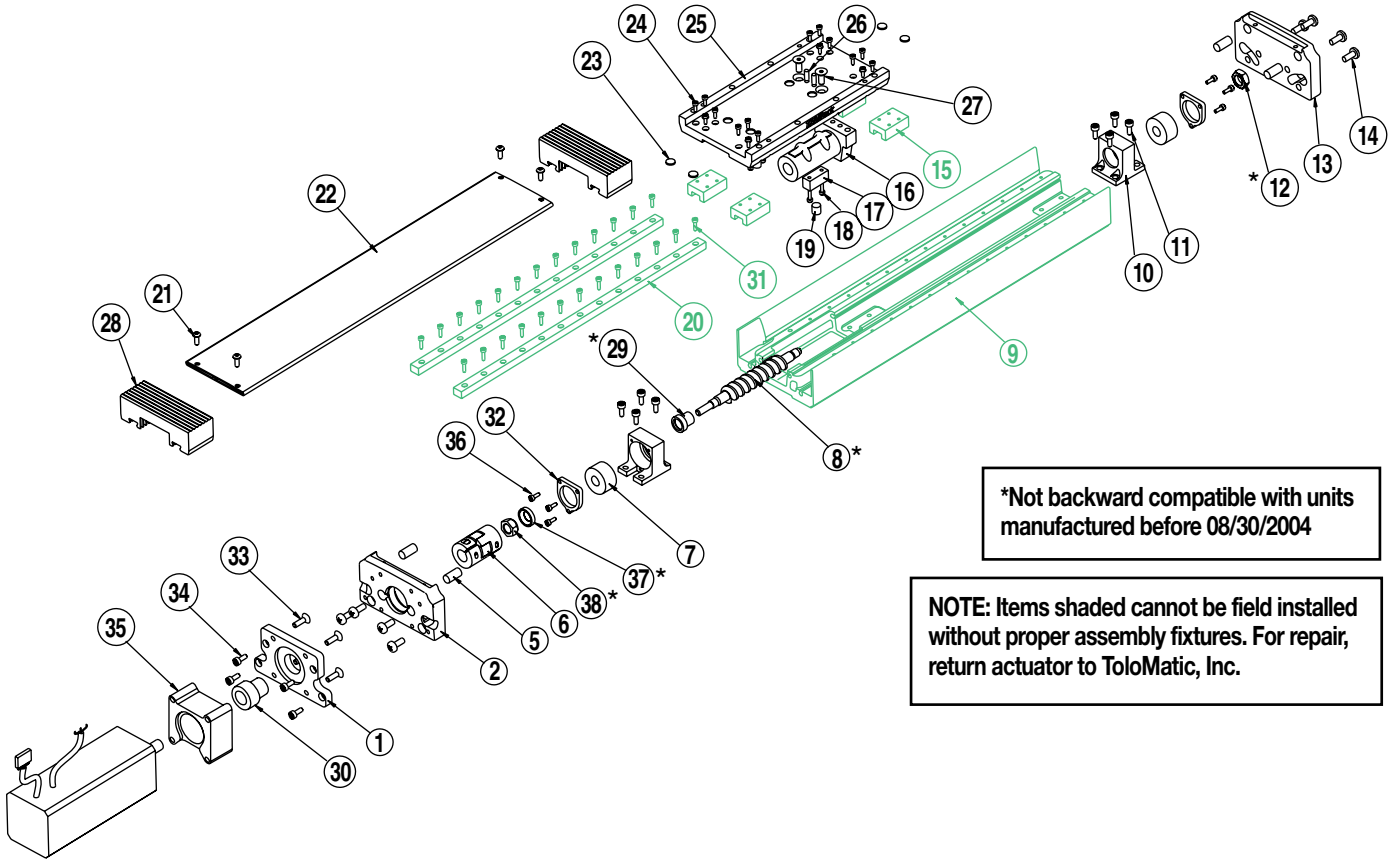


TruTrack Screw-Drive Actuator TKS10



List of Parts

ITEM	Part No. or CONFIG. code	DESCRIPTION	SOLID NUT								BALL NUT								
			2TPI SCREW CONFIG.								8TPI SCREW CONFIG.								
			SNO2 LMI		SNO2 RP		SNO2 GH		SNO2 BRK		BN08 LMI		BN08 RP		BN08 GH		BN08 BRK		
			MRV11	MRV21,22,23,24	MRS231,232	MRV11	MRV21,22,23,24	MRS231,232	MRV21,22,23,24	MRS231,232	MRV21,22,23,24	MRS231,232	MRV11	MRV21,22,23,24	MRS231,232	MRV11	MRV21,22,23,24	MRS231,232	MRV21,22,23,24
1	0601-1072	Adapter, Plate, MRV11	1							1									
2	0601-1007	Head, Drive MRV11	1		1					1		1							
	0601-1087	Head, Drive MRV, MRS23		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	0602-3012	SHCS, M3 x 10mm, SST		2			2	2	2	2	2	2	2	2	2	2	2	2	2
5	0601-1049	Bumper	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
6	3600-9311	Coupler Assy MRV11	1							1									
	0601-9815	Coupler Assy MRV23		1			1	1	1		1					1	1	1	
	0601-9810	Coupler Assy MRS23			1					1		1							1
7	4510-1060	Bearing, Dbl Row Angular	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
*8	0601-1643	SN02, MRV11, Lead Screw	1																
	0601-1649	SN02, RP, Lead Screw			1	1	1												
	0601-1645	SN02, MRV23, Lead Screw		1			1	1	1										
	0601-1647	SN02, MRS23, Lead Screw			1				1										
	0601-1644	BN08, MRV11, Lead Screw								1									
	0601-1650	BN08, RP, Lead Screw										1	1	1					
	0601-1646	BN02, MRV23, Lead Screw									1				1	1	1		
	0601-1648	BN02, MRS23, Lead Screw										1							1
9	0601-1001	Base, Machined	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

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

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 (21) and remove the Cover (22). Remove all Cap Screws (24) that attach Carrier (25) to THK Blocks (15). Remove Cap Screws (27) that attach Carrier to Nut Connector (16). Lift carrier from THK Blocks and Nut Connector. Note that there are dowel pins locating the Carrier to Nut Connector. Remove Head Screws (14) to remove heads (2,13).
- 2. Remove Lead Screw sub-assembly.** On the non-motor end of the actuator remove Nut (12) from Lead Screw (8). Remove the locknut on the motor end as well. Remove the Cap Screws (11) attaching Bearing Blocks (10) to the Base (9), and remove the non-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 (32) from the bearing blocks in order to remove the bearings (7).

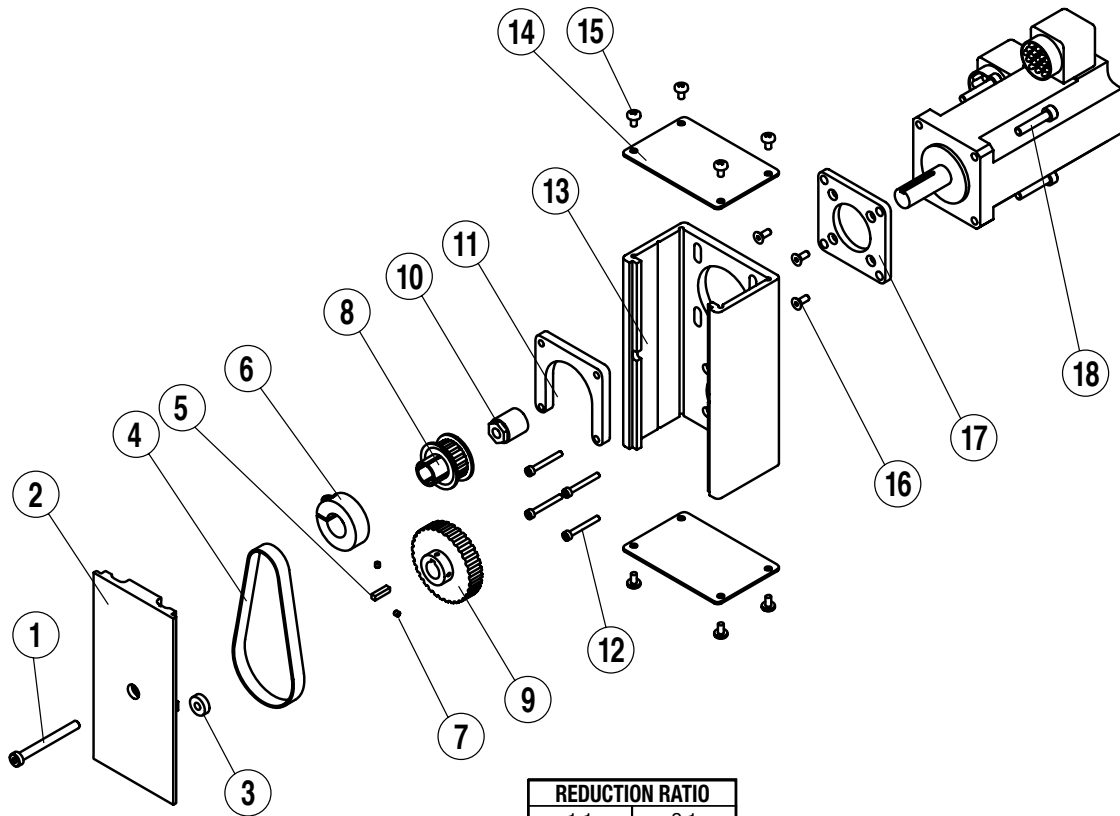
Ball nut style: Caution is required if removal of the nut is necessary. Contact the factory for available parts and procedures.

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 (29) and tapered portion of lead-screw. With nut connector assembly and bearing block on the Lead Screw slide the tapered sleeve (29) 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 (37) over exposed threads, apply Loctite 242 to the threads and locknut, and thread the locknut (38) onto the screw. Torque locknut to 65 in-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 (11) to 10 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 4 in-lbs. Re-position the carrier near the non-motor end of actuator, and torque the bearing clamp fasteners to 4 in-lbs. Apply Loctite 242 to the nut (12) and thread onto the non-motor end of lead screw. Torque this nut to 96 oz-in.
- 3. Install Heads and Cover.** Attach Heads to the base with head screws (14). Install Cover (22) and attach with screws (21).



List of Parts

ITEM	Part No. or CONFIG. code	DESCRIPTION	REDUCTION RATIO					
			1:1			2:1		
			MRV11	MRV21, 22, 23, 24	MRS231, 232	MRV11	MRV21, 22, 23, 24	MRS231, 232
1	3420-1640	SHCS, M5 X 0.8, 50 MM LONG, SST	1	1	1	1	1	1
2	0601-1613	COVER, TK10	1	1	1	1	1	1
3	0905-1159	BEARING, BALL, RADIAL, Ø.188	1	1	1	1	1	1
4	0601-1061	TIMING BELT, 225-5M-9	1	1				
	0601-1060	TIMING BELT, 265-5M-9				1		1
	0601-1069	TIMING BELT, 201-3M-6		1				
	0601-1070	TIMING BELT, 240-3M-6					1	
5	0520-1067	KEY, .063 X .063 X .05 LONG	1	1	1	1	1	1
6	2317-1005	CLAMP COLLAR, Ø.625			1	1		
7	4415-1015	SET SCREW, M3 X 0.5 X 3 MM LONG	2	2	2	2	2	2
8	0601-1054	PULLEY, 16 TEETH, 9 MM WIDTH	1			1		
	2112-1025	PULLEY, 20 TEETH, 6 MM WIDTH		1			1	
	0601-1062	PULLEY, 16 TEETH, 9 MM WIDTH			1			1
9	0601-1058	PULLEY, 16 TEETH, 9 MM WIDTH	1		1			
	0601-2058	PULLEY, 32 TEETH, 9 MM WIDTH				1		1
	0601-1067	PULLEY, 20 TEETH, 6 MM WIDTH		1				
	0601-2057	PULLEY, 40 TEETH, 6 MM WIDTH					1	
10	4515-1060	TRANTORQ, Ø.314	1			1		
	0510-1111	TRANTORQ, Ø.250			1			1
11	0601-1053	PLATE, MOTOR, 23 FRAME	1	1	1	1	1	1
12	2212-1090	SHCS, M3 X 0.5 X 8 MM LONG	4	4	4	4	4	4
13	0601-1603	HOUSING, TK10	1	1	1	1	1	1
14	0601-1602	END CAP	2	2	2	2	2	2
15	0601-1625	SCREW, #6 X .25, SELF-TAPPING, SST	8	8	8	8	8	8
16	0510-1062	SFHCS, 6-32 X .38 LONG	4					
17	0601-1612	PLATE, ADAPTER, 17 FRAME	1					
18	2212-1098	SHCS, M5 X 0.8 X 20 MM LONG, SST	4					
	2212-1099	SHCS, M5 X 0.8 X 25 MM LONG, SST		4	4	4	4	4

Reverse Parallel Disassembly Instructions

1. Remove End Cap's (14). Release tension on belt by breaking loose the motor fasteners (18).
2. Remove RP Cover (2).
3. Remove both drive pulley (8) and driven pulley (9) from their respective shafts. The belt (4) will come off with the pulley's.
4. Remove motor fasteners (18) from the motor plate (17), to remove the motor from the RP case.
5. Remove the RP case (13) from the head by removing fasteners (12).

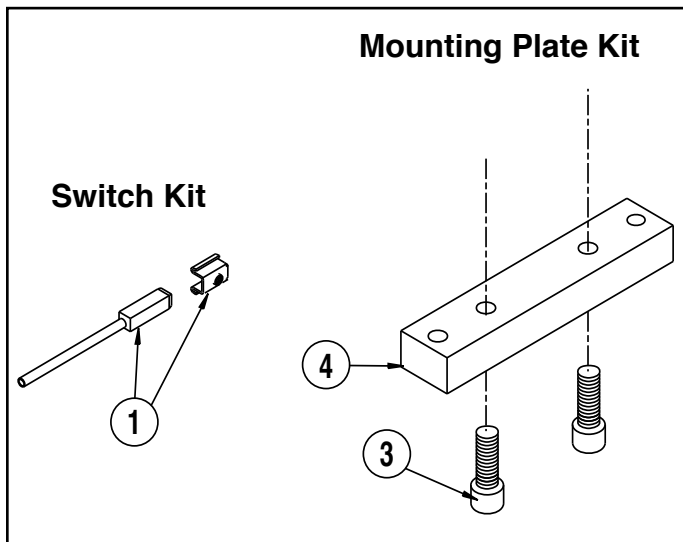
Reverse Parallel Assembly Instructions

*Apply Loctite #242 to all fasteners upon installation

1. Install RP case (13) to the head with cap screws (12). Do not fully tighten the fasteners at this time and verify that the RP case can move with respect to the head.
2. Temporarily install the cover (2) with bearing (3), onto the RP case positioning the bearing over the leadscrew shaft. Hold the cover in place while tightening 2 of the fasteners (12) that hold the RP case to the head.
3. Remove the cover (2) and finish tightening all fasteners attaching the RP case to the head.
4. Install the motor to the RP case with fasteners (18). Do not tighten the fasteners at this time.
5. Locate the belt (4) over the pulleys and slide the drive (8) and driven (9) 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 75 in-lbs.
6. Verify that there is clearance between the inside of the RP case and each pulley. Verify that the pulleys are aligned to each other.
7. Position the cover (2) in mating slot of the RP case and install the SHCS (1) to hold in place. Take care not to overtighten. If the cover is deflected it can interfere with the leadscrew.
8. Tension the belt by pulling the motor away from the drive shaft with appropriate force from chart below. Tighten the motor fasteners while this force is applied to the motor.

Motor Frame	Tension Force
MRB23, MRS17/23	10 lbs
MRV23, MRS34	20 lbs
MRV34, MRB34	30 lbs

9. Install both end caps (14) with the screws (15) 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: SWTK10BT

Where **SW** is the switch kit, **TK** is the model, **10** is the 1/2" size, and **BT** is a Form C Reed Switch with 5-meter lead.

List of Parts

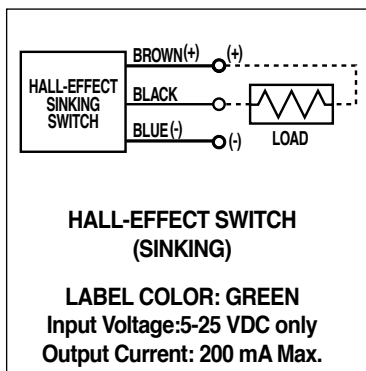
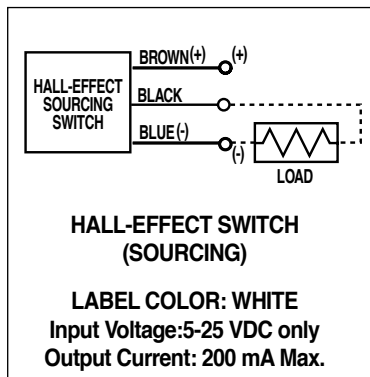
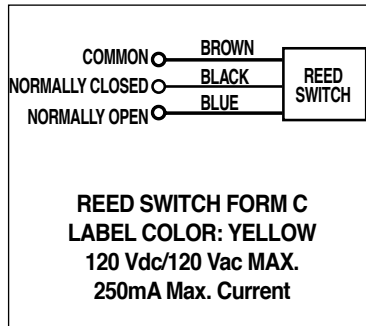
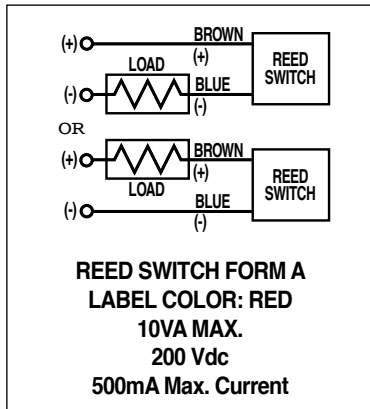
Item	Part No. or CONFIG. code	Description	QTY.
SWITCH KIT			
1	SWTKS10RT	Switch, Reed, Form A, 5M Wire	AR
	SWTKS10BT	Switch, Reed, Form C, 5M Wire	AR
	SWTKS10TT	Switch, Source, Hall, 5M Wire	AR
	SWTKS10KT	Switch, Sinking, Hall, 5M Wire	AR
	NOTE: Switch bracket with set screw is included		
MOUNTING PLATES			
3	0602-1027	SHCS M4 x 16	2
4	0601-1105	MOUNTING PLATE	1

*AR = as required

SWITCH TYPE CODE

- BT** (Form C Reed Switch with 5-meter lead)
- RT** (Form A Reed Switch with 5-meter lead)
- KT** (Hall-effect Switch (Sinking) 5-meter lead)
- TT** (Hall-effect Switch (Sourcing) 5-meter lead)

Universal Switch Wiring Diagrams and Label Color Coding



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3800 County Road 116, Hamel, MN 55340
<http://www.Tolomatic.com> • Email: Help@Tolomatic.com
 Phone: (763) 478-8000 • Fax: (763) 478-8080 • Toll Free: 1-800-328-2174



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