Tolomatic
EXCELLENCE IN MOTION®

Parts Sheet

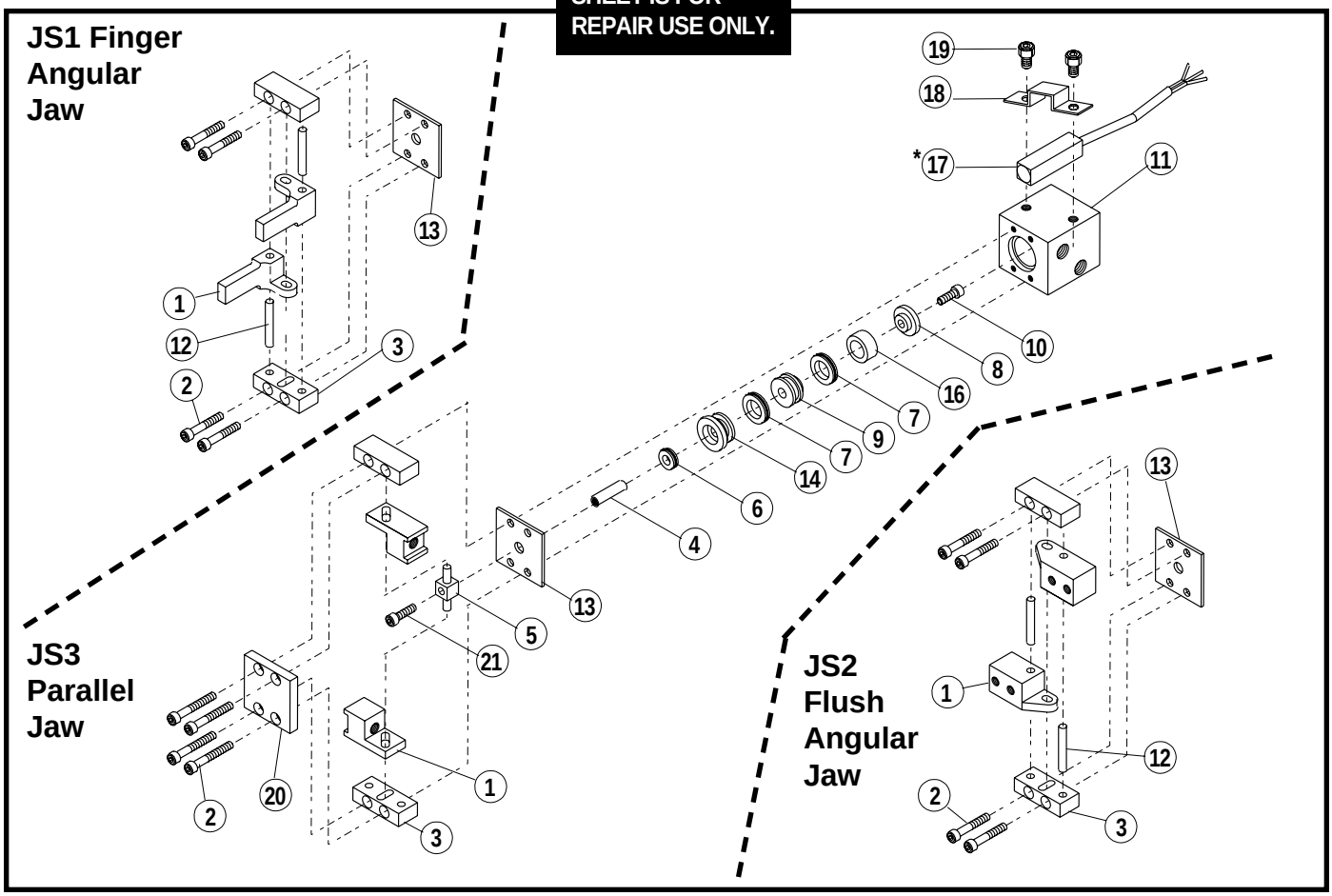
1900-4010_04

Gripper

$^{3}/_{8}$" Bore

DISCONTINUED PRODUCT STYLE OR SIZE. PARTS SHEET IS FOR REPAIR USE ONLY.

Models: GPA038JS1
GPA038JS2
GPP038JS3



List of Parts

ITEM	PART NO.	DESCRIPTION	GPA038JS1	GPA038JS2	GPP038JS3
1	1903-1006	Finger, Angular JS1	2		
	1903-1004	Finger, Flat, Angular JS2		2	
	1903-1007	Finger, Parallel			2
2	1903-1016	SHCS #2-56 x 0.50	4	4	
	1903-1015	SHCS #2-56 x 0.625			4
3	1903-1003	Block, Side	2	2	2
4	1903-1002	Shaft, Piston	1	1	1
5	1903-1012	Block, Cam	1	1	1
6	1903-1009	Seal, Buna-N	1	1	1
	1903-1027	Seal, Viton	1	1	1
7	2506-1020	Seal, Buna-N	2	2	2
	1903-1027	Seal, Viton	2	2	2
8	1903-1005	Washer, Magnet	1	1	1
9	1903-1001	Piston	1	1	1
10	1903-1017	SHCS, #2-56 x 7/16 Steel	1	1	
	1903-1019	SHCS, #2-56 x .25 Steel			1

ITEM	PART NO.	DESCRIPTION	GPA038JS1	GPA038JS2	GPP038JS3
11	1903-1000	Housing	1	1	1
12	1903-1014	Pin, Dowel	1	1	1
13	1903-1010	Cover, Housing	1	1	1
14	1903-1008	Guide, Shaft	1	1	1
16	2403-1008	Magnet	1	1	1
*17	3600-9092	Switch, Source, Hall, 5M Wire	1	1	1
	3600-9093	Switch, Source, Hall, Male Conn.	1	1	1
	3600-9094	Switch, Sinking, Hall, 5M Wire	1	1	1
	3600-9095	Switch, Sinking, Hall, Male	1	1	1
18	1903-9999	Switch Hardware	1	1	1
19	1903-1020	SHCS #4-40x3/16	2	2	2
20	1903-1011	Cover, Finger			1
21	1903-1018	SHCS #2-56x0.3125	1	1	1
22	2503-1025	Cnctr, Female 5M (not shown)	AR	AR	AR

**NOTE: Only universal mini Hall-effect switches are available for this bore size gripper*

SWITCHES

Available for use on all Gripper and Rack and Pinion Rotary Actuator models, these LED-equipped switches are designed for dc service only and are activated by the cylinder's optional internal piston magnet assembly. Hall - effect switches contain reverse polarity protection and shielded cables.

Hall-effect switches are solid-state circuits featuring unipolar hall voltage generators, voltage regulators, temperature stability circuits, signal amplifiers, Schmitt™ triggers and open collector transistor output. Hall-effect switches are available in either sinking type (NPN), or sourcing type (PNP) and are designed to signal devices such as programmable controllers, dc loads, and TTL or CMOS circuits. Using the sinking type switch to operate a relay or a solenoid is not recommended.

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: SWGPA038KY
Where **SW** is the switch kit, **GPA** is the model, **038** is the 3/8" size, and **KY** is a Hall-effect Sinking Switch with 5-meter lead.

All Switch Kits come with 1 switch and mounting hardware.

HARDWARE ONLY KIT: 1903-9999

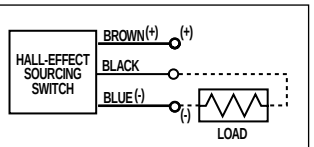
QUICK-DISCONNECTS:
2503-1025 Female Connector 5M

SWITCH TYPE CODE

KY (Hall-effect Switch (Sinking) 5-meter lead)
KX (Hall-effect Switch (Sinking) 5-meter lead and QD)
TY (Hall-effect Switch (Sourcing) 5-meter lead)
TX (Hall-effect Switch (Sourcing) 5-meter lead and QD)

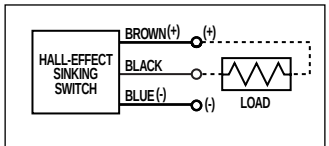
NOTE: Only universal mini Hall-effect switches are available for this bore size gripper

UNIVERSAL SWITCH WIRING DIAGRAMS AND LABEL COLOR CODING



HALL-EFFECT SWITCH (SOURCING)

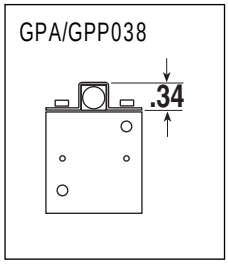
LABEL COLOR: WHITE
Input Voltage:5-25 VDC only
Output Current: 200 mA Max.

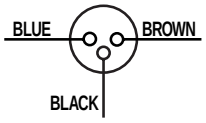


HALL-EFFECT SWITCH (SINKING)

LABEL COLOR: GREEN
Input Voltage:5-25 VDC only
Output Current: 200 mA Max.

MOUNTING DATA





QUICK-DISCONNECT (Applies to all switch types)

An Important Note Regarding Field Retrofit of Quick-Disconnect Couplers:
If replacing a Quick-Disconnect switch manufactured before 7-1-97 it will also be necessary to replace or rewire the female-end coupler with the in-line splice

2503-1025 Female Connector 5M

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 Tolomatic Pneumatic Products Catalog #9900-4000.

PISTON SHAFT DISASSEMBLY (3/8" BORE SIZE)

ANGULAR FINGER DISASSEMBLY:

1. Remove the four screws (#02) from the Side Blocks (#03). Remove the side blocks and angular fingers (#01) from the gripper assembly. Slide the Angular finger (#01) from the dowel pin pressed into the Side Block (#03).

PARALLEL FINGER DISASSEMBLY:

1. Remove the four screws (#02) from the Side Blocks (#03). Remove the Finger Cover (#20) and side blocks from the gripper assembly. Remove the Parallel Fingers (#01) from the Cam Block (#05).

HOUSING DISASSEMBLY:

1. Remove the entire piston/guide shaft assembly from the housing (#11).
2. Remove Quad Seal (#07) from the piston.
3. Remove socket head cap screw (#10) to remove Piston (#09), Magnet Washer (#08), and Magnet (#16) (if applicable) from piston shaft.
4. Remove magnet washer, magnet (if applicable), and piston from the stepped diameter of the piston shaft (For later reassembly note how the smaller of the two turned snouts of the piston faces the washer placed on the stepped diameter of the piston shaft).
5. Slide the shaft guide over the piston shaft to remove.
6. Remove Quad-ring (#07) from the Shaft Guide (#14).
7. Remove Quad Seal (#06) from piston shaft.
8. Slide housing cover (#13) from the piston shaft.
9. Remove socket head cap screw (#10) to remove Cam Block (#05) from piston shaft.

PISTON SHAFT ASSEMBLY (#3/8" BORE SIZE)

1. Attach the Cam Block (#05) to the Piston Shaft (#04) with a socket head cap screw (#10). Use Loctite #272 on the screw.
2. **ANGULAR GRIPPERS ONLY**
   Press a dowel pin into each Side Block (#01) with and arbor press until it bottoms out in the side block. One hole of the side block will have a loose fit and the other an interference fit with the dowel pin, press the dowel pin into the hole with the interference fit.
3. Install housing cover (#13) over the piston shaft and slide it up to the cam block.
4. Lubricate Quad Seal (#04) with Magnalube "G" and slide over piston until it seats against the housing cover.
5. Lubricate and install Quad-ring (#07) onto the Shaft Guide (#14). Note: Inspect all quad seals after assembly to verify that there isn't a twist in the seal.
6. With stepped bore facing the housing cover slide the shaft guide over the piston shaft until it makes contact with the housing cover.
7. Insert piston onto the stepped diameter of the piston shaft so the turned snout on the piston faces away from the housing cover.
8. If applicable install magnet (#16) onto the turned snout of the piston (#09).
9. Place magnet washer (#08), with stepped diameter facing piston, onto piston shaft.
10. Secure magnet washer with a socket head cap screw (#10). Use Loctite #272 on the screw.
11. Lubricate and install Quad Seal (#07) onto the piston.

HOUSING ASSEMBLY:

1. Verify the bore of the housing is clear of any dirt or debris. Lubricate the bore of the Housing (#11) with a thin film of Magnalube "G".
2. Insert entire piston/guide shaft assembly into housing (#11) until the housing cover rests on top of the housing. Line up the holes in the housing with the holes in the housing cover.

ANGULAR FINGER ASSEMBLY:

Note: Place a thin layer of Christolube "MCG 200" on all mating parts of angular gripper before assembly.

1. Slide an Angular finger (#01) over the dowel pin pressed into the Side Block (#03). Position the cam block on the piston shaft through the open slot in the angular gripper and into the recess milled into the side block. Place a small amount of Loctite #222 on the SHCS (#02) then loosely secure the side block to the housing. Do no tighten the SHCS at this time. Repeat the above step for the second half of the angular finger/slide block assembly. Squeeze both of the side blocks together to remove any sideplay from the fingers and tighten the four screws.

PARALLEL FINGER ASSEMBLY:

Note: Place a thin layer of Christolube "MCG 200" on all mating parts of parallel gripper before assembly.

1. Insert the cam block on the piston shaft through the angled slot of the Parallel Finger (#01). Repeat the above step for the second angular finger assembly. Place the side blocks next to the parallel fingers and align the hole in the side blocks with the holes in the housing. Place the Finger Cover (#20) over the fingers and side blocks. Loosely secure the housing cover and side blocks to the housing with four SHCS (#02). Use Loctite #222 on the SHCS. Squeeze the two sideblocks together to remove any sideplay in the fingers and tighten the four socket head cap screws (#02).

INSPECTION:

1. Manually manipulate the jaws through a cycle to make sure it is properly assembled and does not have any sticking points before applying air.

   Clean the outside surfaces of the gripper with a cloth wetted with contact cleaner. **CAUTION do not spray contact cleaner into the lubricated gripper finger assembly.**

MAINTENANCE

The Gripper should be kept as clean as possible around the jaws.

LUBRICATION

All Tolomatic Grippers are prelubricated at the factory. To ensure maximum life, the following guidelines should be followed.

1. Filtration– We recommend the use of dry, filtered air in our products. 'Filtered air' means a level of 10 Micron or less. 'Dry' means air should be free of appreciable amounts of moisture. Regular maintenance of installed filters will generally keep excess moisture in check.

2. External Lubricators (optional)– The factory prelubrication of Tolomatic Grippers will provide optimal performance without the use of external lubrication. However, external lubricators can further extend service life of pneumatic actuators if the supply is kept constant.

   Oil lubricators, (mist or drop) should supply a minimum of 1 drop per 20 standard cubic feet per minute to the cylinder. As a rule of thumb, double that rate if water in the system is suspected. Demanding conditions may require more lubricant.

   If lubricators are used, we recommend a non-detergent, 20cP @ 140˚F 10-weight lubricant. Optimum conditions for standard cylinder operation is +32˚ to +125˚F (+0˚ to 51.6˚C).

   NOTE: Use of external lubricators will wash away the factory installed lubrication. External lubricants must be maintained in a constant supply or the results will be a dry actuator prone to failure.

3. Sanitary environments– Oil mist lubricators must dispense 'Food Grade' lubricants to the air supply. Use fluids with ORAL LD50 toxicity ratings of 35 or higher such as Multitherm® PG-1 or equivalent. Demanding conditions can require a review of the application.

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