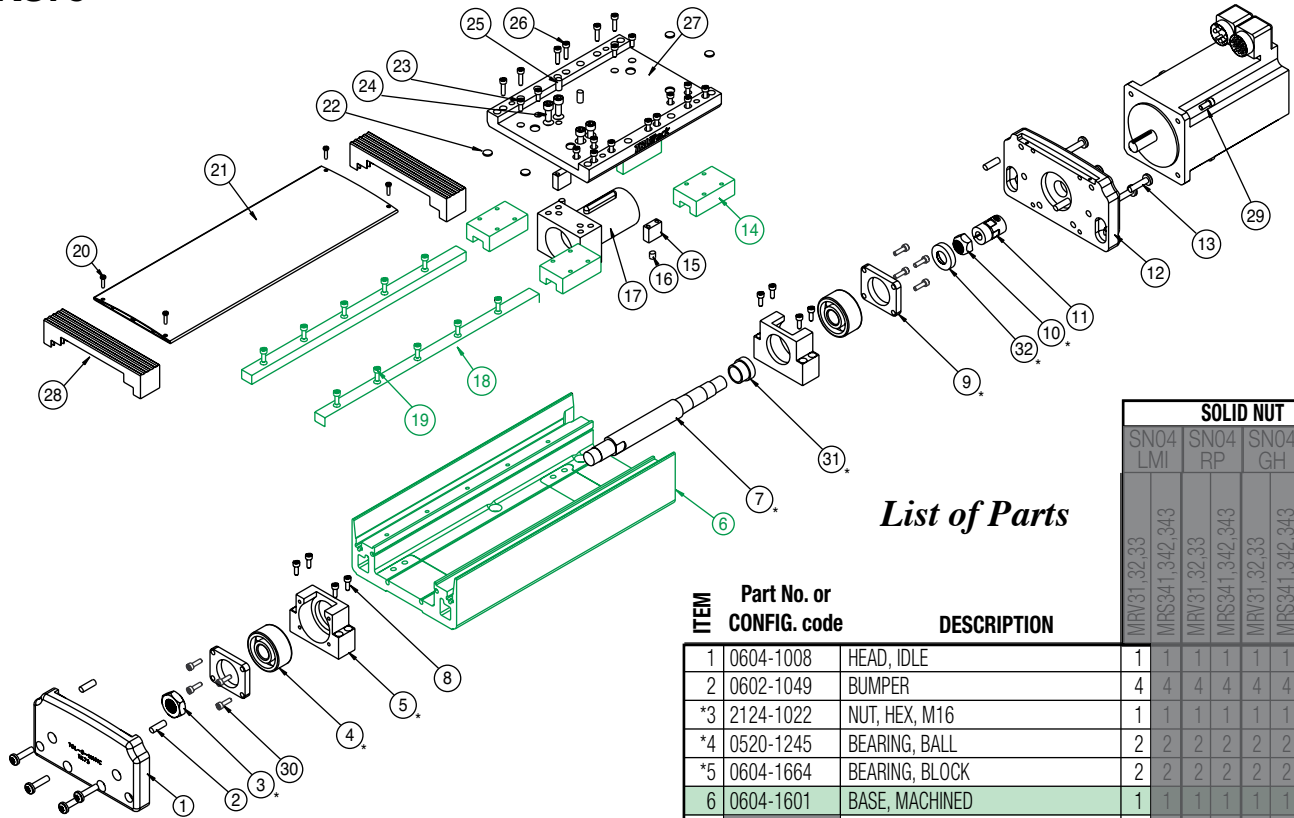


# TruTrack Screw-Drive Actuator

TKS75



List of Parts

ITEM	Part No. or CONFIG. code	DESCRIPTION	SOLID NUT			
			SN04 LMI	SN04 RP	SN04 GH	SN04 BRK
1	0604-1008	HEAD, IDLE	1	1	1	1
2	0602-1049	BUMPER	4	4	4	4
*3	2124-1022	NUT, HEX, M16	1	1	1	1
*4	0520-1245	BEARING, BALL	2	2	2	2
*5	0604-1664	BEARING, BLOCK	2	2	2	2
6	0604-1601	BASE, MACHINED	1	1	1	1
*7	0604-1656	ACME SCREW	1			1
	0604-1652	ACME/4TPI, GH.34			1	1
	0604-1660	ACME/4TPI, RP.		1	1	
8	0604-1056	SHCS, M6 x 35mm, SST	8	8	8	8
*9	0604-1665	CLAMP, BEARING	2	2	2	2
*10	1150-1113	SPHERICAL NUT	1	1	1	1
11	3600-9252	COUPLER KIT			1	1
	3600-9253	COUPLER KIT	1			
12	0604-1007	HEAD, DRIVE	1	1	1	1
13	0604-1025	SCREW PAN M6 x 25mm, SST	8	8	8	8
14	0602-1006	BLOCK, THK LINEAR	4	4	4	4
15	0604-1013	BLOCK, MAGNET	2	2	2	2
16	2224-1016	MAGNET ROD	2	2	2	2
17	0604-9150	ASSY. CONNECTOR ACME NUT	1	1	1	1
18	0604-1033	RAIL MACHINED	2	2	2	2
19	2212-1093	SHCS, M4 x 12mm	AR	AR	AR	AR
20	0603-1036	SCREW BUTTON, M3 x 10mm	4	4	4	4
21	0604-1003	COVER	1	1	1	1
22	0601-2090	PAD	4	4	4	4
23	2212-1092	SHCS, M4 x 10mm, SST	8	8	8	8
24	0604-1057	SHCS, M6 x 16mm, SST	4	4	4	4
25	0603-1070	PIN DOWEL	2	2	2	2
26	0602-1027	SHCS, M4 x 16mm, SST	12	12	12	12
27	0604-1004	CARRIER	1	1	1	1
28	0604-9830	BELLOWS KIT	1	1	1	1
29	2212-1097	SHCS, M5 x 16, SST		4	4	4
	2212-1096	SHCS, M5 x 12, SST	4			
30	2212-1097	SHCS, M5 x 16, SST	8	8	8	8
*31	0604-1651	TAPER SLEEVE	1	1	1	1
*32	0604-2090	SPHERICAL WASHER	1	1	1	1

**NOTE:** Items shaded cannot be field installed without proper assembly fixtures. For repair, return actuator to Tolomatic, Inc.

\*Not backward compatible with units manufactured before 08/01/2003

**(09/01/2021) DISCONTINUED PRODUCT STYLE OR SIZE. PARTS SHEET IS FOR REPAIR INSTRUCTIONS ONLY.**

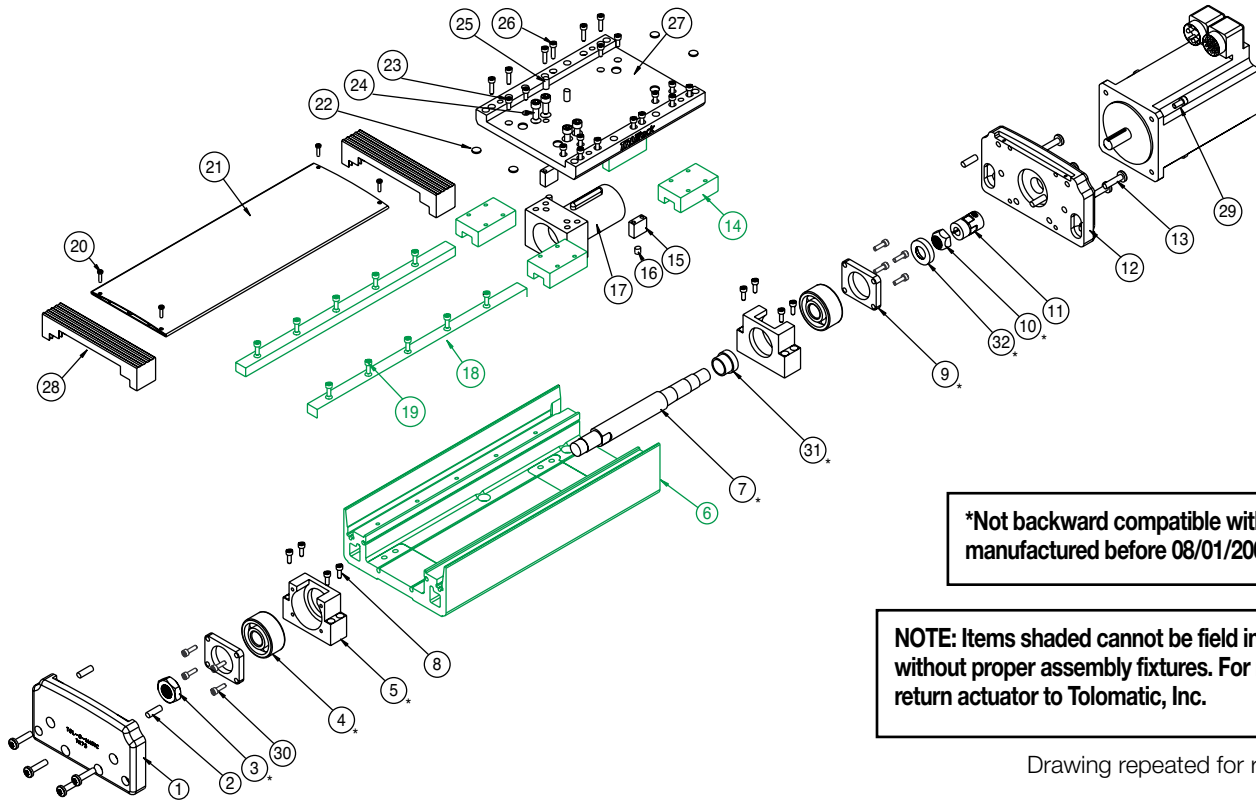
Parts listing is for reference only. All parts listed are limited to stock on hand. Contact Tolomatic regarding availability.

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*List of Parts*

			BALL NUT															
ITEM	Part No. or CONFIG. code	DESCRIPTION	BN01	BN01	BN01	BN01	BN02	BN02	BN02	BN02	BN04	BN04	BN04	BN04	BN04	BN04		
			LMI	RP	GH	BRK	LMI	RP	GH	BRK	LMI	RP	GH	BRK	LMI	RP	GH	BRK
			MRV31,32,33	MRS341,342,343	MRV31,32,33	MRS341,342,343	MRV31,32,33	MRS341,342,343	MRV31,32,33	MRS341,342,343	MRV31,32,33	MRS341,342,343	MRV31,32,33	MRS341,342,343	MRV31,32,33	MRS341,342,343		
1	0604-1008	HEAD, IDLE	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
2	0602-1049	BUMPER	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
*3	2124-1022	NUT, HEX, M16	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
*4	0520-1245	BEARING, BALL	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
*5	0604-1664	BEARING, BLOCK	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
6	0604-1601	BASE, MACHINED	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
*7	0604-1659	BALL SCREW	1	1			1	1										
	0604-1655	BALL/1TPI, GH,34				1	1											
	0604-1663	BALL/1TPI, RP.			1	1												
	0604-1658	BALL/2TPI, MRV/MRS34, BRK.34						1	1			1	1					
	0604-1654	BALL/2TPI, GH,34								1	1							
	0604-1662	BALL/2TPI, RP.								1	1							
	0604-1657	BALL/4TPI, MRV/MRS34, BRK.34										1	1			1		
	0604-1653	BALL/4TPI, GH,34												1	1			
	0604-1661	BALL/4TPI, RP.										1	1					
8	0604-1056	SHCS, M6 x 35mm, SST	8	8	8	8	8	8	8	8	8	8	8	8	8	8		
*9	0604-1665	CLAMP, BEARING	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
*10	1150-1113	SPHERICAL NUT	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
11	3600-9252	COUPLER KIT	1			1	1	1				1			1	1		
	3600-9253	COUPLER KIT		1				1				1			1	1		
12	0604-1007	HEAD, DRIVE	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
13	0604-1025	SCREW PAN M6 x 25mm, SST	8	8	8	8	8	8	8	8	8	8	8	8	8	8		
14	0602-1006	BLOCK, THK LINEAR	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
15	0604-1013	BLOCK, MAGNET	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
16	2224-1016	MAGNET ROD	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
17	0604-9200	ASSY. CONNECTOR BALL NUT						1	1	1	1	1	1	1				
	0604-9250	ASSY. CONNECTOR BALL NUT, .957	1	1	1	1	1	1										
	0604-9100	ASSY. CONNECTOR BALL NUT, .957										1	1	1	1	1		
18	0604-1033	RAIL MACHINED	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
19	2212-1093	SHCS, M4 x 12mm	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR		
20	0603-1036	SCREW BUTTON, M3 x 10mm	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
21	0604-1003	COVER	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
22	0601-2090	PAD	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
23	2212-1092	SHCS, M4 x 10mm, SST	8	8	8	8	8	8	8	8	8	8	8	8	8	8		
24	0604-1057	SHCS, M6 x 16mm, SST	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
25	0603-1070	PIN DOWEL	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
26	0602-1027	SHCS, M4 x 16mm, SST	12	12	12	12	12	12	12	12	12	12	12	12	12	12		
27	0604-1004	CARRIER	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
28	0604-9830	BELLOWS KIT	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
29	2212-1097	SHCS	4			4	4	4	4		4	4	4	4		4		
	2212-1096	SHCS, M5 x 12, SST		4					4					4				
30	2212-1097	SHCS, M5 x 16, SST	8	8	8	8	8	8	8	8	8	8	8	8	8	8		
*31	0604-1651	TAPER SLEEVE	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
*32	1150-1114	SPHERICAL WASHER	1	1	1	1	1	1	1	1	1	1	1	1	1	1		



**\*Not backward compatible with units manufactured before 08/01/2003**

**NOTE: Items shaded cannot be field installed without proper assembly fixtures. For repair, return actuator to Tolomatic, Inc.**

Drawing repeated for reference

**General Cylinder Disassembly Instructions**

Begin with a clean work area. Be sure all replacement parts present and have no visual damage or defects. The following tools are recommended for proper disassembly and assembly.

- Metric Allen Wrench Set
- Torx bit set
- Metric Socket Set
- Metric Combination Wrench Set

**1. Carrier and Head Removal.** Remove Cover Screws (20) and remove the Cover (21). Remove all Cap Screws (23,26) that attach Carrier (27) to THK Blocks (14). Remove Cap Screws (24) that attach Carrier to Nut Connector (17). Lift carrier from THK Blocks and Nut Connector. Note that there are dowel pins locating the Carrier to Nut Connector. Remove Head Screws (13) to remove heads (1,12).

**2. Remove Lead Screw sub-assembly.** On the non-motor end of the actuator remove Lock Nut (10) from Lead Screw (7). Remove the locknut on the motor end as well. Remove the Cap Screws (8) attaching Bearing Blocks (5) to the Base (6), and remove the motor end bearing block. The lead screw assembly can now be removed from the base. The motor end bearing is a press fit on the leadscrew journal. The use of a press may be required to get the bearing off. Remove the bearing clamps (9) from the bearing blocks in order to remove the bearings (4).

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

**Plastic nut style:** Plastic nuts are factory pinned into the Nut Connector and cannot be removed. If nuts are worn, a new Nut Connector Assy must be ordered.

**General Cylinder Assembly Instructions**

**1. Install Lead Screw assembly and Carrier.**

Thoroughly clean the taper sleeve (31) and tapered portion of leadscrew. With nut connector assembly and bearing block on the Lead Screw slide the tapered sleeve onto the motor end of screw, then slide bearing up to leadscrew journal. The bearing must be pressed on to the leadscrew journal up to the tapered sleeve. Take caution to only apply press to the inner race of the bearing. Locate spherical washer (32) over exposed threads, apply Loctite 242 to the threads and locknut, and thread the locknut (10) onto the screw. Torque locknut to 55 ft-lbs. Locate the bearing block over the bearing and install the bearing clamp, do not torque fasteners at this time. Slide the non-motor end bearing assembly over the end of the lead screw, and locate this assembly on the base. Secure both bearing blocks to the base. Torque Bearing Block fasteners (8) to 100 in-lbs. Verify that all bearing clamp fasteners are loose. Attach Carrier to the nut connector, locating on the dowel pins. Secure the fasteners attaching Carrier to the THK Bearing Blocks.

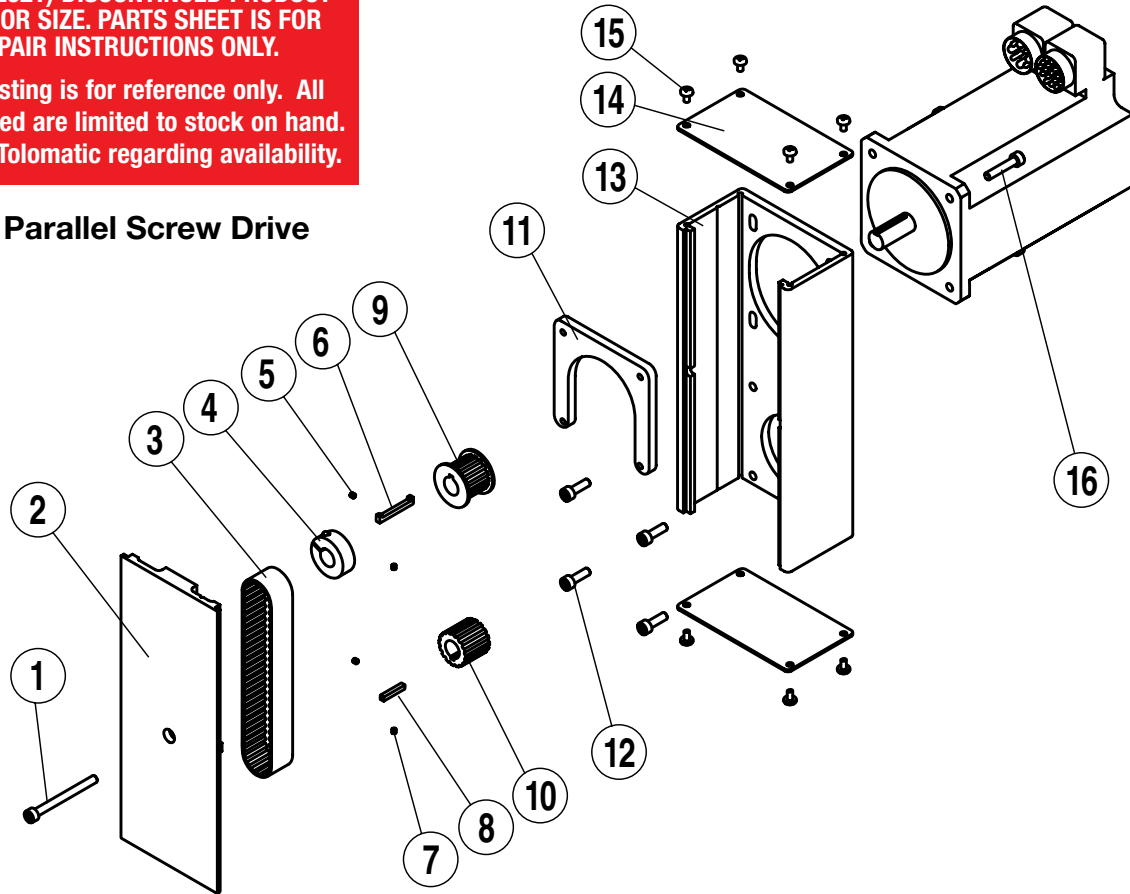
**2. Bearing Alignment.** Position the carrier near the motor end of the actuator. Torque the bearing clamp fasteners to 35 in-lbs. Re-position the carrier near the non-motor end of actuator, and torque the bearing clamp fasteners to 35 in-lbs. Install lockwasher and thread lock nut onto the non-motor end of lead screw. Torque the lock nut to 15 in-lbs and bend over the best fitting lockwasher tab.

**3. Install Heads and Cover.** Attach Heads to the base with head screws (13). Install Cover (21) and attach with screws (20).

**(09/01/2021) DISCONTINUED PRODUCT  
STYLE OR SIZE. PARTS SHEET IS FOR  
REPAIR INSTRUCTIONS ONLY.**

Parts listing is for reference only. All parts listed are limited to stock on hand. Contact Tolomatic regarding availability.

**Reverse Parallel Screw Drive**



**List of Parts**

ITEM	Part No. or CONFIG. code	DESCRIPTION	1:1 RATIO		2:1 RATIO	
			MRV31,32,33	MPS341,342,343	MRV31,32,33	MPS341,342,343
1	3420-1639	SHCS, M5 X 0.8, 55 MM LONG, SST	1	1	1	1
2	0602-1615	COVER, TKS50/75-34 FRAME	1	1	1	1
3	2133-1025	TIMING BELT	1	1		
	2164-1007	TIMING BELT, 375-5M-19			1	1
4	2312-1005	CLAMP COLLAR, Ø.500		1		1
5	4415-1015	SET SCREW, M3 X 0.5 X 3 MM LONG	2		2	
6	2132-1021	KEY, SPECIAL, .125 X .125	1		1	
7	4415-1015	SET SCREW, M3 X 0.5 X 3 MM LONG	2	2	2	2
8	2100-1021	KEY	1	1		
	1004-7706	KEY, .125 X .125 X 1.00 LONG			1	1
9	2132-1002	PULLEY	1		1	
	0602-9850	PULLEY, 16 TEETH, 19 MM WIDTH		1		1
10	0603-1053	PULLEY	1	1		
	0603-1054	PULLEY, 32 TEETH, 19 MM WIDTH			1	1
11	0602-1057	PLATE	1	1	1	1
12	2212-1097	SHCS, M5 X 0.8 X 16 MM LONG, SST	4	4	4	4
13	0602-1605	HOUSING	1	1	1	1
14	0602-1602	END CAP	2	2	2	2
15	0601-1625	SCREW, #6 X .25, SELF-TAPPING, SST	8	8	8	8
16	2212-1099	SHCS, M5 X 0.8 X 25 MM LONG, SST	4	4	4	4

**Reverse Parallel Disassembly Instructions**

1. Remove End Cap's (15). Release tension on belt by breaking loose the motor fasteners (17).
2. Remove RP Cover (2).
3. Remove both drive pulley (9) and driven pulley (10) from their respective shafts. The belt (3) will come off with the pulley's.
4. Remove motor fasteners (17) to remove motor from RP case.
5. Remove the RP case (14) from the head by removing fasteners (13).

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REPAIR INSTRUCTIONS ONLY.**

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Contact Tolomatic regarding availability.**

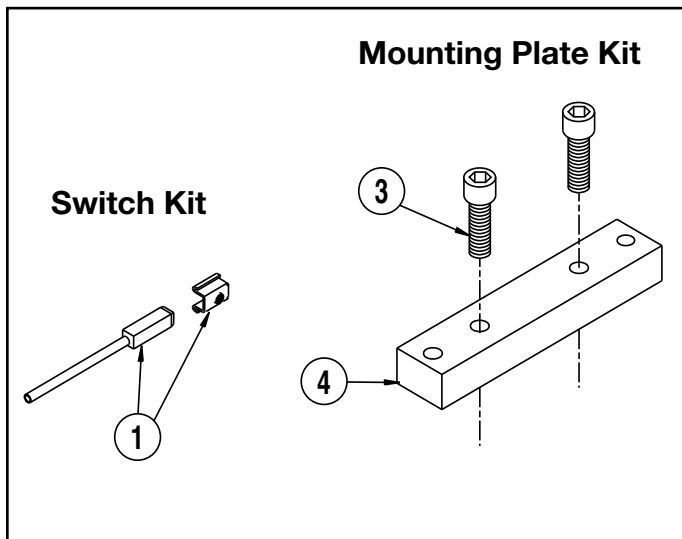
**Reverse Parallel Assembly Instructions**

\*Apply Loctite #242 to all fasteners upon installation

1. Install RP case (14) to the head with cap screws (13).
2. Install the motor to the RP case with fasteners (17). Do not tighten the fasteners at this time.
3. Locate the belt (3) over the pulleys and slide the drive (9) and driven (10) pulleys over their respective shafts. Tighten each pulley to it's shaft with either trantorque or collar clamp. If trantorque, utilize torque wrench to apply appropriate torque. 1/2" hex on trantorque apply 75 in-lbs. 5/8" hex on trantorque apply 100 in-lbs.
4. Verify that there is clearance between the inside of the RP case and each pulley. Verify that the pulleys are aligned to each other.
5. Position the cover (2) in mating slot of the RP case and install the SHCS (1) to hold in place.
6. Tension the belt by pulling the motor away from the drive shaft with the appropriate force from literature # 3600-4212. Tighten the motor fasteners while this force is applied to the motor.

Motor Frame	Tension Force
MRB23, MRS123	10 lbs
MRV23, MRS34	20 lbs
MRV34, MRB34	30 lbs

7. Install both end caps (15) with the screws (16) to finalize assembly.



**OPTIONAL ACCESSORY ASSEMBLY INSTRUCTIONS**

1. **MOUNTING PLATES.** Mounting Plates should be secured at the required distances determined for the application to prevent tube deflection. Apply Loctite #242 to Screws and secure Mounting Plates to tube, aligning holes in tube with holes in Mounting Plates.

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

**TO ORDER RETROFIT KITS:**

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

**EXAMPLE: SWTK75BT**

Where **SW** is the switch kit, **TK** is the model, **75** is the 3" size, and **BT** is a Form C Reed Switch with 5-meter lead.

**List of Parts**

Item	Part No. or CONFIG. code	Description	QTY.
<b>SWITCH KIT</b>			
1	SWTKS75RT	Switch, Reed, Form A, 5M Wire	AR
	SWTKS75BT	Switch, Reed, Form C, 5M Wire	AR
	SWTKS75TT	Switch, Source, Hall, 5M Wire	AR
	SWTKS75KT	Switch, Sinking, Hall, 5M Wire	AR
	NOTE: Switch bracket with set screw is included		
<b>MOUNTING PLATES</b>			
3	0604-1038	SHCS M8 x 20	2
4	0604-1080	MOUNTING PLATE	1

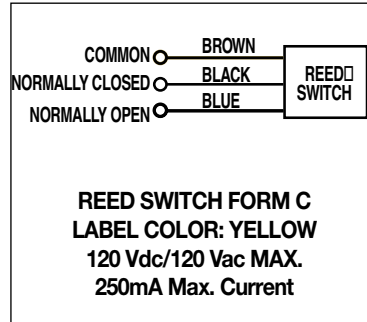
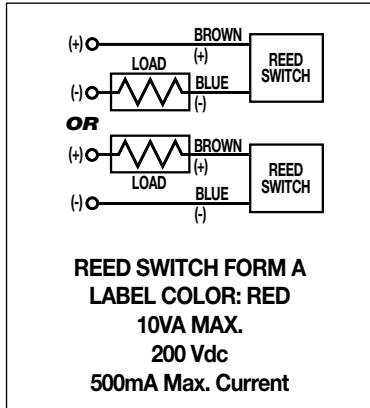
\*AR = as required

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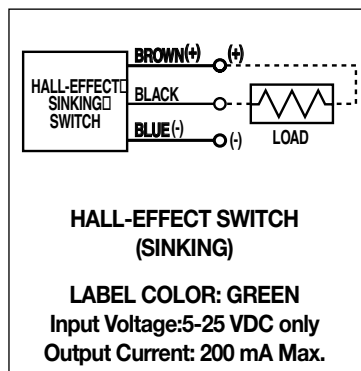
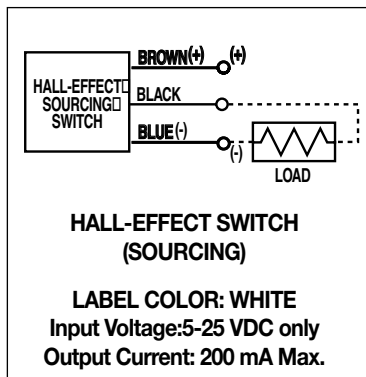
<b>SWITCH TYPE CODE</b>	
<b>BT</b>	(Form C Reed Switch with 5-meter lead)
<b>RT</b>	(Form A Reed Switch with 5-meter lead)
<b>KT</b>	(Hall-effect Switch (Sinking) 5-meter lead)
<b>TT</b>	(Hall-effect Switch (Sourcing) 5-meter lead)

**Universal Switch Wiring Diagrams and Label Color Coding**



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