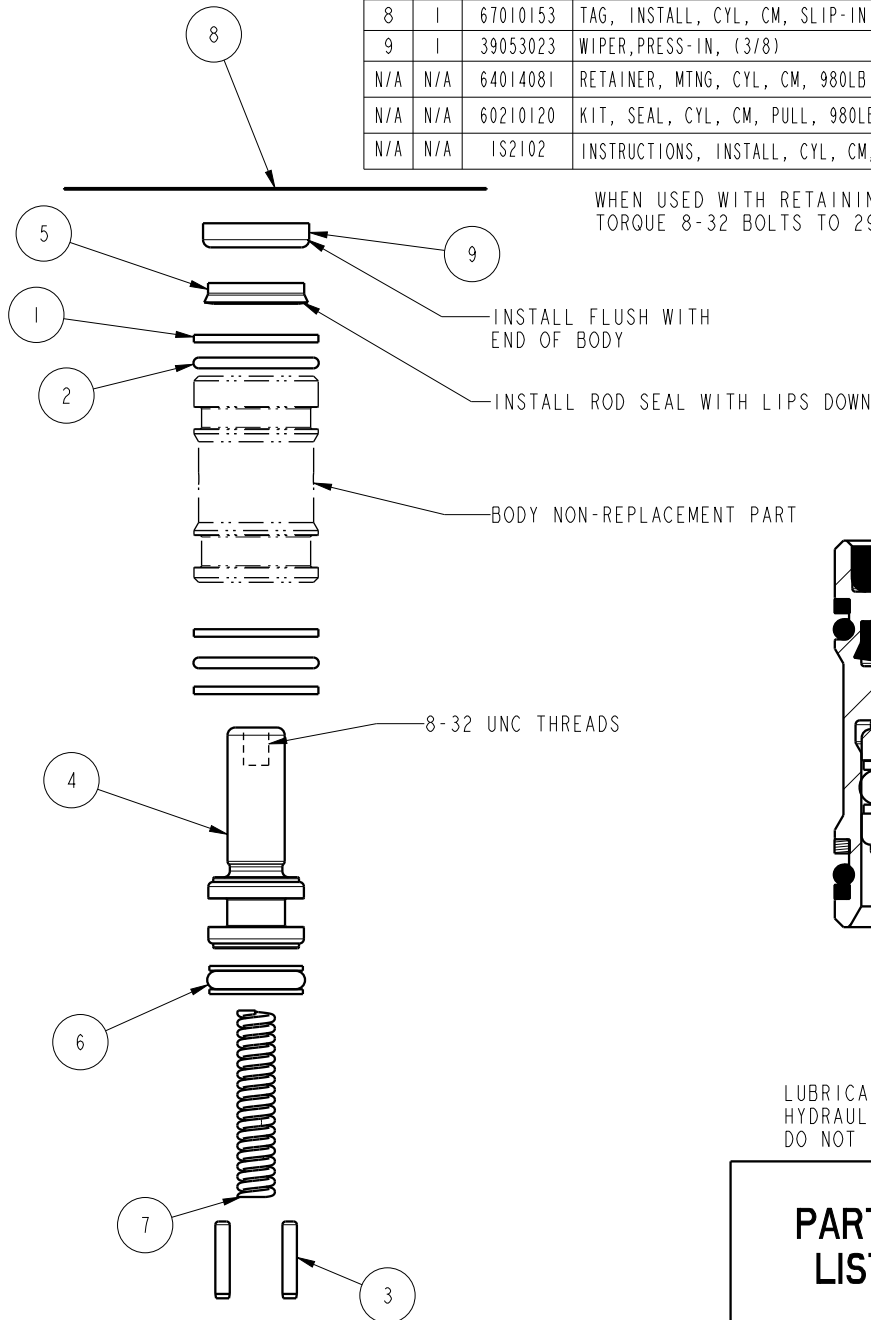


| NO | QTY | PART NO | DESCRIPTION | 21-4106-11 | 21-4106-21 | STD SEAL KIT |
|-----|-----|----------|--|------------|------------|--------------|
| 1 | 3 | 39F54015 | BU RING (-017) | X | X | X |
| 2 | 2 | 39050035 | O-RING, (-017) | X | X | X |
| 3 | 2 | 81590509 | PIN, DOWEL, 3/32 X 1/2, ALY, HDN | X | | |
| - | 2 | 90199983 | PIN, DOWEL, 3/32 X 3/4, ALY, HDN | | X | |
| 4 | 1 | 82100203 | PLUNGER, CYL, CM, PP, 1500LB | X | | |
| - | 1 | 82100303 | PLUNGER, CYL, CM, PP, 1500LB, STROKE .50 | | X | |
| 5 | 1 | 39052041 | SEAL, U-CUP, 3/8 X 1/8 X 5/8 | X | X | X |
| 6 | 1 | 39052046 | SEAL, T, (3/8 X 1/8 X 5/8) | X | X | X |
| 7 | 1 | 23355011 | SPRING, COMPRESSION | X | | |
| - | 1 | 23355028 | SPRING, COMPRESSION | | X | |
| 8 | 1 | 67010153 | TAG, INSTALL, CYL, CM, SLIP-IN | X | X | X |
| 9 | 1 | 39053023 | WIPER, PRESS-IN, (3/8) | X | X | X |
| N/A | N/A | 64014081 | RETAINER, MTNG, CYL, CM, 980LB | N/A | N/A | |
| N/A | N/A | 60210120 | KIT, SEAL, CYL, CM, PULL, 980LB | N/A | N/A | NOTED |
| N/A | N/A | IS2102 | INSTRUCTIONS, INSTALL, CYL, CM, SLIP-IN | N/A | N/A | N/A |

ITEM 7 USED FOR SINGLE ACTING ONLY. IF USING IN SINGLE ACTING CONFIGURATION: RETAINER 64014080 MAY BE USED.



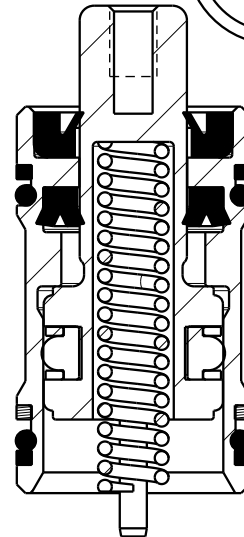
WHEN USED WITH RETAINING RING P/N 64-0140-81 TORQUE 8-32 BOLTS TO 29 IN.-LBS

INSTALL FLUSH WITH END OF BODY

INSTALL ROD SEAL WITH LIPS DOWN

BODY NON-REPLACEMENT PART

8-32 UNC THREADS



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

PARTS LIST



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

ASSEMBLIES AFFECTED

21-4106-11
21-4106-21

PARTS LIST, ASSY, CYL, CM, PULL, 980LB, .25 STROKE

SLIP IN 8-32

SIZE
A

PL21101

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 | | |

FORM FEG035_PL_ASIZE, REV. B

SHEET 1 OF 1

CAVITY AND INSTALLATION INSTRUCTIONS

PLEASE READ PRIOR TO OPERATION

Cavity Forming

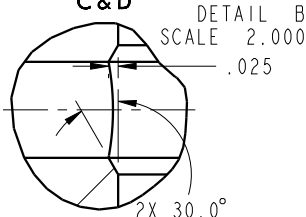
-It is recommended that all cavities be prepared using a ball hone such as a *Flex-Hone™.

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

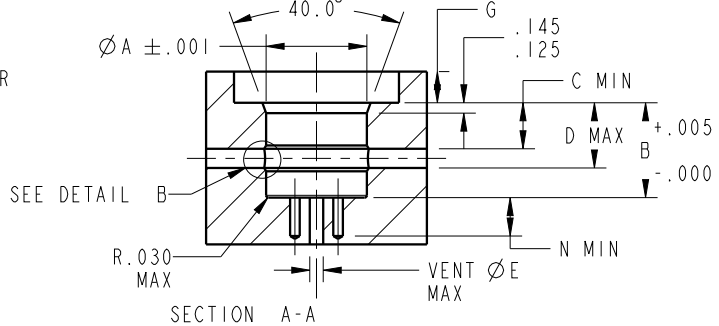
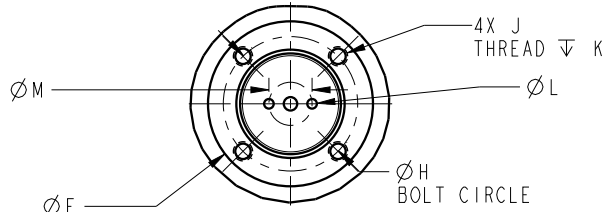
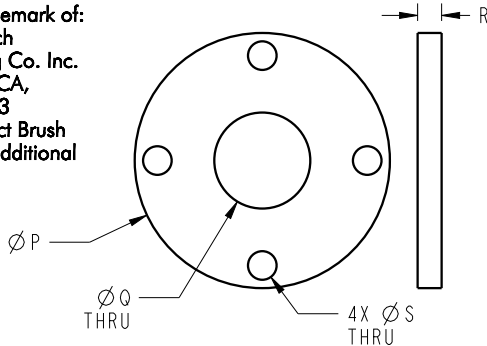
-Intersecting feed holes should be adequately deburred and chamfered to prevent seal damage.

*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 PRODUCTION APPROVED FOR RELEASED STATUS ONLY | | | |
| DATE: 9/23/14 | | | | |

| |
|-----------------------|
| 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

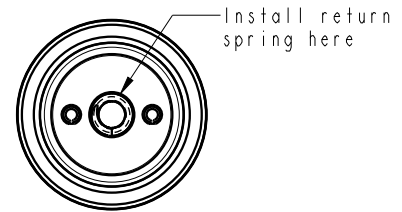
-It is recommended that all cavities be prepared using a ball hone such as dFlex-Hone™. This will deburr and round sharp edges to prevent seal damage and prepare cavity for cylinder installation.

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

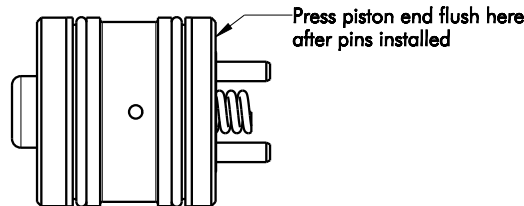
Installation

1. Lubricate all seals with non-silicone grease (recommended) or clean hydraulic oil.
2. 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 | | |




3. 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.



- a. Press cylinder into cavity until plunger begins to extend ensuring cylinder goes in evenly to prevent cavity or seal damage.
 - b. 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.
 - c. Remove bolt and jam nut. Visually inspect spring through threaded hole in plunger to verify return spring is properly positioned.
4. Press cylinder body until flush with the start of the cavity. Stop if an increase in resistance is felt.
 - a. 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. | |
| | ASSEMBLIES AFFECTED | INSTRUCTIONS, INSTALL, CYL, CM, SLIP-IN |
| 21-4106-XX 21-4109-XX 21-4111-XX 21-4113-XX 21-4116-XX 21-4121-XX | SLIP IN | SIZE A |
| FORM FEG041-1S.AS1ZE, REV. B | | REV B |

| | | | | |
|---------------|--|----------------|------------|----------|
| 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 | | | |

SHEET 3 OF 3