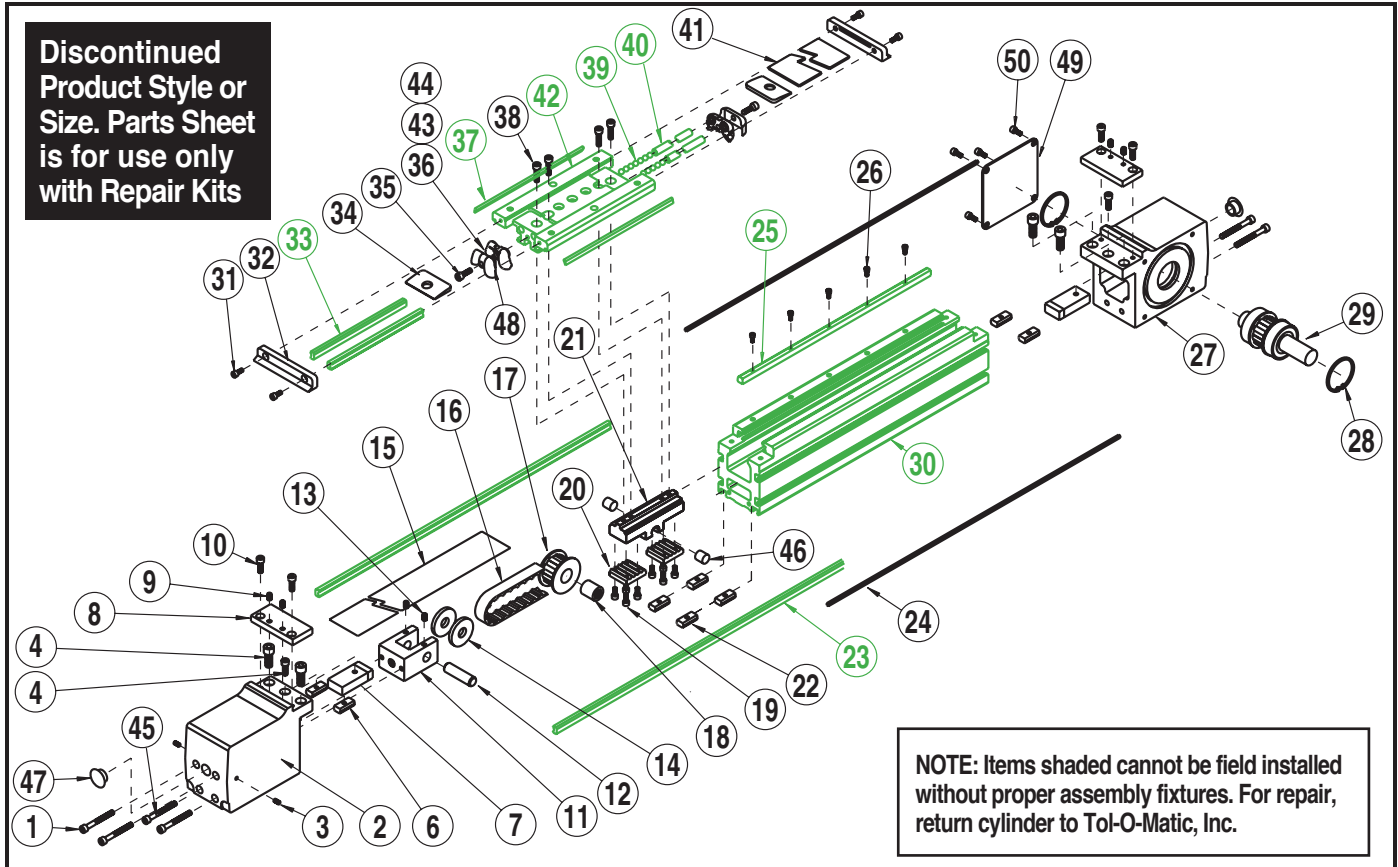




Axidyne® Belt-Drive Actuator Wedge-Style B3B15/M3B15 1-1/2"/40mm Size

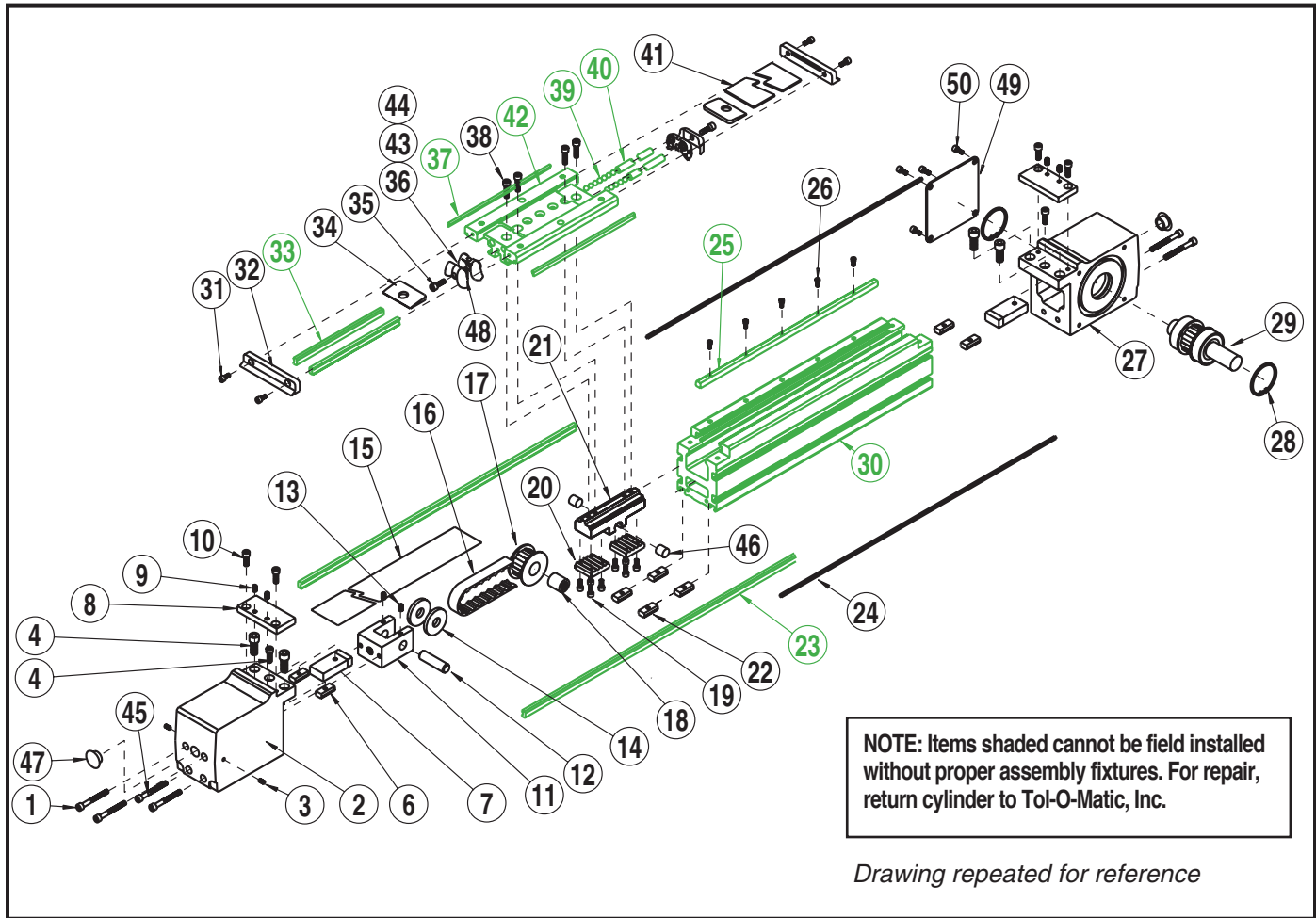


List of Parts

Item	Part No.	Description	B3B15	M3B15
1.	1408-3412	SHCS #10-24 x 1.5	2	
	4910-1061	SHCS M5 x .8 x 40		2
2.	3415-1401	Head, Idler	1	
	4415-1401	Head, Idler (metric)		1
3.	3415-1419	Set Screw #6-32 x .625 cup	2	
	7906-1029	Set Screw M5-0.8 x 6mm		2
4.	1004-1064	SHCS, 1/4-20 x .75	6	
	4420-1002	SHCS, M6 x 20mm		6
5.		This Number is Not Used		
6.	3415-1013	Nut, T, BC3	4	
	4415-1013	Nut, T, BC3		4
7.	3415-9209	Bumper Mount	2	
	4415-9209	Bumper Mount (metric)		2
8.	3415-1404	Band Clamp	2	
	4415-1404	Band Clamp		2
9.	3600-1129	Set Screw, #6-32 x .19	4	
	7906-1029	Set Screw M5-0.8 x 6mm		4

Item	Part No.	Description	B3B15	M3B15
10.	0910-1166	SHCS, #8-32 x 0.50, BLK	4	
	4415-1016	SHCS, M5-0.8 x 16		4
11.	3415-1411	Yoke	1	
	4415-1411	Yoke (metric)		1
12.	3415-1410	Shaft 1/2, x 2.00 LONG	1	1
13.	0910-1039	Set Screw, #10-24 x 0.38, Flat	2	
14.	0515-1019	Washer, Spacer	2	2
15.	3415-1424	Upper Dust Band	A/R	A/R
16.	3415-1421	Belt, 5mm pitch, 1" wide	A/R	A/R
17.	3415-1406	Pulley, Idler, 5mm pitch 1" wide	1	1
18.	0515-1024	Needle Bearing, Ø 1/2 ID	1	1
*19.	0910-1172	SHCS, #6-32 x .50	12	
	4415-1023	SHCS, M4 x .7 x 12mm		12
*20.	3415-1409	Belt Clamp, 5mm pitch 1" wide	2	2
*21.	3415-1408	Belt Bracket	1	
	4415-1408	Belt Bracket (metric)		1
22.	3415-1013	Nut, T, BC3	4	
	4415-1013	Nut, T, BC3		4

*Also included in Belt Bracket Assembly
B3B15 = 3415-9350 M3B15 = 4415-9350



Item	Part No.	Description	B3B15	M3B15
	23. 3415-1426	Rail Way	A/R	A/R
	24. 3415-1425	Magnet, Band	A/R	A/R
	25. 3415-1142	Machined Wedge	A/R	A/R
	26. 0605-1048	Socket Head Cap Screw	A/R	A/R
	27. 3415-1403	Head, Drive	1	
	4415-1403	Head, Drive (metric)		1
	28. 3415-1418	Retaining Ring	2	2
	29. 3415-9151	Pulley/Shaft/ Bearing Assembly	1	1
	30. 3415-2015	Tube, Machined	1	
	4415-2015	Tube, Machined, (metric)		1
	31. 0910-1040	SHCS, #6-32 x .38	4	
	4415-1001	SHCS, M4 x .7 x 10		4
	32. 3415-2024	End Cap	2	2
	33. 3415-1024	Way, Carrier	2	2
	34. 3415-1047	Upper Band Ramp	2	2
	35. 2307-1021	SHCS, #8-32 x .62	2	
	4415-1024	SHCS, M4 x .7 x 14		2

Item	Part No.	Description	B3B15	M3B15
	36. 3415-1014	Ball Return	2	2
	37. 3415-1025	Wiper	2	2
	*38. 0707-1010	SHCS, #10-24 x 5/8	4	
	4415-1016	SHCS, M5 x .8 x 16mm		4
	39. 3415-1009	Ball	114	114
	40. 3415-1019	Ball Return Tube	2	2
	41. 3415-2022	Cover, Carrier	1	1
	42. 3415-2021	Machined Carrier	1	
	4415-1235	Machined Carrier		1
	43. 3415-1015	Right Ball Race	2	2
	44. 3415-1032	Left Ball Race	2	2
	45. 0910-1450	SHCS, #10-24 x 1.75	4	
	0510-1247	SHCS, M5 x 0.8 x 45		4
	*46. 3415-1218	Magnet	2	2
	47. 3420-1431	Cap, Plug, Ø .500	2	2
	48. 3415-1109	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
 B3B15 = 3415-9350 M3B15 = 4415-9350

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 #2 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:

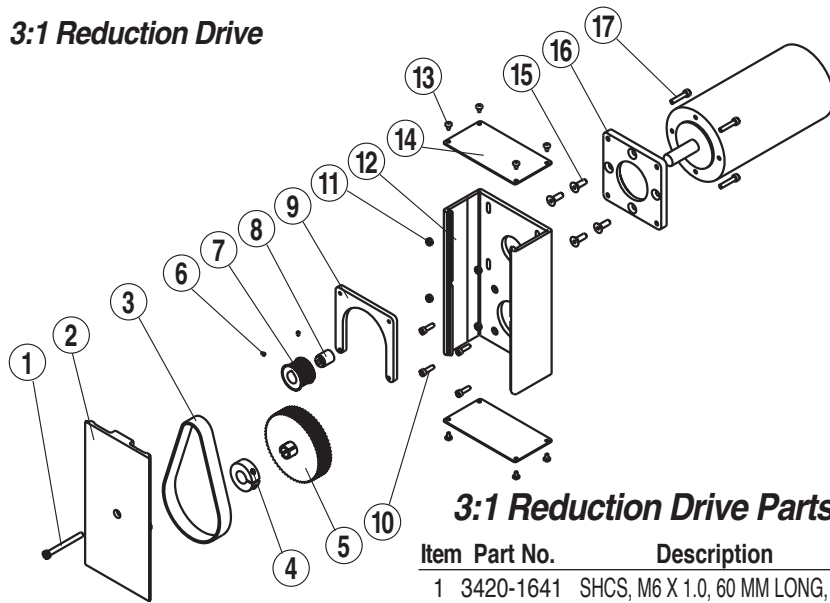
**Apply Loctite #242 to all fasteners upon installation*

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

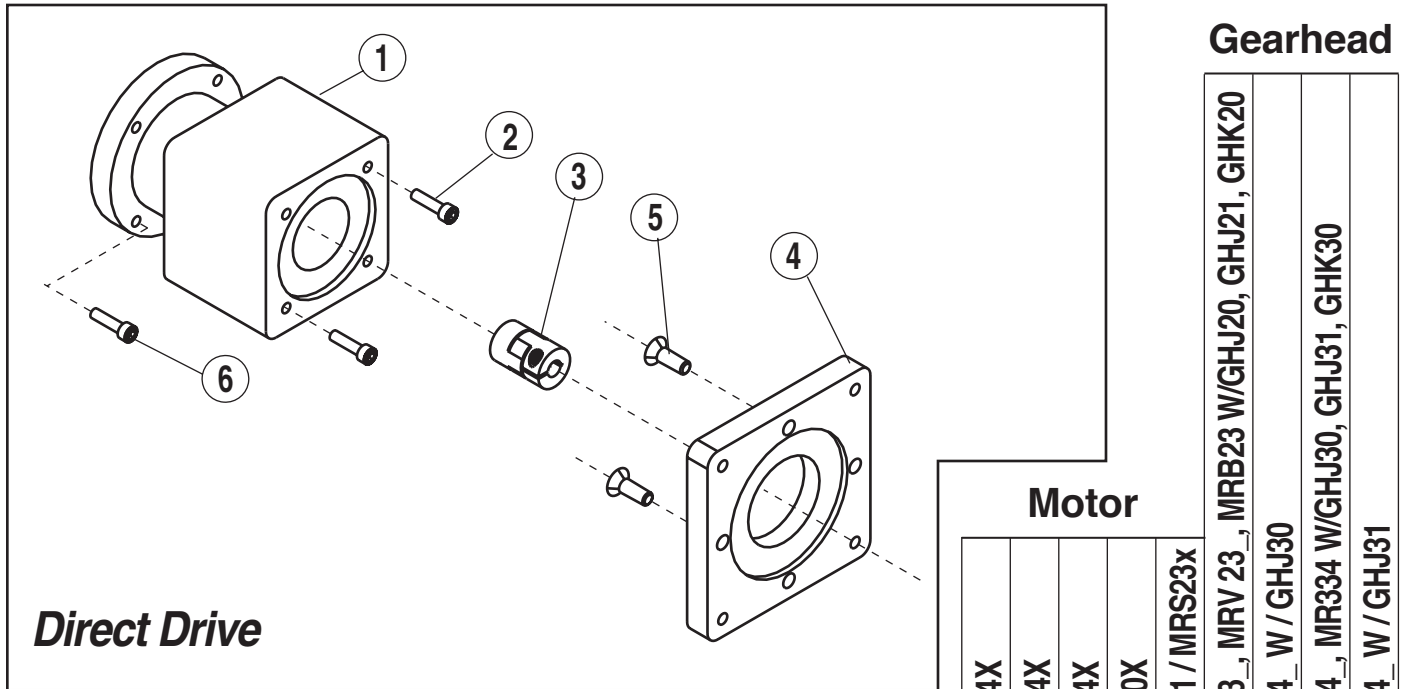
7. Install both end caps (14) with the screws (13) to finalize assembly.

3:1 Reduction Drive



3:1 Reduction Drive Parts Listing

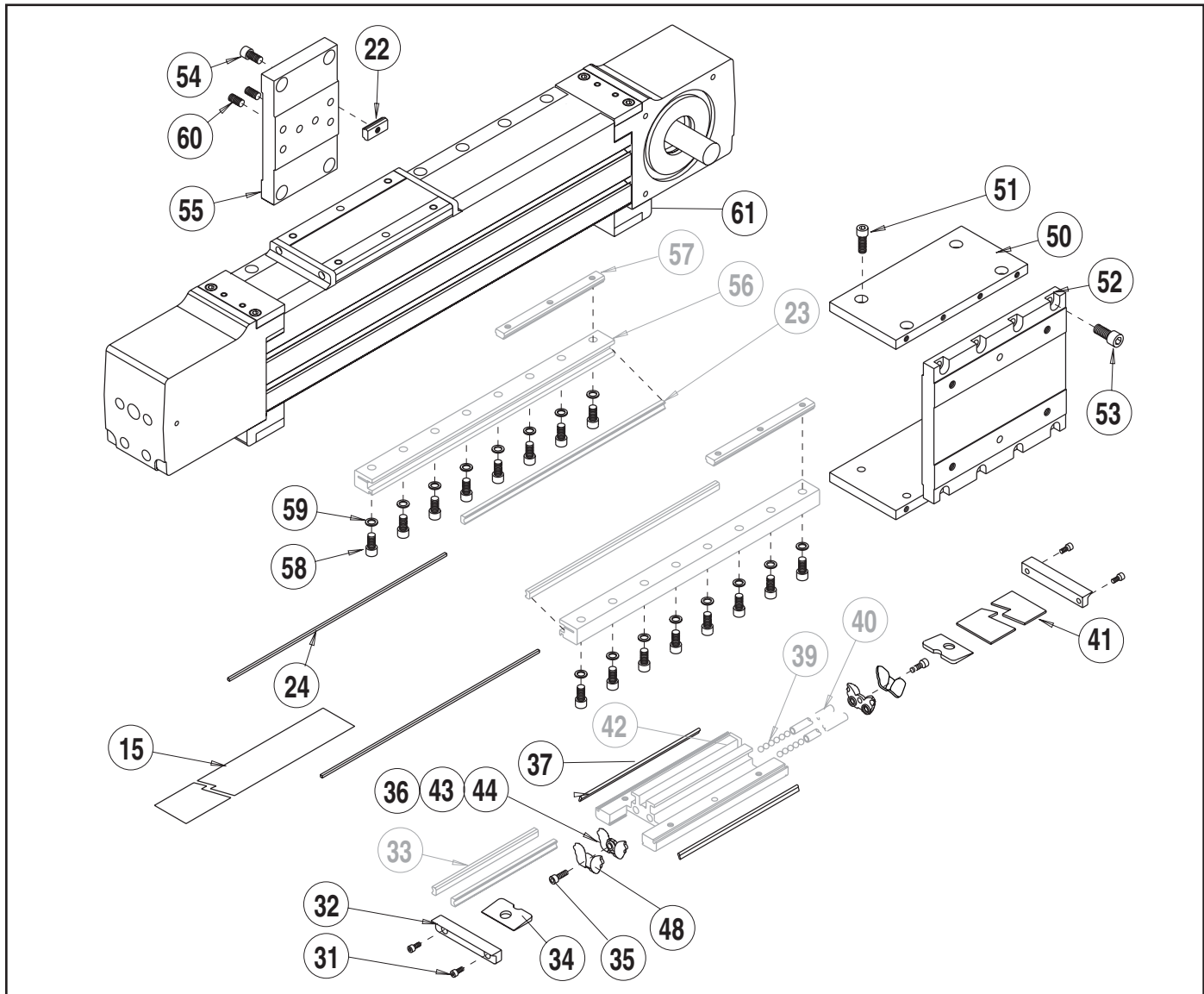
Item	Part No.	Description	BCB15					MCB15							
			MRV21,22,23,24	MRS231,232,MRB21	MRV31,32,33,MRB31,32	MRS341,342,343	MRB41,42	MRV51	MRV21,22,23,24	MRS231,232,MRB21	MRV31,32,33,MRB31,32	MRS341,342,343	MRB41,42	MRV51	
1	3420-1641	SHCS, M6 X 1.0, 60 MM LONG, LOW HEAD, SST	1	1	1	1	1	1	1	1	1	1	1	1	1
2	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
	2212-1098	SHCS, M5 X 0.8, 20 MM LONG, SST						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
16	3420-1612	PLATE, ADAPTER, 40 FRAME					1							1	
17	2212-1010	SFHCS, 1/4-20, .75 LONG					4							4	



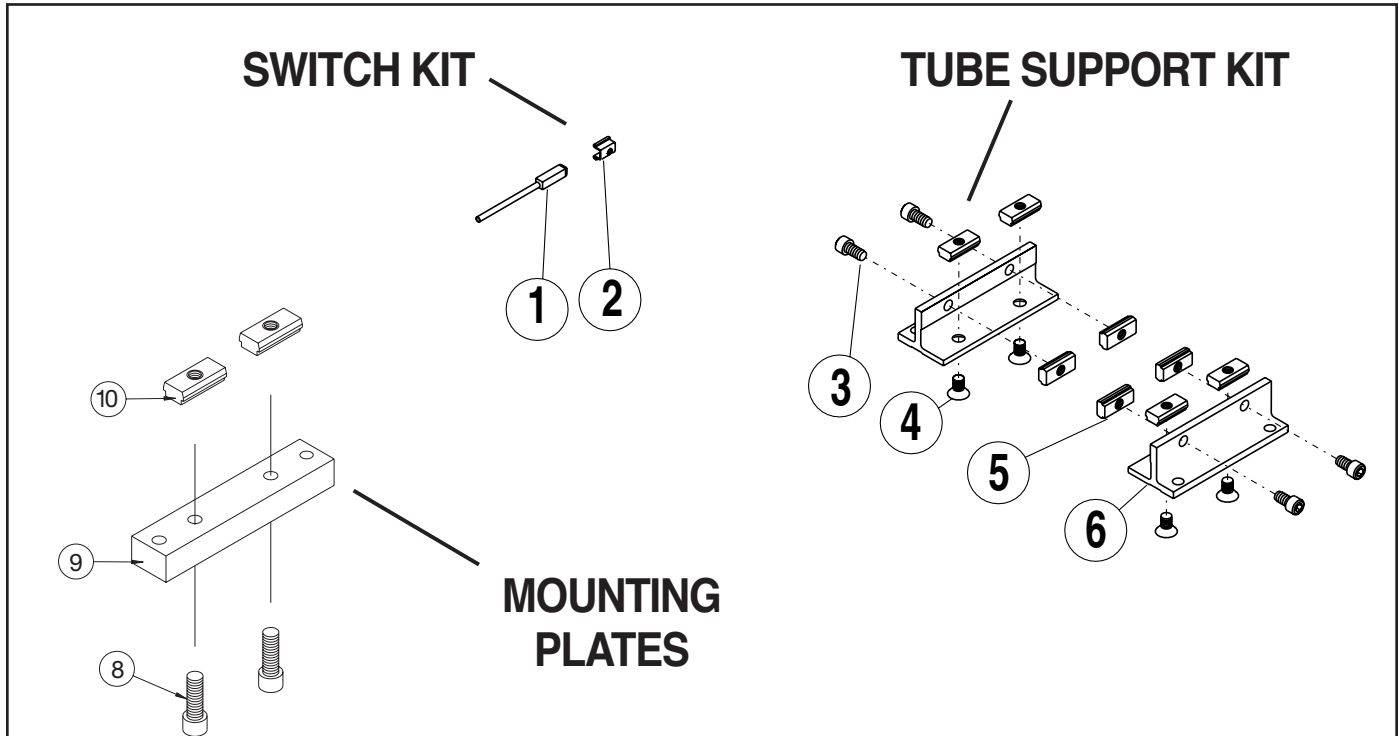
Direct Drive Parts Listing

Item	Part No.	Description	MRS34X	MRB34X	MRV34X	MRB40X	MRB21 / MRS23x	MRS23_ , MRV 23_ , MRB23 W/GHJ20, GHJ21, GHK20	MRV34_ W / GHJ30	MRB34_ , MR334 W/GHJ30, GHJ31, GHK30	MRV34_ W / GHJ31
1.	3410-1452	Motor Adapter, Mach, B3B	1								
	3410-1451	Motor Adapter, Mach, B3B					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			
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								
	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			
	3600-9252	Coupler, Guardian		1							
	3600-9218	Coupler, Guardian				1					
4.	3410-1445	Motor Adapter Plate, MRB40X				1					
	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

* Used on the M3B10 actuator.



Item	B3B15D Part No.	M3B15D Part No.	Description	Dual 180° Option QTY.	Item	B3B15D Part No.	M3B15D Part No.	Description	Dual 180° Option QTY.
15.	3415-1339	3415-1339	Dust Band	1	43.	3415-1015	3415-1015	Right Ball Race	2
22.	3415-1013	4415-1013	Nut	4	44.	3415-1016	3415-1016	Left Ball Race	2
23.	3415-1341	3415-1341	Rail Way	2	48.	3415-1109	3415-1109	PLT Ball Return	2
24.	3415-1340	3415-1340	Band Magnet	2	50.	3415-1049	4415-1049	Plate, Conn., Dual Carrier	2
31.	0910-1040	4415-1001	Socket Head Cap Screw	4	51.	2317-1014	4415-1000	Socket Head Cap Screw	8
32.	3415-2024	3415-2024	End Cap	2	52.	3415-1048	4415-1048	Plate, Dual Carrier	1
33.	3415-1024	3415-1024	Carrier Way	2	53.	1209-1019	4420-1002	Socket Head Cap Screw	8
34.	3415-1047	3415-1047	Upper Band Ramp	2	54.	0801-1251	4415-1005	Socket Head Cap Screw	4
35.	2307-1021	4415-1024	Socket Head Cap Screw	2	55.	3415-1053	3415-1053	Tube Support	1
36.	3415-1014	3415-1014	Ball Return	2	56.	3415-1342	3415-1342	Machined Rail	2
37.	3415-1510	3415-1510	Wiper	2	57.	3415-1215	4415-1215	Rail Nut	AR
39.	3415-1009	3415-1009	Ball	114	58.	3415-1077	4415-1000	Socket Head Cap Screw	AR
40.	3415-1019	3415-1019	Ball Return Tube	2	59.	3415-1059	3415-1059	Washer	AR
41.	3415-2022	3415-2022	Carrier Cover	1	60.	3415-1219	3415-1219	Set Screw	2
42.	3415-2021	4415-1235	Machined Carrier	1	61.	3415-1448	4415-1448	Band Clamp, Dual 180°	2



Optional Accessories Parts Listing

Item	SWITCH KIT		Switch Kit number (Hardware & switch) (SWB3B15_)	
	Description	Part Number	Description	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.	3415-9999	Switch Hardware Kit	A/R
TUBE SUPPORT KIT			
3.	0801-1251	SHCS, 1/4-20 x 0.50	4
	4415-1005	SHCS, M6 x 1 x 12	4
4.	3415-1046	SFHCS, 1/4-20 x 0.44	4
	4415-1014	SFHCSM6 x 1 x 10	4
5.	3415-1013	BC315 Nut	8
	4415-1013	BC3M315	8
6.	3415-1044	BC315 Tube Support	2
MOUNTING PLATES			
8.	0801-1251	SFHCS, 1/4-20 x 0.50	4
	4415-1005	M6 x 1 x 12mm	4
9.	3415-1332	Mounting Plate, B32150, 0.50	2
10.	3415-1013	B315 Nut	4
	4415-1013	Nut, Metric	4

OPTIONAL ACCESSORY ASSEMBLY INSTRUCTIONS

- 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.

- 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.

TO ORDER RETROFIT KITS:

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

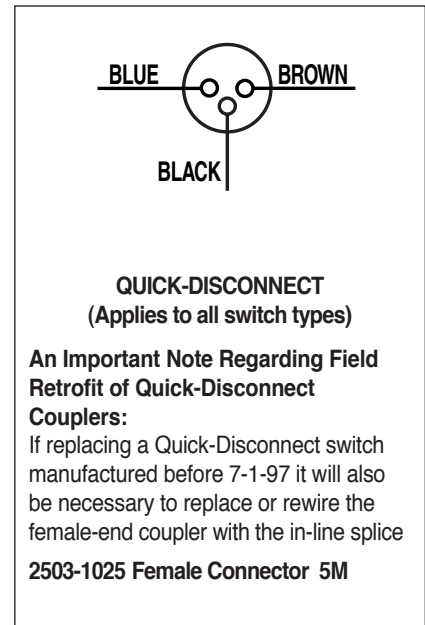
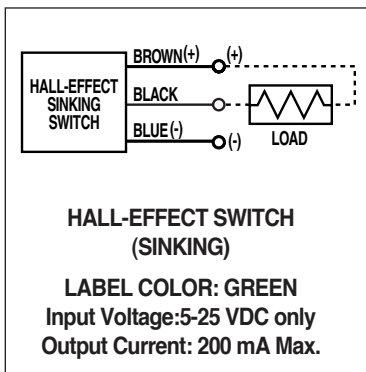
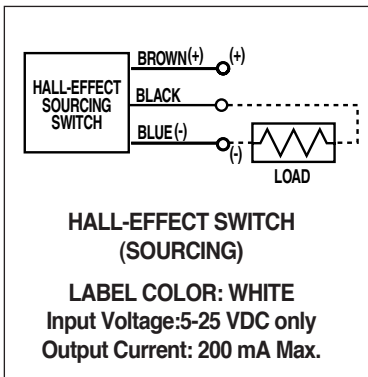
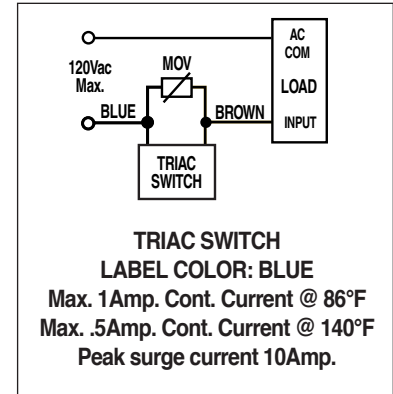
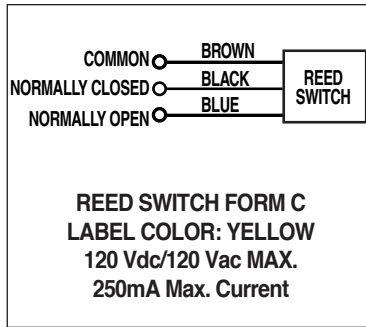
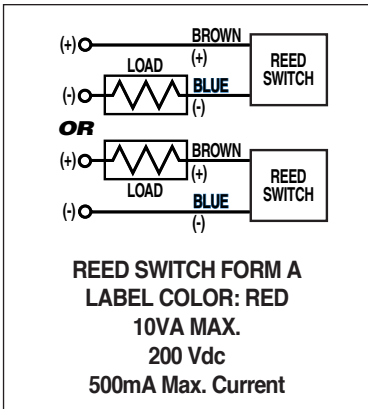
EXAMPLE: SWB3B10RT

Where SW is the switch, B3B10 is the 1 inch size, and RT 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) |

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