

RotoGripper

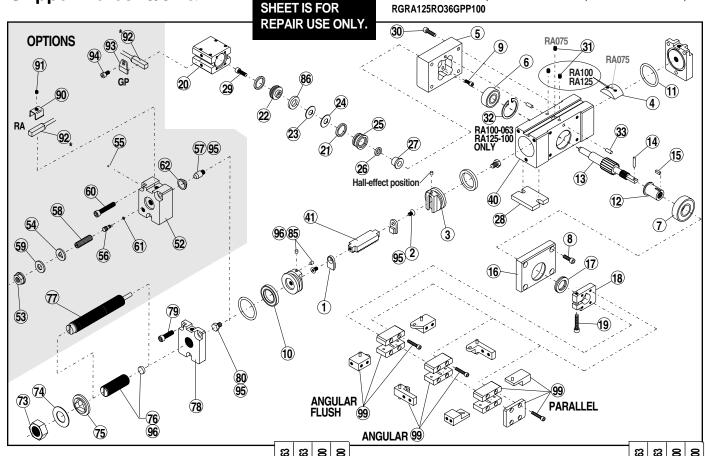
Rotary Actuator Bores: 3/4", 1" & 1-1/4"

**Gripper Bores: 5/8" & 1"** 

**Models Available:** 

1900-4006\_05

RGRA075RO18GPA063, RGRA075RO36GPA063, RGRA075RO18GPP063, RGRA075RO36GPP063, RGRA100RO18GPA063, RGRA100RO36GPA063, RGRA100RO18GPP063, RGRA100RO36GPA063, RGRA100RO36GPA100, RGRA100RO36GPP100, RGRA100RO36GPA100, RGRA100RO36GPA100, RGRA125RO36GPA100, RGRA125RO36GPA100, RGRA125RO36GPA100, RGRA125RO36GPP100, RGRA125RO36GPP100



DISCONTINUED

PRODUCT STYLE

OR SIZE. PARTS

| List of Parts  ITEM PART NO. DESCRIPTION  1 1812-1022 Plate Connector PA075 |           | RGRA <b>075</b> GPA(P) <b>063</b>  | RGRA100GPA(P)063 | RGRA100GPA(P)100 | RGRA125GPA(P)100 |   |
|---|-----------|------------------------------------|------------------|------------------|------------------|---|
| 1   | 1812-1022 | Plate, Connector, RA075            | 2                |                  |                  |   |
|   | 1816-1022 | Plate, Connector, RA100            |                  | 2                | 2                |   |
|   | 1820-1122 | Plate, Connector, RA125            |                  |                  |                  | 2 |
| 2   | 1812-1003 | FHSCS, 6-32 x .31 Black            | 2                | 2                | 2                |   |
|   | 0720-1006 | FHSCS, 10-24 x .50 Black, RA125    |                  |                  |                  | 2 |
| 3   | 1812-1021 | Piston, RA 075                     | 2                |                  |                  |   |
|   | 1816-1021 | Piston, RA 100                     |                  | 2                | 2                |   |
|   | 1820-1121 | Piston, RA 125                     |                  |                  |                  | 2 |
| 4   |           | Block, Guide, RA075                | 1                |                  |                  |   |
|   | 1816-1017 | Block, Guide, RA100                |                  | 1                | 1                |   |
|   | 1820-1117 | Block, Guide, RA125                |                  |                  |                  | 1 |
| 5   | 1812-1033 | Plate, Cyl, RA075                  | 1                |                  |                  |   |
|   | 1816-1033 | Plate, Cyl, RA100                  |                  | 1                |                  |   |
|   | 1816-1037 | Plate, Cyl, RA100                  |                  |                  | 1                |   |
|   | 1820-1133 | Plate, Cyl, RA125                  |                  |                  |                  | 1 |
| 6   | 1812-1010 | Bearing, Ball, Radial, .25 (RA075) | 1                |                  |                  |   |
|   | 0910-1386 | Bearing, Ball, Radial, .38 (RA100) |                  | 1                | 1                |   |
|   | 0515-1147 | Bearing, Ball, Radial, .50 (RA125) |                  |                  |                  | 1 |

| sı<br>ad | witches are a | universal mini Hall-effect<br>available for rack & pinion rotary<br>I grippers of these bore sizes<br>DESCRIPTION | RGRA075GPA(P)063 | RGRA100GPA(P)06 | RGRA100GPA(P)100 | RGRA125GPA(P)100 |  |
|----------|---------------|---|------------------|-----------------|------------------|------------------|--|
| 7        | 0515-1147     | Bearing, Ball, GP063  | 1                | 1               |                  |                  |  |
|          | 1820-1110     | Bearing, Ball, 5/8 x 1-3/8, GP100   |                  |                 | 1                | 1                |  |
| 8        | 0910-1040     | SHCS, 6-32 x .38, RA075-GP063   | 4                |                 |                  |                  |  |
|          | 0605-1045     | SHCS, 6-32 x .44, RA100-GP063   |                  | 4               |                  |                  |  |
|          | 1307-2018     | SHCS, 6-32 x .50, RA100-GP100   |                  |                 | 4                |                  |  |
|          | 0910-1166     | SHCS, 8-32 x .50, RA125-GP100   |                  |                 |                  | 4                |  |
| 9        | 0610-1077     | SHCS, 4-40 x .31, RA075-GP063   | 4                |                 |                  |                  |  |
|          | 0605-1079     | SHCS, 4-40 x .25, RA100-GP063   |                  | 4               |                  |                  |  |
|          | 0605-1046     | SHCS, 8-32 x .38, Blk, RA100-GP100  |                  |                 | 4                |                  |  |
|          | 1820-1102     | SHCS, 8-32 x .25, Blk, RA125-GP100  |                  |                 |                  | 4                |  |
| 10       | 1812-1011     | U-Cup, Buna-N, 3/4 x 1/8, RA075   | 2                |                 |                  |                  |  |
|          | 1001-1253     | U-Cup, Buna-N, 1 x 1/8, RA100   |                  | 2               | 2                |                  |  |
|          | 1820-1111     | U-Cup, Buna-N, 1-1/4 x 1/8, RA125   |                  |                 |                  | 2                |  |
| 10       | 1812-1016     | U-Cup, Viton, 3/4 x 1/8, RA075  | 2                |                 |                  |                  |  |
|          | 1001-1119     | U-Cup, Viton, 1 x 1/8, RA100  |                  | 2               | 2                |                  |  |
|          | 1820-1106     | U-Cup, Viton, 1-1/4 x 1/8, RA125  |                  |                 |                  | 2                |  |
| 11       | 1001-1130     | O-Ring, Buna-N, -018, RA075   | 2                |                 |                  |                  |  |
|          | 1816-1015     | O-Ring, Buna-N, -022, RA100   |                  | 2               | 2                |                  |  |

ITEM PART NO.

11 1812-1040

1812-1018

1816-1006

1820-1107

1820-1136

1816-1032

1816-1031

1820-1132

1910-1012

1816-1034

1816-1030

1820-1034

1004-1203

1816-1035

1816-1038

1075-1007

1910-1000

1910-1015

1910-1027

1910-1001

1910-1005

1910-1004

Quad-Ring, Buna-N -020, GP100

Quad-Ring, Viton -014, GP063

Quad-Ring, Viton -020, GP100

Washer, Magnet, GP063

Washer, Magnet, GP100

Piston, GP063

Piston, GP100

Bumper, GP063

Bumper, GP100

Guide, Shaft, GP063

19 1307-1019

20 1906-1000

21 2510-1020

21 1906-1027

22 1906-1001

23 1906-1005

24 1906-1004

25 1906-1008

17 1812-1007

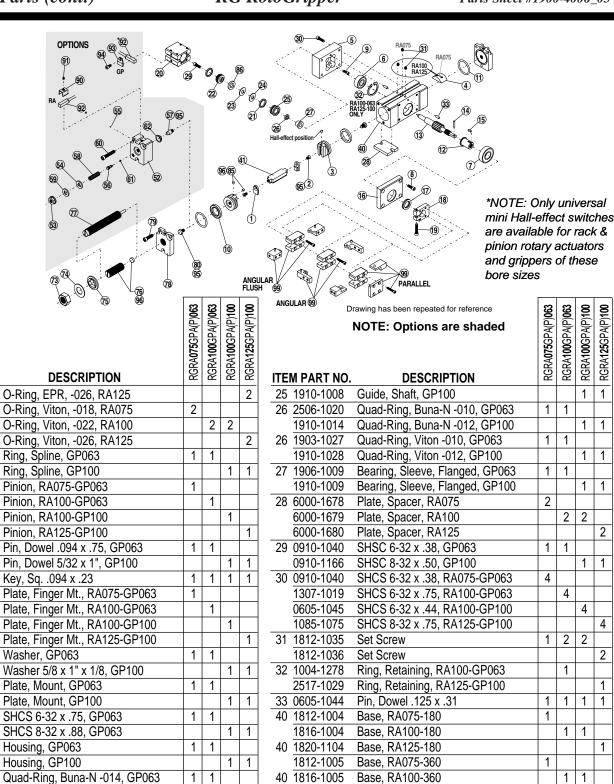
12 1816-1036

13 1812-1032

14 1906-1012

15 1812-1024

16 1812-1034



1820-1105

1816-1013

1820-1113

1816-1014

1820-1114

1816-1025

1820-1125

41 1812-1013

41 1812-1014

52 1812-1025

Base, RA125-360

Rack, RA075-180

Rack, RA100-180

Rack, RA125-180

Rack, RA075-360

Rack, RA100-360

Rack, RA125-360

Plate, Cushion, RA075

Plate, Cushion, RA100

Plate, Cushion, RA125

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1 1

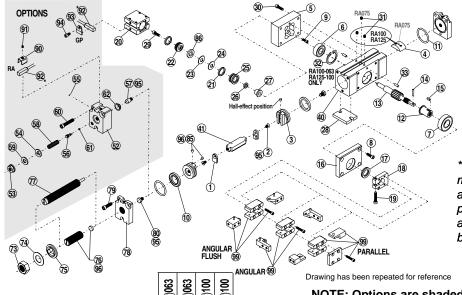
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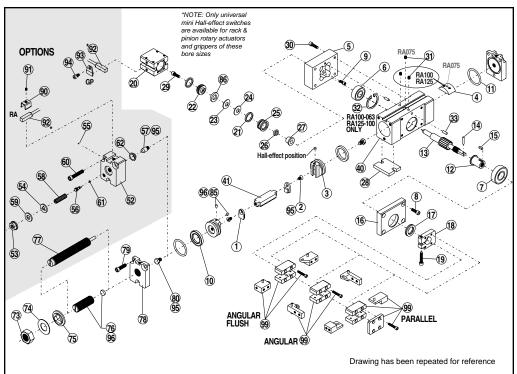
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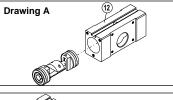
\*NOTE: Only universal mini Hall-effect switches are available for rack & pinion rotary actuators and grippers of these bore sizes

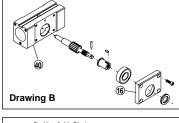
| ITEM PART NO.       | DESCRIPTION                          | RGRA <b>075</b> GPA(P) <b>0</b> | RGRA100GPA(P)0 | RGRA100GPA(P)1 | RGRA125GPA(P)1 |
|---------------------|--------------------------------------|---------------------------------|----------------|----------------|----------------|
| 53 1816-1020        | Nut, Flange, 1/4-20                  | 1                               | 1              | 1              | 1              |
| 54 1816-1023        | Seal, Thread, 1/4-20                 | 1                               | 1              | 1              | 1              |
| 55 1816-1024        | Ball, 1/16 Dia. Steel                | 3                               | 3              | 3              | 3              |
| 56 1816-1027        | Needle, Cushion                      | 1                               | 1              | 1              | 1              |
| 57 1816-1029        | Spear, Cushion                       | 1                               | 1              | 1              | 1              |
| 58 2410-1019        | Set Screw, 1/4-20 x .88, Flat        | 1                               | 1              | 1              | 1              |
| 59 1004-1144        | Washer, .281 x .500 x .056           | 1                               | 1              | 1              | 1              |
| 60 1812-1002        | SHCS, 6-32 x .88, Black RA075        | 3                               |                |                |                |
| 1001-1065           | SHCS, 6-32 x 1.00, Black RA100       |                                 | 3              | 3              |                |
| 0810-1201           | SHCS, 10-24 x 1.00, Black RA125      |                                 |                |                | 3              |
| 61 0912-1101        | O-Ring, Buna-N, -002,                | 1                               | 1              | 1              | 1              |
| 1820-1116           | O-Ring, Viton, -002                  | 1                               | 1              | 1              | 1              |
| 62 0910-1184        | Seal, Cushion, Buna-N 1" BC          | 1                               | 1              | 1              | 1              |
| 0910-1461           | Seal, Cushion, Viton, 1" BC          | 1                               | 1              | 1              | 1              |
| 73 2403-1057        | Nut, Hex Jam, 3/8 - 32, RA075        | 1                               |                |                |                |
| 1816-1018           | Nut, Hex Jam, 1/2 - 20, RA100, RA125 |                                 | 1              | 1              | 1              |
| 74 1001-1287        | Washer, .395 x .748 x .021, RA075    | 1                               |                |                |                |
| 1810-1077           | Washer, .55 x.75 x.025, RA100, RA125 |                                 | 1              | 1              | 1              |
| 75 2410-1074        | Seal, Thread, 3/8, RA075             | 1                               |                |                |                |
| 1816-1016           | Seal, Thread, 1/2, RA100, RA125      |                                 | 1              | 1              | 1              |
| 76 1812-1019        | Screw, Bumper, RA075                 | 1                               |                |                |                |
| 1816-1019           | Screw, Bumper, RA100, RA125          |                                 | 1              | 1              | 1              |
| 76 2406-1050        | Bumper, Polyurethane, RA075          | 1                               |                |                |                |
| 2410-1021           | Bumper, Polyurethane, RA100, RA125   |                                 | 1              | 1              | 1              |
| 77 1812-1028        | Shock, PMX-8 Sealed, RA075           | 1                               |                |                |                |
| 1816-1028           | Shock, PM25 Sealed, RA100, RA125     |                                 | 1              | 1              | 1              |
| 78 <u>1812-1009</u> | Plate, End, RA075                    | 1                               |                |                |                |
| 1816-1009           | Plate, End, RA100                    |                                 | 1              | 1              |                |
| 1820-1009           | Plate, End, RA125                    |                                 |                |                | 1              |
| 79 <u>1207-1027</u> | SHCS, 6-32 x .63, Black, RA075       | 3                               |                |                |                |
| 2307-1021           | SHCS, 8-32 x .63, Black, RA100       |                                 | 3              | 3              |                |
| 0707-1010           | SHCS, 10-24 x .63, Black, RA125      |                                 |                |                | 4              |
| 80 1816-1026        | Screw, Hex, 10-24 x .25              | 2                               | 2              | 2              | 2              |
| 85 0905-1109        | Magnet Rod, .12 x .12 NEO 35, (RA)   | 2                               | 2              | 2              | 2              |
| 86 2510-1030        | Magnet, (Gripper), GP063             | 1                               | 1              |                | _              |
| 1001-1202           | Magnet, (Gripper), GP100             |                                 |                | 1              | 1              |

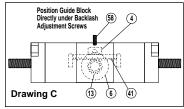
| IGULAR   Drawing has been repeated for reference |            |                                     |                                   |                  |                  |                  |
|--|------------|-------------------------------------|-----------------------------------|------------------|------------------|------------------|
| NOTE: Options are shaded                         |            |                                     | 8                                 | )06              | 5                | <u>5</u>         |
|  |            | TE. Options are snaded              | RGRA <b>075</b> GPA(P) <b>063</b> | RGRA100GPA(P)063 | RGRA100GPA(P)100 | RGRA125GPA(P)100 |
|  |            |                                     | 75G                               | <b>)0</b> G      | 9                | <b>25</b> GI     |
|  |            |                                     | ₹<br>8                            | <b>ZA1</b>       | ₹<br> <br>       | ₹<br>            |
| ITE  | M PART NO. | DESCRIPTION                         | RG                                | RG               | RG               | RG               |
| 90   | 2503-1034  | Clamp, Switch, GP100                |                                   |                  | 1                | 1                |
| 91   | 3600-1831  | Screw, Set                          |                                   |                  | 1                | 1                |
| 92   | 3600-9094  | Switch, Hall Sinking, 5 Meter Lead  | 1                                 | 1                | 1                | 1                |
|  | 3600-9095  | Switch, Hall Sinking, Male Conn     | 1                                 | 1                | 1                | 1                |
|  | 3600-9092  | Switch, Hall Sourcing, 5 Meter Lead | 1                                 | 1                | 1                | 1                |
|  | 3600-9093  | Switch, Hall Sourcing, Male Conn    | 1                                 | 1                | 1                | 1                |
|  | 2503-1025  | 5m Quick-disconnect Lead            | 1                                 | 1                | 1                | 1                |
| 93   | 1906-1024  | Clamp, Switch, GP063                | 1                                 | 1                |                  |                  |
| 94   | 0910-1262  | SHCS 6-32 x .25, GP063              | 1                                 | 1                |                  |                  |
| 95   | 0760-1020  | Sealant, Loctite, #271              | A/R                               | A/R              | A/R              | A/R              |
| 96   | 0910-1299  | Adhesive, Loctite, #495             | A/R                               | A/R              | A/R              | A/R              |
| 99   | 1906-1003  | Block, Side, GPA063, JS1            | 2                                 | 2                |                  |                  |
|  | 1910-1003  | Block, Side, GPA100, JS1            |                                   |                  | 2                | 2                |
|  | 1906-1006  | Finger, Angular, GPA063, JS1        | 2                                 | 2                |                  |                  |
|  | 1910-1006  | Finger, Angular, GPA100, JS1        |                                   |                  | 2                | 2                |
|  | 1906-1013  | SHCS 4-40 x .75, GPA063, JS1        | 4                                 | 4                |                  |                  |
|  | 1075-1007  | SHCS 8-32 x .88, GPA100, JS1        |                                   |                  | 4                | 4                |
|  | 1906-1012  | Pin, Dowel, 3/32 x 3/4, GPA063, JS1 | 2                                 | 2                |                  |                  |
| 99   | 1910-1012  | Pin, Dowel, 5/32 x 1", GPA100, JS1  |                                   |                  | 2                | 2                |
|  | 1906-1003  | Block, Side, GPA063, JS2            | 2                                 | 2                |                  |                  |
|  | 1910-1003  | Block, Side, GPA100, JS2            |                                   |                  | 2                | 2                |
|  | 1906-1021  | Finger, Angular, Flush, GPA063, JS2 | 2                                 | 2                |                  |                  |
| 99   | 1910-1021  | Finger, Angular, Flush, GPA100, JS2 |                                   |                  | 2                | 2                |
|  | 1906-1013  | SHCS 4-40 x .75, GPA063, JS2        | 4                                 | 4                |                  |                  |
|  | 1075-1007  | SHCS 8-32 x .88, GPA100, JS2        |                                   |                  | 4                | 4                |
|  | 1906-1012  | Pin, Dowel, 3/32 x 3/4, GPA063, JS2 | 2                                 | 2                |                  |                  |
|  | 1910-1012  | Pin, Dowel, 5/32 x 1", GPA100, JS2  |                                   |                  | 2                | 2                |
|  | 1906-1003  | Block, Side, GPP063, JS3            | 2                                 | 2                |                  |                  |
|  | 1910-1003  | Block, Side, GPP100, JS3            |                                   |                  | 2                | 2                |
|  | 1906-1007  | Finger, Parallel, GPP063, JS3       | 2                                 | 2                |                  |                  |
|  | 1910-1007  | Finger, Parallel, GPP100, JS3       |                                   |                  | 2                | 2                |
|  | 1906-1014  | SHCS 4-40 x .88, GPP063, JS3        | 4                                 | 4                |                  |                  |
|  | 1910-1013  | SHCS 8-32 x 1-1/8, GPP100, JS3      |                                   |                  | 4                | 4                |
|  | 1906-1011  | Cover, Finger, GPP063, JS3          | 1                                 | 1                |                  |                  |
| _  | 1910-1011  | Cover, Finger, GPP100, JS3          |                                   |                  | 1                | 1                |



# **NOTE: Options are shaded**







# **ROTARY ACTUATOR INSTRUCTIONS**

# **Seal Replacement Cushioned Head Assembly**

- 1. Remove Head Assembly (#52) from Rotary Actuator Body.
- 2. Replace O-Ring Seal (#11) and Cushion Seal (#62).
- 3. Remove Cushion Adjustment Screw (#58) and replace O-Ring (#61). NOTE: Apply light coat of Magnalube-G grease to seals before reassembly.

# **Piston Seal Replacement**

- 1. Remove fingers (Angular Fingers-Remove the four screws from the Side Blocks. Slide the side blocks and Angular Fingers from the gripper assembly. Slide an Angular finger from the dowel pin pressed into the Side Block.)(Parallel Fingers-Remove the four screws from the Side Blocks and and Finger Cover. Remove the finger cover plate and side blocks. Slide the Parallel Fingers from the Dowel Pin on the Piston Shaft.)
- Remove Dowel Pin (#14). Loosen SHCS (#19) from Plate Mount (#18) and remove the shaft.
- 3. Remove screws (#30). Remove the entire piston/guide shaft assembly from the housing (#40).
- 4. Remove Head Assembly.
- Remove Piston and Rack Assembly parts; Plate Connector (#1), FHSCS (#2), Piston (#3), Guide Block (#4), U-Cup (#10), and Rack (#41).
- Clean Piston, Rack and Pinion (#13). Install new U-cups (#10) onto Pistons and lubricate all components with Magnalube-G ® grease.

# Reassembly

- 1. Insert Rack and Piston Assembly into the Housing (#40) bore. Make sure Guide Block (#4) is installed at the same time (See drawing A).
- Center Piston Rack Assembly in the Housing and Install Pinion (#13) and Bearings (#7) with Pinion flat oriented as shown (See drawing B).
- 3. Install Bearing Plate Covers (#5) and Head Assembly.
- Rotate Pinion to position Guide Block (#4) directly under the Backlash Adjustment Screw (#58) hole(s). (See drawing C).

Apply Loctite 242 to Adjustment Screw(s) (#58) and evenly install into the housing until they bottom out. Do not tighten. Rotate Pinion by hand and loosen or tighten both screws at an even rate to achieve desired backlash. Over tightening will result in binding.

## **Testing**

- Cycle the rotary actuator back and forth two times at full flow. Check for leakage, it should be zero.
- 2. Check breakaway per the chart below:

| 3/4" Bore   | 20 PSI or less breakaway |
|-------------|--------------------------|
| 1" Bore     | 15 PSI or less breakaway |
| 1-1/4" Bore | 10 PSI or less breakaway |

## ANGULAR FINGER DISASSEMBLY:

 Remove the four screws from the Side Blocks. Slide the side blocks and Angular Fingers from the gripper assembly. Slide an Angular finger from the dowel pin pressed into the Side Block.

# PARALLEL FINGER DISASSEMBLY:

 Remove the four screws from the Side Blocks and and Finger Cover. Remove the finger cover plate and side blocks. Slide the Parallel Fingers from the Dowel Pin on the Piston Shaft.

#### HOUSING DISASSEMBLY:

- 1. Remove Dowel Pin (#14).
- 2. Loosen SHCS (#19) from Plate Mount (#18) and remove from shaft.
- 3. Remove Screws (#30). Remove the entire piston/guide shaft assembly from the housing (#40).
- 4. Remove Screws (#09), remove Housing (#20).
- 5. Remove Quad Seal (#21) from the piston.
- Loosen socket head cap screw (#29) to remove piston from piston shaft.
- Remove 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).

- If needed remove magnet (#86) from the smaller of the two turned snouts of the piston (#22). (For later reassembly use a felt tip marker to note how the magnet is positioned).
- 9. Remove washer (#23) from stepped diameter of piston shaft.
- 10. Slide bumper (#24) over piston shaft to remove.
- 11. Slide the Shaft Guide (#25) over the piston shaft to remove.
- 12. Remove Quad-ring (#26) from the Shaft Guide (#25).
- 13. Slide Quad Seal (#21) from piston shaft.
- 14. Slide Bearing Sleeve (#27) from piston shaft (For later reassembly note how flanged side of the sleeve rests against the housing cover.
- 15. Remove housing cover (#20) from the stepped diameter end of the piston shaft.

## **PISTON SHAFT ASSEMBLY**

1. If applicable, press the dowel pin (#14) through Piston Shaft (#13) ensure that the dowel pin is centered in the piston shaft.

### 2. Angular Grippers only

If applicable, press a dowel pin into each Side Block with an 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 (#40) over the stepped diameter end of the piston shaft and slide it up to the dowel pin.
- Slide Bearing Sleeve (#27) onto piston shaft, flanged side of the sleeve should rest against the housing cover.
- Lubricate Quad Seal (#21) with Magnalube "G" and slide over piston shaft until it seats against the bearing sleeve.
- Lubricate and install Quad-ring (#26) onto the Shaft Guide (#25). Note: Inspect all quad seals after assembly to verify that there isn't a twist in the seal.
- 7. With stepped bore facing the housing cover slide the shaft guide over the piston shaft until it makes contact with the housing cover.
- 8. Slide bumper (#24) over piston shaft and seat it against the shaft guide.
- 9. Place washer (#23) onto stepped diameter of piston shaft.
- 10. If applicable install magnet (#86) onto the smaller of the two turned snouts of the piston (#13). (NOTE: Magnet must be positioned as it was before disassembly; see step #8 of housing disassembly. South pole of magnet must face toward gripper fingers for switch to function properly)
- 11. Insert piston onto the stepped diameter of the piston shaft so the smaller of the two turned snouts of the piston faces the washer placed on the stepped diameter of the piston shaft.
- Secure piston to piston shaft with a socket head cap screw (#29). Use Loctite #272 on the screw.
- 13. Lubricate and install Quad Seal (#21) onto the piston.

#### **HOUSING ASSEMBLY:**

- Verify the bore of the housing is clear of any dirt or debris. Lubricate the bore of the Housing (#20) with a thin film of Magnalube "G".
- 2. Insert entire piston/guide shaft assembly into housing (#20) until the housing cover rests on top of the housing. Line up the holes in the housing with the holes in the housing cover. Note: On those models that the housing cover extends over the side extend that portion of the cover over the dovetail side of the housing.

# **ANGULAR FINGER ASSEMBLY:**

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

 Slide an Angular finger over the dowel pin pressed into the Side Block. Position the dowel pin 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 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.

 Insert the dowel pin on the piston shaft through the angled slot of the Parallel finger.

Repeat the above step for the second angular finger/side block assembly. Loosely secure the side blocks and Finger Cover to the housing with four SHCS. 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.

## **INSPECTION:**

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 unit should be kept as clean as possible, with special attention to the gripper jaws.

# **LUBRICATION**

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

- Filtration

  We recommend the use of dry, filtered air in our products.

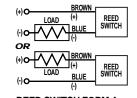
  'Filtered air' means a level of 10 Micron or less. 'Dry' means air should
  be free of appreciable amounts of moisture. Regular maintenance of
  installed filters will generally keep excess moisture in check.
- 2. External Lubricators (optional)— The factory prelubrication of Tolomatic Grippers will 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).

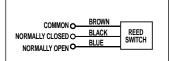
NOTE: Use of external lubricators will wash away the factory installed lubrication. External lubricants must be maintained in a constant supply or the results will be a dry actuator prone to failure.

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.

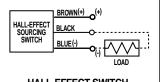
# UNIVERSAL SWITCH WIRING DIAGRAMS AND LABEL COLOR CODING



**REED SWITCH FORM A** LABEL COLOR: RED 10VA MAX. 200 Vdc 500mA Max. Current

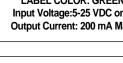


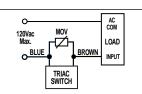
REED SWITCH FORM C LABEL COLOR: YELLOW 120 Vdc/120 Vac MAX. 250mA Max. Current



HALL-EFFECT SWITCH (SOURCING)

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

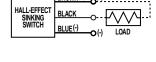




TRIAC SWITCH LABEL COLOR: BLUE Max. 1Amp. Cont. Current @ 86°F Max. .5Amp. Cont. Current @ 140°F Peak surge current 10Amp.

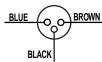
NOTE: The side of the switch with the groove indicates the sensing surface. This must face toward the magnet.

For complete Switch Performance Data, refer to the Tolomatic Pneumatic Products Catalog 9900-4000



HALL-EFFECT SWITCH (SINKING)

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



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

## **SWITCHES**

On assembled cylinder, Secure Switch to open port side of gripper with a Clamp and Screw.

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

TO ORDER RETROFIT KITS: SW (then the model number and base size, and code for type of switch needed:

**EXAMPLE: SWGPA063KY** 

All Switch Kits come with 1 switch and mounting hardware.

#### QUICK-DISCONNECTS:

2503-1025 Female Connector 5M

#### SWITCH TYPE CODE

ΚY (Hall-effect Switch (Sinking) 5-meter lead) ΚX (Hall-effect Switch (Sinking) 5-meter lead and QD) (Hall-effect Switch (Sourcing) 5-meter lead) TY (Hall-effect Switch (Sourcing) 5-meter lead and QD)

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