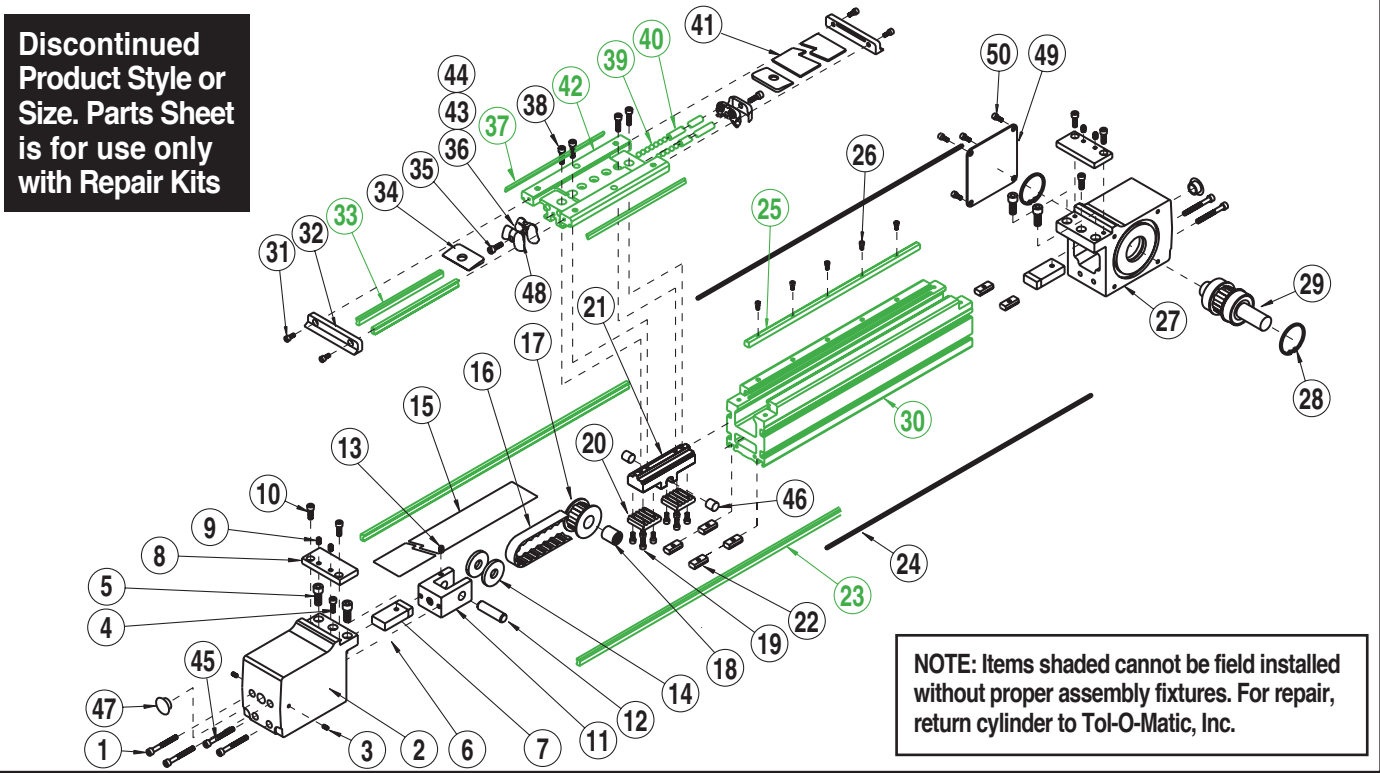




Axidyne® Belt-Drive Actuator, Wedge-Style

B3B10/M3B10 1"/25mm Size

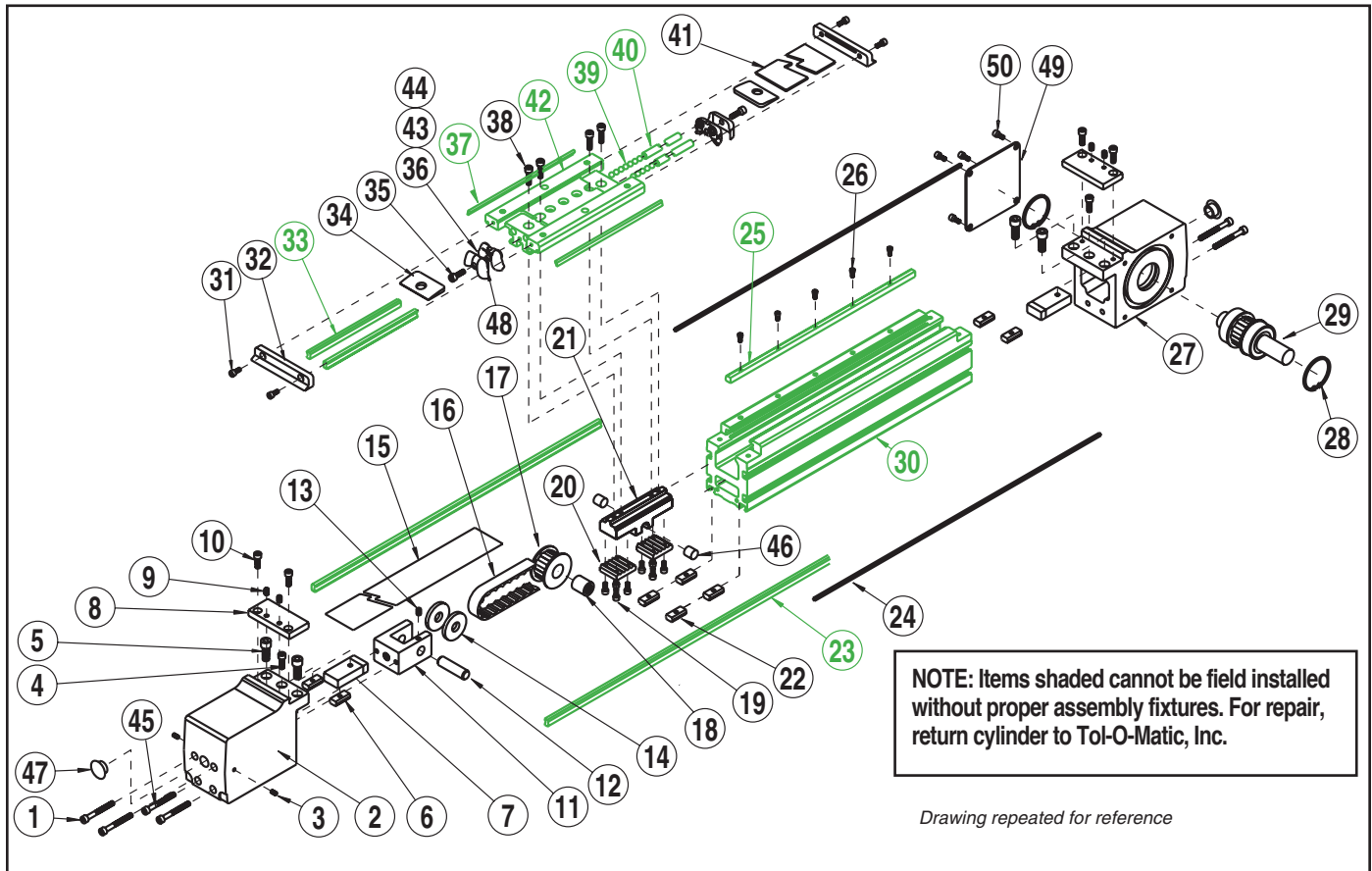


List of Parts

Item	Part No.	Description	B3B10	M3B10
1.	3410-1413	SHCS #8-32 x 1.5 LG	2	
	4415-1063	SHCS M4 x 0.7 x 45		2
2.	3410-1401	Head, Idler	1	
	4410-1401	Head, Idler		1
3.	0905-1077	Set Screw #6-32 x .50 cup	2	
	0610-1212	Set Screw M4 x 0.7 x 12mm		2
4.	0915-1016	SHCS, #10-24 x .50 LG	2	
	4415-1016	SHCS, M5 x .8 x 16		2
5.	0915-1016	SHCS, #10-24 x .50 LG	4	
	1124-1034	SHCS, M5 x .8mm x 10mm		4
6.	3410-1013	Nut, T, BC3	4	
	4410-1013	Nut, T, BC3		4
7.	3410-9209	Bumper Mount	2	
	4410-9209	Bumper Mount		2
8.	3410-1404	Band Clamp	2	
	4410-1404	Band Clamp		2
9.	2002-1010	Set Screw, #8-32 x .19	4	
	7906-1029	Set Screw, M5-0.8 x 6mm		4
10.	0605-1046	SHCS, #8-32 x 0.38, BLK	4	
	4410-1077	SHCS, M5 x .8mm x 10mm		4
11.	3410-1411	Yoke	1	
	4410-1411	Yoke, (Metric)		1
12.	3410-1410	Shaft 3/8, x 1.313 long	1	1

Item	Part No.	Description	B3B10	M3B10
13.	1301-1174	Set Screw, #8-32 x 0.25, cup	2	
	0610-1046	Set Screw, M4-0.8 x 6mm		2
14.	3410-1419	Washer, Spacer, Idler Pulley	2	2
15.	3410-1424	Upper Dust Band	A/R	A/R
16.	3410-1421	Belt, 5mm pitch, .5" wide, neoprene	A/R	A/R
17.	3410-1406	Pulley, Idler, 5mm pitch 1" wide	1	1
18.	1001-1055	Bearing, Needle, .38 ID, .56 OD, .62 W	1	1
*19.	0910-1357	SHCS, #4-40 x .50	8	
	4905-1012	SHCS, M3 x 0.5 x 12		8
*20.	3410-1409	Belt Clamp, 5MM pitch 1" wide	2	2
*21.	3410-1408	Belt Bracket	1	
	4410-1408	Belt Bracket		1
22.	3410-1013	Nut	A/R	
	4415-1013	Nut		A/R
23.	3410-1426	Rail Way	A/R	A/R
24.	3410-1425	Magnet, Band	A/R	A/R
25.	3410-1495	Machined Wedge	1	1
26.	0605-1079	Socket Head Cap Screw	A/R	A/R
27.	3410-1403	Head, Drive	1	
	4410-1403	Head, Drive		1
28.	3410-1418	Retaining Ring	2	2
29.	3410-9151	Pulley, Shaft, Bearing Assembly	1	1

*Also included in Belt Bracket Assembly
B3B10 = 3410-9350 M3B10 = 4410-9350



Item	Part No.	Description	B3B10	M3B10
	30.	3410-1470 Tube, Machined	1	
		4410-1470 Tube, Machined		1
	31.	0605-1079 SHCS, #4-40 x 0.25, BLK	4	
		4905-1005 SHCS, M3 x 0.5 x 6mm, BLK		4
	32.	3410-2024 Cap, End, BC310	2	2
		4905-1012 SHCS, M3 x 0.5 x 8mm, BLK		2
	35.	3410-1014 Ball Return	2	2
	36.	3410-1014 Ball Return	2	2
	37.	3410-1510 Wiper	2	2
	*38.	0910-1166 SHCS, #8-32 x 0.75,	4	
		4415-1001 SHCS, M4 x 0.7 x10		4

Item	Part No.	Description	B3B10	M3B10
	39.	3410-1009 Ball	116	116
	40.	3410-1019 Ball Return Tube	2	2
	41.	3410-2022 Cover, Carrier	1	1
	42.	3410-2021 Machined Carrier	1	
		4410-1235 Machined Carrier		1
	43.	3410-1015 Right Ball Race	2	2
	44.	3410-1032 Left Ball Race	2	2
	45.	3410-1413 SHCS, #8-32 x 1.5	4	
		4515-1063 SHCS, M4 x .7 x 38mm		4
	*46.	3415-1218 Magnet	2	2
	47.	3415-1218 Cap, Plug, .500	2	2
	48.	3410-1079 PLT, Ball Return	2	2
	49.	3410-1540 Cover	1	1
	50.	0910-1081 Button Head Cap Screw	4	
		5605-1016 Button Head Cap Screw		4

*Also included in Belt Bracket Assembly
 B3B10 = 3410-9350 M3B10 = 4410-9350

GENERAL 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 on actuator size)

Allen wrench set / Internal retaining ring pliers / Rubber hammer / Loctite® #242

1. Remove any motor mounting hardware and/or adapter plates.
2. **Release carrier assembly:**
Remove screws (31) from end caps (32) and remove end caps. Remove carrier cover (41). Loosen and remove dust band clamp (8) on idler and drive head by removing SHCS (10). Remove the dust band (15).

Remove 4 SHCS's (38) that hold the carrier (42) to the belt bracket (21).

3. Remove idler head

Loosen the two set screws (3). Remove 2 SHCS (1) in the idler head that hold the tensioning yoke in. Remove 2 SHCS (45) that hold head to bottom of tube. Loosen SHCS (5) that hold head to top of tube. Remove head.

Loosen 2 sets screws (13) in yoke that hold shaft in. Remove shaft from yoke.

4. Remove belt

Remove SHCS (19) on both belt clamps (20) of belt bracket (21)

5. Remove drive head

Remove 2 SHCS (45) that hold the head to the bottom of the tube. Loosen SHCS (5) that hold the head to the top of the tube. Remove head. Pull belt through actuator and head.

6. Optional removal of drive pulley/shaft (29) from drive head.

Note: Do not remove carrier (42) from rail system.
Balls contained in rail way will fall out.

GENERAL ASSEMBLY INSTRUCTIONS

Any time SHCS are being installed, apply Loctite #242 to the threads.

1. If drive pulley/shaft (29) was removed. Fold belt in half (teeth facing each other) and slip loop end into drive head.

Wrap belt in a loop and insert it into drive head. Teeth on belt to be facing each other.

Slide pulley/shaft (29) into drive head. Note: press shaft in straight as possible. Make sure it is all the way against the retaining ring on the other side of the head. Install retaining ring into groove in head.

2. Mount drive head to actuator:

Slide belt through tube and slide drive head onto tube using T-nuts as a guide. Install 2 SHCS (45) to hold head on bottom of tube. Tighten both SHCS (5) on top head.

- A. **Direct Drive Option:** (See drawing on page 5) Attach motor spacer (1) to actuator with fasteners (2). Attach coupler (3) to motor shaft. Slide motor/coupler into motor spacer (1). Through alignment hole in motor spacer, fasten coupler to shaft with allen wrench.

3. Mount idler head to actuator:

Attach the belt (16) to the belt bracket (21) with the belt clamp (20) and

SHCS (19). Place the idler pulley (17) inside the the belt loop. Install the idler shaft through the yoke (11) and the two spacer washers (14). Slide idler head onto tube using T-nuts as a guide. Install 2 SHCS (45) to hold head on bottom of tube. Tighten both SHCS (5) on top head. Install 2 SHCS (1) into yoke. Tighten both equal to achieve the desired belt tension. Note: Over tensioning of belt can cause it to stretch prematurely. Tighten both set screws (3).

4. Lubricate ballways:

Before installing the top dust band (15), lubricate the ballways with Mobil HP Grease.

5. Attach Carrier to Belt Bracket:

Mount carrier (42) to belt bracket (21) with 4 SHCS (38).

6. Trim and Install Dust Band:

Install dust band (15) over carrier (42) centering it along the length of the actuator. With a tin snips, cut band down 1/16" from the heads. Slide carrier cover (41) into slots on top of carrier. Install carrier endcaps (32) with SHCS. Loosely install band clamps (8) onto each head with SHCS (10). Slide carrier to one end of actuator, and tighten SHCS (10). Slide carrier to other end of actuator and repeat.

7. Re-attach any motor adapter plates and/or hardware with actuator.

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 (7) and driven pulley(5) from their respective shafts. The belt(3) will come off with the pulley's.
4. Remove motor fasteners (17) from the motor plate (9), to remove the motor from the RP case.
5. Remove the RP case (12) from the head by removing fasteners (10).

REVERSE PARALLEL ASSEMBLY INSTRUCTIONS:

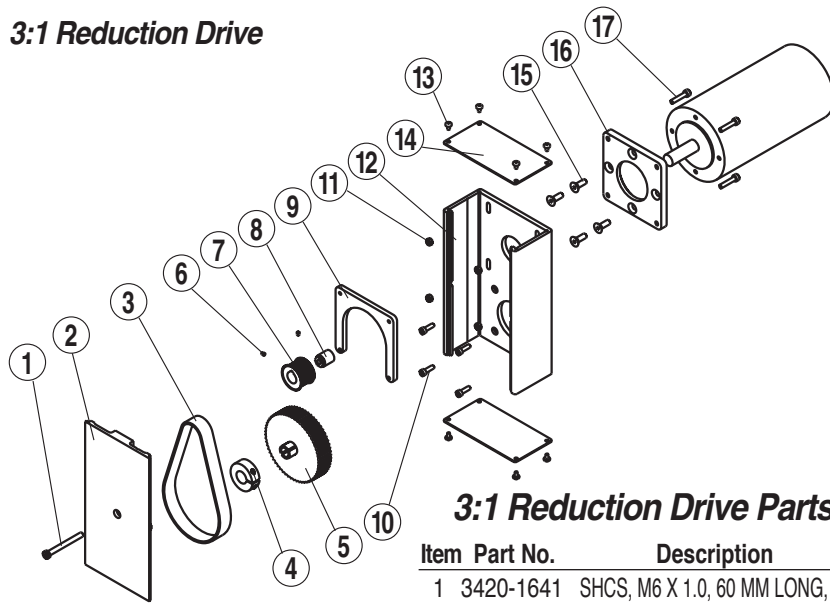
**Apply Loctite #242 to all fasteners upon installation*

1. Install RP case (12) to the head with cap screws (10).
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 (7) and driven (5) pulleys over their respective shafts. Tighten each pulley to it's shaft with either set screws, 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 in the chart below. Tighten the motor fasteners while this force is applied to the motor.

Motor Frame	Tension Force
MRB23, MRS23	10 lbs
MRV23, MRS34	20 lbs
MRV34, MRB34	30 lbs
MRV51	40 lbs

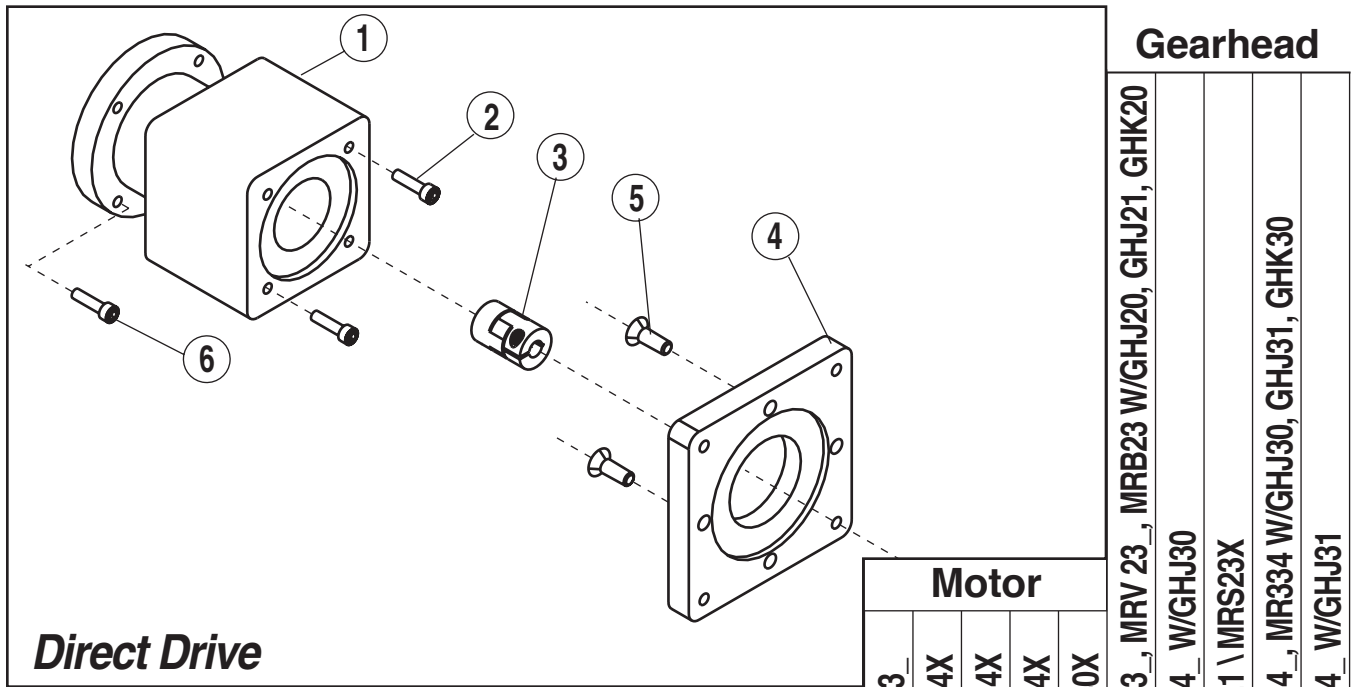
7. Install both end caps (14) with the screws (13) to finalize assembly.

3:1 Reduction Drive



3:1 Reduction Drive Parts Listing

Item	Part No.	Description	BCB10					MCB10							
			MRV21,22,23,24	MRS231,232,MRB21	MRV31,32,33,MRB31,32	MRS341,342,343	MRB41,42	MRV51	MRV21,22,23,24	MRS231,232,MRB21	MRV31,32,33,MRB31,32	MRS341,342,343	MRB41,42	MRV51	
1	3420-1641	SHCS, M6 X 1.0, 60 MM LONG, LOW HEAD, SST	1	1	1	1	1	1	1	1	1	1	1	1	1
2	3420-1613	COVER, B3B-23 FRAME	1	1						1	1				
	3420-1614	COVER, B3B-34 FRAME			1	1						1	1		
	3420-1615	COVER, B3B-40 FRAME					1							1	
	3420-1616	COVER, B3B-51 FRAME						1							1
3	3415-1441	TIMING BELT, 425-5M-19	1		1	1	1		1		1	1	1		
	3410-1441	TIMING BELT, 425-5M-09		1						1					
	3415-1453	TIMING BELT, 535-5M-19						1							1
4	0520-1067	CLAMP COLLAR, Ø.688	1	1	1	1	1	1	1	1	1	1	1	1	1
5	3415-1439	PULLEY, 60 TEETH, 19MM WIDTH	1		1	1	1	1	1		1	1	1	1	1
	3410-1439	PULLEY, 60 TEETH, 9MM WIDTH		1						1					
6	0610-1190	SET SCREW, 6-32, .188 LONG	2	2		2	2	2	2	2	2	2	2	2	2
7	3415-1438	PULLEY, 20 TEETH, 19 MM WIDTH	1		1				1	1					
	3420-9191	PULLEY, 20 TEETH, 9 MM WIDTH		1						1					
	3415-1445	PULLEY, 20 TEETH, 19 MM WIDTH				1						1			
	3420-1438	PULLEY, 20 TEETH, 19 MM WIDTH					1	1					1	1	
8	0510-1111	TRANTORQ, Ø.250		1						1					
	0515-1181	TRANTORQ, Ø.375				1						1			
9	0602-1057	PLATE, MOTOR, 34 FRAME			1	1					1	1			
	3420-1611	PLATE, MOTOR, 40 FRAME					1						1		
	3420-1625	PLATE, MOTOR, 51 FRAME						1							1
10	3410-1229	BHCS, TORX, #10-24 x .50	4	4	4	4	4	4							
	3420-1645	SHCS, M5 X 0.8, 16 MM LONG, LOW HEAD							4	4	4	4	4	4	4
11	0603-2089	NUT, HEX, M5 X 0.8	4	4						4	4				
12	3420-1603	HOUSING, B3B-23 FRAME	1	1						1	1				
	3420-1604	HOUSING, B3B-34 FRAME			1	1						1	1		
	3420-1605	HOUSING, B3B-40 FRAME					1							1	
	3420-1606	HOUSING, B3B-51 FRAME						1							1
13	0601-1625	SCREW, #6 X .25, SELF-TAPPING, SST	8	8	8	8	8	8	8	8	8	8	8	8	8
14	3420-1602	END CAP	2	2	2	2	2	2	2	2	2	2	2	2	2
15	2212-1010	SFHCS, 1/4-20, .75 LONG					4							4	
16	3420-1612	PLATE, ADAPTER, 40 FRAME						1						1	
17	2212-1098	SHCS, M5 X 0.8, 20 MM LONG, SST	4						4						
	2212-1096	SHCS, M5 X 0.8, 12 MM LONG, SST		4						4					
	2212-1099	SHCS, M5 X 0.8, 25 MM LONG, SST			4	4	4				4	4	4		
	3420-1638	SHCS, M8 X 1.25, 35 MM LONG, SST						4							4



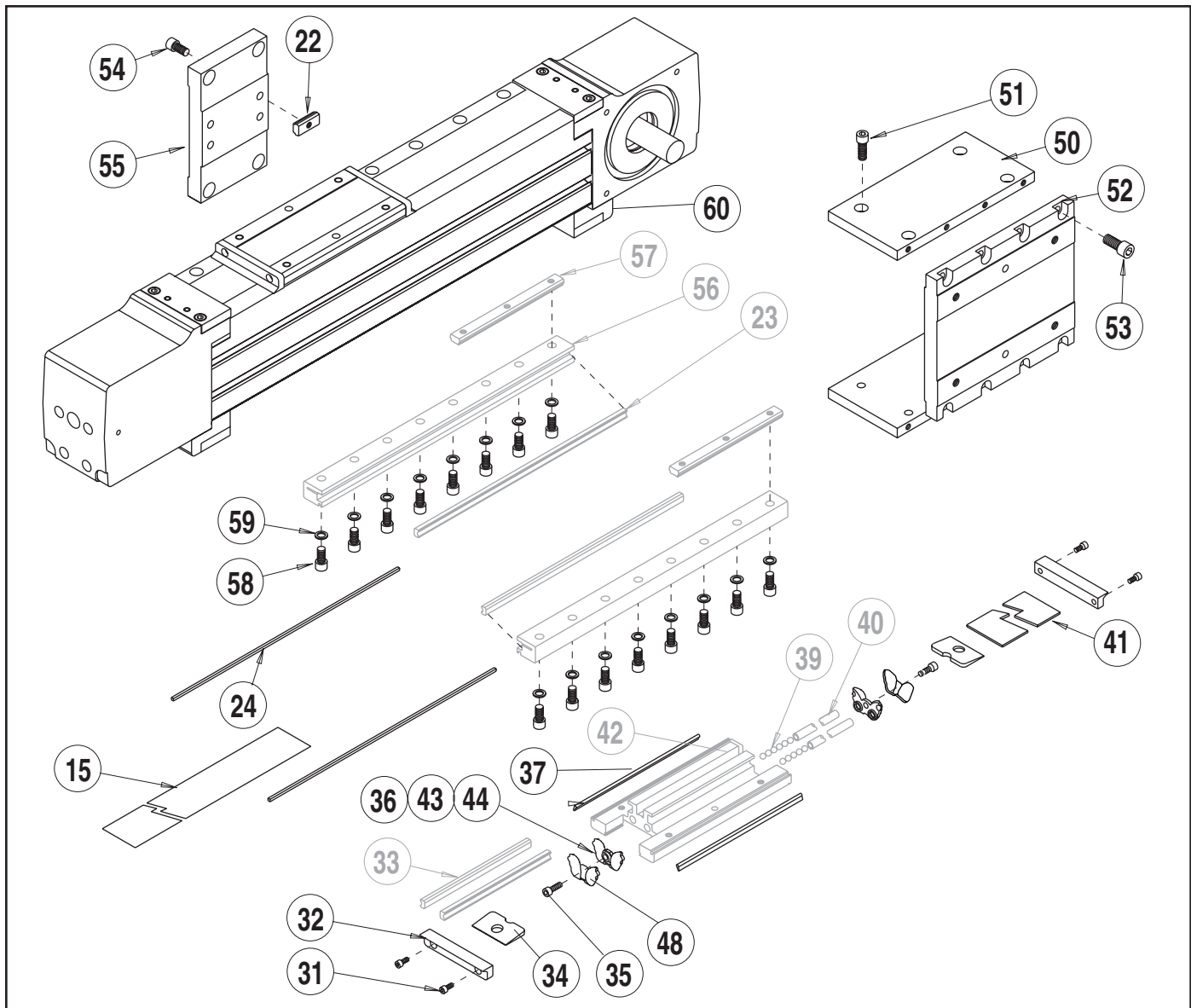
Direct Drive

Direct Drive Parts Listing

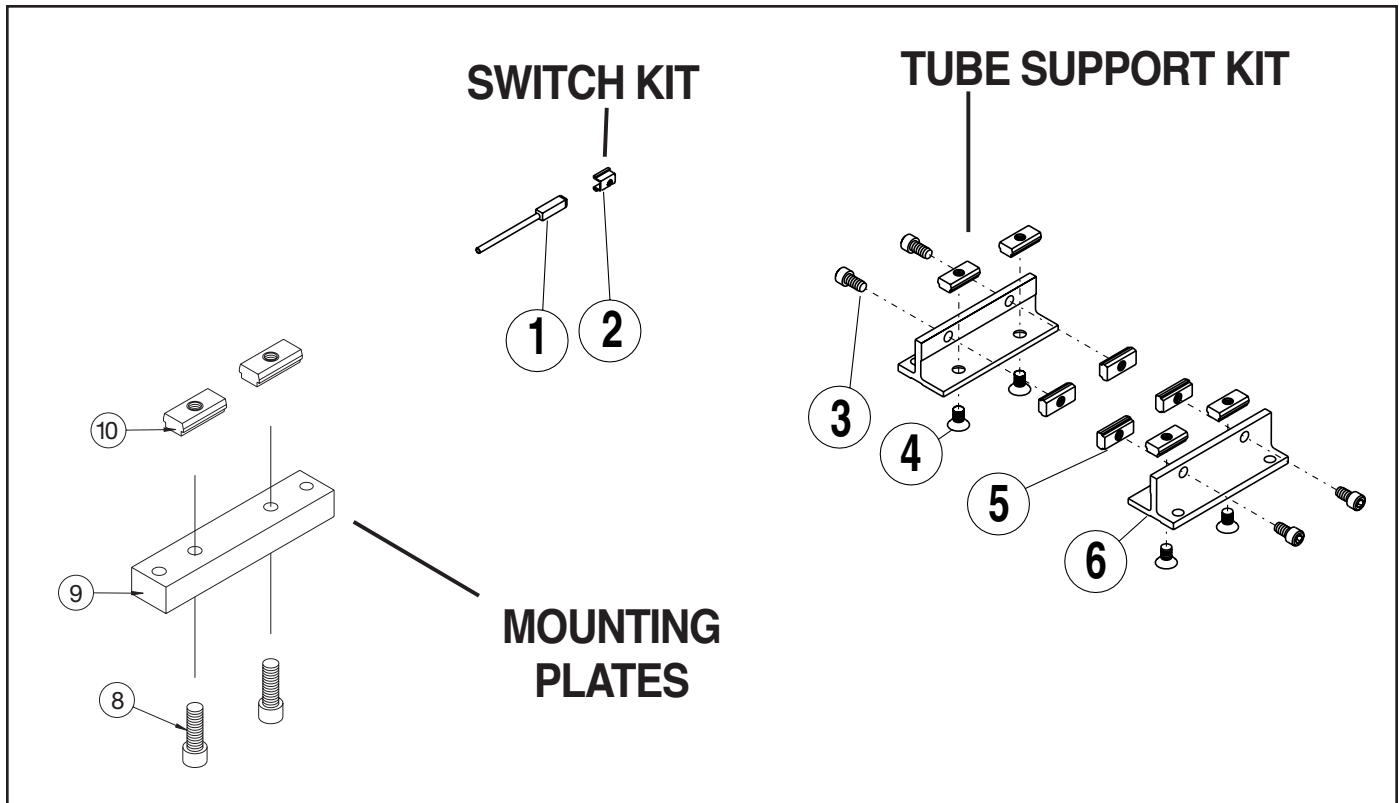
Item	Part No.	Description	Motor					Gearhead				
			MRV23	MRS34X	MRB34X	MRV34X	MRB40X	MRS23, MRV23, MRB23 W/GHJ20, GHJ21, GHK20	MRV34 W/GHJ30	MRB21 \ MRS23X	MRB34, MR334 W/GHJ30, GHJ31, GHK30	MRV34 W/GHJ31
1.	3410-1451	Motor Adapter, Mach, B3B							1			
	3410-1452	Motor Adapter, Mach, B3B		1							1	
	3410-1453	Motor Adapter, Mach, B3B			1	1						
	3410-1457	Motor Adapter, Mach, B3B					1					
	3410-1455	Motor Adapter, Mach, B3B						1	1	1		
	3410-1456	Motor Adapter, Mach, B3B	1					1				
2.	0910-1314	SHCS, #10-24 x 0.75, BLK	4	4	4	4	4	4	4	4	4	
3.	3600-9253	Coupler, Guardian		1							1	
	3600-6163	Coupler, Zero-Max							1			
	3600-6174	Coupler, Zero-Max			1							
	3600-6175	Coupler, Zero-Max									1	
	3420-9041	Coupler, Guardian								1		
	3600-6176	Coupler, Zero-Max							1			
	3600-6177	Coupler, Zero-Max	1					1				
	3600-9252	Coupler, Guardian			1							
	3600-9218	Coupler, Guardian					1					
4.	3410-1445	Motor Adapter Plate, MRB40X					1					
5.	3420-1223	SFCHS, 1/4-20 x 1.00 LG					4					
6.	4415-1020*	SHCS, M5 x .8 x 20, BLK	4	4	4	4	4	4	4	4	4	
	1024-7711	SHCS, #10-24 x .88, BLK	4	4	4	4	4	4	4	4	4	

NOTE:
For Belt
Tensioning Kit
please refer to
part sheet
3600-4602

* Used on the M3B10 actuator.



Item	B3BD10 Part No.	M3BD10 Part No.	Description	Dual 180° Option QTY.	Item	B3BD10 Part No.	M3BD10 Part No.	Description	Dual 180° Option QTY.
15.	3410-1239	3410-1239	Dust Band	1	43.	3410-1015	3410-1015	Right Ball Race	2
22.	3410-1013	4410-1013	Nut	4	44.	3410-1016	3410-1016	Left Ball Race	2
23.	3410-1426	3410-1426	Rail Way	2	48.	3410-1079	3410-1079	PLT, Ball Return	2
24.	3410-1240	3410-1263	Band Magnet	2	50.	3410-1049	4410-1049	Plate, Conn., Dual Carrier	2
31.	0605-1079	4905-1005	Socket Head Cap Screw	4	51.	2317-1014	4415-1000	Socket Head Cap Screw	8
32.	3410-2024	3410-2024	End Cap	2	52.	3410-1446	4410-1446	Plate, Dual Carrier	1
33.	3410-1023	3410-1023	Carrier Way	2	53.	2317-1014	4415-1000	Socket Head Cap Screw	8
34.	3410-1047	3410-1047	Upper Band Ramp	2	54.	0915-1016	4415-1022	Socket Head Cap Screw	4
35.	0910-1357	4905-1012	Socket Head Cap Screw	2	55.	3410-1053	3410-1053	Tube Support	1
36.	3410-1014	3410-1014	Ball Return	2	56.	3410-1427	3410-1427	Machined Rail	2
37.	3410-1510	3410-1510	Wiper	2	57.	3410-1008	4410-1008	Rail Nut	AR
39.	3410-1009	3410-1009	Ball	112	58.	3410-1229	3410-1229	Button Head Cap Screw	AR
40.	3410-1019	3410-1019	Ball Return Tube	2	59.	3410-1048	3410-1048	Washer	AR
41.	3410-2022	3410-2022	Carrier Cover	1	60.	3410-1448	4410-1148	Dual 180° Band Clamp	2
42.	3410-2021	4410-1235	Machined Carrier	1					



Optional Accessories Parts Listing

SWITCH KIT		Switch Kit number (Hardware & switch)	
Description	Part Number	(SWB3S10_)	Description
1. Switch Only, Reed, Form C, 5m	3600-9084	BT	Form C, 5m lead
Switch Only, Reed, Form C, Male Conn.	3600-9085	BM	Form C, 5m QD lead
Switch Only, Reed, Form A, 5m	3600-9082	RT	Form A, 5m lead
Switch Only, Reed, Form A, Male Conn.	3600-9083	RM	Form A, 5m QD lead
Switch Only, Triac, 5m	3600-9086	CT	Triac switch, 5m lead
Switch Only, Triac, Male Conn.	3600-9087	CM	Triac switch, 5m QD lead
Switch Only, Hall-effect, Sinking, 5m	3600-9090	KT	Hall-effect, Sinking switch, 5m lead
Switch Only, Hall-effect, Sinking, Male Conn.	3600-9091	KM	Hall-effect, Sinking switch, 5m QD lead
Switch Only, Hall-effect, Sourcing, 5m	3600-9088	TT	Hall-effect, Sourcing switch, 5m lead
Switch Only, Hall-effect, Sourcing, Male Conn.	3600-9089	TM	Hall-effect, Sourcing switch, 5m QD lead
Connector (Female) 5 meter lead	2503-1025		

Item	Part No.	Description	Qty.
2.	3410-9999	Switch Hardware Kit	A/R
TUBE SUPPORT KIT			
3.	3410-1012	SHCS, #10-24 x 0.44	4
	4410-1077	SHCS, M5 x 0.8mm x 10mm	4
4.	2006-1063	SFHCS, #10-24 x 0.38	4
	4410-1016	SFHCS, M5 x 0.8 x 10	4
5.	3410-1013	B3C310 Nut	8
	4410-1013	BC3M10 Metric Nut	8
6.	3410-1044	BC310 Tube Support	2
MOUNTING PLATES			
8.	0915-1016	SFHCS, #10-24 x 0.50	4
	4415-1016	SFHCS, M5 x 8 x 16mm	4
9.	3410-1332	Mounting Plate, B3S, 0.50	2
10.	3410-1013	Nut	4
	4410-1013	Nut, Metric	4

2. **Switches.** Secure Switch (1) to magnet side of Tube with Switch Clamp (2) and Set Screw.

3. SWITCHES 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 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.

OPTIONAL ACCESSORY ASSEMBLY INSTRUCTIONS

1. **TUBE SUPPORTS.** Four T-Nuts (5) are required on each side of the Tube (30), 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 (4) and secure Tube Supports (6) to Tube aligning holes in T-Nuts with holes in Tube Supports.

TO ORDER RETROFIT KITS:

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

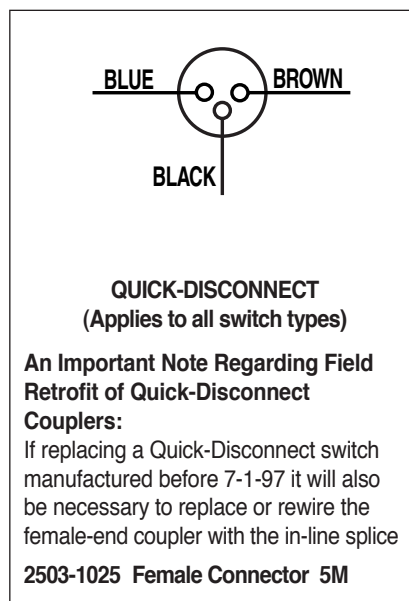
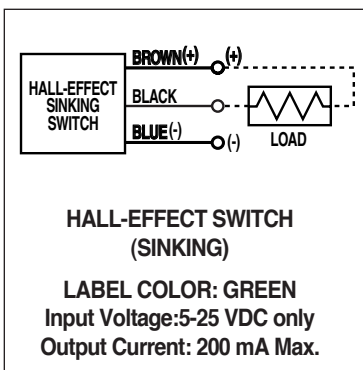
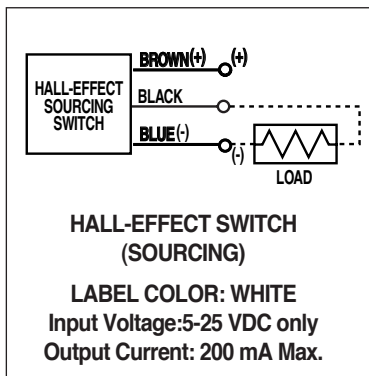
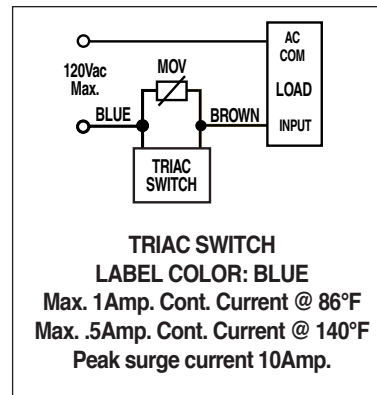
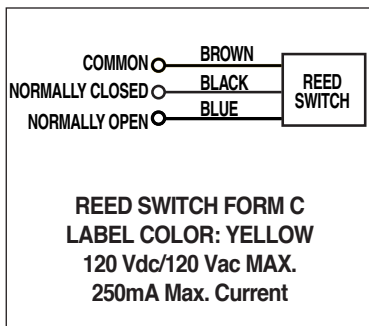
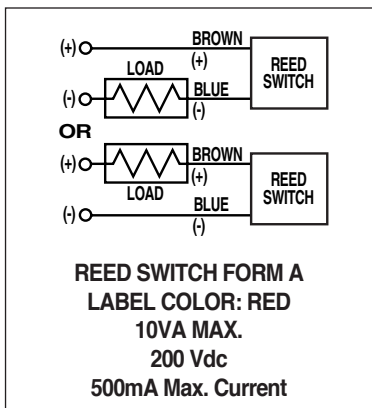
EXAMPLE: SWB3B10RM

Where SW is the switch, B3B10 is the 1 inch size, and RU is a Form A Reed Switch with quick disconnect and 5 meter lead

All switch kits include 1 switch and mounting hardware

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.

Universal Switch Wiring Diagrams and Label Color Coding



SWITCH TYPE CODE

- | | |
|---|---|
| BT (Form C Reed Switch with 5-meter lead) | CM (TRIAC Switch with 5-meter lead and QD) |
| BM (Form C Reed Switch with 5-meter lead and QD) | KT (Hall-effect Switch (Sinking) 5-meter lead) |
| RT (Form A Reed Switch with 5-meter lead) | KM (Hall-effect Switch (Sinking) 5-meter lead and QD) |
| RM (Form A Reed Switch with 5-meter lead and QD) | TT (Hall-effect Switch (Sourcing) 5-meter lead) |
| CT (TRIAC Switch with 5-meter lead) | TM (Hall-effect Switch (Sourcing) 5-meter lead and QD) |

Aidyne® is a registered trademark of Tol-O-Matic, Inc.

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



TOL-O-MATIC, INC.

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



Information furnished is believed to be accurate and reliable. However, Tol-O-Matic assumes no responsibility for its use or for any errors that may appear in this document. Tol-O-Matic reserves the right to change the design or operation of the equipment described herein and any associated motion products without notice. Information in this document is subject to change without notice.