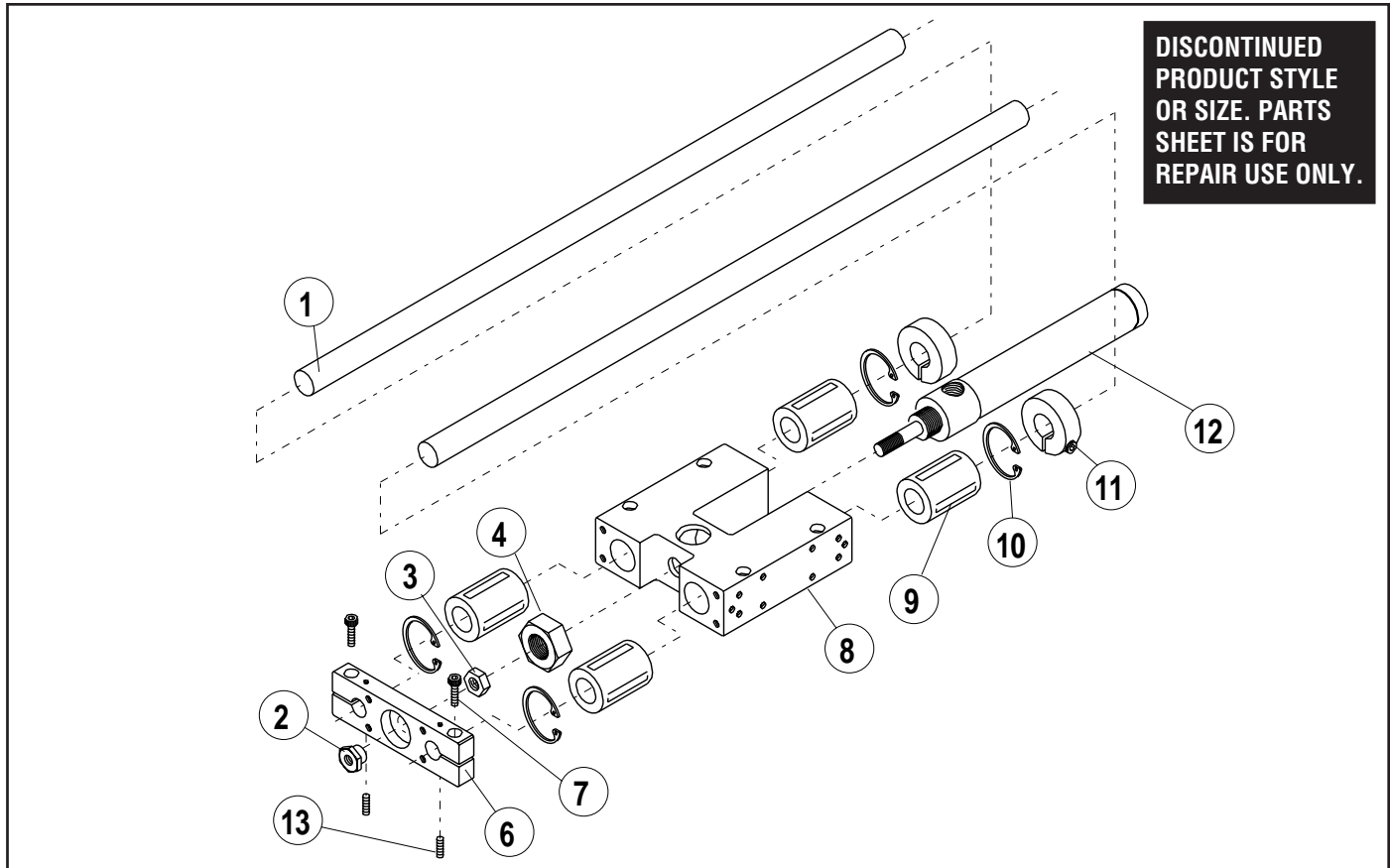




### H-Block<sup>®</sup> Rod Cylinder Slide 3 Inch Bore

Models: HB48      HBSS48  
With Linear Ball Bearings  
Sintered Bronze Bearings  
Composite Bearings



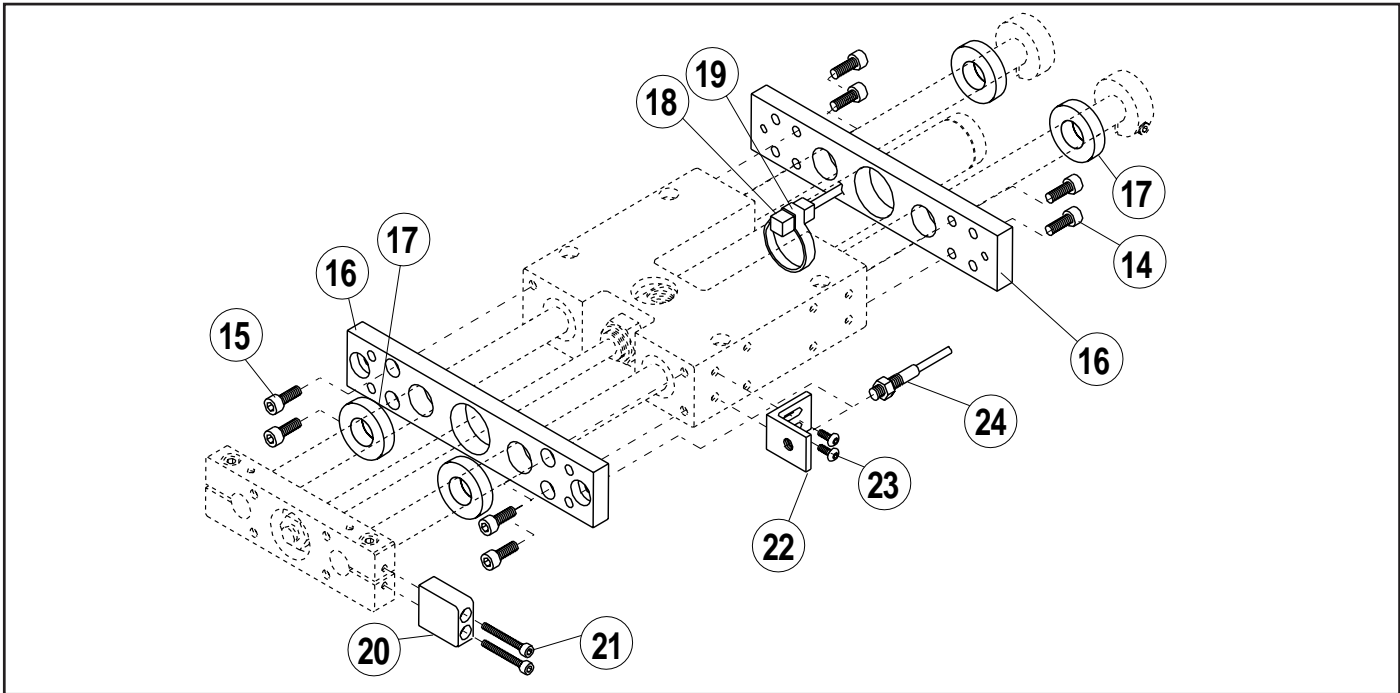
#### List of Parts

ITEM	PART NO.	DESCRIPTION	HB48	HBSS48
1.	2348-1008	Machined Shaft (Specify Stroke)	2	
	2348-1053	Machined Shaft, Stainless-Steel (Specify Stroke)		2
2.	2348-1060	Hex Shoulder Nut	1	
	2348-1060	Hex, Shoulder Nut, Stainless-Steel		1
3.	2348-1020	Jam Nut	1	
	2348-1024	Jam Nut, Stainless-Steel		1
4.		Cylinder Nut (Included With Cylinder)	1	1
6.	2348-1003	Tooling Plate	1	1
7.	1039-2038	Socket Head Cap Screw	2	
	2348-1033§	Socket Head Cap Screw		2

§Not Pictured

ITEM	PART NO.	DESCRIPTION	HB48	HBSS48
8.	2348-1001	Mounting Block	1	1
9.	1029-1128	Linear Bearing	4	
	2248-1009	Composite Bearing	4	4
	2348-1040	Sintered Bronze Bearing	4	4
10.	1029-1127	Retaining Ring	4	
11.	2348-1005	Shaft Collar	2	
	2348-1056	Shaft Collar, Stainless-Steel		2
12.*	2348-14xx	Rod Cylinder, 3" Bore, With Magnet (Specify Stroke)	1	1
13.	2348-1028	Set Screw	2	
	2348-1029	Set Screw		2

\*Note: Cylinders are available in 1" stroke increments. Last two digits of cylinder assembly number determine stroke length.



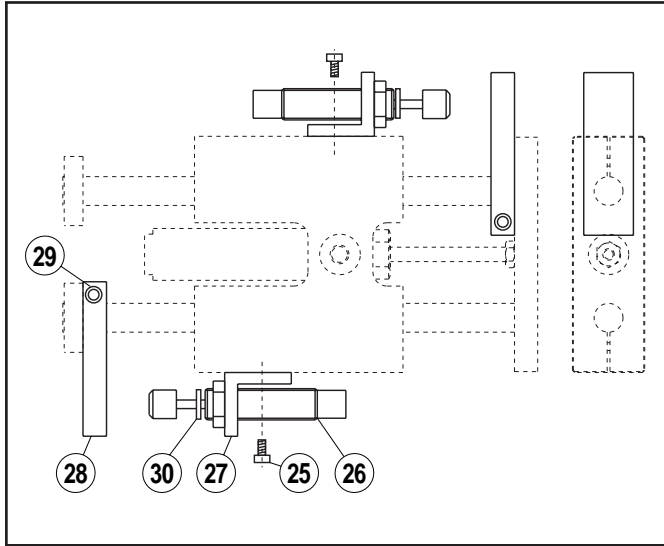
List of Parts

ITEM	PART NO.	DESCRIPTION	HB48	HBSS48
FP	2348-9000	Foot Plate Kit <sup>1</sup>	1	1
14.	0804-1254	SHCS, 3/8-16 x 1.00	4	4
15.	0804-1254	SHCS, 3/8-16 x 1.00	4	4
16.	2348-1010	Bracket, Foot plate	1	1
BP	2348-9004	Bumper Kit <sup>2</sup>	1	1
17.	2348-1006	Bumper, HCS	4	4
BT <sup>3</sup>		Form C Reed Switch, 5 meter lead	AR	AR
BM <sup>3</sup>		Form C Reed Switch, 5m lead, Quick-Disconnect	AR	AR
RT <sup>3</sup>		Form A Reed Switch, 5 meter lead	AR	AR
RM <sup>3</sup>		Form A Reed Switch, 5m lead, Quick-Disconnect	AR	AR
CT <sup>3</sup>		ac Triac Reed Switch, 5 meter lead	AR	AR
CM <sup>3</sup>		ac Triac Reed Switch, 5m lead, Quick-Disconnect	AR	AR
KT <sup>3</sup>		Hall-Effect (Sinking) Switch, 5 meter lead	AR	AR
KM <sup>3</sup>		Hall-Effect (Sinking), 5m lead, Quick-Disconnect	AR	AR
TT <sup>3</sup>		Hall-Effect (Sourcing) Switch, 5 meter lead	AR	AR
TM <sup>3</sup>		Hall-Effect (Sourcing), 5m lead, Quick-Disconnect	AR	AR
18.	3600-9082	Reed (Form A) Switch, 5 meter lead	1	1
	3600-9083	Reed (Form A) Switch, Male Conn.	1	1
	3600-9084	Reed (Form C) Switch, 5 meter lead	1	1

ITEM	PART NO.	DESCRIPTION	HB48	HBSS48
18.	3600-9085	Reed (Form C) Switch, Male Conn.	1	1
	3600-9088	Hall Effect Switch, Sourcing 5 meter lead	1	1
	3600-9089	Hall Effect Switch, Sourcing Male Connector	1	1
	3600-9090	Hall Effect Switch, Sinking 5 meter lead	1	1
	3600-9091	Hall Effect Switch, Sinking Male Connector	1	1
	3600-9086	Triac Switch, 5 meter lead	1	1
	3600-9087	Triac Switch, Male Connector	1	1
19.	2348-9999	Switch Clamp, Hardware only	1	1
*	2503-1025	Connector, Female, 5 meter lead	1	1
XN	23 17-9003	Proximity Sensor Kit (NPN) <sup>4</sup>	1	1
XP	2317-9005	Proximity Sensor Kit (PNP) <sup>5</sup>	1	1
20.	2307-1013	Flag, Sensor	1	1
21.	1301-1172	SHCS, #6-32 x 1.00	2	2
22.	2317-1011	Bracket, Sensor Mount	1	1
23.	0912-1045	SHS, BTN, #6-32 x 0.31	2	2
24.	0610-1023	Proximity Sensor Inductive (NPN)	1	1
	0610-1024	Proximity Sensor Inductive (PNP)	1	1

<sup>1</sup> Kit includes: Foot plate bracket and screws \* Not Pictured  
<sup>2</sup> Kit includes: 4 bumpers  
<sup>3</sup> Kit includes: Switch with mounting hardware  
<sup>4</sup> Kit includes: Proximity sensor (NPN) and mounting hardware  
<sup>5</sup> Kit includes: Proximity sensor (PNP) and mounting hardware

**TO ORDER RETROFIT SWITCH KITS:**  
 SW (then the model number and base size, and code for type of switch as needed: **EXAMPLE: SWHB48RT**)



### List of Parts

ITEM	PART NO.	DESCRIPTION	HB48	HBSS48
SL	2348-9025	Lite Duty Shock Absorber <sup>8</sup>	1	1
SD	2348-9027	Shock Hardware <sup>9</sup>	1	1
25.	1410-3414	SHCS 3/8-16 x 1.75	2	2
26.	2312-1088	Shock Pro 120 Lite Duty	1	1
27.	2348-1031	Bracket, Shock Mount	1	1
28.	2348-1032	Bracket, Stop	1	1
29.	1770-1009	SHCS 1/4-20 x 2.50	1	1
30.	0520-1018	Spacer .24 x .58 x .09	1	1

<sup>8</sup> Kit includes: Shock absorber, brackets, spacer and screws

<sup>9</sup> Kit includes: Brackets, spacer and screws

### Shock Option Assembly Instructions

- For the front mounted shocks loosen a SHCS (#7) and Set Screw (#13) in Tooling Plate (#6). Remove a Shaft (#1) from the Tooling Plate.
- Loosely place shock stop (#28) onto rod before reassembling the Shaft (#1) into the Tooling Plate (#6).
- After securing the Tooling Plate to the Shafts position the shock stop as shown. Secure the Shock Stop (#28) to the Shaft (#1) with SHCS (#29). Position and secure the rear mounted Shock Stop before placing the Stop Collars (#11) onto the rods.
- Secure Shock Brackets (#27) to the H-Block housing (#8) with two SHCS (#25) as shown. Use Loctite #242 on the SHCS.
- Thread Shocks (#26) into the Shock Brackets (#27). The shocks are to be adjusted so the cylinder is able to achieve full stroke in both directions slightly before the shock bottoms out.
- Tighten the shock jam nut to secure the shock in this position.
- Snap nylon Spacer (#30) over the shock shaft to prevent the shock from bottoming out.

#### Disassembly:

- To remove the Tooling Plate (#6) and Shafts (#1), first remove the Hex Shoulder Nut (#2) which holds the Cylinder Rod (#12) to the Tooling Plate (#6), then loosen the two Shaft Collars (#11). Pull on the Tooling Plate. The Plate and Shafts (#1) will slide out of the assembly.
- Loosen the two clamping Screws (#7) and Set Screws (#13) on the Tooling Plate (#6) and remove the Shafts (#1) from the Tooling Plate.
- To remove the Rod Cylinder (#12) from the Mounting Block (#8), remove the Jam Hex Nut (#3). To remove the locking Cylinder Nut (#4), keep the cylinder from turning by placing an open-end wrench on the two flats at the back of the cylinder, then place the proper sized socket on the Cylinder Nut (#4). Remove the Cylinder then remove the cylinder.
- To remove the Linear Bearings and Composite Bearings (#9), first remove the Retaining Rings (#10). The bearing can now be removed. Repeat this process on the three remaining bearings.

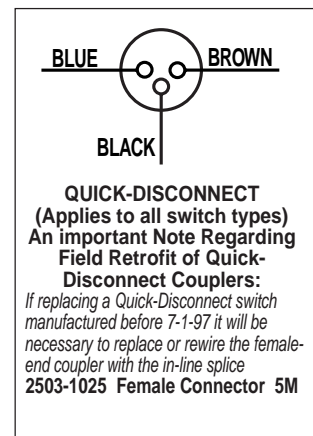
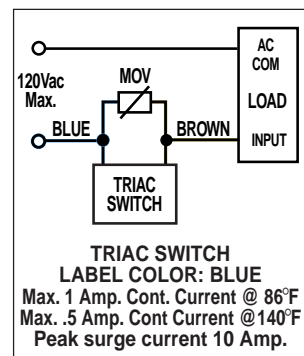
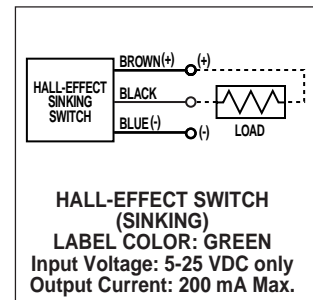
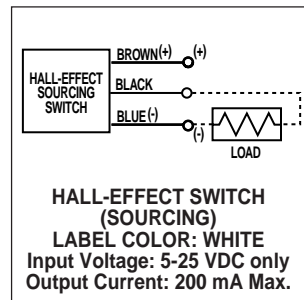
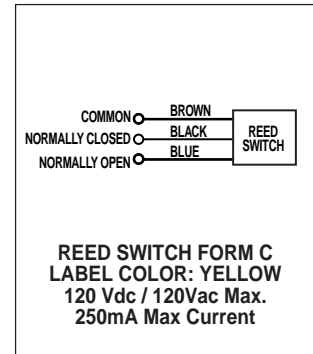
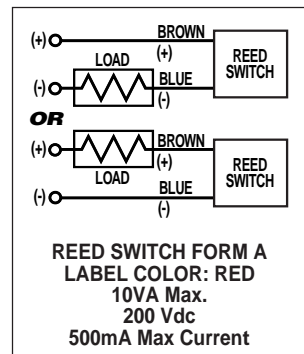
**Assembly:**

1. Press the four Bearings (#9) into the Mounting Block (#8) until they bottom out.
2. On Units with Linear Bearings and Composite Bearings: Install Retaining Rings (#10) to hold the bearings into the bore.
3. Install Rod Cylinder (#12) in the Mounting Block (#8) from the side with the longer legs. Secure with a Cylinder Nut (#4) using Loctite 242 on the threads. Note that one side of the nut is flat. The flat side should face the Mounting Block. Make sure that the port lines up with the clearance hole in the block.
4. Note the drill points on one end of the Machined Shafts (#1), these will need to line up with the set screws for the Tooling Plate (#6). From the side of the Mounting Block (#8) with the shorter legs slide the Machined Shafts through the seals and bearings until they protrude approximately an inch from the opposite end. Moving the shaft from side to side will help to get it started through the bearing. (LINEAR BEARINGS ONLY: Before inserting Shafts, lightly oil the four Bearing Seals (#9) on either end with an SA30 grade oil.)
5. Slide the Tooling Plate (#6) over the ends of the Machined Shafts (#1) nearest the Rod Cylinder (#12). The side with the largest diameter cylinder rod hole should face out. Also, the counterbores for the clamp Screws (#7) should face the same way as the port clearance hole of the Mounting Block (#8). Install the Set Screws (#13) into the Tooling Plate. Stand the assembly on end with the Tooling Plate (#6) facing down. Press down on all components to make sure Machined Shafts (#1) are flush with the front face of the Tooling Plate (#6). Rotate the Machined Shafts as needed to align the drill points with the Set Screws. Apply Loctite 242, then clamp the Machined Shafts (#1) in the Tooling Plate (#6) with the two Screws (#7). Torque the screws to the following specifications:  
 HB48 545 in. lbs.  
 Using a "L" handle allen wrench tighten the set screws (#13) firmly into the drill points on the shaft.
6. Push the Rod Cylinder (#12) back so that only the threads are protruding. Slide the Machined Shafts (#1) and Tooling Plate (#6) back over the Rod Cylinder (#12). The Rod Cylinder (#12) should go right through the hole without getting caught on the sides. If rod cylinder catches on the side of the hole in the tooling plate, loosen the Cylinder Nut (#4) and adjust the Rod Cylinder (#12) in the Mounting Block (#8). Re-tighten the nut and check again.
7. Slide a Shaft Collar (#11), groove out, over each Machined Shaft (#1) .030 inch past the end and tighten screw.
8. Apply Loctite 242, then thread one Jam Hex Nut (#3) onto the Rod Cylinder (#12) about 0.75 inch (the flat side of the nut should face out). Extend the Rod Cylinder (#12) through the Tooling Plate (#6). Thread the Hex Shoulder Nut (#2) onto the rod flush with the end. Push the Tooling Plate (#6) back up against the Mounting Block (#8). Then, tighten the Jam Hex Nut (#3) installed on the Rod Cylinder (#12).
9. Manually slide the Tooling Plate (#6) and Machined Shafts (#1) back and forth. The shafts should slide freely. If not, loosen the Jam Hex Nut (#3) and retighten. Adjust stop collars so that when tooling plate is fully extended, the collars hit the

housing 1/16 to 1/8 inch before the cylinder reaches its full extension.

10. SWITCHES  
On assembled rod cylinder slide, secure Switch to Rod Cylinder with a Clamp (19).
11. Re-mount H-Block to machinery from which it was taken.

**UNIVERSAL SWITCH WIRING DIAGRAMS AND LABEL COLOR CODING**



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

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

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