AKRON BRASS COMPANY

# STYLE 2001 CHALLENGER DUAL FLOW NOZZLE OPERATING AND MAINTENANCE INSTRUCTIONS (Built After 2004)

The following is intended to provide the basic instructions for operating and maintaining a Challenger Nozzle.

## PRODUCT WARNINGS

⚠ WARNING: Maximum operating pressure 150 psi/10 bar.
⚠ WARNING: At pressures below that indicated on the label, the nozzle will have reduced flow and reach. Be sure you have enough flow and pressure for the situation (See ISFTA and NFPA manuals for guidelines).
⚠ WARNING: Open and close shutoff slowly. Rapid opening will produce a sudden thrust. Rapid opening or closing can cause water hammer.
⚠ WARNING: If any tags or bands on the nozzle are worn or damaged and cannot be easily read, they should be replaced.

## PRODUCT CAUTIONS

⚠ CAUTION: Not recommended for use with salt water.
⚠ CAUTION: After use with foam, flush with fresh water.
⚠ CAUTION: Have enough fire fighters on the line to safely control the reaction force created by the stream.
⚠ CAUTION: Challenger nozzles are labeled for the flow and pressure at which they are set.
⚠ CAUTION: Charge all lines slowly to facilitate a controlled water pressure build-up during start-up.
⚠ CAUTION: For fire fighters use ONLY.
⚠ CAUTION: For use with water or standard fire fighting foams ONLY.
⚠ CAUTION: Ensure the Challenger is aimed in a direction that is safe, prior to operating.
⚠ CAUTION: Do not use the Challenger as a forcible entry tool.
⚠ CAUTION: Ensure that the thread on the nozzle swivel is matched to the thread on the hose connection.
⚠ CAUTION: Do not over tighten the nozzle onto the hose connection.
⚠ CAUTION: The nozzle is configured for optimum performance. Do not alter in any manner.
⚠ CAUTION: Do not expose pistol grip or shutoff handle to Trichlorethylene or Trichlorethane.

## SPECIFICATION

For use with:
1. FlouroProtein (FP) Foam
2. Aqueous Film Forming Foam (AFFF)
3. Film Forming FlouroProtein (FFFP) Foam

## MAINTENANCE

- Your nozzle should be inspected prior and after each use, to ensure it is in good operating condition.
- Periodically, an unanticipated incident may occur when the nozzle is used in a manner that is inconsistent with standard operating practices and those listed in IFSTA. A partial list of potential misuses follows:
  - Operating above maximum rated pressure and flow.
  - Not draining, and allowing water to freeze inside nozzle.
  - Dropping nozzle from a height where damage is incurred.
  - Prolonged exposures to temperatures above +130° F, or below -25° F
  - Operating in a corrosive environment.
  - Other misuse that might be unique to your specific firefighting environment.

Also, there are many "tell tale" signs that indicate nozzle repair is in order, such as:

- Controls that are either inoperable or difficult to operate.
- Excessive wear.
- Poor discharge performance.
- Water leaks.

If any of the above situations are encountered, the nozzle should be taken out of service and repaired, plus tested by qualified nozzle technicians prior to placing it back into service.

- Under normal conditions, periodically flushing the nozzle with clean water and cleaning grit and dirt from around exterior moving parts will allow the nozzle to operate as designed.

- Over time the seals and turbine teeth, if applicable, may need replaced. This can be accomplished by purchasing the appropriate Akron repair kit. Use qualified maintenance mechanics or return the nozzle to Akron Brass for repair.

- Regularly check the baffle screw to be sure it is tight

## CONSTRUCTION MATERIALS

1. Aluminum spreader outlet jaws
2. Quick-action 1/4 turn ball shut-off bale
3. Foam Barrel: Pyrolite
4. Dual-flow control dial: 60-120 gpm (230-460 lpm)
5. Swivel inlet available in:
   - Stortz
   - 1-1/2" Threaded
   - 2-1/2" British Instantaneous
6. Body: Pyrolite®
7. Dry weight: 6 lbs. (2.7 kg)

## PERFORMANCE CHARACTERISTICS

Flat Fan Spray Footprint: 12m x 4m (460 LPM) 39' x 13' (120 GPM)

Flat Fan Spray Footprint: 10m x 4m (230 LPM) 33' x 13' (60 GPM)

## NOMINAL PERFORMANCE

| Flouroprotein* Setting | Flow Rate 100psi (7 Bar) Liters Per Minute | Working Pressure Psi (Bar) | Foam Expansion and Drain Time at 75-100psi (at 5-7 bar pressure)* | | Range (Meters)* |
|---|---|---|---|---|---|
| 60gpm/230 LPM | 60/225 | 100 (7) | 1:8 | 10 minutes | 66' (20) |
| 120gpm/460 LPM | 120/450 | 100 (7) | 1:8 | 10 minutes | 66' (20) |
| | | | | | |
| AFFF* Setting | Flow Rate 100psi (7 Bar) Liters Per Minute | Working Pressure Psi (Bar) | Foam Expansion and Drain Time at 75-100psi (at 5-7 bar pressure)* | | Range (Meters)* |
| 60gpm/230 LPM | 60/225 | 100 (7) | 1:15 | 18 minutes | 56' (17) |
| 120gpm/460 LPM | 120/450 | 100 (7) | 1:15 | 18 minutes | 56' (17) |

*Nominal performance which can be expected when used with flouroproteinn and AFFF foam concentrates. Results may vary based on foam quality, water temperature, and ambiante conditions.

## OPERATING INSTRUCTIONS (Refer to Figure 1)

1. Connect the foam nozzle to foam/water supply by connecting to swivel connection (1).
2. To set flow rate, rotate flow control ring (2).
   Settings are: FLUSH
   60gpm (230 lpm)
   120gpm (460 lpm)
3. Push/Pull bale (3) for on/off control slowly.
4. To open the shut-off, pull the bale slowly.
5. To close the shut-off, push the bale slowly.
   Caution: Rapid movement of the bale may cause water hammer and damage to the hose or other equipment.
6. Operate foam tube spreader jaws by moving handle (4) backward and forward to give the required reach and width.
7. After use, flush out with fresh water only with flow control ring (2) set at FLUSH.

Separate foam delivery tube from the nozzle shut-off assembly by removing screws (5) using 3mm Allen wrench (see Figure 1).

## FOAM DELIVERY TUBE DISASSEMBLY & REASSEMBLY INSTRUCTIONS (Refer to Figure 2)

1. The mesh assembly (37) may be removed by releasing set screws (36) with a 2mm Allen wrench, and pulling it from the foam tube (38). To reinstall the mesh assembly, insert the item as shown and secure with set screws (36) using 2mm Allen wrench. (Orientation of mesh is unimportant.)

2. The spreader jaws (55-56) at the front end of the foam tube may be removed by removing the four screws (48), washers (49), spacer (44) and nuts (58).
3. To reassemble, install mesh assembly (37) convex side to the front, as shown in Figure 2.

NOTE: The upper spreader flap uses a longer spacer (59) and the lower flap the shorter spacer (44).

## FOAM NOZZLE DISASSEMBLY (Refer to Figure 3)

1. Remove the set screw (69) using 1/8" Allen wrench.
2. Insert a 13/16" square tool into the grooves in the inlet adapter (3) and remove counter-clockwise.
3. Remove O-Ring (12) from the shut-off body (13).
4. Pull backon the bale to the open position and remove the shut-off ball (60).
5. Remove the seat (11) and O-Ring (10).
6. Remove the screw (34) using 5/32" Allen wrench.
7. Remove the baffle head (35) and shims.
8. Remove set screw (53) using 3/32" Allen wrench.
9. Place shutoff body (13) in a vice. Unscrew the entire top section from adapter (19).
10. Pull stem assembly (27,22,21) out of nozzle body.
11. Unthread cam axle (17).
12. Pull flow control ring (16) off nozzle body, being careful not to lose detent spring (46) and ball (47).
13. Remove the two cam rollers (32-33) from the cam groove in the nozzle body.
14. Rotate the nozzle body (25) until the key pin (24) points down. Carefully tap the flange of the nozzle body on a solid surface until the key pin comes out.
15. Push the discharge tube (28) out of discharge end of the nozzle body.
16. Remove O-Rings (29 & 31) from discharge tube.

## FOAM NOZZLE REASSEMBLY (Refer to Figure 3)

NOTE: Lubricate all parts as assembled, unless otherwise specified. Use Parker O-Ring lubricant or equivalent petroleum based lubricant for all O-Rings. Use low temperature Lubriplate or equivalent for mechanical parts.

1. Install new O-Rings (29 & 31) onto discharge tube (28).
2. Align key pin slot with the key pin hole, then carefully push discharge tube (28) into nozzle body (25).
3. Rotate the discharge tube until the longitudinal key pin slot in the discharge tube aligns with the key pin hole in the nozzle body. Install the key pin (24).
4. Push the discharge tube in and out until one end of its cam groove aligns with one end of the slot in the nozzle body. Install the lower cam roller (33) into the end of the discharge tube cam groove, and the upper cam roller (32) on top of the short cam roller.
5. Insert the detent spring (46) and detent ball (47) into the flow control ring (16). A little grease (Lubriplate or equivalent) may help keep the ball from falling off the spring.
6. Slide the flow control ring (16) onto the nozzle body, and rotate until the hole in the flow control ring aligns with the cam rollers. Install the cam axle (17).
7. Install the stem assembly (27,22,21) into the nozzle body (25).
8. Thread the tip section into the adapter (19) until tight. Align the set screw hole with the drilled dimple in the body thread.
9. Install set screw (53).
10. Install baffle head (35) and shims).
11. Install screw (34).
12. Install the new O-Ring (10) on the new seat (11).

13. Insert the new seat/O-Ring into the shut-off body (13).
14. Pull the bale to the open position and insert the new ball (60).
15. Install the new O-Ring (12) into the shut-off body (13).
16. With the ball in the closed position, thread the inlet adapter (3) into the shut-off body (13) until the set screw hole aligns with the drilled dimple in the adapter thread.
17. Install the set screw (69).
18. Test the nozzle, as outlined in Items 1, 2 and 3 of the Operating Instructions, to be sure it functions properly before putting it back into service.

Figure 1

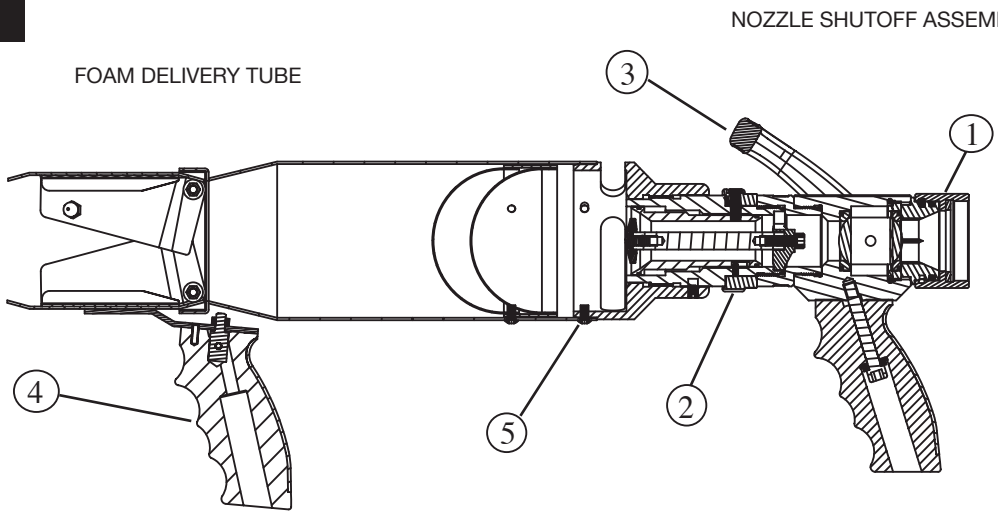



Figure 2

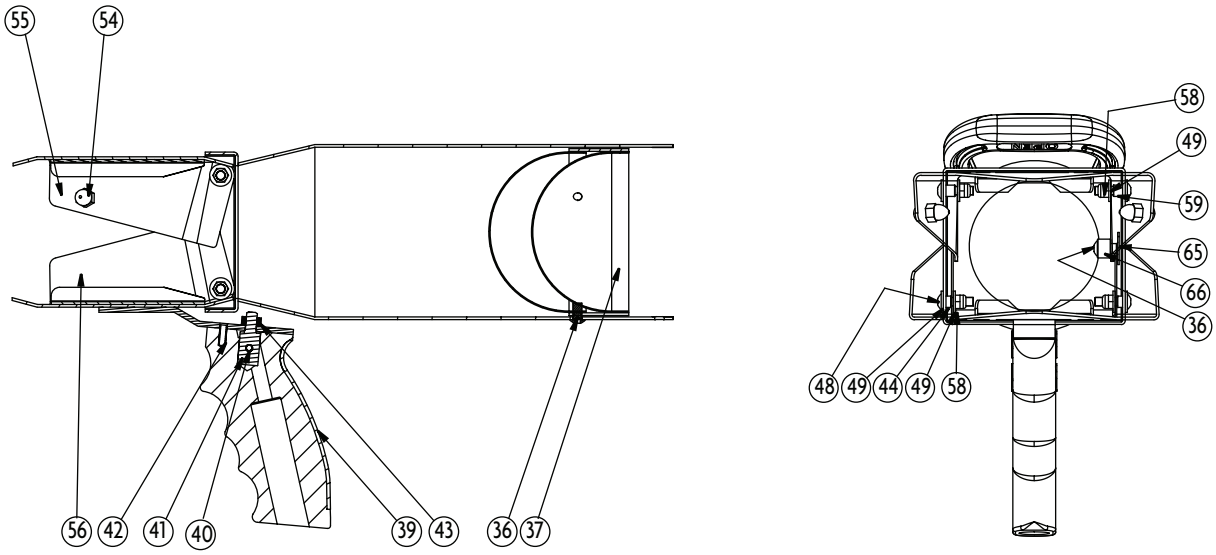
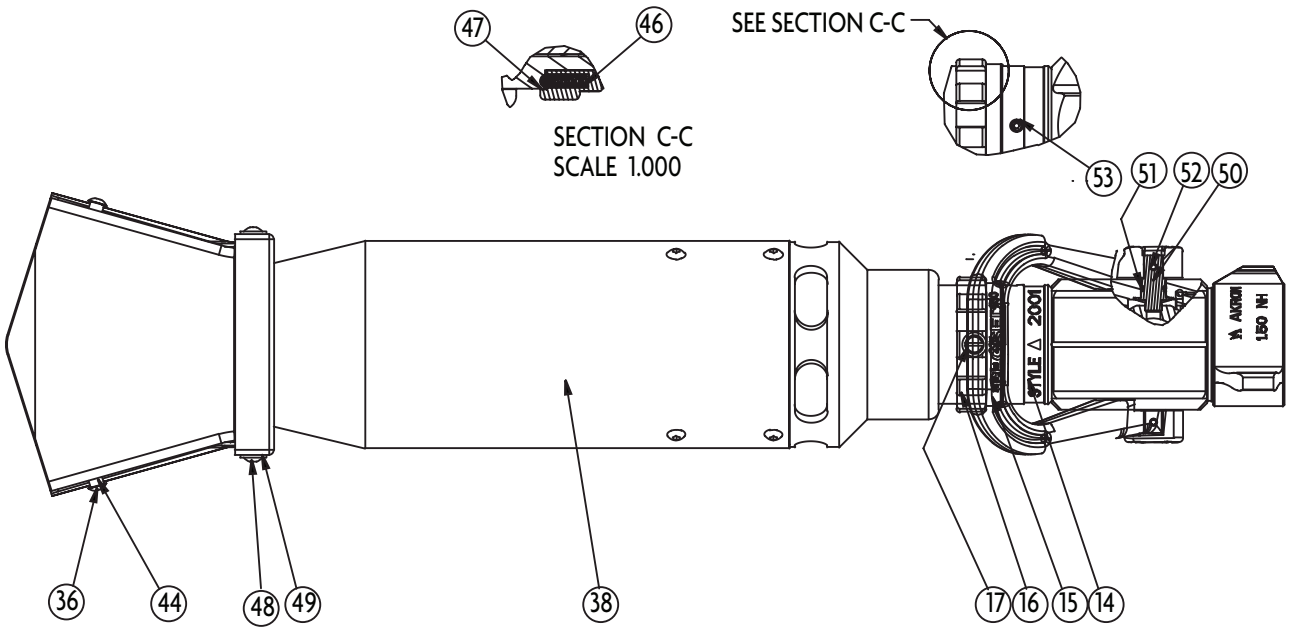


Figure 3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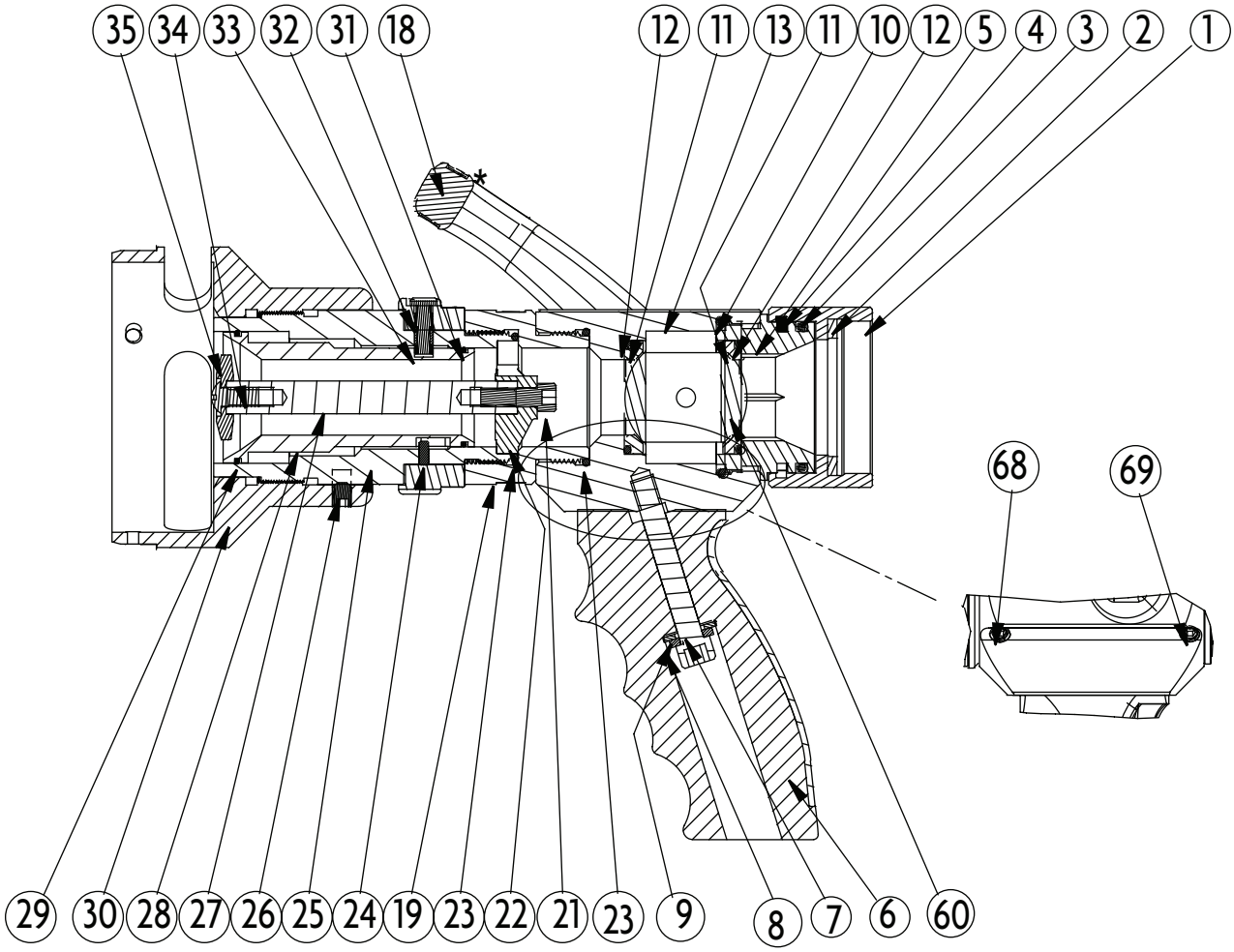
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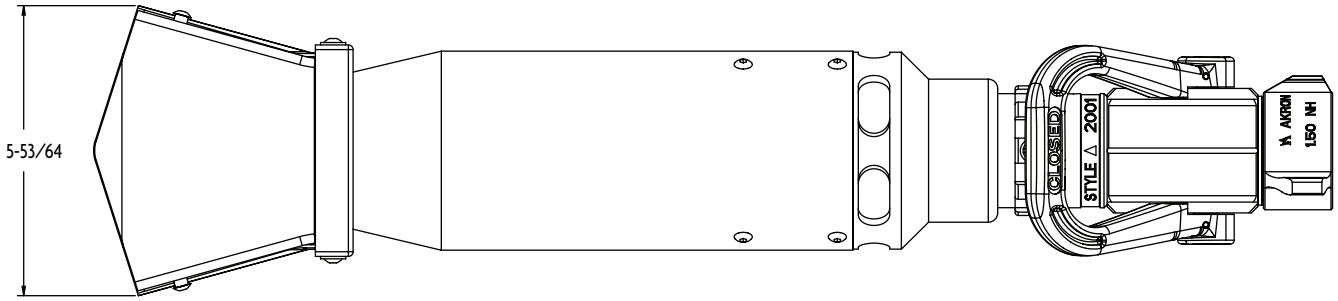
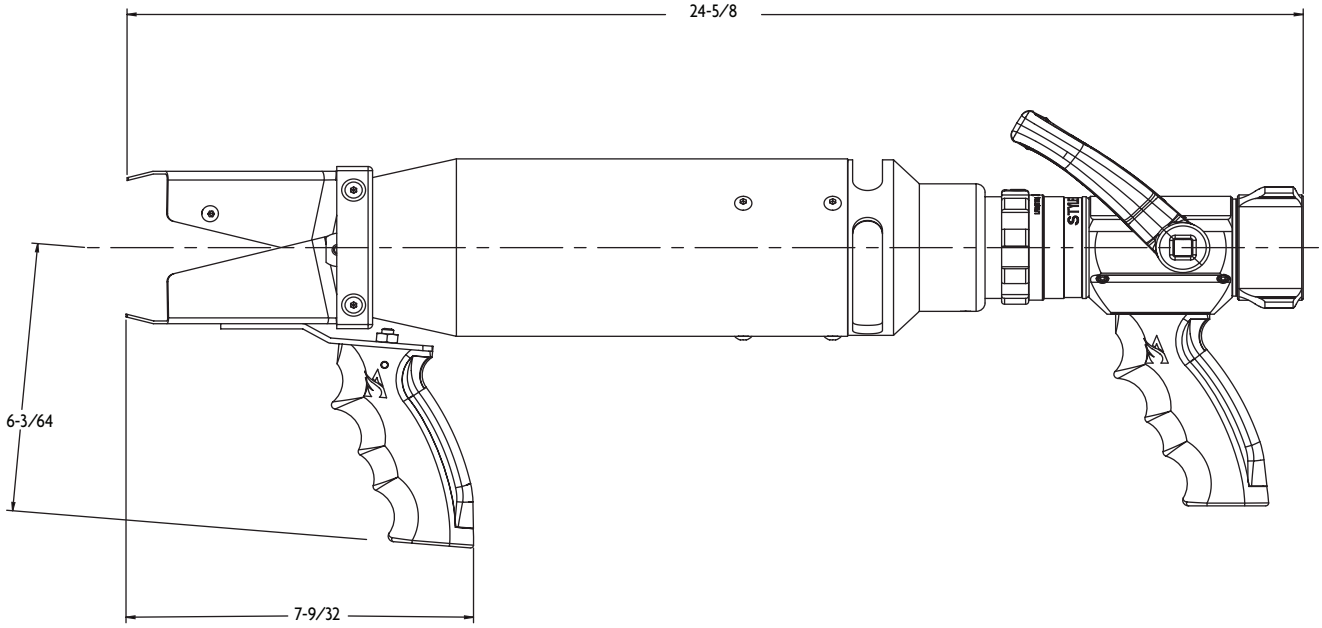
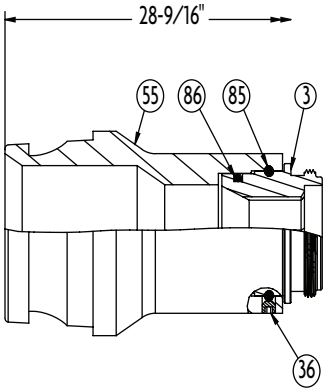
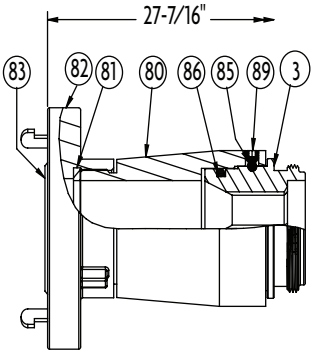
# DIMENSIONAL LAYOUT



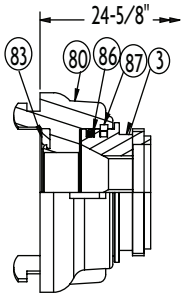



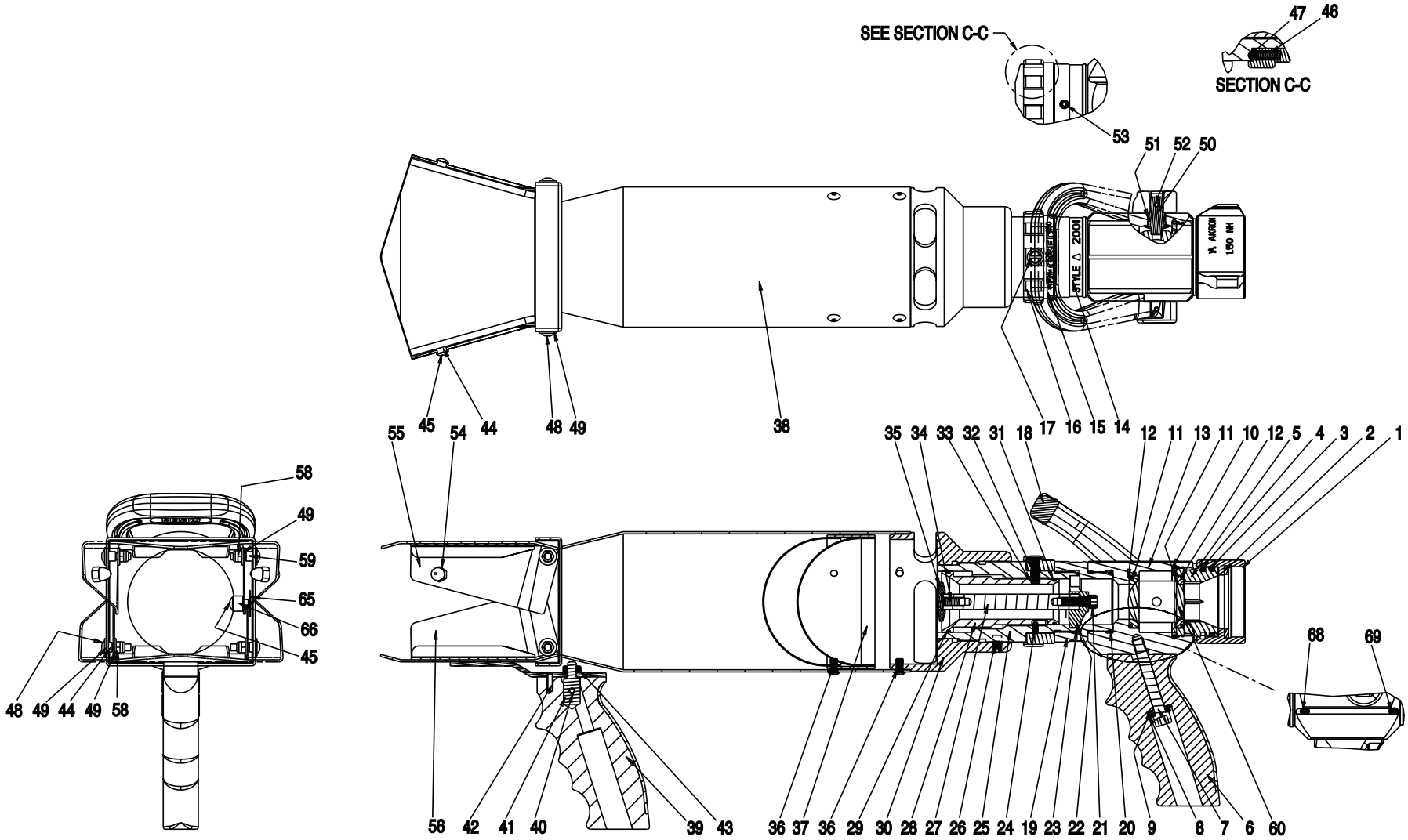

OPTIONAL B.I.M ADAPTER




OPTIONAL 52mm & 65mm STORZ




OPTIONAL 38mm STORZ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SECTION C-C
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## STYLE 2001 PARTS LIST

| ITEM NO. | DESCRIPTION | PART NUMBER | QUANTITY |
|---|---|---|---|
| 001 | SWVL 1.5BSP ETCH,HC,CLR .20SF PY | 107854 | 1 |
| 002 | GSKT PARKER N674-70 2-1/16X1-9/16 X1/8 | 717042 | 1 |
| 003 | O-RING PARKER 2-224 N-818-70 | 757267 | 1 |
| 003Δ | ADPT MCH 1.5" BB F/STZ/BIM/ZT HC .14SF | 117423 | 1 |
| 004 | RING PISTON 1-1/2"BRONZE SPRING WIRE | 756003 | 1 |
| 005 | ADPT SWVL MCH TBJT 1.5" HC SERV .14 SF | 107859 | 1 |
| 006 | GRIP PISTOL ZYTEL ST-801 BK-10 BLK | 718233 | 1 |
| 007 | SCREW SOC HD 5/16-18 X 2"1/4"ST STL USA | 763064 | 1 |
| 008 | WASHER LOCK HEAVY DUTY 5/16 ST STL USA | 784090 | 1 |
| 009 | WASHER FLAT STSTL 5/16 TYPE B NARROW USA | 784093 | 1 |
| 010 | O-RING 2-225 N674-70 2-1/8OD X 1-7/8ID | 757375 | 1 |
| 011 | SEAT NOZ 1 1/2 UHMW MACH COMP POLYETHYLE | 769245 | 2 |
| 012 | O-RING PARKER N674-70 2-125 BUNA-N | 757281 | 2 |
| 013 | BDY SH/O 1.5"MCH PG HC/CLR.332SF PY NOTE | 118361 | 1 |
| 014 | BAND INDICATOR 1.5"STYLE 2001 ALUM | 704424 | 1 |
| 015 | BAND GALL 225-450LPM RED-R | 704900 | 1 |
| 016 | RING GALLONAGE CNTRL 1.5"CELCON BLACK U | 758182 | 1 |
| 017 | AXLE CAM 1.5"TBJT ST STL | 707252 | 1 |
| 018 | HANDLE SH/OFF 1.5"ZYTEL BLACK BK-010 | 721417 | 1 |
| 019 | ADPT NOZZLE 6061T6 HC .197SF | 120020 | 1 |
| 021 | SCREW SOC HD CAP 1/4 -20 X 3/4"ST STL | 765030 | 1 |
| 022 | SPIDER ST STL 1.5" 1715 | 769407 | 1 |
| 023 | O-RING PARKER 2-130 BUNA N70 | 757232 | 2 |
| 024 | KEY DISCHARGE 1.5"TBJT | 727034 | 1 |
| 025 | BODY NOZ MCH MOD NZ HC SERV .40SF PY | 102350 | 1 |
| 026 | SCREW SOC SET NYLOCK 1/4-20X5/16" SSnote | 766015 | 1 |
| 027 | STEM BAFFLE MOD NOZ HC SERV .04SF PY | 102353 | 1 |
| 028 | TUBE DSCH MOD NOZ HC SERV .20SF PY | 102354 | 1 |
| 029 | O-RING 1 3/4 X 1 5/8"2-030 N-818-70 IMP | 757244 | 1 |
| 030 | SLEEVE PATT MOD NOZ HC SERV .44SF PY | 102352 | 1 |
| 031 | O-RING 1 5/16"X 3/16"2-025 N-818-70 IM | 757242 | 1 |
| 032 | ROLLER CAM UPPER 302ST STL | 758211 | 1 |
| 033 | ROLLER CAM LOWER 303 ST STL 1"&1.5"TBJ | 758210 | 1 |
| 034 | SCREWSOCHDBUTTONNYLOC1/4-20X1/2"S USA | 765149 | 1 |
| 035 | BAFFLE HD 1.5 TBJT 6061T6 HC SERV .021SF | 102222 | 1 |
| 036* | SCREW BTTN HD 10-24 X 3/8 ST STL | 765143 | 6 |
| 036** | SCREW ALLEN HD ST STEEL 1/4 -20X3/16" | 765008 | 1 |
| 037* | RING MESH WELDMENT 304STSTL 2001 COMP | 756154 | 1 |

| | | | |
|---|---|---|---|
| 038* | TUBE FOAM WELDMENT HC 1.93SF | 119557 | 1 |
| 039* | GRIP PISTOL MODIFIED BLK ZYTEL | 119558 | 1 |
| 040* | PIN ROLL 5/32 X 15/16LG 18-8 STSTL | 744430 | 1 |
| 041* | INSERT THREADED 304STSTL COMP | 723031 | 1 |
| 042* | PIN ROLL 5/32 X 9/16" LG 18-8 STSTL | 744429 | 1 |
| 043* | NUT HEX 303-304 ST STL 1/4-20 | 734061 | 1 |
| 044* | SPACER SHORT 304STSTL 2001 see note | 769713 | 4 |
| 046 | SPRING DETENT | 769111 | 1 |
| 047 | BALL ST STL 3/16"TYPE 302 GRADE 200 USA | 704018 | 1 |
| 048* | SCREW BUTTON HD ST STEEL 10-24 X 3/4" | 766009 | 4 |
| 049* | WASHER #10 SAE FLAT ST STL 3625 | 784098 | 8 |
| 050 | TRUNNION TBJT 1.5 HC SERV .02 SF PY | 107857 | 2 |
| 051 | O-RING PARKER N674-70 2-012 BUNA-N | 757282 | 2 |
| 052 | PIN ROLL ESNA 1/8" X 1 1/8" SS 18-8 USA | 744080 | 2 |
| 053 | SCREW SOC HD SET CUP PT 10-24 X 5/16" | 765040 | 1 |
| 054* | NUT ACORN HI-CROWN 10-24 THD 4801 | 735054 | 2 |
| 055* | FLAP UPPER WELDMENT HC .684SF | 120019 | 1 |
| 055*** | ADPT MCH 1.5BBGX2.5BIM HC/CLR .58SF PY | 117425 | 1 |
| 056* | FLAP LOWER WELDMENT HC .684SF | 120018 | 1 |
| 058* | NUT HEX 10-24 ST STL W/NYL INST #79NM-04 | 735017 | 4 |
| 059* | SPACER LONG STSTL 2001 | 769714 | 2 |
| 060 | BALL CELCON 1.5"0715 | 704006 | 1 |
| 065* | NUT WELD STSTL SLAB BASE 10-24-THD | 735074 | 1 |
| 066* | FLAP SPACER CELCON COMP 2001 | 769746 | 1 |
| 068 | SCREWSOCHD SETCUP PT 1/4 -20X1/4"SS USA | 765002 | 1 |
| 069 | SCREW ALLEN HD ST STEEL 1/4 -20X3/16" | 765008 | 1 |
| 080** | ADPT STZ EXT MCH 1.5BBX1.5BSPHC,CLR.19SF | 117426 | 1 |
| 080ΔΔ | FTG STRZ 38MMX1.5 PR HC SER .27SF | 107903 | 1 |
| 081** | GASKET, STORZ 1.5"BSP #HBSPG-15 | 714178 | 1 |
| 082** | FITTING STORZ S/A BSP 65MMX1.5 PY | 45150003 | 1 |
| 083** | SEAL 65 MM STORZ FITTINGBUNA-N | 769330 | 1 |
| 083ΔΔ | SEAL38 MMSTORZFITTINGBUNA-N/#HSSS-15note | 769328 | 1 |
| 085** | BALL BRASS 5/32"DIA. GRADE #500 | 704030 | 38 |
| 086** | O-RING 1 7/8 X 1/8"2-223 TEFLON FILLED | 757256 | 1 |
| 086ΔΔ | O-RING PARKER 2-224 N-818-70 | 757267 | 1 |
| 087ΔΔ | RING PISTON 1-1/2"BRONZE SPRING WIRE | 756003 | 1 |

* Use Noz Challenger Foam Tube S/A
** For 65mm Storz Inlet
*** For 2.5 BIM Inlet
Δ Used on both Storz and BIM Inlet
ΔΔ For 38mm Storz Inlet

AKRON
BRASS COMPANY

*ISO 9001 REGISTERED COMPANY*

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PHONE: 519.773.8431 | FAX: 519.773.3794

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WARRANTY AND DISCLAIMER: We warrant Akron Brass products for a period of five (5) years after purchase against defects in materials or workmanship. Akron Brass will repair or replace product which fails to satisfy this warranty. Repair or replacement shall be at the discretion of Akron Brass. Products must be promptly returned to Akron Brass for warranty service.

We will not be responsible for: wear and tear; any improper installation, use, maintenance or storage; negligence of the owner or user; repair or modification after delivery; damage; failure to follow our instructions or recommendations; or anything else beyond our control. WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED, OTHER THAN THOSE INCLUDED IN THIS WARRANTY STATEMENT, AND WE DISCLAIM ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. Further, we will not be responsible for any consequential, incidental or indirect damages (including, but not limited to, any loss of profits) from any cause whatsoever. No person has authority to change this warranty.



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