



TOL-O-MATIC, INC.

Parts Sheet

Axidyne® B3S15/M3S15 Cylinder-Style Screw-Drive Actuators 1-1/2"/40mm BORE

Models:

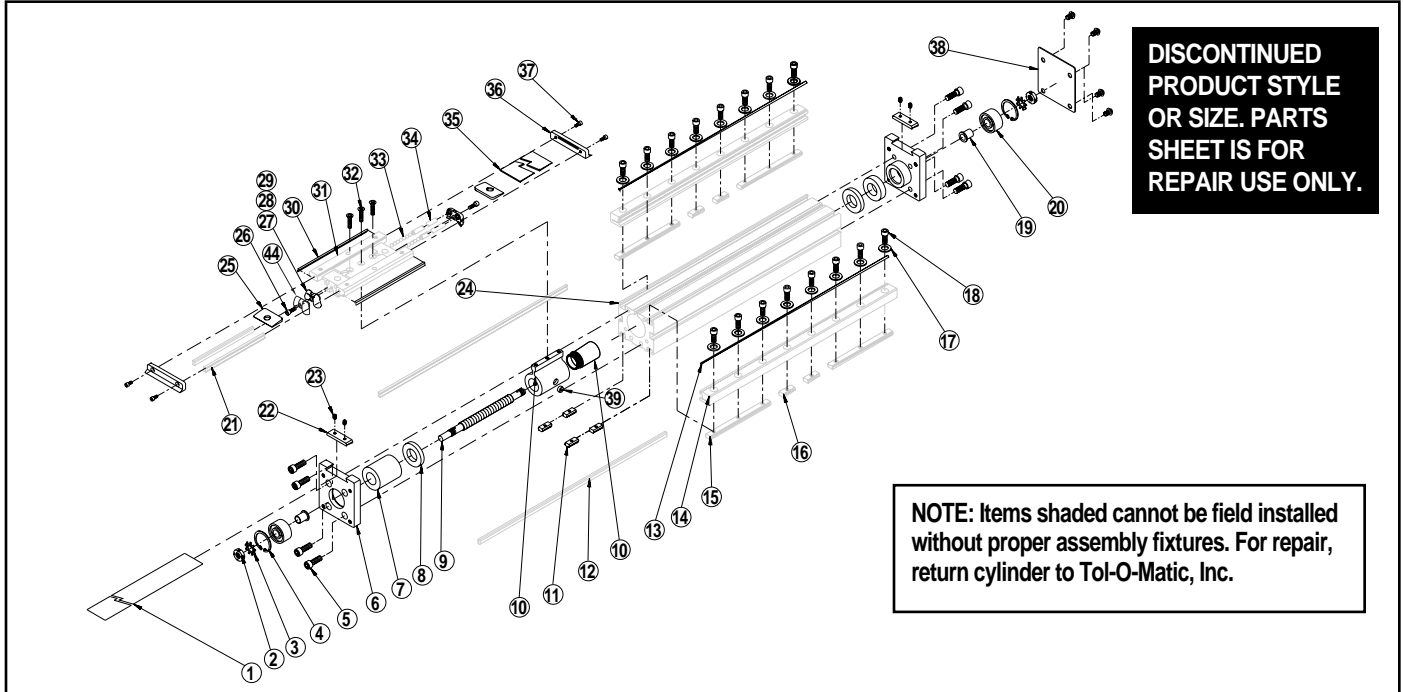
B3S15SN01	B3S15BNL02	B3S15BNL02
B3S15BN02	B3S15BN05	B3S15BNL05
B3S15BNL02	M3S15SN25	M3S15SN12
M3S15BN05	M3S15BNL05	

3600-4042_02

Replaced by

3600-4122

02-2000



Parts Listing

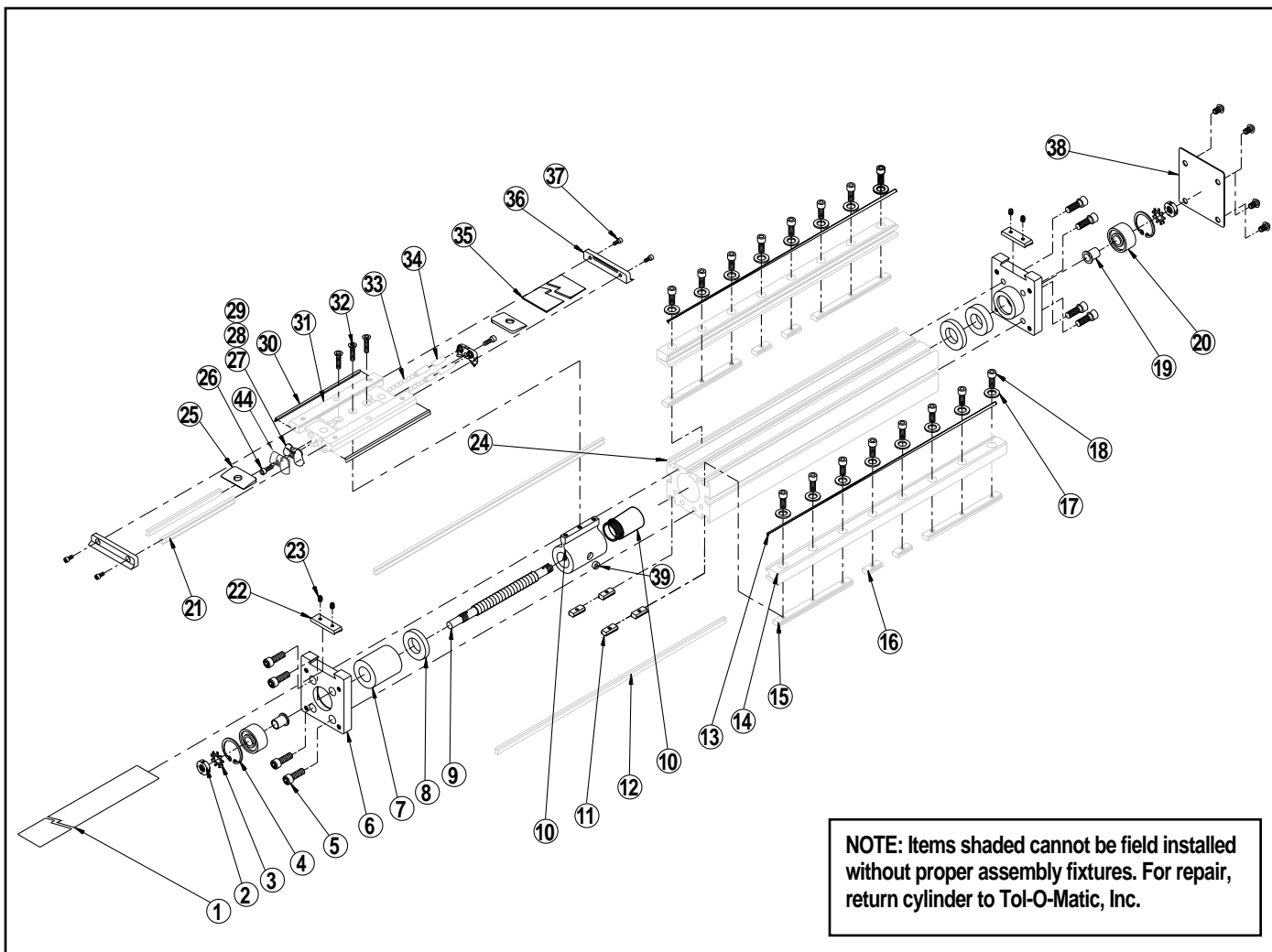
Item	Part No.	Description	B3S15						M3S15					
			B3S15BN02	B3S15BNL02	B3S15SN02	B3S15SNL02	B3S15BN05	B3S15BNL05	B3S15SN01	B3S15SNL01	M3S15SN25	M3S15SNL25	M3S15SN12	M3S15SNL12
1†	3415-1339	Dust Band	A/R	A/R	A/R	A/R	-	A/R	A/R	A/R	A/R	A/R	A/R	A/R
2	3415-1306	Lock Nut	2	2	-	-	-	-	-	2	2	-	2	-
	3415-1317	Lock Nut	-	-	2	2	2	2	2	2	2	-	2	2
3	3415-1306	Lockwasher	2	2	-	-	-	-	-	2	2	-	2	-
	3415-1316	Lockwasher	-	-	2	2	2	2	2	2	2	-	2	2
4	3415-1307	Snap Ring	2	2	2	2	2	2	2	2	2	2	2	2
5	1004-1064	Socket Head Cap Screw	8	8	8	8	8	8	8	8	8	-	8	-
	4420-1002	Socket Head Cap Screw	-	-	-	-	-	-	-	8	8	8	8	8
6	3415-1300	Actuator Head	2	2	2	2	2	2	2	-	-	-	-	-
	4415-1300	Actuator Head	-	-	-	-	-	-	-	2	2	2	2	2
7	3415-1308	Spacer	1	1	-	-	-	-	-	-	-	-	1	1
	3415-1309	Spacer	-	-	-	-	1	1	-	-	-	-	-	-
	3415-1310	Spacer	-	-	1	-	-	-	1	1	1	-	-	-
	3415-1312	Spacer	1	1	1	1	1	1	1	1	1	1	1	1
	3415-1315	Spacer	-	-	-	1	-	-	-	-	-	-	-	-
8	3415-1318	Bumper	2	2	2	2	2	2	2	2	2	2	2	2
9*	3415-1301	Lead Screw, 2TPI, Ball*	A/R	A/R	-	-	-	-	-	-	-	-	-	-
	3415-1350	Lead Screw, 2TPI, Ball R/P*	A/R	A/R	-	-	-	-	-	-	-	-	-	-
	3415-1302	Lead Screw, 2TPI, ACME*	-	-	A/R	A/R	-	-	-	-	-	-	-	-
	3415-1351	Lead Screw, 2TPI, ACME R/P*	-	-	A/R	A/R	-	-	-	-	-	-	-	-
	3415-1303	Lead Screw, 5TPI, ACME*	-	-	-	-	A/R	A/R	-	-	-	-	-	-
	3415-1352	Lead Screw, 5TPI, ACME R/P*	-	-	-	-	A/R	A/R	-	-	-	-	-	-
	3415-1304	Lead Screw, 1TPI, ACME*	-	-	-	-	-	-	A/R	-	-	-	-	-
	3415-1343	Lead Screw, 1 TPI, ACME R/P*	-	-	-	-	-	-	A/R	-	-	-	-	-
	4415-1301	Lead Screw, 12mm, ACME*	-	-	-	-	-	-	-	A/R	A/R	-	-	-
	4415-1350	Lead Screw, 12mm, ACME R/P*	-	-	-	-	-	-	-	A/R	A/R	-	-	-

Item	Part No.	Description	B3S15						M3S15						
			B3S15BN02	B3S15BNL02	B3S15SN02	B3S15SNL02	B3S15BN05	B3S15BNL05	B3S15SN01	B3S15SNL01	M3S15SN25	M3S15SNL25	M3S15SN12	M3S15SNL12	
	4415-1302	Lead Screw, 5mm Lead, Ball*	-	-	-	-	-	-	-	-	-	-	-	A/R	A/R
	4415-1351	Lead Screw, 5mm Lead, Ball R/P*	-	-	-	-	-	-	-	-	-	-	-	A/R	A/R
	4415-1303	Lead Screw, 25mm Lead, V*	-	-	-	-	-	-	-	-	-	-	A/R	-	-
	4415-1352	Lead Screw, 25 mm Lead, V R/P*	-	-	-	-	-	-	-	-	-	-	A/R	-	-
10	3415-9062	Nut Bracket Assy, 1TPI	-	-	-	-	-	-	-	-	1	-	-	-	-
	3415-9063	Nut Bracket Assy, 2TPI	-	-	1	-	-	-	-	-	-	-	-	-	-
	3415-9064	Nut Bracket Assy, 2TPI, Ball, AB	-	1	-	-	-	-	-	-	-	-	-	-	-
	3415-9065	Nut Bracket Assy, 5TPI, Ball	-	-	-	-	1	1	-	-	-	-	-	-	-
	3415-9066	Nut Bracket Assy, 2TPI, Ball	1	-	-	-	-	-	-	-	-	-	-	-	-
	3415-9067	Nut Bracket Assy, 2TPI, AB	-	-	-	1	-	-	-	-	-	-	-	-	-
	4415-9027	Nut Bracket Assy, 12mm Lead	-	-	-	-	-	-	-	-	-	-	1	-	-
	4415-9028	Nut Bracket Assy, 25mm Lead	-	-	-	-	-	-	-	-	1	-	-	-	-
	4415-9029	Nut Bracket Assy, 5mm Lead	-	-	-	-	-	-	-	-	-	-	1	1	
11	3415-1013	Nut	4	4	4	4	4	4	4	4	4	-	-	-	-
	4415-1013	Nut	-	-	-	-	-	-	-	-	-	4	4	4	4
12	3415-1342	Rail Way	2	2	2	2	2	2	2	2	2	2	2	2	2
13	3415-1340	Band Magnet	2	2	2	2	2	2	2	2	2	2	2	2	2
14	3415-1342	Machined Rail	2	2	2	2	2	2	2	2	2	2	2	2	2
15	3415-1008	Rail Nut	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	-	-	-	-
	4415-1008	Rail Nut	-	-	-	-	-	-	-	-	-	-	A/R	A/R	A/R
16	3415-1013	Nut	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	-	-	-	-
	4415-1013	Nut	-	-	-	-	-	-	-	-	-	-	A/R	A/R	A/R
17	3415-1059	Washer	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R
18	2317-1014	Socket Head Cap Screw	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	-	-	-	-
	4415-1000	Socket Head Cap Screw	-	-	-	-	-	-	-	-	-	-	A/R	A/R	A/R

* Specify stroke when ordering.

† Available as Ball Nut/Lead Screw sub-assembly. Ball nut matched to lead screw.

‡ Available in Repair Kit No. 3413-9049



Item	Part No.	Description	B3S15					M3S15			
			B3S15BN02	B3S15BNL02	B3S15SN02	B3S15SNM02	B3S15BN05	B3S15BNL05	B3S15BN01	M3S15SN05	M3S15SN02
19	3415-1320	Bearing Sleeve	2	2	-	-	-	-	2	-	-
20	3415-1322	Contact Bearing	2	2	2	2	2	2	2	2	2
21	3415-1024	Carrier Way	2	2	2	2	2	2	2	2	2
22	3415-1319	Upper Clamp	2	2	2	2	2	2	-	-	-
	4415-1319	Upper Clamp	-	-	-	-	-	2	2	2	2
23	3415-1455	Set Screw	4	4	4	4	4	4	-	-	-
	4410-1017	Set Screw	-	-	-	-	-	4	4	4	4
24	3415-1321	Machined Tube	1	1	1	1	1	1	-	-	-
	4415-1321	Machined Tube	-	-	-	-	-	-	1	1	1
25	3415-1047	Upper Band Ramp	2	2	2	2	2	2	2	2	2
26	2307-1021	Socket Head Cap Screw	2	2	2	2	2	2	-	-	-
	4415-1023	Socket Head Cap Screw	-	-	-	-	-	-	2	2	2
27	3415-1014	Ball Return	2	2	2	2	2	2	2	2	2
28	3415-1015	Right Ball Race	2	2	2	2	2	2	2	2	2
29	3415-1032	Left Ball Race	2	2	2	2	2	2	2	2	2
30†	3415-1025	Wiper	2	2	2	2	2	2	2	2	2

Item	Part No.	Description	B3S15					M3S15				
			B3S15BN02	B3S15BNL02	B3S15SN02	B3S15SNM02	B3S15BN05	B3S15BNL05	B3S15BN01	M3S15SN05	M3S15SN02	M3S15BN05
31	3415-1006	Machined Carrier	1	1	1	1	1	1	1	-	-	-
	4415-1006	Machined Carrier	-	-	-	-	-	-	-	1	1	1
32	3415-1323	Flathead Cap Screw	3	3	3	3	3	3	3	-	-	-
	4415-1016	Socket Head Cap Screw	-	-	-	-	-	-	-	3	3	3
33	3415-1009	Ball	116	116	116	116	116	116	116	116	116	116
34	3415-1019	Ball Return Tube	2	2	2	2	2	2	2	2	2	2
35†	3415-1042	Carrier Cover	1	1	1	1	1	1	1	1	1	1
36†	3415-1011	End Cap	2	2	2	2	2	2	2	2	2	2
37	0910-1040	Socket Head Cap Screw	4	4	4	4	4	4	4	-	-	-
	4415-1001	Socket Head Cap Screw	-	-	-	-	-	-	-	4	4	4
38	3415-9059	Head End Kit	1	1	1	1	1	1	1	-	-	-
	4415-9055	Head End Kit	-	-	-	-	-	-	-	1	1	1
39	3415-1218	Magnet	2	2	2	2	2	2	2	2	2	2
44	3415-1109	PLT Ball Return	2	2	2	2	2	2	2	2	2	2

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 (exact wrench sizes will vary depending upon cylinder size).

- Tin Snips
- Allen Wrench Set
- Open-end or Box Wrench Set and/or Sockets
- Retaining Ring Pliers

1. Remove cylinder heads. Remove Head End Kit (38) from “dead” end of cylinder. Loosen Set Screws (23) and remove Upper Clamp (22). Remove SHCS (5). Bend back tang on lockwasher (3) from slot in Lock Nut and unscrew Lock Nut (2) from Screw (9). Remove Head (6). Remove Contact Bearing (20), Bearing Sleeve (19) and Snap Ring (4) from Head. Repeat procedure for “live” end Head.

2. Release carrier assembly. Remove Screws (37) from End Caps (36) and remove End Caps. Remove Carrier Cover (35), then remove Dust Band (1). Loosen screws (32) from Carrier (31) to release Carrier. Move Carrier assembly to the “dead” end of tube, stopping just as plastic Ball Return (27) is visible from end.

NOTE: Do NOT remove carrier (31) from Tube (24). Balls contained in rail way will fall out.

3. Remove lead screw sub-assembly. To release Nut Bracket Assy (10) from Carrier assembly, with a blunt object, push down slightly on lead screw to release Nut Bracket Assy (10) from plastic Ball Return (27). Remove lead screw sub-assembly from tube.

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

Plastic Nut Style: Plastic nuts are factory pinned into the Nut Bracket and cannot be removed. If nuts are worn, a new Nut Bracket Assy must be ordered.

GENERAL CYLINDER ASSEMBLY INSTRUCTIONS

1. Install Lead Screw assembly and heads.

Ball Nut or Plastic Nut Style: Grease Lead Screw (9) with Mobil HP grease. With Nut Bracket assembly (10) on Lead Screw, slide Bumper (8), Spacer (7), Head sub assembly (consisting of Head (6), Bearing Sleeve (19) if applicable, Bearing (20), and Snap Ring (4)), Lockwasher (3) and Lock Nut (2) onto Lead Screw “live end”. Holding the Lead Screw tightly (care must be taken not to damage the lead screw threads) to prevent it from turning, tighten Lock Nut (2) to secure assembly. Bend tang of Lockwasher into slot on Lock Nut to secure. Slide “dead end” of Lead Screw (9) into Tube (24) until “live end” head is against face of tube. Secure “live end” Head (6) with four Screws (5). Slide Carrier (31) to center of Tube and secure Carrier to Nut Bracket with Screws (32). Move Carrier to “dead end” side of tube. Slide Bumper (8), Spacer (7), Head (6) (with bearing sleeve and/or bearing and snap ring installed), Lockwasher (3) and Lock Nut (2) onto Lead Screw shaft. Tighten Lock Nut (2) until Head (6) is snug to end of tube and head cannot be rotated back and forth about lead screw axis. Bend tang on Lockwasher into slot on Lock Nut (2) to secure. Secure Head (6) with four screws (5). Loosen screws holding “live end” head, move carrier to “live end” and retighten screws (5).

2. Lubricate Ballways. Before installing the top Dust Band (1), lubricate the ballways with Mobil HP grease.

3. Aligning the Carrier. With the Head Bolts (5) snug, move the carrier until it reaches the internal bumper (8). Torque Head Bolts to 100-110 in-lbs (11.29-12.42 N-m). Repeat aligning procedure for the other end.

4. Trim and install Dust Band. Install Dust Band (1) over Carrier (31) centering it along the length of the cylinder. Slide Carrier Cover (35) into slots on top of Carrier. Apply Loctite #242 to Screws (37) and secure End Caps (36) to Carrier. With tin snips, cut ends of Dust Band (1) 1/16" in from outside edge of Head (6). Place a Upper Clamp (22) into Head slot over Dust Band. Apply Loctite #242 to Set Screws (23) and insert into Upper Clamp. Torque Set Screws to 20-30 in-lbs to secure Dust Band (1).

5. Test Procedure: The torque required to rotate the Lead Screw (9) should not exceed the following limits.

MAXIMUM BREAKAWAY REQUIREMENTS:

Cylinder Size	Torque
BC3S15 (1-1/2")	30 in-oz.

Check and/or readjust unit to conform to specification requirements. Retest.

6. Clean unit thoroughly before installing.

BEARING LUBRICATION

The bearing system is prelubricated at the factory with a high quality Mobil HP grease. Relubrication is recommended every .5-1 million cycles using Mobil HP grease for optimal bearing performance. To relubricate, remove Set Screws (23) and Upper Clamp (22). Lift back Dust Band (1) and apply grease directly to the stationary ball ways.

REVERSE PARALLEL DISASSEMBLY INSTRUCTIONS

1. Remove the non-bearing cover (16) from the Drive Case (9) by removing the four Button Head Cap Screws (1).
2. Remove the Bearing Block (4) from the Drive Case Cover (2) by removing the four Button Head Cap Screws (1).
3. Release the tension on the belt by loosening Socket Head Cap Screws (15) and remove the belt from the two pulleys.
4. Remove the Trantorque or Collar Clamp (5) from Pulley (7) and remove Pulley (7) from lead screw.
5. Remove Socket Head Cap Screws (15) and Nuts (10) to detach motor from Drive Case (9).
6. If applicable, remove Adapter Plate (13) from the motor by removing the four Flat Head Cap Screws (11).
7. Unfasten the Drive Case (9) from the drive head of the BC3S by removing the four Socket Head Cap Screws (8). NOTE: Drive Case can be mounted in four different positions. Observe the position of the Drive Case before disassembling.

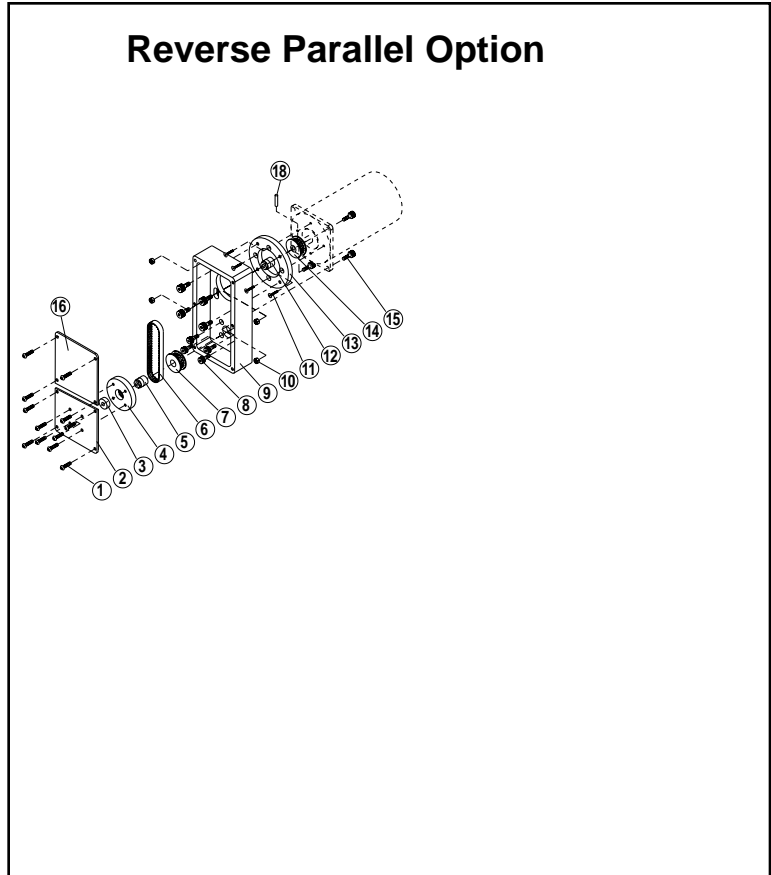
REVERSE PARALLEL ASSEMBLY INSTRUCTIONS

1. Secure Drive Case (9) to the drive head of the BC3S with four Socket Head Cap Screws (8). Use Loctite #242 on the screws. NOTE: Drive Case can be mounted in four different positions. Position the Drive Case in the same position as it was prior to disassembly.
2. Make sure the pulley bore and the shaft are clean and completely free of oil by wiping the surfaces with a clean cloth and solvent.
3. Replace the Pulley (7) onto the shaft approximately .060 in (1.5mm) from the inner wall of the Drive Case (9). Secure the Pulley (7) to lead screw with Trantorque or Collar Clamp (5). If using Trantorque, place the outer sleeve of the Trantorque approximately in the center of the Pulley.

Continued on page four

REVERSE PARALLEL ASSEMBLY INSTRUCTIONS
continued from page three

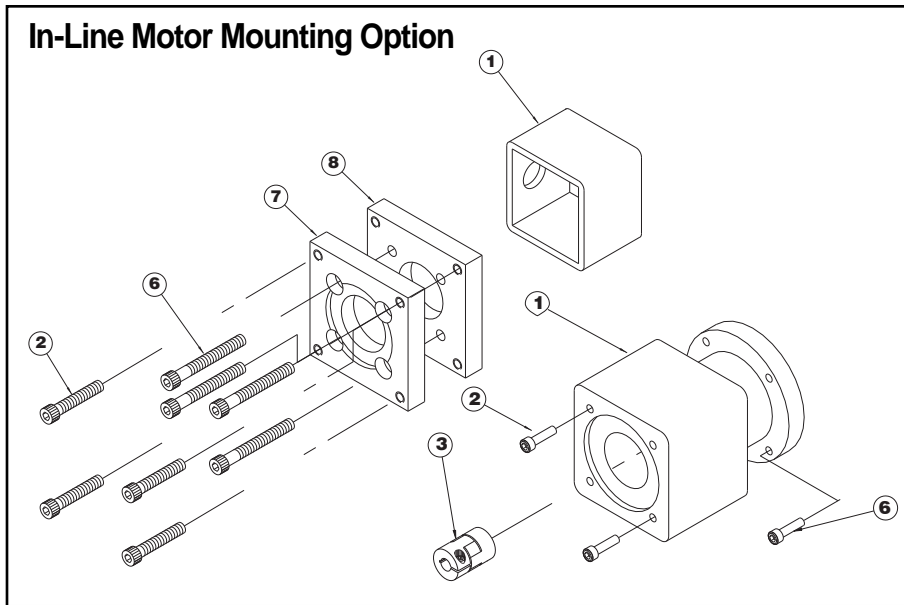
4. Torque the Trantorque (5) with a calibrated torque wrench to 125 in-lbs. (14.2 N-m) or the Collar Clamp (5) to 50 in-lbs (5.6 N-m).
5. If applicable, mount Adapter Plate (13) to the motor. Use Loctite #242 on screws (11).
6. Position motor into drivecase (9). Apply Loctite #242 on the threads of the screws (15). Secure the motor to the Drive Case (9) with Screws (15) and Nuts (10) provided.
7. If applicable, mount Pulley (14) with Trantorque (12). Install per directions 3 to 4 above.
8. Place belt (6) over actuator and motor pulleys.
9. Secure the Bearing (3) to Lower Half Drive Case Cover (2) with four BHCS (1). Use Loctite #242 on the BHCS.
10. Attach lower half drive cover (2) with bearing onto end of lead screw shaft. Secure with four BHCS (1).
11. Position the motor within the slots provided to produce tension on the belt. Tighten Screws (15) to lock motor into place.
12. Mount the non-bearing Cover (16) to the Drive Case (9) with four BHCS (1). Apply Loctite #242 on the threads of the screws.



Parts Listing

			BN(L)02 Ø.315 Output Shaft											
			1:1 Ratio						2:1 Ratio					
			RP_1(MRB/MRS2)	RP_1(MRS34)	RP_1(MRB34)	RP_1(MRV2)	RP_1(MRV34)	RP_1(MRB40)	RP_2(MRB/MRS2)	RP_2(MRS34)	RP_2(MRB34)	RP_2(MRV2)	RP_2(MRV34)	RP_2(MRB40)
1	0510-1249	Button Head Screw	12	12	12	12	12	12	12	12	12	12	12	12
2	3415-1260	Cover, Bearing Half	1	1	1	1	1	1	1	1	1	1	1	1
3	4515-1059	Radial Bearing	1	1	1	1	1	1	1	1	1	1	1	1
4	3415-1343	Bearing Block	1	1	1	1	1	1	1	1	1	1	1	1
5	4515-1060	Trantorque	1	1	1	1	1	1	-	-	-	-	-	-
	2317-1005	Collar Shaft	-	-	-	-	-	-	1	1	1	1	1	1
6	0515-1199	Belt, 1/5P, 3/8 W, 12" L, 60 teeth	1	1	1	1	1	1	-	-	-	-	-	-
	0515-1064	Belt, 1/5P, 3/8 W, 14" L, 70 teeth	-	-	-	-	-	-	1	1	1	1	1	1
7	3415-1346	Pulley, 1/5 pitch, 18 teeth	1	1	1	1	1	1	-	-	-	-	-	-
	3415-1348	Pulley, 1/5 pitch, 36 teeth	-	-	-	-	-	-	1	1	1	1	1	1
8	0801-1251	Socket Head Cap Screw	4	4	4	4	4	4	4	4	4	4	4	4
9	0515-1184	Case 23 Frame Stepper	1	-	-	1	-	-	1	-	-	1	-	-
	0515-1186	Case 34 Frame Stepper	-	1	1	-	1	-	-	1	1	-	1	-
	0515-1187	Case MRB 40	-	-	-	-	-	1	-	-	-	-	-	1
10	2506-1007	Jam Nut	4	4	4	4	4	4	4	4	4	4	4	4
11	6000-1731	Flat Head Cap Screw	-	-	-	-	-	4	-	-	-	-	-	4
12	0510-1111	Trantorque	1	-	-	-	-	1	-	-	-	-	-	-
	0515-1181	Trantorque	-	1	-	-	-	-	1	-	-	-	-	-
13	0515-1488	Adapter Plate MRB40	-	-	-	-	1	-	-	-	-	-	-	1
14	0515-1191	Pulley 18 Teeth, 0.625 Bore	1	-	-	-	1	1	-	-	-	-	-	1
	0515-1192	Pulley, 18 Teeth, 0.750 Bore	-	1	-	-	-	-	1	-	-	-	-	-
	0515-1190	Pulley, 18 Teeth, 0.50 Bore	-	-	1	1	1	-	-	1	1	1	-	-
15	1024-7711	Socket Head Cap Screw	4	4	4	4	4	4	4	4	4	4	4	4
	0610-1045	Socket Head Cap Screw	-	-	-	-	-	4	-	-	-	-	-	4
16	3415-1261	Cover, NON BEARING	1	1	1	1	1	1	1	1	1	1	1	1
18	1930-1032	PIN, ROLL, 5/32 x .875 LG	-	-	1	1	1	1	-	-	1	1	1	1

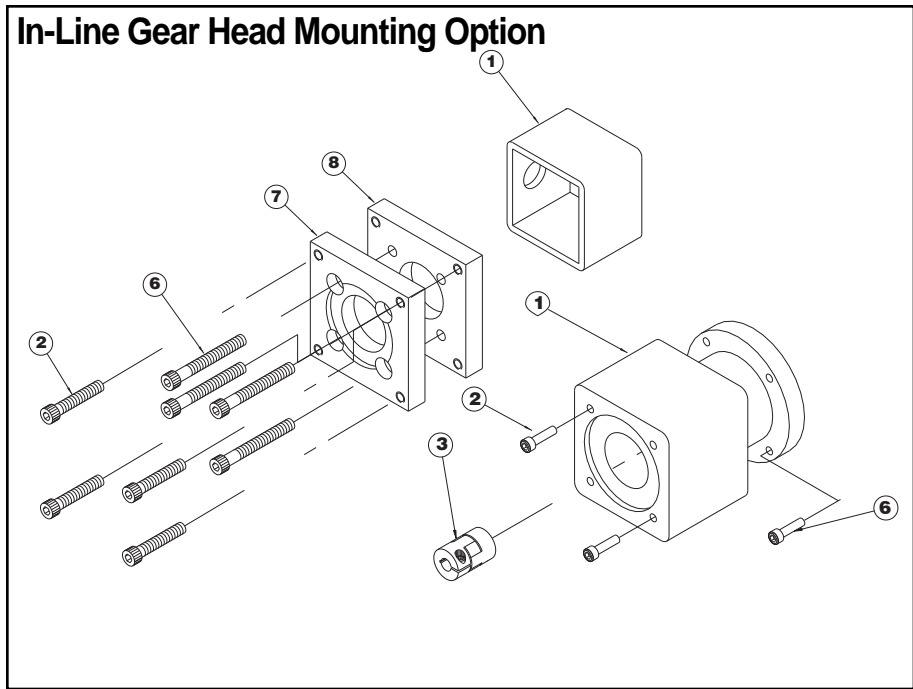
			Other than BNL02 Ø.394											
			1:1 Ratio						2:1 Ratio					
			RP_1(MRB/MRS2)	RP_1(MRS34)	RP_1(MRB34)	RP_1(MRV2)	RP_1(MRV34)	RP_1(MRB40)	RP_2(MRB/MRS2)	RP_2(MRS34)	RP_2(MRB34)	RP_2(MRV2)	RP_2(MRV34)	RP_2(MRB40)
1	0510-1249	Button Head Screw	12	12	12	12	12	12	12	12	12	12	12	12
2	3415-1260	Cover, Bearing Half	1	1	1	1	1	1	1	1	1	1	1	1
3	3515-1345	Radial Bearing	1	1	1	1	1	1	1	1	1	1	1	1
4	3415-1344	Bearing Block	1	1	1	1	1	1	1	1	1	1	1	1
5	2317-1005	Collar Shaft	-	-	-	-	-	-	1	1	1	1	1	1
	0520-1067	Collar Shaft	1	1	1	1	1	1	-	-	-	-	-	-
6	0515-1199	Belt, 1/5P, 3/8 W, 12" L, 60 teeth	1	1	1	1	1	1	-	-	-	-	-	-
	0515-1064	Belt, 1/5P, 3/8 W, 14" L, 70 teeth	-	-	-	-	-	-	1	1	1	1	1	1
7	3415-1347	Pulley, 1/5 pitch, 18 teeth, .394 B	1	1	1	1	1	1	-	-	-	-	-	-
	3415-1349	Pulley, 1/5 pitch, 36 teeth, .394 B	-	-	-	-	-	-	1	1	1	1	1	1
8	0801-1251	Socket Head Cap Screw	4	4	4	4	4	4	4	4	4	4	4	4
9	0515-1184	Case 23 Frame Stepper	1	-	-	1	-	-	1	-	-	1	-	-
	0515-1186	Case 34 Frame Stepper	-	1	1	-	1	-	-	1	1	-	1	-
	0515-1187	Case, MRB40	-	-	-	-	-	1	-	-	-	-	-	1
10	2506-1007	Jam Nut	4	4	4	4	4	4	4	4	4	4	4	4
11	6000-1731	Flat Head Cap Screw	-	-	-	-	-	4	-	-	-	-	-	4
12	0510-1111	Trantorque	1	-	-	-	-	1	-	-	-	-	-	-
	0515-1181	Trantorque	-	1	-	-	-	-	1	-	-	-	-	-
13	0515-1488	Adapter Plate MRB40	-	-	-	-	1	-	-	-	-	-	-	1
14	0515-1191	Pulley 18 Teeth, Ø.625 Bore	1	-	-	-	1	1	-	-	-	-	-	1
	0515-1192	Pulley 18 Teeth, Ø.750 Bore	-	1	-	-	-	-	1	-	-	-	-	-
	0515-1190	Pulley 18 Teeth, Ø.50 Bore	-	-	1	1	1	-	-	1	1	1	-	-
15	1024-7711	Socket Head Cap Screw	4	4	4	4	4	4	4	4	4	4	4	4
	0610-1045	Socket Head Cap Screw	-	-	-	-	-	4	-	-	-	-	-	4
16	3415-1260	Cover, Non Bearing	1	1	1	1	1	1	1	1	1	1	1	1
18	1930-1032	Pin, Roll, 5/32 x .875 LG	-	-	1	1	1	1	-	-	1	1	1	1



In-line mounting with motor with BN02	In-line mounting with motor other than BN02						
	MRB231/MRS23	MRS34, MRB34	MRB231/MRS23	MRS34	MRB34	MRB40	MRV23

Parts Listing

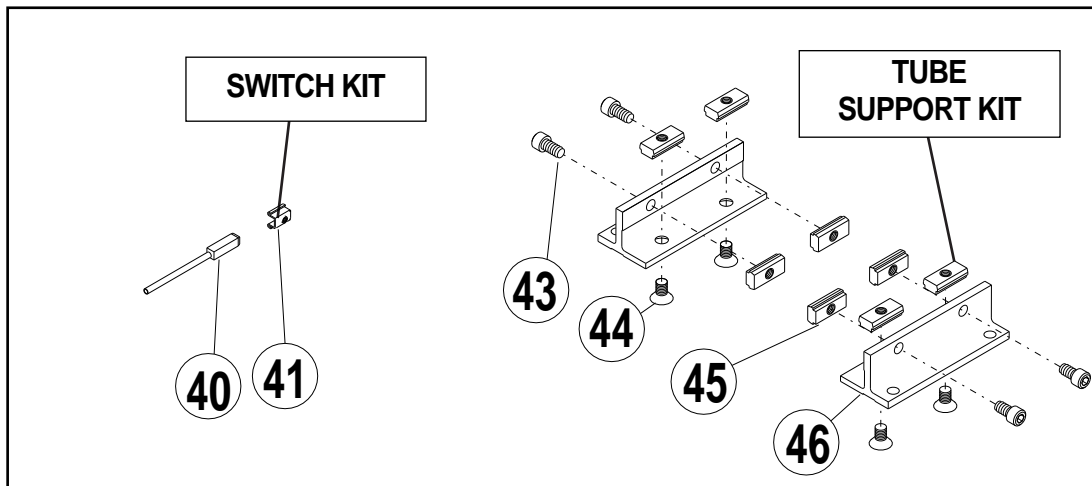
ITEM	PART No.	DESCRIPTION	MRB231/MRS23	MRS34, MRB34	MRB231/MRS23	MRS34	MRB34	MRB40	MRV23	MRBV341
1	3415-1452	Spacer	1	-	1	-	-	-	-	-
	0920-1133	Spacer	-	1	-	1	1	-	-	-
	3415-1350	MTR/ADAP — Spacer	-	-	-	-	-	-	1	-
	3415-1549	MTR/ADAP — Spacer	-	-	-	-	-	-	-	1
	3415-1553	MTR/ADAP — Spacer	-	-	-	-	-	1	-	-
2	0915-1426	SHCS 10-24 x .50	4	-	4	-	-	-	-	-
	0707-1010	SHCS 10-24 x .63	-	4	-	4	4	-	-	-
	0910-1314	SHCS,#10-24X0.75	-	-	-	-	-	4	4	4
3	3415-9039	CPLR — MRB23/MRS23	1	-	1	-	-	-	-	-
	3415-9041	CPLR — MRS34/MRB34	-	1	-	1	1	-	-	-
	3600-6169	CPLR — MRV23	-	-	-	-	-	-	1	1
	3415-9040	CPLR — MRB23/MRS23	-	-	1	-	-	-	-	-
	3415-9042	CPLR — MRS34	-	-	-	1	-	-	-	-
	3415-9044	CPLR — MRB34	-	-	-	-	1	-	-	-
	3415-9046	CPLR—MRB40	-	-	-	-	-	1	-	1
	3600-6188	CPLR—MRV23	-	-	-	-	-	-	1	-
	3600-6170	CPLR—MRV34	-	-	-	-	-	-	-	1
4	3410-1445	PLT — MRB40	-	-	-	-	-	1	-	-
5	6000-1731	SFHCS 1/4-20 x 7/8 LG	-	-	-	-	-	4	-	-
6	6000-1474	SHCS, 1/4-20 x 1.6	4	-	4	-	-	-	-	-
	0910-1314	SHCS,#10-24X0.75	-	-	-	-	-	-	4	4
7	3415-1228	MTR MNT PLT	1	-	1	-	-	-	-	-
	3415-1325	MTR MNT PLT	-	1	-	1	1	-	-	-
8	3415-1324	MTR MNT PLT	1	-	1	-	-	-	-	-



In-line mounting w/ motor with BN02	In-line mounting with motor other than BN02							
MRB231/MRV23_ W/GHK20, GHJ20, 21								
MRS34, MRB34 W/GHK30, GHJ30, 31								
MRB231 W/GHK20								
MRS34,MRB34 W/GHK30, GHJ30,31								
MRV23X W/GHJ20,21								
MRV234 W/GHJ20,21								
MRV34_ W/GHJ30,31								

Parts Listing

ITEM	PART No.	DESCRIPTION							
1	3415-1549	MTR/ADAP — Spacer	–	1	–	1	–	–	1
	3415-1552	MTR/ADAP — Spacer	1	–	1	–	1	1	–
2	0910-1314	SHCS,#10-24X0.75	4	4	4	4	4	4	4
3	3415-9043	CPLR — MRB23	1	–	–	–	–	–	–
	3415-9041	CPLR — MRS34/MRB34	–	1	–	–	–	–	–
	3415-9044	CPLR — MRB34	–	–	1	–	–	–	–
	3600-6170	CPLR—MRV34	–	–	–	–	1	–	–
	3415-9048	CPLR	–	–	–	1	–	–	–
	3600-6171	CPLR	–	–	–	–	–	1	1
6	0910-1314	SHCS,#10-24X0.75	4	4	4	4	4	4	4



OPTIONAL ACCESSORY ASSEMBLY INSTRUCTIONS

1. **TUBE SUPPORTS.** Four T-Nuts (45) are required on each side of the Tube (23), 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 (44) and secure Tube Supports (46) to Tube aligning holes in T-Nuts with holes in Tube Supports.

2. **Switches.** Secure Switch (40) to magnet side of Tube with Switch Clamp (41) and Set Screw (42).

3. **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 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.

NOTE: For Hall Effect Switch Magnet, be sure the S pole of the magnet (indicated with black dot) is facing toward the switch (down).

TO ORDER RETROFIT KITS:

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

EXAMPLE: SWB3S15BT

Where **SW** is the switch kit, **B3S** is the model, **15** is the 1½" size, and **BT** is a Form C Reed Switch with 5-meter lead.

All Switch Kits come with 1 switch and mounting hardware.

HARDWARE ONLY KIT: 3415-9999 **QUICK-DISCONNECTS:** 2503-1025 Female Connector 5M

Optional Accessories Parts Listing

Item	B3S15 Part No.		Description	QTY.
SWITCH KIT				
41	3415-9999		Switch Hardware Kit	A/R
40	3600-9082		Switch, Reed, Form A, 5M Wire	A/R
	3600-9083		Switch, Reed, Form A, Male Connect	A/R
	3600-9084		Switch, Reed, Form C, 5M Wire	A/R
	3600-9085		Switch, Reed, Form C, Male Connect	A/R
	3600-9086		Switch, Triac, 5M Wire	A/R
	3600-9087		Switch, Triac, Male Connect	A/R
	3600-9988		Switch, Sourcing(PNP), Hall Effect, 5M	A/R
	3600-9989		Switch, Sourcing(PNP), Hall Effect, MA	A/R
	3600-9090		Switch, Sinking(NPN), Hall Effect, 5M	A/R
	3600-9091		Switch, Sinking(NPN), Hall Effect, MAL	A/R
TUBE SUPPORT KIT				
43	0801-1251	4415-1005	SHCS, 10-24 x .44/ M5 x 10	4
44	3415-1046	4415-1014	SFHCS, 10-24 x .38/ M5 x 10	4
45	3415-1013	4415-1013	BC315 Nut	8
46	3415-1044	3415-1044	Tube Support	2

For complete Switch Performance Data, refer to the Tol-O-Matic Fluid Power Catalog #9900-4000.

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

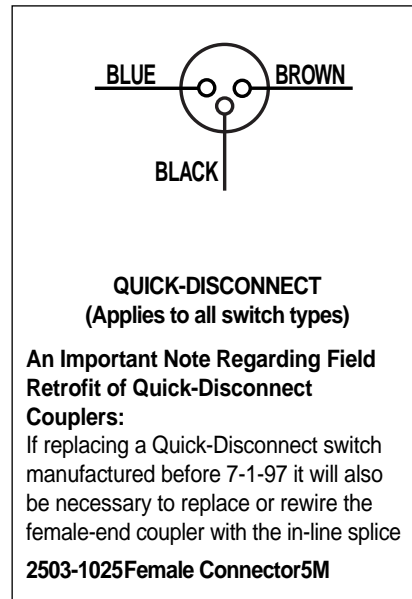
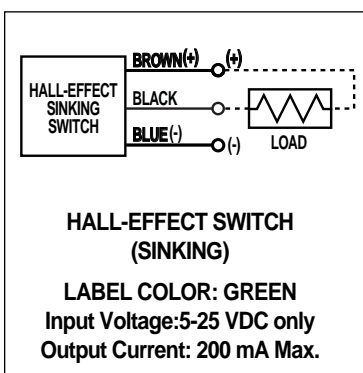
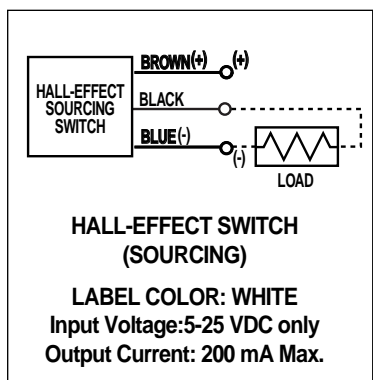
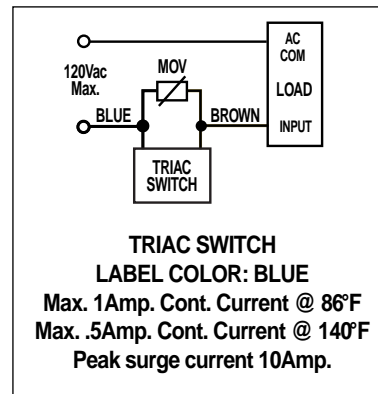
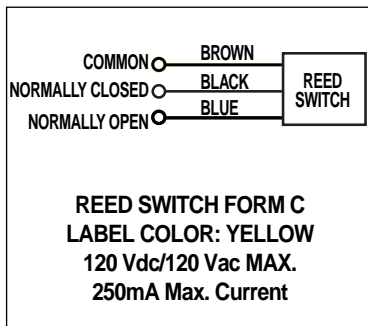
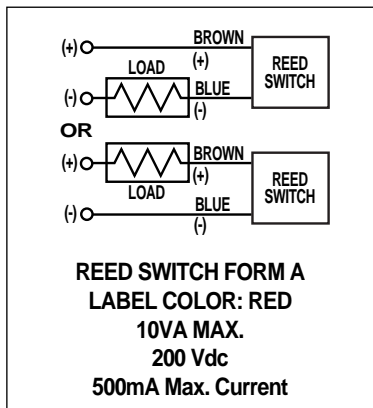
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Universal Switch Wiring Diagrams and Label Color Coding



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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