

BREAKER SERVICE INC

1080-D Cypress St

LaHabra CA 90631

800-826-5250 office

888-267-7690 fax

Email: sales@BreakerService.com





We Specialize in Spare Parts for New & Obsolete
Substation Equipment Including Transformers
& Circuit Breakers

The following pages are only a representative sample of the type of parts that Breaker Service can provide from stock.

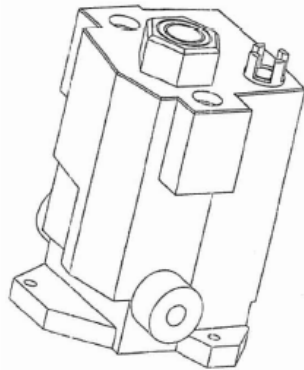
We have over 100,000 parts in stock.

Please call with your specific needs.

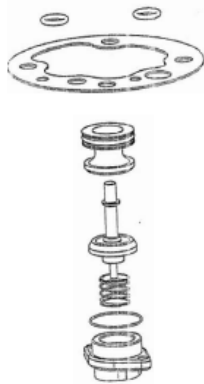


AA-7

MECHANISM



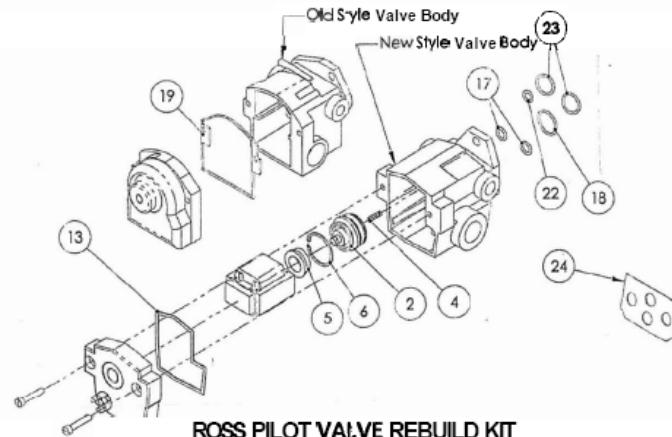
ROSS PILOT
BSI PART 37450AMK



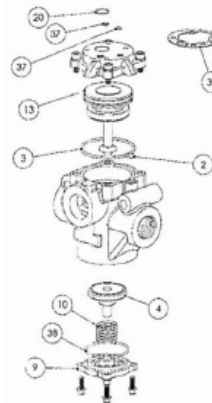
1/4, 3/8 & 1/2
BSI 37887AMK

ROSS MAIN CONTROL VALVE REPAIR KIT
1/2, 3/4 & 1
BSI 37169AMK

INCLUDES QTY 1 EACH:
37450AMK, K12274, 37887AMK, 37169AMK & 37882AMK



ROSS PILOT VALVE REBUILD KIT
BSI KIT K12274



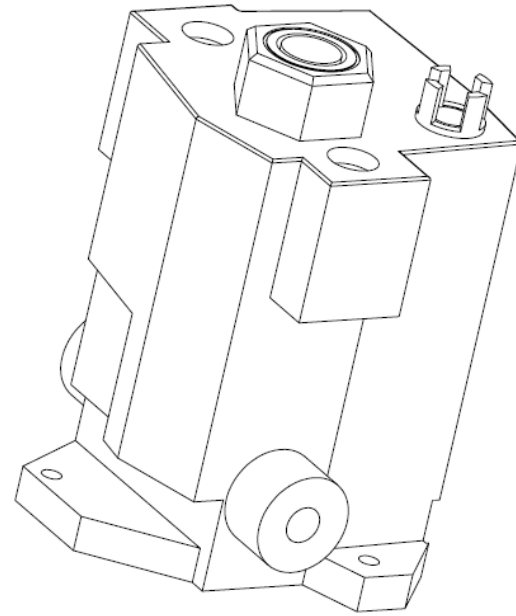
1-1/4 & 1-1/2
BSI 37882AMK

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800-926-5250 office 838-267-7690 fax

ROSS VALVE FIRST AID KIT
REPAIRS ALL ROSS MAIN
& PILOT VALVES

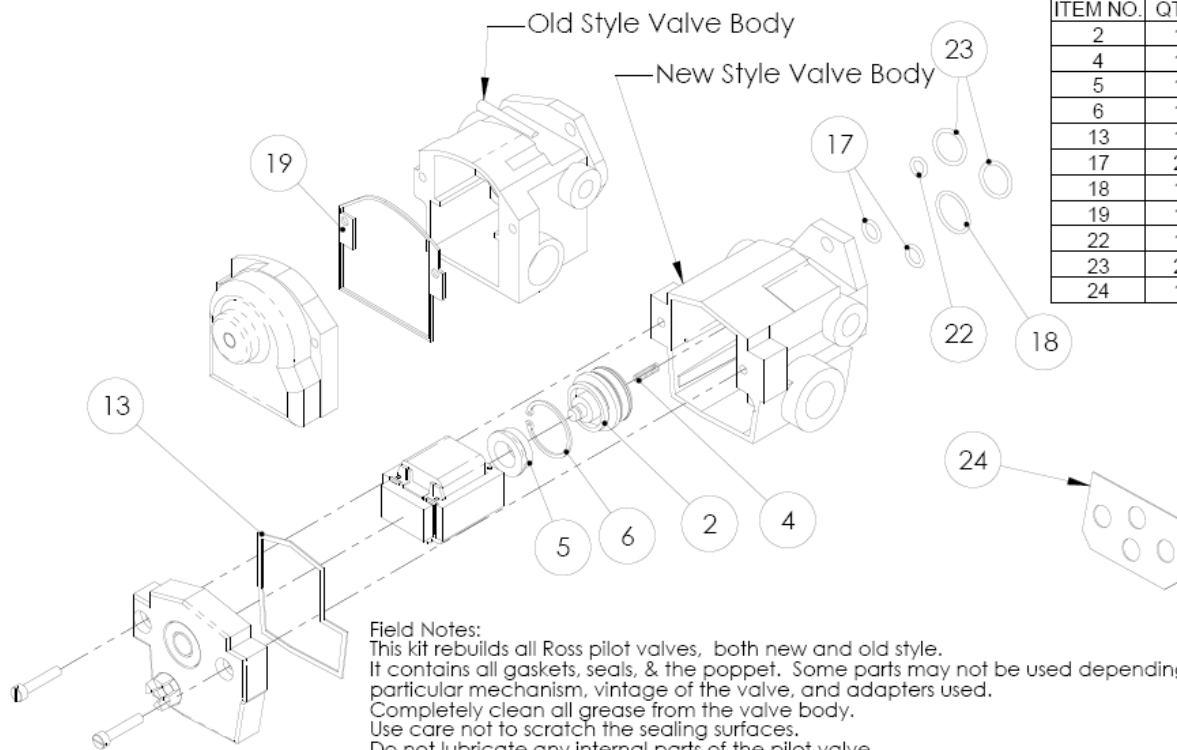
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SIZE A	DWG. NO. 38275AMK	REV. 0
SCALE: NTS	Date:	SHEET 1 OF 1



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BREAKER SERVICE INC		
800-826-5250 office 888-267-7690 fax		
Ross Pilot Valve with coil for 125vdc operation		
SIZE A	DWG. NO. 37450AMK	REV. 0
SCALE:1:1	Date: 02-02-2002	SHEET 1 OF 1



ITEM NO.	QTY.	DESCRIPTION
2	1	poppet assembly
4	1	spring
5	1	bumper
6	1	retaining ring
13	1	new style cover gasket
17	2	o-ring
18	1	o-ring
19	1	old style cover gasket
22	1	o-ring
23	2	o-ring
24	1	gasket

Field Notes:

This kit rebuilds all Ross pilot valves, both new and old style. It contains all gaskets, seals, & the poppet. Some parts may not be used depending on the particular mechanism, vintage of the valve, and adapters used.

Completely clean all grease from the valve body.

Use care not to scratch the sealing surfaces.

Do not lubricate any internal parts of the pilot valve.

There should be only one spring in the pilot valve - it is located under the poppet as shown in the drawing.

If the sealing surfaces are scored, then the valve must be replaced.

Time the breaker before (if possible) and after rebuilding the pilot valve.

Use item 23 & 24 for the Westinghouse style main control valve with adapter block.

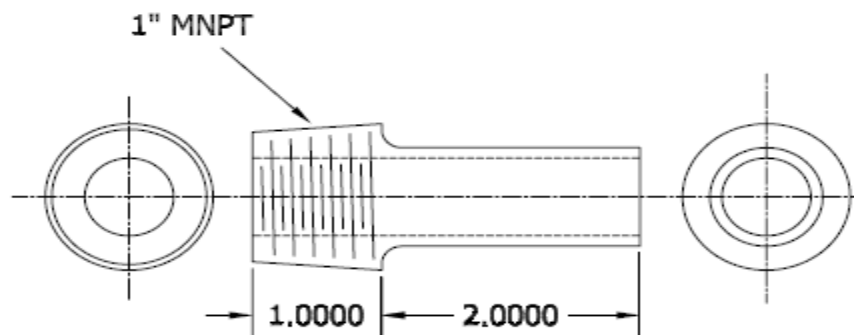
Use items 17 for Ross main valves with ports 1" & smaller

Use items 18 & 22 for Ross main valves with ports larger than 1"

The internal parts (items 2, 4, 5, & 6) are the same for the old & new style pilot valve bodies, but not illustrated above for the old style valve body.

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BREAKER SERVICE INC		
800-826-5250 office 888-267-7690 fax		
Ross pilot valve rebuild kit		
SIZE A	DWG. NO. 12274	REV. 6
SCALE: 1:2.5 Date: 09-02-2003		SHEET 1 OF 1



Field Installation Note:
Cut smooth end to length in field

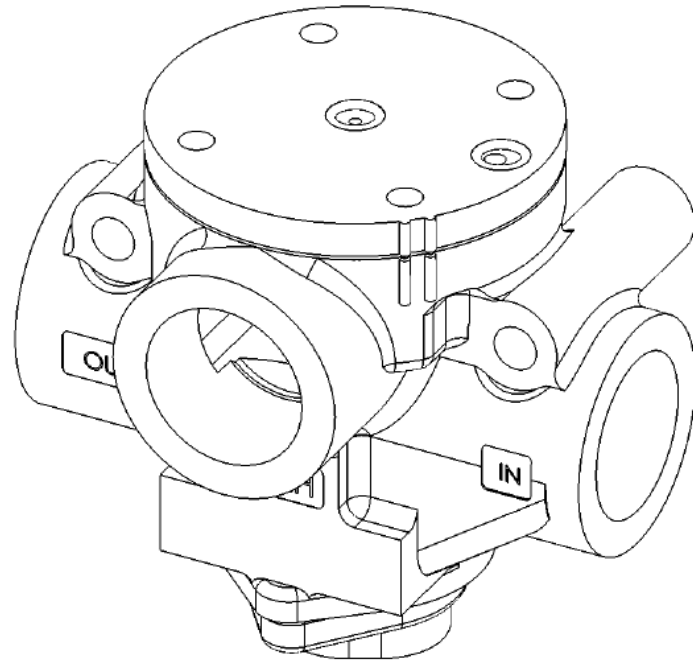
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Tolerances ±.003

Breaker Service Inc 800-826-5250 office
888-267-7690 fax

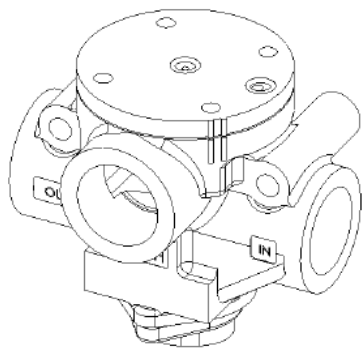
Adapter for Westinghouse AA-7 operating mechanism. This adapter threads into the 1" female NPT intake port of the Ross main valve body. The other side of the adapter is smooth to accept a dresser coupling.

SCALE 1:1	16-Mar-2001	SHEET 1 of 1	SIZE A	DRW# 37378AMK	REV 0
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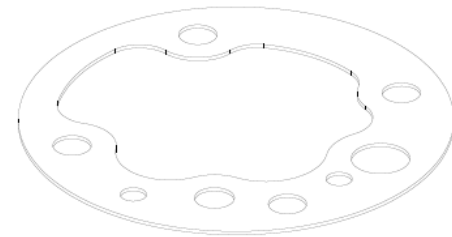
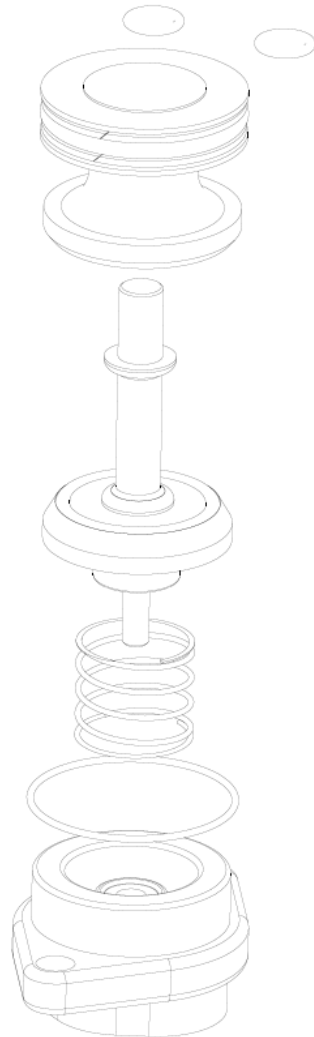


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BREAKER SERVICE INC			
800-826-5250 office 888-267-7690 fax			
Ross main control valve for Westinghouse AA-7 mechanism			
SIZE A	DWG. NO. 37451AMK	REV. 0	
SCALE 1:1	Date: 02-02-2003	SHEET 1 OF 1	



Valve body shown
for reference only

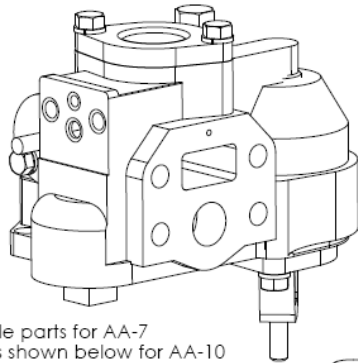


All parts shown are
included in the rebuild kit

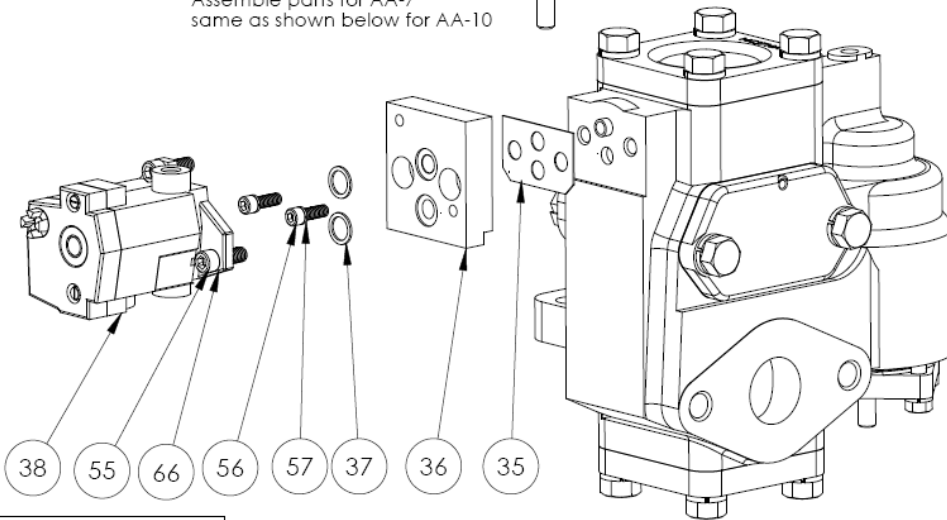
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BREAKER SERVICE INC 800-826-5250 office 888-267-7690 fax			
Rebuild kit for Ross main control valve for Westinghouse AA-7 mechanism			
SIZE A	DWG. NO. 37169AMK	REV. 0	
SCALE 1:1	Date: 09-20-2004	SHEET 1 OF 1	

Westinghouse AA-7 main control valve



Assemble parts for AA-7 same as shown below for AA-10



Westinghouse AA-10 main control valve

Item No	BSI part #	Description	Qty
35	30525/37131AMK	gasket	1
36	37990AMK	adapter	1
37	2112470/37124AMK	o-ring	2
38	37450AMK	Ross pilot valve	1
55	37134AMK	socket head cap screw, 1/4-20 x 1"	2
56	38596AMK	socket head cap screw, 3/8-16 x 1"	2
57	37144AMK	lock washer, 3/8"	2
66	37145AMK	lock washer, 1/4"	2

Notes:

1. Always time the breaker before (if possible) and after replacing the pilot valve to ensure proper closing speed.
2. This kit is for use on the mechanisms listed below that are used on oil circuit breakers and the Westinghouse model 2300SF GCB.
3. If replacing a Norgren pilot valve with an external pilot pressure feed into port "P" on the old Norgren pilot valve, remove and discard the pipe plug from port "X1" on the new Ross pilot valve and connect the external pilot pressure tubing to the port on the Ross pilot valve marked "X1". The port on the Ross pilot valve marked "Y3" is the pilot exhaust and should always remain unplugged.

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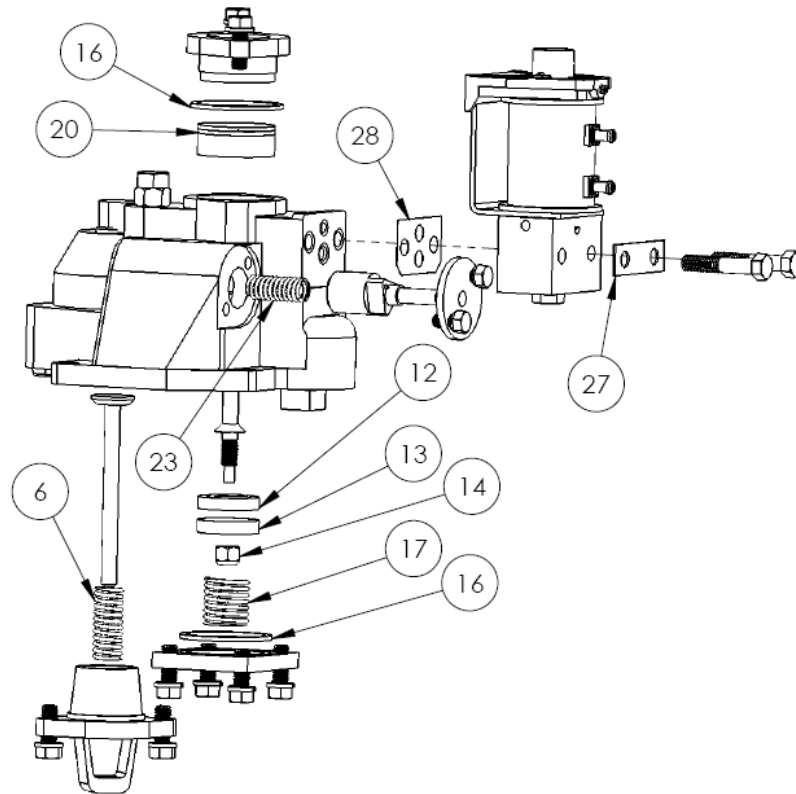
BREAKER SERVICE INC
 800-826-5250 office 888-267-7690 fax

Kit to replace the Westinghouse "magnet valve" pilot valve or Norgren D0035A pilot valve on AA-7, AA-10, & AA-14 W.H. main control valves with a Ross pilot valve - see notes for limitations

SIZE	DWG. NO.	REV.
A	37993AMK	4

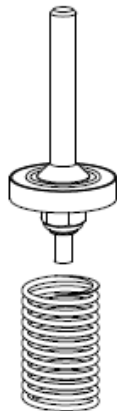
SCALE: 1:3 Date: 02-18-2005 SHEET 1 OF 1

ITEM NO.	QTY.	PART NO.	DESCRIPTION
6	1	37748AMK	Spring 1735863 / 1D61130H05 / 5086B49H06
12	1	30614	Valve Disc 1644478 / 24D9629H01 / 5086B49H03
13	1	30615	Disc Support SST 1644475 / 22D8972H02 / 5086B49H12
14	1	37753AMK	Elastic Stop Nut 1627943 / 70220DAN1B / 5086B49H11
16	2	22343	O-ring 1644476 / 5492C46H19 / 5086B49H07
17	1	37749AMK	Spring 1644423 / 23D2758H04 / 5086B49H04
20	1	37751AMK	Piston Ring 1644477 / 534539 / 23B2997H31 / 5086B49H02
23	1	37750AMK	Spring 1644424 / 23D2758H05 / 5086B49H05
27	1	37747AMK	Locking Clip 1216890 / 6D8917H18 / 5086B49H09
28	1	30525 / 37131AMK	Gasket 1589255 / 1659B85H01 / 5086B49H08

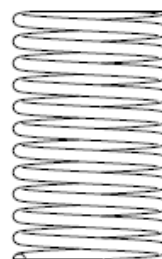


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800-826-5250 office 866-267-7690 fax	
Kit to rebuild Westinghouse AA-7 Main Control Valve	
SIZE A	DWG. NO. 37746AMK
SCALE 1:2.5	REV. 3
Date: 07-25-2003	SHEET 1 OF 1

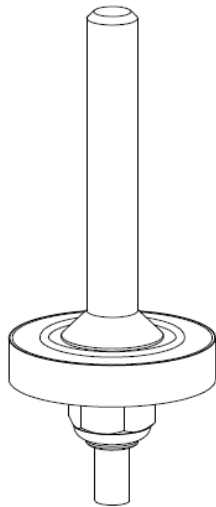


Complete Stem Assy
Shown for Reference
Only

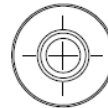
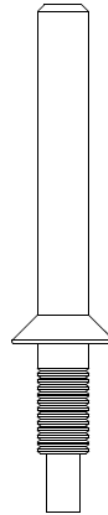
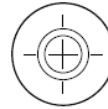


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BREAKER SERVICE INC			
800-826-5250 office 888-267-7690 fax			
Spring under stem in main control valve on AA-7 mechanism			
SIZE A	DWG. NO. 37749AMK	REV. 0	
SCALE 1:1	Date: 02-02-2006	SHEET 1 OF 1	

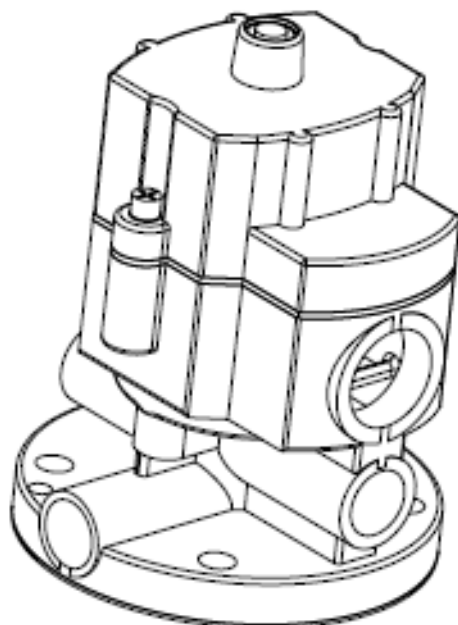


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Stem on AA-7 main control valve		
SIZE A	DWG. NO. 38238AMK	REV. 0
SCALE 1:1	Date: 02-02-2006	SHEET 1 OF 1

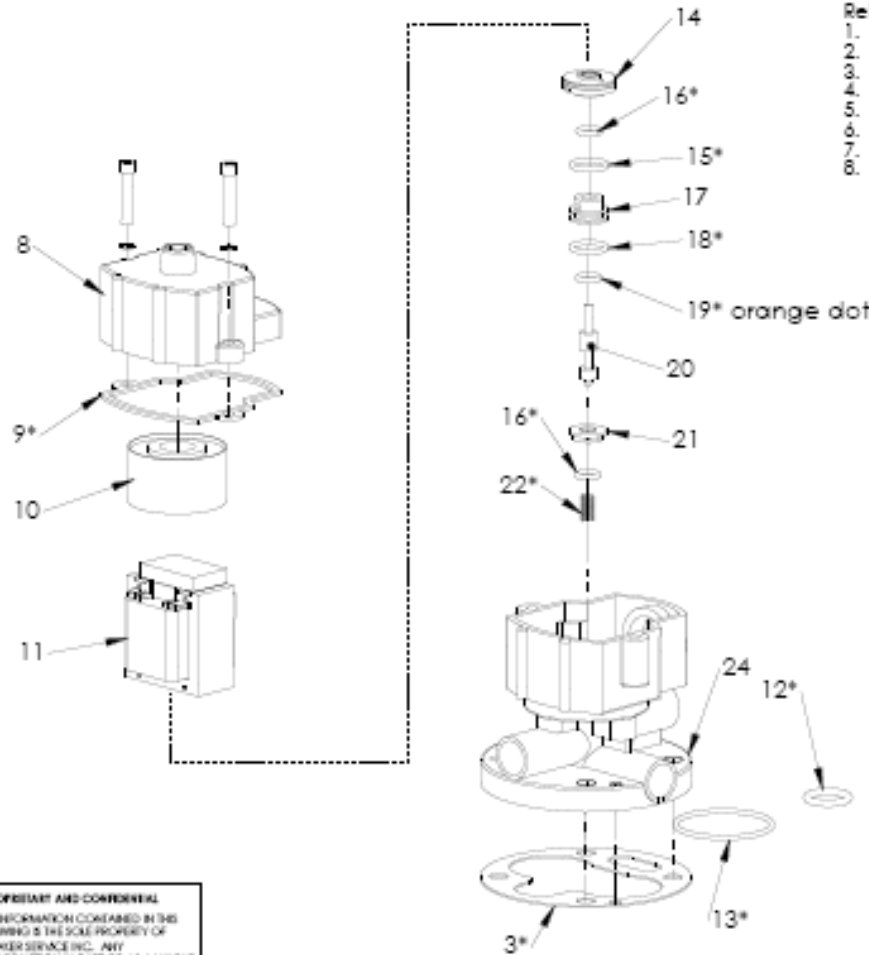


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Norgren Pilot Valve with coil for
125vac operation

REV A	DWG. NO. 37562AMK	REV. 0
DATE/REV 02/02/2002		SHEET 1 OF 1

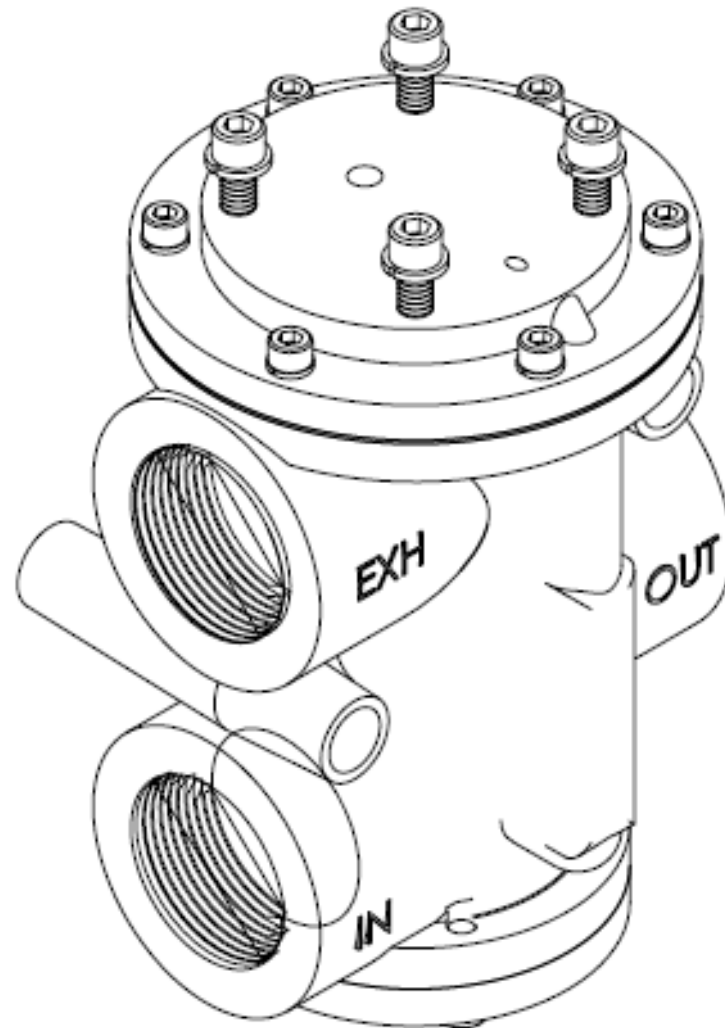


Rebuild instructions:

1. Do not proceed if you are not qualified for this work
2. Make breaker & mechanism safe for work
3. Disassemble and gently clean valve
4. Reassemble using new seals per drawing
5. Items 12 & 13 are used with older main valves
6. Item 3 is used with newer main valves
7. Take special note of the location of item 19
8. Sparngly lubricate orings with Parker Superlube

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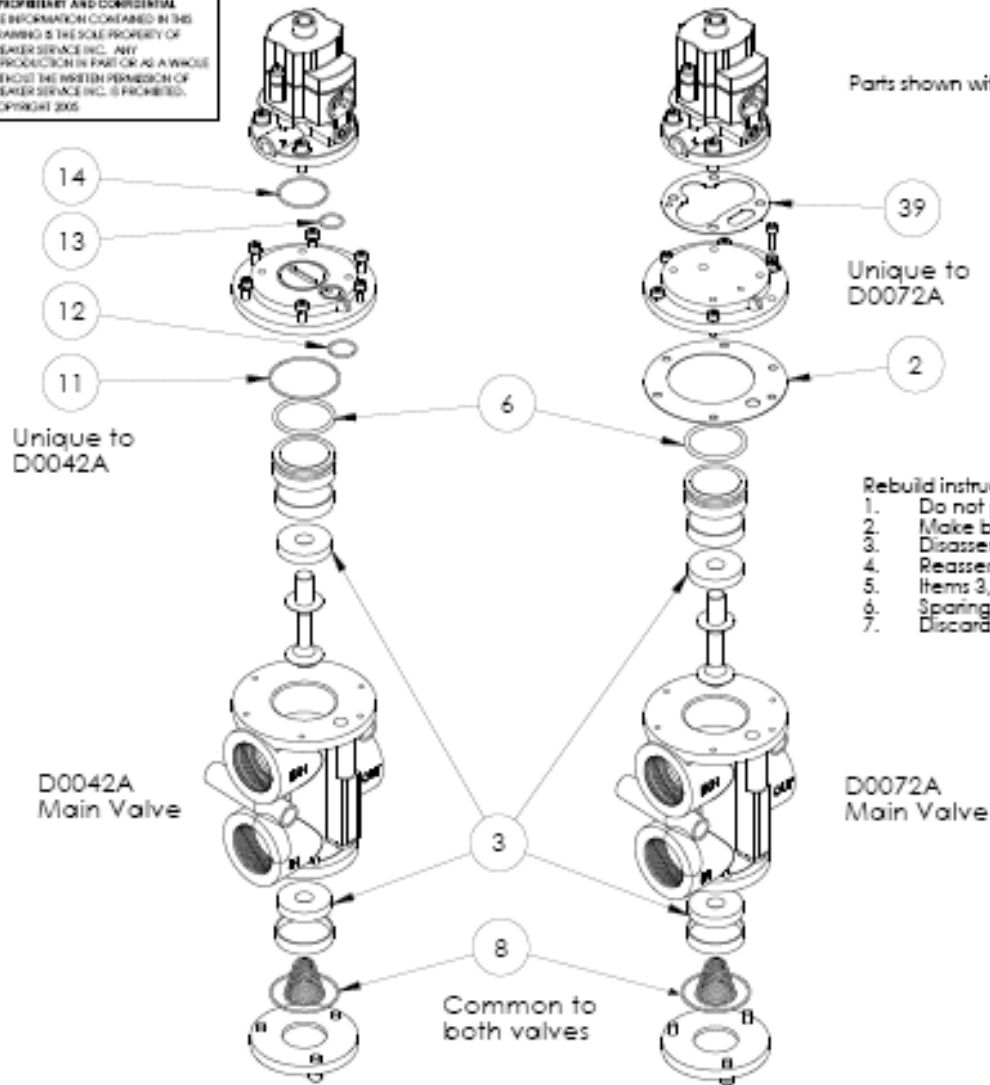
BREAKER SERVICE INC	
800-828-5250 office 888-267-7690 fax	
Rebuild kit for Norgren pilot valve model D0035C or D00105.	
Items shown with asterisk * are included in this repair kit	
REV A	DWG. NO. 15028
SCALE: N/A	Date: 04-10-2005
	SHEET 1 OF 1



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BREAKER SERVICE INC	
800-826-5250 office 888-267-7690 fax	
Nargren main valve Used in Siemens & Westinghouse type SP breakers	
SIZE A	DWG. NO. 37480AMK
DATE 02-02-2002	REV 0
SHEET 1 OF 1	

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Parts shown with item numbers are included in the rebuild kit

Unique to
D0072A

Unique to
D0042A

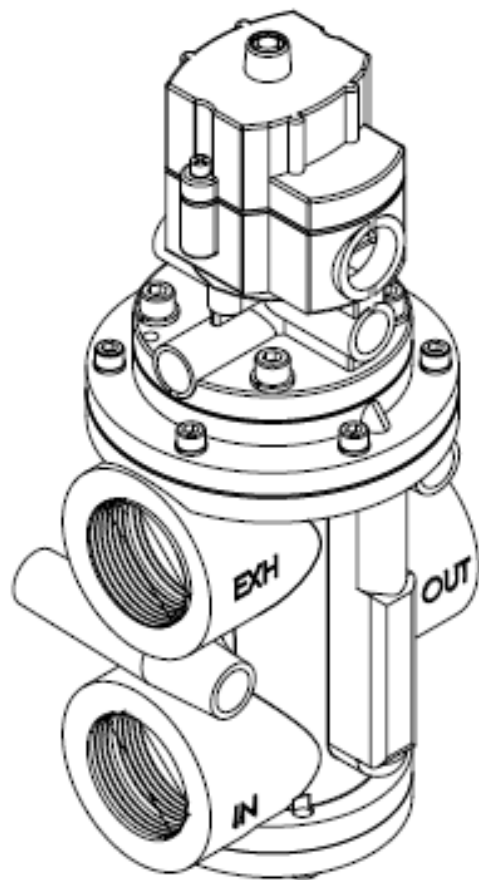
- Rebuild instructions:
1. Do not proceed if you are not qualified for this work
 2. Make breaker & mechanism safe for work
 3. Disassemble and gently clean valve
 4. Reassemble using new seals per drawing
 5. Items 3, 6 & 8 are common to both valves
 6. Sparingly lubricate orings with Parker Superlube
 7. Discard unused parts

D0042A
Main Valve

D0072A
Main Valve

Common to
both valves

BREAKER SERVICE INC		
800-826-5250 office 888-267-7690 fax		
Rebuild kit for Norgren D0042A or D0072A main control valve used on Siemens & Westinghouse type SP gas circuit breakers		
REV	DWG. NO.	15031AMK
SCALE	DATE	SHEET
	01-10-2005	1 OF 1



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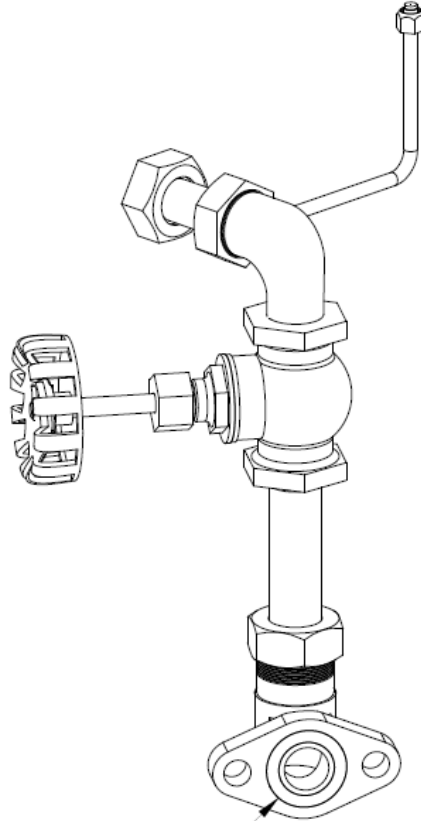
BREAKER SERVICE INC

800-525-5250 office 888-257-7690 fax

Norgren pilot & main valve assembly with coil for 125vac operation. Used in Siemens & Westinghouse type SP breakers

REV | DWG. NO. | REV
A | 37479AMK | 0

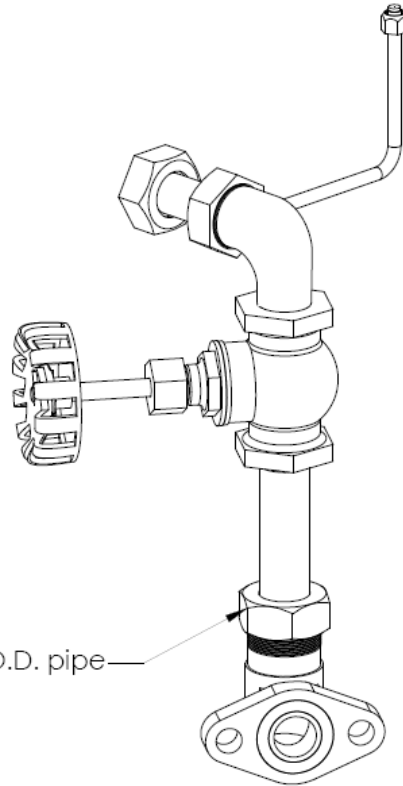
DCAN001 | DATE: 02-02-2002 | SHEET 1 OF 1



Gasket between air tank
& manifold flange

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BREAKER SERVICE INC		
800-826-5250 office 888-267-7690 fax		
Gasket - air tank to flange for AA-7 mechanism		
SIZE A	DWG. NO. 37396AMK	REV. 0
SCALE 1:3	Date: 02-02-2003	SHEET 1 OF 1

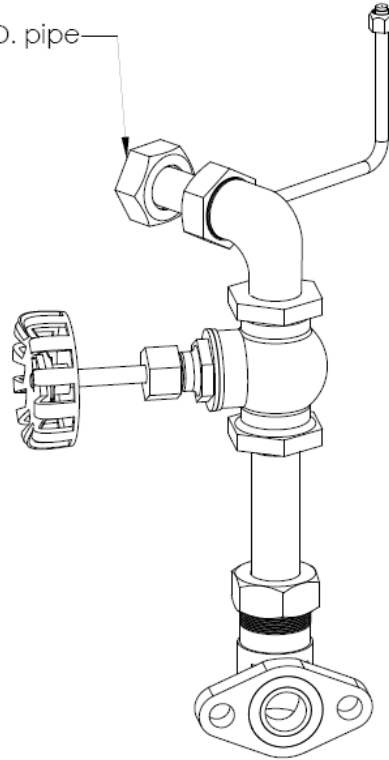


Assy includes nut, gasket, & gasket retainer cup for 1.05" O.D. pipe

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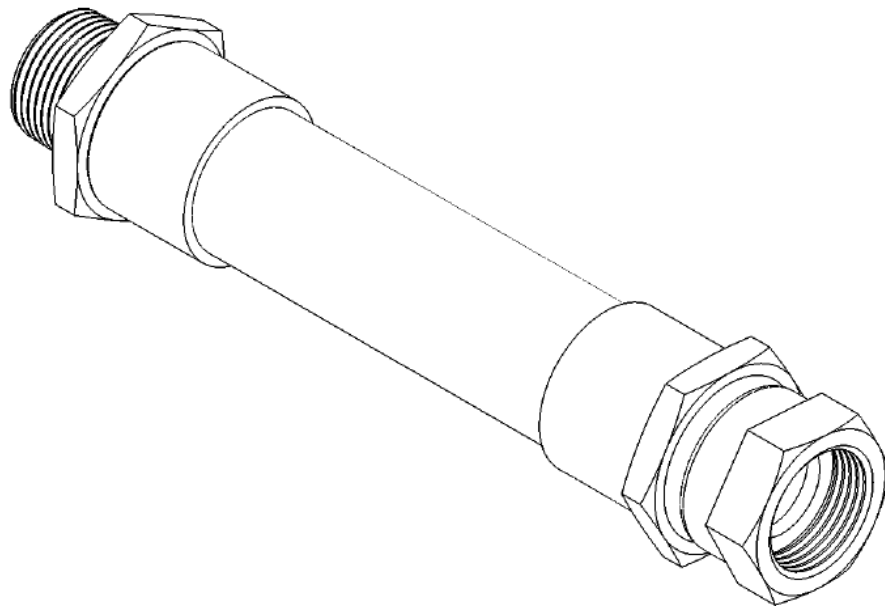
BREAKER SERVICE INC		
800-826-5250 office 888-267-7690 fax		
Dresser nut & gasket assy for 1.05" O.D. manifold pipe on AA-7 mechanisms		
SIZE A	DWG. NO. 37395AMK	REV. 0
SCALE 1:3	Date: 02-02-2003	SHEET 1 OF 1

Assy includes nut, gasket, &
gasket retainer cup for 0.875" O.D. pipe



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BREAKER SERVICE INC 800-826-5250 office 888-267-7690 fax		
Dresser nut & gasket assy for 0.875" O.D. manifold pipe on AA-7 mechanisms		
SIZE A	DWG. NO. 37394AMK	REV. 0
SCALE 1:3	Date: 02-02-2003	SHEET 1 OF 1



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BREAKER SERVICE INC			
800-826-5250 office 888-267-7690 fax			
3/4" Hose for AA-7 mechanisms on Westinghouse OCBs Westinghouse part # 2283C33H08			
SIZE	DWG. NO.	REV.	
A	38035AMK	0	
SCALE 1:1	Date: 02-02-2003	SHEET 1 OF 1	



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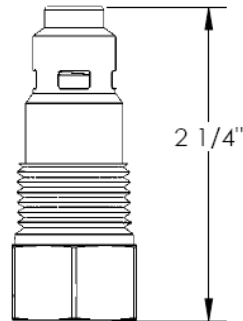
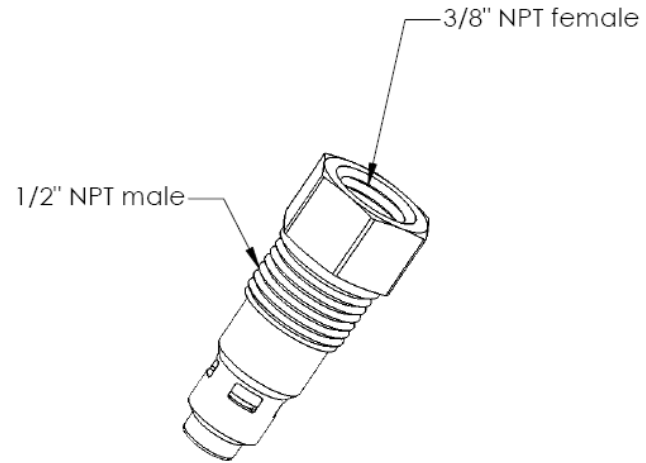
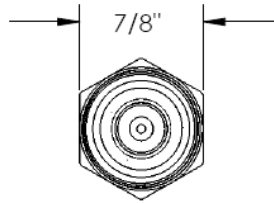
**AA-7 AIR HOSE RUNS FROM PILOT
VALVE THAT TAPS OFF TO AIR
CHAMBER TIED TO LOW PRESSURE
ALARM AND LOW PRESSURE CUTOUT
1/4" OD x 16" approx length**

DWG NO.

1010026

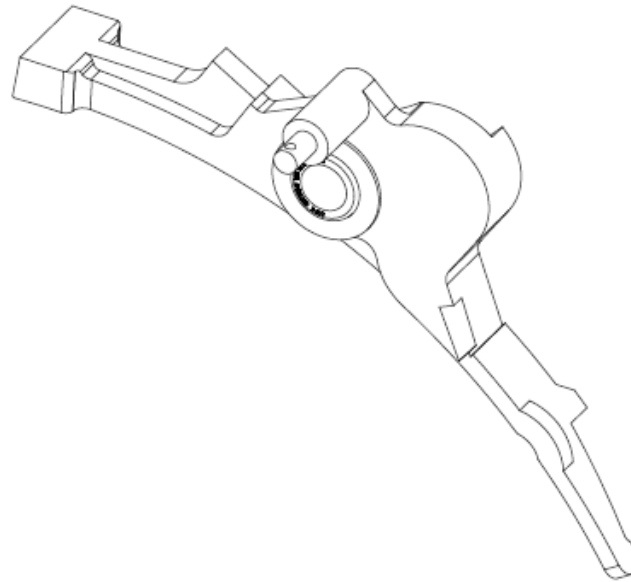
REV.

0



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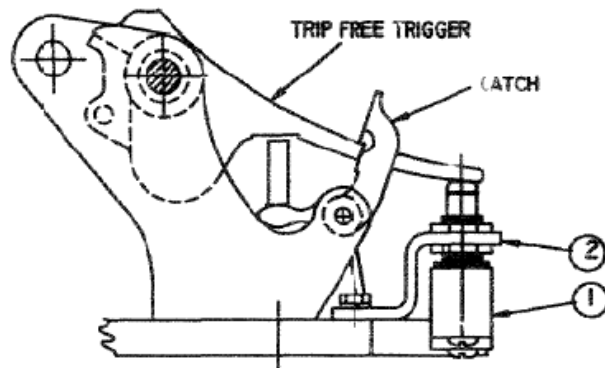
BREAKER SERVICE INC			
800-826-5250 office 888-267-7690 fax			
Check valve, intank			
Westinghouse # 513A271H01			
Siemens # 513A271H01			
SIZE	DWG. NO.	REV.	
A	37526AMK	0	
SCALE 1:1	Date: 02-02-2003	SHEET 1 OF 1	



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800-826-5250 office 888-267-7690 fax			
Trip free trigger for Westinghouse AA-7 mech Westinghouse part # 1644 437			
SIZE A	DWG. NO. 38310AMK	REV. 0	
SCALE 1:1	Date: 05-15-2004	SHEET 1 OF 1	

ITEM	BSI #	DESCRIPTION	OEM	QTY
1	37606AMK	SWITCH	5861B73H01	1
2	37607AMK	BRACKET	5861B59H01	1
3		DRAWING	8931C34G01	1



INSTRUCTIONS

THE FUNCTION OF THE LATCH CHECK SWITCH IS TO INSURE THAT THE MECHANISM IS COMPLETELY RETRIEVED AND THE TRIP FREE LATCH SYSTEM IS FULLY ENGAGED BEFORE ANY CLOSING OR RECLOSING OPERATION IS ATTEMPTED ELECTRICALLY.

BEFORE ATTEMPTING TO REPLACE THE SWITCH OPEN THE BREAKER AND ADJACENT DIS-CONNECT SWITCHES, DE-ENERGIZE ALL CONTROL AND AUXILLIARY POWER. CLOSE THE MAIN HAND SHUTOFF VALVE BETWEEN THE RESERVOIR AND THE CONTROL VALVE. DEPRESS MOMENTARILY THE PUSHBUTTON ON THE PIOT VALVE TO EXHAUST THE HIGH PRESSURE AIR BETWEEN THE SHUTOFF VALVE AND CONTROL VALVE. INSURE THE MECHANISM IS IN THE OPEN POSITION BEFORE REMOVING THE OLD SWITCH AND MTG BRACKET. INSTALL THE NEW MTG BRACKET WITHOUT THE SWITCH USING THE OLD MTG HARDWARE. INSTALL THE NEW SWITCH IN THE BRACKET AND ADJUST THE HEIGHT SO THE SWITCH "MAKES" CONTACT .03 TO .06 IN. BEFORE THE TRIP FREE TRIGGER AND CATCH ARE IN THE RESET POSITION. LISTEN FOR AN AUDIBLE "CLICK" FROM THE SWITCH. WIRE TO THE "NORMALLY OPEN" AND "COMMON" TERMINALS. PICTURE ON THIS DRAWING SHOW THE TRIGGER IN THE RESET POSITION WITH THE TRIP FREE LATCH SYSTEM ENGAGED AND SWITCH PLUNGER DEPRESSED TO .03 TO .06 IN BEYOND CONTACT "MAKE" POSITION.

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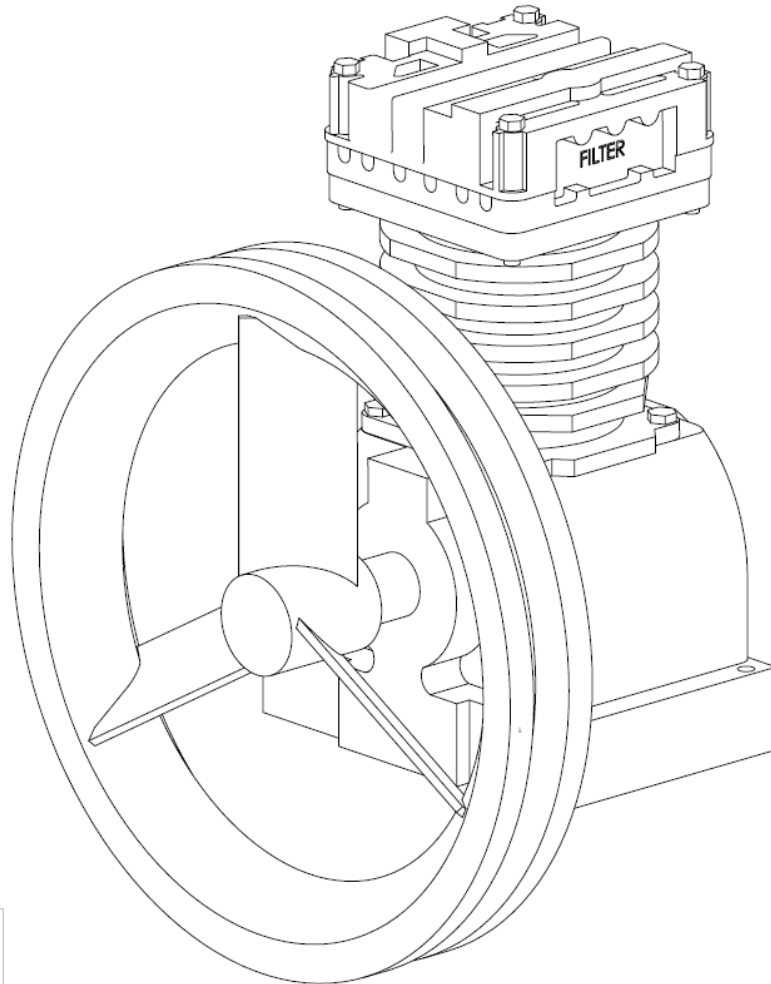
**AA-7 LATCH CHECK
 SWITCH ASSEMBLY
 REPLACES OLD SWITCH
 1644 439**

DWG NO.

37605AMK

REV.

0



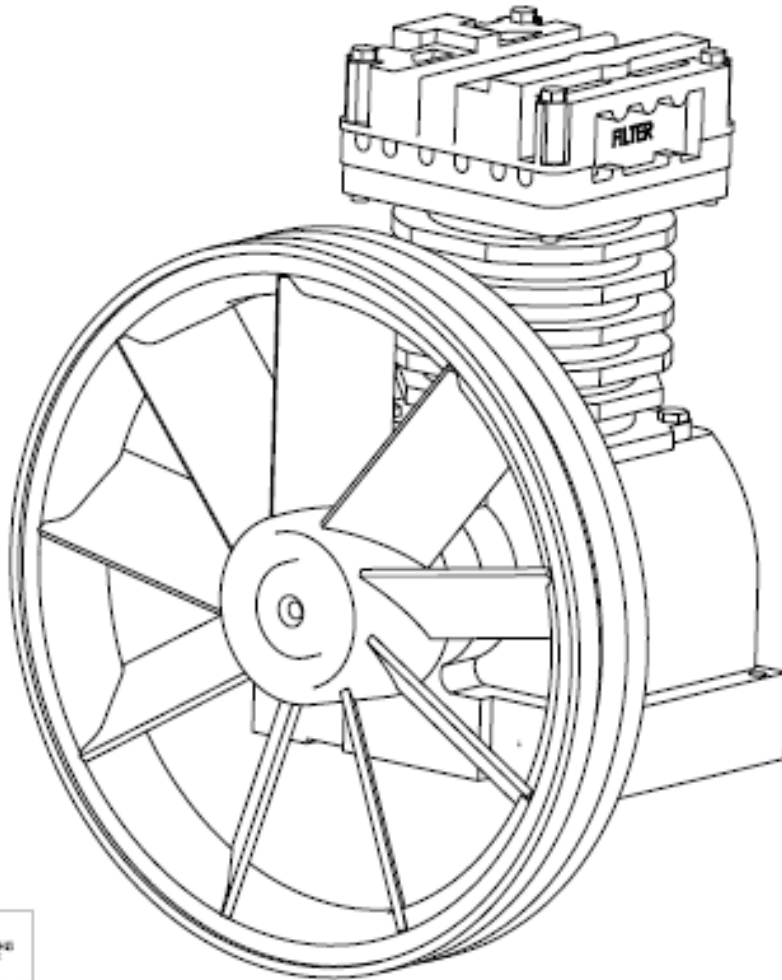
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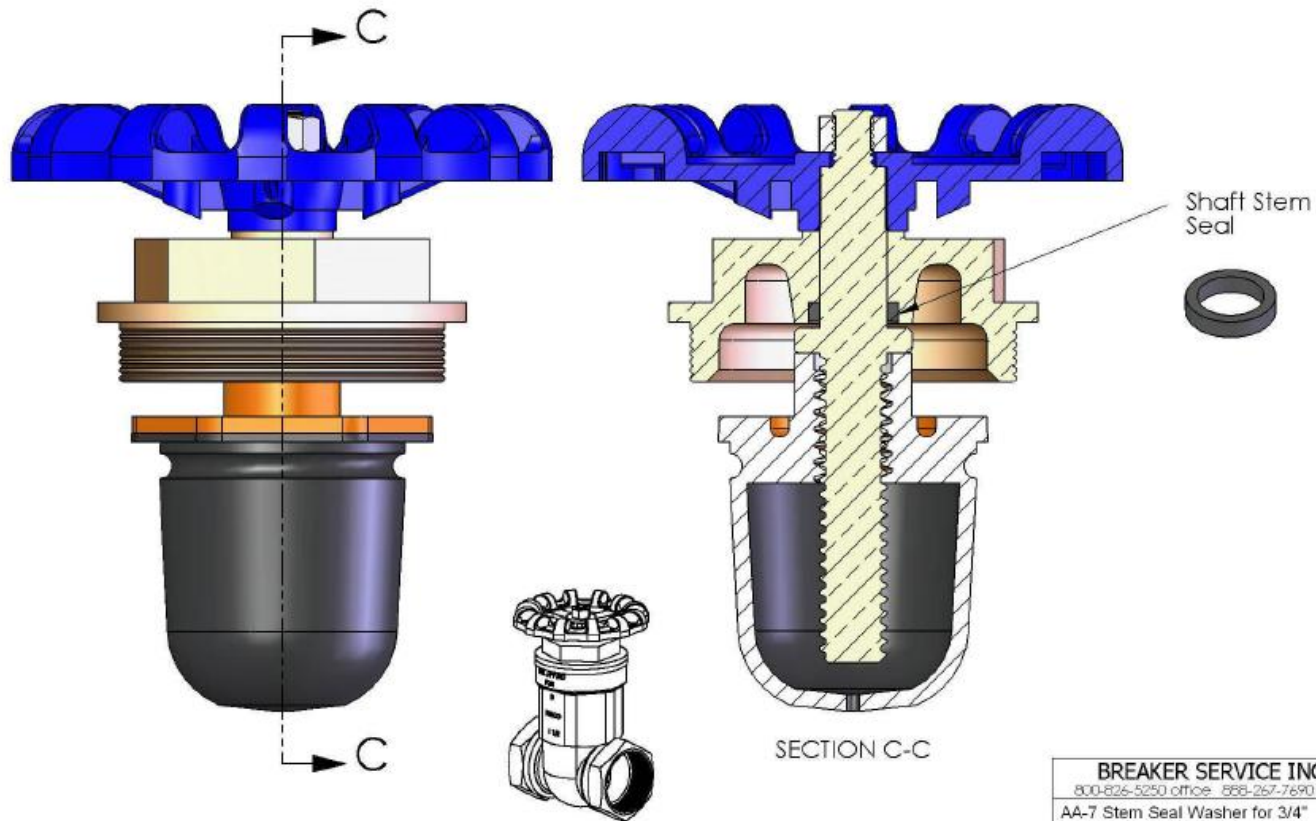
Compressor
Replaces RED Emglo FW-20

SIZE	DWG. NO.	REV.
A	37289AMK / FOE10	10
SCALE:1:1	Date: 02-02-2002	SHEET 1 OF 1



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800-826-5250 office 888-267-7690 fax			
Compressor Replaces BLUE Englo FW-50			
SIZE	DWG. NO.	REV.	
A	37287AMK	0	
SCALE	DATE	SHEET 1 OF 1	
	02-02-2002		



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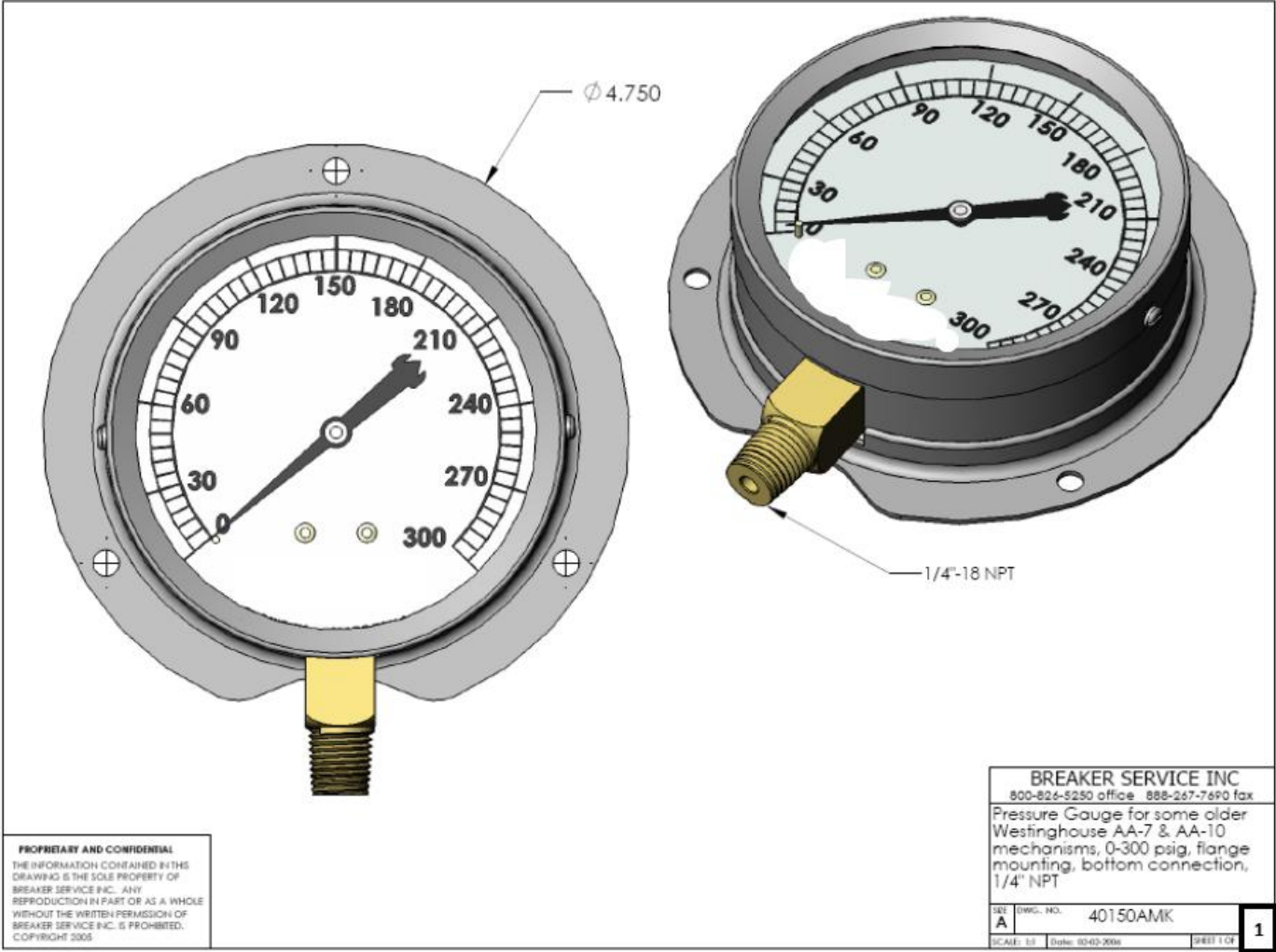
Complete valve shown
 for reference only.
 Valve body not included
 in repair kit.

BREAKER SERVICE INC			
800-826-5250 office 696-267-7690 fax			
AA-7 Stem Seal Washer for 3/4" air shut off valve			
SIZE A	DWG. NO. 37943AMK	REV. 0	
SCALE: 1:1	Date: 06-09-2004	SHEET 0F 1	



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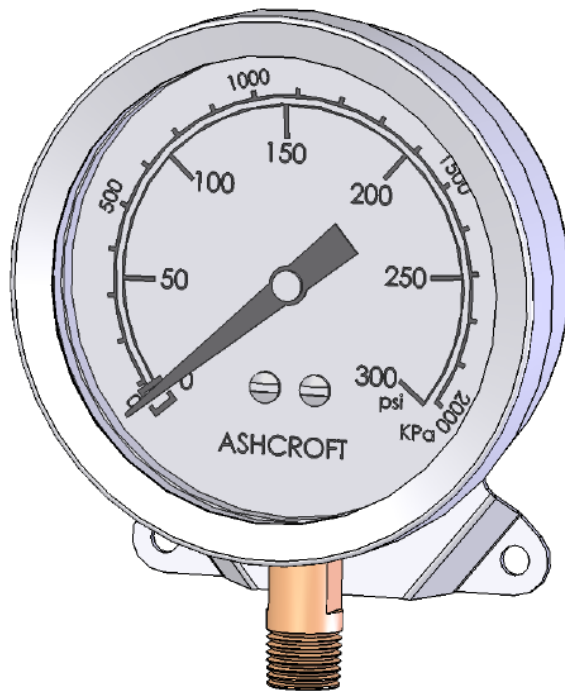
BREAKER SERVICE INC 800-824-5250 office 888-267-7490 fax		
Safety valve for AA-7 mechanism Westinghouse # 153A160H05 Replaces Westinghouse # 1718741 1/4" NPT 175psi		
SIB A	DWG. NO. 39848AMK	REV. 0
SCALE: 1:1	Date: 01-10-2005	SHEET 1 OF 1



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BREAKER SERVICE INC
 800-826-5250 office 888-247-7690 fax
 Pressure Gauge for some older Westinghouse AA-7 & AA-10 mechanisms, 0-300 psig, flange mounting, bottom connection, 1/4" NPT

DATE	DMG. NO.	40150AMK	1
SCALE: 1:1	Date: 02-03-2005	SHEET 1 OF	

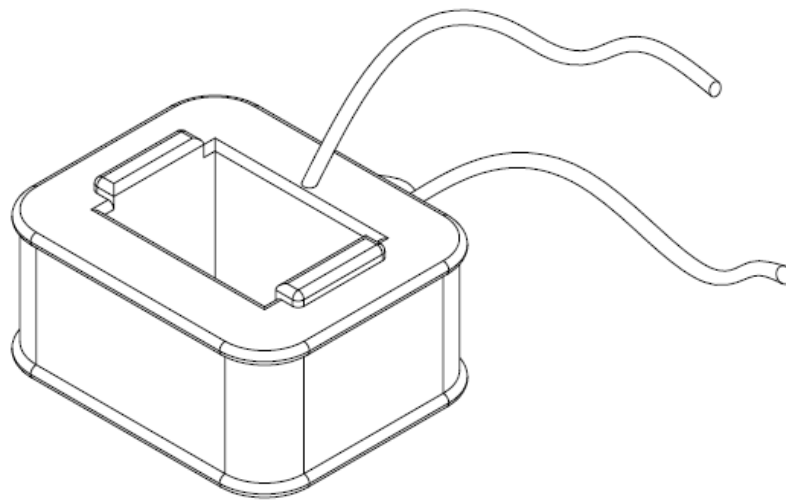


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Gauge, air pressure, used on
 Westinghouse and Siemens type
 SP breakers with AA-7 and SA-7
 mechanisms. Westinghouse /
 Siemens part # 1650B29H03

SIZE A	DWG. NO. 39949AMK	REV. 0
SCALE 1:1	Date: 02-02-2006	SHEET 1 OF 1



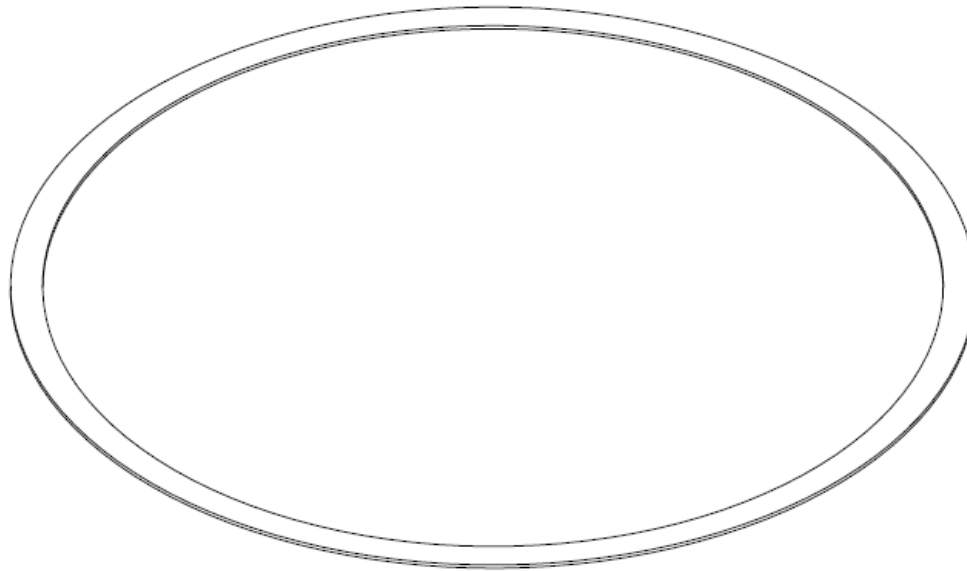
Replaces Westinghouse # 1616101

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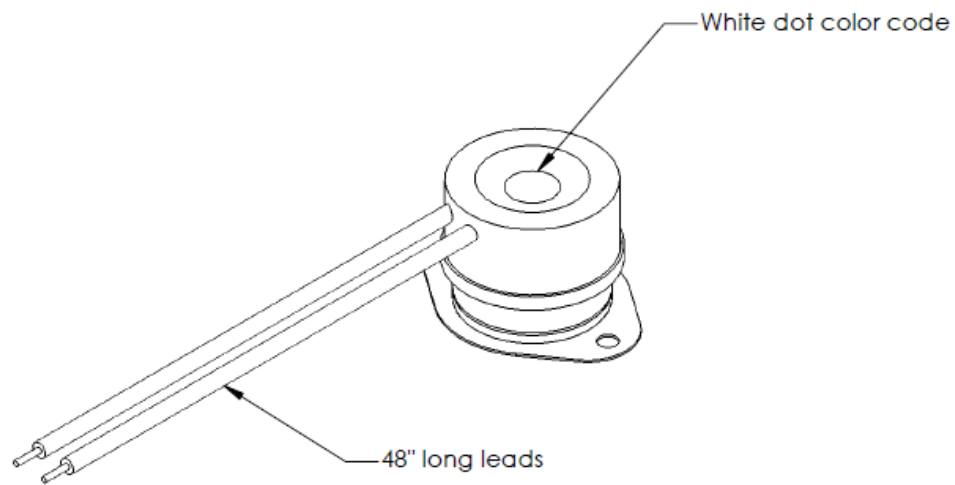
Coil, trip for SA-7, AA-7, and
other breaker mechanisms.
125vdc

REV	DWG. NO.	REV
A	37460AMK	0
SCALE:1:2	Date: 02-02-2002	SHEET 1 OF 1



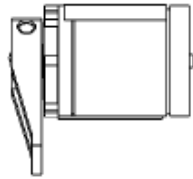
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BREAKER SERVICE INC 800-826-5250 office 888-267-7690 fax		
Gasket, main cylinder, top & bottom for Westinghouse/Siemens AA-7 & SA-7 mechanism West./Siemens part # 1644464, superceded by # 23D7943H02		
SIZE A	DWG. NO. 38063AMK	REV. 0
SCALE: 1:1	Date: 01-10-2005	SHEET 1 OF 1

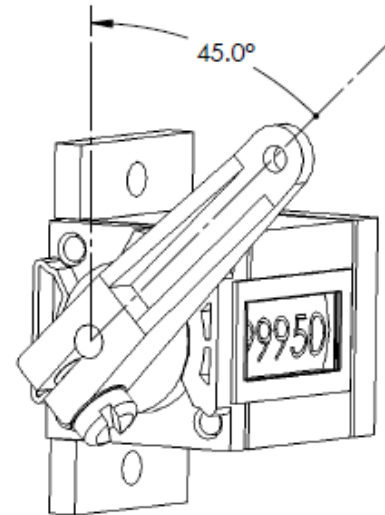
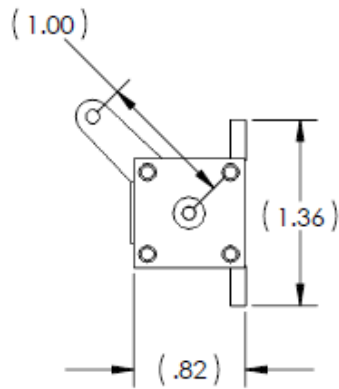
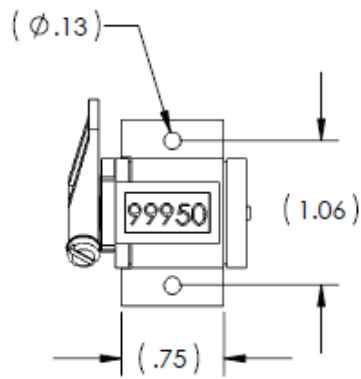


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BREAKER SERVICE INC 800-826-5250 office 888-267-7690 fax		
Thermostat Westinghouse # 266C072H09 Color code: one white dot		
SIZE A	DWG. NO. 37691AMK	REV. 0
SCALE 1:1	Date: 02-02-2003	SHEET 1 OF 1



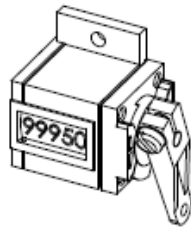
Ratchet action is 45 degrees counter clock wise when looking into the shaft. The lever arm is adjustable 360 degrees.



Replacement for:
 GE # 0138A7031P1 - ATB breaker
 GE # 0137A0180P6 - ATB breaker

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BREAKER SERVICE INC			
800-826-5250 office 888-267-7890 fax			
Operations counter for circuit breakers			
SIZE A	DWG. NO. 37728AMK	REV. 0	
SCALE 2:1	Date: 02-02-2003	SHEET 1 OF 1	



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BREAKER SERVICE INC 800-826-5250 office 888-267-7490 fax		
Operations Counter for Westinghouse AA-7 mech Westinghouse part # 491759		
SIZE A	DWG. NO. 38303AMK	REV. 0
SCALE 1:1	Date: 05-15-2004	SHEET 1 OF 1



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**AIR TANK FOR AA-7 or SA-7
 MECH ON WESTINGHOUSE OR
 SIEMEN TYPE SP SF6 CIRCUIT
 BREAKERS**

DWG NO

39870AMK

REV.

0



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BREAKER SERVICE INC 800-826-5250 office 888-267-7690 fax	
AIR TANK, WH AA-7 MECHANISM	
DWG NO.	37613AMK
REV.	0



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**AIR TANK
WESTINGHOUSE
AA-7**

DWG NO.	45230AMK	REV.	0
---------	-----------------	------	----------



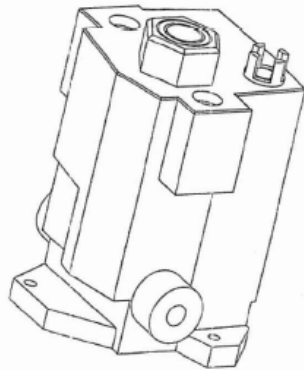
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BREAKER SERVICE INC 800-826-5250 office 888-267-7690 fax		
Air tank		
DWG NO.	45237AMK	REV. 0

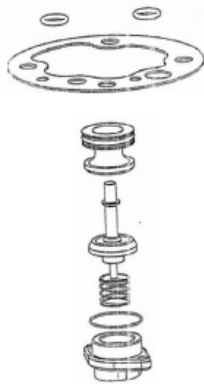


AA-10

MECHANISM



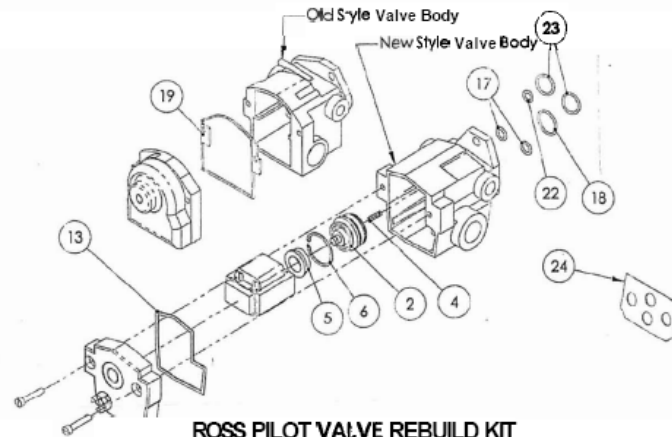
ROSS PILOT
BSI PART 37450AMK



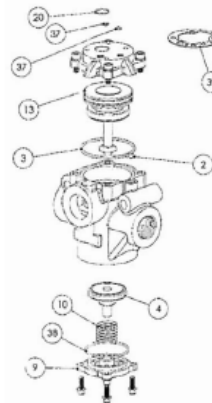
1/4, 3/8 & 1/2
BSI 37887AMK

ROSS MAIN CONTROL VALVE REPAIR KIT
1/2, 3/4 & 1
BSI 37169AMK

INCLUDES QTY 1 EACH:
37450AMK, K12274, 37887AMK, 37169AMK & 37882AMK



ROSS PILOT VALVE REBUILD KIT
BSI KIT K12274



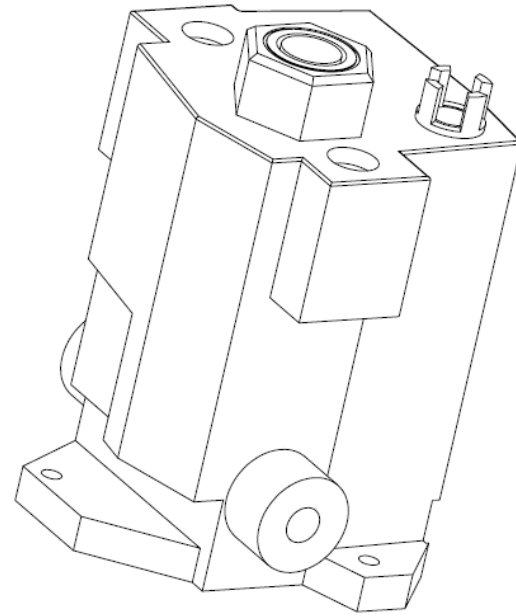
1-1/4 & 1-1/2
BSI 37882AMK

BREAKER SERVICE INC
800-926-5250 office 838-267-7690 fax

ROSS VALVE FIRST AID KIT
REPAIRS ALL ROSS MAIN
& PILOT VALVES

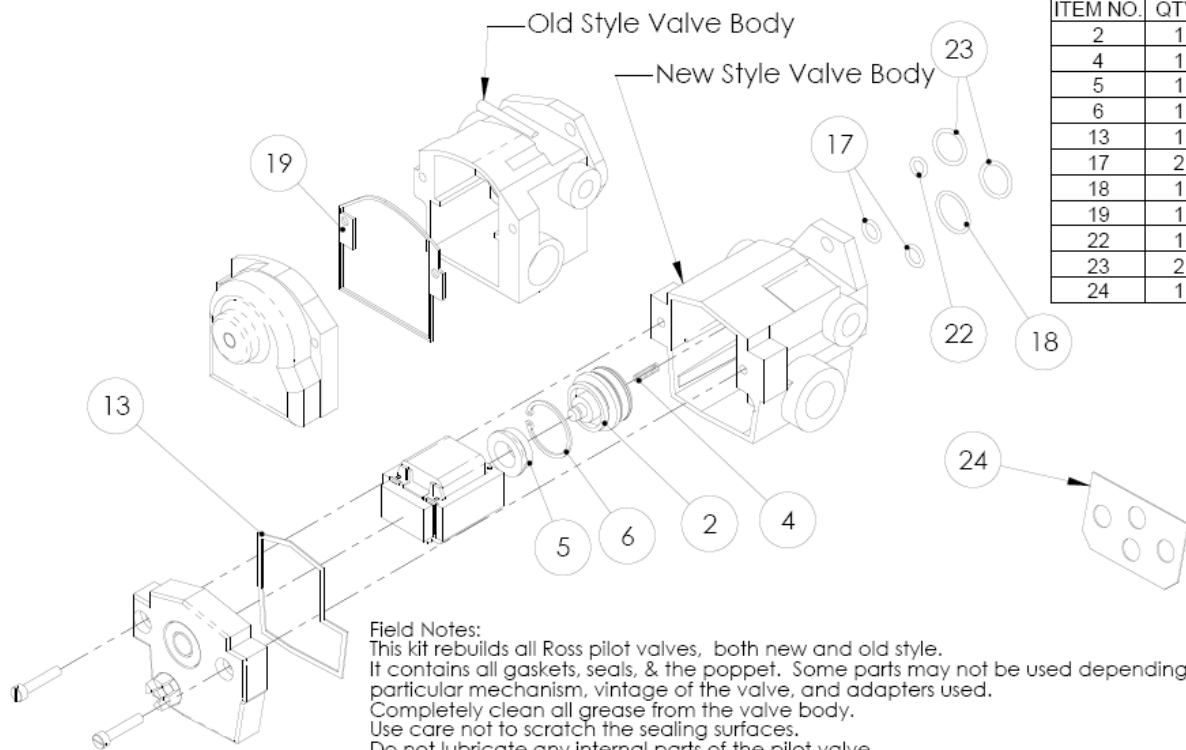
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SIZE	DWG. NO.	REV.
A	38275AMK	0
SCALE: NTS	Date:	SHEET 1 OF 1



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BREAKER SERVICE INC		
800-826-5250 office 888-267-7690 fax		
Ross Pilot Valve with coil for 125vdc operation		
SIZE A	DWG. NO. 37450AMK	REV. 0
SCALE:1:1	Date: 02-02-2002	SHEET 1 OF 1



ITEM NO.	QTY.	DESCRIPTION
2	1	poppet assembly
4	1	spring
5	1	bumper
6	1	retaining ring
13	1	new style cover gasket
17	2	o-ring
18	1	o-ring
19	1	old style cover gasket
22	1	o-ring
23	2	o-ring
24	1	gasket

Field Notes:

This kit rebuilds all Ross pilot valves, both new and old style. It contains all gaskets, seals, & the poppet. Some parts may not be used depending on the particular mechanism, vintage of the valve, and adapters used. Completely clean all grease from the valve body. Use care not to scratch the sealing surfaces. Do not lubricate any internal parts of the pilot valve. There should be only one spring in the pilot valve - it is located under the poppet as shown in the drawing. If the sealing surfaces are scored, then the valve must be replaced.

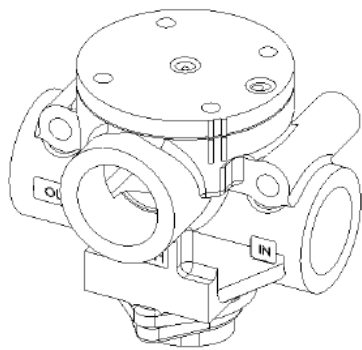
Time the breaker before (if possible) and after rebuilding the pilot valve.

Use item 23 & 24 for the Westinghouse style main control valve with adapter block.
 Use items 17 for Ross main valves with ports 1" & smaller
 Use items 18 & 22 for Ross main valves with ports larger than 1"

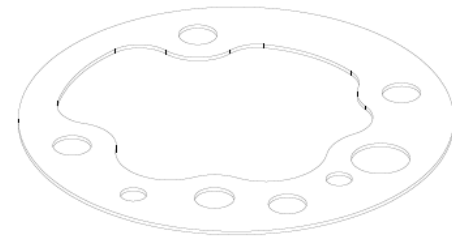
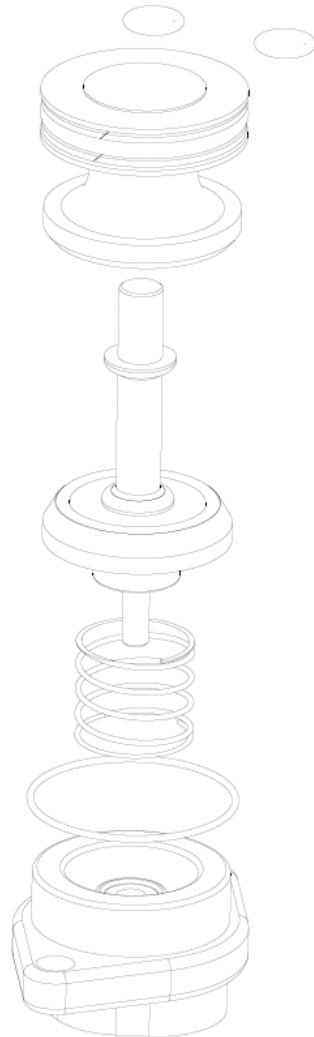
The internal parts (items 2, 4, 5, & 6) are the same for the old & new style pilot valve bodies, but not illustrated above for the old style valve body.

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Ross pilot valve rebuild kit		
SIZE A	DWG. NO. 12274	REV. 6
SCALE: 1:2.5 Date: 09-02-2003		SHEET 1 OF 1



Valve body shown
for reference only

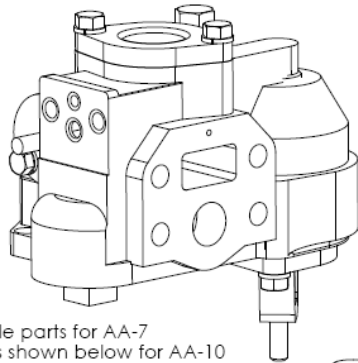


All parts shown are
included in the rebuild kit

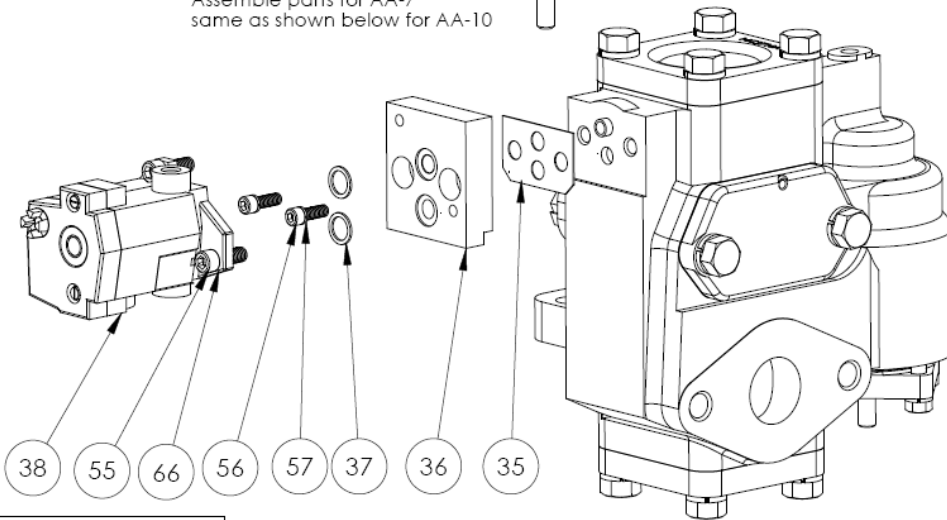
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Rebuild kit for Ross main control valve for Westinghouse AA-7 mechanism			
SIZE A	DWG. NO. 37169AMK	REV. 0	
SCALE 1:1	Date: 09-20-2004	SHEET 1 OF 1	

Westinghouse AA-7 main control valve



Assemble parts for AA-7 same as shown below for AA-10



Westinghouse AA-10 main control valve

Item No	BSI part #	Description	Qty
35	30525/37131AMK	gasket	1
36	37990AMK	adapter	1
37	2112470/37124AMK	o-ring	2
38	37450AMK	Ross pilot valve	1
55	37134AMK	socket head cap screw, 1/4-20 x 1"	2
56	38596AMK	socket head cap screw, 3/8-16 x 1"	2
57	37144AMK	lock washer, 3/8"	2
66	37145AMK	lock washer, 1/4"	2

Notes:

1. Always time the breaker before (if possible) and after replacing the pilot valve to ensure proper closing speed.
2. This kit is for use on the mechanisms listed below that are used on oil circuit breakers and the Westinghouse model 2300SF GCB.
3. If replacing a Norgren pilot valve with an external pilot pressure feed into port "P" on the old Norgren pilot valve, remove and discard the pipe plug from port "X1" on the new Ross pilot valve and connect the external pilot pressure tubing to the port on the Ross pilot valve marked "X1". The port on the Ross pilot valve marked "Y3" is the pilot exhaust and should always remain unplugged.

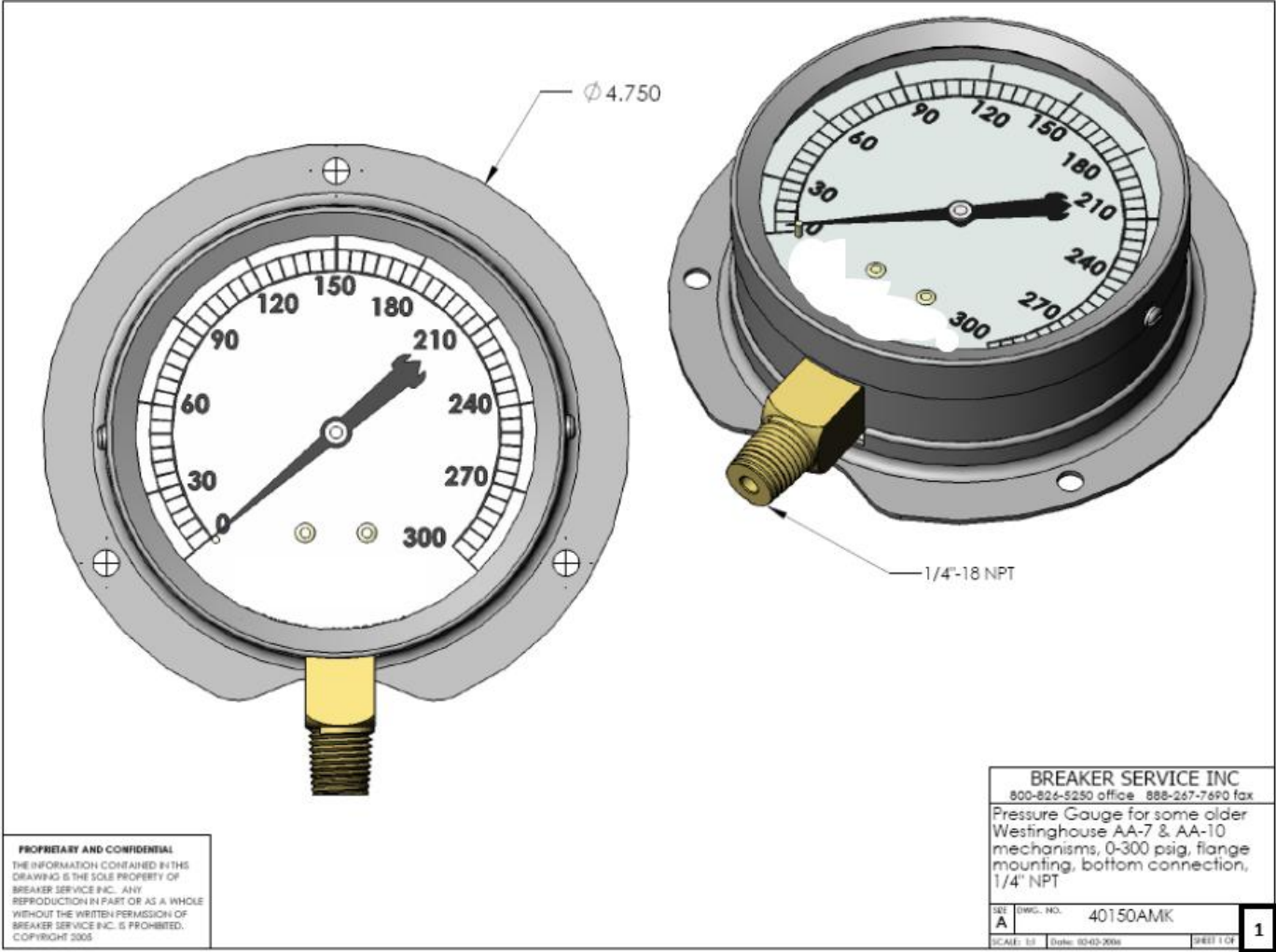
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Kit to replace the Westinghouse "magnet valve" pilot valve or Norgren D0035A pilot valve on AA-7, AA-10, & AA-14 W.H. main control valves with a Ross pilot valve - see notes for limitations

SIZE	DWG. NO.	REV.
A	37993AMK	4

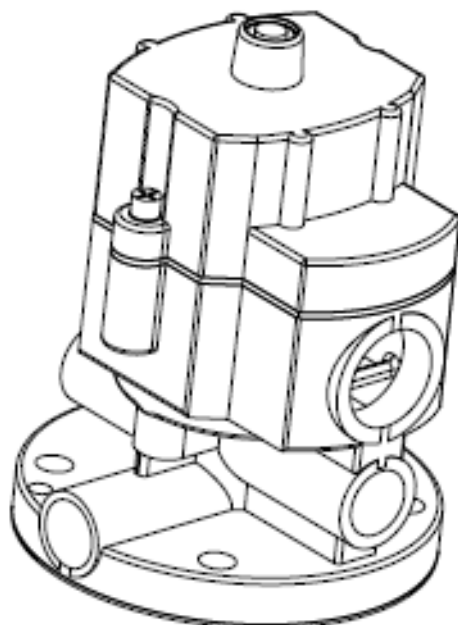
SCALE: 1:3 Date: 02-18-2005 SHEET 1 OF 1



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 Pressure Gauge for some older Westinghouse AA-7 & AA-10 mechanisms, 0-300 psig, flange mounting, bottom connection, 1/4" NPT

DATE	DMG. NO.	40150AMK	1
A	SCALE: 1:1	Date: 02-03-2005	

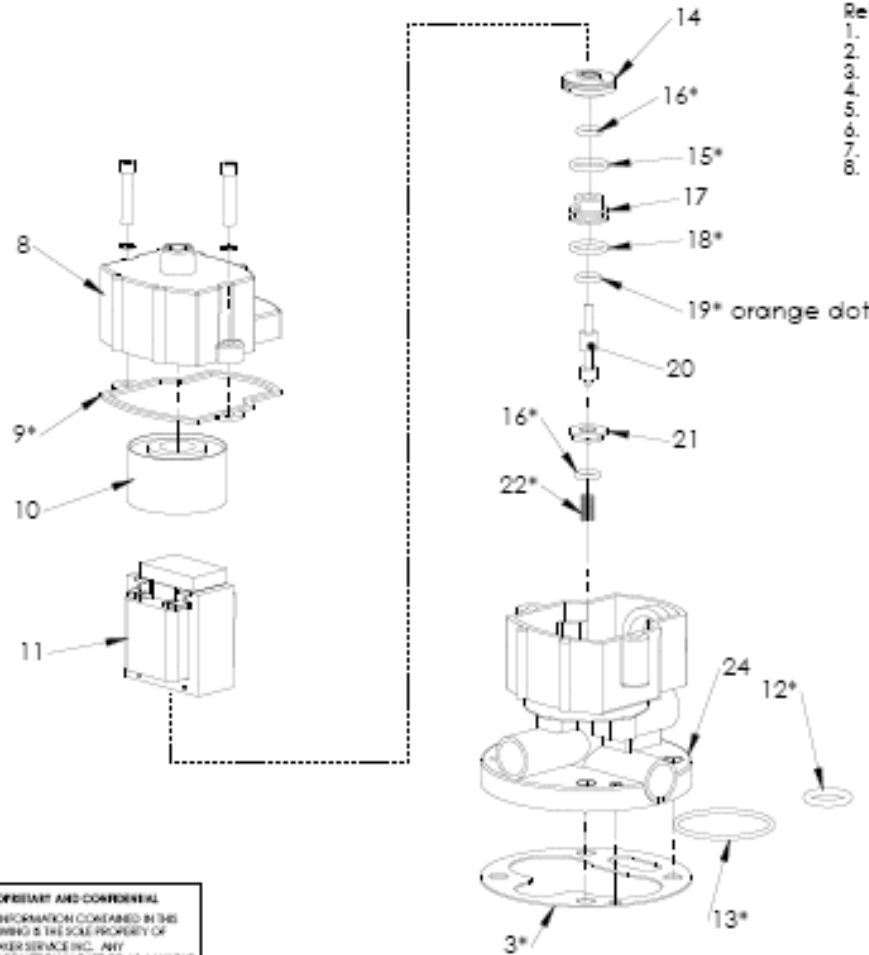


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800-826-5250 office 888-267-7690 fax

Norgren Pilot Valve with coil for
125vac operation

REV A	DWG. NO. 37562AMK	REV. 0
DATE/REV 02/02/2002	SHEET 1 OF 1	

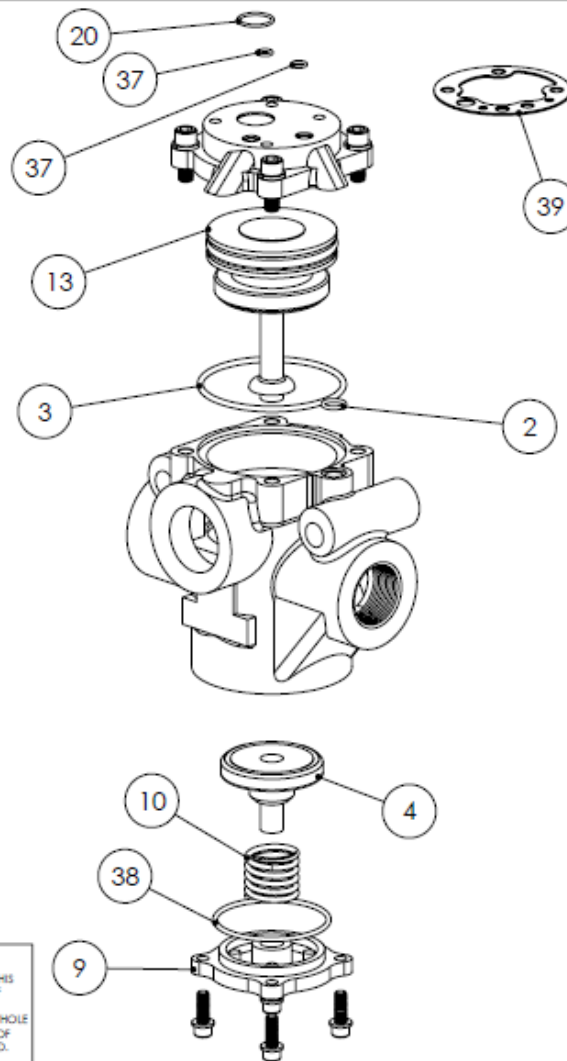


Rebuild instructions:

1. Do not proceed if you are not qualified for this work
2. Make breaker & mechanism safe for work
3. Disassemble and gently clean valve
4. Reassemble using new seals per drawing
5. Items 12 & 13 are used with older main valves
6. Item 3 is used with newer main valves
7. Take special note of the location of item 19
8. Sparngly lubricate orings with Parker Superlube

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BREAKER SERVICE INC		
800-828-5250 office 888-267-7690 fax		
Rebuild kit for Norgren pilot valve model D0035C or D00105.		
Items shown with asterisk * are included in this repair kit		
REV A	DWG. NO. 15028	REV. O
SCALE: N/A	Date: 04-10-2005	SHEET 1 OF 1



ITEM NO.	QTY.	DESCRIPTION
2	1	o-ring
3	1	o-ring
4	1	lower poppet
9	1	bottom plate
10	1	spring
13	1	upper poppet assy
20	1	o-ring
37	2	o-ring
38	1	o-ring
39	1	gasket

FIELD NOTES:

Time the breaker before & after you rebuild the main closing control valve.

Apply only a very thin film of the supplied grease to the moving piston seal on the upper poppet. All static o-rings (items 20,37,2,3,&38) should be lightly coated with a high quality o-ring grease such as Dow Corning # 111.

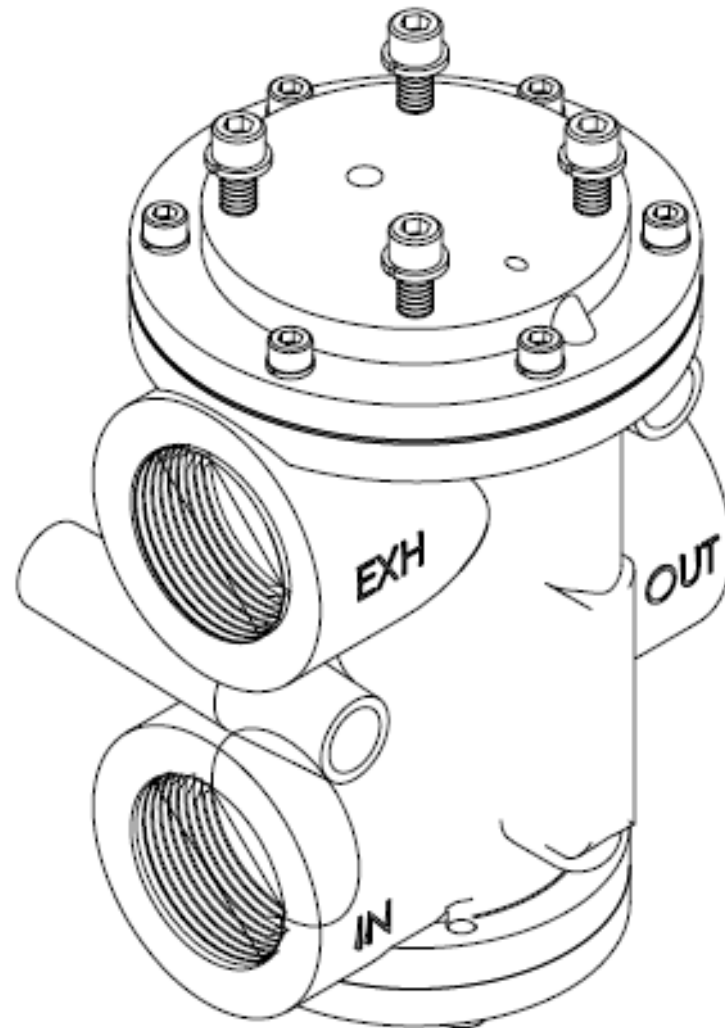
All the gaskets and o-rings may not be necessary depending on the exact configuration of your control valve.

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BREAKER SERVICE INC
 800-826-5250 office 888-267-7690 fax

Rebuild kit for Ross main control valves with 1-1/4" & 1-1/2" NPT ports.

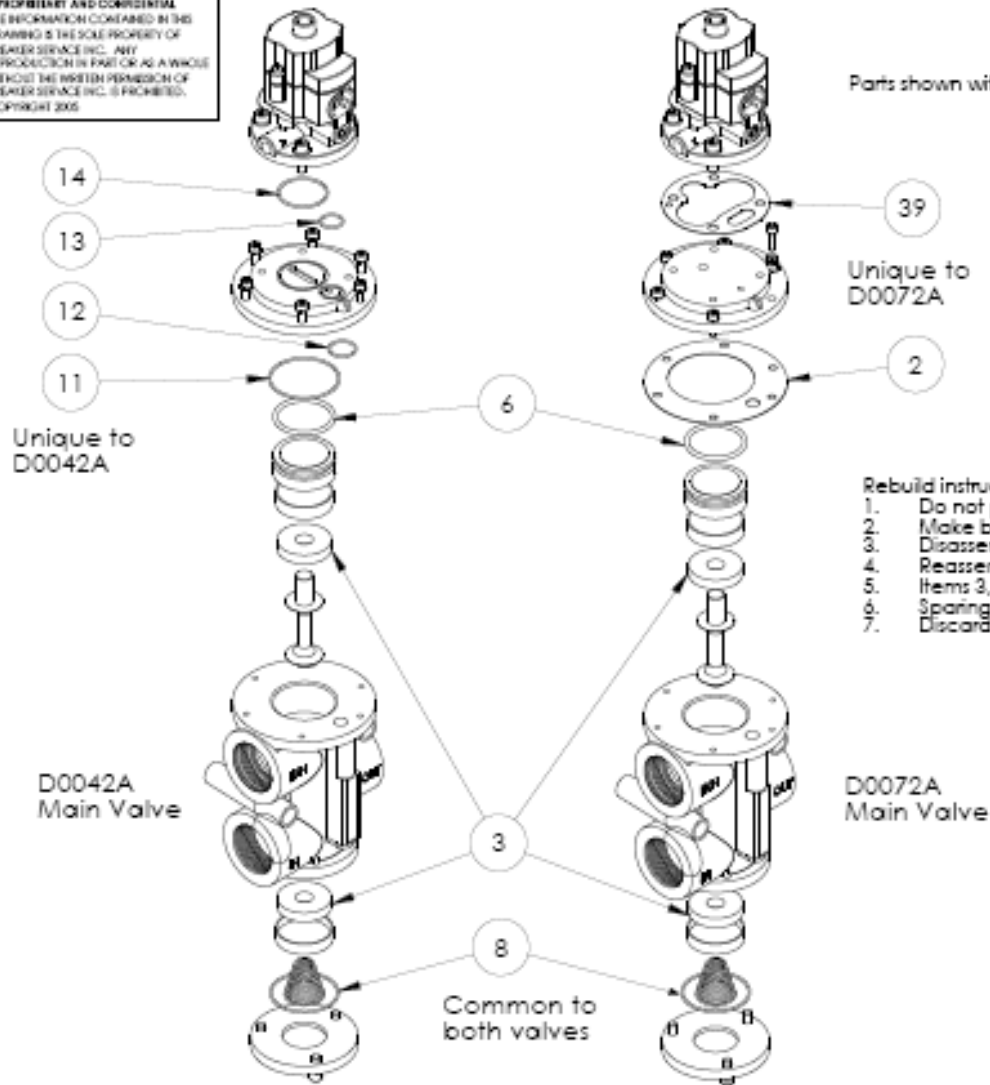
SIZE DWG. NO. 37882AMK REV. 0
 SCALE 1:1 Date: 09-16-2003 SHEET 1 OF 1



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BREAKER SERVICE INC	
800-826-5250 office 888-267-7690 fax	
Nargren main valve Used in Siemens & Westinghouse type SP breakers	
SIZE A	DWG. NO. 37480AMK
DATE 02-02-2002	REV 0
SHEET 1 OF 1	

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Parts shown with item numbers are included in the rebuild kit

Unique to
D0072A

Unique to
D0042A

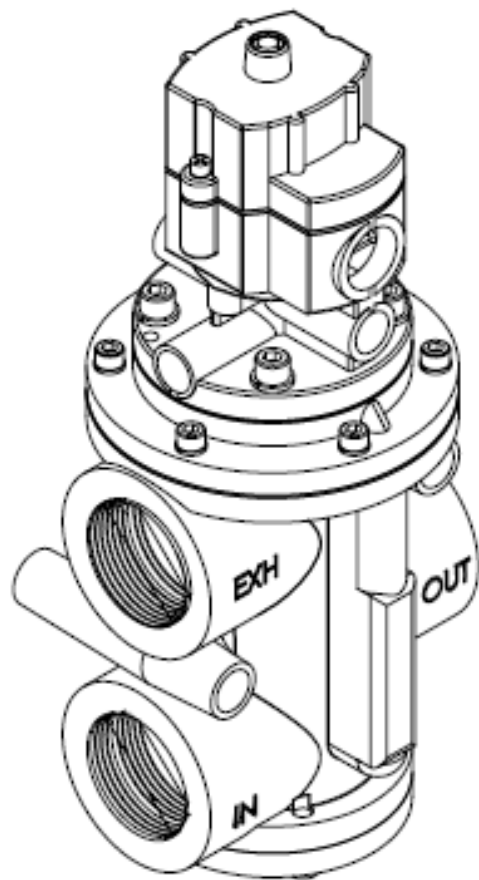
D0042A
Main Valve

D0072A
Main Valve

Common to
both valves

- Rebuild instructions:
1. Do not proceed if you are not qualified for this work
 2. Make breaker & mechanism safe for work
 3. Disassemble and gently clean valve
 4. Reassemble using new seals per drawing
 5. Items 3, 6 & 8 are common to both valves
 6. Sparingly lubricate orings with Parker Superlube
 7. Discard unused parts

BREAKER SERVICE INC		
800-826-5250 office 888-267-7690 fax		
Rebuild kit for Norgren D0042A or D0072A main control valve used on Siemens & Westinghouse type SP gas circuit breakers		
REV A	DWG. NO. 15031AMK	REA O
SCALE 1:1	Date: 01-10-2005	SHEET 1 OF 1



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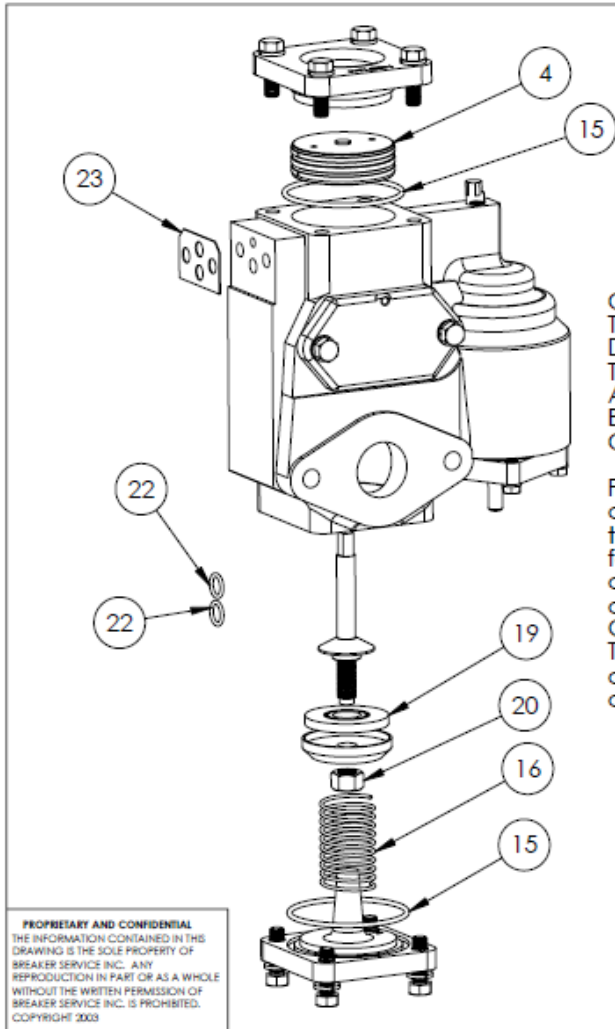
BREAKER SERVICE INC

800-525-5250 office 888-257-7690 fax

Norgren pilot & main valve assembly with coil for 125vac operation. Used in Siemens & Westinghouse type SP breakers

REV | DWG. NO. | REV
A | 37479AMK | 0

DCAN001 | DATE: 02-02-2002 | SHEET 1 OF 1



ITEM NO.	QTY.	DESCRIPTION
4	1	Piston Assy - New Style
15	2	O-ring
16	1	Spring
19	1	Valve Disc
20	1	Lock Nut
22	2	Adapter Plate O-ring
23	1	Gasket

CAUTION !!!

The new piston is shipped with a white ring on it.
DO NOT discard this ring.

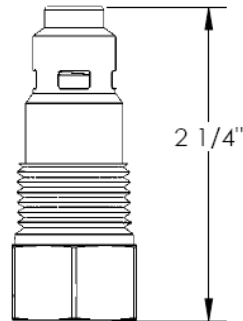
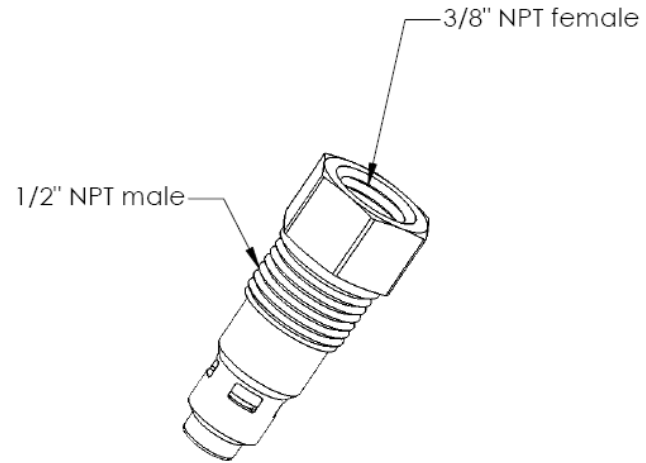
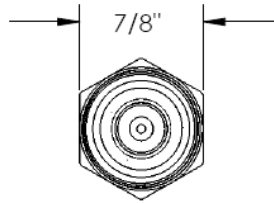
This ring serves 3 functions:

- A) To protect the piston, guide rings, and omniseal.
- B) As a re-sizing tool when the omniseal is installed.
- C) As the installation tool to insert the piston into the valve.

Failure to follow this instruction will cause concealed damage to the piston guide rings and omniseal. To install the piston, make sure that the hollow side of the installation ring is facing into the valve and at the bottom of the narrow end of the installation ring. Center the piston and installation ring over the bore and hold it flush with the face of the valve. Gently push the piston through the ring directly into the bore. This will prevent the guide rings and omniseal from expanding as they enter the bore, thus avoiding damage from the edge of the bore.

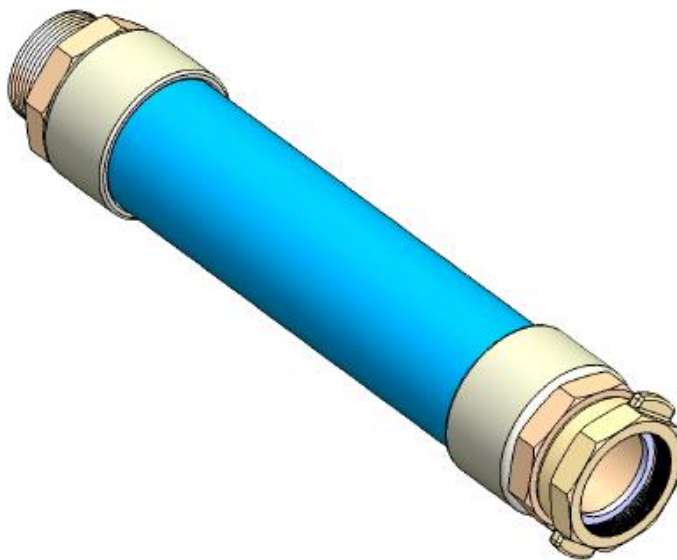
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BREAKER SERVICE INC		
800-826-5250 office 888-267-7690 fax		
Kit to rebuild Westinghouse AA-10 mechanism control valve		
SIZE A	DWG. NO. 37652AMK	REV. 0
SCALE: NTS	Date: 01-15-2003	SHEET 1 OF 1



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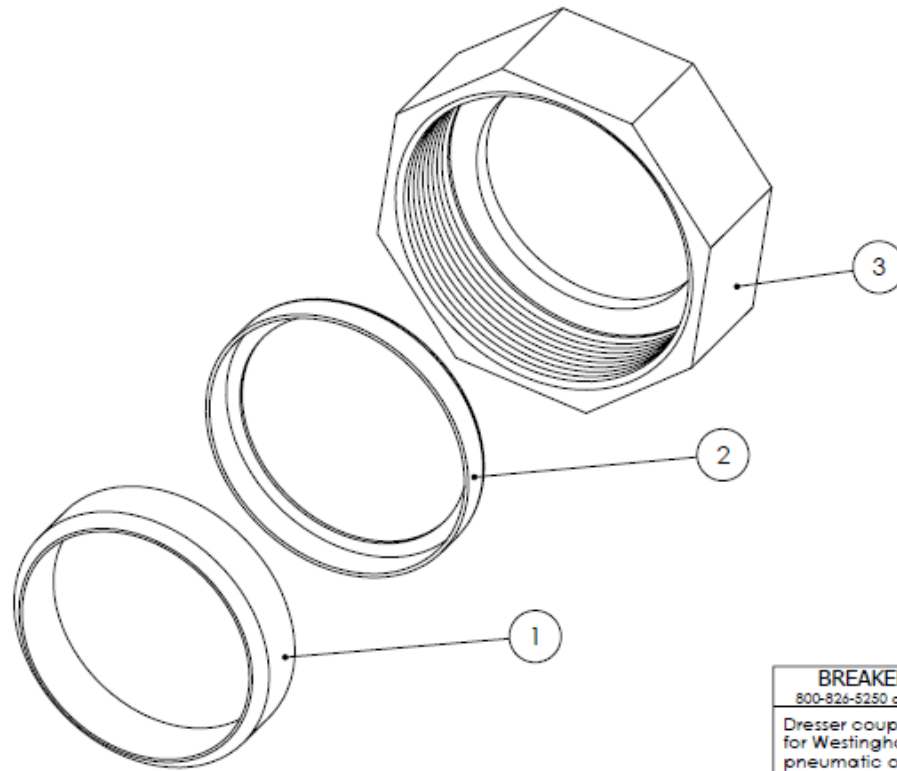
BREAKER SERVICE INC			
800-826-5250 office 888-267-7690 fax			
Check valve, intank			
Westinghouse # 513A271H01			
Siemens # 513A271H01			
SIZE	DWG. NO.	REV.	
A	37526AMK	0	
SCALE 1:1	Date: 02-02-2003	SHEET 1 OF 1	



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BREAKER SERVICE INC 800-826-5250 office 888-267-7690 fax			
Hose for air receiver to Mech. for WH breaker type 145-GMB-63 W/AA-10-80 Mech 1.5" I.D X 13.5" long			
SIZE A	QTY 1	PNL 37361AMK	REV 0
SCALE	DATE	SHEET 1 OF 1	

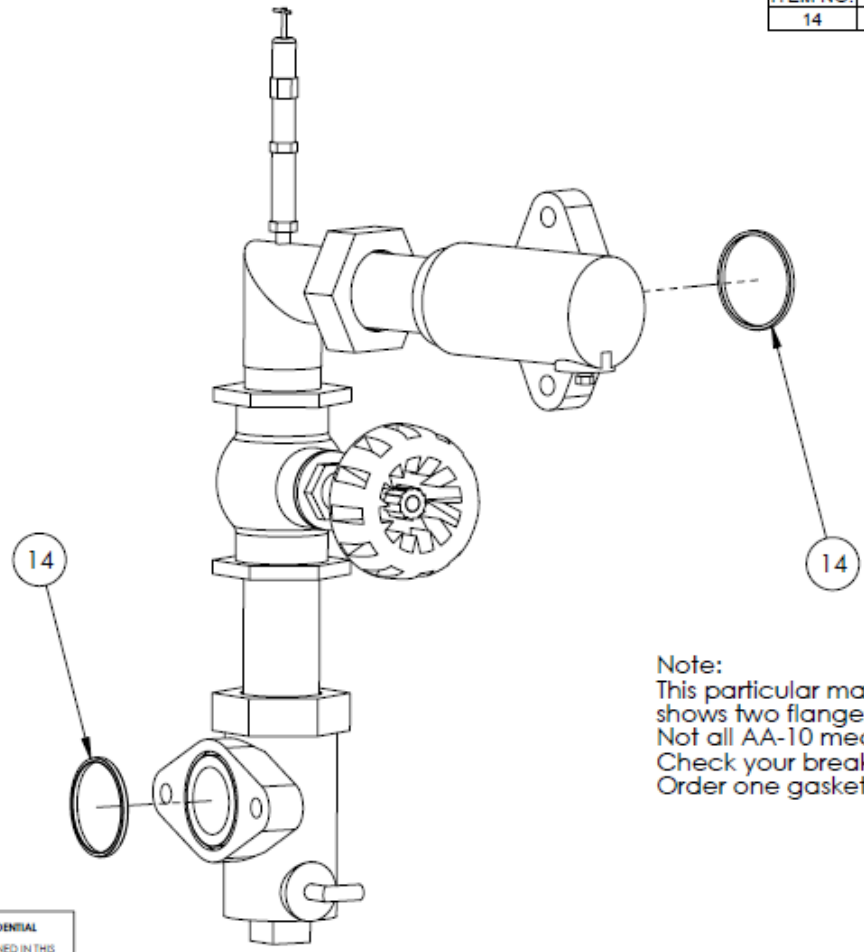
ITEM NO.	QTY.	DESCRIPTION
1	1	Gasket
2	1	Retainer
3	1	Nut



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BREAKER SERVICE INC			
800-826-5250 office 888-267-7690 fax			
Dresser coupling assembly for Westinghouse AA-10 pneumatic operating mech. For 1.900 inch O.D. pipe			
SIZE	DWG. NO.	REV.	
A	30522	0	
SCALE: NTS	Date: 08-09-2003	SHEET 1 OF 1	

ITEM NO.	QTY.	DESCRIPTION
14	2	Gasket

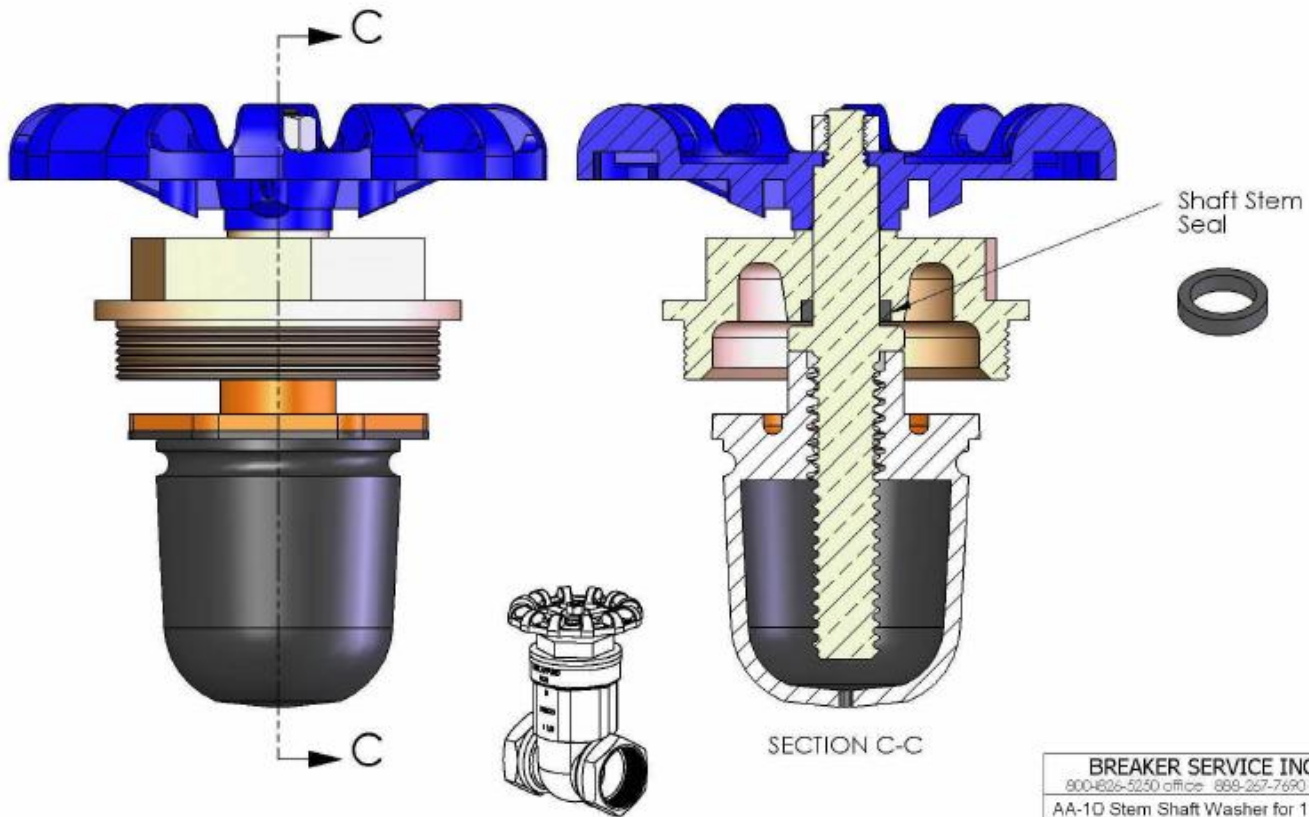


Note:
 This particular manifold configuration shows two flanges, requiring 2 gaskets. Not all AA-10 mechs have 2 flanges. Check your breaker for your particular needs. Order one gasket (part# 30523) per flange.

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BREAKER SERVICE INC
 800-826-5250 office 888-267-7690 fax
 Gasket for flanges on Westinghouse AA-10 pneumatic operating mech.

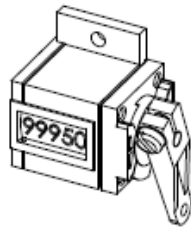
SIE	DWG. NO.	REV.
A	30523	0
SCALE: NTS	Date: 08-09-2003	SHEET 1 OF 1



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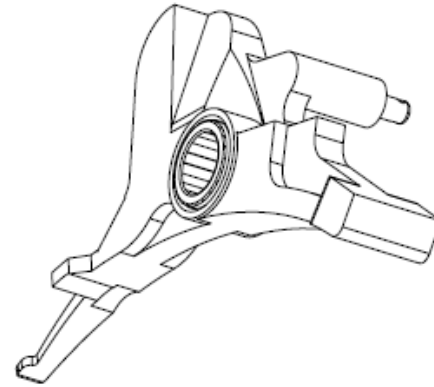
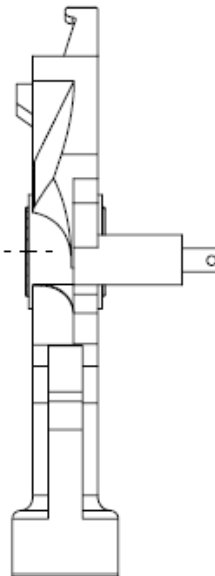
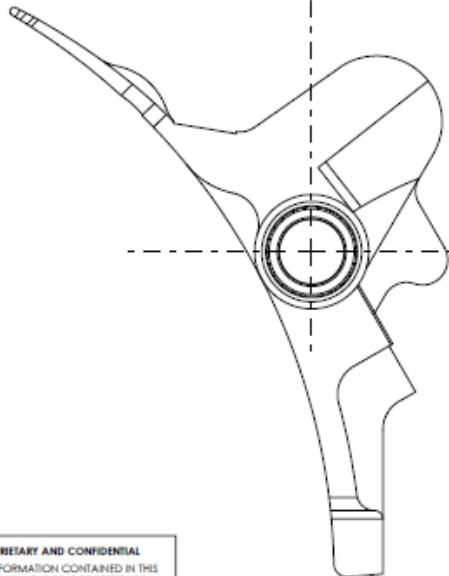
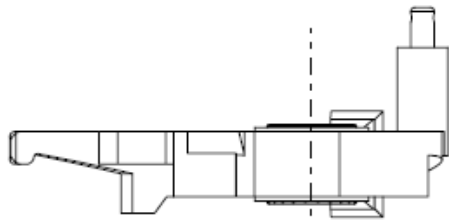
Complete valve shown
 for reference only.
 Valve body not included
 in repair kit.

BREAKER SERVICE INC			
800-626-5250 office 888-267-7690 fax			
AA-1D Stem Shaft Washer for 1.5" air shut off valve			
SIZE A	DWG. NO. 38213AMK	REV. 0	
SCALE: 1:1	DATE: 06-09-2004	SHEET 0F 1	



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BREAKER SERVICE INC 800-826-5250 office 888-267-7490 fax		
Operations Counter for Westinghouse AA-7 mech Westinghouse part # 491759		
SIZE A	DWG. NO. 38303AMK	REV. 0
SCALE 1:1	Date: 05-15-2004	SHEET 1 OF 1



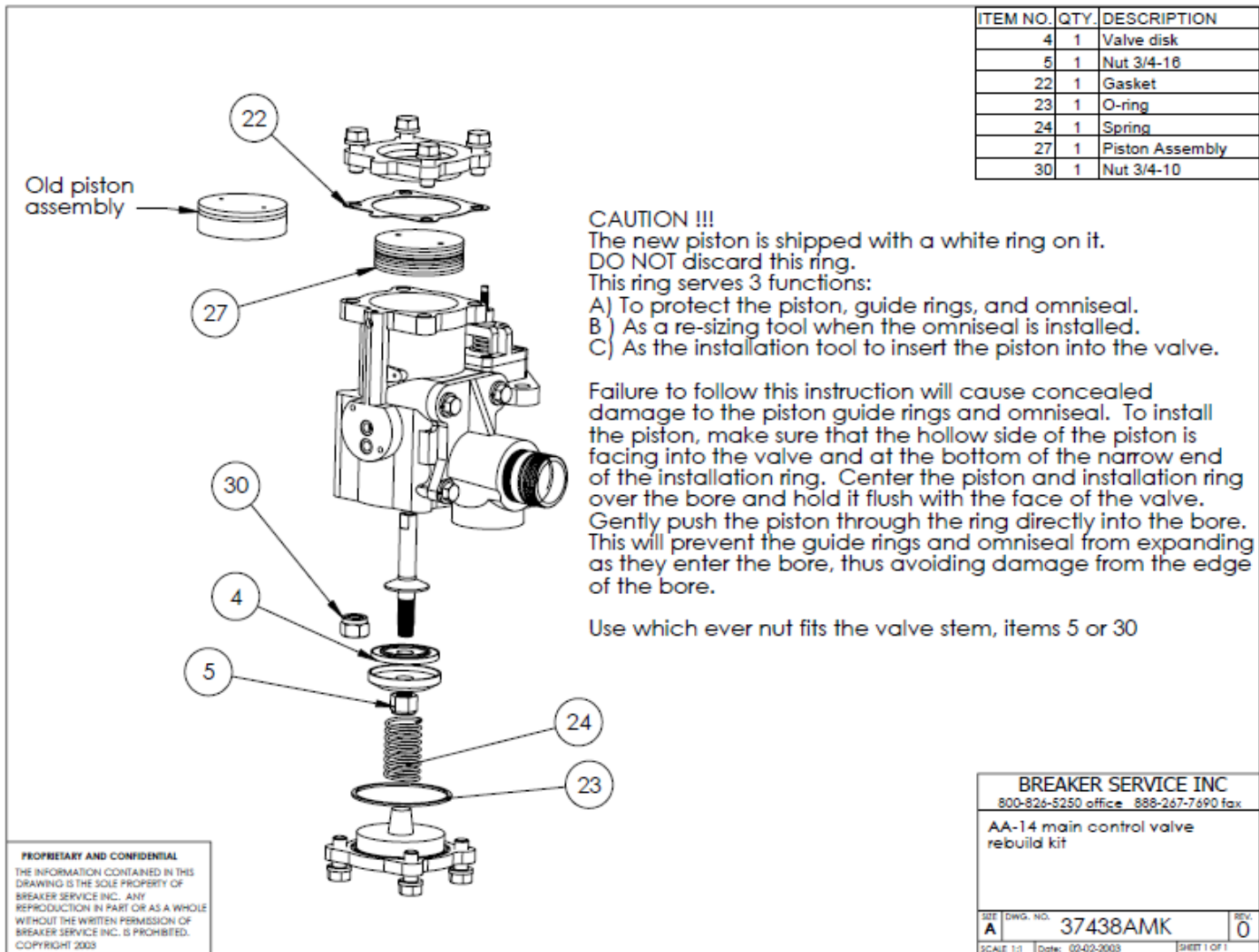
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BREAKER SERVICE INC			
800-826-5250 office 888-267-7690 fax			
Trip free trigger			
For Westinghouse AA-10 mech			
A88 part # 23D6021G02			
Westinghouse style # 1647752			
SIZE	DWG. NO.	REV.	
A	37272AMK	0	
SCALE 1:1	Date: 02-02-2003	SHEET 1 OF 1	



AA-14

MECHANISM



ITEM NO.	QTY.	DESCRIPTION
4	1	Valve disk
5	1	Nut 3/4-16
22	1	Gasket
23	1	O-ring
24	1	Spring
27	1	Piston Assembly
30	1	Nut 3/4-10

CAUTION !!!
 The new piston is shipped with a white ring on it.
 DO NOT discard this ring.
 This ring serves 3 functions:
 A) To protect the piston, guide rings, and omniseal.
 B) As a re-sizing tool when the omniseal is installed.
 C) As the installation tool to insert the piston into the valve.

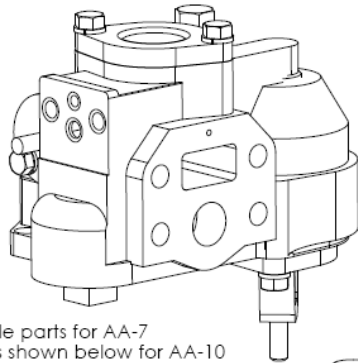
Failure to follow this instruction will cause concealed damage to the piston guide rings and omniseal. To install the piston, make sure that the hollow side of the piston is facing into the valve and at the bottom of the narrow end of the installation ring. Center the piston and installation ring over the bore and hold it flush with the face of the valve. Gently push the piston through the ring directly into the bore. This will prevent the guide rings and omniseal from expanding as they enter the bore, thus avoiding damage from the edge of the bore.

Use which ever nut fits the valve stem, items 5 or 30

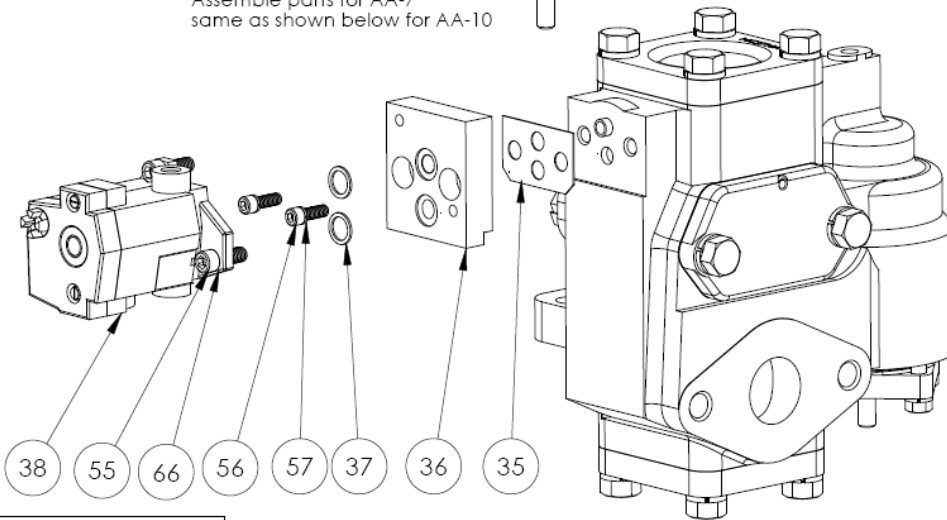
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BREAKER SERVICE INC		
800-826-5250 office 888-267-7690 fax		
AA-14 main control valve rebuild kit		
SIZE	DWG. NO.	REV.
A	37438AMK	0
SCALE 1:1	Date: 02-02-2003	SHEET 1 OF 1

Westinghouse AA-7 main control valve



Assemble parts for AA-7
same as shown below for AA-10



Westinghouse AA-10 main control valve

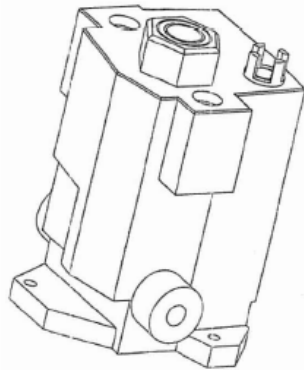
Item No	BSI part #	Description	Qty
35	30525/37131AMK	gasket	1
36	37990AMK	adapter	1
37	2112470/37124AMK	o-ring	2
38	37450AMK	Ross pilot valve	1
55	37134AMK	socket head cap screw, 1/4-20 x 1"	2
56	38596AMK	socket head cap screw, 3/8-16 x 1"	2
57	37144AMK	lock washer, 3/8"	2
66	37145AMK	lock washer, 1/4"	2

Notes:

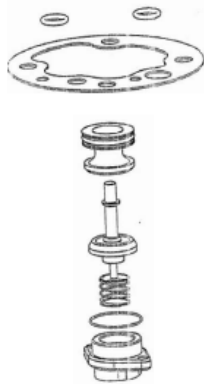
1. Always time the breaker before (if possible) and after replacing the pilot valve to ensure proper closing speed.
2. This kit is for use on the mechanisms listed below that are used on oil circuit breakers and the Westinghouse model 2300SF GCB.
3. If replacing a Norgren pilot valve with an external pilot pressure feed into port "P" on the old Norgren pilot valve, remove and discard the pipe plug from port "X1" on the new Ross pilot valve and connect the external pilot pressure tubing to the port on the Ross pilot valve marked "X1". The port on the Ross pilot valve marked "Y3" is the pilot exhaust and should always remain unplugged.

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BREAKER SERVICE INC			
800-826-5250 office 888-267-7690 fax			
Kit to replace the Westinghouse "magnet valve" pilot valve or Norgren D0035A pilot valve on AA-7, AA-10, & AA-14 W.H. main control valves with a Ross pilot valve - see notes for limitations			
SIZE A	DWG. NO. 37993AMK	REV. 4	
SCALE: 1:3	Date: 02-18-2005	SHEET 1 OF 1	



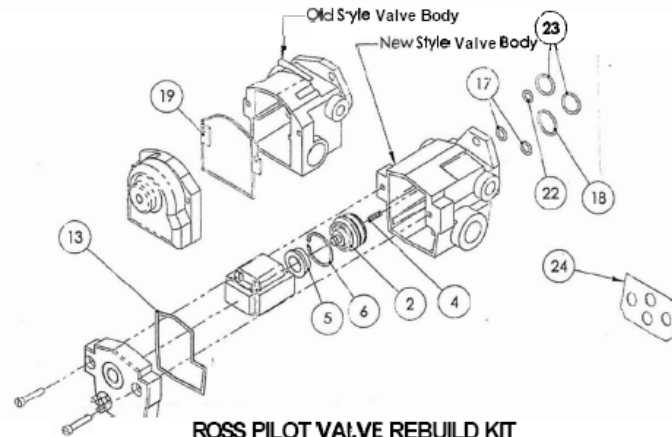
ROSS PILOT
BSI PART 37450AMK



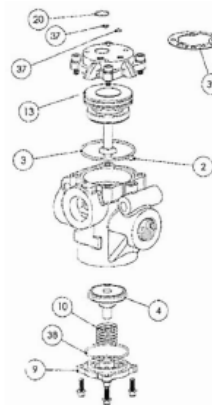
1/4, 3/8 & 1/2
BSI 37887AMK

ROSS MAIN CONTROL VALVE REPAIR KIT
1/2, 3/4 & 1
BSI 37169AMK

INCLUDES QTY 1 EACH:
37450AMK, K12274, 37887AMK, 37169AMK & 37882AMK



ROSS PILOT VALVE REBUILD KIT
BSI KIT K12274

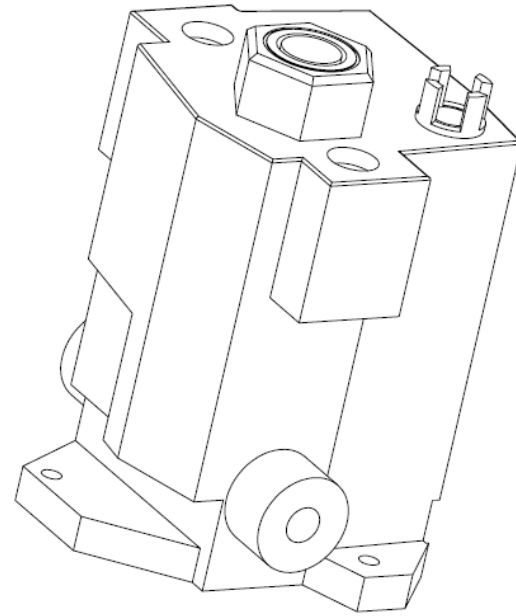


1-1/4 & 1-1/2
BSI 37882AMK

BREAKER SERVICE INC
800-926-5250 office 838-267-7690 fax
ROSS VALVE FIRST AID KIT
REPAIRS ALL ROSS MAIN
& PILOT VALVES

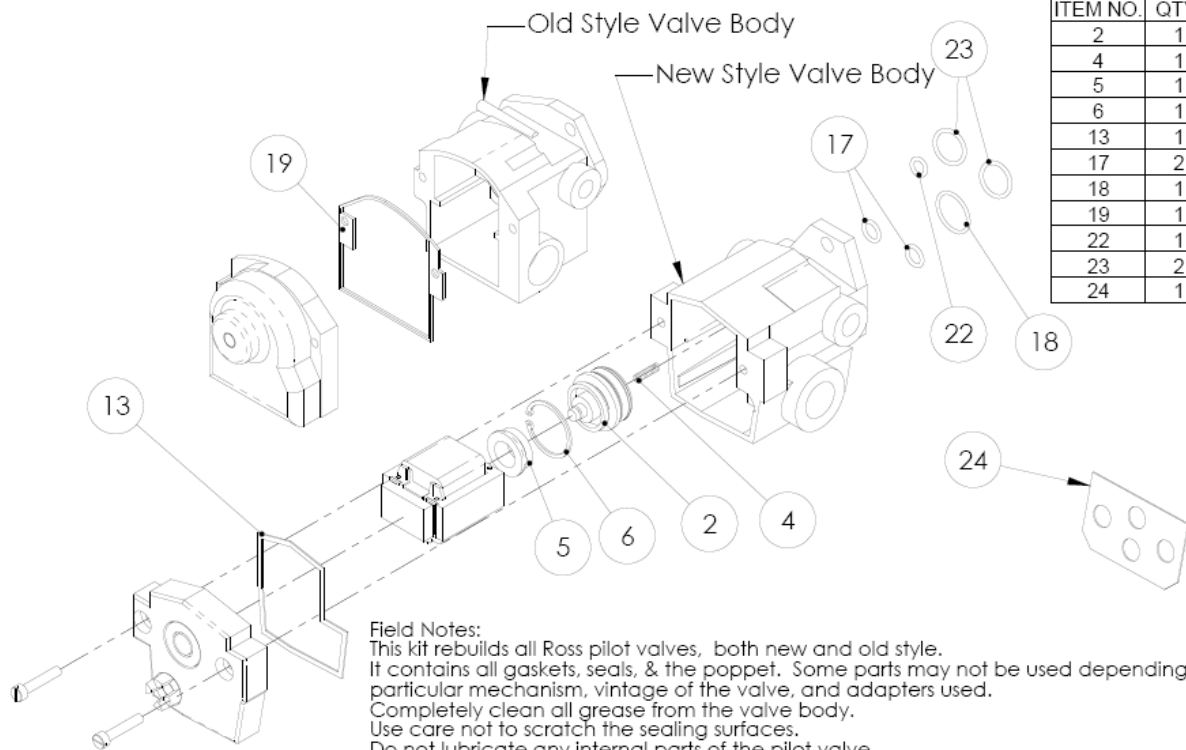
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SIZE	DWG. NO.	REV.
A	38275AMK	0
SCALE: NTS	Date:	SHEET 1 OF 1



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BREAKER SERVICE INC		
800-826-5250 office 888-267-7690 fax		
Ross Pilot Valve with coil for 125vdc operation		
SIZE A	DWG. NO. 37450AMK	REV. 0
SCALE:1:1	Date: 02-02-2002	SHEET 1 OF 1



ITEM NO.	QTY.	DESCRIPTION
2	1	poppet assembly
4	1	spring
5	1	bumper
6	1	retaining ring
13	1	new style cover gasket
17	2	o-ring
18	1	o-ring
19	1	old style cover gasket
22	1	o-ring
23	2	o-ring
24	1	gasket

Field Notes:

This kit rebuilds all Ross pilot valves, both new and old style. It contains all gaskets, seals, & the poppet. Some parts may not be used depending on the particular mechanism, vintage of the valve, and adapters used. Completely clean all grease from the valve body. Use care not to scratch the sealing surfaces. Do not lubricate any internal parts of the pilot valve. There should be only one spring in the pilot valve - it is located under the poppet as shown in the drawing. If the sealing surfaces are scored, then the valve must be replaced.

Time the breaker before (if possible) and after rebuilding the pilot valve.

Use item 23 & 24 for the Westinghouse style main control valve with adapter block.
 Use items 17 for Ross main valves with ports 1" & smaller
 Use items 18 & 22 for Ross main valves with ports larger than 1"

The internal parts (items 2, 4, 5, & 6) are the same for the old & new style pilot valve bodies, but not illustrated above for the old style valve body.

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BREAKER SERVICE INC		
800-826-5250 office 888-267-7690 fax		
Ross pilot valve rebuild kit		
SIZE A	DWG. NO. 12274	REV. 6
SCALE: 1:2.5 Date: 09-02-2003		SHEET 1 OF 1

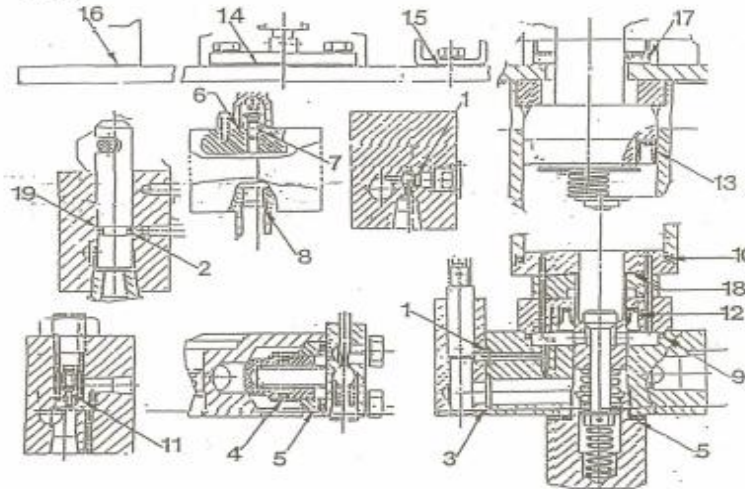


McGRAW EDISON OA-3 MECHANISM

PARTS NUMBERS ARE FOR REFERENCE ONLY. WE DO NOT IMPLY THAT ANY OF THESE PARTS WERE SUPPLIED BY, OR WERE APPROVED BY THE ORIGINAL EQUIPMENT MANUFACTURER. MCGRAW EDISON

REF	QTY	PART	REPLACES	REF	QTY	PART	REPLACES
1	2	2 0084	223 116 008	10	1	2 1494	223 116 149
2	1	2 1114	223 116 111	11	1	2 0134	223 116 013
3	1	2 1134	223 116 113	12	1	31128	223 091 112
4	1	2 1154	223 116 115	12	1	3759SAMK	223 091 113
5	2	2 2164	223 116 216	13	1	31127	223 091 111
6	1	2 2184	223 116 218	13	.1	37541AMK	223 091 110
7	1	2 0154	223 116 015	14	1	31125	FA 13060
8	1	3 9244	223 116 924	15	1	31124	FA 13061
9	1	2 2284	223 116 228	16	1	31123	FA 13062
9	1	2 2344	223 116 234	17	1	31122	FA 11956
10	1	2 2314	223 116 231	18	1	31121	FA 12802
10	1	2 1414	223 116 141	19	1	8 1114	223 202 111

*NOTE: There are additional parts provided in the kit to accommodate mechanism type OA-3A, B & C.



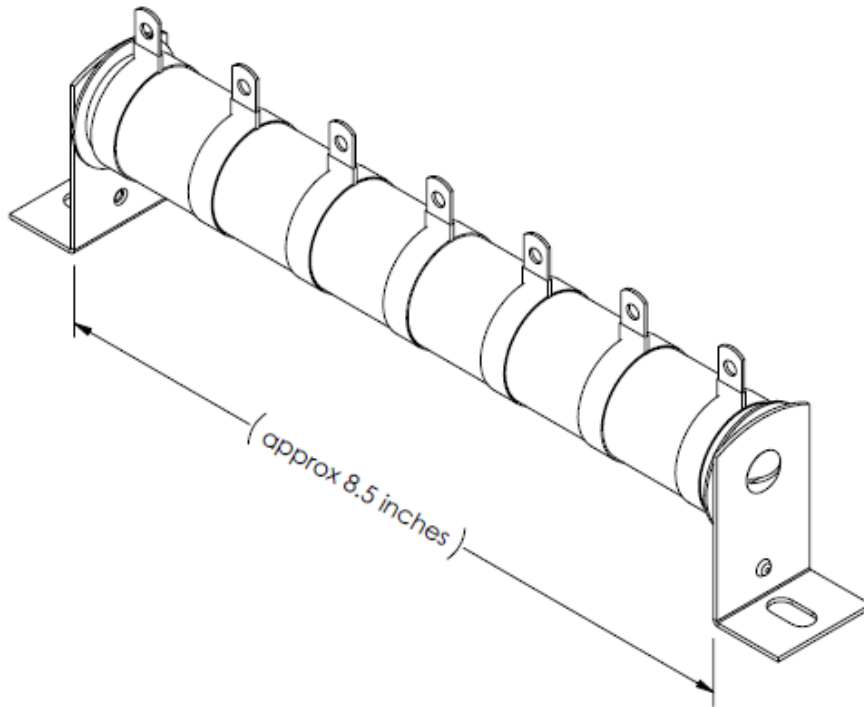
FC 10616 OA-3 MECHANISM

BREAKER SERVICE, INC.
1080 S. CYPRESS STREET, SUITE D
LA HABRA, CALIFORNIA 90631

PHONE: 800-426-5250
FAX: 800-267-7690

MECHANISM
GC 10616 OA-3
FC 10616 OA-3

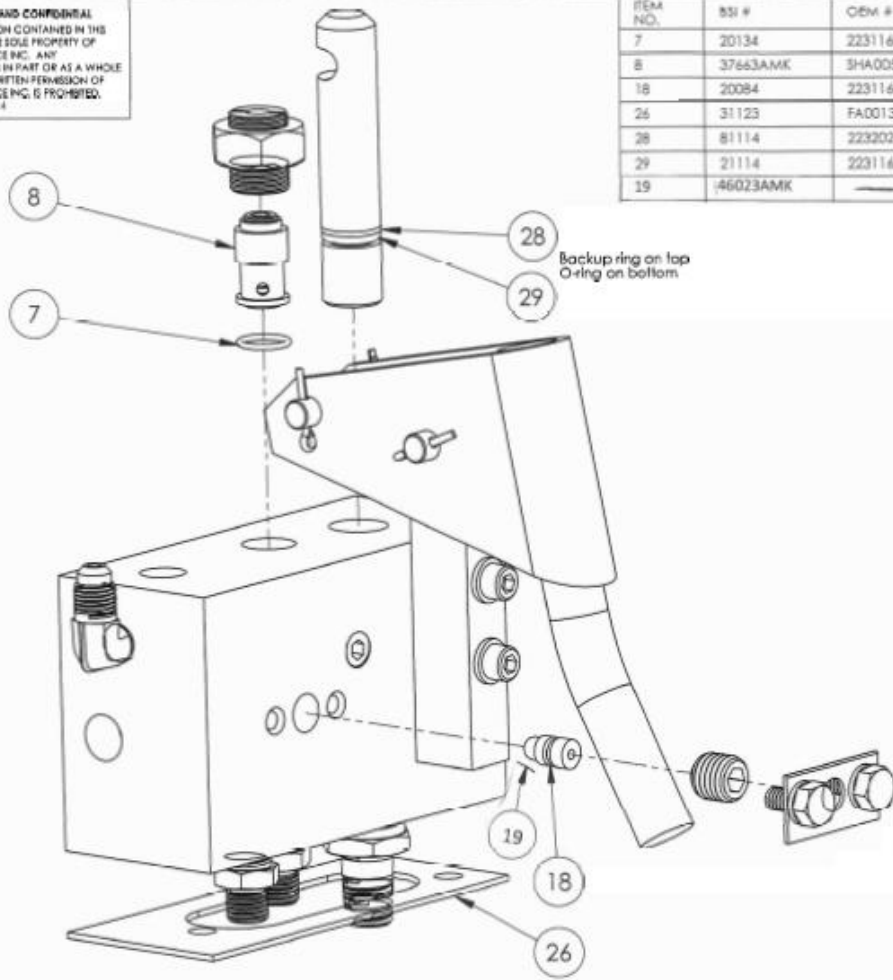
12308



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BREAKER SERVICE INC		
800-826-5250 office 888-267-7890 fax		
Resistor, multi tap, from 5 to 10 ohms by 1 ohm increments. Used in various Fed Pacific, McGraw Edison, & Cooper circuit breaker mechanisms		
SIZE A	DWG. NO. 37626AMK	REV. 0
SCALE: NTS	Date: 01-06-2003	SHEET 1 OF 1

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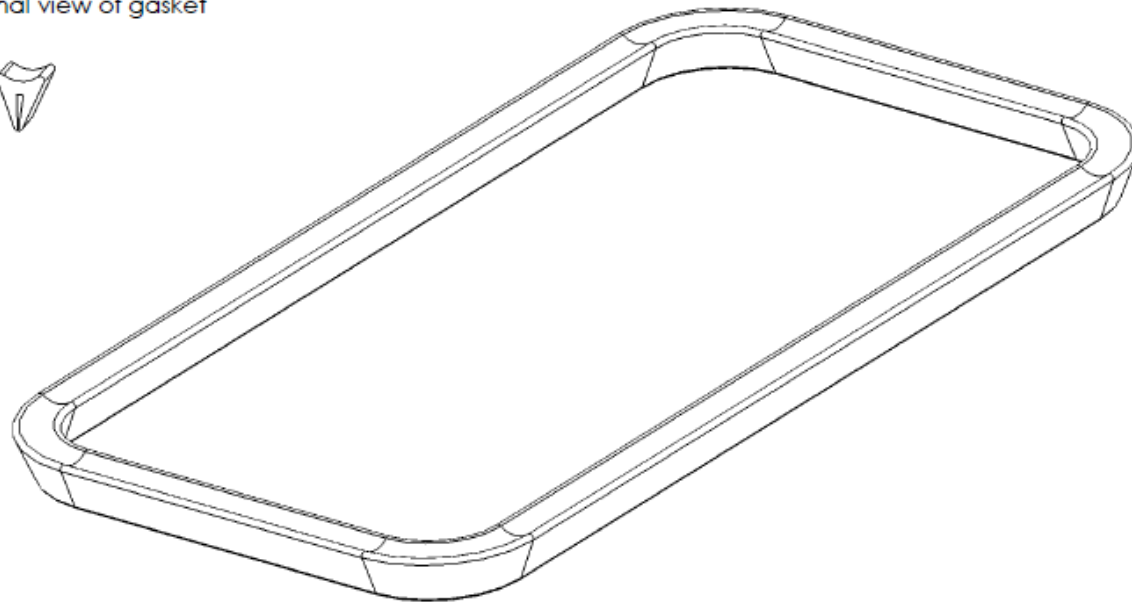
ITEM NO.	SSI #	OEM #	DESCRIPTION	QTY.
7	20134	223116013	"O" RING	1
8	37663AMK	3HA00504A00A	RELIEF VALVE ASSY	1
18	20084	223116008	"O" RING	1
26	31123	FA0013062	GASKET	1
28	81114	223202111	BACK-UP RING	1
29	21114	223116111	"O" RING	1
19	46023AMK		BALL BEARING	1

Backup ring on top
 O-ring on bottom

BREAKER SERVICE INC
 800-526-5250 office 888-267-7690 fax
 Kit to rebuild the manual hand
 pump and relief valve block for
 a McGraw Edison OA-3 mech.

REV. NO. 38405AMK
 SCALE 1:1 (IN) (DIM) SHEET 1 OF 1

Cross sectional view of gasket



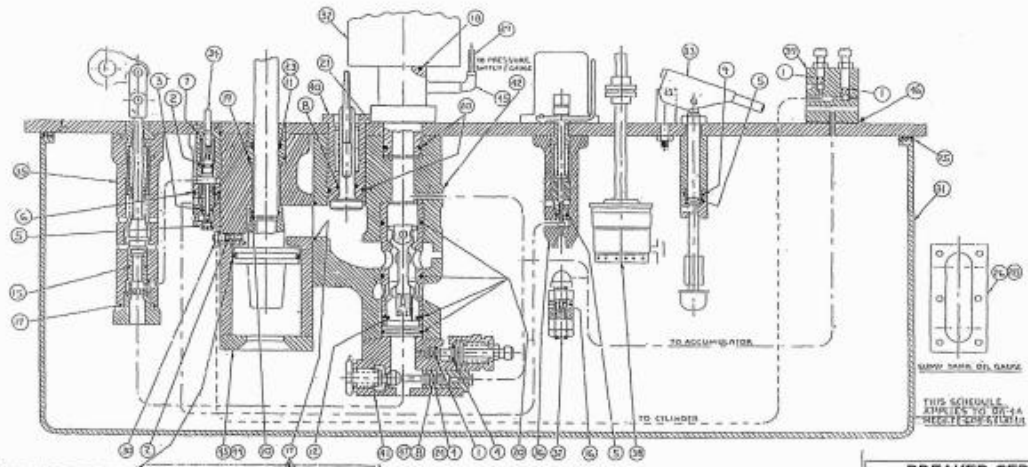
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BREAKER SERVICE INC 800-826-5250 office 888-267-7690 fax		
Tank gasket for hydraulic reservoir on McGraw Edison type OA-3 circuit breaker operating mechanisms		
SIZE A	DWG. NO. 37270AMK	REV. 0
SCALE 1:1	Date: 02-03-2003	SHEET 1 OF 1



McGRAW EDISON
OA-4 MECHANISM

QTY	ITEM	DESCRIPTION	OEM	BSI #	QTY	ITEM	DESCRIPTION	OEM	BSI #	QTY	ITEM	DESCRIPTION	OEM	BSI #
3	1	ORING	223116010	2 0104	1	11	ORING	223116325	2 3254	2	21	BACKUP RING	223202459	42 349
2	2	ORING	223116012	2 0124	1	12	ORING	223116326	2 3264	2	22	BACKUP RING	223202456	42 346
1	3	ORING	223116110	2 1104	1	13	ORING	223116349	2 3494	2	23	BACKUP RING	223202435	42 325
2	4	ORING	223116111	2 1114	1	14	ORING	223116346	2 3464	1	24	BACKUP RING	223202309	40 311
3	5	ORING	223116113	2 1134	1	15	ORING	223116114	2 1144	1	25	GASKET	223171001	39292AMK
1	6	ORING	223116115	2 1154	1	16	ORING	223116013	2 0134	1	-	COTTER PIN		33997AMK
1	7	ORING	223116211	2 2114	2	17	ORING	223116225	2 2254	1	26	GASKET	FA0004126	39295AMK
2	8	ORING	223116212	2 2124	1	18	ORING	223116924	3 9244	2	27	GASKET	FA0003388	39296AMK
1	9	ORING	223116214	2 2144	1	19	ORING	223116227	2 2274	1	46	GASKET	E20021985	39294AMK
1	10	ORING	223116222	2 2224	6	20	ORING	223116228	2 2284	1	47	BACKUP RING	223202217	39298AMK



QCD TYPES	QCD NUMBER	QCD DATE
REV 00	01 2 21	
REV 01	03 06 04	
REV 02	04 22 04	
REV 03	05 22 04	

QCD NOTES:
 1. "QCD" does not act as a design or spec. All drawings created must be reviewed from their design authority.
 2. "QCD" does not act as a design or spec. All drawings created must be reviewed from their design authority.
 3. "QCD" does not act as a design or spec. All drawings created must be reviewed from their design authority.
 4. "QCD" does not act as a design or spec. All drawings created must be reviewed from their design authority.

1. Revs 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

QTY	ITEM	DESCRIPTION	OEM	BSI #
2	21	BACKUP RING	223202459	42 349
2	22	BACKUP RING	223202456	42 346
2	23	BACKUP RING	223202435	42 325
1	24	BACKUP RING	223202309	40 311
1	25	GASKET	223171001	39292AMK
1	-	COTTER PIN		33997AMK
1	26	GASKET	FA0004126	39295AMK
2	27	GASKET	FA0003388	39296AMK
1	46	GASKET	E20021985	39294AMK
1	47	BACKUP RING	223202217	39298AMK

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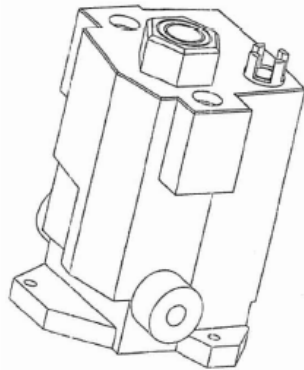
MCGRAW EDISON
OA-4 MECHANISMS REPAIR KIT
OEM SHC00043A

REV: A Dwg. No: **K12302** SHEET 0
 SCALE: NTS Date: SHEET 0 OF 1

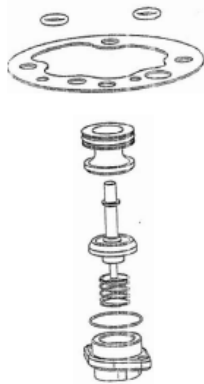
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ROSS ITEMS



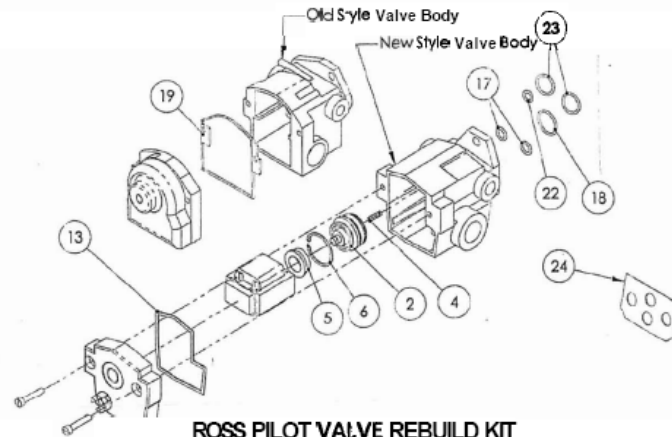
ROSS PILOT
BSI PART 37450AMK



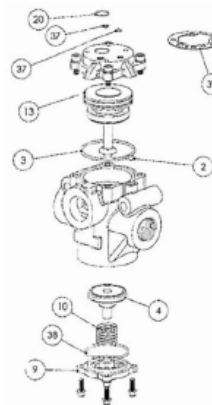
1/4, 3/8 & 1/2
BSI 37887AMK

ROSS MAIN CONTROL VALVE REPAIR KIT
1/2, 3/4 & 1
BSI 37169AMK

INCLUDES QTY 1 EACH:
37450AMK, K12274, 37887AMK, 37169AMK & 37882AMK



ROSS PILOT VALVE REBUILD KIT
BSI KIT K12274



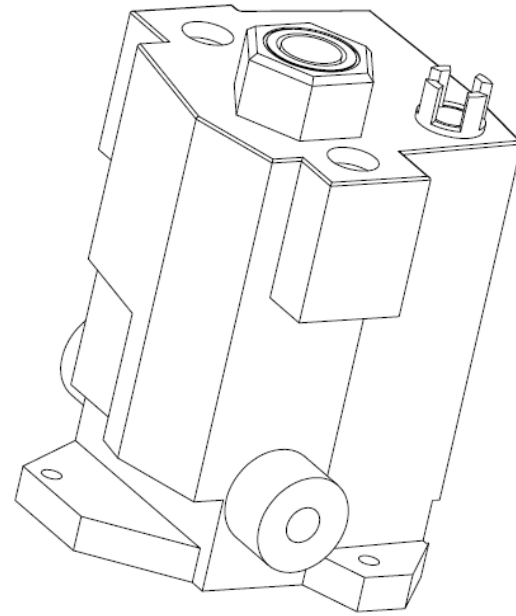
1-1/4 & 1-1/2
BSI 37882AMK

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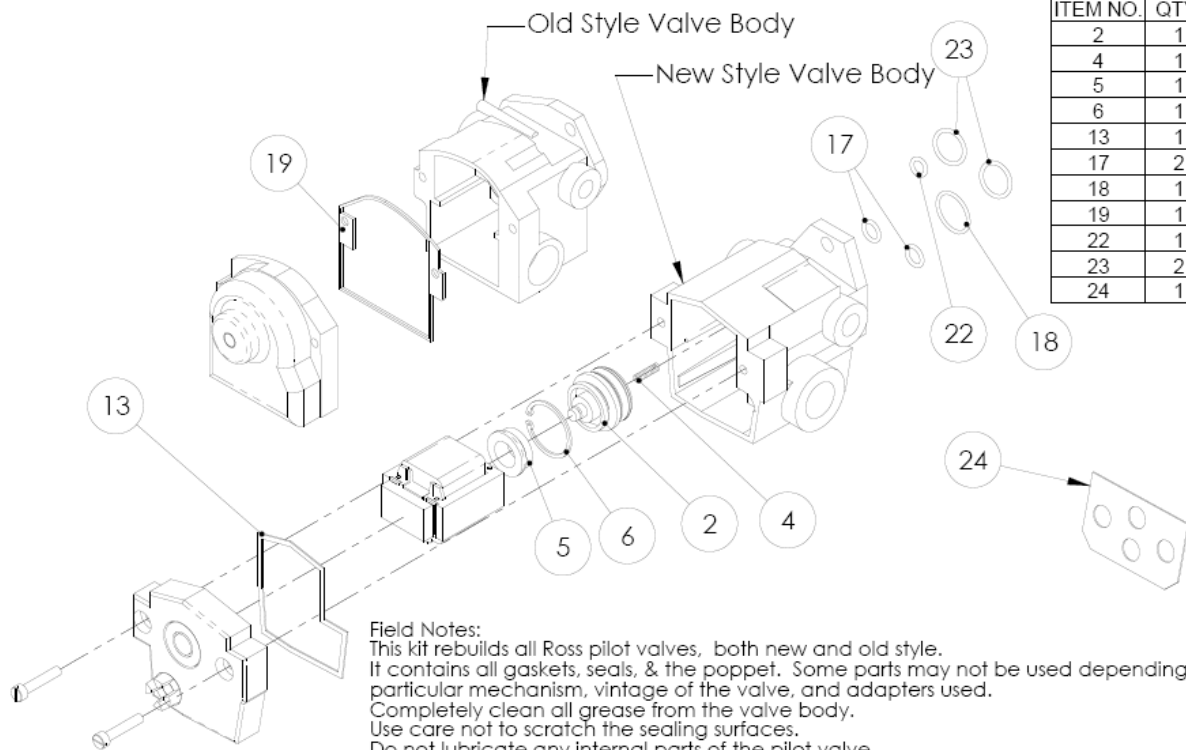
ROSS VALVE FIRST AID KIT
REPAIRS ALL ROSS MAIN & PILOT VALVES

SIZE	DWG. NO.	REV.
A	38275AMK	0
SCALE: NTS	Date:	SHEET 1 OF 1



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BREAKER SERVICE INC		
800-826-5250 office 888-267-7690 fax		
Ross Pilot Valve with coil for 125vdc operation		
SIZE A	DWG. NO. 37450AMK	REV. 0
SCALE:1:1	Date: 02-02-2002	SHEET 1 OF 1



ITEM NO.	QTY.	DESCRIPTION
2	1	poppet assembly
4	1	spring
5	1	bumper
6	1	retaining ring
13	1	new style cover gasket
17	2	o-ring
18	1	o-ring
19	1	old style cover gasket
22	1	o-ring
23	2	o-ring
24	1	gasket

Field Notes:

This kit rebuilds all Ross pilot valves, both new and old style. It contains all gaskets, seals, & the poppet. Some parts may not be used depending on the particular mechanism, vintage of the valve, and adapters used. Completely clean all grease from the valve body. Use care not to scratch the sealing surfaces. Do not lubricate any internal parts of the pilot valve. There should be only one spring in the pilot valve - it is located under the poppet as shown in the drawing. If the sealing surfaces are scored, then the valve must be replaced.

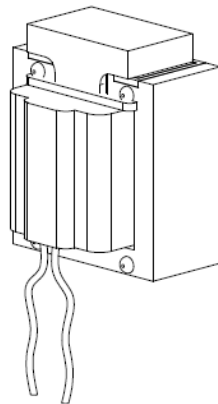
Time the breaker before (if possible) and after rebuilding the pilot valve.

Use item 23 & 24 for the Westinghouse style main control valve with adapter block.
 Use items 17 for Ross main valves with ports 1" & smaller
 Use items 18 & 22 for Ross main valves with ports larger than 1"

The internal parts (items 2, 4, 5, & 6) are the same for the old & new style pilot valve bodies, but not illustrated above for the old style valve body.

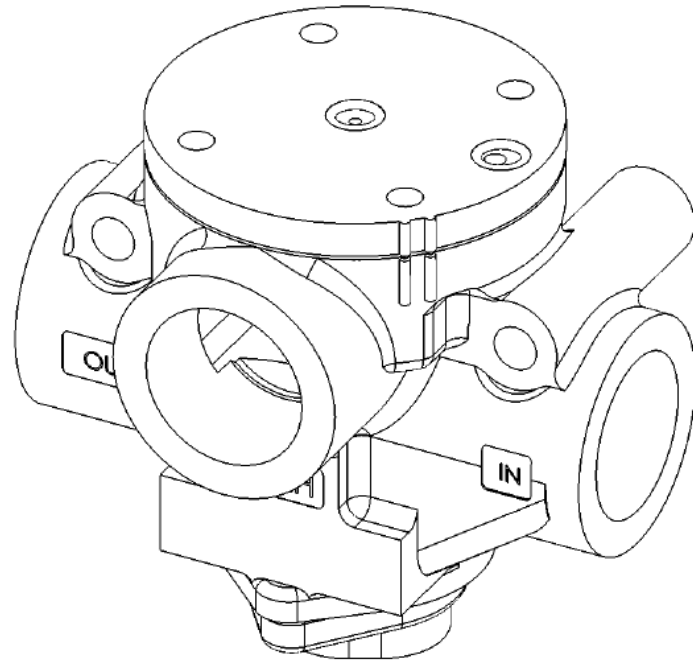
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BREAKER SERVICE INC		
800-826-5250 office 888-267-7690 fax		
Ross pilot valve rebuild kit		
SIZE A	DWG. NO. 12274	REV. 6
SCALE: 1:2.5 Date: 09-02-2003		SHEET 1 OF 1



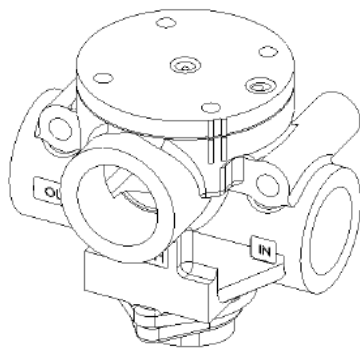
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BREAKER SERVICE INC		
800-826-5250 office 888-267-7690 fax		
Solenoid assembly for all Ross pilot valves. Universal coil can be used for 48vdc, 125vdc, and 250vdc		
SIZE A	DWG. NO. 38168AMK	REV. 0
SCALE 1:1	Date: 05-10-2004	SHEET 1 OF 2

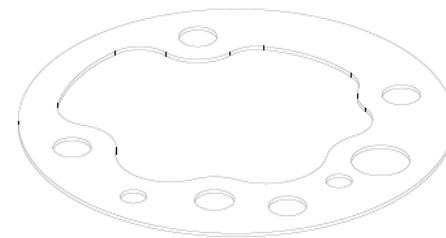
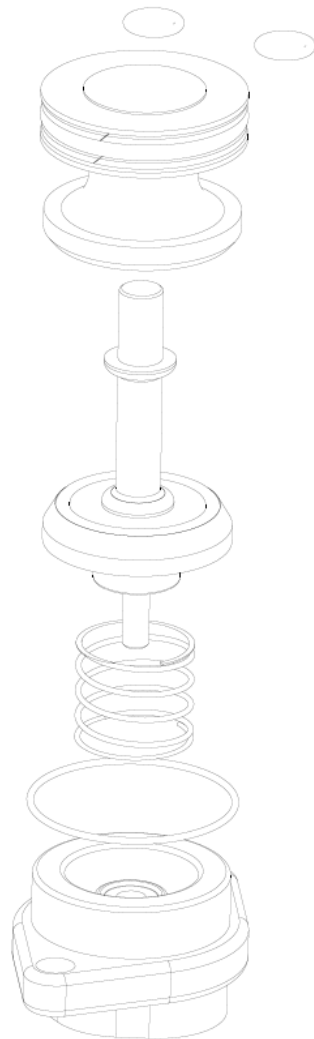


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BREAKER SERVICE INC 800-826-5250 office 888-267-7690 fax			
Ross main control valve for Westinghouse AA-7 mechanism			
SIZE A	DWG. NO. 37451AMK	REV. 0	
SCALE 1:1	Date: 02-02-2003	SHEET 1 OF 1	



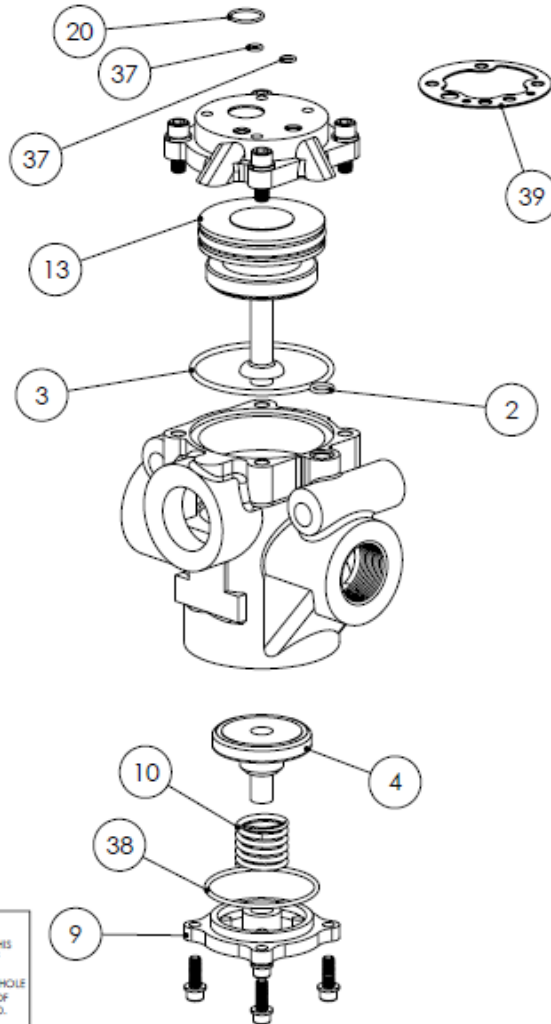
Valve body shown
for reference only



All parts shown are
included in the rebuild kit

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Rebuild kit for Ross main control valve for Westinghouse AA-7 mechanism			
SIZE A	DWG. NO. 37169AMK	REV. 0	
SCALE 1:1	Date: 09-20-2004	SHEET 1 OF 1	



ITEM NO.	QTY.	DESCRIPTION
2	1	o-ring
3	1	o-ring
4	1	lower poppet
9	1	bottom plate
10	1	spring
13	1	upper poppet assy
20	1	o-ring
37	2	o-ring
38	1	o-ring
39	1	gasket

FIELD NOTES:

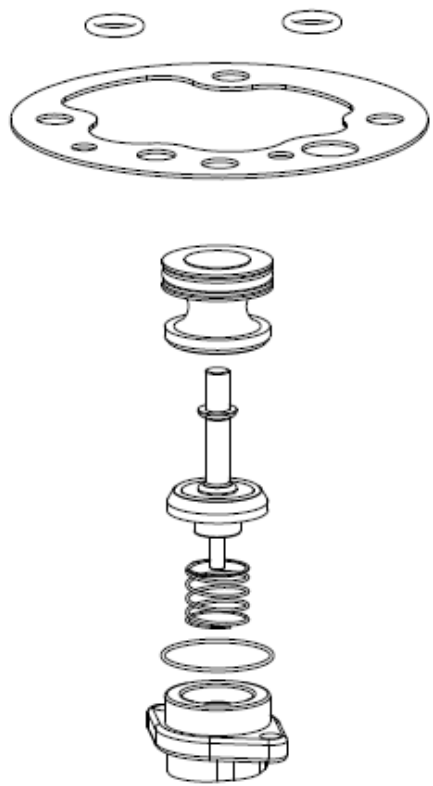
Time the breaker before & after you rebuild the main closing control valve.

Apply only a very thin film of the supplied grease to the moving piston seal on the upper poppet. All static o-rings (items 20,37,2,3,&38) should be lightly coated with a high quality o-ring grease such as Dow Corning # 111.

All the gaskets and o-rings may not be necessary depending on the exact configuration of your control valve.

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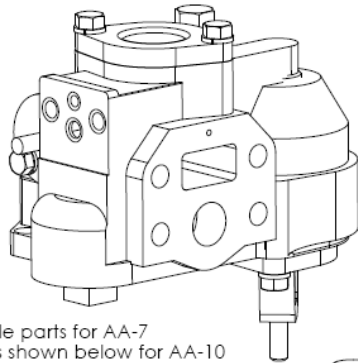
BREAKER SERVICE INC	
800-826-5250 office 888-267-7690 fax	
Rebuild kit for Ross main control valves with 1-1/4" & 1-1/2" NPT ports.	
SIZE A	DWG. NO. 37882AMK
SCALE 1:1	REV. 0
Date: 09-16-2003	SHEET 1 OF 1



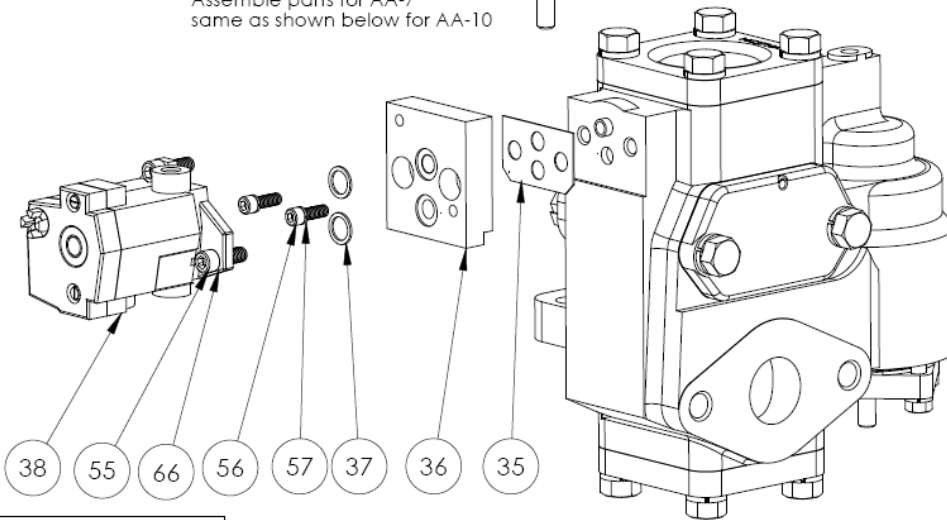
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BREAKER SERVICE INC 800-826-5250 office 888-267-7690 fax		
Rebuild kit for Ross Main Control Valve with 1/2" ports, metal parts		
SIZE A	DWG. NO. 37887AMK	REV. 0
SCALE: NTS	Date: 01-15-2003	SHEET 1 OF 1

Westinghouse AA-7 main control valve



Assemble parts for AA-7
same as shown below for AA-10



Westinghouse AA-10 main control valve

Item No	BSI part #	Description	Qty
35	30525/37131AMK	gasket	1
36	37990AMK	adapter	1
37	2112470/37124AMK	o-ring	2
38	37450AMK	Ross pilot valve	1
55	37134AMK	socket head cap screw, 1/4-20 x 1"	2
56	38596AMK	socket head cap screw, 3/8-16 x 1"	2
57	37144AMK	lock washer, 3/8"	2
66	37145AMK	lock washer, 1/4"	2

Notes:

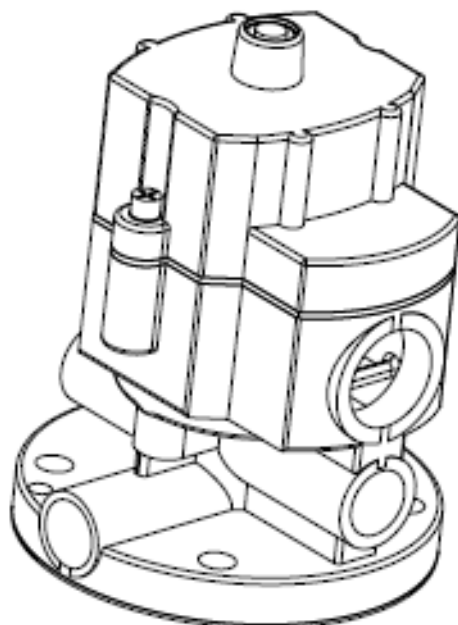
1. Always time the breaker before (if possible) and after replacing the pilot valve to ensure proper closing speed.
2. This kit is for use on the mechanisms listed below that are used on oil circuit breakers and the Westinghouse model 2300SF GCB.
3. If replacing a Norgren pilot valve with an external pilot pressure feed into port "P" on the old Norgren pilot valve, remove and discard the pipe plug from port "X1" on the new Ross pilot valve and connect the external pilot pressure tubing to the port on the Ross pilot valve marked "X1". The port on the Ross pilot valve marked "Y3" is the pilot exhaust and should always remain unplugged.

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800-826-5250 office 888-267-7690 fax			
Kit to replace the Westinghouse "magnet valve" pilot valve or Norgren D0035A pilot valve on AA-7, AA-10, & AA-14 W.H. main control valves with a Ross pilot valve - see notes for limitations			
SIZE A	DWG. NO. 37993AMK	REV. 4	
SCALE: 1:3	Date: 02-18-2005	SHEET 1 OF 1	



NORGREN ITEMS

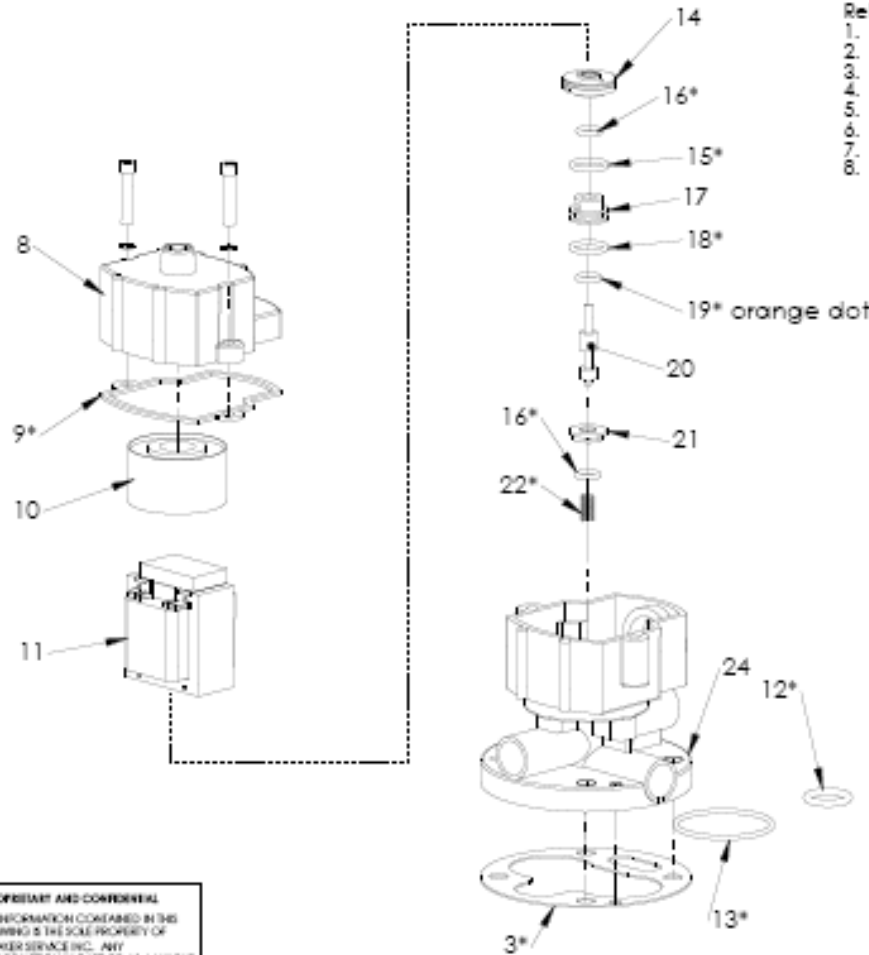


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BREAKER SERVICE INC
800-826-5250 office 888-267-7690 fax

Norgren Pilot Valve with coil for
125vac operation

REV A	DWG. NO. 37562AMK	REV. 0
DATE/REV 02/02/2002	SHEET 1 OF 1	

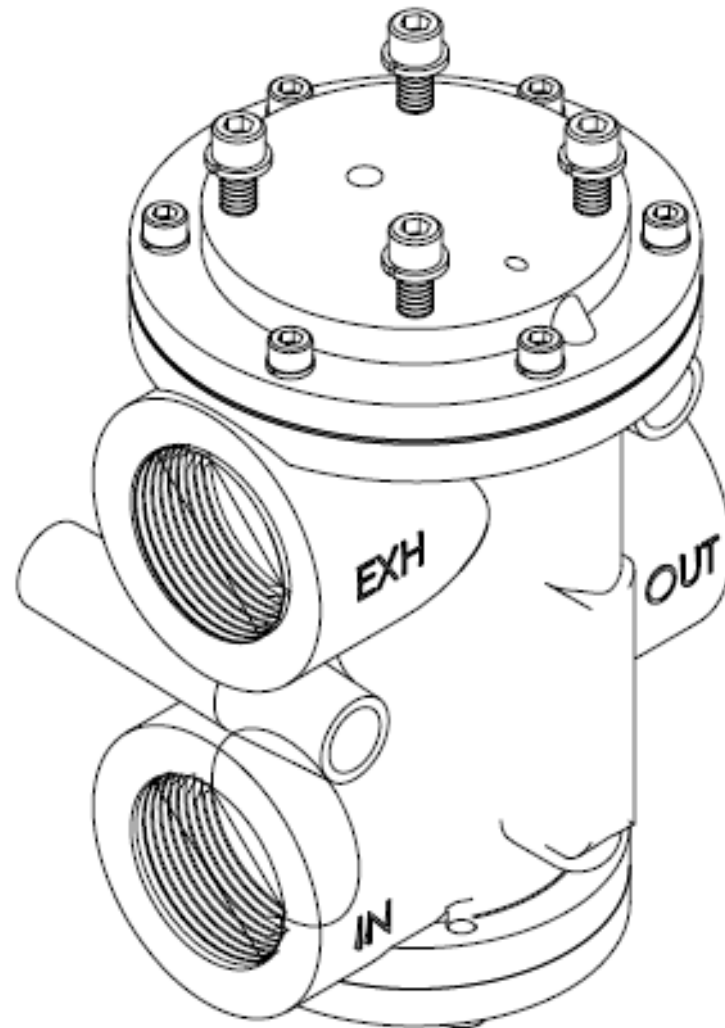


Rebuild instructions:

1. Do not proceed if you are not qualified for this work
2. Make breaker & mechanism safe for work
3. Disassemble and gently clean valve
4. Reassemble using new seals per drawing
5. Items 12 & 13 are used with older main valves
6. Item 3 is used with newer main valves
7. Take special note of the location of item 19
8. Sparngly lubricate orings with Parker Superlube

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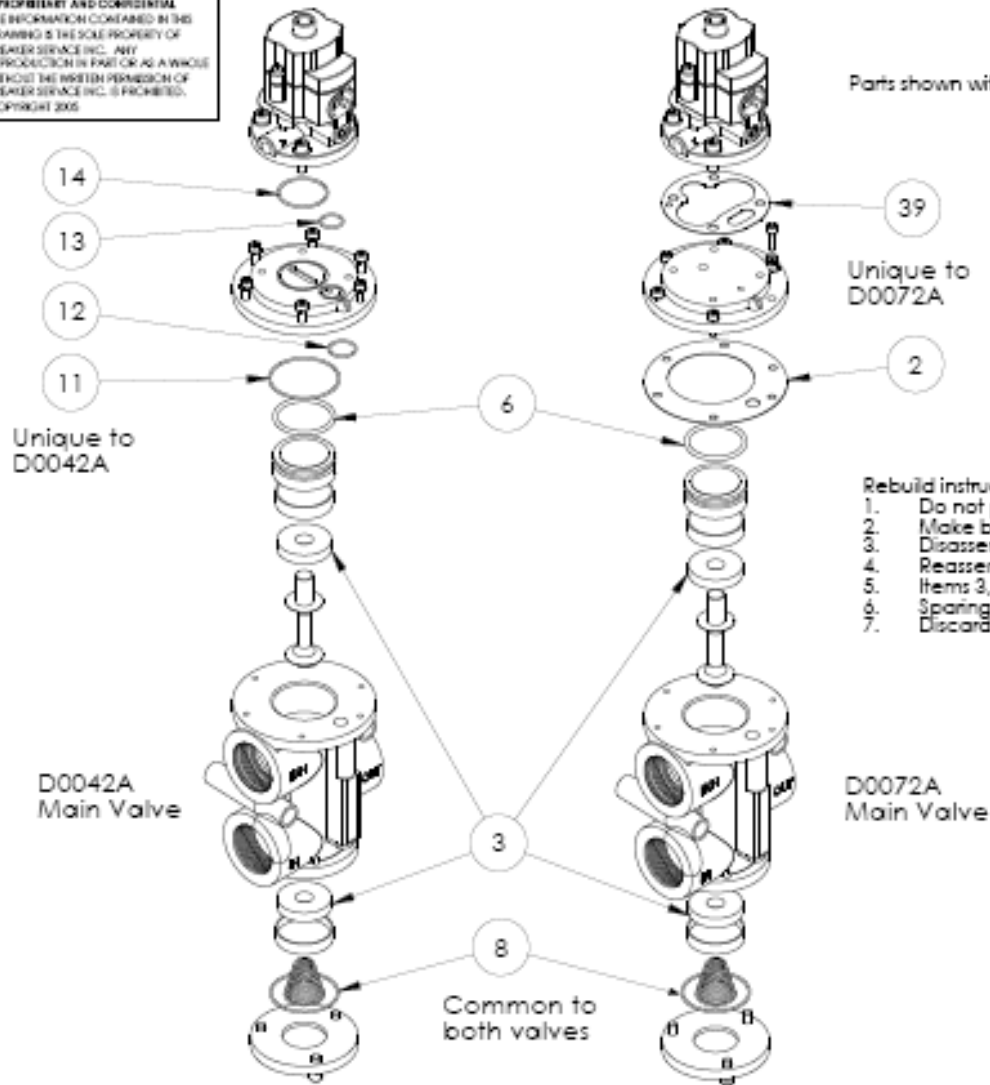
BREAKER SERVICE INC	
800-828-5250 office 888-267-7690 fax	
Rebuild kit for Norgren pilot valve model D0035C or D00105.	
Items shown with asterisk * are included in this repair kit	
REV: A	DWG. NO: 15028
SCALE: N/A	Date: 04-10-2005
	SHEET 1 OF 1



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BREAKER SERVICE INC	
800-826-5250 office 888-267-7690 fax	
Nargren main valve Used in Siemens & Westinghouse type SP breakers	
SIZE A	DWG. NO. 37480AMK
DATE 02-02-2002	REV 0
SHEET 1 OF 1	

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Parts shown with item numbers are included in the rebuild kit

Unique to
D0072A

Unique to
D0042A

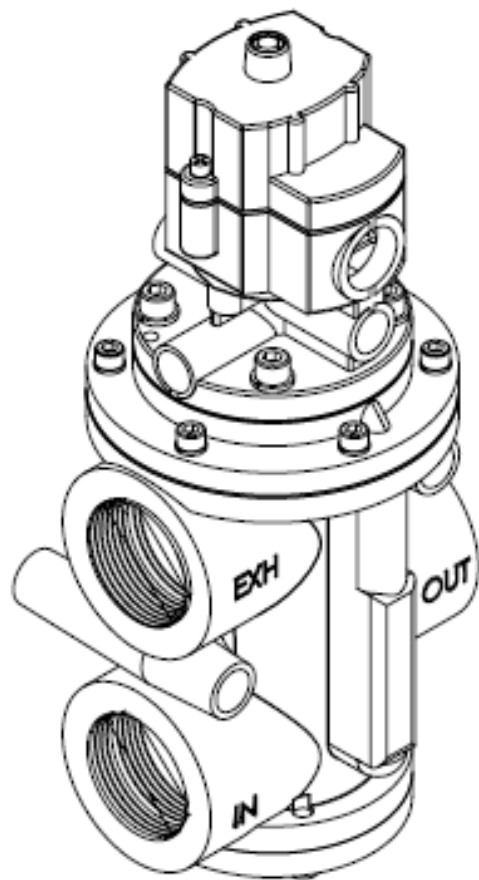
- Rebuild instructions:
1. Do not proceed if you are not qualified for this work
 2. Make breaker & mechanism safe for work
 3. Disassemble and gently clean valve
 4. Reassemble using new seals per drawing
 5. Items 3, 6 & 8 are common to both valves
 6. Sparingly lubricate orings with Parker Superlube
 7. Discard unused parts

D0042A
Main Valve

D0072A
Main Valve

Common to
both valves

BREAKER SERVICE INC		
800-826-5250 office 888-267-7690 fax		
Rebuild kit for Norgren D0042A or D0072A main control valve used on Siemens & Westinghouse type SP gas circuit breakers		
REV A	DWG. NO. 15031AMK	REV O
SCALE 1:1	DATE 01-10-2005	SHEET 1 OF 1



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BREAKER SERVICE INC

800-525-5250 office 888-257-7690 fax

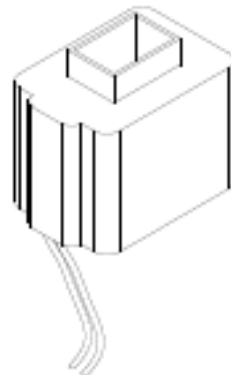
Norgren pilot & main valve assembly with coil for 125vac operation. Used in Siemens & Westinghouse type SP breakers

REV | DWG. NO. |
A | 37479AMK

REV
0

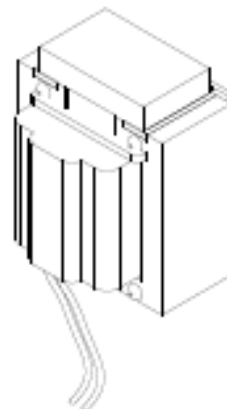
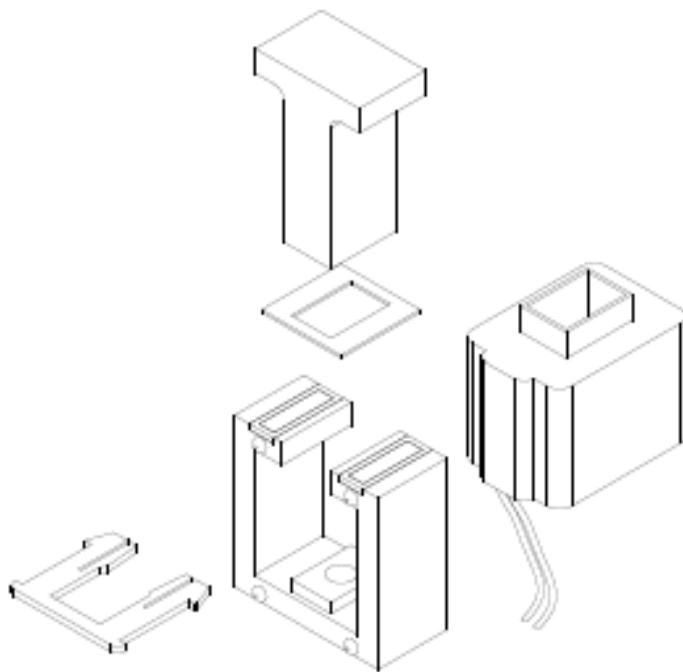
DCAN001 | DATE: 02-02-2002 | SHEET 1 OF 1

Coil Assembly shown for reference only
See BSI part # 37062AMK for complete assembly



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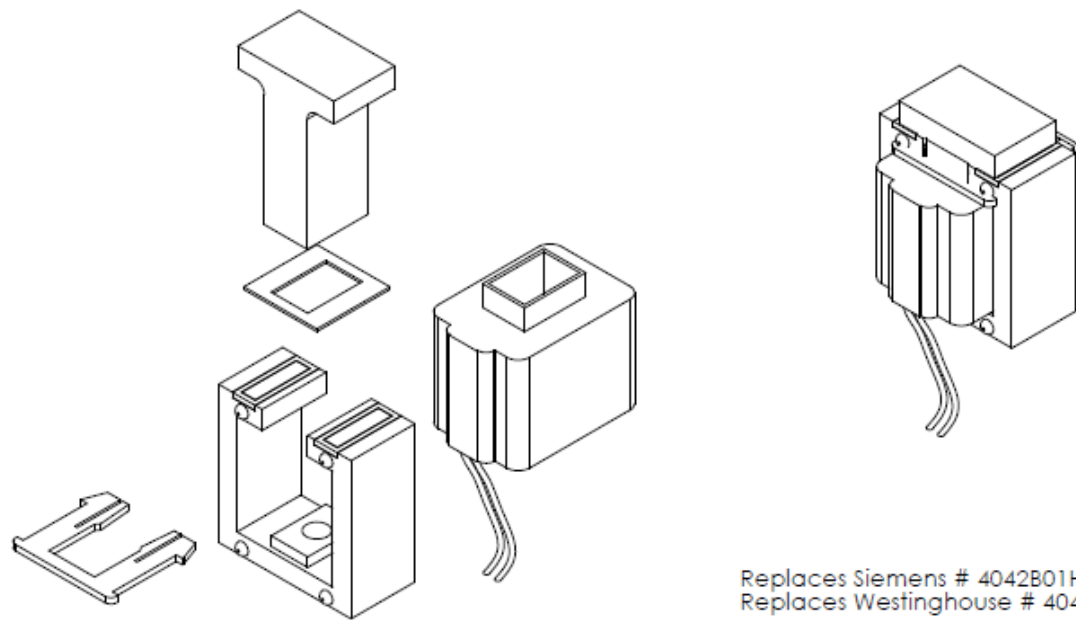
BREAKER SERVICE INC 800-826-5250 office 800-267-7890 fax	
Solenoid Coil Only for Norgren Pilot Valve # D0035C 125 /250 VDC	
REV A	DESC. NO. 37650AMK
SCALE	Date: 07-03-2004
SHEET 1 OF 1	



Replaces Siemens # 4042B01H10
 Replaces Westinghouse # 4042B01H10

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BREAKER SERVICE INC			
800-826-5250 office 866-267-7690 fax			
Solenoid Assy for Norgren Pilot Valve # D0035C 125/250VDC			
REV	QTY	DATE	BY
A	1	37062AMK	1
SCALE: 1:1	Date: 07-02-2004	SHEET 1 OF 1	

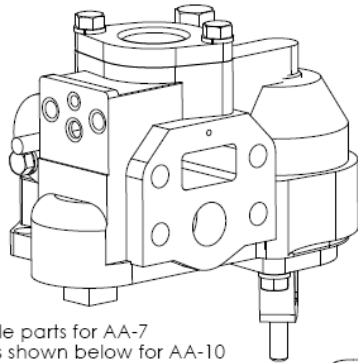


Replaces Siemens # 4042B01H09
 Replaces Westinghouse # 4042B01H09

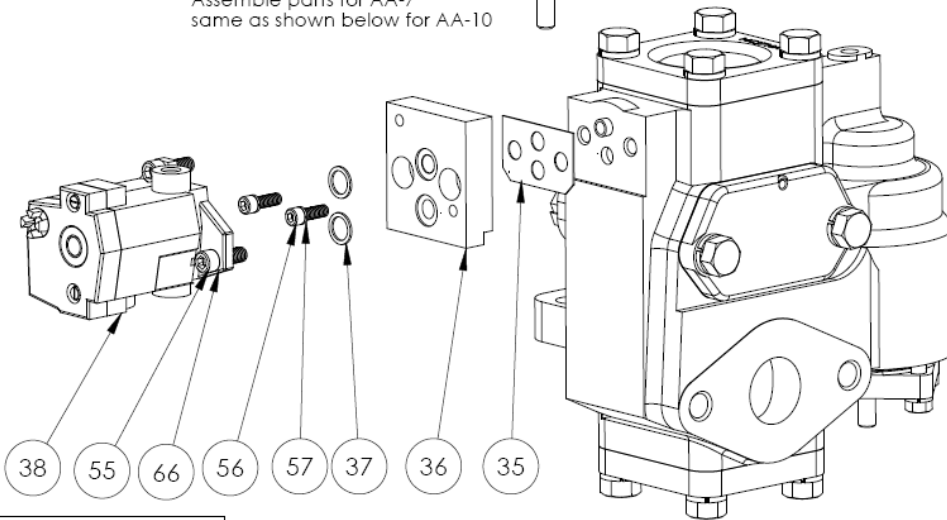
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800-826-5250 office 888-267-7690 fax		
Solenoid Assy for Norgren Pilot Valve # D0035C 48 VDC		
SIZE A	DWG. NO. 38218AMK	REV. 0
SCALE:1:1	Date: 07-02-2004	SHEET 1 OF 1

Westinghouse AA-7 main control valve



Assemble parts for AA-7
same as shown below for AA-10



Westinghouse AA-10 main control valve

Item No	BSI part #	Description	Qty
35	30525/37131AMK	gasket	1
36	37990AMK	adapter	1
37	2112470/37124AMK	o-ring	2
38	37450AMK	Ross pilot valve	1
55	37134AMK	socket head cap screw, 1/4-20 x 1"	2
56	38596AMK	socket head cap screw, 3/8-16 x 1"	2
57	37144AMK	lock washer, 3/8"	2
66	37145AMK	lock washer, 1/4"	2

Notes:

1. Always time the breaker before (if possible) and after replacing the pilot valve to ensure proper closing speed.
2. This kit is for use on the mechanisms listed below that are used on oil circuit breakers and the Westinghouse model 2300SF GCB.
3. If replacing a Norgren pilot valve with an external pilot pressure feed into port "P" on the old Norgren pilot valve, remove and discard the pipe plug from port "X1" on the new Ross pilot valve and connect the external pilot pressure tubing to the port on the Ross pilot valve marked "X1". The port on the Ross pilot valve marked "Y3" is the pilot exhaust and should always remain unplugged.

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BREAKER SERVICE INC			
800-826-5250 office 888-267-7690 fax			
Kit to replace the Westinghouse "magnet valve" pilot valve or Norgren D0035A pilot valve on AA-7, AA-10, & AA-14 W.H. main control valves with a Ross pilot valve - see notes for limitations			
SIZE A	DWG. NO. 37993AMK	REV. 4	
SCALE: 1:3	Date: 02-18-2005	SHEET 1 OF 1	



AIR TANKS



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BREAKER SERVICE INC
800-826-5250 office 888-267-7690 fax

**AIR TANK FOR AA-7 or SA-7
MECH ON WESTINGHOUSE OR
SIEMEN TYPE SP SF6 CIRCUIT
BREAKERS**

DWG NO.

39870AMK

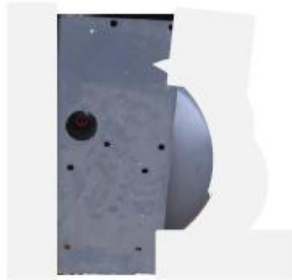
REV.

0



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BREAKER SERVICE INC 800-826-5250 office 888-267-7690 fax	
AIR TANK, WH AA-7 MECHANISM	
DWG NO.	37613AMK
REV.	0



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BREAKER SERVICE INC
800-826-5250 office 888-267-7690 fax

AIR TANK
WESTINGHOUSE
AA-7

DWG NO.	45230AMK	REV.	0
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Air Tank

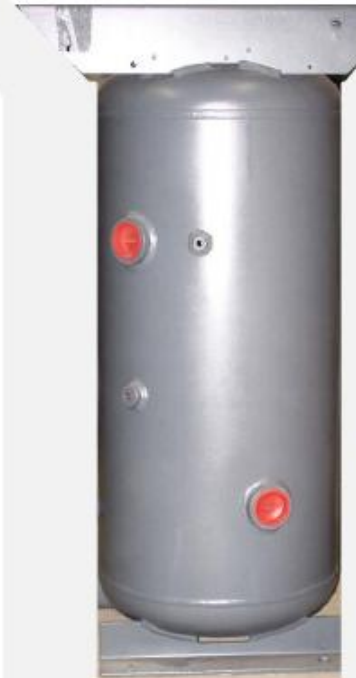
for GE MA-16-9 breaker mechanisms. Tank is
located outside under the cabinet,
GE type FK-115-5000-2, 115 kv CB

DWG NO.

38333AMK

REV.

0



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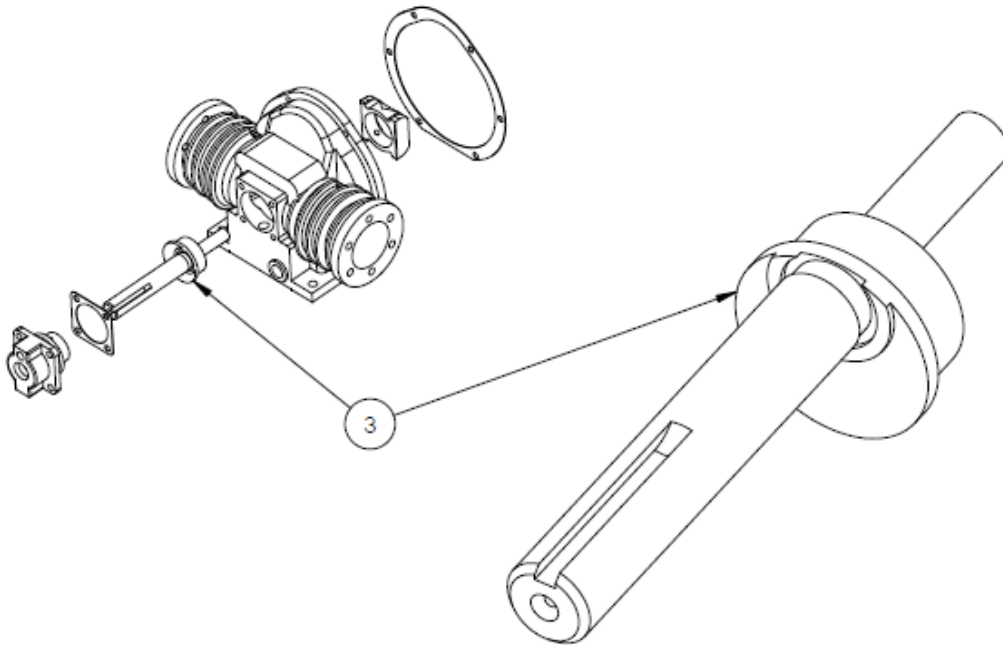
Air tank

DWG NO.	45237AMK	REV.	0
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KEYSTONE COMPRESSOR ITEMS

ITEM NO.	QTY.	PART NO.	DESCRIPTION
3	1	24201	Eccentric Crank Shaft

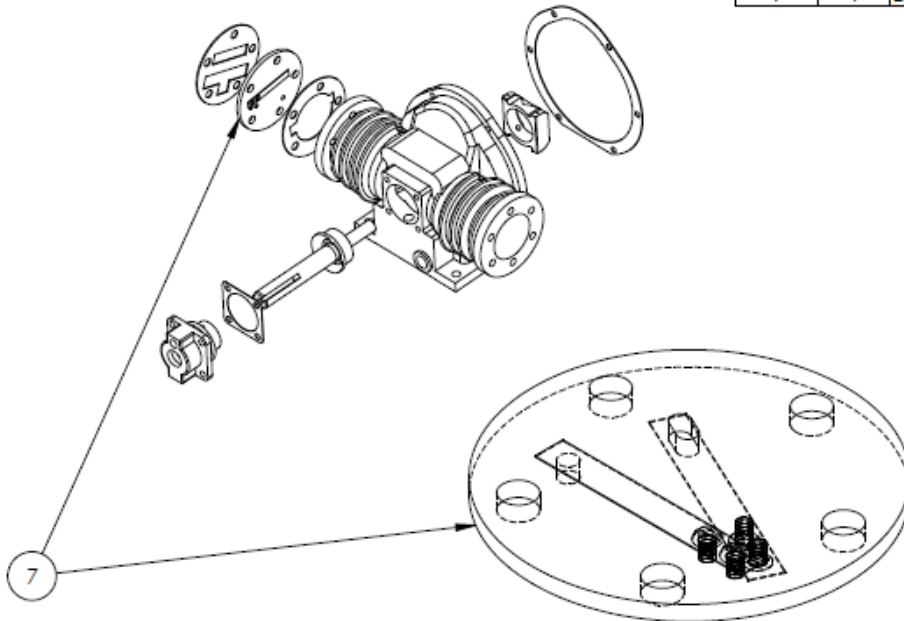


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Cross References
 ITE/ABB cat # 042L009-09
 Keystone (Philadelphia - early) cat # 408
 Keystone (Darby - later) cat # 10045

BREAKER SERVICE INC			
800-526-5250 office 888-267-7690 fax			
Eccentric crank shaft for Keystone Model A or D air compressor			
REV	DRWG. NO.	REV	
A	24201	0	
SCALE 1:1	Date: 02-02-2003	SHEET 1 OF 1	

ITEM NO.	QTY.	PART NO.	DESCRIPTION
7	1	24800	valve plate with valves



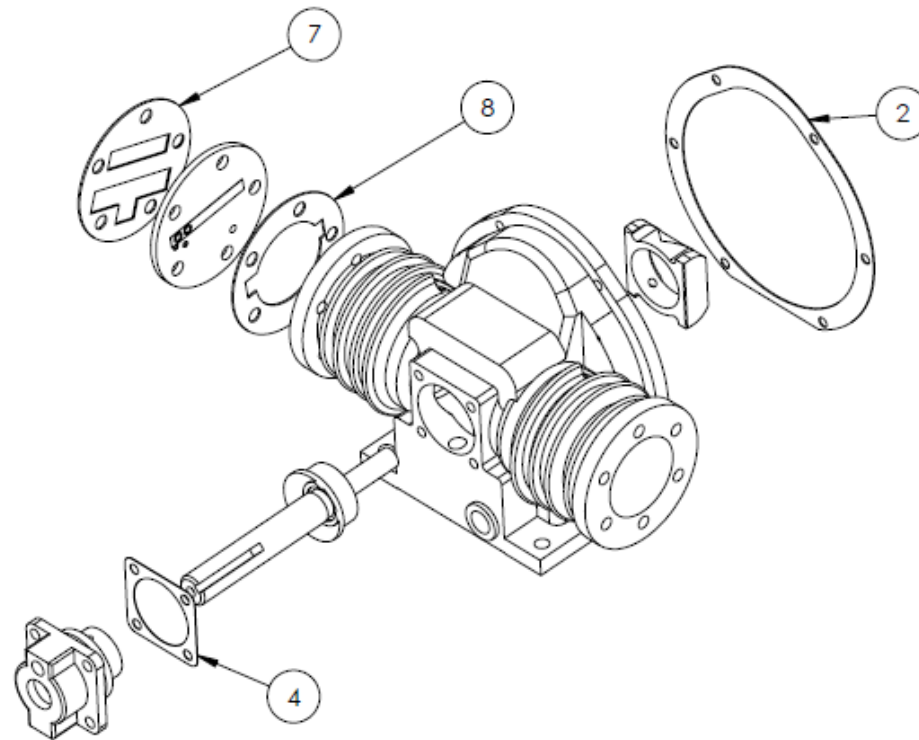
Cross References
 GE cat # 132A1221P10
 ITE/ABB cat # 042L009-11
 Keystone (Philadelphia - early) cat # 414A
 Keystone (Darby - later) cat # 10160

Note:
 This valve plate assembly is also used on the Model A compressor if it gets converted to a Model D.

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800-826-5250 office 888-267-7690 fax		
Valve plate with valves for Keystone Model D air compressor		
This part # is for one valve plate		
Two plates req'd per compressor		
REV	DWG. NO.	REV
A	24800	0
SCALE 1:1	Date: 02-03-2003	SHEET 1 OF 1

ITEM NO.	QTY.	PART NO.	DESCRIPTION
2	1	37689AMK	Gasket, oil cover
4	1	37670AMK	Gasket, main bearing
7	2	37671AMK	Gasket, cylinder head, outside
8	2	37672AMK	Gasket, cylinder head, inside



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800-826-5250 office 888-267-7690 fax			
Gasket kit for Keystone Model D air compressor			
SIZE	DWG. NO.	REV.	
A	37673AMK	0	
SCALE 1:3	Date: 02-02-2003	SHEET 1 OF 1	

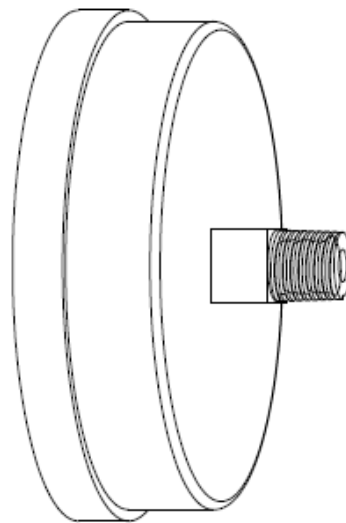
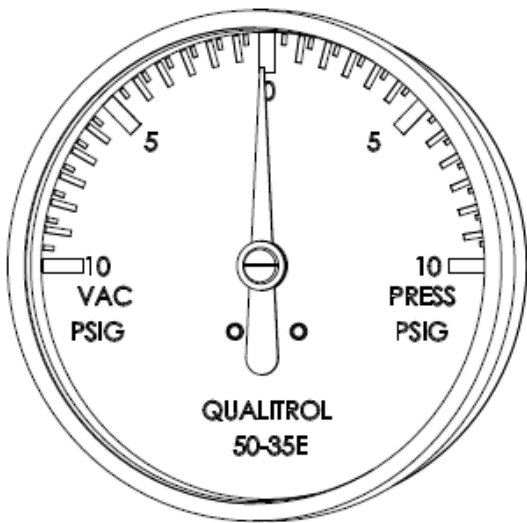


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BREAKER SERVICE INC			
800-824-5250 office 888-247-7490 fax			
Replacement of Keystone Compressor Model BY (circuit air 210 S/N H0107-464) with adapter plate			
REV	DATE	BY	CHK
A		38181AMK	10
SCALE	DATE	SHEET 1 OF 1	



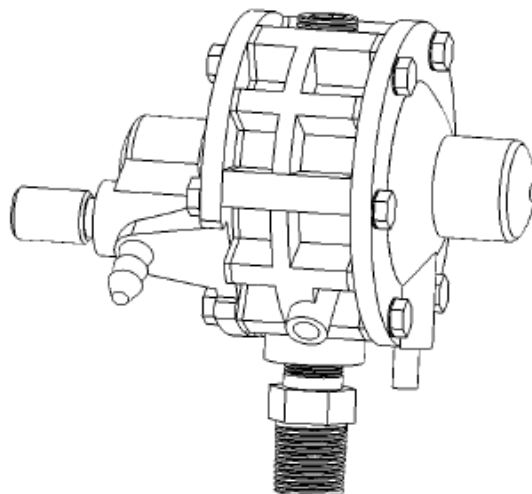
MISC ITEMS



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BREAKER SERVICE INC
 800-826-5250 office 888-267-7690 fax
 Gauge, pressure / vacuum
 Range +10 / -10 psig
 Qualitrol part # 50-35E
 Used on transformer Nitrogen
 systems.

REV A	DRWG. NO. 37408AMK	PKY 0
SCALE 1:1 Date: 02-02-2003		SHEET 1 OF 1



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BREAKER SERVICE INC 800-826-5250 office 888-267-7690 fax		
Pressure/Vacuum Bleeder Qualitrol # 351-2A Set at +5 / -5 psi		
SIZE A	DWG. NO. 37409AMK	REV. 0
SCALE 1:1	Date: 02-02-2003	SHEET 1 OF 1

CASE: CAST ALUMINUM WITH ASA #70 LIGHT GRAY FINISH.

BEZEL: STAINLESS STEEL - REMOVABLE.
DIAL COLORS: BACKGROUND - BLACK
CHARACTERS - WHITE

POINTER COLOR: WHITE

MAX. INDICATING POINTER COLOR: RED
SWITCH SETTING INDICATOR COLOR: SILVER
LENS: POLYCARBONATE

SWITCH SETTING ADJUSTABILITY: 16°-152°.

SWITCH DIFFERENTIAL: 7.5 °C ± 2.5 °C.

ACCURACY: ± 2% OF DIAL RANGE.

SWITCH RATING: UL/CSA RATING:

10 AMPS AND 1/3 HP @ 125, 250, VAC

1/2 AMP @ 125 VDC (NON-INDUCTIVE)

1/4 AMP @ 250 VDC (NON-INDUCTIVE)

4 AMPS @ 125 VAC "I" (LAMP LOAD)

DIELECTRIC STRENGTH: 1,500 VOLTS TO GROUND FOR 60 SECONDS.

TO ADJUST SWITCH INDICATORS:

A) REMOVE BEZEL AND LENS ASSEMBLY.
B) LOOSEN SCREWS AND MOVE SWITCH SETTING INDICATOR TO DESIRED SETTING. RE-TIGHTEN SCREWS.
C) REPLACE BEZEL AND LENS ASSEMBLY.

TO CHECK SWITCH OPERATION MANUALLY:

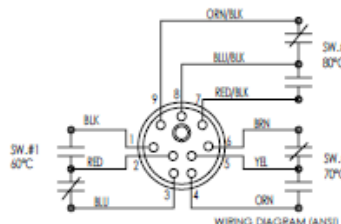
A) REMOVE BEZEL AND LENS ASSEMBLY.
B) TURN POINTER CLOCKWISE PAST THE SWITCH SETTING INDICATOR.
C) SLOWLY RETURN THE POINTER TO ITS ORIGINAL POSITION.

D) REPLACE BEZEL AND LENS ASSEMBLY.

CAUTION! POINTER MUST NEVER BE TURNED COUNTERCLOCKWISE.

KIT DATA:

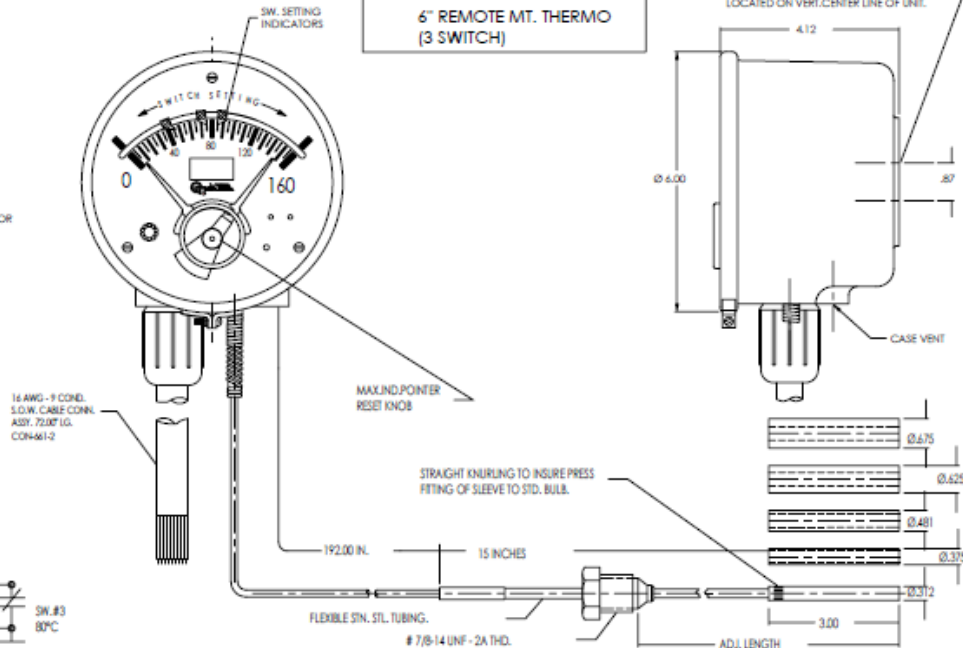
UNIT IS SUPPLIED WITH KIT P/N KIT-009-6 CONSISTING OF:
4 SLEEVES - PROVIDED TO ADAPT SENSING BULB TO VARIOUS THERMOWELL SIZES.
1 WINDING TEMPERATURE LOWER DIAL.
1 LIQUID TEMPERATURE LOWER DIAL.



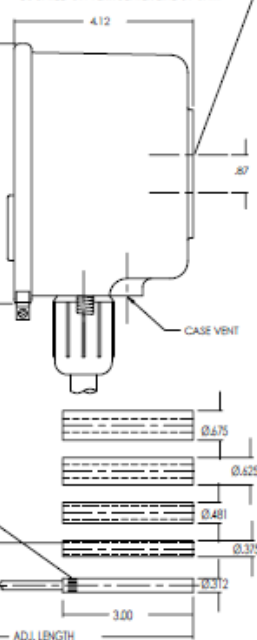
SHOWN LOOKING AT MALE INSUL. ASSY. FROM OUTSIDE OF CASE.

MODEL NO. 104-666-03

6" REMOTE MT. THERMO (3 SWITCH)



1/2-13 UNC-28 x .42 DP. MFG INSERT LOCATED ON VERT. CENTER LINE OF UNIT.



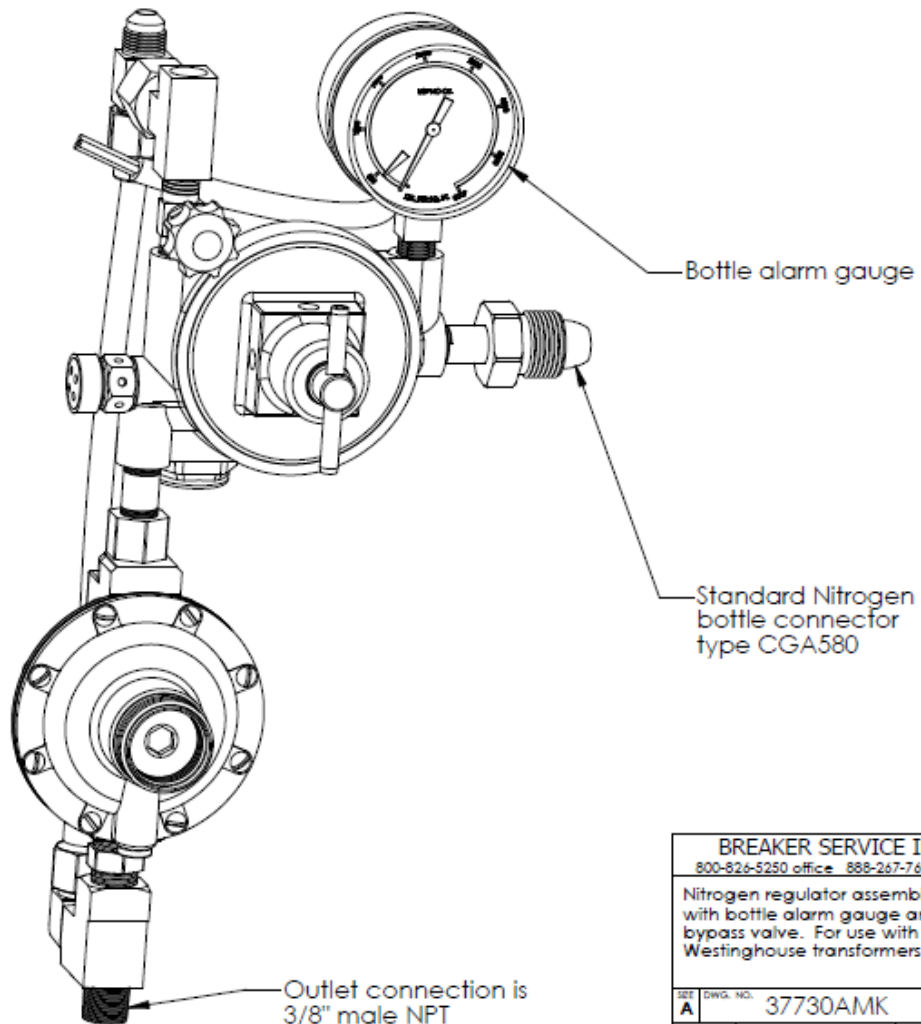
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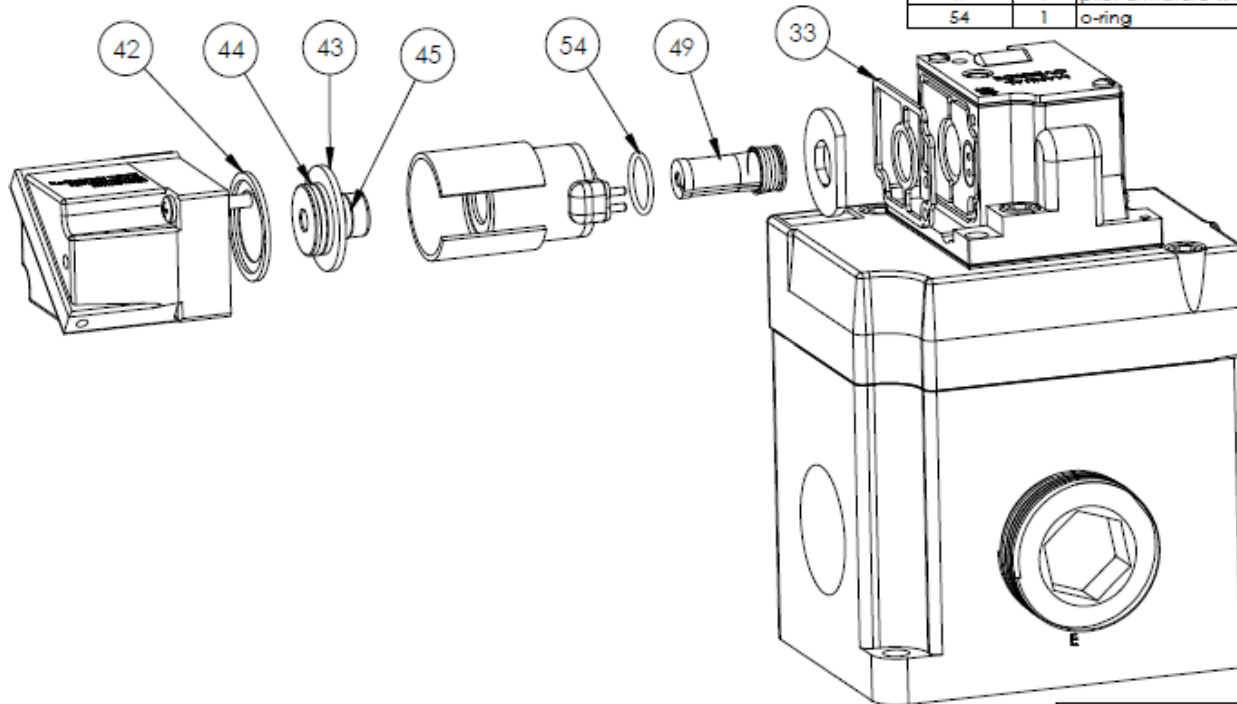
Universal 6" remote indicating thermometer with 3 switches, 192" capillary and 72" cable. Qualitrol # 104-666-03

SIZE DWG. NO. 37629AMK REC. 0
SCALE: NTS Date: 01-06-2003 SHEET 1 OF 1



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800-826-5250 office 888-267-7690 fax			
Nitrogen regulator assembly with bottle alarm gauge and bypass valve. For use with Westinghouse transformers.			
REV A	DWG. NO. 37730AMK	REV. 1	
SCALE 1:2	Date: 01-10-2005	SHEET 1 OF 1	



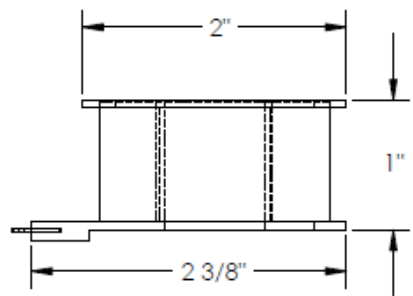
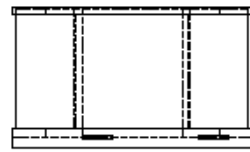
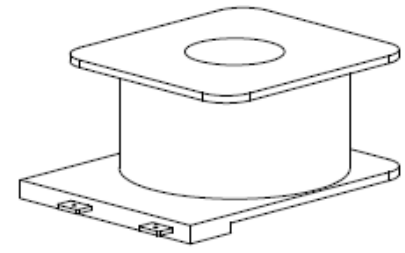
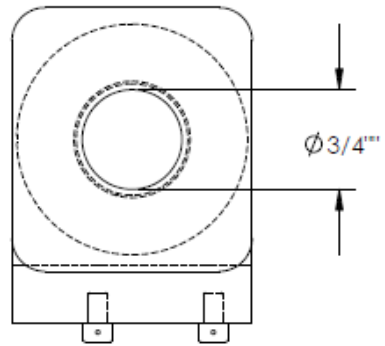
ITEM NO.	QTY.	DESCRIPTION
33	1	gasket
42	1	gasket
43	1	seat
44	1	o-ring
45	1	o-ring
49	1	pilot armature with spring
54	1	o-ring

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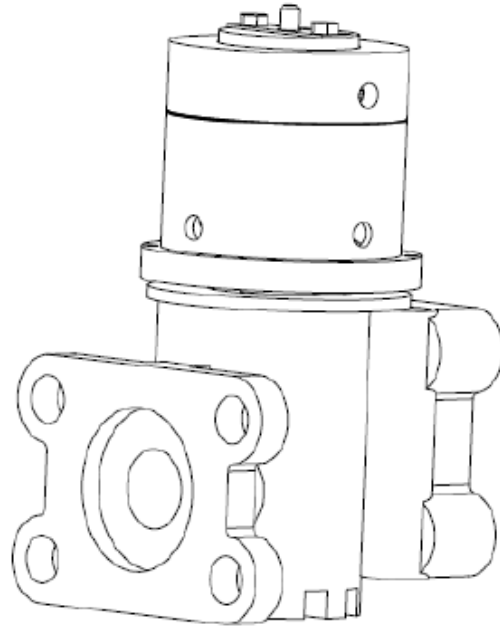
Pilot valve repair kit for Parker
 Hannifin control valve used on
 Allis Chalmers / Siemens type BZO
 breakers with type PN-70-T2 &
 PN-90-T2 mechanisms

REV: **A** DWG. NO. **38125AMK** REV: **0**
 SCALE: 1:2 Date: 06-09-2004 SHEET 1 OF 1



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800-826-5250 office 888-267-7690 fax		
Coil, trip and close, 125vac or 240vac, for Westinghouse and ABB type R vacuum breakers and type E3, E3M, E3V, & E3VA reclosers built after June 1976, 8.0 ohms Coil is WH part # L915166G01		
SEE A	DWG. NO. 38244AMK	REV. 0
SCALE: 1:1	Date: 01-15-2006	SHEET 1 OF 1



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800-826-5250 office 888-267-7690 fax

MA-14 thru 18

**CUSTOMER NEEDS TO PROVIDE:
MECHANIS TYPE, VOLTAGE AND
COIL NUMBER**

DWG NO.

37440AMK ?

REV
2