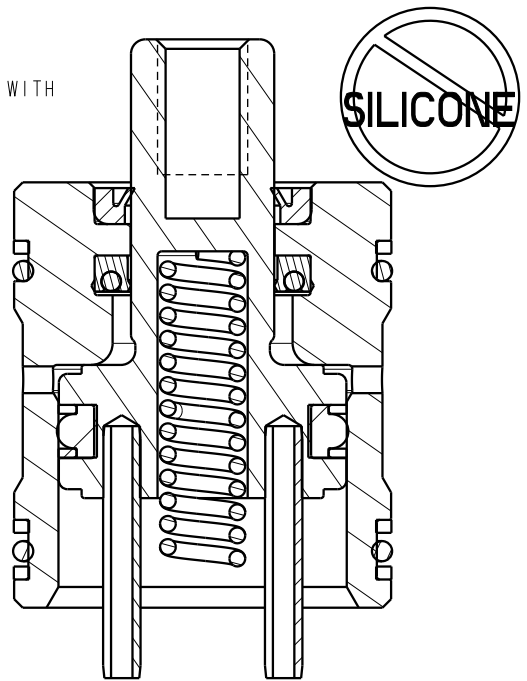
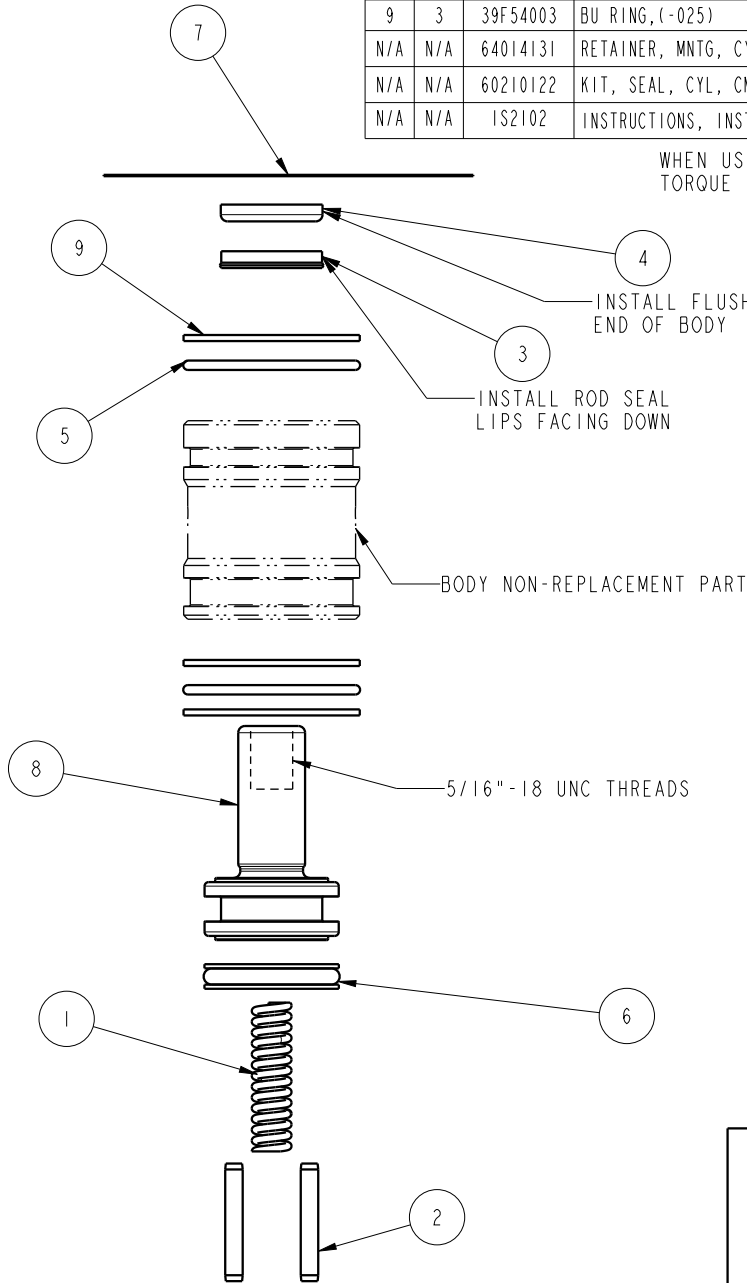


ITEM 1 USED FOR SINGLE ACTING ONLY. IF USING IN SINGLE ACTING CONFIGURATION: RETAINER 64014130 MAY BE USED.

| NO | QTY | PART NO | DESCRIPTION | 21-4111-11 | 21-4111-21 | STD SEAL KIT |
|-----|-----|----------|--|------------|------------|--------------|
| 1 | 1 | 23355012 | SPRING, COMPRESSION | X | | |
| - | 1 | 23355029 | SPRING, COMPRESSION | | X | |
| 2 | 2 | 23520012 | PIN, SPRING, SLOTTED, 1/8 X 7/8, SST | X | | |
| - | 2 | 23520016 | PIN, SPRING, SLOTTED, 1/8 X 1, SST | | X | |
| 3 | 1 | 39010019 | SEAL, LL, (1/2 X 1/8 X 1/8 X 3/4) | X | X | X |
| 4 | 1 | 39012009 | WIPER, PRESS-IN, (1/2) | X | X | X |
| 5 | 2 | 39051125 | O-RING, (-025) | X | X | X |
| 6 | 1 | 39052048 | SEAL, T, (3/4 X 1/8 X 1) | X | X | X |
| 7 | 1 | 67010153 | TAG, INSTALL, CYL, CM, SLIP-IN | X | X | X |
| 8 | 1 | 82100210 | PLUNGER, CYL, CM, PP, 3900LB | X | | |
| - | 1 | 82100310 | PLUNGER, CYL, CM, PP, 3900LB, STROKE .50 | | X | |
| 9 | 3 | 39F54003 | BU RING, (-025) | X | X | X |
| N/A | N/A | 64014131 | RETAINER, MNTG, CYL, CM, 2950LB | N/A | N/A | |
| N/A | N/A | 60210122 | KIT, SEAL, CYL, CM, PULL, 2950LB | N/A | N/A | NOTED |
| N/A | N/A | 1S2102 | INSTRUCTIONS, INSTALL, CYL, CM, SLIP-IN | N/A | N/A | N/A |

WHEN USED WITH RETAINING RING P/N 64-0141-31 TORQUE 1/4-20 BOLTS TO 63 IN.-LBS



LUBRICATE ALL SEALS WITH CLEAN HYDRAULIC OIL PRIOR TO ASSEMBLY DO NOT USE SILICONE BASED LUBRICANTS

PARTS LIST



ASSEMBLIES AFFECTED
21-4111-11
21-4111-21

PARTS LIST, ASSY, CYL, CM, PULL, 2950LB, .375 STROKE
SLIP IN 5/16-18
SIZE A
PL21103
REV A

| | | | | |
|---------|------------------------|--|------------|---------|
| A | 5573 | RELEASE | BDC | 12/6/24 |
| REV | IN ACCORDANCE WITH ECN | EFFECTIVE DATE | REVISED BY | DATE |
| DRW BY: | BDC | DRAWING STATUS: Released | | |
| DATE: | 11/27/24 | PRODUCTION APPROVED FOR RELEASED STATUS ONLY | | |

CAVITY AND INSTALLATION INSTRUCTIONS

PLEASE READ PRIOR TO OPERATION

Cavity Forming

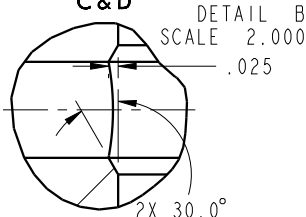
-It is recommended that all cavities be prepared using a ball hone such as a *Flex-Hone™.

This will deburr and round sharp edges to prevent seal damage. The honing prepares cavity for cylinder installation.

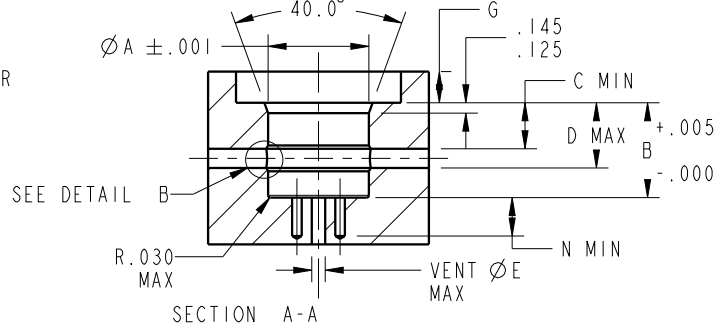
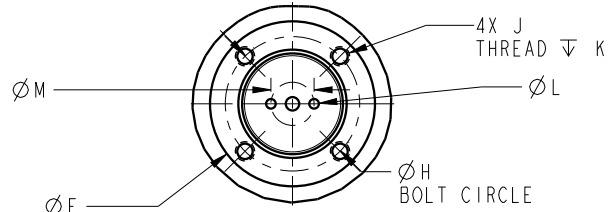
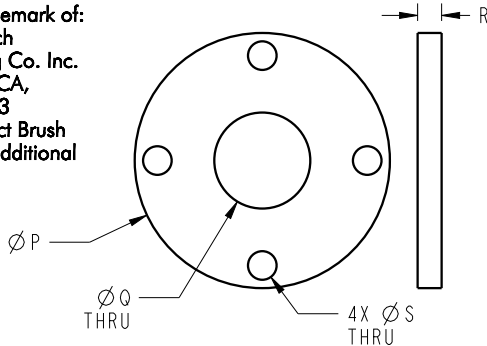
-Intersecting feed holes should be adequately deburred and chamfered to prevent seal damage.

*Flex-hone™ is a registered trademark of: Brush Research Manufacturing Co. Inc. Los Angeles, CA, 323-261-2193 Please Contact Brush Research for additional information.

Preferred Relief Detail
Relief to be within Dimensions C & D



OPTIONAL CYLINDER RETAINING RING



Dimensions

| MODEL NO.* | CAP. | A | B | C | D | E | F ** | G ** | H ** | J ** | K ** | L *** | M *** | N *** | P | Q | R **** | S | BOLT TORQUE | OPTIONAL RETAINING RING |
|---|-------|-------|-------|-----|------|-----|------|------|------|-------------|------|-------|-------|-------|-------|------|--------|------|-------------|-------------------------|
| Single Acting (S/A) Cylinders actuated hydraulically in one direction, spring turned | | | | | | | | | | | | | | | | | | | | |
| 21-4106-0X | 980 | .813 | 1.120 | .44 | .72 | .16 | 1.43 | .31 | 1.13 | 8-32 UNC | .33 | .125 | .44 | .31 | 1.395 | .50 | .125 | .173 | 29 IN-LBS | 64-0140-80 |
| 21-4109-00 | 2000 | 1.188 | 1.120 | .44 | .72 | .18 | 1.86 | .31 | 1.56 | 8-32 UNC | .33 | .125 | .53 | .40 | 1.832 | .75 | .125 | .173 | 29 IN-LBS | 64-0141-10 |
| 21-4109-01 | | | 1.245 | | .84 | | | | | | | | | | | | | | | |
| 21-4111-0X | 2950 | 1.313 | 1.245 | .44 | .84 | .18 | 2.15 | .41 | 1.75 | 1/4-20 UNC | .38 | .156 | .56 | .40 | 2.125 | .75 | .125 | .257 | 63 IN-LBS | 64-0141-30 |
| 21-4113-0X | 5200 | 1.751 | 1.370 | .44 | .97 | .33 | 2.83 | .53 | 2.31 | 5/16-18 UNC | .47 | .156 | .88 | .40 | 2.782 | 1.00 | .187 | .328 | 20 FT-LBS | 64-0141-70 |
| 21-4116-0X | 9000 | 2.126 | 1.495 | .44 | 1.09 | .35 | 3.40 | .67 | 2.81 | 3/8-16 UNC | .50 | .281 | 1.00 | .60 | 3.375 | 1.12 | .250 | .391 | 24 FT-LBS | 64-0142-10 |
| 21-4121-00 | 17100 | 2.876 | 1.620 | .44 | 1.22 | .40 | 4.59 | .90 | 3.81 | 1/2-13 UNC | .63 | .281 | 1.57 | .60 | 4.563 | 1.25 | .375 | .515 | 62 FT-LBS | 64-0142-80 |

Double Acting (D/A)

Cylinders actuated hydraulically in both directions

| | | | | | | | | | | | | | | | | | | | | |
|------------|------|-------|-------|-----|------|-----|------|-----|------|-------------|-----|------|-----|-----|-------|------|------|------|-----------|------------|
| 21-4106-11 | 980 | .813 | 1.342 | .44 | 1.00 | .16 | 1.43 | .44 | 1.13 | 8-32 UNC | .33 | .125 | .44 | .42 | 1.395 | .50 | .250 | .173 | 29 IN-LBS | 64-0140-81 |
| 21-4106-21 | | | 1.592 | | 1.25 | | | | | | | | | | | | | | | |
| 21-4109-11 | 2000 | 1.188 | 1.402 | .44 | 1.00 | .18 | 1.86 | .44 | 1.56 | 8-32 UNC | .33 | .125 | .53 | .64 | 1.832 | .75 | .250 | .173 | 29 IN-LBS | 64-0141-11 |
| 21-4109-21 | | | 1.990 | | 1.58 | | | | | | | | | | | | | | | |
| 21-4111-11 | 2950 | 1.313 | 1.477 | .44 | 1.07 | .18 | 2.15 | .54 | 1.75 | 1/4-20 UNC | .38 | .156 | .56 | .64 | 2.125 | .75 | .250 | .257 | 63 IN-LBS | 64-0141-31 |
| 21-4111-21 | | | 2.050 | | 1.64 | | | | | | | | | | | | | | | |
| 21-4113-11 | 5200 | 1.751 | 1.602 | .44 | 1.20 | .33 | 2.83 | .66 | 2.31 | 5/16-18 UNC | .47 | .156 | .88 | .64 | 2.782 | 1.00 | .250 | .328 | 20 FT-LBS | 64-0141-71 |
| 21-4113-21 | | | 2.140 | | 1.74 | | | | | | | | | | | | | | | |

*LUBRICATE O-RINGS WITH GREASE PRIOR TO INSTALLATION.

**THIS CAVITY USES THE OPTIONAL RETAINING RING AVAILABLE FROM VEKTEK. THESE FEATURES ARE FOR USE WITH THE RETAINING RING. SEE SHEET 3!

***THESE FEATURES ARE ONLY NEEDED IF ANTI-ROTATION PINS ARE USED. ANTI-ROTATION PINS AND RETURN SPRING ARE INCLUDED WITH THE CYLINDERS.

****THICKER RETAINERS (MODELS ENDING WITH *1) WITH 8 SCREWS ARE REQUIRED FOR DOUBLE ACTING CYLINDERS. DOUBLE ACTING CYLINDERS BEING USED IN SINGLE ACTING APPLICATIONS CAN USE THE SINGLE ACTING RETAINERS (MODELS ENDING WITH *0) AND 4 SCREWS.

INSTALLATION INSTRUCTIONS



VEKTEK, INC.
1334 E. SIXTH AVE. P.O. BOX 625
EMPORIA, KS. 66801 U.S.A.

| | | | | |
|---------------|--|----------------|------------|----------|
| B | 5573 | RELEASE | BDC | 11/25/24 |
| REV | IN ACCORDANCE WITH ECN | EFFECTIVE DATE | REVISED BY | DATE |
| DRW BY: DKC | DRAWING STATUS: Released | | | |
| DATE: 9/23/14 | PRODUCTION APPROVED FOR RELEASED STATUS ONLY | | | |

| |
|-----------------------|
| ASSEMBLIES AFFECTED |
| 21-4106-XX 21-4109-XX |
| 21-4111-XX 21-4113-XX |
| 21-4116-XX 21-4121-XX |

| |
|---|
| INSTRUCTIONS, INSTALL, CYL, CM, SLIP-IN |
| SLIP IN |
| SIZE A |
| 1S2102 |
| REV B |

FORM FEG041-1S.AS1ZE, REV. B

SHEET 1 OF 3

INSTALLATION INSTRUCTIONS CONTINUED

Installation Notes

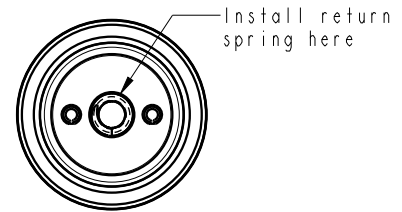
-It is recommended that all cavities be prepared using a ball hone such as dFlex-Hone™. This will deburr and round sharp edges to prevent seal damage and prepare cavity for cylinder installation.

-All seals should be lubricated with a non-silicone grease (recommended) or clean hydraulic oil prior to installation.

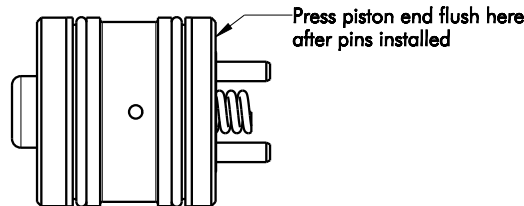
Installation

- Lubricate all seals with non-silicone grease (recommended) or clean hydraulic oil.
- Install return spring in plunger cavity with a small amount of grease to hold it in place during installation. See view below. A table of return spring part numbers is included below.

| Cylinder Model No. | Return Spring P/N | Cylinder Model No. | Return Spring P/N | Cylinder Model No. | Return Spring P/N |
|--------------------|-------------------|--------------------|-------------------|--------------------|-------------------|
| 21-4106-0X | 23-3550-11 | 21-4106-1X | 23-3550-11 | 21-4106-2X | 23-3550-28 |
| 21-4109-0X | 23-3550-12 | 21-4109-1X | 23-3550-12 | 21-4109-2X | 23-3550-29 |
| 21-4111-0X | 23-3550-12 | 21-4111-1X | 23-3550-12 | 21-4111-2X | 23-3550-29 |
| 21-4113-0X | 23-3550-14 | 21-4113-1X | 23-3550-14 | 21-4113-2X | 23-3550-30 |
| 21-4116-0X | 23-3550-15 | 21-4116-1X | 23-3550-31 | 21-4116-2X | 23-3550-31 |
| 21-4121-0X | 23-3550-16 | 21-4121-1X | 23-3550-32 | | |




- If using anti-rotate pins install a bolt and jam nut in plunger to help align pins. Press the piston end of the plunger even with end of body. See view below.



- Press cylinder into cavity until plunger begins to extend ensuring cylinder goes in evenly to prevent cavity or seal damage.
 - Using the bolt gently turn the plunger while applying slight downward force until plunger begins to retract. This ensures alignment of the anti-rotation pins.
 - Remove bolt and jam nut. Visually inspect spring through threaded hole in plunger to verify return spring is properly positioned.
- Press cylinder body until flush with the start of the cavity. Stop if an increase in resistance is felt.
 - If using the optional retention ring, see chart below for proper torque.

| MODEL NO. | RETAINER NO. | BOLT SIZE | TORQUE |
|------------|--------------|-------------|-----------|
| 21-4106-0X | 64-0140-80 | 8-32 UNC | 29 IN-LBS |
| 21-4106-1X | 64-0140-81 | | |
| 21-4106-2X | | | |
| 21-4109-0X | 64-0141-10 | 8-32 UNC | 29 IN-LBS |
| 21-4109-1X | 64-0141-11 | | |
| 21-4109-2X | | | |
| 21-4111-0X | 64-0141-30 | 1/4-20 UNC | 63 IN-LBS |
| 21-4111-1X | 64-0141-31 | | |
| 21-4111-2X | | | |
| 21-4113-0X | 64-0141-70 | 5/16-18 UNC | 20 FT-LBS |
| 21-4113-1X | 64-0141-71 | | |
| 21-4113-2X | | | |
| 21-4116-0X | 64-0142-10 | 3/8-16 UNC | 24 FT-LBS |
| 21-4121-0X | 64-0142-80 | 1/2-13 UNC | 62 FT-LBS |

| | |
|--|---|
| INSTALLATION INSTRUCTIONS |  VEKTEK, INC. 1334 E. SIXTH AVE. P.O. BOX 625 EMPORIA, KS. 66801 U.S.A. |
| | INSTRUCTIONS, INSTALL, CYL, CM, SLIP-IN SLIP IN |
| ASSEMBLIES AFFECTED 21-4106-XX 21-4109-XX 21-4111-XX 21-4113-XX 21-4116-XX 21-4121-XX | SIZE A |
| FORM FEG041-1S.AS1ZE, REV. B | |

| | | | | |
|--|------------------------|----------------|------------|----------|
| B | 5573 | RELEASE | BDC | 11/25/24 |
| REV | IN ACCORDANCE WITH ECN | EFFECTIVE DATE | REVISED BY | DATE |
| DRW BY: | DKC | | | |
| DATE: | 9/23/14 | | | |
| DRAWING STATUS: Released PRODUCTION APPROVED FOR RELEASED STATUS ONLY | | | | |

SHEET 3 OF 3