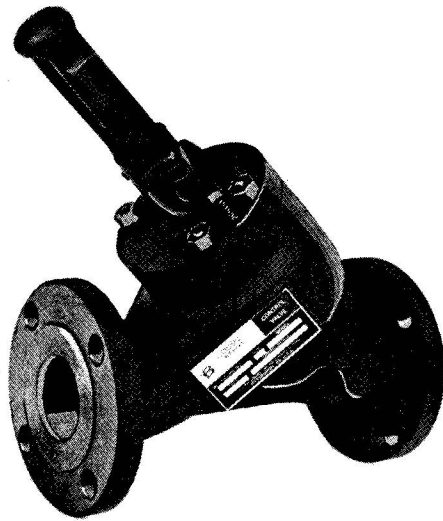


Model 700A Series Control Valves

Sizes 2" through 12"



Daniel customer service

Location	Telephone number	Fax number
North America/Latin America	+1.713.467.6000	+1.713.827.4805
Daniel Customer Service	+1.713.827.6413	+1.713.827.6312
USA (toll free)	+1.888.356.9001	+1.713.827.3380
Asia Pacific (Republic of Singapore)	+65.6777.8211	+65.6777.0947.0743
Europe (Stirling Scotland, UK)	+44 (0)1786.433400	+44 (0)1786.433401
Middle East Africa (Dubai, UAE)	+971 4 8118100	+971 4 8865465
Daniel Measurement and Control, Inc. (Headquarters) 11100 Brittmoore Park Drive Houston, TX 77041 USA http://www.daniel.com		

Email

- Customer Service: tech.service@emersonprocess.com
- Customer Support: daniel.cst.support@emerson.com
- Asia-Pacific: danielap.support@emerson.com
- Europe: DanielEMA.CST@EmersonProcess.com

Return Material Authorization (RMA)

A Return Material Authorization (RMA) number must be obtained prior to returning any equipment for any reason. Download the RMA form from the Support Services web page by selecting the link below.

<http://www2.emersonprocess.com/EN-US/BRANDS/DANIEL/SUPPORT-SERVICES/Pages/Support-Services.aspx>

Important safety instructions

Daniel Measurement and Control, Inc. (Daniel) designs, manufactures and tests products to function within specific conditions. Because these products are sophisticated technical instruments, it is important that the owner and operation personnel must strictly adhere both to the information printed on the product and to all instructions provided in this manual prior to installation, operation, and maintenance.

Daniel also urges you to integrate this manual into your training and safety program.

BE SURE ALL PERSONNEL READ AND FOLLOW THE INSTRUCTIONS IN THIS MANUAL AND ALL NOTICES AND PRODUCT WARNINGS.

WARNING!

Failure to follow the installation, operation or maintenance instructions for a Daniel product could lead to serious injury or death from explosion or exposure to dangerous substances.

To reduce the risk:

- **Comply with all information on the product, in this manual, and in any local and national codes that apply to this product.**
- **Do not allow untrained personnel to work with this product.**
- **Use Daniel parts and work procedures specified in this manual.**

Product owners (Purchasers):

- Use the correct product for the environment and pressures present. See technical data or product specifications for limitations. If you are unsure, discuss your needs with your Daniel representative.
- Inform and train all personnel in the proper installation, operation, and maintenance of this product.
- To ensure safe and proper performance, only informed and trained personnel should install, operate, repair and maintain this product.
- Verify that this is the correct instruction manual for your Daniel product. If this is not the correct documentation, contact Daniel at 1-713-827-6314. You may also download the correct manual from: <http://www.Daniel.com>.
- Save this instruction manual for future reference.
- If you resell or transfer this product, it is your responsibility to forward this instruction manual along with the product to the new owner or transferee.
- ALWAYS READ AND FOLLOW THE INSTALLATION, OPERATIONS, MAINTENANCE AND TROUBLESHOOTING MANUAL(S) AND ALL PRODUCT WARNINGS AND INSTRUCTIONS.
- Do not use this equipment for any purpose other than its intended service. This may result in property damage and/or serious personal injury or death.

Product operation (Personnel):

- To prevent personal injury, personnel must follow all instructions of this manual prior to and during operation of the product.
- Follow all warnings, cautions, and notices marked on, and supplied with, this product.
- Verify that this is the correct instruction manual for your Daniel product. If this is not the correct documentation, contact Daniel at 1-713-827-6314. You may also download the correct manual from: <http://www.daniel.com>.
- Read and understand all instructions and operating procedures for this product.
- If you do not understand an instruction, or do not feel comfortable following the instructions, contact your Daniel representative for clarification or assistance.
- Install this product as specified in the INSTALLATION section of this manual per applicable local and national codes.
- Follow all instructions during the installation, operation, and maintenance of this product.
- Connect the product to the appropriate pressure and electrical sources when and where applicable.
- Ensure that all connections to pressure and electrical sources are secure prior to and during equipment operation.
- Use only replacement parts specified by Daniel. Unauthorized parts and procedures can affect this product's performance, safety, and invalidate the warranty. "Look-a-like" substitutions may result in deadly fire, explosion, release of toxic substances or improper operation.
- Save this instruction manual for future reference.

Notice

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PRODUCT NAMES USED HEREIN ARE FOR MANUFACTURER OR SUPPLIER IDENTIFICATION ONLY AND MAY BE TRADEMARKS/ REGISTERED TRADEMARKS OF THESE COMPANIES.

Warranty and Limitations

1. LIMITED WARRANTY: Subject to the limitations contained in Section 2 herein, Daniel Measurement & Control, Inc. ("Daniel") warrants that the licensed firmware embodied in the Goods will execute the programming instructions provided by Daniel, and that the Goods manufactured by Daniel will be free from defects in materials or workmanship under normal use and care and Services will be performed by trained personnel using proper equipment and instrumentation for the particular Service provided. The foregoing warranties will apply until the expiration of the applicable warranty period. Goods are warranted for twelve (12) months from the date of initial installation or eighteen (18) months from the date of shipment by Daniel, whichever period expires first. Consumables and Services are warranted for a period of 90 days from the date of shipment or completion of the Services. Products purchased by Daniel from a third party for resale to Buyer ("Resale Products") shall carry only the warranty extended by the original manufacturer. Buyer agrees that Daniel has no liability for Resale Products beyond making a reasonable commercial effort to arrange for procurement and shipping of the Resale Products. If Buyer discovers any warranty defects and notifies Daniel thereof in writing during the applicable warranty period, Daniel shall, at its option, correct any errors that are found by Daniel in the firmware or Services or repair or replace F.O.B. point of manufacture that portion of the Goods or firmware found by Daniel to be defective, or refund the purchase price of the defective portion of the Goods/Services. All replacements or repairs necessitated by inadequate maintenance, normal wear and usage, unsuitable power sources or environmental conditions, accident, misuse, improper installation, modification, repair, use of unauthorized replacement parts, storage or handling, or any other cause not the fault of Daniel are not covered by this limited warranty, and shall be at Buyer's expense. Daniel shall not be obligated to pay any costs or charges incurred by Buyer or any other party except as may be agreed upon in writing in advance by Daniel. All costs of dismantling, reinstallation and freight and the time and expenses of Daniel's personnel and representatives for site travel and diagnosis under this warranty clause shall be borne by Buyer unless accepted in writing by Daniel. Goods repaired and parts replaced by Daniel during the warranty period shall be in warranty for the remainder of the original warranty period or ninety (90) days, whichever is longer. This limited warranty is the only warranty made by Daniel and can be amended only in a writing signed by Daniel. THE WARRANTIES AND REMEDIES SET FORTH ABOVE ARE EXCLUSIVE. THERE ARE NO REPRESENTATIONS OR WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, AS TO MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE OR ANY OTHER MATTER WITH RESPECT TO ANY OF THE GOODS OR SERVICES. Buyer acknowledges and agrees that corrosion or erosion of materials is not covered by this warranty.

2. LIMITATION OF REMEDY AND LIABILITY: Daniel shall not be liable for damages caused by delay in performance. The remedies of Buyer set forth in this agreement are exclusive. In no event, regardless of the form of the claim or cause of action (whether based in contract, infringement, negligence, strict liability, other tort or otherwise), shall Daniel's liability to Buyer and/or its customers exceed the price to Buyer of the specific goods manufactured or services provided by Daniel giving rise to the claim or cause of action. Buyer agrees that in no event shall Daniel's liability to Buyer and/or its customers extend to include incidental, consequential or punitive damages. The term "consequential damages" shall include, but not be limited to, loss of anticipated profits, revenue or use and costs incurred including without limitation for capital, fuel and power, and claims of Buyer's customers.

Essential Instructions

Read this page before proceeding!

Daniel designs, manufactures and tests its products to meet many national and international standards. Because these instruments are sophisticated technical products, you must properly install, use and maintain them to ensure they continue to operate within their normal specifications. The following instructions must be adhered to and integrated into your safety program when installing, using and maintaining Daniel Products.

- Read all instructions prior to installing, operating and servicing the product. If this instruction manual is not the correct manual, telephone 1-713-467-6000 and the requested manual will be provided. Save this instruction manual for future reference.
- If you do not understand any of the instructions, contact your Daniel representative for clarification.
- Follow all warnings, cautions and instructions marked on and supplied with the product.
- Inform and educate your personnel in the proper installation, operation and maintenance of the product.
- Install your equipment as specified in the installation instructions of the appropriate instruction manual and per applicable local and national codes. Connect all products to the proper electrical and pressure sources.
- To ensure proper performance, use qualified personnel to install, operate, update, program and maintain the product.
- When replacement parts are required, ensure that qualified people use replacement parts specified by Daniel. Unauthorized parts and procedures can affect the product's performance and place the safe operation of your process at risk. Look-alike substitutions may result in fire, electrical hazards or improper operation.
- Ensure that all equipment doors are closed and protective covers are in place, except when maintenance is being performed by qualified persons, to prevent electrical shock and personal injury.

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Section 1 INTRODUCTION

1-1 Usage

- 4" and 6" Angle Valves
- 503 or 503W Basic Valve
- 703 or 703W Basic Valve
- 702 or 702A Check Valves
- 702W or 702AW Check Valves
- 710 or 710W On-Off Solenoid Control Valve
- 711 or 711W Normally Open Solenoid Control Valve
- 730W Differential Altitude Control Valve
- 731W Modulating Altitude C.V. — Single Acting
- 732W On-Off Altitude C.V. — Single Acting
- 740W Modulating Pilot Operated Float Control Valve
- 741W On-Off Float Operated C.V. (Non-Adjustable Level Range)
- 742W On-Off Float Operated C.V. (Adjustable Level Range)
- 750 or 750W Pressure Control Valve
- 754 or 754W Normally Open Differential Control Valve
- 760 or 760W Back Pressure Control Valve
- 770 or 770W Differential C.V. (Normally Closed)
- 780 or 780W Rate of Flow Control Valve
- 787A, 788A, 789A Quantrol Valve
- 787B, 788B, 789B Quantrol Valve
- 787C, 788C, 789C Quantrol Valve

1-2 Principle of Operation

The Daniel Valve operates on a balanced-piston principle. When pressures on both sides of the valve piston are equalized, a spring (located on top of the piston) acts as a differential force and closes the main valve piston. When the pressure against the bottom of the piston exceeds the pressure (plus the force of the spring) exerted against the top of the piston, spring tension is overcome and the valve opens.

It is from this principle of operation that all variations of control with the use of pilot valves and accessories are made. All piloting arrangements control the pressure applied to the top of the main valve piston. This control enables the valve to perform a variety of control functions such as, rate of flow, pressure relief, surge control, etc.

1-3 Specifications

WARNING: Do not operate this instrument in excess of the specifications listed below. Failure to heed warning may result in serious personal injury or damage to the equipment.

Ratings

Pressure Class

125 or 250 lb. ANSI, high tensile iron
150 or 300 lb. ANSI, steel

Maximum Safe Working Pressure

125 lb. iron body - 175 psi (1207 kPa)
250 lb. iron body - 400 psi (2759 kPa)
150 lb. steel body - 275 psi (1896 kPa)
300 lb. steel body - 720 psi (4964 kPa)

Maximum Safe Working Temperature

Standard: 150°F (66°C)
Optional: Valves for up to 250°F (121°C)

Size: 2" through 12"

Materials of Construction

Main Valve Body

High Tensile Iron - ASTM-159
Steel - ASTM-A216-GR-WCB

Main Valve Cylinder Assembly

Ductile Iron, Nickel coated

Main Valve Piston

Standard: 125, 150 and 300 lb. Valves - Bronze
Optional: 125, 150 and 300 lb. Valves - Stainless Steel

Seat Ring

Steel, Nickel-coated

O-Rings

Standard: Viton™ Dynamic, Buna-N static
Optional: Neoprene™, EPR, all Viton, all Buna-N

Other Internal Parts

Stainless Steel

Section 2 INSTALLATION

2-1 Receipt of Shipment

When the equipment is received, the outside of the packing case should be checked for any damage incurred during shipment. If the packing case is damaged, the local carrier should be notified immediately regarding his liability.

Remove the envelope containing the packing list. Carefully remove the equipment from the packing case. Make sure spare or replacement parts are not discarded with the packing material. Inspect for damaged or missing parts.

The "accessory" assembly will be shipped as a complete unit where possible. If not, it will be broken apart into as few assemblies as is practical. Refer to the packing list for information as to what is supplied for your particular valve. In the event that any items are missing from your shipment, contact your local Daniel Representative or Sales Office. Provide him with the Serial Number and Sales Order Number.

2-2 Return Shipment

To be able to process returned goods quickly and efficiently, it is **IMPORTANT** that you provide essential information (See front of manual).

Section 3 MAINTENANCE

3-1 Disassembly of Control Valve

The following tools will be needed to disassemble and reassemble the valve:

- Socket Wrench
- Adjustable Wrench
- T Handle or Extended Allen Wrench
- Screwdriver
- Rubber Hammer
- Arbor Press

3-2 Disassembly of Cylinder Assembly With Valve Position Indicator

WARNING: No attempt should be made to service this valve without referring to the pictorial examples in this manual. Failure to comply with this procedure can result in serious personal injury and/or damage to the equipment.

NOTE: Numbers in parentheses refer to Figure 4-1 and Table 4-1 Parts List.

1. Remove two (2) screws (Item 27) and lockwashers (Item 5) from indicator guard (Item 26).
2. Grasp indicator guard (Item 26) and remove from valve assembly along with microswitch (Item 40), screw (Item 41), washer (Item 42), mounting plate (Item 43), screw (Item 44) and washer (Item 45).
3. Remove O-Ring (Item 24), upper bearing (Item 25), trip dog (Item 38) and set screw (Item 39).
4. Remove nuts (Item 32) holding cylinder head (Item 20) in valve body (Item 30).
5. Alternately tighten each jack screw (Item 31) one-half turn until cylinder assembly is free of valve body (Item 30). Reference Figure 3-1.

CAUTION: These screws should be tightened evenly to prevent damaging the cylinder O-rings and binding the cylinder assembly (Item 29).

6. Using both hands, pull the cylinder assembly (Item 29) straight out along its axis. Be careful not to lose O-ring (Item 33) when removing cylinder assembly.

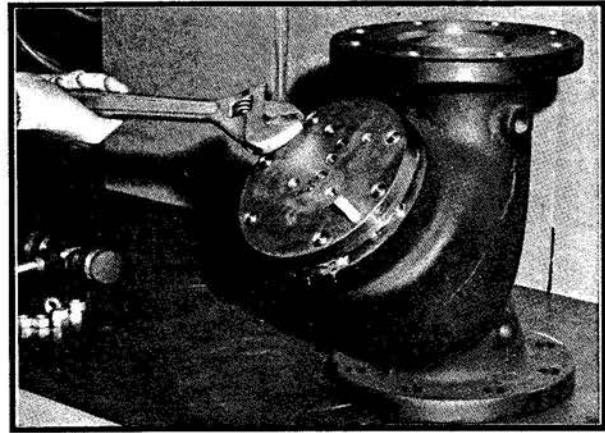


Figure 3-1 - Alternately Tightening Jack Screws



Figure 3-2 - Removing Cylinder Assembly

Completely remove the two jack screws (Item 31). Reference Figure 3-2.

7. With extreme caution, depress piston against spring until rectangular ports are cleared. An arbor press may be necessary to depress piston depending on pressure exerted by main valve spring. Block piston in open position by inserting suitable wedges through port openings. Reference Figure 3-3.

NOTE: Use soft material - **NO STEEL.**

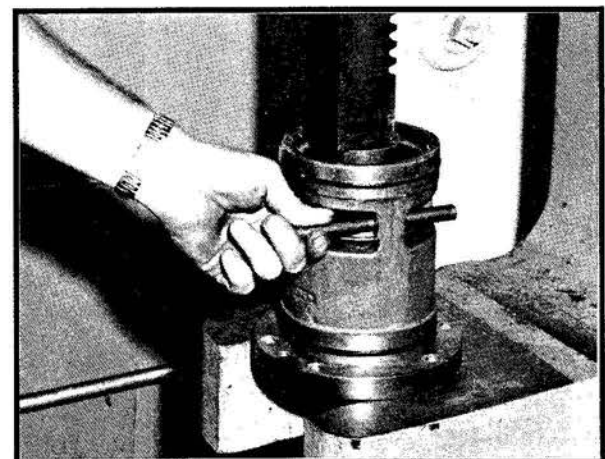


Figure 3-3 Inserting Wedges Through Port Openings

8. Remove spirolax retaining ring (Item 1) from cylinder (Item 16). Seal ring (Item 2) and O-ring (Item 3) may be removed. Reference Figures 3-4, 3-5 and 3-6.

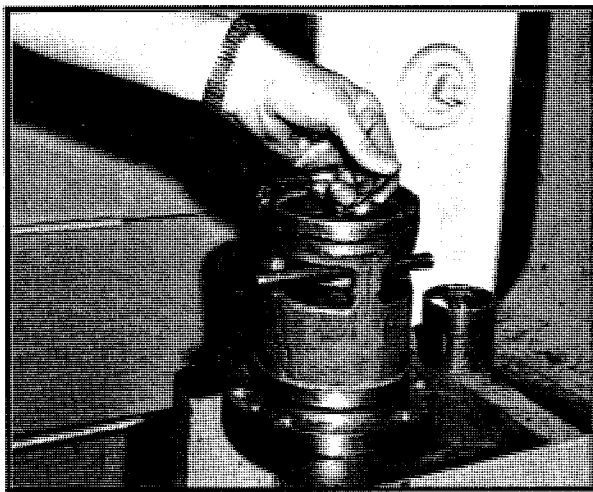


Figure 3-4 Removing Retaining Ring

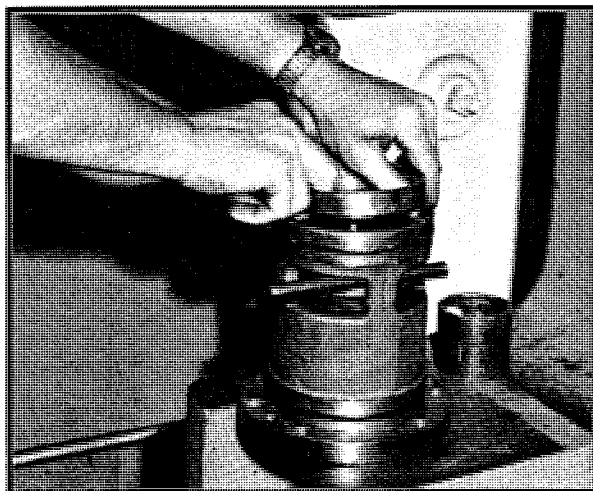


Figure 3-5 Removing Seal Ring

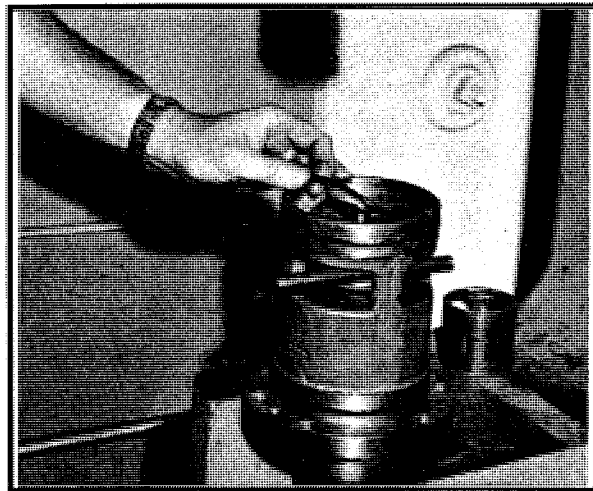


Figure 3-6 Removing O-Ring

9. With piston blocks removed, piston (Item 7) and spring (Item 14) can be removed from cylinder (Item 16). Reference Figures 3-7, 3-8 and 3-9.

CAUTION: Remove piston blocks with caution as spring exerts considerable force against piston.

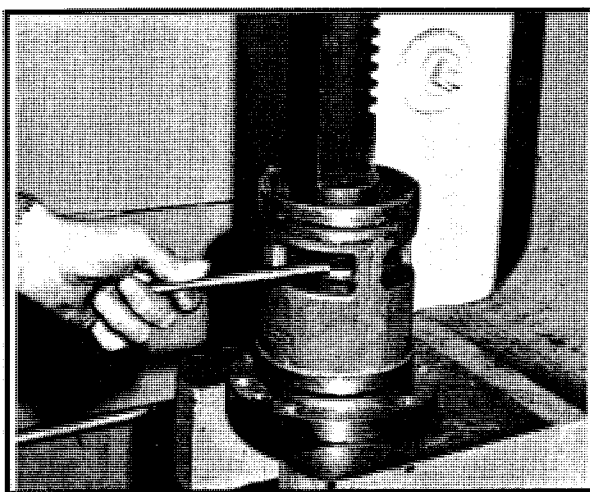


Figure 3-7 Remove Piston Blocks

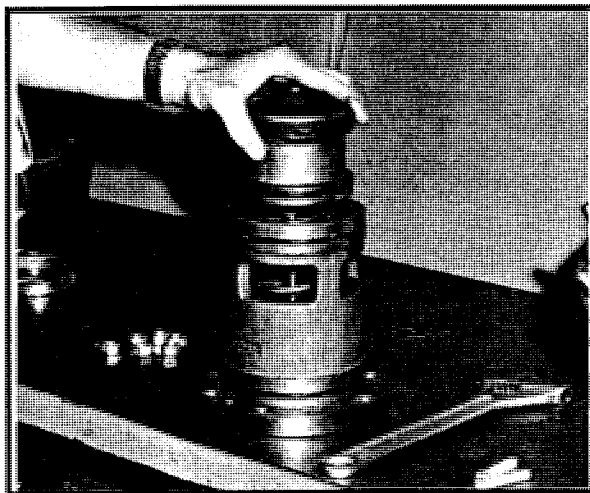


Figure 3-8 Removing Piston

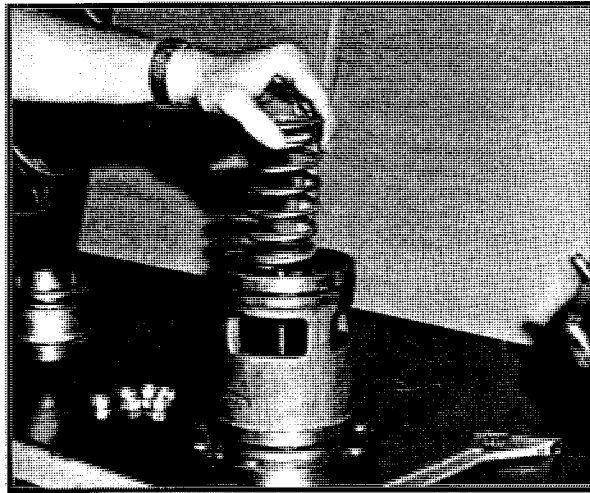


Figure 3-9 Removing Spring

NOTE: Step 10 applies to 2" size only.

10. Remove screw (Item 4), lockwasher (Item 5) and washer (Item 6) from adaptor (Item 10) allowing indicator stem (Item 13) to be removed from piston. Remove indicator stem (Item 13) and piston connector (Item 11) from adaptor (Item 10) by removing roll pin (Item 28). Piston connector (Item 11) may be removed from indicator stem (Item 13) by loosening nut (Item 12).

NOTE: Step 11 applies to all sizes except 2".

11. Remove indicator stem (Item 13) with roll pin (Item 28) and piston cap (Item 36) as an assembly after removing three screws (Item 37) from piston cap (Item 36). The indicator stem (Item 13) may be removed from the piston cap (Item 36) by driving the roll pin (Item 28) out of the piston cap. Remove O-rings (Item 46).
12. Remove indicator guard adaptor (Item 21) from cylinder head (Item 20) by turning counter-clockwise.
13. Remove cylinder (Item 16) from cylinder head (Item 20) by removing four (4) screws (Item 22) and O-rings (Item 23). Reference Figures 3-10 and 3-11.

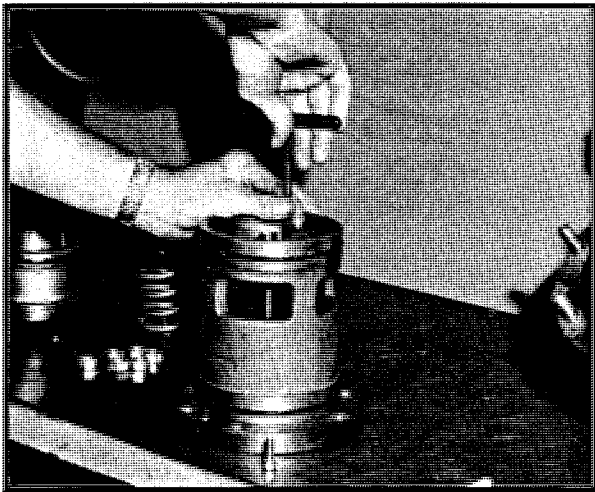


Figure 3-10 Removing Four Screws and O-Rings

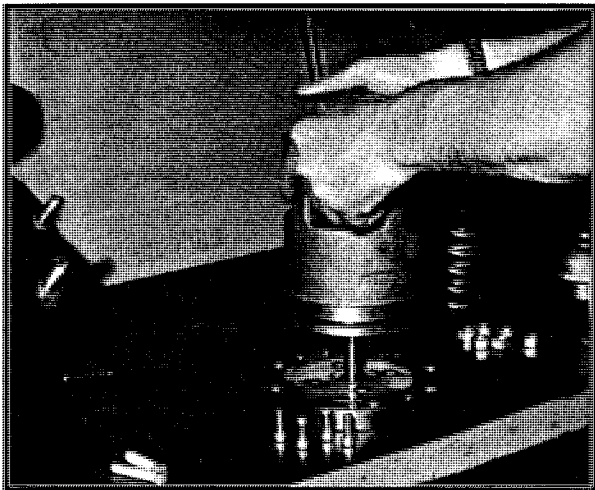


Figure 3-11 Removing Cylinder From Cylinder Head

3-3 Reassembly of Cylinder Assembly With Valve Position Indicator

To prevent nicking of O-rings during reassembly, coat all O-rings with a light grease or any high-grade lubricant. All O-rings should be carefully examined for cuts, nicks or distortion during reassembly and replaced if found defective.

NOTE: Steps 1 and 2 apply to the 2" size only.

1. Install seal spacer (Item 19) and O-ring (Item 18) in proper place on cylinder head (Item 20). Replace O-ring (Item 17) in cylinder (Item 16). Install cylinder (Item 16) on cylinder head (Item 20) with screws (Item 22).
2. Install piston connector (Item 11) on indicator stem (Item 13) and tighten with lockwasher (Item 5) and nut (Item 12). Install piston connector (Item 11) in adaptor (Item 10) and secure with roll pin (Item 28). Install O-ring (Item 9) on adaptor (Item 10). Attach adaptor (Item 10) to piston (Item 7) with washer (Item 6), lockwasher (Item 5) and screw (Item 4).

NOTE: Steps 3 and 4 apply to all sizes except the 2"

3. Install O-rings (Items 18 and 23) on cylinder head (Item 20). Install cylinder (Item 16) on cylinder head (Item 20) with screws (Item 22).
4. Install piston cap (Item 36) on indicator stem (Item 13) with roll pin (Item 28) and place O-ring (Item 46) in nose of piston (Item 7) and secure with three screws (Item 37).
5. Install two (2) O-rings (Item 15) on cylinder (Item 16).
6. Install O-ring (Item 8) on piston (Item 7).
7. Install spring (Item 14) and piston (Item 7) in cylinder (Item 16) and again block piston in open position.

CAUTION: With extreme care, depress piston against spring until rectangular ports are cleared. An arbor press may be necessary to depress piston depending on pressure exerted by main valve spring. Block piston in open position by inserting suitable wedges through port openings. Be careful not to cut O-rings.

8. Insert O-ring (Item 3) and sealing ring (Item 2) in cylinder (Item 16).
9. Install spirolox retaining ring (Item 1) in cylinder, start one end in groove and gradually wind into place. When all of ring is in groove, use a punch applied to the end of the ring and tap sharply to completely seat the ring. Remove piston blocks - again, use **CAUTION**.
10. Install cylinder assembly (Item 29) in valve body and secure with nuts (Item 32).
11. Install indicator guard adaptor (Item 21) on cylinder head (Item 20) by turning clockwise. Next, install O-ring (Item 24) on upper bearing (Item 25), place bearing trip dog (Item 38) on indicator stem.

12. Install indicator guard (Item 26) on indicator guard adaptor (Item 21) and secure with two (2) lockwashers (Item 5) and screws (Item 27). Replace two (2) jack screws (Item 31).

3-4 Disassembly of Cylinder Assembly Without Valve Position Indicator

WARNING: No attempt should be made to service this valve without referring to the pictorial examples in this manual. Failure to complete with this procedure can result in serious person injury and/or damage to the equipment.

1. Remove nuts (Item 32). The entire cylinder assembly, including seat ring, may now be removed as a unit by utilizing the two (2) jack screws (Item 31) provided in the cylinder head. Reference Figure 3-12.

NOTE: Alternately tighten each jack screw (Item 31) one-half turn until cylinder assembly is free of valve body (Item 30).

CAUTION: These screws should be tightened evenly to prevent damaging the cylinder O-rings and binding the cylinder assembly (Item 29).

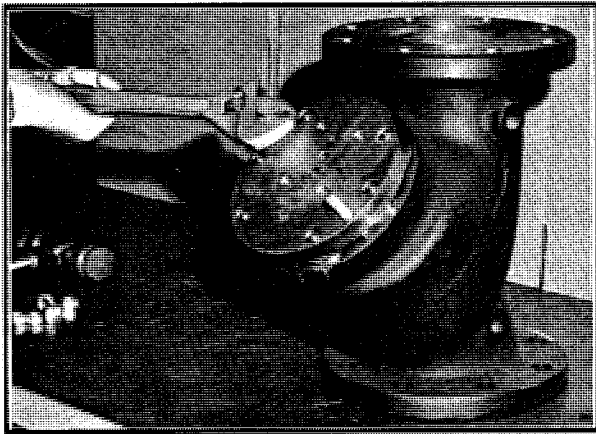


Figure 3-12 - Alternately Tightening Jack Screws

2. Using both hands, pull the cylinder assembly (Item 29) straight out along its axis. Be careful not to lose O-rings (Item 33) when removing the cylinder assembly (Item 29). Reference Figure 3-13.

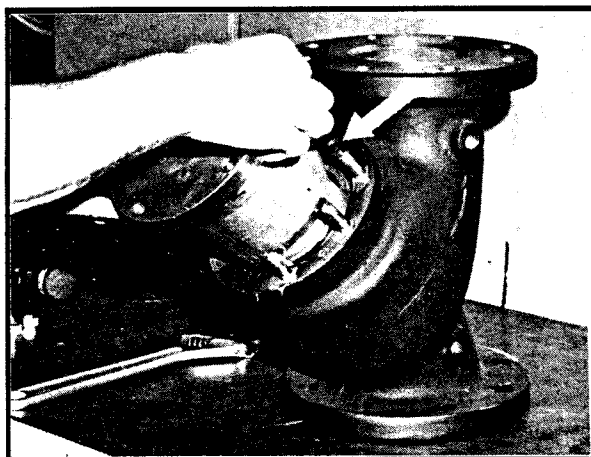


Figure 3-13 - Removing Cylinder Assembly

3. With extreme **CAUTION**, depress piston against spring until rectangular ports are cleared. An arbor press may be necessary to depress piston, depending on pressure exerted by the main valve spring. Block piston in open position by inserting suitable wedges through port openings. Reference Figure 3-14.

NOTE: Use soft material - **NO STEEL**

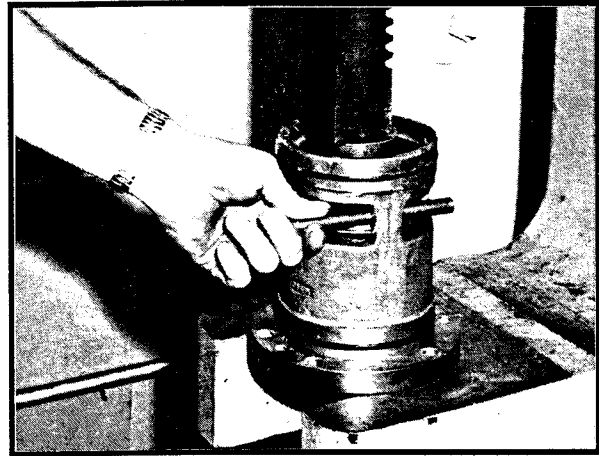


Figure 3-14 Inserting Wedges Through Port Openings

4. Remove spirolox retaining ring (Item 1) from cylinder (Item 16). Seat ring (Item 2) and O-ring (Item 3) may now be removed. Reference Figures 3-15, 3-16 and 3-17.

CAUTION: Remove piston blocks with caution, as spring exerts considerable force against piston.

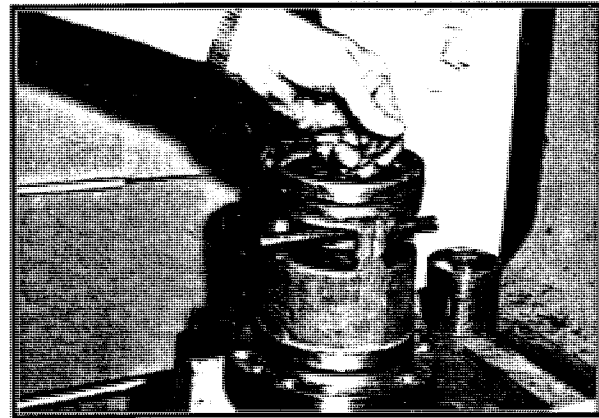


Figure 3-15 Removing Retaining Ring

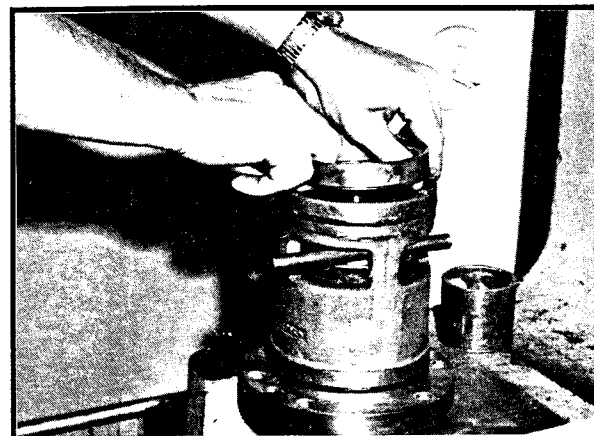


Figure 3-16 Removing Seal Ring

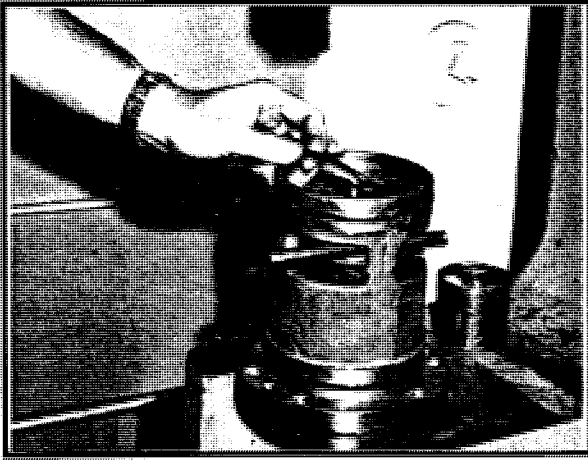


Figure 3-17 Removing O-Ring

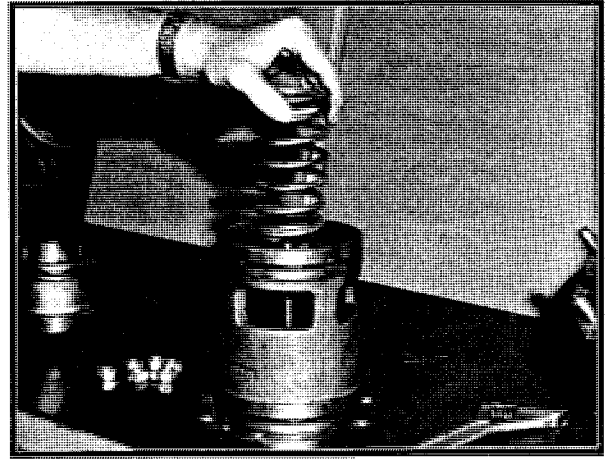


Figure 3-20 Removing Spring

5. With piston blocks removed, piston (Item 7) and spring (Item 14) can be removed from cylinder (Item 16). Reference Figures 3-18, 3-19 and 3-20.
6. Remove cylinder (Item 16) from cylinder head (Item 20) by removing four (4) screws (Item 22) and O-rings (Item 23). Reference Figures 3-21 and 3-22.

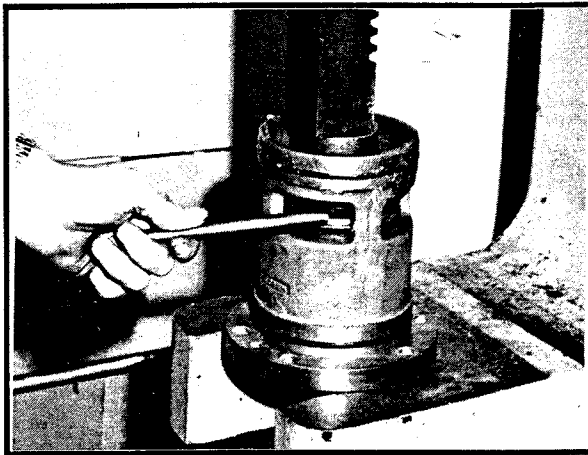


Figure 3-18 Removing Piston Blocks

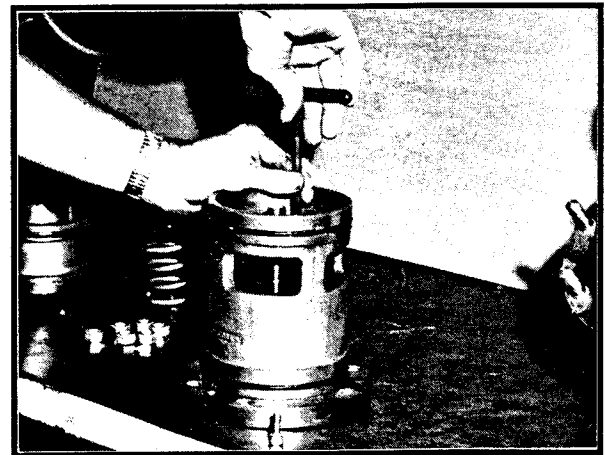


Figure 3-21 Removing Four Screws and O-Rings

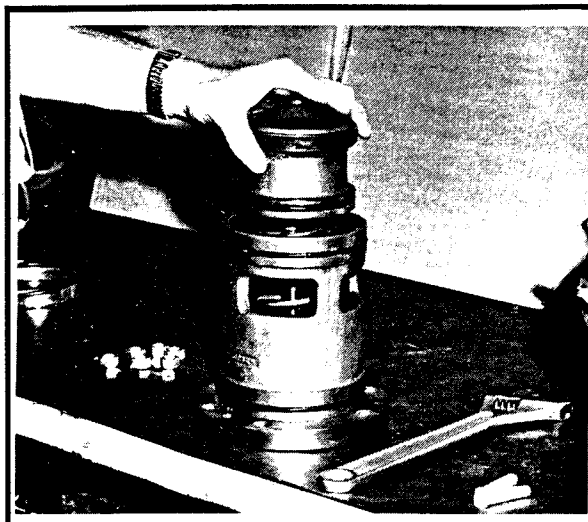


Figure 3-19 Removing Piston

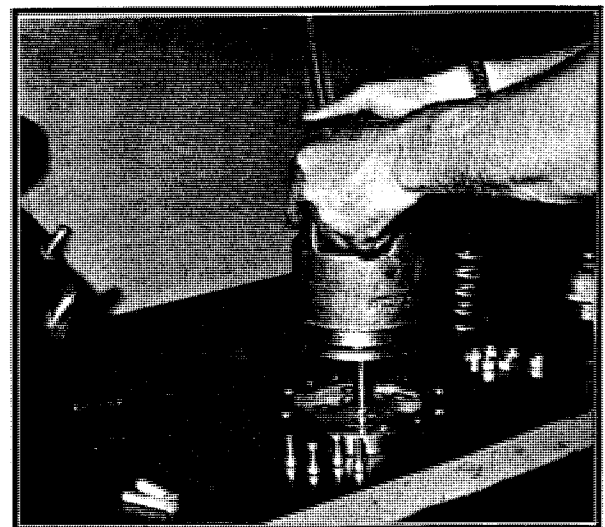


Figure 3-22 Removing Cylinder From Cylinder Head

3-5 Reassembly of Cylinder Assembly Without Valve Position Indicator

To prevent nicking of O-rings during reassembly, coat all O-rings with a light grease or any high-grade lubricant. All O-rings should be carefully examined for cuts, nicks or distortion during reassembly and replaced if found to be defective.

1. Install seal spacer (Item 19), O-ring (Item 18) on cylinder head (Item 20), O-ring (Item 17) in cylinder (Item 16) and install cylinder (Item 16) on cylinder head (Item 20) with O-rings (Item 23) and screws (Item 22).
2. Install O-rings (Item 15) on cylinder (Item 16).
3. Install spring (Item 14) and piston (Item 7) in cylinder (Item 16) and, again, block piston in open position.

CAUTION: With extreme care, depress piston against spring until rectangular ports are cleared. An arbor press may be necessary to depress the piston, depending on pressure exerted by the main valve spring. Block piston in open position by inserting suitable wedges through port openings. Be careful not to cut O-rings.

4. Insert O-ring (Item 3) and sealing ring (Item 2) in cylinder (Item 16).
5. Install spirolox retaining ring (Item 1) in cylinder (Item 16), start one end in groove and gradually wind into place. When all of ring is in groove, use a punch applied to end of ring and tap sharply to completely seat the ring. Remove piston blocks - again, use **CAUTION**.
6. Install cylinder assembly (Item 29) in valve body and secure with nuts (Item 32). Replace two (2) jack screws (Item 31).

Trademarks

Kalrez E. I. DuPont deNemours & Co.
Neoprene E. I. DuPont deNemours & Co.
Rosemount Rosemount, Inc.
Teflon E. I. DuPont deNemours & Co.
Viton E. I. DuPont deNemours & Co.

Section 4 PARTS LIST

Table 4-1 Parts List Continued - Model 700A Series Control Valves Sizes 2" Through 12"

Item No.	Description	Qty. Req.	2" Part Number	3" Part Number	4" Part Number	6" Part Number	8" Part Number	10" Part Number	12" Part Number
1	Spirolox Ring	1	156460	156458	156459	156461	156464	156468	156470
2	Sealing Ring, Bronze	1	520026-200	530026-200	540026-200	560026-200	580026-200	600026-200	620026-200
	Sealing Ring, Steel	1	520026-500	530026-500	540026-500	560026-500	580026-500	600026-400	620026-400
*3	O-Ring ¹	1	152085	152100	152080	157003	157006	157014	157017
4	Screw	1	151010-019						
5	Lockwasher	()	152119 (4)	152119 (2)	152119 (2)	152119 (2)	152119 (2)	152119 (2)	152119 (2)
6	Washer	1	151857						
**7	Piston With Indicator ²	1	520084-200	530024-200	540024-200	560024-200	580024-200	600024-200	620024-200
	Piston Without Indicator ²	1	520057-200	530057-200	540057-200	560057-200	580057-200	600057-200	620057-200
*8	O-Ring ¹	1	152073	152075	152078	157002	157005	157015	157018
9	O-Ring ¹	1	152070						
10	Adaptor	1	540086						
11	Piston Connector	1	540087						
12	Nut	1	151544-019						
13	Indicator Stem ³	1	520083	530183	540183	560183	580183	600183	620183
14	Spring, Heavy (Green)	1	520059	530059	540059	560059	580059		
	Spring, Medium (Bronze)	1	520029	530029	540029	560029	580029	600029	620029
	Spring, Light (Blue)	1	520031	530031	540031	560031	580031	600031	620031
*15	O-Ring ¹	2	157000	152095	152094	152079	157004	157013	157019
16	Cylinder, Bronze 125-300 lb.	1	520021-200	530021-200	540021-200	560021-200	580021-200	600021-200	620021-200
	Cylinder, Ductile Iron 125-300 lb.	1	520021-400	530021-400	540021-400	560021-400	580021-500	600021-400	620021-400
	Cylinder, D.I. 787, 788 & 789 Valves	1	520471-400	530471-400	540471-400	560471-400	580021-400	600021-400	620021-400
17	O-Ring ¹	1	152061						
18	O-Ring ¹	1		157079	157078	157061	157061	157061	157061
19	Seal Spacer	1	530028						
20	Cylinder Head, Bronze	1	520056-200	530056-200	540056-200	560056-200	580056-200	600056-200	620056-200
	Cylinder Head, Steel	1	520056-500	530056-500	540056-500	560056-500	580056-500	600056-500	620056-500
21	Indicator Guard Adaptor, Bronze ³	1	540081-200	540081-200	540081-200	540081-200	540081-200	540081-200	540081-200
	Indicator Guard Adaptor, Steel ³	1	540081-500	540081-500	540081-500	540081-500	540081-500	540081-500	540081-500
22	Screw	()	151001-019 (3)	151010-019 (4)	151042 (4)	151042 (4)	151043 (4)	151043 (6)	151024-019 (6)
23	O-Ring ¹	()		152057 (4)	152070 (4)	152070 (4)	152071 (4)	152071 (6)	152090 (6)
*24	O-Ring ¹	1	152066	152066	152066	152066	152066	152066	152066
25	Upper Bearing, Bronze ⁴	1	540089-200	540089-200	540089-200	540089-200	540089-200	540089-200	540089-200
	Upper Bearing, Steel ⁴	1	540089-500	540089-500	540089-500	540089-500	540089-500	540089-500	540089-500
26	Indicator Guard Ductile Iron	1	540082-400	540082-400	540082-400	580082-400	580082-400	580082-400	580082-400
27	Screw	2	150727	150727	150727	150727	150727	150727	150727
28	Roll Pin	1	153540	153622	153622	153622	153622	153622	153622
29	Complete Cylinder Assy. w/Indicator								
	-Light Spring, 125-300 Ductile Iron	1	520170-420	530170-420	540170-420	560170-420	580170-420	600170-420	620170-420
	-Medium Spring, 125-300 Ductile Iron	1	520175-420	530175-420	540175-420	560175-420	580175-420	600175-420	620175-420
	-Heavy Spring, 125-300 Ductile Iron	1	520180-420	530180-420	540180-420	560180-420	580180-420	600180-420	620180-420
	-Light Spring, 125-300 Bronze	1	520170-220	530170-220	540180-220	560170-220	580170-220	600170-220	620170-220
	-Medium Spring, 125-300 Bronze	1	520175-220	530175-220	540175-220	560175-220	580175-220	600175-220	620175-220
	-Heavy Spring, 125-300 Bronze	1	520180-220	530180-220	540180-220	560180-220	580180-220	600180-220	620180-220
-Med. Spr., 780 Valves, 125-300, D.I.	1	520475-420	530475-420	540475-420	560475-420	580475-420	600475-420	620475-420	
30	Valve Body - 125 lb. Cast Iron	1	520001	530001	540001	560001	580001	600001	620001
	Valve Body - 250 lb. Cast Iron	1	522001	532001	542001	562001	582001	602001	622001
	Valve Body - 150 lb. Steel	1	521001	531001	541001	561001	581001	601001	621001
	Valve Body - 300 lb. Steel	1	523001	533001	543001	563001	583001	603001	623001
31	Jack Screw	2	150691	150695	150695	150695	150696	150698	150699
32	Nut	()	151546 (4)	151547 (4)	151547 (6)	151553 (10)	151558 (10)	151559 (12)	151560 (12)
*33	O-Ring ¹	1	152086	152086	152070	152070	152068	152068	152068
34	Stud	()	151309(4)	151305 (4)	151305 (6)	151347 (10)	151335 (10)	151345 (12)	151395 (12)
35	Pipe Plug	2	154721	154721	154721	154721	154704	154704	154704
36	Piston Cap	1		540053	540053	540053	540053	540053	540053

Parts List Continued On Next Page

Table 4-1 Parts List Continued - Model 700A Series Control Valves Sizes 2" Through 12"

Item No.	Description	Qty. Req.	2" Part Number	3" Part Number	4" Part Number	6" Part Number	8" Part Number	10" Part Number	12" Part Number
37	Screw	3		150333	150333	150333	150333	150333	150333
38	Trip Dog	1	460906	460906	460906	460906	460906	460906	460906
39	Set Screw	2	150975	150975	150975	150975	150975	150975	150975
40	Microswitch	1	6090	6090	6090	6090	6090	6090	6090
41	Screw	2	150725	150725	150725	150725	150725	150725	150725
42	Washer	2	152108	152108	152108	152108	152108	152108	152108
43	Mounting Plate	1	460902-001	460902-001	460902-001	460902-001	460902-001	460902-001	460902-001
44	Screw	2	150134	150134	150134	150134	150134	150134	150134
45	Washer	2	152259	152259	152259	152259	152259	152259	152259
46	O-Ring ¹	1		152048	152048	152048	152048	152048	152048
47	Upper Bearing	1	540189-500	540189-500	540189-500	540189-500	540189-500	540189-500	540189-500
48	Seal Retainer	1	540188-500	540188-500	540188-500	540188-500	540188-500	540188-500	540188-500
49	Back-Up Ring	2	157172	157172	157172	157172	157172	157172	157172
*50	O-Ring ¹	1	157012	157012	157012	157012	157012	157012	157012
*51	O-Ring ¹	1	152096	152096	152096	152096	152096	152096	152096

***Recommended Spare Parts**

****Does not include Indicator Stem, Item 13**

NOTES: ¹Part Number listed for O-Rings are Buna-N. For other O-Ring materials, add suffix as follows: EPR (use in place of Butyl) -005, PL (low temperature) -016, Viton-A -022, Neoprene -116

²For Stainless Steel Piston (Item 7), with or without indicator, use the base part number and change the suffix to -600.

³All 6" Two-Stage Electric Valves use extended Position Indicator Part No. 560183-001 and a longer Indicator Guard Part No. 580082-400.

⁴Purchased before November, 1982.

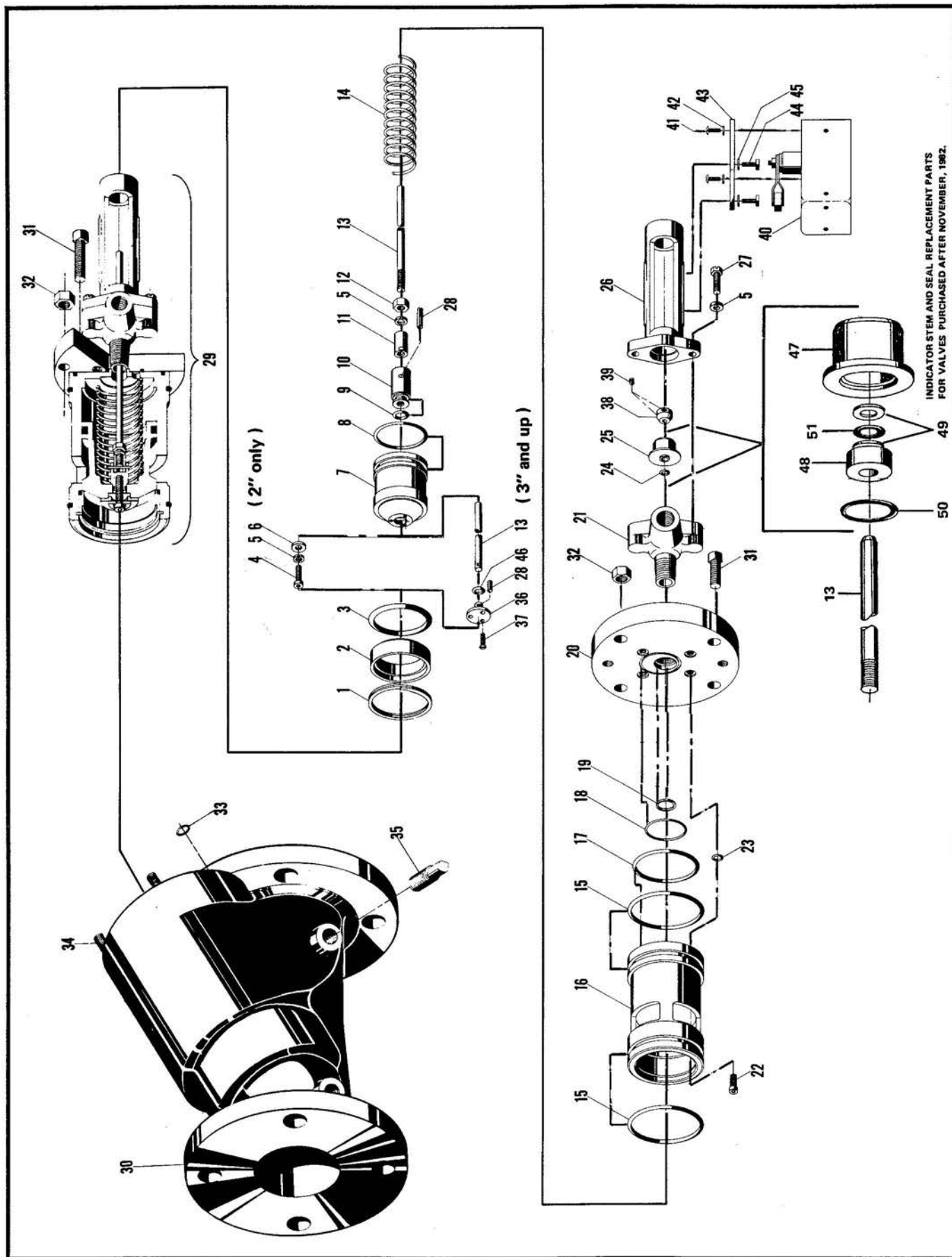


Figure 4-1 Parts Drawing - Series 700A Control Valves With Position Indicator

INDICATOR STEM AND SEAL REPLACEMENT PARTS
FOR VALVES PURCHASED AFTER NOVEMBER, 1962.

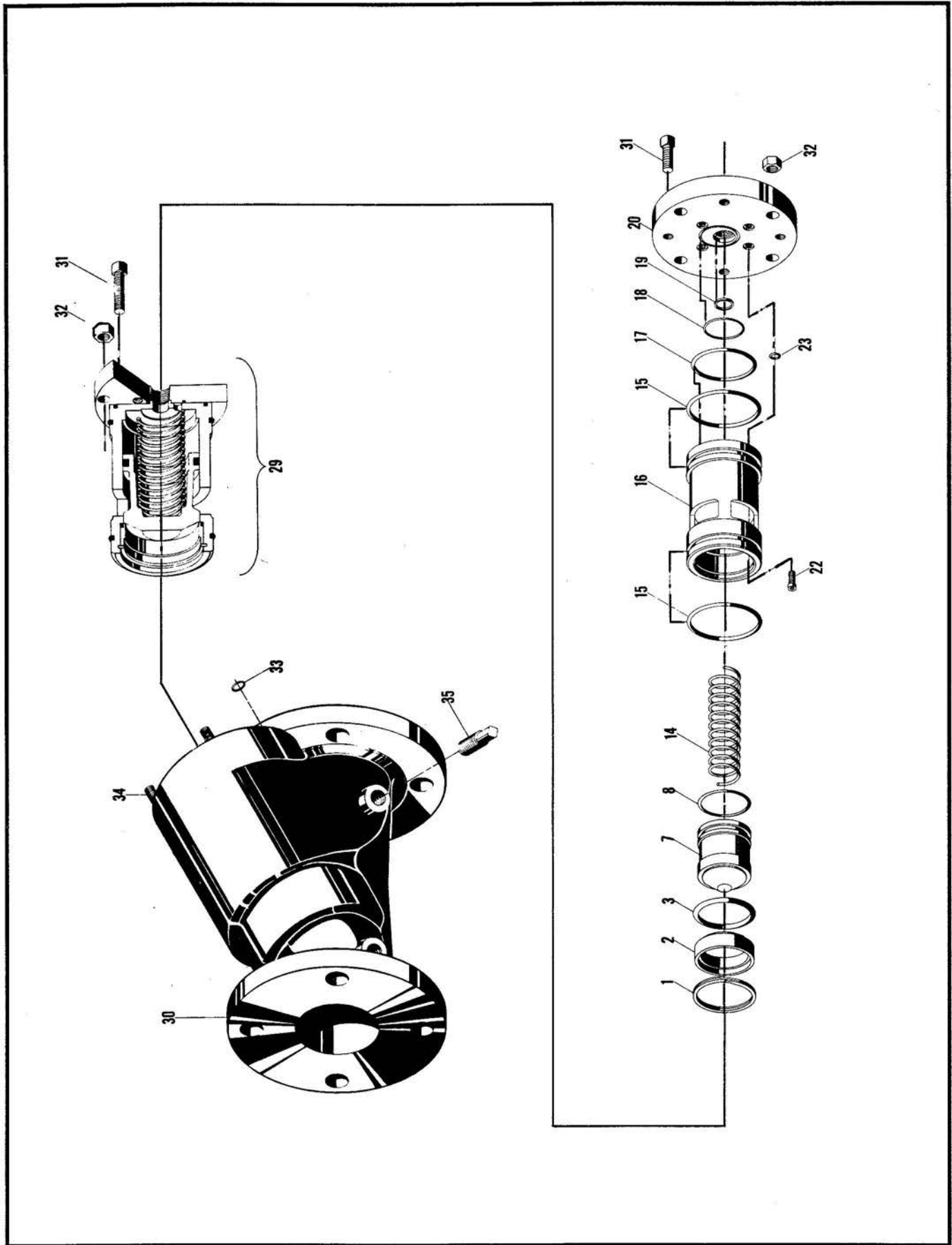


Figure 4-2 Parts Drawing - Series 700A Control Valves Without Position Indicator

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