allen wrench set
- Socket wrench & socket set
- Retaining ring pliers

**1. Remove motor and motor mounting hardware:**

**LMI, Solid Nut/Ball Nut:** (Note: Reference parts list from page 1, 2.) Remove components in the following order:

- 1) Remove Cover (7) by loosening Screw (9).
- 2) Loosen the coupler screw closest to the actuator.
- 3) Remove Motor Mount Fasteners (1) and Motor/Coupler Assembly (2, 3, 4)
- 4) Remove Motor Spacer Fasteners (6) and Motor Spacer (5)
- 5) Remove the Adapter Plate (11) by removing the Socket Head Cap Screws (10).

**RP, Solid Nut/Ball Nut:** (Note: Reference parts list from page 4, 5 whenever instructions refer to RP with Solid Nut/Ball Nut.) Disassemble the RP [Reverse Parallel] assembly in the following order:

- 1) Loosen the Motor Mount Fasteners (8) to remove belt tension,
- 2) Remove RP Cover (2) by removing the six Socket Head Cap Screws (1,9),
- 3) Remove Belt (4),
- 4) Remove the motor by removing the Motor Mount Fasteners (8) and the Square Nuts (6).
- 5) Remove the RP Plate (7) by removing two Socket Head Cap Screws (15). Note: the Retaining Ring (14) is part of the RP Plate. A portion of the Bearing (16) will be protruding from the Bearing Plate (18). The Bearing Plate (18) is no longer secured to the actuator body.

**RP, Roller Nut:** (Note: Reference parts list from page 6 whenever instructions refer to RP with Roller Nut.) Disassemble the RP [Reverse Parallel] assembly in the following order:

- 1) Loosen the Motor Mount Fasteners (8) to remove belt tension,
- 2) Remove RP Cover (2) by removing the six Socket Head Cap Screws (1),
- 3) Remove Belt (4),
- 4) Remove the motor by removing the Motor Mount Fasteners (8) and the Square Nuts (6).
- 5) Remove the RP Plate (7) by removing top Socket Head Cap Screws (15) and bottom Bolt W/ Internal Thread (9).

**2. Separate Cylinder Body (20) from Bearing Plate (19):**

**LMI, All Nuts:** Remove the 4 Socket Head Cap Screws (18) that hold the Bearing Plate (19) to the Cylinder Body (20).

**RP, Solid Nut/Ball Nut:** There are no screws to remove the Bearing Plate (19) since the screws were removed during RP motor and motor mount hardware removal.

**LMI, RP, All Nuts:** Slide the Cylinder Body (20) away from Bearing Plate (19) and off of the Nut Coupler (28) /Thrust Tube (29) assembly.

**Caution:** Mark the location of the 4 Nut Coupler Bearings (25) and Shims (26,27) relative to the Cylinder Body (20). These Nut Coupler Bearings (25) and Shims (26,27) are fitted at the factory and their orientation is critical when reassembling the actuator.

If needed, the non-motor end Head (36) can also be removed from the Cylinder Body (20) by removing the 4 Socket Head Cap Screws (37).

**3. Remove the Thrust Tube (29) from the Nut Coupler/Housing (28):**

**The Thrust Tube (29) is threaded to the Nut Coupler/Housing (28) and held in place with Loctite.** To remove the Thrust Tube (29), slide the O-Ring (35) off the end of the Thrust Tube (29), then apply heat at the interface between the Nut Coupler/Housing (28) and Thrust Tube (29), until Loctite becomes pliable enough to release the threads. Place a wrench on the flats of the machined Rod End (39) and turn counterclockwise to unscrew the Thrust Tube (29) from the Nut Coupler/Housing (28). To remove the Rod End (39) from the Thrust Tube (29) place Thrust Tube (29) into vise, apply heat to the threaded joint to make Loctite pliable then use wrench on flats of Rod End (39) to remove.

**4. Remove the Leadscrew (21) from the Nut (22) assembly:**

**Solid Nut/Ball Nut:** Remove the Bearing Sleeve (34) from the Leadscrew (21).

**Ball Nut:** \*Caution is required if removal of the Nut (22) or Leadscrew (21) is required. Contact the factory for available parts and procedures.

**Solid Nut:** The Leadscrew (21) can be threaded out of the Nut (22) at this point.

The leadscrew Nut (22) and Nut Coupler (28) are pinned and secured with Loctite at the factory. If leadscrew Nut (22) is worn, a new Nut Assembly (22-28) must be ordered.

**Roller Nut:** \*Caution: Never remove the roller nut from the leadscrew. To remove the Leadscrew/Roller Nut (21) from the Nut Housing (28) remove the Nut Housing Cover (22) using a spanner tool. The Nut Housing Cover (22) is installed with Loctite so it may be necessary to apply heat to the joint before removal.

5. Remove the Leadscrew/Roller Nut (21) from the Bearing Plate (19): Secure the body of the Leadscrew/Roller Nut (21) in a machinist vice or equivalent smooth jaw vice then remove the Lock Nut (13). NOTE: Lock Nut (13) for the Leadscrew/Roller Nut (21) requires special tooling for removal. For a Leadscrew/Roller Nut (21), remove the Spacer (14) and Bearing Seal (45). Support the inner race of Bearing (16) and press the Leadscrew/Roller Nut (21) out of the Leadscrew Sleeve (17). There is a mating taper interface between the Leadscrew Sleeve (17) and the Leadscrew/Roller Nut (21).

**6. Remove Bearing (16) from the Bearing Plate (19):**

**Solid Nut/Ball Nut:** Remove the Retaining Ring (15) and press the Bearing (16) out of the Bearing Plate (19) as it is secured in place with retaining compound.

**Roller Nut:** Remove the Lock Ring (15) from the Bearing Plate (19). Loctite is used on the Lock Ring (15) so heat may be needed to make the Loctite pliable. Press the two Bearings (16) out of the Bearing Plate (19) as they are secured in place with retaining compound.

**ASSEMBLY INSTRUCTIONS****1. Sub-assembly Wiper (38) and Bearing (34) into Head (36):**

Install Wiper (38) with the lip on inside diameter facing outward into the groove in the Head (36). Press the Bearing Sleeve (34) from opposite end of Head (36) until it is flush to surface of Head (36).

**2. Sub-assemble the Bearing (16) into Bearing Plate (19):**

**Solid Nut/Ball Nut:** Press Leadscrew Sleeve (17) into main Bearing (16). Apply Loctite 641 retaining compound to OD of the Bearing (16) and ID of the Bearing Plate (19) and install Bearing (16) into the Bearing Plate (19). LMI only, install the Snap Ring (15).

**Roller Nut:** Stack the 2 Bearings (16) onto each other so the non-flanged inner races are touching. Press the Leadscrew Sleeve (17) into both Bearings (16). Apply Loctite 641 retaining compound to OD of both Bearings (16) and the ID bore of the Bearing Plate (19). Install the bearing assembly into the Bearing Plate (19) then install the Lock Ring (15). Use the flats on the Leadscrew Sleeve (17) while tightening the Lock Ring (15).

**3. Install Bearing Plate (19) assembly onto leadscrew/nut:**

**LMI, Solid Nut/Ball Nut:** Install Leadscrew (21) into the Leadscrew Sleeve (17) in Bearing Plate (19) assembly. Apply Loctite 242 to the threads of the Leadscrew (21) then locate Washer (14) and Locknut (13) over Leadscrew (21). Torque the Lock Nut (13) to 200 in-lbs, hold Leadscrew (21) in machinist vice as necessary.

**RP, Solid Nut/Ball Nut:** (Reference parts list on page 6.) Install Leadscrew (21) into the Leadscrew Sleeve (17) and apply Loctite 242 to the threads of the Leadscrew (21). Place Key (13) onto Leadscrew (21) and install the Pulley (12), Washer (11), and Lock Nut (10) over Leadscrew (21). Torque Lock Nut (10) to 200 in-lbs. Hold Leadscrew (21) in machinist vice as necessary.

**LMI, Rollerscrew:** (Reference parts list on page 3.) From the motor end of the Leadscrew/Roller Nut (21) slide the Nut Housing Cover (22) onto the Leadscrew/Roller Nut (21) so it fits over roller nut. Install the Leadscrew/Roller Nut (21) into the Leadscrew Sleeve (17) in Bearing Plate (19) assembly. Install the Bearing Seal (45) and Spacer (14) onto Leadscrew/Roller Nut (21) and secure using Lock Nut (13). Note: Lock Nut (13) requires special tool to install.

**4. Install nut with Nut Coupler/Housing (28) onto leadscrew/nut:**

**Solid Nut/Ball Nut:** Thread the Nut (22) assembled to the Nut Coupler (28) onto the Leadscrew (21). Threaded end of the Nut Coupler (28) is away from motor end of the Leadscrew (21).

**Roller Nut:** NOTE: The roller nut must never be removed from the Leadscrew/Roller Nut (21). Align the slot in the Nut Housing (28) with key on the roller nut on the Leadscrew/Roller Nut (21) and slide Nut Housing (28) onto the roller nut from the non-motor end of the Leadscrew/Roller Nut (21). Apply Loctite 271 onto the ID threads of the Nut Coupler Cover (22). From the motor end of the Leadscrew/Roller Nut (21), thread on Nut Housing Cover (22) onto the Nut Housing (28). Make sure not to get any Loctite on the leadscrew or roller nut. Install Retaining Ring (23) onto the Nut Housing (28) to secure key of the roller nut in place.



5. Assemble Bushing (30) onto non-motor end of leadscrew/nut:  
**Solid Nut/Ball Nut:** Slide the leadscrew Bushing (30), Bumper (31), Washer (32) onto non-motor end of the Leadscrew (21) and secure using Retaining Ring (33).  
**Roller Nut:** Slide the rollerscrew Bushing (30) onto the Shoulder Bolt (31) and install Shoulder Bolt (31) onto end of the Leadscrew/Roller Nut (21).
6. Grease leadscrew/nut and ID of the Thrust Tube (29) with the following grease:
  - **Ballnut/Roller nut Units:** Mobilith SHC220 grease
  - **Bronze Nut Units:** Chevron SRI NLGI2 grease
  - **Solid Nut Units:** RheoGel TEK 664 grease
 For special lubrication option grease, email [help@tolomatic.com](mailto:help@tolomatic.com)
7. **Install Thrust Tube (29) onto Nut Coupler/Housing (28):**  
 Apply Loctite 270 to OD threads on Thrust Tube (29) and assemble Thrust Tube (29) to Nut Coupler/Housing (28).
8. Grease ID of Cylinder Body (20) with a coating of appropriate grease, and install leadscrew/nut assembly into the Cylinder Body (20). \*Make sure to orient Nut Housing Bearing (25) with respect to tube the same as were removed.
9. Attach Head (36) and Bearing Plate (19) assembly to the Cylinder Body (20) and align prior to tightening:  
**LMI, Solid Nut/Ball Nut:**
  - A. Align motor end Bearing Plate (19) assembly to Cylinder Body (20) with Thrust Tube (29) retracted, and then tighten Socket Head Cap Screws (18).
  - B. Align non-motor end Head (36) to Cylinder Body (20) with Thrust Tube (29) extended, and then tighten Socket Head Cap Screws (37).**RP, Solid Nut/Ball Nut:**
  - A. (See page 4, 5 parts list for this step.) Install the RP Plate (7) through Bearing Plate (18) to Cylinder Body (20) with Thrust Tube (29) retracted, and then tightening two Socket Head Cap Screws (15) into the top two holes in the RP Plate (7). Install Retaining Ring (14).
  - B. (See page 1, 2 parts list for this step.) Align non-motor end Head (36) to Cylinder Body (20) with Thrust Tube (29) extended, and then tighten Socket Head Cap Screws (37).**RP, Roller Nut:**
  - A. (See page 6 parts list for this step.) Install the RP Plate (7) through Bearing Plate (18) to Cylinder Body (20) with Thrust Tube (29) retracted, and then tightening two Socket Head Cap Screws (15) into the top two holes and two Socket Head Cap Screws (9) into the bottom two holes in the RP Plate (7). Install Retaining Ring (14).
  - B. (See page 3 parts list for this step.) Align non-motor end Head (36) to Cylinder Body (20) with Thrust Tube (29) extended, and then tighten Socket Head Cap Screws (37).
10. Install Rod End (39) into Thrust Tube (29):  
**Solid Nut/Ball Nut:** Apply Loctite 271 to threads of the Rod End (39), install and tighten to the Thrust Tube (29).  
**Roller Nut:** Insert the Bumper (42) then the Strike Plate (41) into the Rod End (39) and secure using Retaining Ring (40). Apply Loctite 271 to threads of the Rod End (39), install and tighten to the Thrust Tube (29). Install Zerk (44) if needed.
11. **Roller Nut only:** Fill the Thrust Tube (29) with Tolomatic Grease #2744-9099 via the Zerk (44) installed on the Rod End (39).

#### LMI MOTOR ASSEMBLY INSTRUCTIONS

1. Install Adapter Plate (11) to the Bearing Plate (19) by the aligning Dowel Pins (12) and Socket Head Cap Screws (10).
2. Attach Coupler Half (4) onto leadscrew/nut then insert Spider (3) into Coupler Half (4). Insert the other Coupler Half (2) into the Spider (3).
3. Install Motor Spacer (5) to Adapter Plate (11) using Motor Spacer Fasteners (6).
4. Install motor to Motor Spacer (5) using Motor Mount Fasteners (1). Motor shaft should fit into the ID bore of the Coupler Half (2). Tighten the Coupler Half (2) onto the motor shaft through access hole in Motor Spacer (5).
5. Place Cover (7) onto Motor Spacer (5) to cover the access hole. Secure Cover (7) using Clamp (8) and Socket Head Cap Screw (9).

#### RSA24ST REVERSE PARALLEL MOTOR ASSEMBLY INSTRUCTIONS

1. Align motor with slots RP Plate (7). Install four Motor Mount Fasteners (8) through motor and RP Plate (7) then into the four Square Nuts (6). The Square Nuts (6) must seat into the pockets of the RP Plate (7). Tighten enough so motor is not drooping but able to move vertically.

2. Align the Collar Clamp (5) with the Motor Pulley (3) and install the Motor Pulley (3) onto the motor shaft by tightening the Collar Clamp (5) fastener. Align motor pulley with the actuator pulley (12).
3. Slide belt (4) over motor pulley (3) and actuator pulley (12).
4. Attach RP cover (2) to RP plate (7):  
**Solid Nut/Ball Nut:** Install RP cover (2) using two long fasteners (9) through the RP cover, RP plate and bearing plate (18) and into cylinder body (20). Install the remaining four fasteners (1) into the RP plate.
5. Tension the belt following the procedures for the correct model number found listed in [RP Belt Tensioning 3600-4212](#).

#### RSA24HT (Roller Nut) REVERSE PARALLEL MOTOR ASSEMBLY INSTRUCTIONS

See Tolomatic document [RP Belt Tensioning 3600-4212](#) for RP motor assembly and belt tension procedure

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## Roller Screw Lubrication

NOTE! Before starting any maintenance activities, make sure that the supply power is shut OFF.

### CAUTION: DO NOT FILL WITH GREASE!

RSA/RSM actuators have been lubricated at the factory and are ready for installation. For many applications the actuator is greased for life.

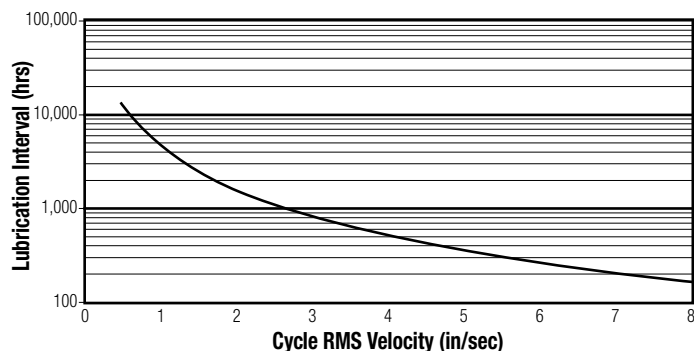
- For light to moderate use, no additional lubrication is required.

Overfilling will cause a reduction in performance, excessive heat build up and potential premature failure.

All curves represent properly lubricated and maintained actuators.

### Roller Screw

- For optimal performance and rated life, periodic re-lubrication is required. Select the Basic Lubrication Interval ( $t_{BL}$ ) based on the cycles RMS Velocity ( $V_{RMS}$ ). Use either the formula or the graph below



$$t_{BL} = 4500 \times (V_{RMS})^{-1.57} \text{ (hours)}$$

### Roller Screw Lubrication Interval Graph

- Determine the Thrust Correction Factor ( $K_T$ ) based on the ratio of the Actuator Peak Thrust Rating ( $T_{PEAK}$ ) to the Maximum Cycle Thrust ( $T_{MAX}$ ).

#### IMPORTANT NOTE:

$K_T$  can not be greater than 1.

$$K_T = K_{C0} \left( \frac{T_{PEAK}}{T_{MAX}} \right) - 0.15$$

	24RN05	32RN05
$K_{C0}$	0.24	0.26

Where:

$t_{BL}$  = Basic Lubrication Interval (hours)

$V_{RMS}$  = RMS Velocity (in/sec)

$K_T$  = Thrust Correction Factor

$K_{C0}$  = Screw Static Load Factor

$T_{PEAK}$  = Actuator Peak Thrust Rating

$T_{MAX}$  = Maximum Cycle Thrust

$t_L$  = Lubrication Interval (hours)

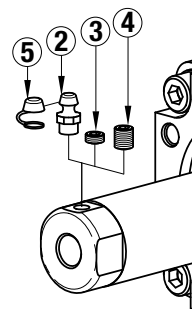
- The Lubrication Interval ( $t_L$ ) for a given cycle is then calculated as:

$$t_L = t_{BL} \times K_T \text{ (hours)}$$

- Re-lubricate with Tolomatic Grease #2744-1021  
Quantity: RSA24/RSM24 Approximately 0.1 oz. (3 g); RSA32/RSM32: Approximately 0.2 oz. (6 g) through grease zerk.

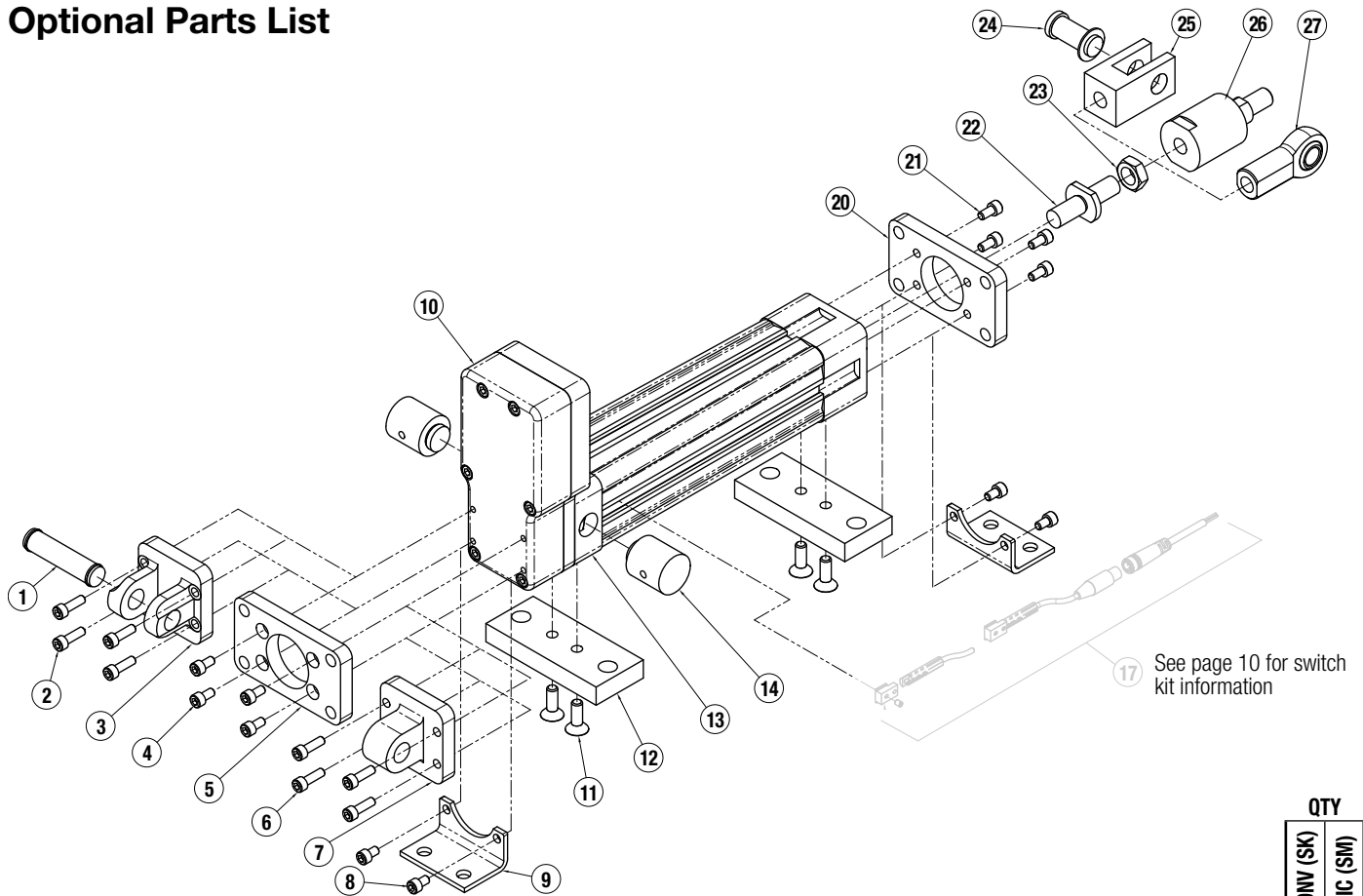
### WARNING!

There is a possibility that base oil may leak from the Grease Zerk (#2). In contamination sensitive applications replace Grease Zerk (#2) with a leak-proof Grease Fitting Plug (#4), or add a leak-resistant Grease Zerk Cap (#5) to cover Grease Zerk (#2).



ITEM	PART NO.	DESCRIPTION
2.	0100-1601	ZERK, FITTING, 1/4-28
3.	2309-1055	SET SCREW, 1/4-28 (FLUSH ZERK REPLACEMENT)
4.	2744-1214	GREASE FITTING PLUG, 1/4-28 (LEAK-PROOF)
5.	2744-1213	GREASE ZERK CAP (LEAK-RESISTANT)

## Optional Parts List



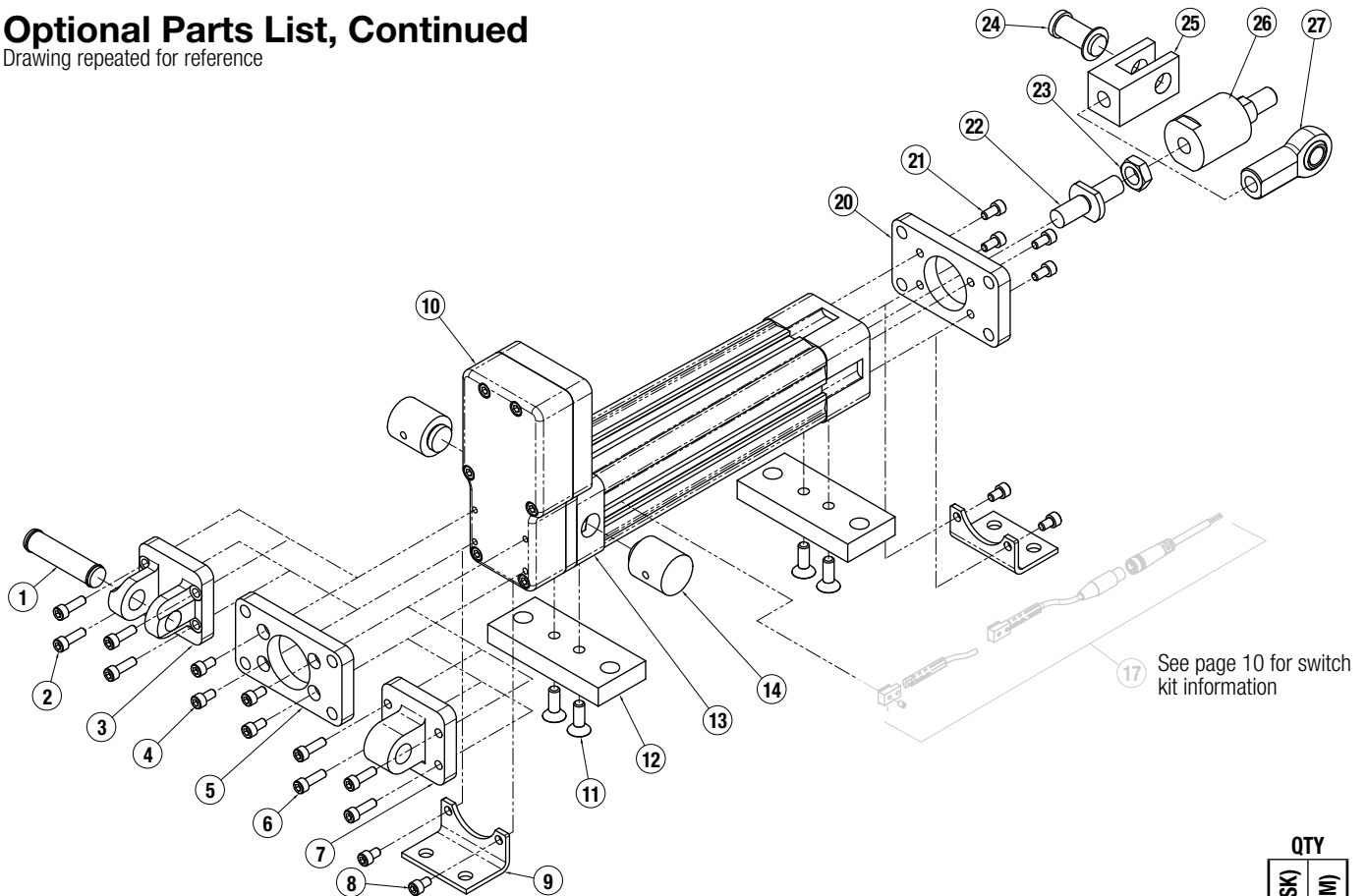
			QTY	
			US CONV (SK)	METRIC (SM)
ITEM	PART NO.	DESCRIPTION		
CLEVIS MOUNT (PCD)				
1.	1124-9025	CLEVIS MOUNT KIT (INCH)	1	
	2124-9035	CLEVIS MOUNT KIT (METRIC)		1
	1124-1056	CLEVIS PIN	1	
	2124-1066	CLEVIS PIN		1
2.	2309-1057	SOCKET HEAD CAP SCREW	4	
	2212-1097	SOCKET HEAD CAP SCREW		4
3.	1124-1055	CLEVIS	1	
	2124-1065	CLEVIS		1
10.	1124-1329	RP COVER (23 FRAME)	1	
	1124-1365	RP COVER (23 FRAME)		1
	1124-1471	RP COVER (23 FRAME ROLLER)	1	
	1124-1371	RP COVER (23 FRAME ROLLER)		1
	1124-1332	RP COVER (34 FRAME)	1	
	1124-1368	RP COVER (34 FRAME)		1
BACK FLANGE (BFG)				
	1124-9022	BACK FLANGE KIT (INCH)	1	
	2124-9032	BACK FLANGE KIT (METRIC)		1
4.	3410-1397	SOCKET HEAD CAP SCREW	4	
	0603-1016	SOCKET HEAD CAP SCREW		4
5.	1124-1052	FLANGE PLATE	1	
	2124-1062	FLANGE PLATE		1
10.	1124-1329	RP COVER (23 FRAME)	1	
	1124-1365	RP COVER (23 FRAME)		1
	1124-1471	RP COVER (23 FRAME ROLLER)	1	
	1124-1371	RP COVER (23 FRAME ROLLER)		1
	1124-1332	RP COVER (34 FRAME)	1	
	1124-1368	RP COVER (34 FRAME)		1

ITEM	PART NO.	DESCRIPTION	US	ME
EYE MOUNT (PCS)				
6.	1124-9024	EYE MOUNT KIT	1	
	2124-9034	EYE MOUNT KIT		1
	2309-1057	SOCKET HEAD CAP SCREW	4	
	2212-1097	SOCKET HEAD CAP SCREW		4
7.	1124-1054	EYE BRACKET	1	
	2124-1064	EYE BRACKET		1
10.	1124-1329	RP COVER (23 FRAME)	1	
	1124-1365	RP COVER (23 FRAME)		1
	1124-1471	RP COVER (23 FRAME ROLLER)	1	
	1124-1371	RP COVER (23 FRAME ROLLER)		1
	1124-1332	RP COVER (34 FRAME)	1	
	1124-1368	RP COVER (34 FRAME)		1
FOOT MOUNT (FM2)				
	1124-9020	FOOT MOUNT KIT	1	
	2124-9030	FOOT MOUNT KIT		1
8.	1150-1007	SOCKET HEAD CAP SCREW	4	
	2150-1102	SOCKET HEAD CAP SCREW		4
9.	1124-1050	FOOT MOUNT BRACKET	2	
	2124-1060	FOOT MOUNT BRACKET		2
10.	1124-1331	RP COVER (23 FRAME)	1	
	1124-1367	RP COVER (23 FRAME)		1
	1124-1473	RP COVER (23 FRAME ROLLER)	1	
	1124-1373	RP COVER (23 FRAME ROLLER)		1
	1124-1334	RP COVER (34 FRAME)	1	
	1124-1370	RP COVER (34 FRAME)		1
MOUNTING PLATE (MP2)				
	1124-9023	MOUNTING PLATE KIT	1	
	2124-9033	MOUNTING PLATE KIT		1
11.	2212-1010	FLAT HEAD CAP SCREW	4	
	3212-1010	FLAT HEAD CAP SCREW		4
12.	1124-1053	MOUNTING PLATE BRACKET	2	
	2124-1063	MOUNTING PLATE BRACKET		2



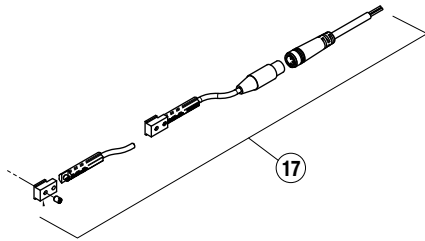
## Optional Parts List, Continued

Drawing repeated for reference



			QTY	
			US CONV (SK)	METRIC (SM)
ITEM	PART NO.	DESCRIPTION		
TRUNNION MOUNT (TRR)				
13.	1124-1355	BEARING PLATE	1	
	2124-1355	BEARING PLATE		1
	1124-1316	BEARING PLATE (ROLLER)	1	
	2124-1316	BEARING PLATE (ROLLER)		1
14.	1124-1051	TRUNNION PIVOT PIN	2	
	2124-1061	TRUNNION PIVOT PIN		2
SWITCH KIT				
15.	1124-1174	SWITCH BRACKET	1	1
16.	1124-1173	SET SCREW	1	1
17.	8100-9082	SWITCH, OPEN, REED, 5M WIRE	1	1
	8100-9084	SWITCH, CLOSED, REED, 5M WIRE	1	1
	8100-9088	SWITCH, SOLID (PNP), OPEN, 5M WIRE	1	1
	8100-9090	SWITCH, SOLID (NPN), OPEN, 5M WIRE	1	1
	8100-9092	SWITCH, SOLID (PNP), CLOSED, 5M WIRE	1	1
	8100-9094	SWITCH, SOLID (NPN), CLOSED, 5M WIRE	1	1
	8100-9083	SWITCH, OPEN, REED, QUICK-DISCONNECT	1	1
	8100-9085	SWITCH, CLOSED, REED, QUICK-DISCONNECT	1	1
	8100-9089	SWITCH, SOLID (PNP), OPEN, QUICK-DISCONNECT	1	1
	8100-9091	SWITCH, SOLID (NPN), OPEN, QUICK-DISCONNECT	1	1
17.	8100-9093	SWITCH, SOLID (PNP), CLOSED, QUICK-DISCONNECT	1	1
	8100-9095	SWITCH, SOLID (NPN), CLOSED, QUICK-DISCONNECT	1	1
	8100-9080	QUICK-DISCONNECT MATING CABLE	1	1
FRONT FLANGE (FFG)				
	1124-9022	FRONT FLANGE KIT	1	
	2124-9032	FRONT FLANGE KIT		1

ITEM	PART NO.	DESCRIPTION	QTY	
			US CONV (SK)	METRIC (SM)
20.	3410-1397	SOCKET HEAD CAP SCREW	4	
	0603-1016	SOCKET HEAD CAP SCREW		4
21.	1124-1052	FLANGE PLATE	1	
	2124-1062	FLANGE PLATE		1
<b>EXTERNALLY THREADED ROD END (MET)</b>				
22.	1124-1057	THREADED ROD	1	
	2124-1067	THREADED ROD		1
<b>ROD END CLEVIS (CLV)</b>				
	1124-9029	ROD END CLEVIS KIT	1	
	2124-9039	ROD END CLEVIS KIT		1
22.	1124-1057	THREADED ROD	1	
	2124-1067	THREADED ROD		1
23.	2124-1017	HEX JAM NUT	1	
	2124-1021	HEX JAM NUT		1
24.	1124-1061	CLEVIS PIN (ENGLISH ONLY)	1	
25.	1124-1059	CLEVIS	1	
	2124-1069	CLEVIS		1
<b>ALIGNMENT COUPLER (ALC)</b>				
	1124-9004	ALIGNMENT COUPLER KIT (ENGLISH ONLY)	1	
	2124-9038	ALIGNMENT COUPLER KIT (ENGLISH ONLY)		1
23.	2124-1017	HEX JAM NUT (ENGLISH ONLY)	1	
26.	1124-1060	ALIGNMENT COUPLER	1	
	2124-1070	ALIGNMENT COUPLER		1
<b>SPHERICAL ROD EYE (SRE)</b>				
	1124-9028	SPHERICAL ROD EYE KIT	1	
	2124-9038	SPHERICAL ROD EYE KIT		1
22.	1124-1057	THREADED ROD	1	
	2124-1067	THREADED ROD		1
23.	2124-1017	HEX JAM NUT	1	
	2124-1021	HEX JAM NUT		1
27.	1124-1058	ROD END BEARING	1	
	2124-1068	ROD END BEARING		1









To order switch kits use configuration code for switch preceded by SW and actuator code.

EXAMPLE: **SWRSA12KK3**

KIT	ACTUATOR	SIZE	SWITCH CODE	QUANTITY
SW	RSA	12	KK	3

The example is for 3 Solid State NPN, Normally Open Switches with Quick-disconnect couplers. Each switch is complete with Bracket, Set Screw, Switch and mating QD cable. Note that the bracket/switch size is common and may be used on any size RSA.

ITEM	ORDER CODE	LEAD	SENSOR TYPE	SWITCHING LOGIC	POWER LED	SIGNAL LED	OPERATING VOLTAGE	**POWER RATING (WATTS)	SWITCHING CURRENT (MA MAX.)	CURRENT CONSUMPTION	VOLTAGE DROP	LEAKAGE CURRENT	TEMP. RANGE	SHOCK / VIBRATION
17.	<b>RY</b>	5M	REED	SPST NORMALLY OPEN	—	RED	5 - 240 AC/DC	**10.0	100MA	—	3.0 V MAX.	—	14 TO 158°F [-10 TO 70°C]	50 G / 9 G
	<b>RK</b>	QD*												
	<b>NY</b>	5M		SPST NORMALLY CLOSED	—	YELLOW	5 - 110 AC/DC							
	<b>NK</b>	QD*												
	<b>TY</b>	5M	SOLID STATE	PNP (SOURCING) NORMALLY OPEN	GREEN	YELLOW	10 - 30 VDC	**3.0	100MA	20 MA @ 24V	2.0 V MAX.	0.05 MA MAX.		
	<b>TK</b>	QD*												
	<b>KY</b>	5M		NPN (SINKING) NORMALLY OPEN	GREEN	RED								
	<b>KK</b>	QD*												
	<b>PY</b>	5M		PNP (SOURCING) NORMALLY CLOSED	GREEN	YELLOW								
	<b>PK</b>	QD*												
	<b>HY</b>	5M		NPN (SINKING) NORMALLY CLOSED	GREEN	RED								
	<b>HK</b>	QD*												
SWITCH BRACKET, SET SCREW & MATING QD CABLE IS INCLUDED														

\*QD = Quick-disconnect      Enclosure classification IEC 529 IP67 (NEMA 6)      CABLES: Robotic grade, oil resistant polyurethane jacket, PVC insulation

**⚠ \*\*WARNING:** Do not exceed power rating (Watt = Voltage x Amperage). Permanent damage to sensor will occur.

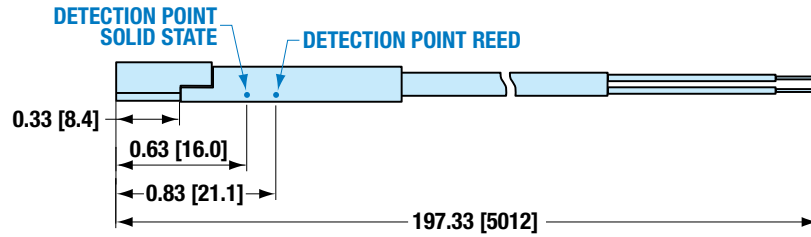
## SWITCH INSTALLATION



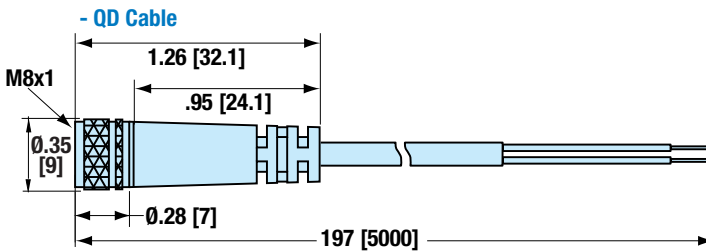
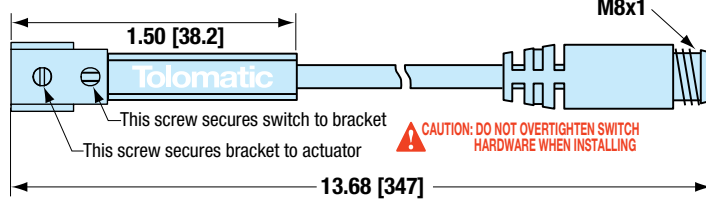
Place switch bracket into one of the four slots that run the length of the extruded tube. Note that there is a cut-out on the actuator head (RSA) or tube (GSA) to allow insertion of the bracket. Insert the switch with the word "Tolomatic" facing up and slide it under the bracket. Position the bracket with the switch to the exact location desired, then lock them securely into place by tightening both set screws on the bracket.

## SWITCH DIMENSIONS

 - direct connect

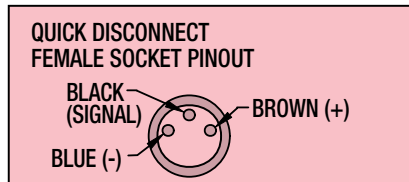
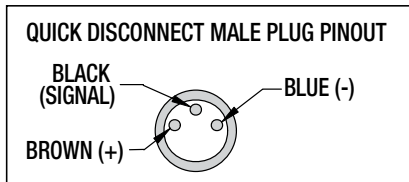
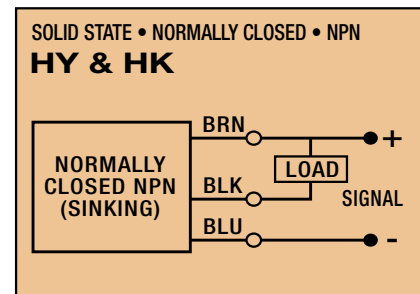
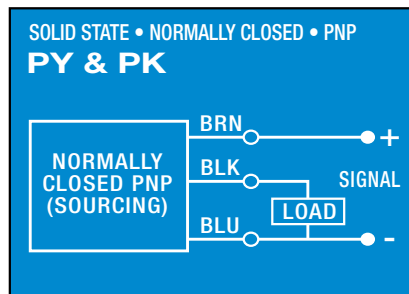
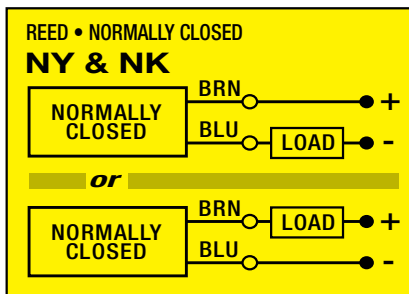
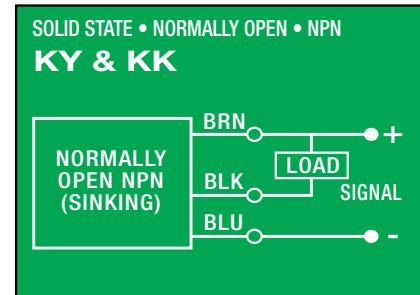
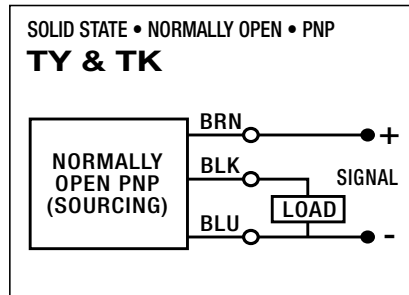
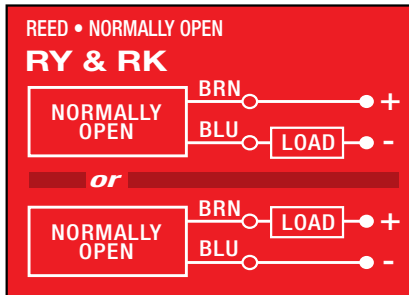


 - QD (Quick-disconnect) switch



Dimensions in inches [brackets indicate dimensions in millimeters]

## SWITCH WIRING DIAGRAMS AND LABEL COLOR CODING (CE and RoHS Compliant)

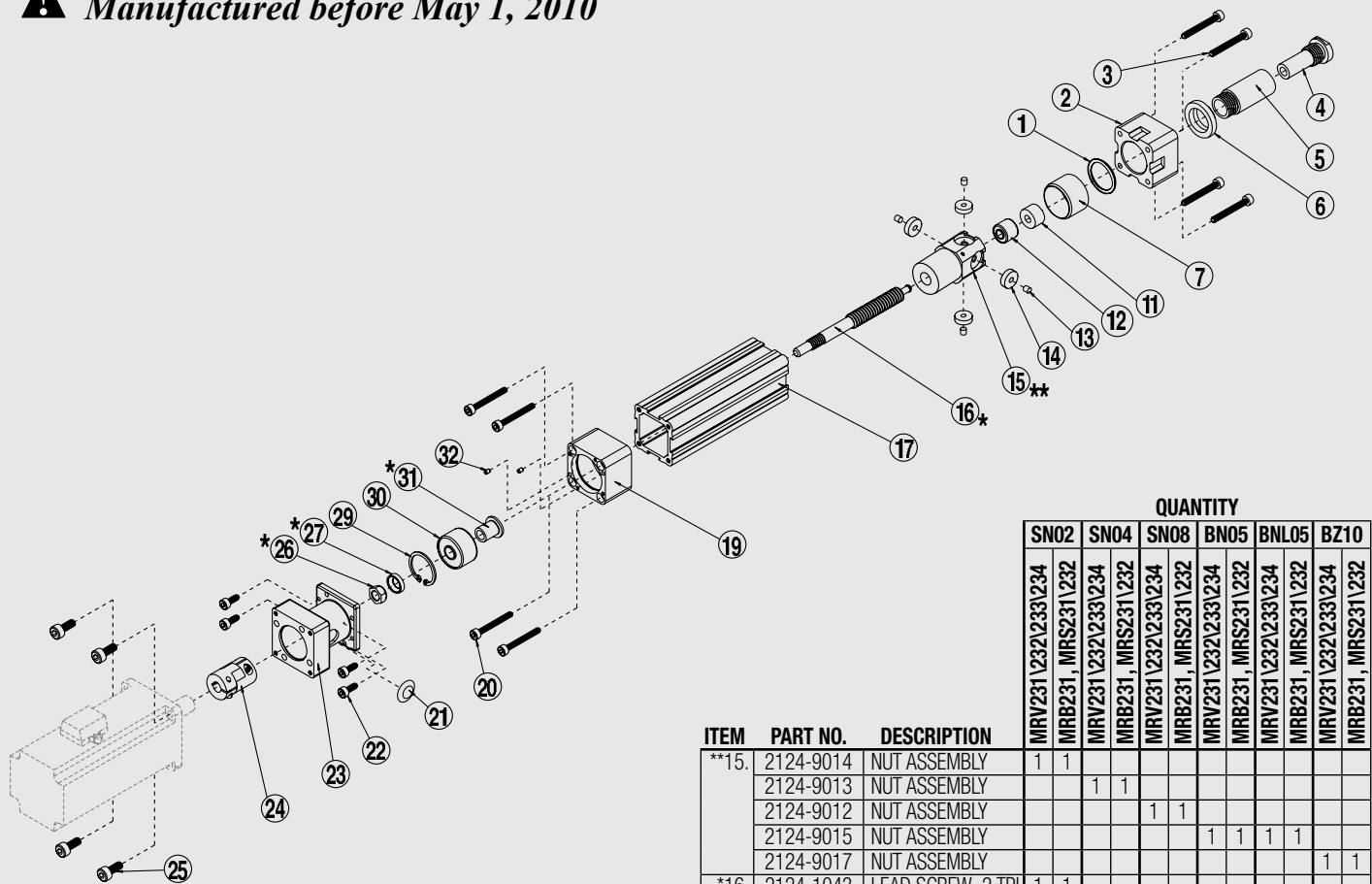


Switches:

- Include retained mounting hardware
- In slot, sit below extrusion profile
- Same for all sizes

**Solid Nut, Ball Nut LMI**

(Inline motor mount)

**⚠ Manufactured before May 1, 2010****Parts Listing**

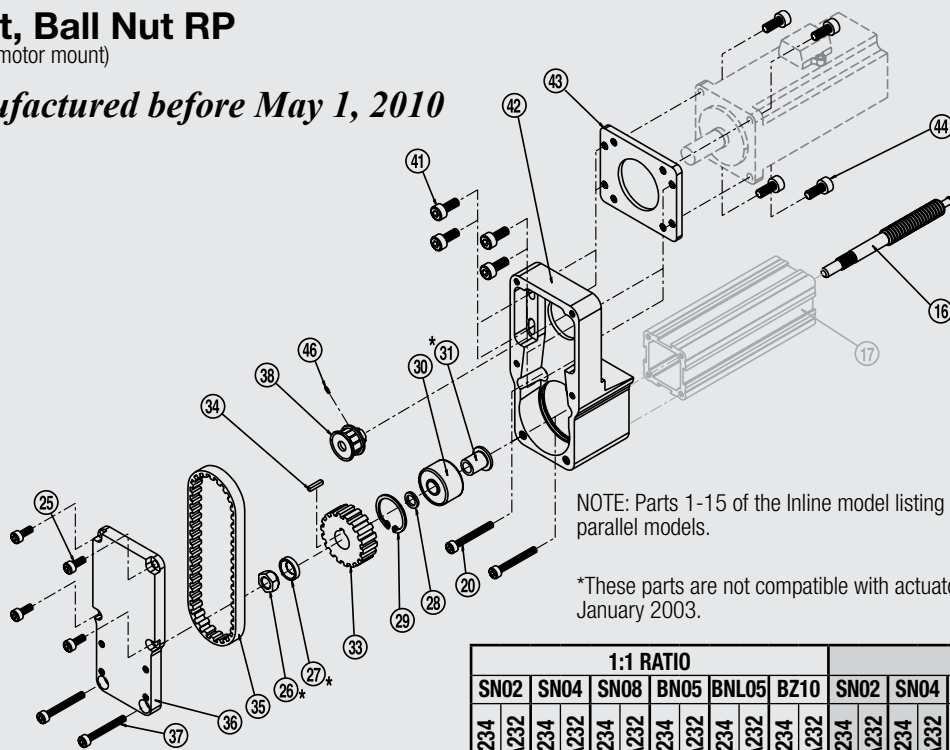
ITEM	PART NO.	DESCRIPTION	QUANTITY						
			SN02	SN04	SN08	BN05	BNL05	BZ10	
1.	2115-1020	O-RING	1	1	1	1	1	1	1
2.	1124-1002	HEAD	1	1	1	1	1	1	1
	2115-1002	HEAD (METRIC)	1	1	1	1	1	1	1
3.	2212-1095	SOCKET HEAD CAP SCREW	4	4	4	4	4	4	4
4.	1124-1006	ROD END	1	1	1	1	1	1	1
	2115-1006	ROD END (METRIC)	1	1	1	1	1	1	1
5.	2115-1007	THRUST ROD	1	1	1	1	1	1	1
6.	2115-1030	WIPER SEAL	1	1	1	1	1	1	1
7.	2115-1023	BEARING SLEEVE	1	1	1	1	1	1	1
11.	2120-1029	BUMPER	1	1	1	1	1	1	1
12.	2124-1090	LEAD SCREW BEARINGS	1	1	1	1	1	1	1
13.	0905-1109	MAGNET	4	4	4	4	4	4	4
14.	2124-1120	COUPLER/NUT BEARING	4	4	4	4	4	4	4
15.	2124-9014	NUT ASSEMBLY	1	1					
	2124-9013	NUT ASSEMBLY		1	1				
	2124-9012	NUT ASSEMBLY			1	1			
	2124-9015	NUT ASSEMBLY				1	1	1	1
	2124-9017	NUT ASSEMBLY							1
16.	2124-1043	LEAD SCREW 2 TPI	1	1					
	2124-1042	LEAD SCREW 4 TPI		1	1				
	2124-1041	LEAD SCREW 8 TPI			1	1			
	2124-1040	LEAD SCREW 5 TPI				1	1	1	1
	2124-1031	LEAD SCREW 10 TPI							1
17.	2115-1031	CYLINDER BODY	1	1	1	1	1	1	1
	2115-1032	CYLINDER BODY	1	1	1	1	1	1	1
19.	1124-1037	BEARING PLATE	1	1	1	1	1	1	1
	2124-1037	BEARING PLATE (METRIC)	1	1	1	1	1	1	1
20.	2212-1095	SOCKET HEAD SCREW	4	4	4	4	4	4	4
21.	0910-1426	CAP PLUG	1	1	1	1	1	1	1
22.	0610-1033	SOCKET HEAD SCREW	4	4	4	4	4	4	4
23.	2124-1055	MOTOR SPACER	1	1	1	1	1	1	1
	2124-1053	MOTOR SPACER	1	1	1	1	1	1	1
24.	3600-9238	COUPLER KIT	1	1	1	1	1	1	1
	3600-9237	COUPLER KIT	1	1	1	1	1	1	1
25.	4910-1004	SOCKET HEAD SCREW	4	4	4	4	4	4	4
	2212-1098	SOCKET HEAD SCREW	4	4	4	4	4	4	4
*26.	1124-1082	SPHERICAL NUT	1	1	1	1	1	1	1
*27.	1124-1092	WASHER	1	1	1	1	1	1	1
29.	2100-1010	RETAINING RING	1	1	1	1	1	1	1
30.	3420-1222	BEARING	1	1	1	1	1	1	1
*31.	1124-1044	BUSHING	1	1	1	1	1	1	1
32.	1930-1024	DOWEL PIN	2	2	2	2	2	2	2

\*These parts are not compatible with actuators manufactured before January 2003.

\*\*Must order 1124-9051 KIT, includes 4 magnets #0905-1109 and 4 coupler/nut bearings #2124-1120

**Solid Nut, Ball Nut RP**

(Reverse parallel motor mount)

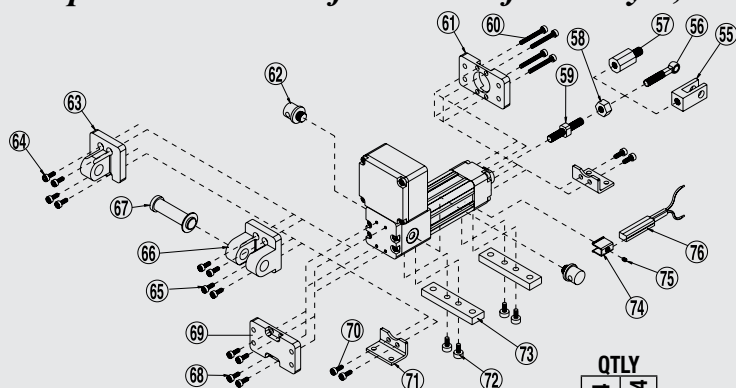
**⚠ Manufactured before May 1, 2010**

NOTE: Parts 1-15 of the Inline model listing are used in the reverse-parallel models.

\*These parts are not compatible with actuators manufactured before January 2003.

ITEM	PART NO.	DESCRIPTION	1:1 RATIO						2:1 RATIO					
			SN02	SN04	SN08	BN05	BNL05	BZ10	SN02	SN04	SN08	BN05	BNL05	BZ10
*16.	2115-1043	LEAD SCREW 2 TPI	1	1					1	1				
	2115-1042	LEAD SCREW 4 TPI		1	1					1	1			
	2115-1041	LEAD SCREW 8 TPI			1	1					1	1		
	2115-1040	LEAD SCREW 5 TPI				1	1	1	1			1	1	1
	2124-1030	LEAD SCREW 10TPI						1	1					1
17.	2115-1031	CYLINDER BODY				1	1	1	1	1	1	1	1	1
	2115-1032	CYLINDER BODY	1	1	1	1	1	1	1	1	1	1	1	1
20.	4910-1061	SOCKET HEAD CAP SCREW	2	2	2	2	2	2	2	2	2	2	2	2
25.	2212-1093	SOCKET HEAD CAP SCREW	4	4	4	4	4	4	4	4	4	4	4	4
*26.	1124-1082	LOCKNUT	1	1	1	1	1	1	1	1	1	1	1	1
*27.	1124-1092	WASHER	1	1	1	1	1	1	1	1	1	1	1	1
28.	2115-1017	WASHER	1	1	1	1	1	1	1	1	1	1	1	1
29.	2100-1010	RETAINING RING	1	1	1	1	1	1	1	1	1	1	1	1
30.	3420-1222	BEARING	1	1	1	1	1	1	1	1	1	1	1	1
*31.	1124-1044	LEAD SCREW SLEEVE	1	1	1	1	1	1	1	1	1	1	1	1
33.	2124-1005	LOWER PULLEY	1	1	1	1	1	1	1	1	1	1	1	1
	2124-1006	LOWER PULLEY							1	1	1	1	1	1
34.	1817-1044	SQUARE KEY	1	1	1	1	1	1	1	1	1	1	1	1
35.	2115-1026	BELT	1	1	1	1	1	1	1	1	1	1	1	1
	2115-1025	BELT							1	1	1	1	1	1
36.	1124-1000	BACK PLATE COVER	1	1	1	1	1	1	1	1	1	1	1	1
	2124-1000	BACK PLATE COVER (METRIC)	1	1	1	1	1	1	1	1	1	1	1	1
37.	2212-1100	SOCKET HEAD CAP SCREW	2	2	2	2	2	2	2	2	2	2	2	2
38.	2124-1002	UPPER PULLEY	1	1	1	1	1	1	1	1	1	1	1	1
	2124-1001	UPPER PULLEY		1	1	1	1	1	1	1	1	1	1	1
41.	2212-1098	SOCKET HEAD CAP SCREW	4	4	4	4	4	4	4	4	4	4	4	4
	2212-1096	SOCKET HEAD CAP SCREW		4	4	4	4	4	4	4	4	4	4	4
42.	1124-1070	REVERSE-PARALLEL HOUSING	1	1	1	1	1	1	1	1	1	1	1	1
	2115-1070	REVERSE-PARALLEL HSG (METRIC)	1	1	1	1	1	1	1	1	1	1	1	1
43.	2124-1008	MOTOR PLATE	1	1	1	1	1	1	1	1	1	1	1	1
	2124-1007	MOTOR PLATE		1	1	1	1	1	1	1	1	1	1	1
44.	2212-1099	SOCKET HEAD CAP SCREW	4	4	4	4	4	4	4	4	4	4	4	4
	0603-1016	SOCKET HEAD CAP SCREW		4	4	4	4	4	4	4	4	4	4	4
46.	2006-1059	SPRING PIN	1	1	1	1	1	1	1	1	1	1	1	1
	2132-1022	SPRING PIN		1	1	1	1	1	1	1	1	1	1	1

# Options Manufactured before May 1, 2010



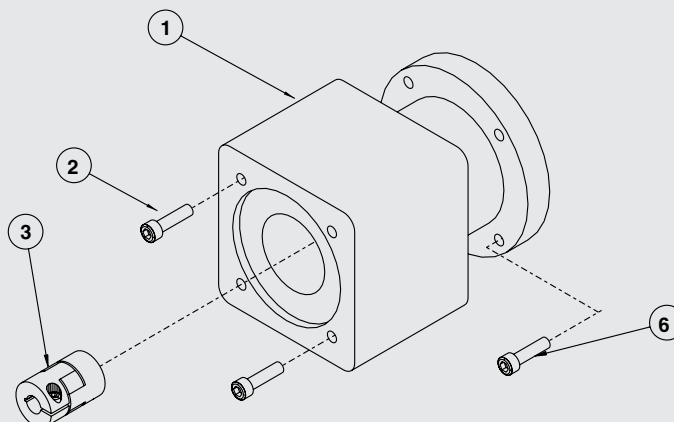
ITEM	PART NO.	DESCRIPTION	QTYL RSA24	QTYL RSM24
<b>ROD END CLEVIS (CLV)</b>				
	1124-9029	ROD END CLEVIS KIT	1	
	2124-9039	ROD END CLEVIS KIT		1
55.	1124-1059	CLEVIS	1	
	2124-1069	CLEVIS		1
58.	2124-1017	JAM NUT	1	
	2124-1021	JAM NUT		1
59.	1124-1057	THREADED ROD END	1	
	2124-1067	THREADED ROD END		1
<b>ALIGNMENT COUPLER (ALC)</b>				
57.	1124-1060	ALIGNMENT COUPLER	1	
	2124-1070	ALIGNMENT COUPLER		1
<b>SPHERICAL ROD EYE (SRE)</b>				
	1124-9028	SPHERICAL ROD EYE KIT	1	
	2124-9038	SPHERICAL ROD EYE KIT		1
56.	1124-1058	ROD END BEARING	1	
	2124-1068	ROD END BEARING		1
58.	2124-1017	JAM NUT	1	
	2124-1021	JAM NUT		1
59.	1124-1057	THREADED ROD END	1	
	2124-1067	THREADED ROD END		1
<b>EXTERNALLY THREADED ROD END (MET)</b>				
59.	1124-1057	THREADED ROD END	1	
	2124-1067	THREADED ROD END		1
<b>FRONT FLANGE (FFG)</b>				
	1124-9022	FRONT FLANGE KIT	1	
	2124-9032	FRONT FLANGE KIT		1
60.	3410-1397	SOCKET HEAD CAP SCREW	4	
	0603-1016	SOCKET HEAD CAP SCREW		4
61.	1124-1052	FLANGE PLATE	1	
	2124-1062	FLANGE PLATE		1
<b>TRUNNION MOUNT (TRN)</b>				
62.	1124-1051	TRUNNION PIVOT PIN	2	
	1124-1061	TRUNNION PIVOT PIN		2

ITEM	PART NO.	DESCRIPTION	QTYL RSA24	QTYL RSM24
<b>EYE MOUNT (PCS)</b>				
	1124-9024	EYE MOUNT KIT	1	
	2124-9034	EYE MOUNT KIT		1
63.	1124-1054	EYE BRACKET	1	
	2124-1064	EYE BRACKET		1
64.	2309-1057	SOCKET HEAD CAP SCREW	4	
	2212-1097	SOCKET HEAD CAP SCREW		4
<b>CLEVIS MOUNT (PCD)</b>				
	1124-9025	CLEVIS MOUNT KIT (INCH)	1	
	2124-9035	CLEVIS MOUNT KIT (METRIC)		1
65.	2309-1057	SOCKET HEAD CAP SCREW	4	
	2212-1097	SOCKET HEAD CAP SCREW		4
66.	1124-1055	CLEVIS	1	
	2124-1065	CLEVIS		1
67.	1124-1056	CLEVIS PIN	1	
	2124-1066	CLEVIS PIN		1
<b>BACK FLANGE (BFG)</b>				
	1124-9022	BACK FLANGE KIT (INCH)	1	
	2124-9032	BACK FLANGE KIT (METRIC)		1
68.	3410-1397	SOCKET HEAD CAP SCREW	4	
	0603-1016	SOCKET HEAD CAP SCREW		4
69.	1124-1052	FLANGE PLATE	1	
	2124-1062	FLANGE PLATE		1
<b>FOOT MOUNT (FM2)</b>				
	1124-9020	FOOT MOUNT KIT	1	
	2124-9030	FOOT MOUNT KIT		1
70.	1150-1007	SOCKET HEAD CAP SCREW	4	
	2150-1102	SOCKET HEAD CAP SCREW		4
71.	1124-1050	FOOT MOUNT BRACKET	2	
	2124-1060	FOOT MOUNT BRACKET		2
<b>MOUNTING PLATE (MP2)</b>				
	1124-9023	MOUNTING PLATE KIT	1	
	2124-9033	MOUNTING PLATE KIT		1
72.	2212-1010	FLAT HEAD CAP SCREW	4	
	3212-1010	FLAT HEAD CAP SCREW		4
73.	1124-1053	TUBE SUPPORT BRACKET	2	
	2124-1063	TUBE SUPPORT BRACKET		2
<b>SWITCH KIT</b>				
*74.	2503-1034	SWITCH BRACKET	1	1
*75.	3600-1831	SET SCREW	1	1
*76.	3600-9082	REED SWITCH, FORM A, 5M WIRE	1	1
	3600-9083	REED SWITCH, FORM A, MALE CONNECTION	1	1
	3600-9084	REED SWITCH, FORM C, 5M WIRE	1	1
	3600-9085	REED SWITCH, FORM C, MALE CONNECTION	1	1
	3600-9088	HALL-EFFECT SOURCING SWITCH (PNP), 5M WIRE	1	1
	3600-9089	HALL-EFFECT SOURCING SWITCH (PNP), MALE CONNECTION	1	1
	3600-9090	HALL-EFFECT SINKING SWITCH (NPN), 5M WIRE	1	1
	3600-9091	HALL-EFFECT SINKING SWITCH (NPN), MALE CONNECTION	1	1
	3600-9086	TRIAC SWITCH (AC), 5M WIRE	1	1
	3600-9087	TRIAC SWITCH (AC), MALE CONNECTION	1	1

\*PARTS NOT AVAILABE, ORDER VIA CONFIGURATOR SEE PAGE 13

## Parts Listing: Gearhead Mounting Kits

ITEM	PART NO.	DESCRIPTION	MOTOR/ GEARHEAD COMBINATION					
			MRS23 + GHK20	MRR231 + GHK20	MRV231 + GHJ20/21	MRV232 + GHJ20/21	MRV233 + GHV3	MRS3 + GHS3
1.	2124-1056	SPACER	1	1	1	1	1	
	2124-1325	SPACER						1 1
2.	0610-1033	SOCKET HEAD CAP SCREW	4	4	4	4	4	
	2212-1098	SOCKET HEAD CAP SCREW						4 4
3.	3600-9238	COUPLER	1	1	1	1	1	
	4520-9117	COUPLER						1 1
6.	4910-1004	SOCKET HEAD CAP SCREW	4	4	4	4	4	
	4910-1004	SOCKET HEAD CAP SCREW						4 4







NOTE: For actuators manufactured before 5-1-2010

CONFIG. CODE ORDERING	
MOUNTING HARDWARE & FE CONN. INCLUDED	
CODE	DESCRIPTION
BT	SWITCH ONLY, REED, FORM C, 5M
BM	SWITCH ONLY, REED, FORM C, MALE CONN.
RT	SWITCH ONLY, REED, FORM A, 5M
RM	SWITCH ONLY, REED, FORM A, MALE CONN.
CT	SWITCH ONLY, TRIAC, 5M
CM	SWITCH ONLY, TRIAC, MALE CONN.
KT	SWITCH ONLY, HALL-EFFECT, SINKING, 5M
KM	SWITCH ONLY, HALL-EFFECT, SINKING, MALE CONN.
TT	SWITCH ONLY, HALL-EFFECT, SOURCING, 5M
TM	SWITCH ONLY, HALL-EFFECT, SOURCING, MALE CONN.

NOTE: WHEN ORDERED BY CONFIG. CODE FEMALE CONNECTOR & ALL MOUNTING HARDWARE IS INCLUDED

### REED 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 Tolomatic.

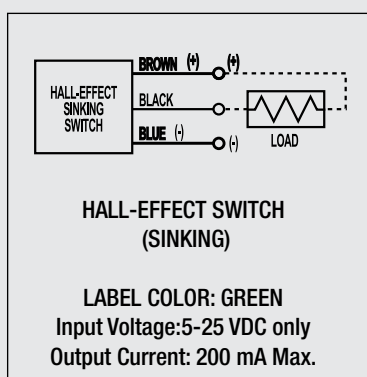
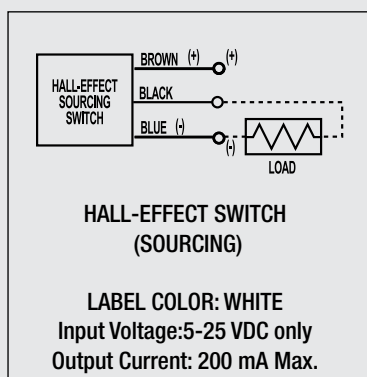
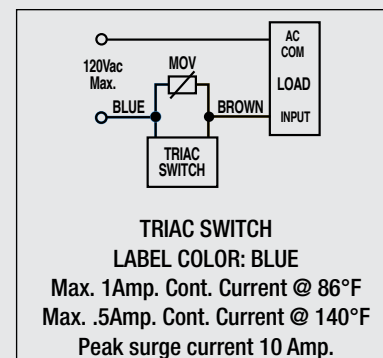
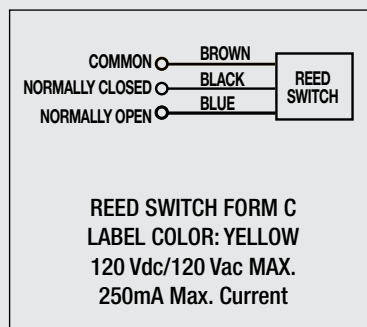
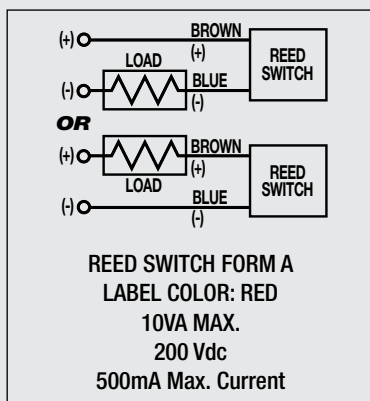
**WARNING:** An ohmmeter is recommended for testing Reed Switches. NEVER use an incandescent light bulb as a high current rush may damage the switch.

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 switch. Switch ratings must not be exceeded at any time

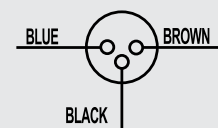
**TO ORDER RETROFIT KITS:** SW (then the model number and base size, and code for type of switch needed: **EXAMPLE: SWRSA24RT**

All Switch Kits come with 1 switch and mounting hardware.

## Universal Switch Wiring Diagrams and Label Color Coding



### QUICK-DISCONNECT (Applies to all switch types)



### An Important Note Regarding Field Retrofit of Quick-Disconnect Couplers:

If replacing a Quick-Disconnect switch manufactured before 7-1-97 it will also be necessary to replace or rewire the female-end coupler with the in-line splice

**2503-1025 Female Connector 5M**

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

For complete Reed and TRIAC Switch Performance Data, refer to the Tolomatic Electric Products Catalog #3600-4166.

**Tolomatic**  
 EXCELLENCE IN MOTION

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