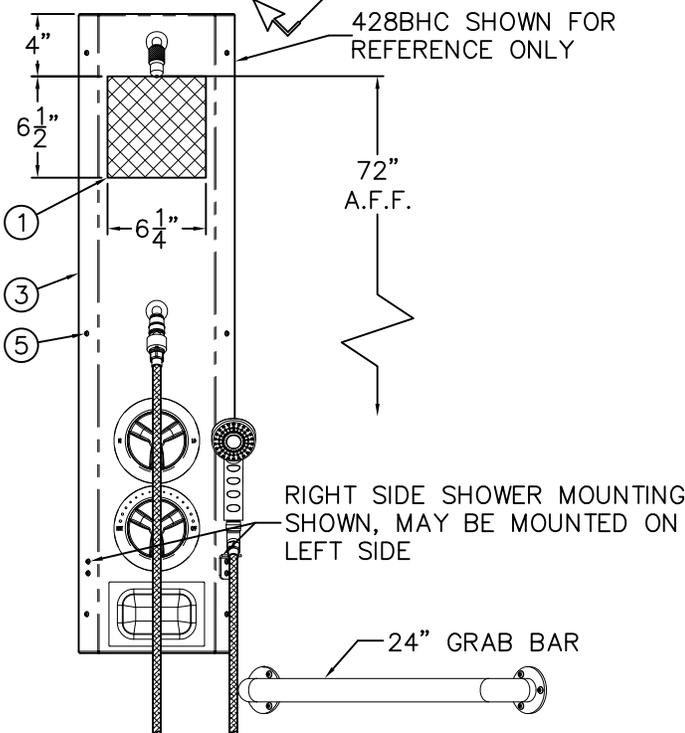
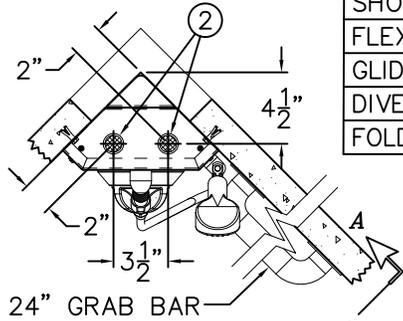




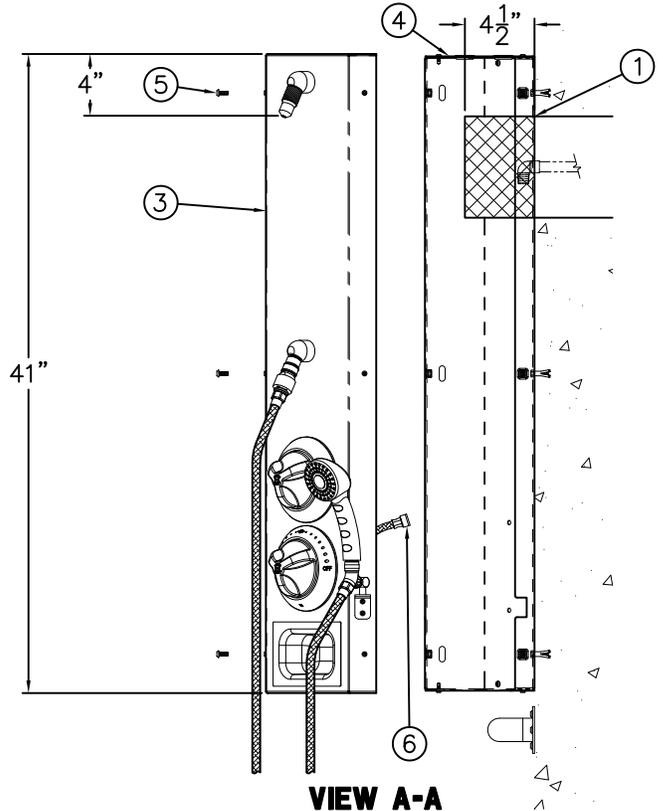
**REFERENCE DRAWINGS**

FLO-CLOZ	9975-000-001	AIR-CONTROL VALVE BODY	9975-090-001
T/P VALVE (SHOWN)	9975-005-002	VALVE CONNECT INSTALL	9905-006-001
SHOWERHEAD	9970-122-001	TINNERMAN NUT	9951-007-001
FLEX SHOWERHEAD	9970-102-003	PANEL SCREW	9951-005-001
GLIDE RAIL	9970-103-001	PUSHBUTTON/ESCUTCHEON	9957-300-001
DIVERTER	9975-080-001	T/P VALVE ADJUSTMENT	9900-007-001
FOLDING SEAT INSTALL	9900-350-001	T/P VALVES PRIOR TO JUNE 2014	9975-006-001

**-T TOP SUPPLY**



**VIEW FROM OTHER SIDE OF FIXTURE IS MIRROR IMAGE**



**NOTE:**  
 MAXIMUM RECOMMENDED WORKING PRESSURE IS 100PSI; TEMPERATURE IS 130°F; OUTLET TEMPERATURE IS RECOMMENDED AT A MAXIMUM OF 105°F.

**INSTALLATION INSTRUCTIONS:**

- A- PROVIDE SUPPLY ROUGH-IN(S) IN THE AREA INDICATED FOR ① WALL SUPPLY, AND ② FOR TOP SUPPLY. THOROUGHLY FLUSH SUPPLY LINES.
- B- DISASSEMBLE SHOWER PANEL ASSEMBLY ③ FROM WALL MOUNTING FRAME ④ BY REMOVING VANDAL-RESISTANT SCREWS ⑤ FROM THE HOUSING.
- C- INSTALL MOUNTING FRAME ④ AT DESIRED HEIGHT AND ANCHOR FRAME TO BOTH WALLS USING HARDWARE BY OTHERS.

- D- MAKE-UP SUPPLY CONNECTIONS TO 1/2" NPS FLEX HOSE FEMALE ENDS ⑥ WHILE SUPPORTING PANEL OFF THE FLOOR. (NOTE: SUPPLY INLET CONNECTION WILL ACCOMMODATE 1/2" NPT MALE ADAPTER.)
- E- ASSEMBLE THE SHOWER PANEL ③ TO MOUNTING FRAME ④ USING SCREWS ⑤ PROVIDED.

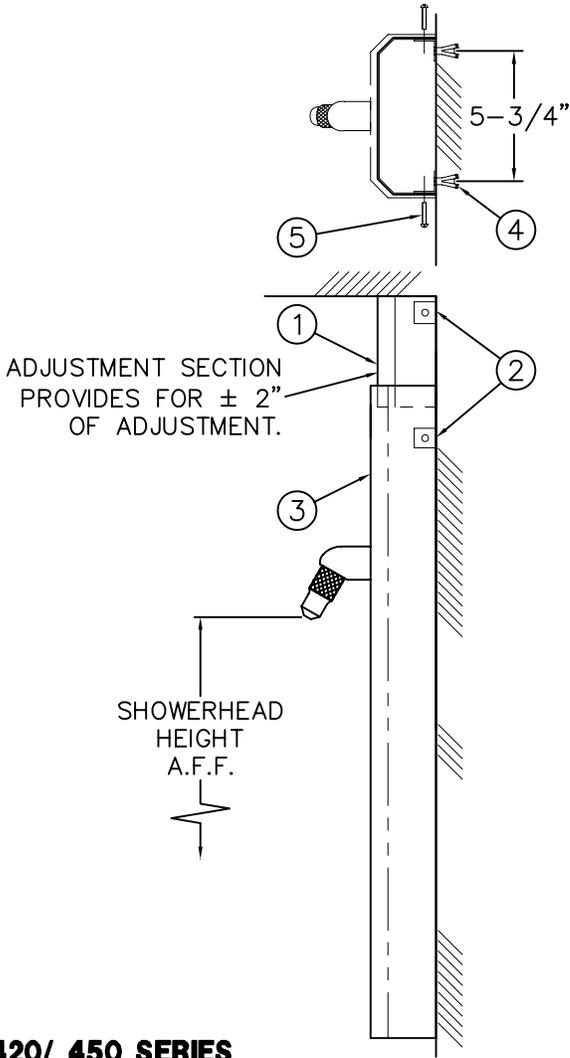
**WARNING:**  
 PRIOR TO MAKING INSTALLATION, SUPPLY LINES MUST BE FLUSHED OF ALL FOREIGN MATERIAL SUCH AS PIPE DOPE, CHIPS, SOLDER, ETC. VALVE MUST BE DRAINED PRIOR TO BEING SUBJECTED TO FREEZING TEMPERATURES.

ACORN ENGINEERING COMPANY P.O. BOX 3527 Industry, CA 91744 15125 Proctor Ave Industry, CA 91746 (626) 336-4561 FAX (626) 961-2200	<b>TITLE</b> <b>APEX FLUSH MOUNTED CORNER SHOWER (420BHC SERIES)</b>		
	<b>MANUFACTURE DATE</b> <b>DECEMBER 2010</b> <b>TO PRESENT</b>	<b>DATE ISSUED</b> <b>01/19/11</b>	<b>DRAWING NUMBER</b> <b>9900-050-002</b>
		<b>DATE REVISED</b> <b>06/01/14 C</b>	



**IMPORTANT!**

WALL ANCHORS AND ANCHORING HARDWARE ARE BY OTHERS.



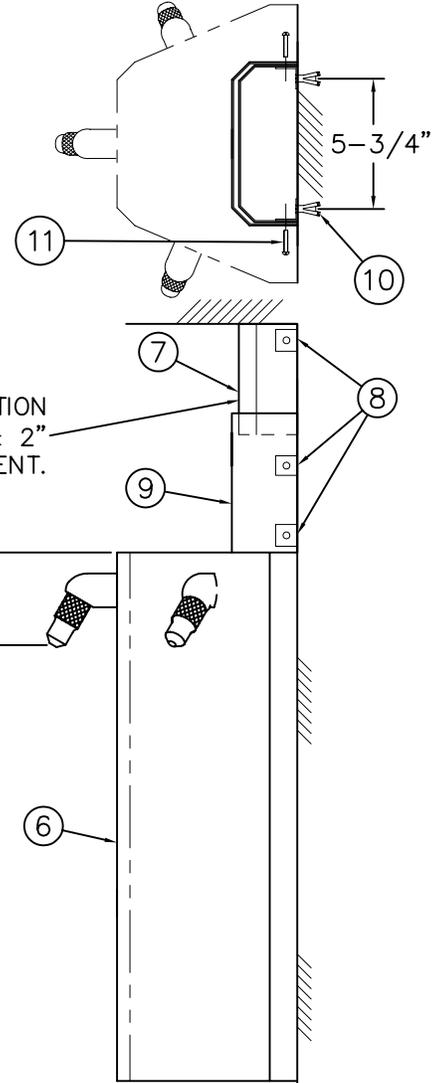
**420/ 450 SERIES**

**INSTALLATION INSTRUCTIONS (420/450 SERIES)**

AFTER COMPLETION OF TOP SUPPLY ROUGH-INS:

- A- POSITION ADJUSTMENT SECTION ① UP TO CEILING. USING ADJUSTMENT SECTION AS A TEMPLATE, MARK POSITION FOR L-CLIPS ②.
- B- FOLLOWING THE APPROPRIATE FIXTURE INSTALLATION INSTRUCTIONS, USE EXTENDED HOUSING ③ AS A TEMPLATE TO MARK POSITIONS FOR L-CLIPS ②.
- C- INSTALL WALL ANCHORS ④ (BY OTHERS) FOR L-CLIPS. POSITION L-CLIPS ② WITH CAGE NUT FACING OUTWARD FOR ATTACHMENT OF HOUSING AND FASTEN TO WALL (WALL FASTENERS BY OTHERS).
- D- ASSEMBLE ADJUSTMENT SECTION ① TO L-CLIPS USING #10-32 SCREWS ⑤ PROVIDED.
- E- COMPLETE FIXTURE INSTALLATION WITH HOUSING ② OVER ADJUSTMENT SECTION ①.

**NOTE:** FOR 420 SERIES SHOWERS (NOT SHOWN), CEILING ADJUSTMENT SECTION ASSEMBLES OVER HOUSING.



**460/ 470 SERIES**

**INSTALLATION INSTRUCTIONS (460/470 SERIES)**

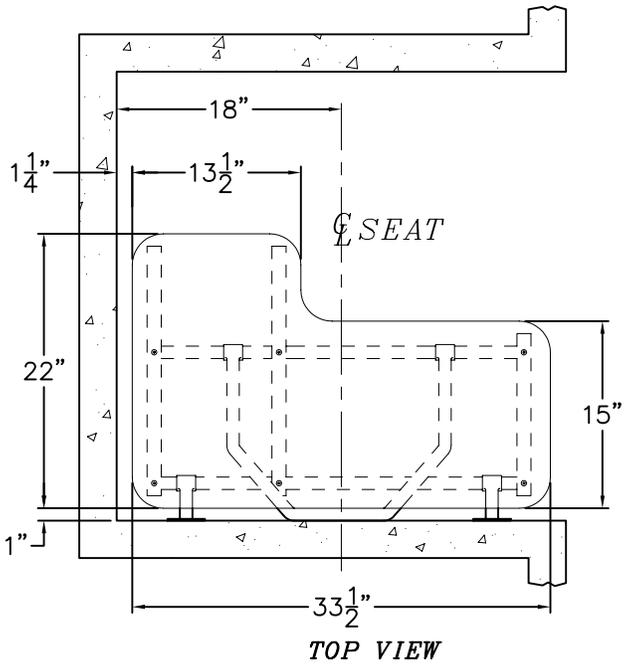
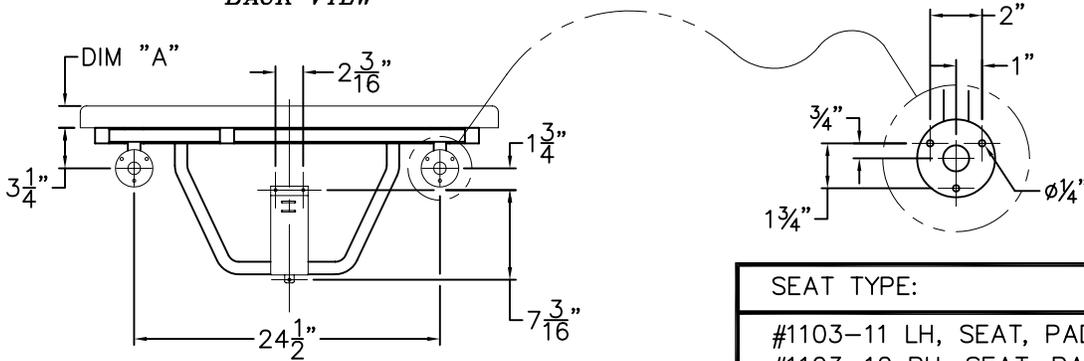
AFTER COMPLETION OF TOP SUPPLY ROUGH-INS:

- A- MOUNT HOUSING ⑥ TO WALL PER APPROPRIATE FIXTURE INSTALLATION INSTRUCTIONS.
- B- POSITION ADJUSTMENT SECTION ⑦ UP TO CEILING. USING ADJUSTMENT SECTION AS A TEMPLATE, MARK POSITION FOR L-CLIPS ⑧.
- C- POSITION SUPPLY COVER ⑨ AND USE AS A TEMPLATE TO MARK POSITION FOR L-CLIPS ⑧.
- D- INSTALL WALL ANCHORS ⑩ (BY OTHERS) FOR L-CLIPS. POSITION L-CLIPS ⑧ WITH CAGE NUT FACING OUTWARD FOR ATTACHMENT OF HOUSING AND FASTEN TO WALL (WALL FASTENERS BY OTHERS).
- E- ASSEMBLE ADJUSTMENT SECTION ⑦ TO L-CLIPS USING #10-32 SCREWS ⑪ PROVIDED.
- F- ASSEMBLE SUPPLY COVER ⑨ TO L-CLIPS USING #10-32 SCREWS ⑪ PROVIDED.

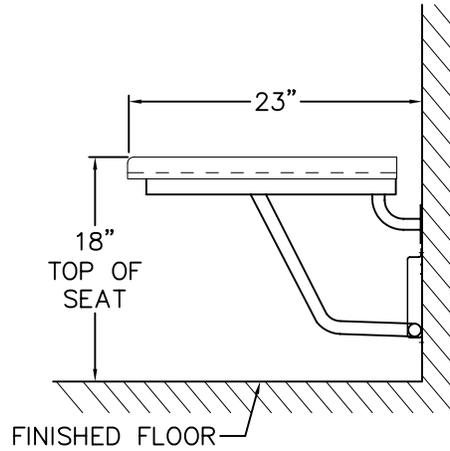
<p>ACORN ENGINEERING COMPANY P.O. BOX 3527 INDUSTRY, CA. 91744 (626) 336-4561 FAX (626) 961-2200</p>	<p>TITLE <b>APEX OPTION -SC SUPPLY COVER for MODEL #420, #450, #460 &amp; #470</b></p>		
	<p>MANUFACTURE DATE</p> <p><b>JULY 1969</b></p> <p><b>TO PRESENT</b></p>	<p>DATE ISSUED</p> <p><b>10/05/92</b></p> <p>DATE REVISED</p> <p><b>06/22/04</b></p>	<p>DRAWING NUMBER</p> <p><b>9900-056-001</b></p>



BACK VIEW



SEAT TYPE:	DIM 'A'
#1103-11 LH, SEAT, PADDED #1103-12 RH, SEAT, PADDED	3/4"
#1103-21 LH, SEAT, PHENOLIC #1103-22 RH, SEAT, PHENOLIC	1/2"
#1103-31 LH, SEAT, SS #1103-32 RH, SEAT, RH	1/8"



REFERENCE DRAWING	
-RD REINFORCED PANEL	9900-351-001

**INSTALLATION INSTRUCTIONS:**

A- USING FOLDED SEAT FRAME AS A TEMPLATE MARK HOLES ON WALL OR REINFORCED PANEL FOR MOUNTING FLANGES AND SUPPORT LEG GUIDE BRACKET FOR WALL ANCHORS AND ANCHORING HARDWARE BY OTHERS. FOR -RP PANEL MOUNTING, #10 x 1" LONG STAINLESS STEEL PHILIPS HEAD SHEET METAL SCREWS ARE RECOMMENDED. FOR WALL MOUNTING, #10 x 2" LONG STAINLESS STEEL PHILIPS HEAD SHEET METAL SCREWS ARE RECOMMENDED.

- B- SEAT SHOULD BE MOUNTED ON CENTER WITH 34" WIDE ACORN -RP REINFORCED PANEL. REFER TO PANEL DETAIL WITH JOB INSTALLATION INSTRUCTIONS FOR CUSTOM PANEL SIZE INFORMATION.
- C- THE SEAT IS PROPERLY INSTALLED IF IT FOLDS UP AND DOWN FREELY, YET STAYS IN THE UP POSITION WITHOUT ASSISTANCE.

CONSULT APPLICABLE CODES FOR SEAT HEIGHT & LOCATION REQUIREMENTS. RECOMMENDED SEAT HEIGHT IS 18" ABOVE FINISHED FLOOR.

IMPORTANT: THIS SHOWER SEAT IS INTENDED TO MEET OR EXCEED CURRENT ADA CODE REQUIREMENTS. SEAT REQUIRES ADEQUATE IN-WALL, WALL BACKING OR OTHER SECURE METHOD OF ANCHORING.

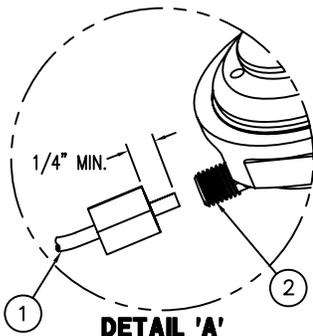


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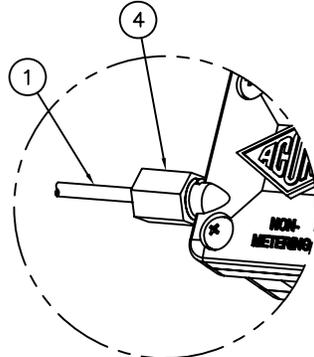
TITLE <b>FOLDING PADDED SEAT CATALOG * 1103 SERIES (A.D.A.)</b>		
MANUFACTURE DATE	DATE ISSUED	DRAWING NUMBER
<b>JANUARY 1, 1980</b>	<b>04/07/93</b>	<b>9900-350-001</b>
<b>TO PRESENT</b>	DATE REVISED	
	<b>09/13/10</b>	



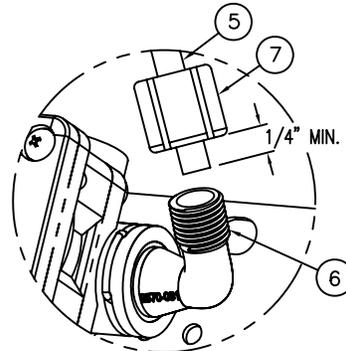
SIDE OUTLET SHOWN



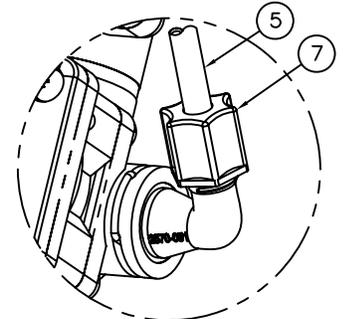
**DETAIL 'A'**



**DETAIL 'B'**



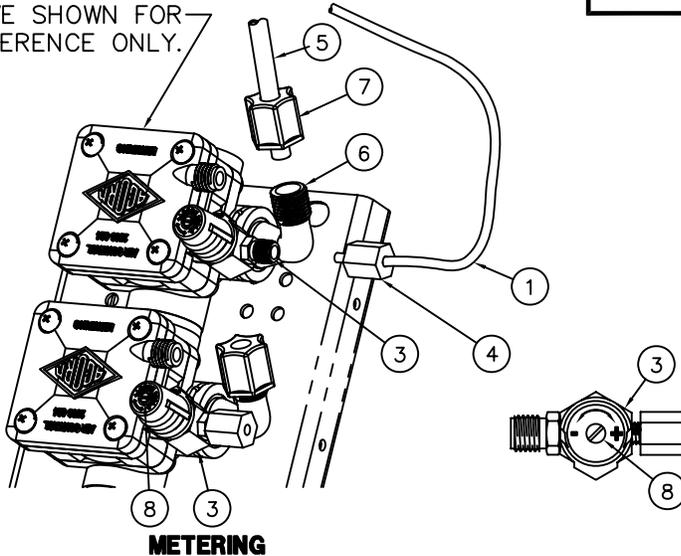
**DETAIL 'C'**



**DETAIL 'D'**

NOTE: PENAL-WARE & ECO-RAIN SHOWER FIXTURES USE 1/4" O.D. RISER TUBING WHILE OTHER SHOWER-WARE FIXTURES USE 3/8" O.D. TUBING.

AIR-CONTROL 03M-MA2 VALVE SHOWN FOR REFERENCE ONLY.



**METERING**

REFERENCE DRAWINGS	
REPAIR PARTS	DRAWING
VALVE BODY	9955-006-003
CHECKSTOP	9956-040-003
PUSHBUTTON/ESCUTCHEON	9957-300-001
METERING SERVOMOTOR	9955-000-003

NOTE:  
 • ALL TUBING SHOULD BE CUT SQUARE AND BE FREE OF BURRS OR DEFORMITIES TO ENSURE A WATER TIGHT CONNECTION.  
 • EXTEND TUBING AT LEAST 1/4" BEYOND FERRULE NUT AND INSERT TUBING INTO CONNECTION OPENING BEFORE TIGHTENING.  
 • TUBING SHOULD BE FREE OF KINKS TO ENSURE PROPER OPERATION.  
 • MAXIMUM RECOMMENDED WORKING WATER PRESSURE IS 100 PSI; TEMPERATURE IS 130° F; OUTLET TEMPERATURE IS RECOMMENDED AT A MAXIMUM OF 105° F.  
 WARNING:  
 PRIOR TO MAKING INSTALLATION, SUPPLY LINES MUST BE FLUSHED OF ALL FOREIGN MATERIAL SUCH AS PIPE DOPE, CHIPS, SOLDER, ETC. VALVE MUST BE DRAINED PRIOR TO BEING SUBJECTED TO FREEZING TEMPERATURES. MAXIMUM RECOMMENDED OUTLET WATER TEMPERATURE IS 105° F.

TIMING IS ADJUSTABLE FROM 5 TO 60 SECONDS AND IS ACCOMPLISHED BY ROTATING TIMING SCREW (8). TURNING THE TIMING SCREW CLOCKWISE INCREASES METERING TIME WHILE TURNING THE SCREW COUNTERCLOCKWISE DECREASES METERING TIME.

**INSTALLATION INSTRUCTIONS:**

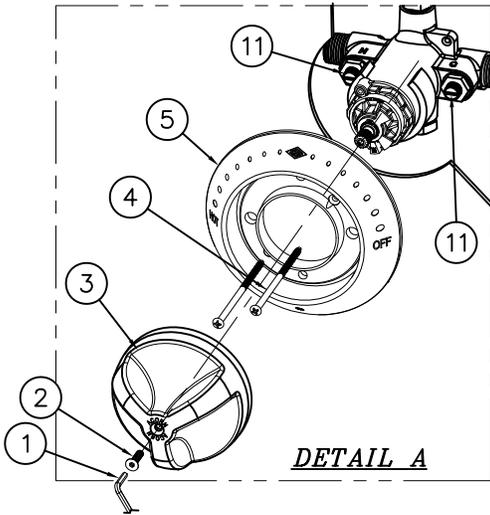
- A- MOUNT FIXTURE IN ACCORDANCE TO MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- B- ASSEMBLE PUSHBUTTONS AND OR SHOWER NOZZLES TO FIXTURE IF REQUIRED.
- C- CONNECT 1/8" O.D. POLYETHYLENE AIR LINE (1) TO PUSHBUTTON (2) AND VALVE TIMER ASSEMBLY (3). SEE DETAILS 'A' & 'B'. HAND TIGHTEN FERRULE NUT (4) PROVIDED.

- D- CONNECT SHOWER RISER (5) TO VALVE ASSEMBLY ELBOW (6). SEE DETAIL 'C' AND 'D'. HAND TIGHTEN FERRULE NUT (7) PROVIDED.
- E- AFTER THOROUGHLY FLUSHING SUPPLY LINES, MAKE UP CONNECTIONS TO VALVE ASSEMBLY INLET(S) 1/2" NPT OR 1/2" NPS FLEX HOSE AS REQUIRED.

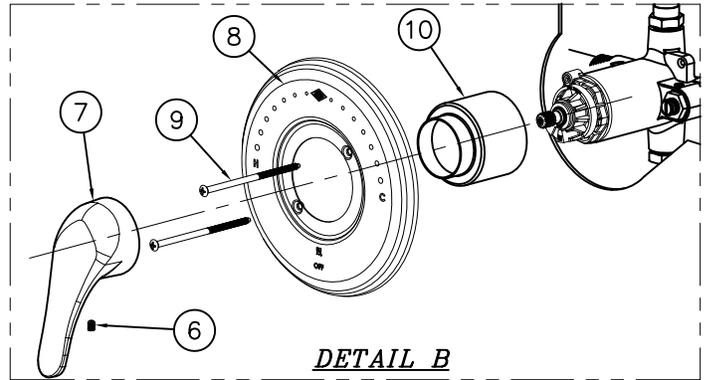
ACORN ENGINEERING COMPANY P.O. BOX 3527 INDUSTRY, CA. 91744 (626) 336-4561 FAX (626) 961-2200	<b>TITLE HAND OPERATED, AIR-CONTROL VALVE SHOWER CONNECTIONS</b>		
	MANUFACTURE DATE <b>OCTOBER 2010                  TO PRESENT</b>	DATE ISSUED <b>10/28/10</b>	DRAWING NUMBER <b>9900-006-003</b>
		DATE REVISED	



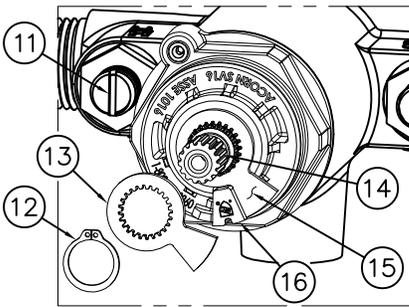
REFERENCE DRAWINGS	
ASSEMBLIES	NUMBER
T/P VALVE	9975-005-002



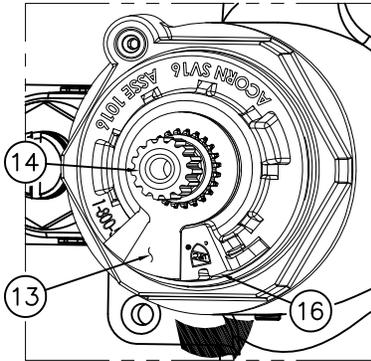
DETAIL A



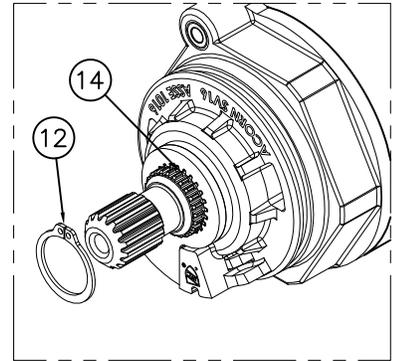
DETAIL B



DETAIL C



DETAIL D



DETAIL E

**INSTRUCTIONS:**

A-REMOVE TRI-LEVER HANDLE TRIM: SEE DETAIL A

- a- USING CENTER REJECT ALLEN WRENCH (1) REMOVE HANDLE SCREW (2) AND REMOVE HANDLE (3).
- b- REMOVE ESCUTCHEON (4) BY REMOVING SCREWS (5).

FOR OPTIONAL -LVR LEVER HANDLE TRIM: SEE DETAIL B

- a- REMOVE SET SCREW (6) AND HANDLE (7).
- b- REMOVE ESCUTCHEON (8) BY REMOVING SCREWS (9).
- c- PULL OFF VALVE SLEEVE (10).

**TEMPERATURE ADJUSTMENT:**

- B- ENSURE MAIN WATER SUPPLY IS ON.
- C- ENSURE CHECK STOPS (11) ARE OPEN.
- D- ENSURE VALVE IS IN THE OFF POSITION.
- E- USING SNAP RING PLIERS REMOVE RETAINING RING (12) AND THE FIRST TEMPERATURE LIMIT WASHER (13) ONLY FROM VALVE STEM (14). SEE DETAIL C.

NOTE: IF SECOND TEMPERATURE LIMIT WASHER (15) COMES OFF, RESETTING OF THE OFF STOP MAY BE REQUIRED, KEY AS CLOSE AS POSSIBLE ON THE COUNTER-CLOCKWISE SIDE OF BONNET STOP (16). USING HANDLE (3) OR (7) SLIGHTLY OPEN AND CLOSE VALVE TO ENSURE WATER WILL SHUT OFF. DETAIL C.

**TEMPERATURE ADJUSTMENT: CONTINUED:**

- F- USING HANDLE (3) OR (7) TURN VALVE STEM (14) COUNTER-CLOCKWISE TO INCREASE HOT, CHECKING OUTLET TEMPERATURE UNTIL DESIRED TEMPERATURE IS REACHED (RECOMMENDED 105° TO 110°). SLIDE FIRST TEMPERATURE LIMIT WASHER (9) OVER VALVE STEM (13) AND ENSURE SIDE OF WASHER RESTS AS CLOSE AS POSSIBLE TO CLOCKWISE SIDE OF BONNET LIMIT STOP (16). DETAIL D.
- G- WITH VALVE IN THE "ON" POSITION AND WATER RUNNING, USING SNAP RING PLIERS INSTALL RETAINING RING (12). ENSURE RETAINING RING (12) IS INSERTED PROPERLY INTO GROOVE ON VALVE STEM (14). DETAIL E.
- H- REINSTALL TRIM IN REVERSE ORDER.



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TITLE **-8 T/P TEMP/PRESS BALANCING MIXING VALVE - TEMPERATURE ADJUSTMENT**

MANUFACTURE DATE	DATE ISSUED	DRAWING NUMBER
<b>APRIL 2014</b>	<b>05/01/14</b>	
<b>PRESENT</b>	DATE REVISED	<b>9900-007-001</b>
	<b>09/01/16 B</b>	