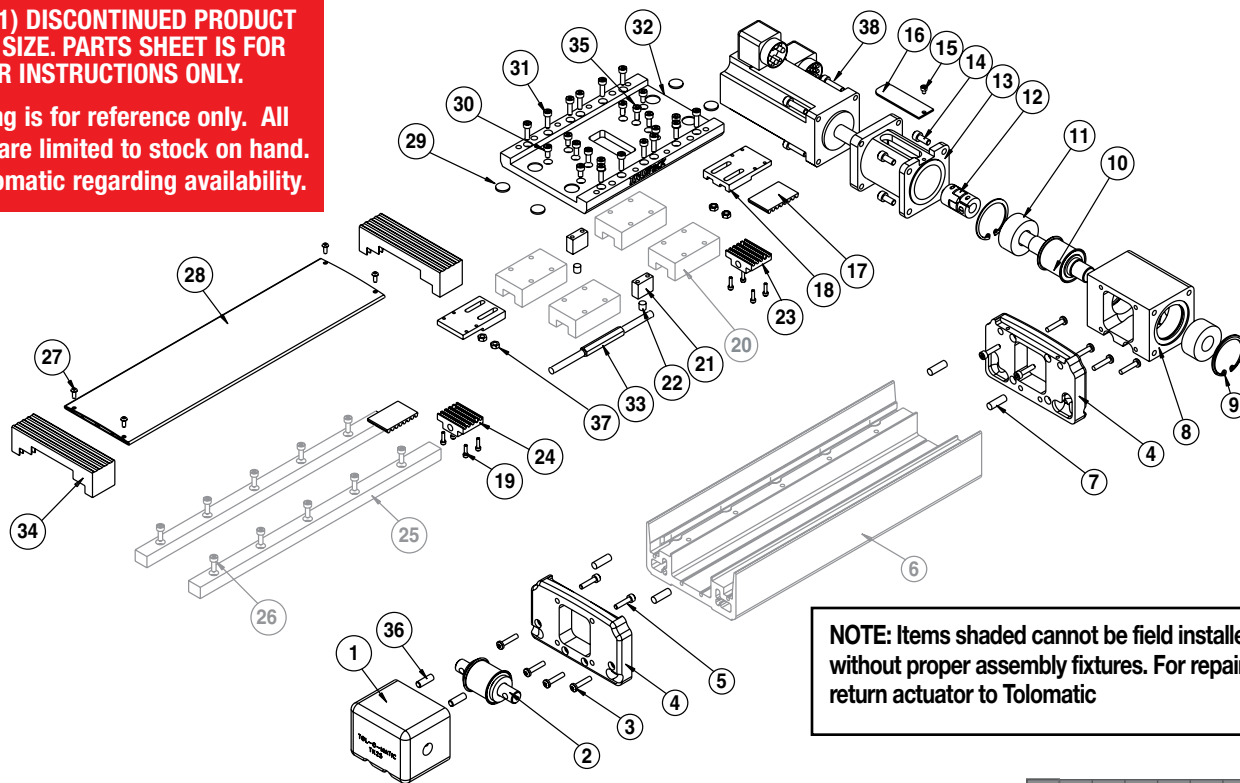


TruTrack Belt-Drive Actuator TKB25

(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.



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

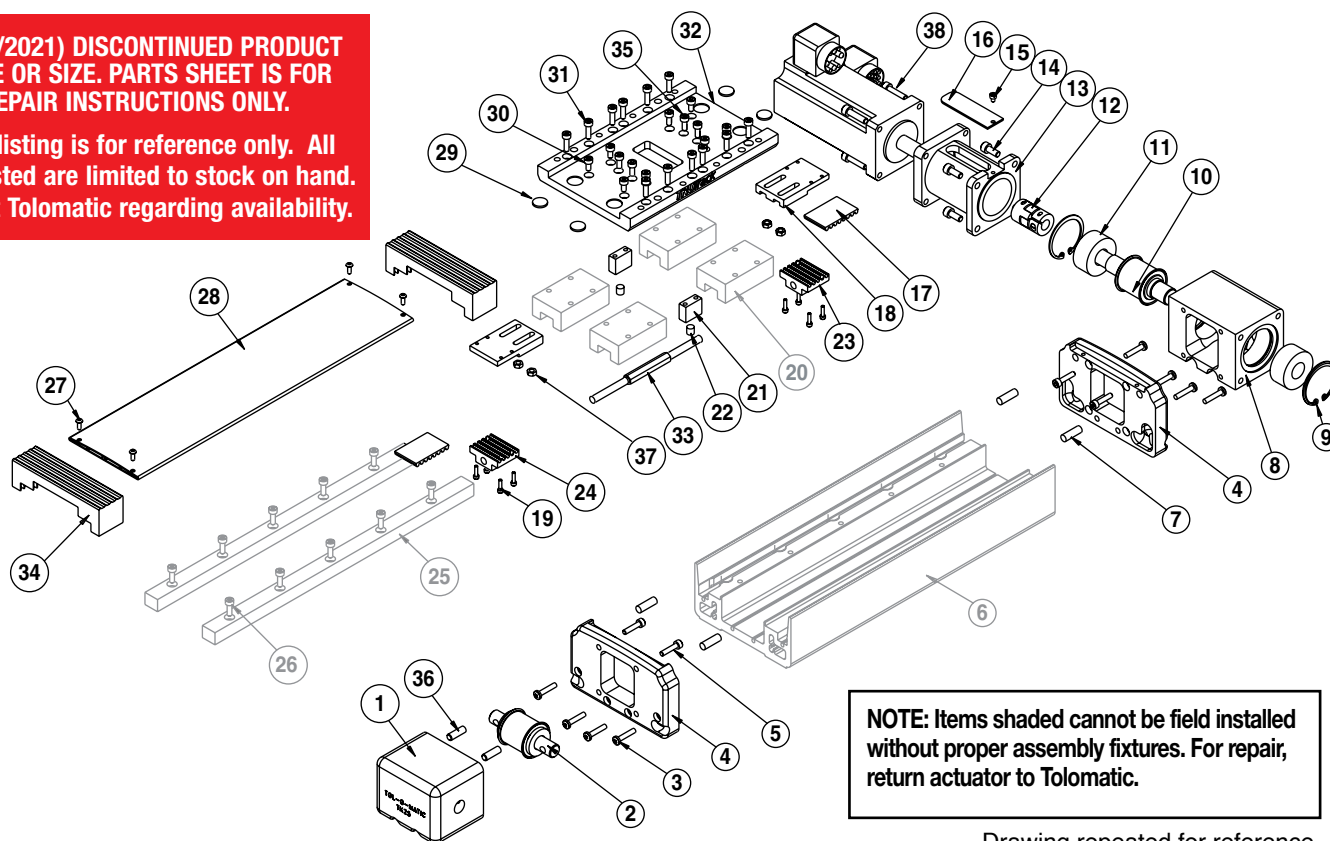
List of Parts

ITEM	Part No. or CONFIG. code	DESCRIPTION	MRS23	MRV21_22,23,24	MRV31_32,33	MRS341_342,343	GEARHEAD23	GEARHEAD34	REVERSE PARALLEL
1	0602-2021	ADAPTER, IDLE HEAD	1	1	1	1	1	1	1
2	0602-9325	IDLE PULLEY ASSEMBLY	1	1	1	1	1	1	1
3	0602-1028	SCREW, PAN M4 x 20mm	8	8	8	8	8	8	8
4	0602-2007	HEAD, DRIVE	2	2	2	2	2	2	2
5	0602-1029	SHCS, M4 x 18mm	8	8	8	8	8	8	8
6	0602-2001	BASE MACHINED	1	1	1	1	1	1	1
7	0602-1049	BUMPER	4	4	4	4	4	4	4
8	0602-2020	ADAPTER, DRIVE HEAD	1	1	1	1	1	1	1
9	2317-1083	RET. RING, 5002-137	2	2	2	2	2	2	2
10	0602-9828	STUB-SHAFT	1						
	0602-9820	STUB-SHAFT, MRV23, MRV, MRS34		1	1	1			
	0602-9823	STUB-SHAFT, GH23					1		
	0602-9824	STUB-SHAFT, GH34						1	
	0602-9822	STUB-SHAFT, RP							1
11	0602-2031	BEARING, I.D. .560	2	2	2	2	2	2	2
12	3600-9252	COUPLER KIT	1	1	1		1	1	
	3600-9253	COUPLER KIT				1			
13	0602-2042	SPACER	1	1			1		
	0603-2033	SPACER, MRV,MRS34			1	1		1	
14	2212-1097	SHCS M5 x 16mm	4	4	4	4	4	4	4
15	0601-2041	SHCS, M3 x 4mm, SST.	1	1	1	1	1	1	1
16	0603-2034	SPACER COVER	1	1			1		
	0603-2035	SPACER COVER, MRV,MRS34			1	1		1	

ITEM	Part No. or CONFIG. code	DESCRIPTION	MRS23	MRV21_22,23,24	MRV31_32,33	MRS341_342,343	GEARHEAD23	GEARHEAD34	REVERSE PARALLEL
17	0602-2049	BELT TIMING MACHINED	1	1	1	1	1	1	1
18	0602-2085	BELT CLAMP, UPPER	2	2	2	2	2	2	2
19	0602-2088	SHCS, M2.5 x 12mm	8	8	8	8	8	8	8
20	0602-1006	BLOCK THK LINEAR	4	4	4	4	4	4	4
21	0602-1013	MAGNET BLOCK	2	2	2	2	2	2	2
22	2224-1016	MAGNET ROD	2	2	2	2	2	2	2
23	0602-2086	BELT CLAMP, LOWER, RIGHT	1	1	1	1	1	1	1
24	0602-2087	BELT CLAMP, LOWER, LEFT	1	1	1	1	1	1	1
25	0602-1036	RAIL MACHINED	2	2	2	2	2	2	2
26	2212-1093	SHCS, M4 x 12mm	AR	AR	AR	AR	AR	AR	AR
27	0601-1095	SCREW, BUTTON M3 x 8mm	4	4	4	4	4	4	4
28	0602-1003	COVER, MACHINED	1	1	1	1	1	1	1
29	0601-2090	PAD	4	4	4	4	4	4	4
30	0602-1030	SHCS, M4 x 8mm	8	8	8	8	8	8	8
31	0604-1028	SHCS, M4 x 14mm	12	12	12	12	12	12	12
32	0602-2004	CARRIER		11	1	1	1	1	1
33	0601-2088	TENSIONING SCREW	1	1	1	1	1	1	1
34	0602-9830	BELLOWS KIT	1	1	1	1	1	1	1
35	2212-1093	SHCS, M4 x 12mm	4	4	4	4	4	4	4
36	2317-1062	SET SCREW, 1/4 - 20 x .38"	2	2	2	2	2	2	2
37	0602-2089	NUT, HEX, JAM, M-4, SST	4	4	4	4	4	4	4
38	2212-1098	SHCS	4	4					
	2212-1097	SHCS, M5 x 16, SST			4		4	4	
	2212-1096	SHCS, M5 x 12, SST				4			

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STYLE OR SIZE. PARTS SHEET IS FOR
REPAIR INSTRUCTIONS ONLY.

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parts listed are limited to stock on hand.
Contact Tolomatic regarding availability.



Drawing repeated for reference

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.

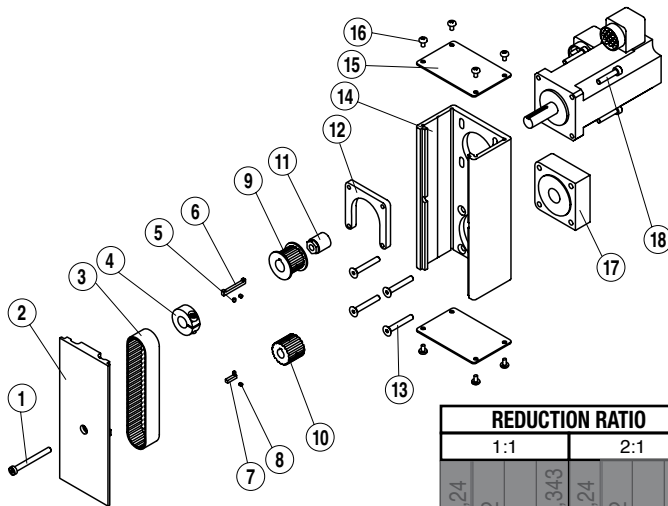
- * Metric Allen Wrench Set
- * SAE Allen Wrench Set
- * Torx Bit Set
- * Metric Socket Set
- * Metric Combination Wrench Set

1. **Remove Carrier and Head.** Remove Cover Screws (27) and remove the Cover (28). Remove all Cap Screws (30, 31) that attach Carrier (32) to THK Blocks (20). Remove Cap Screws (35) that attach Carrier to Belt Clamps (18). Remove the belt tensioning screw. Lift carrier from THK Blocks. Remove Cap Screws (3) to remove Heads (4) from the base. The THK blocks to are now free to come off the rails if need be. Note that the balls in the bearing are contained within the bearing.
2. **Remove Belt and Head Adapters.** Remove Cap Screws (19) to release the Belt Clamps (18,24). The Belt (17) can now be removed from the assembly. Remove Cap Screws (5) to allow the Head Adapters (1,8) to be removed if needed.
3. **Head Adapter Disassembly.** The drive shaft assembly is a slip fit into the drive head adapter. Removal of the Snap Rings (9) will allow the Bearings (11) and Shaft (10) to slide out. The bearings are a press fit onto the shaft, contact factory about replacement. There are 2 set screws that hold the Idle Shaft (2) in the idle head adapter (1). Remove these screws and the shaft can be removed. The Idle Pulley Assy (2) has bearings pressed into the pulley. Contact factory about replacement assembly.

General Cylinder Assembly Instructions

1. **Head Adapter Assembly.** On the drive head adapter install the 1st Snap Ring (9) on the side of the head that will have the stub shaft exposed. Slide the bearing/shaft assembly into the head adapter. Install the 2nd snap ring. Insert the idle pulley shaft part way into the idle head adapter. Locate a spacer over the shaft and then position the pulley/bearing assembly over the shaft. Slide the shaft through the bearing and locate another spacer between the pulley and inside of the adapter housing. With the shaft ends flush with the outside of the head adapter, tighten the set screws into the housing to lock the shaft in position. Notice the pilot's in the shaft for the set screws.
2. **Install Heads, Carrier and Belt.** Attach each Head Adapter to the head. Attach the Heads to the Base (6). Torque pan head screws to 20 in-lbs. Feed belt through each of the Heads, and through the pulleys in each Head Adapters. Attach the Belt Clamps to the Belt with the cap screws, and start the tension screw into the Belt Clamps. Position Hex Nut's (37) in the slots of the belt clamp and secure in place with a piece of tape across bottom of nut's and belt clamp. Position the carrier over the belt clamps and attach carrier to the belt clamps with SHCS through the slots in carrier and remove the tape from bottom of belt clamp. Position the Carrier on the THK blocks and attach with Cap Screws. Torque to 25 in-lbs.
3. **Tension Belt.** To measure the belt tension, position the edge of the carrier that is nearest the head, 6" from the inside edge of the head. (Either end of actuator, does not matter). Locate a force gage on the belt, 2" from the inside edge of the head. Deflect the belt in either direction 3/8". The force gage should read between 12 and 18 lbs. Adjust the tension screw until this is obtained.
4. When proper belt tension is attained tighten the belt clamps to the carrier with Cap Screws (35).
5. **Install Cover.** Attach the Cover to the unit with Cap Screws (27).

Reduction Drive



Reverse Parallel Disassembly Instructions:

1. Remove End Caps (14). 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 pulleys.
4. Remove motor fasteners (17) to remove motor from 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 (14) to the head with cap screws (13).
2. Install the motor to the RP case with fasteners (18). 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.

ITEM	Part No. or CONFIG. code	DESCRIPTION	REDUCTION RATIO							
			1:1				2:1			
			MRV21,22,23,24	MRS 231, 232	MRV31,32,33	MRS 341,342,343	MRV21,22,23,24	MRS 231, 232	MRV31,32,33	MRS 341,342,343
1	3420-1640	SHCS	1	1			1	1		
	3420-1639	SHCS, M5 X 0.8, 55 MM LONG, SST			1	1			1	1
2	0601-1614	COVER, TKS25-23 FRAME	1	1			1	1		
	0602-1614	COVER, TKS25-34 FRAME			1	1			1	1
3	2120-1028	TIMING BELT	1	1	1					
	2133-1025	TIMING BELT, 330-5M-19					1		1	1
	0602-2056	TIMING BELT, 295-5M-9		1						
	0602-2058	TIMING BELT, 330-5M-9					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	2	2	2	2	2	2
6	2132-1021	KEY, SPECIAL, .125 X .125	1	1	1	1	1	1	1	1
7	2100-1021	KEY	1	1	1	1				
	1004-7706	KEY, 125 X .125 X 1.00 LONG		1			1	1	1	1
8	4415-1015	SET SCREW, M3 X 0.5 X 3 MM LONG	2	2	2	2	2	2	2	2
9	2132-1002	PULLEY	1	1	1	1	1	1	1	1
	0602-9850	PULLEY, 16 TEETH, 19 MM WIDTH				1				1
	0601-1062	PULLEY, 16 TEETH, 9 MM WIDTH		1				1		
10	0603-1053	PULLEY	1	1	1	1				
	0603-1054	PULLEY, 32 TEETH, 19 MM WIDTH					1		1	1
	0602-1062	PULLEY, 16 TEETH, 9 MM WIDTH		1						
	0602-1063	PULLEY, 32 TEETH, 9 MM WIDTH						1		
11	0510-1111	TRANTORQ		1				1		
12	0601-1053	PLATE, MOTOR	1	1			1	1		
	0602-1057	PLATE, MOTOR, 34 FRAME			1	1				1
13	0602-2045	SFHCS, M5 X 0.8 X 35 MM LONG, SST	4	4	4	4	4	4	4	4
14	0601-1606	HOUSING	1	1			1	1		
	0602-1606	HOUSING, TKS25-34 FRAME			1	1			1	1
15	0601-1602	END CAP	2	2			2	2		
	0602-1602	END CAP			2	2			2	2
16	0601-1625	SCREW, #6 X .25, SELF-TAPPING, SST	8	8	8	8	8	8	8	8
17	0602-2054	SPACER, TKB25	1	1	1	1	1	1	1	1
18	2212-1098	SHCS		4					4	
	2212-1099	SHCS, M5 X 0.8 X 25 MM LONG, SST	4	4	4	4	4	4	4	4

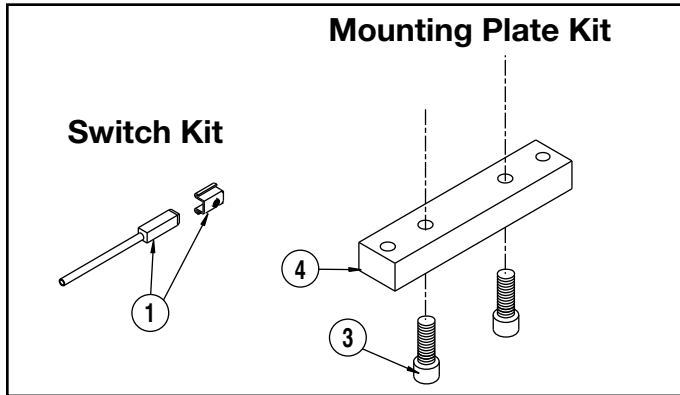
Motor Frame	Tension Force
MRB23, MRS23	10 lbs
MRV23, MRS34	20 lbs
MRV34, MRB34	30 lbs

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

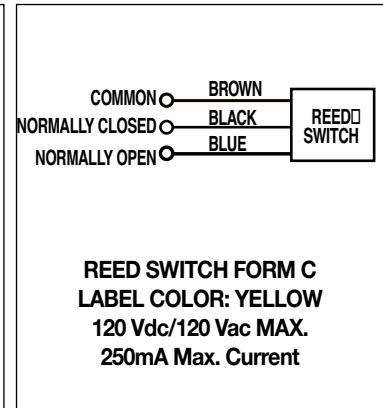
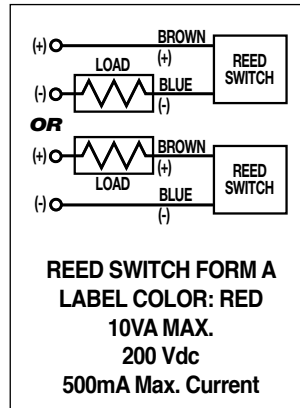
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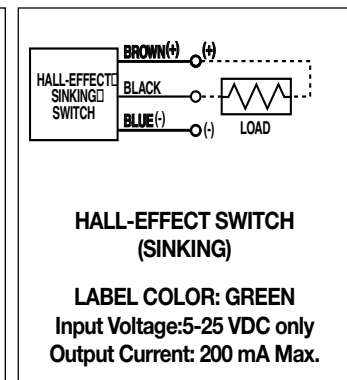
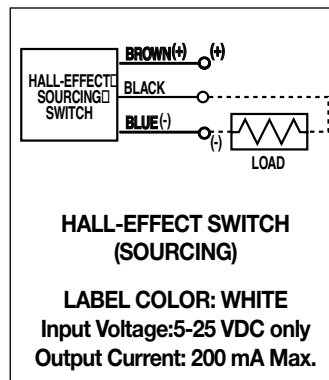


Universal Switch Wiring Diagrams and Label Color Coding



List of Parts

Item	Part No. or CONFIG. code	Description	QTY.
SWITCH KIT			
1	SWTKB25RT	SWITCH, REED, FORM A, 5M WIRE	AR
	SWTKB25BT	SWITCH, REED, FORM C, 5M WIRE	AR
	SWTKB25TT	SWITCH, SOURCE, HALL, 5M WIRE	AR
	SWTKB25KT	SWITCH, SINKING, HALL, 5M WIRE	AR
NOTE: Switch bracket with set screw is included			
MOUNTING PLATES			
3	2212-1101	SHCS M6 X 20	2
4	0602-1080	MOUNTING PLATE	1



OPTIONAL ACCESSORY ASSEMBLY INSTRUCTIONS

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

TO ORDER RETROFIT KITS:

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

EXAMPLE: SWTK25BT

Where SW is the switch kit, TK is the model, 25 is the 1" size, and BT is a Form C Reed Switch with 5-meter lead.

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)

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