Tolomatic
EXCELLENCE IN MOTION®

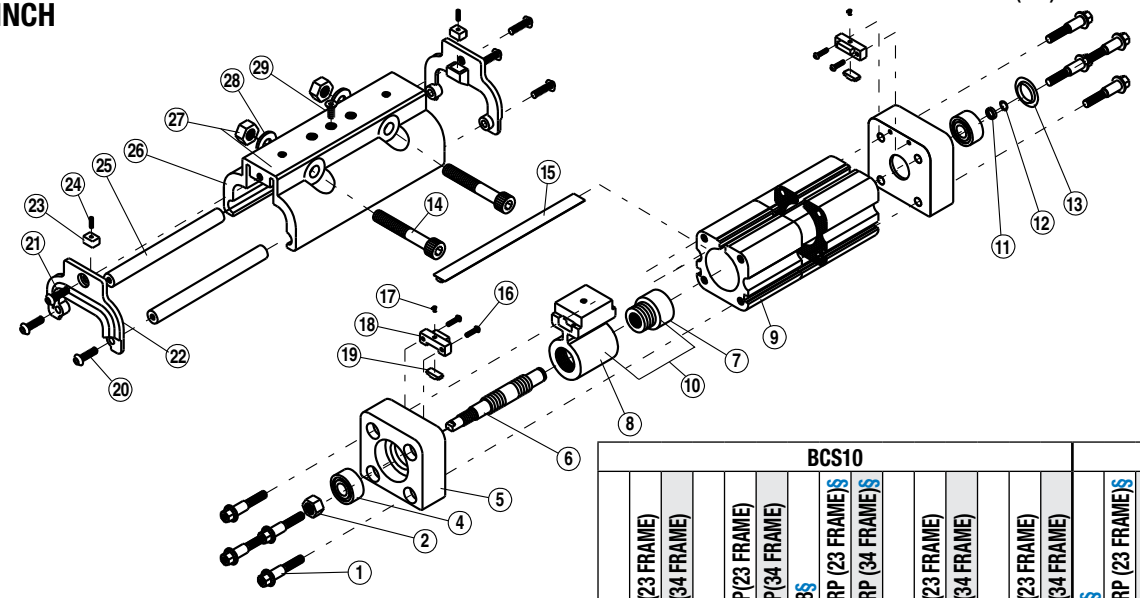
Parts Sheet

3600-4011_18

BCS10 Cylinder-Style Screw-Drive Actuators

MODELS: SN02, SN02(RP), SNA02, SNA02(RP), BNL08, BNL08(RP), BN08, BN08(RP), SN01, SN01(RP), BN05, BN05(RP)

1-INCH



ITEM	PART NO.	DESCRIPTION	BCS10 SN02	BCS10 SN02RP(23 FRAME)	BCS10 SN02RP(34 FRAME)	BCS10 SNA02	BCS10 SNA02RP(23 FRAME)	BCS10 SNA02RP(34 FRAME)	BCS10 BNL(L)08§	BCS10 BN(L)08RP (23 FRAME)§	BCS10 BN(L)08RP (34 FRAME)§	BCS10 SN01	BCS10 SN01RP(23 FRAME)	BCS10 SN01RP(34 FRAME)	BCS10 SN05	BCS10 SN05RP(23 FRAME)	BCS10 SN05RP(34 FRAME)	MCS10 BN(L)08§	MCS10 BN(L)08RP (23 FRAME)§	MCS10 BN(L)08RP (34 FRAME)§	MCS10 SN12	MCS10 SN12RP (23 FRAME)	MCS10 SN12RP (34 FRAME)	MCS10 SN12	MCS10 SN12RP (23 FRAME)	MCS10 SN12RP (34 FRAME)
¡1	0910-1344	HEAD BOLT	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8									
	4910-1344	HEAD BOLT																8	8	8	8	8	8	8	8	8
2.	0910-1482	NUT 5/16-24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1									
	4510-1104	NUT M8 X 1.0																1	1	1	1	1	1	1	1	1
4.	4510-1060	BALL BEARING,RADIAL	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5.	0910-1382	HEAD,MACHINED	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2									
	4510-1058	HEAD,MACHINED																2	2	2	2	2	2	2	2	2
†**6.	0910-1385	LEAD SCREW, SN02 LMI	A/R			A/R																				
**	0510-1361	LEAD SCREW, SN02 RP(23 FRAME)		A/R			A/R																			
**	0510-1365	LEAD SCREW, SN02 RP(34 FRAME)			A/R			A/R																		
§**	0910-1409	LEAD SCREW, BN(L)08 LMI							A/R									A/R								
§**	0510-1360	LEAD SCREW, BN(L)08 RP(23 FRAME)								A/R									A/R							
§**	0510-1364	LEAD SCREW, BN(L)08 RP(34 FRAME)									A/R									A/R						
**	0910-1437	LEAD SCREW, SN01 LMI										A/R														
**	0510-1362	LEAD SCREW, SN01 RP(23 FRAME)											A/R													
**	0510-1366	LEAD SCREW, SN01 RP(34 FRAME)												A/R												
**	0510-1071	LEAD SCREW, SN05 LMI													A/R											
**	0510-1363	LEAD SCREW, SN05 RP(23 FRAME)														A/R										
**	0510-1367	LEAD SCREW, SN05 RP(34 FRAME)															A/R									
**	4510-1044	LEAD SCREW, SN12 LMI																			A/R					
**	4510-1131	LEAD SCREW, SN12 RP(23 FRAME)																				A/R				
**	4510-1134	LEAD SCREW, SN12 RP(34 FRAME)																					A/R			
**	4510-1042	LEAD SCREW, SN25 LMI																						A/R		
**	4510-1132	LEAD SCREW, SN25 RP(23 FRAME)																							A/R	
**	4510-1135	LEAD SCREW, SN25 RP(34 FRAME)																								A/R
7.	0910-1430	BALL NUT							1	1	1															
	4510-1036	BALL NUT																1	1	1						
8.	0910-1384	NUT BRACKET							1	1	1															
	4510-1048	NUT BRACKET																1	1	1						

§Contact factory when ordering a replacement low backlash (BNL) Ball Screw and Nut

*** Specify stroke when ordering*

 # Available with Repair Kit #0510-9130

¡When replacing the head bolts in actuators manufactured prior to July 1, 2006, the hole for the head bolt will need to be drilled 0.4" (10mm) deeper to accommodate the longer screw length.

A/R = As Required

Replacement Tube

*Replacement Lead Screw

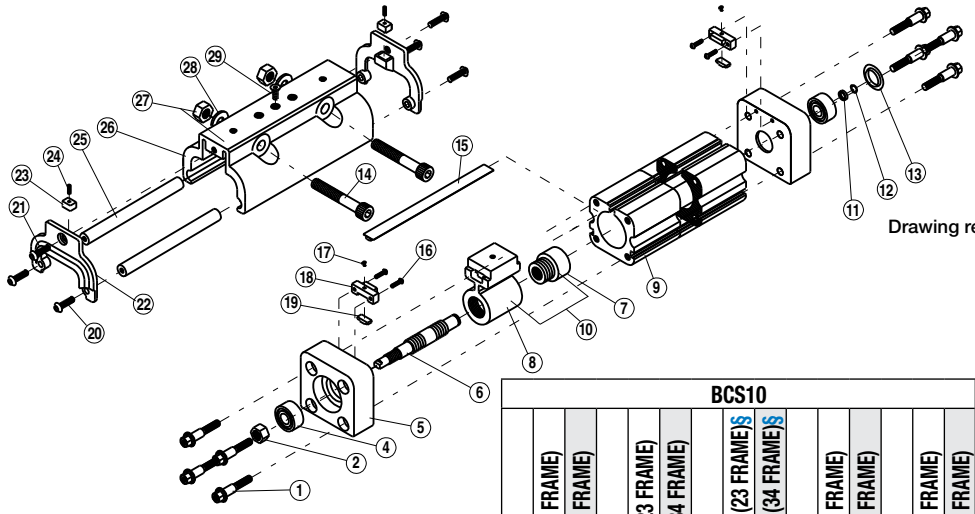
*Replacement tube for BCS ordering method: RTB _CS10 ____ SK____ MR___

EXAMPLE: RTB BCS10 SN01 SK21·25 MRS23

†Configurated code is the preferred ordering method: RLS _CS10 ____ SK____ MR___

EXAMPLE: RLS BCS10 SN01 SK21·25 MRS23

*Model & Size — *Nut Style & Size — *Stroke Length — *Motor Code



Drawing repeated for reference

ITEM	PART NO.	DESCRIPTION	BCS10															MCS10								
			SN02	SN02RP(23 FRAME)	SN02RP(34 FRAME)	SNA02	SNA02RP(23 FRAME)	SNA02RP(34 FRAME)	BNL(L)08§	BN(L)08RP (23 FRAME)§	BN(L)08RP (34 FRAME)§	SN01	SN01RP(23 FRAME)	SN01RP(34 FRAME)	SN05	SN05RP(23 FRAME)	SN05RP(34 FRAME)	BN(L)08§	BN(L)08RP (23 FRAME)§	BN(L)08RP (34 FRAME)§	SN12	SN12RP (23 FRAME)	SN12RP (34 FRAME)	SN12	SN12RP (23 FRAME)	SN12RP (34 FRAME)
*,** 9.	0510-1120	TUBE, MACHINED	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	A/R	A/R									
*,**	4510-1009	TUBE, MACHINED																A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R
10.	0510-9051	NUT BRACKET ASSEMBLY	1	1	1																					
	0510-9052	NUT BRACKET ASSEMBLY				1	1	1																		
	0510-9053	NUT BRACKET ASSEMBLY										1	1	1												
	0510-9054	NUT BRACKET ASSEMBLY													1	1	1									
	4510-9044	NUT BRACKET ASSEMBLY																			1	1	1			
	4510-9045	NUT BRACKET ASSEMBLY																						1	1	1
11.	4510-1059	CUP,RETAINING RING	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12.	0510-1019	RING,RETAINING	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13.	0510-1012	PLUG	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1									
	0515-1012	PLUG																1	1	1	1	1	1	1	1	1
14.	0912-1066	SHCS 1/4-20 X 1.75 LONG	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1									
	4915-1173	SHCS M6 X 1.0 X 40 LONG																1	1	1	1	1	1	1	1	1
**#15.	0912-9000	(NDBB(M)CS10SK_) DUST BAND	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	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R
16.	0910-1172	SHCS 6-32 X .50 LONG	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4									
	4520-1046	SLHCS M4 X 0.7 X 16 LONG																4	4	4	4	4	4	4	4	4
17.	0515-1049	SET SCREW, 8-32 X .25 LONG	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2									
	0610-1046	SET SCREW, M4 X 0.7 X 6 LONG																2	2	2	2	2	2	2	2	2
18.	0520-9015	BAND CLAMP ASSEMBLY	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2									
	4515-9023	BAND CLAMP ASSEMBLY																2	2	2	2	2	2	2	2	2
19.	0520-1028	BAND CLAMP SLUG	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
20.	0910-1172	SHCS 6-32 X .50 LONG	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4									
	4910-1172	SBHCS M4 X 0.7 X 16 LONG																4	4	4	4	4	4	4	4	4
21.	0910-1290	SBHCS 8-32 X .38 LONG	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2									
	4910-1003	SLHCS M4 X 0.7 X 8 LONG																2	2	2	2	2	2	2	2	2
# 22.	4510-1002	END CAP,CARRIER	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
# 23.	4515-1012	BAND INSERT	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
# 24.	4520-1012	SPRING	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
# 25.	0910-1170	BEARING,ROD	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2									
	4910-1170	BEARING,ROD																2	2	2	2	2	2	2	2	2
26.	0510-1025	CARRIER,MACHINED	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1									
	4510-1049	CARRIER,MACHINED																1	1	1	1	1	1	1	1	1
27.	0912-1016	NUT 1/4-20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2									
	4510-1050	NUT M6 X 1.0																2	2	2	2	2	2	2	2	2
28.	1004-1144	WASHER	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
29.	2006-1063	SFHCS 10-24 X .38 LONG	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1									
	4410-1016	SFHCS M5 X 0.8 X 10 LONG																1	1	1	1	1	1	1	1	1

§Contact factory when ordering a replacement low backlash (BNL) Ball Screw and Nut

*** Specify stroke when ordering*

 # Available with Repair Kit #0510-9130

¡When replacing the head bolts in actuators manufactured prior to July 1, 2006, the hole for the head bolt will need to be drilled 0.4" (10mm) deeper to accommodate the longer screw length.

A/R = As Required

Replacement Tube

*Replacement tube for BCS ordering method: RTB _CS10 ____ SK____ MR___

EXAMPLE: RTB BCS10 SN01 SK21·25 MRS23

†Configurated code is the preferred ordering method: RLS _CS10 ____ SK____ MR___

EXAMPLE: RLS BCS10 SN01 SK21·25 MRS23

Replacement Lead Screw — *Nut Style & Size* — *Stroke Length* — *Motor Code*

INTRODUCTION

Begin with a clean work area. Be sure all 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 Wrenches and/or Sockets

DISASSEMBLY INSTRUCTIONS

1. **REMOVE CARRIER:** Remove Bolts (#14), Washers (#28) and Nuts (#27). Remove Carrier (#26) from Bracket (#8) by removing Screw (#29). Remove Spring (#24), Band Insert (#23), and End Cap (#22) by removing Screws (#20 and 21) at each end of Carrier. Remove Bearing Rods (#25). Remove carrier (#26).
2. **REMOVE DUST BAND:** Loosen Clamp Slug (#19) holding Band by loosening Set Screw (#17). Remove two Screws (#16) securing Band Clamp Assembly (#18). Remove Band Clamp Assembly (#18) from top of Slug, then remove Clamp Slug from top of Band (next to Head). IMPORTANT NOTE: Edges of Dust Band are SHARP — Use caution when handling to avoid injury! Carefully pull the Dust Band (#15) from the Tube (#9) and through the Nut Bracket Assembly (#10)
3. **DISASSEMBLE UNIT.**
   Remove the four Bolts (#1) from both heads (5). Remove the lock nut (2) from the "live side" of the lead screw. Remove the "live side" head w/ bearing (4). Remove the Plug (#13) from the "dead side" head. Push ring cup (#11) to expose Retaining Ring (#12) and remove retaining ring from groove of Lead Screw (#6). Remove ring cup and head w/ bearing. Slide lead screw w/ nut bracket (#8) and Ball Nut (#7) out of Machined Tube (#9).
   A. ***Ball Nut Style:*** DO NOT REMOVE NUT BRACKET w/ BALL NUT FROM LEAD SCREW (balls will fall out).
   B. ***Plastic Nut Style:*** Remove nut bracket w/ lead screw nut from lead screw.
4. **HEAD SUB-ASSEMBLY:** If necessary, carefully remove Bearings (#4) from both Heads (#5).
5. **SUB-ASSEMBLIES:**
   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 pressed into the Nut Bracket and cannot be removed. If nuts are worn, a new Nut Bracket Assembly must be ordered.

ASSEMBLY INSTRUCTIONS

1. **AREA PREPARATION:** Ensure all parts are present and have no visual damage or defects.
2. **PREPARE HEAD SUB-ASSEMBLY:** Carefully install Bearings (#4) in both Heads (#5).
3. **ASSEMBLE UNIT:**
   A. ***Ball Nut Style:*** Grease Lead Screw (#6) with Mobil HP Multi-purpose grease. Install Lead Screw in machined tube. Place Head (#5) on "dead" end of Lead Screw (non-threaded end). Secure with Ring Cup (#11) and Snap Ring (#12). NOTE: Make sure the Snap Ring is properly seated in groove on the lead Screw, then pull Ring Cup over Snap Ring. Install second Head, and Nut (#2). Snug up, but do not tighten the four Bolts (#1) on each Head. Place an End Plug (#13) in the "dead" side Head.
   B. ***Plastic Nut Style:*** Grease Screw (#6) with Christolube® MCG405, assemble Nut Bracket to Screw with the Nut end facing the "live" end (threaded end) of the Screw. Install Screw in machined tube. Place Head on "dead" end of Screw (non-threaded end). Secure with Ring Cup (#11) and Snap Ring (#12). NOTE: Make sure the Snap Ring is properly seated in groove on the lead Screw, then pull Ring Cup over Snap Ring. Install second Head and Nut (#2). Snug up, but do not tighten the four Bolts (#1) on each Head. Place an End Plug (#13) in the "dead" side Head.
4. **INSTALL CARRIER:** Thread one end of Band (#15) through slot in Bracket (#8) and press down on Band (#15) to seat in tube. Place Carrier (#26) on Tube and align with Nut Bracket. Install Bearing Rods (#25). Secure Spring (#24), Band Insert (#23), and End Cap (#22) in place by tightening Screws (#20 and 21) with Loctite #242 to each end of Carrier. Secure Carrier in Bracket by tightening Screws (#29) with Loctite #242. Install Bolts (#14), Washers (#28) and Nuts (#27). Snug up the bolts only. ***NOTE:*** "Snug" means no noticeable end play by hand. If a wrench is applied to either end, both ends will turn.
5. **ALIGN HEADS:** Place Carrier next to each Head then tighten the four Head Bolts (#1) to assure proper alignment of Head and Carrier. *(¡When replacing the head bolts in actuators manufactured prior to July 1, 2006, the hole for the head bolt will need to be drilled 0.4" [10mm] deeper to accommodate the longer screw length.)*

HEAD TORQUE REQUIREMENTS

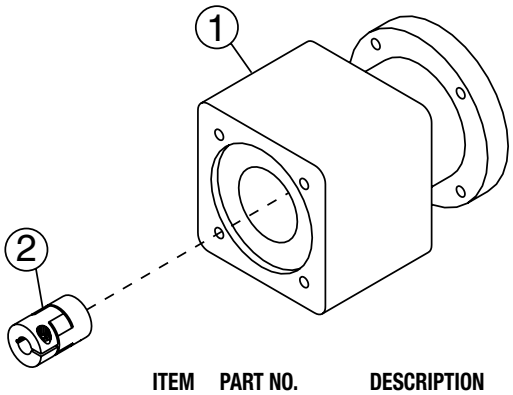
Cylinder Size	In-Lbs of Torque
1"	70-80
1-1/2"	100-110
2"	180-195

6. **TRIM AND SECURE DUST BAND:** Locate on one Head a Slug (#19) and Band Clamp Assembly (#18). (NOTE: Width of Slug should match dust Band width.) Tighten with Screw (#16) and Loctite #242. Insert one end of Dust Band (#15) under Band Clamp assembly and Slug until it is tight to the Head. Install Set Screw (#17) into Band Clamp assembly and tighten against Slug.
   With tin snips, cut the end of the Band so it nearly butts to the other Head. Place Clamp Slug (#19) on top of Band (next to Head), then place Band Clamp Assembly (#18) over Slug. Tighten to Head with two Screws (#16) and Loctite #242. Install Set Screws (#17).
7. **TEST PROCEDURE:** The torque required to rotate the Lead Screw (#6) should not exceed the following limits.

MAXIMUM BREAKAWAY REQUIREMENTS:

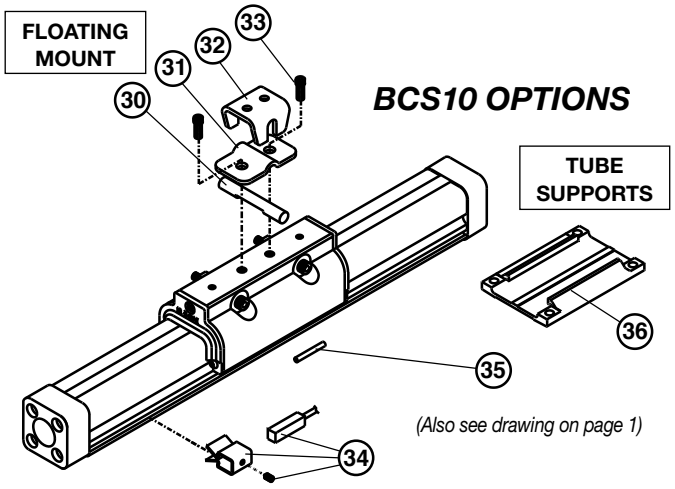
Cylinder Size	Torque
1"	25 ounce-inches
1-1/2"	30 ounce-inches
2"	45 ounce-inches

   Check and/or readjust unit to conform to specification requirements. Retest.
8. **CLEAN UNIT THOROUGHLY BEFORE INSTALLING.**



Inline Motor Mount

			IN-LINE MOUNTING						IN-LINE MOUNTING WITH GEARHEAD					
ITEM	PART NO.	DESCRIPTION	MRB2XX	MRS 2XX	MRB34X	MRS34X	MRV2XX W/O SN01	MRV21X W/ SN01 (SN25)	GHK W/ MRB2XX	GHK W/ MRS2XX	GHJ30,31 W/ MRB3X	GHJ30,31 W/ MRS3X	GHJ20,21 W/ MRV2XX	GHJ20,21W/MRV2XX W/ SN01 (SN25)
1.	3410-9202	Motor Adapter Kit	1	1					1	1				
	3410-9149	Motor Adapter Kit			1	1					1	1		
	3410-9201	Motor Adapter Kit					1	1					1	1
	4410-9202	Motor Adapter Kit - metric	1	1					1	1				
	4410-4149	Motor Adapter Kit - metric			1	1					1	1		
	4410-9201	Motor Adapter Kit - metric					1	1					1	1
2.	3600-9204	Coupler	1	1					1	1				
	3600-9213	Coupler			1			1			1			1
	3600-9206	Coupler				1						1		
	3600-6163	Coupler					1						1	
	4520-9103	Coupler - metric	1	1					1	1				
	4520-9107	Coupler - metric			1						1			
	4520-9106	Coupler - metric				1						1		
	3600-6181	Coupler - metric					1						1	
	4520-9107	Coupler - metric						1						1



BCS10 OPTIONS

(Also see drawing on page 1)

SWITCHES

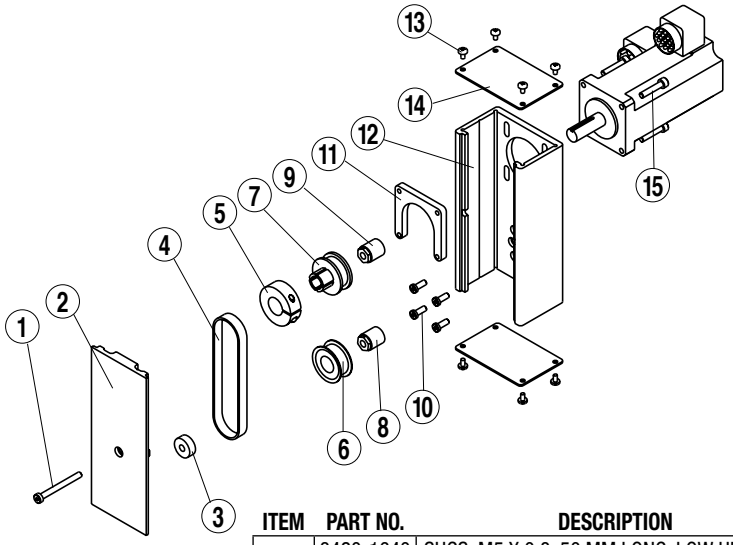
ITEM	PART NO.	DESCRIPTION	ALL BCS10 MODLES
		FLOATING MOUNT	
30.	0510-1009	Pin	1
31.	0910-1196	Clamp	1
32.	0910-1195	Bracket	1
33.	0910-1199	Screw	2
		SWITCHES	
34.	***SEE PAGE 6***		
35.	0910-1238	Switch Magnet	1
		TUBE SUPPORTS	
36.	4510-1010	Bracket	1

Tube Supports, Floating Mounts and Switches Disassembly and Assembly Instructions

TUBE SUPPORTS
Follow cylinder assembly instructions through steps 5. Before installing second cylinder Head (#5) in step 6, slide Tube Support (#36) onto cylinder Tube (#9).

FLOATING MOUNT
Completely assemble cylinder. Place Pin (#30) flat side towards Carrier (#26) and between the two center holes. Place Floating Mount Clamp (#31) over Pin (#30) and secure to the Carrier (#26) with Screws (#33) and Loctite® #242. Place Floating Mount Bracket (#32) over Pin (#30) and hold in place with a rubber band.

SWITCHES
On assembled cylinder, Secure Switch to open port side of cylinder with a Hardware Kit (#34) clamp and screw. Cycle the carrier over the Switch by hand to ensure that the carrier does not hit the switch. See page 6 for additional switch information.



ITEM	PART NO.	DESCRIPTION	BCS10 1:1 RATIO MRV21,22,23,24	BCS10 1:1 RATIO MRS231,232,MRB21	BCS10 1:1 RATIO MRB31,32	BCS10 1:1 RATIO MRS341,342,343	BCS10 2:1 RATIO MRV21,22,23,24	BCS10 2:1 RATIO MRS231,232,MRB21	BCS10 2:1 RATIO MRB31,32	BCS10 2:1 RATIO MRS341,342,343	MCS10 1:1 RATIO MRV21,22,23,24	MCS10 1:1 RATIO MRS231,232,MRB21	MCS10 1:1 RATIO MRB31,32	MCS10 1:1 RATIO MRS341,342,343	MCS10 2:1 RATIO MRV21,22,23,24	MCS10 2:1 RATIO MRS231,232,MRB21	MCS10 2:1 RATIO MRB31,32	MCS10 2:1 RATIO MRS341,342,343
1.	3420-1640	SHCS, M5 X 0.8, 50 MM LONG, LOW HEAD, SST	1	1			1	1			1	1			1	1		
	3420-1639	SHCS, M5 X 0.8, 55 MM LONG, LOW HEAD, SST			1	1			1	1			1	1			1	1
2.	0601-1618	COVER, BCS10/B3S10-23 FRAME	1	1			1	1			1	1			1	1		
	0602-1618	COVER, BCS10/B3S10-34 FRAME			1	1			1	1			1	1			1	1
3.	0510-1109	BEARING, BALL, RADIAL, Ø.250	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4.	0510-1112	TIMING BELT, 11.00-1/5-3/8	1	1	1	1					1	1	1	1				
	0510-1113	TIMING BELT, 13.00-1/5-3/8					1	1	1	1					1	1	1	1
5.	0520-1067	CLAMP COLLAR, Ø.688	1		1		1		1		1		1		1		1	
6.	0515-1191	PULLEY, 18 TEETH, .38 WIDTH	1	1	1	1					1	1	1	1				
	0510-1110	PULLEY, 36 TEETH, .38 WIDTH					1	1	1	1					1	1	1	1
7.	3420-1255	PULLEY, 18 TEETH, .38 WIDTH	1		1		1		1		1		1		1		1	
	0515-1191	PULLEY, 18 TEETH, .38 WIDTH		1				1				1				1		
	0515-1192	PULLEY, 18 TEETH, .38 WIDTH				1				1				1				1
8.	0510-1111	TRANTORQ, Ø.250	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9.	0510-1111	TRANTORQ, Ø.250		1				1				1				1		
	0515-1181	TRANTORQ, Ø.375				1				1				1				1
10.	3410-1229	BHCS, TORX, 10-24, 0.50, BLK	4	4	4	4	4	4	4	4								
	3420-1644	SHCS, M5 X 0.8, 12 MM LONG, LOW HEAD									4	4	4	4	4	4	4	4
11.	0601-1053	PLATE, MOTOR, 23 FRAME	1	1			1	1			1	1			1	1		
	0602-1057	PLATE, MOTOR, 34 FRAME			1	1			1	1			1	1			1	1
12.	0601-1608	HOUSING, BCS10/B3S10-23 FRAME	1	1			1	1			1	1			1	1		
	0602-1608	HOUSING, BCS10/B3S10-34 FRAME			1	1			1	1			1	1			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	8	8	8
14.	0601-1602	END CAP	2	2			2	2			2	2			2	2		
	0602-1602	END CAP			2	2			2	2			2	2			2	2
15.	2212-1098	SHCS, M5 X 0.8, 20 MM LONG, SST		4				4				4				4		
	2212-1099	SHCS, M5 X 0.8, 25 MM LONG, SST	4		4	4	4		4	4	4		4	4	4		4	4

REVERSE PARALLEL DISASSEMBLY INSTRUCTIONS

1. Remove End Cap's (#14). Release tension on belt by breaking loose the motor screws (#15).
2. Remove RP Cover (#2).
3. Remove both drive pulley (#7) and driven pulley (#6) from their respective shafts. The belt (#4) will come off with the pulley's.
4. Remove motor screws (#15) from the motor plate (#11), to remove the motor from the RP Housing.
5. Remove the RP Housing (#12) from the head by removing screws (#10).

REVERSE PARALLEL ASSEMBLY INSTRUCTIONS

*Apply Loctite #242 to all screws upon installation

1. Install RP Housing (#12) to the head with cap screws (#10). Do not fully tighten the screws at this time and verify that the RP Housing can move with respect to the head.
2. Temporarily install the cover (#2) with bearing (#3) onto the RP Housing positioning the bearing over the leadscrew shaft. Hold the cover in place while tightening all of the screws (#10) that hold the RP Housing to the head.
3. Remove the cover (#2) and finish tightening all screws attaching the RP Housing to the head.
4. Install the motor to the RP Housing with screws (#15). Do not tighten the screws at this time.
5. Locate the belt (#4) over the pulleys and slide the drive (#7) and driven (#6) 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.
6. Verify that there is clearance between the inside of the RP Housing and each pulley. Verify that the pulleys are aligned to each other.
7. Position the cover (#2) in mating slot of the RP Housing 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 screws 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 (#13) to finalize assembly.

SWITCH KIT

34.

CONFIG. CODE ORDERING Mounting Hardware & FE conn. included	
CODE	**DESCRIPTION**
BT	Switch Only, Reed, Form C, 5m
BM	Switch Only, Reed, Form C, Male Conn.
RT	Switch Only, Reed, Form A, 5m
RM	Switch Only, Reed, Form A, Male Conn.
CT	Switch Only, Triac, 5m
CM	Switch Only, Triac, Male Conn.
KT	Switch Only, Hall-effect, Sinking, 5m
KM	Switch Only, Hall-effect, Sinking, Male Conn.
TT	Switch Only, Hall-effect, Sourcing, 5m
TM	Switch Only, Hall-effect, Sourcing, Male Conn.

NOTE: When ordered by Config. Code Female connector & all mounting hardware is included

Switch Ordering NOTES:

To order field retrofit switch and hardware kits for all Tolomatic actuators: SW (Then the model and bore size, and type of switch required)
Example: SWBCS10RT
(Hardware and Form A Reed switch with 5 meter lead for 1" size BCS actuator)

Mounting hardware is required if replacing switch for any actuator manufactured before 7/1/97

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.

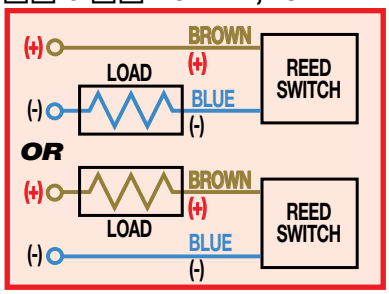
WARNING: An ohmmeter is recommended for testing Reed Switches. NEVER use an incandescent light bulb as a high current rush may damage the switch.

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.

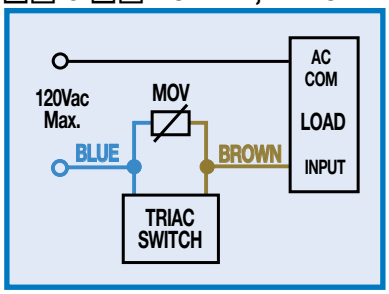
NOTE: For Hall Effect Switch Magnet, be sure the S pole of the magnet (indicated with black dot) is facing toward the switch (down).

WIRING DIAGRAMS

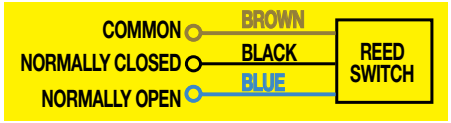
RT & RM DC REED, FORM A



CT & CM AC REED, TRIAC

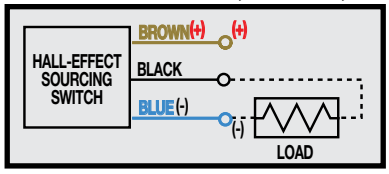


BT & BM DC REED, FORM C

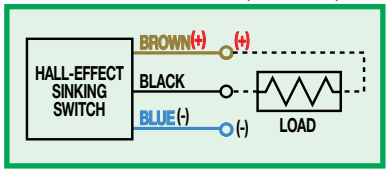


Some actuators may require switch mounting on a specific side of the assembly. Call Tolomatic for details.

TT & TM HALL-EFFECT, SOURCING, PNP



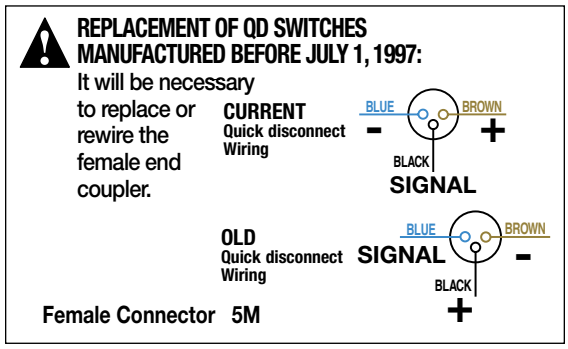
KT & KM HALL-EFFECT, SINKING, NPN



INSTALLATION INFORMATION

THE NOTCHED FACE OF THE SWITCH INDICATES THE SENSING SURFACE AND MUST FACE TOWARD THE MAGNET.

REPLACEMENT OF QD SWITCHES MANUFACTURED BEFORE JULY 1, 1997:
It will be necessary to replace or rewire the female end coupler.



Tolomatic
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