



MAINTENANCE SPECIFICATION

NYR-158

INSTRUCTIONS FOR OVERHAUL OF
KM-2 VENT VALVES

ISSUE NO. 4
DATE: DECEMBER 18, 2003

MAINT. SPEC. NYR-158
12 PAGES

A. APPLICABLE VALVES

This procedure describes the overhaul of valve P/N 753284, but is applicable to all of the valves in the following list. Steps that may not apply to all valves are indicated by an asterisk (*).

<u>Part Number</u>	<u>Drawing number</u>	<u>Description</u>
704770	N9275	Vent Valve (VV) assy. KM2 with pipe bracket and non plug style Vent Protector (VP).
705076	N9450	VV Assy. KM2 with Adapter Tee and non plug style VP.
705136	N9490	VV Assy. KM2 with Adapter Tee and plug style VP.
705376	N9656	VV Assy. KM2 with Adapter Tee, extension, and plug style VP.
705435	N9684	VV Assy. KM2 with pipe bracket and plug style VP.
709920	N9567	VV Assy. KM2 with Dual Face Adapter Tee and non plug style VP.
748715	VV-389	Vent Valve Portion (VVP) KM2.
752095	VV-407	VVP KM2 with plug style VP.
753284	VV-414	VVP KM2 with extension and plug style VP.
760876	760876	VVP KM2 with Dual Face Adapter Tee and non plug style VP.
768482	768482	VVP KM2 with Adapter Tee, extension, and plug style VP.
773652	773652	VVP KM2 with Bracket & Flange, extension, and plug style VP.

B. TOOLS & LUBRICANTS REQUIRED

1. Wrench, Open End, 1/2"
2. Wrench, Open End, 9/16"
3. Wrench, Open End, 3/4"
4. Wrench, Socket, 9/16"
5. Wrench, Socket, 5/8"
6. Screwdriver, Flat
7. Wrench, Torque, Minimum Range 10-35 Ft.-lbs.
8. No. 2 Silicone Grease (ex: Dow Corning M55 O-Ring Lubricant)
9. Key-Tite Pipe Compound
10. Moly Lit Lubricant and Anti-Seize Compound (Spec. No, M-2)

C. DISASSEMBLING

1. Remove six screws (2), then remove vent valve cover (21), cover gasket (20), spring (19), and spring equalizer (18). Discard gasket (20).
2. Remove fulcrum pin (17) from side of body (11).
 - (a) Remove exhaust valve and lever assembly (12 thru 16) from body (11). Do not remove the exhaust valve (13) from exhaust valve lever (15) unless required.
 - (1) Remove vent valve seal (5) from exhaust valve (13) by unscrewing retainer (12). Discard vent valve seal (5).
 - (2) To remove the exhaust valve (13), press out pin (16) and then disassemble exhaust valve (13), spring (14), and lever (15).
- * 3. Remove vent protector assembly (24, 25, and 26) from elbow (23).
 - (a) Remove elbow (23) from nipple (22).
 - (b) Remove nipple (22) from body (11).
- * 4. Remove and discard both pop rivet (26) and seal (25).
5. Remove body (11) from the diaphragm housing (1) by removing four screws (2).
6. Remove diaphragm piston assembly (3 thru 10) from diaphragm housing (1).
 - (a) Hold piston stem (3) with an open end wrench, then remove nut and pusher (10) from piston stem (3) by turning with another open end wrench. Then remove diaphragm follower (9), diaphragm (8), piston (6), and washer (4) from the piston stem (3). Discard diaphragm (8).
 - (b) Remove vent valve seal (5) and felt strainer (7) from piston (6). Discard vent valve seal (5) and felt strainer (7).

D. CLEANING, INSPECTING, AND REPAIRING

1. Wash all parts of vent valve in a suitable solvent that will dissolve oil or grease and permit all the parts to be thoroughly cleaned without abrasion, (i.e. mineral spirits). Then blow dry with a jet of dry, compressed air.
2. Replace all rubber parts and choke felt.
3. Replace parts that are cracked, broken, cut, worn, damaged, or in such a condition as would result in unsatisfactory operation.

To assist in determining if wear or damage has occurred to the wearing parts of this assembly, the allowable tolerances for these parts are listed in the text that follows. If a part fails to meet a requirement, the part should be replaced.

- (a) Piston Stem Guide (1). (See Figure NYR-158-1)
 - Piston stem guide in diaphragm housing (1) inside diameter not to be greater than 0.771" and have a smooth surface finish with no scratches, nicks, or dents.
 - (b) Lever (15). (See Figure NYR-158-2)
 - Lever (15) inside hole diameters not to be greater than 0.286".
 - (c) Exhaust Valve (13). (See Figure NYR-158-3)
 - Exhaust valve (13) inside hole diameter not to be greater than 0.298".
 - (d) Exhaust Valve Pin (16). (See Figure NYR-158-4)
 - Pin (16) outside diameter not to be less than 0.282".
 - (e) Fulcrum Pin (17). (See Figure NYR-158-5)
 - Fulcrum pin (17) outside diameter not to be less than 0.275" and have a smooth surface finish with no scratches, nicks, or dents.
4. Replace springs if rusted, distorted, or taken a permanent set.

Examine all springs to verify conformity to spring details as listed below and replace where necessary.

Ref. No.		Approx. Outside	Approx. Wire Mat'l. Coils	Approx. Free Dia.	Approx. No. of Dia.
14	Brz.	13/64"	1/32"	31/64"	7-1/4
19	Stl.	15/16"	3/32"	2-11/16"	7-1/2

LOAD INSPECTION

Ref. No.	Deflect From/To	Load Increase
14	3/8" - 5/16"	7-1/2 - 8-1/2 Oz.
19	1-11/16" - 1-1/32"	9 lb. 7-1/4 oz. - 11 lb. 8-3/4 oz.

CAUTION: WHEN INSPECTING SPRINGS, DO NOT COMPRESS SPRINGS BEYOND THE TEST DEFLECTION HEIGHT, OTHERWISE DAMAGE TO SPRINGS MAY OCCUR.

5. Chokes and piston stem passages must be checked for cleanliness and blown out with a jet of compressed air. Metallic tools must not be used for cleaning chokes, as their size must not be changed. The nominal choke sizes are: Choke in piston (6) - #78 drill; cross drill holes in piston stem (3) - 1/16" drill; axial drilled hole in piston stem (3) - 1/8" drill.
6. Inspect exhaust valve seat in body (1) to insure that it is not scratched, scored, or otherwise damaged.
7. Note that the wear pin is present in the end of the nut and pusher (10) and is smooth and does not exhibit any wear patterns.
8. Examine exhaust valve lever (15) and note that the pusher contact button is present and is not damaged. If button is missing or loose, replace lever.

E. LUBRICATING AND ASSEMBLING

1. During assembling, lightly lubricate the piston stem (3) with No. 2 Silicone Grease (ex: Dow Corning M55 O-Ring Lubricant)

CAUTION: HEAVY APPLICATIONS OF LUBRICANT CAN RESTRICT AIR FLOW THROUGH CHOKE FELT AND AIR PASSAGES.

2. Install new vent valve seal (5) and new felt strainer (7) into their respective places in diaphragm piston (6).
3. Assemble diaphragm piston assembly (3 thru 10) while holding piston stem (3) upright and placing washer (4), piston (6), new diaphragm (8), and diaphragm follower (9) over the piston stem (3). Thread nut and pusher (10) onto threaded end of piston stem (3). While holding piston stem (3) with an open end wrench, tighten into assembly with a second open end wrench applied to nut and pusher (10). Tighten nut and pusher (10) to 26 - 28 ft.-lbs. (dry torque).
4. Apply a light film of No. 2 Silicone Grease (ex: Dow Corning M55 O-Ring Lubricant) Specification to piston stem (3). Insert diaphragm piston assembly (3 thru 10) with piston stem into piston stem guide in diaphragm housing (1). Place diaphragm (8) bead into its groove in top of diaphragm housing (1).
5. Place valve body (11) down over nut and pusher (10) and secure body (11) in place on top of diaphragm housing with four screws (2). Tighten screws (2) to 18 - 22 ft.-lbs. (dry torque).
6. Place a new vent valve seal (5) in its counterbore in the exhaust valve (13) and secure in place with seal retainer (12). Tighten retainer (12) to 80 – 84 in. lb. (dry torque).
7. If exhaust valve (13) had previously been removed from lever (15), secure exhaust valve (13) with spring (14) to lever (15) with pin (16). Lubricate pin (16) with Moly-Lit Lubricant and Anti-Seize Compound, Spec. No. M-2.

NOTE: Exhaust valve (13) to move freely about lever (15) with no binding.

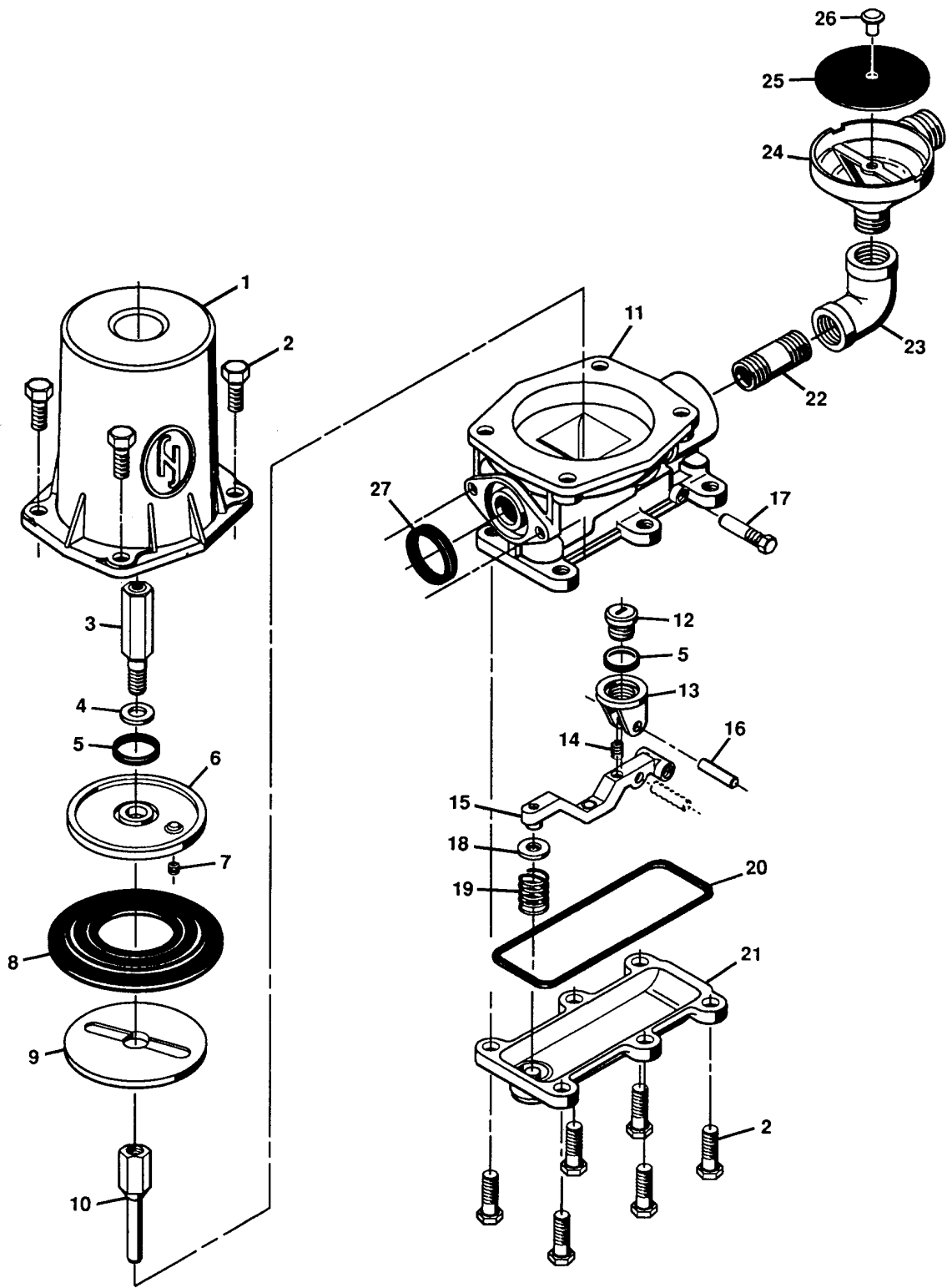
8. Apply a light film of Moly Lit Lubricant and Anti-Seize Compound (Spec. No, M-2) to the shaft of fulcrum pin (16), the pinhole in lever (15) and the pin hole in body (11). Apply lightly, Key-Tite pipe compound to threads of fulcrum pin (17).
9. Place exhaust valve and lever assembly (12 thru 16) in place with vent valve seal (5) resting squarely on its seat within valve body (11). Align lever (15) fulcrum pin hole with fulcrum pin hole in body (11) and fasten to body (11) by inserting and threading fulcrum pin (17) into body (11). Tighten pin (17) to 18 - 22 ft.-lbs. (dry torque).
10. Place new cover gasket (20) in its groove in valve body (11).
11. Place spring equalizer (18) resting over button at end of exhaust valve lever (15). Then place spring (19) with its lower end centrally resting on spring equalizer (18).
12. With the upper end of spring (19) placed in its seat in cover (21), push cover squarely down on the top face of body (11) and secure in place with six screws (2). Tighten screws (2) to 18 - 22 ft.-lbs. (dry torque).
- * 13. Lubricate with Key-Tite pipe compound and thread nipple (22) into exhaust opening in body (11).
 - (a) Lubricate with Key-Tite pipe compound and thread elbow (23) into nipple (22).
 - (b) Lubricate with Key-Tite pipe compound and thread vent protector (24) into elbow (23).
- * 14. Install new rubber seal (25) and pop rivet (26) onto vent protector (24).

F. TESTING

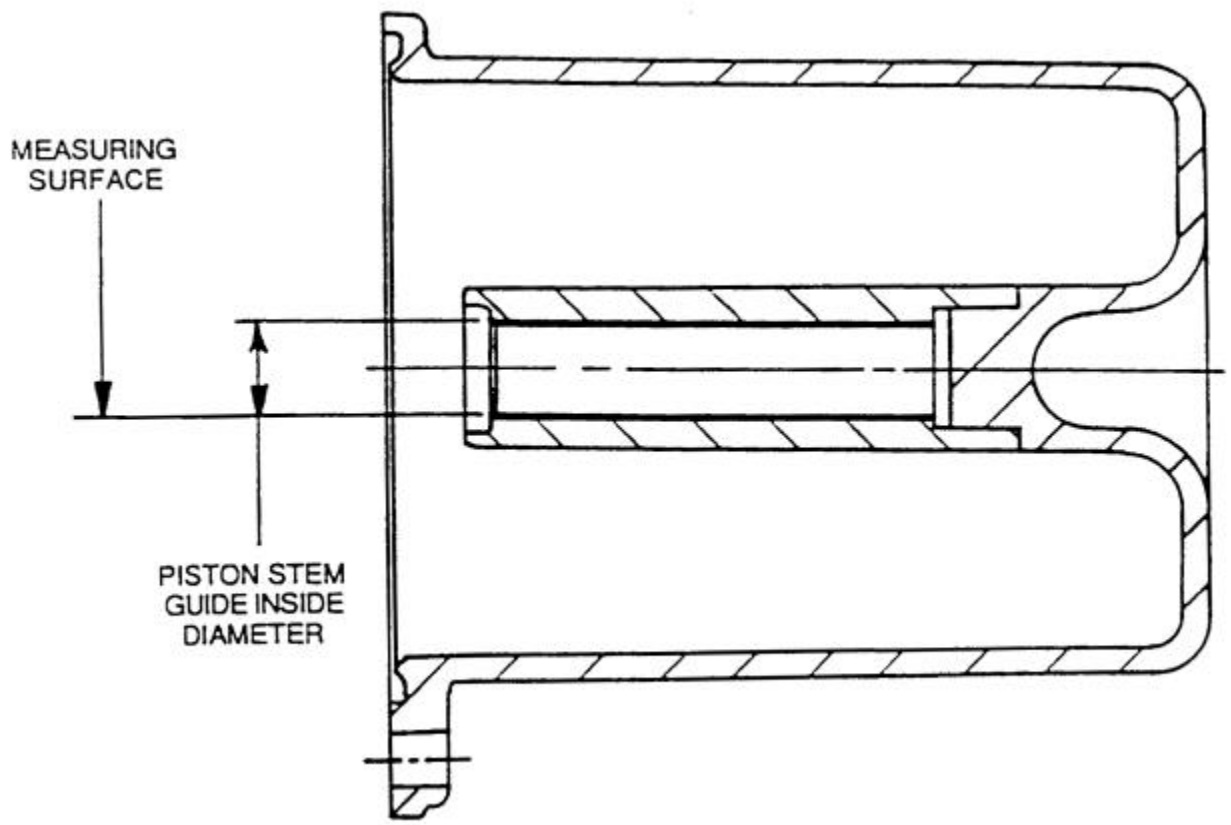
At the completion of the above, the vent valve portion must be tested in accordance with the test Code NYT-677-C.

KEY FOR FIGURE NYR-158

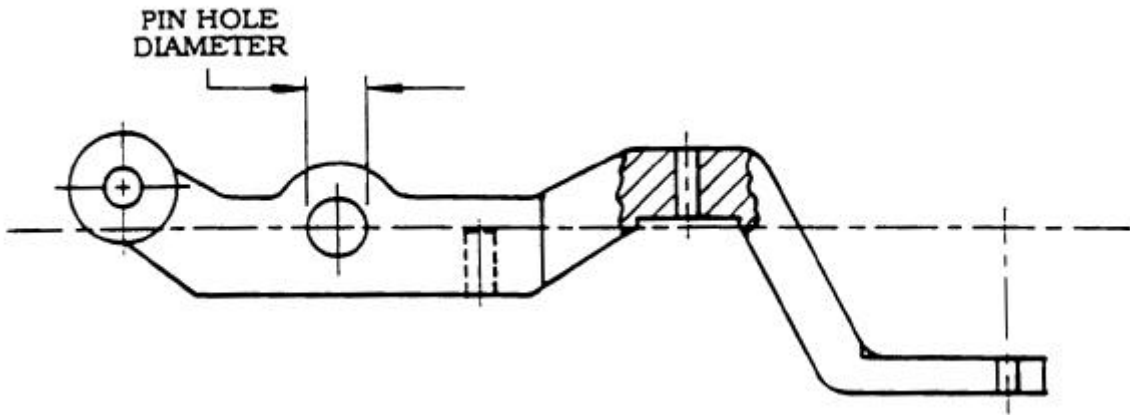
1. Diaphragm Housing
2. Cap Screw
3. Piston Stem
4. Washer
5. Vent Valve Seal
6. Piston
7. Filter
8. Diaphragm
9. Diaphragm Follower
10. Nut and Pusher
11. Body
12. Retainer
13. Exhaust Valve
14. Spring
15. Lever
16. Exhaust Valve Pin
17. Fulcrum Pin
18. Spring Equalizer
19. Spring
20. Cover Gasket
21. Vent Valve Cover
22. Pipe Nipple
23. Elbow
24. Vent Protector Body
25. Seal
26. Rivet
27. Ring Gasket



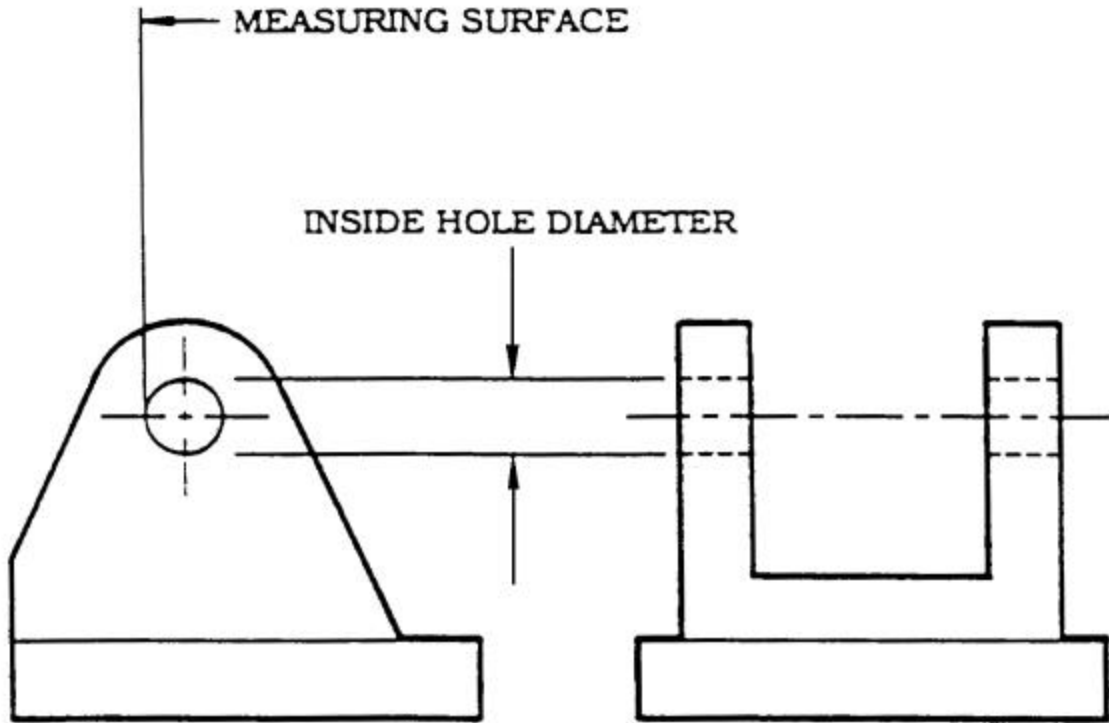
NYR-158 KM-2 VENT VALVE



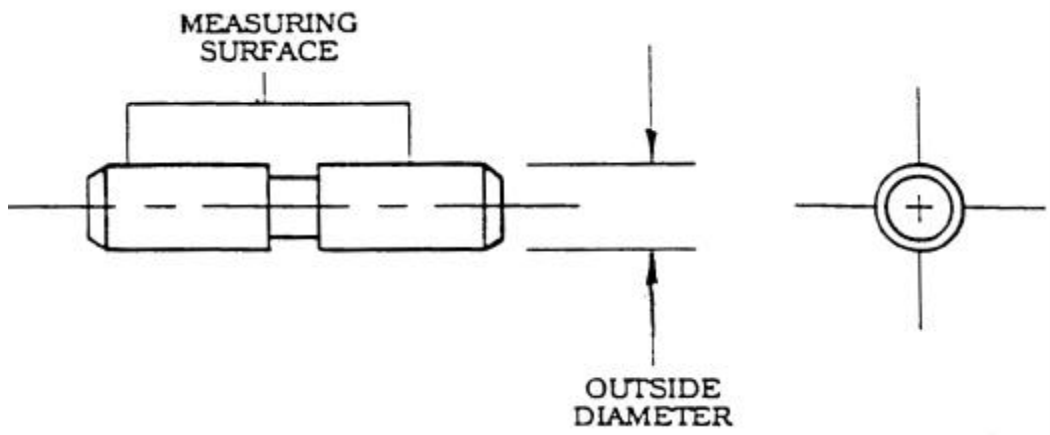
NYR-158-1 PISTON STEM GUIDE



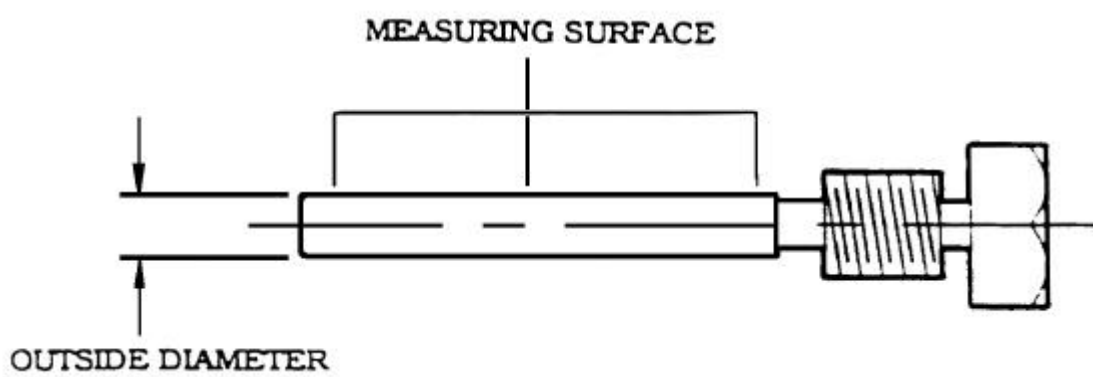
NYR-158-2 LEVER



NYR-158-3 EXHAUST VALVE



NYR-158-4 EXHAUST VALVE PIN



NYR-158-5 FULCRUM PIN

REVISION PAGE:

NYR-158

ISSUE NO. 1
OCTOBER 17, 1972

Original Issue

ISSUE NO. 2
JUNE 1, 1989

Rewrote Issue No. 1

ISSUE NO. 3
NOVEMBER 11, 1997

Added step 'A' Applicable Valves, rewrote steps 'B' thru 'E' to include added valves. Added proper lubrication procedures.

ISSUE NO. 4
DECEMBER 18, 2003

Step E-3 26-28 ft. lb. was 23-26 ft. lb.
Step E-5 & E-12, 18-22 ft lb. was 10-15 ft lb.
Step E-6 80-84 in. lb was 30-35 ft. lb.
Pg. 2 & 5, Key-Tite pipe compound was Black Grease.

THIS PAGE LEFT BLANK INTENTIONALLY