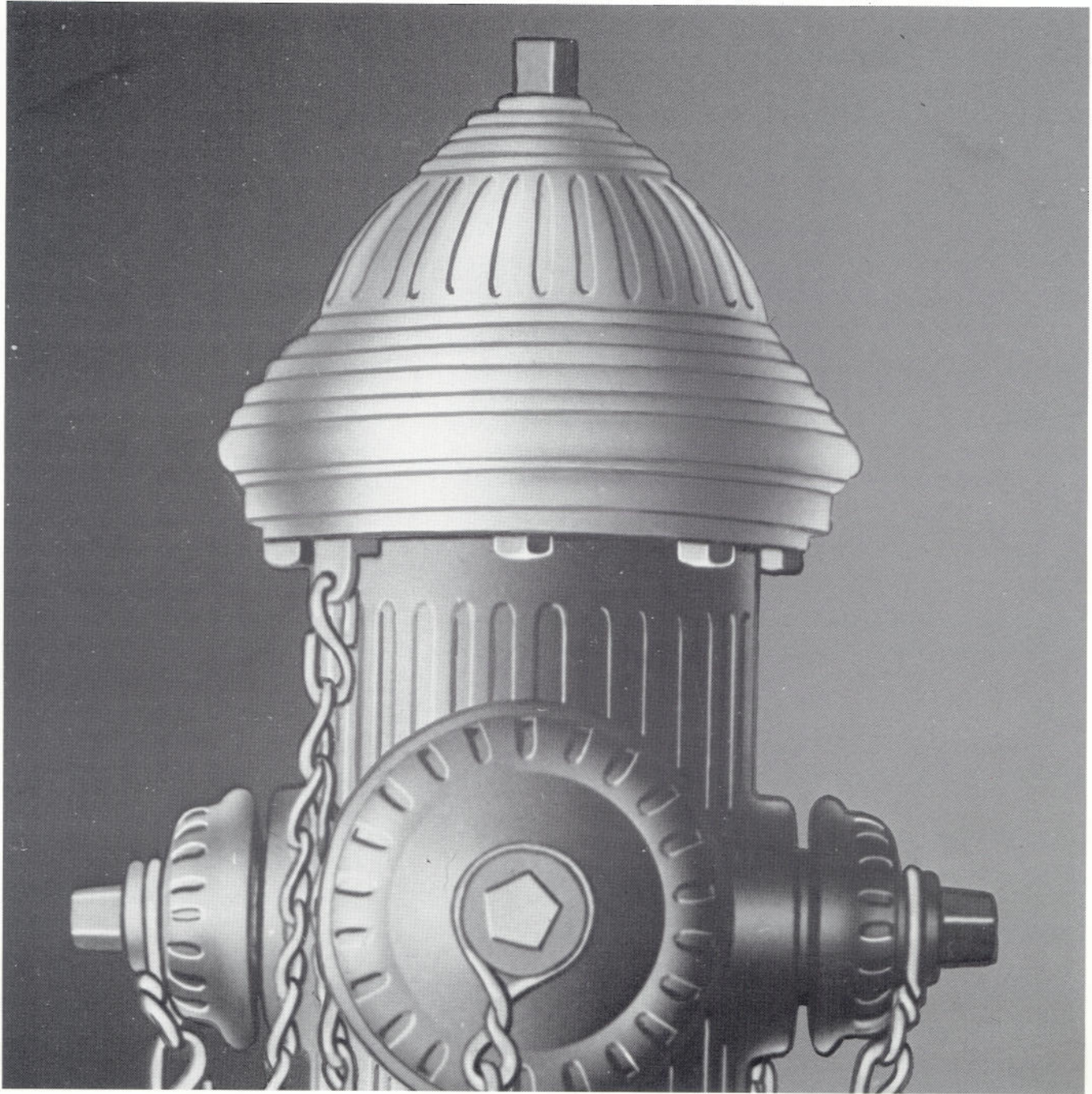


**SERIES S
HYDRANT**



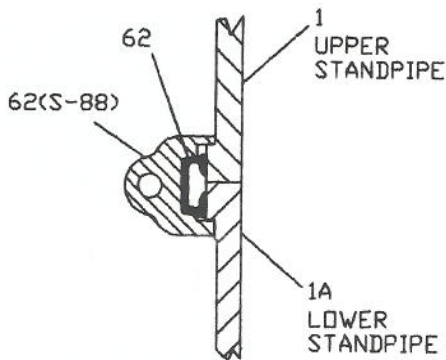
**U.S.
PIPE**

**MAINTENANCE
AND REPAIR
MANUAL**

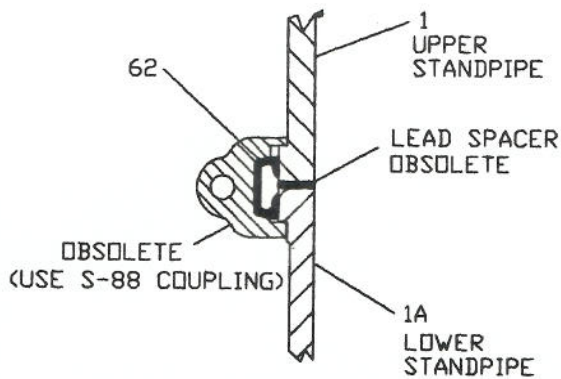
INTRODUCTION

The "S" Series fire hydrant has been in continuous production for over ninety years. The 4 1/4", 4 1/2" and 5" sizes are still available in current models. Parts are available in all sizes including 4", 4 1/4", 4 1/2", 5" and 6" valve opening sizes. Initially the hydrant was a one piece (non-traffic) design. In 1935 the protectop (traffic) style design was introduced. Several changes have been made in the barrel coupling design. The illustrations below detail how to repair or modify a hydrant built prior to 1976. This redesign eliminates the lead spacer between parts 1 and 1A. A redesigned coupling (part #62 S-88) is required. The current design (L-76) is shown on page 2.

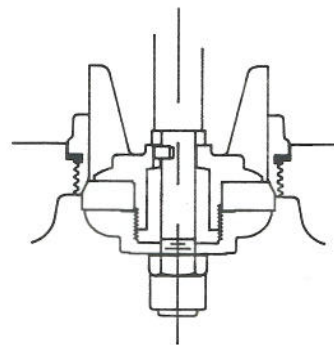
A major design change occurred in 1980. The change involved the design of part #8, main valve top plate. The ORIGINAL design shown below on the left had an iron washer trapped between the steel main valve rod and the bronze top plate. A later design (INTERMEDIATE) utilized a bronze sleeve to insulate the rod and top plate. The CURRENT design is constructed to change the downward travel of the main valve from the pedestal in the elbow to a stop on the top plate. This is the only design currently manufactured. Any "S" (Smith) Series hydrant can utilize this top plate with minor modifications to the main valve rod. However, it is recommended that a new main rod assembly (parts 7, 8, 9, 20, 21B, 25A, 27, 46, 53, 91 and 92A) be installed should repairs be necessary.



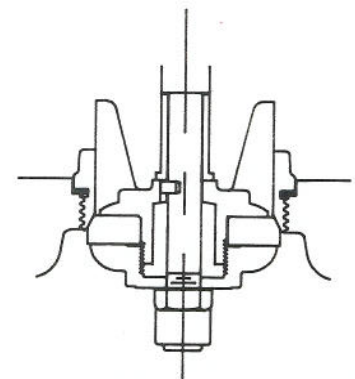
**STANDPIPE COUPLING
ASSEMBLY #S-88
REPAIR ONLY**



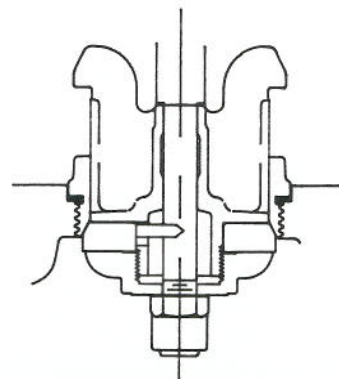
**OBSOLETE STANDPIPE
ASSEMBLY**



**ORIGINAL
DESIGN**



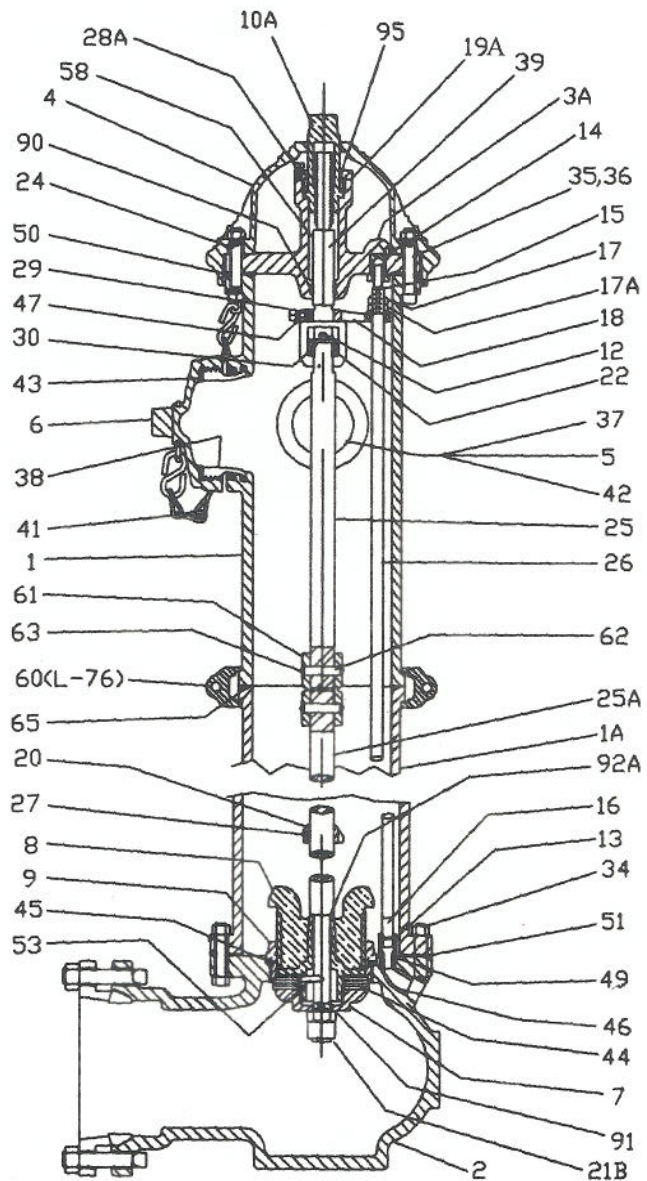
**INTERMEDIATE
DESIGN**



**CURRENT
DESIGN**

HYDRANT PARTS LIST

PART NO.	NAME OF PART	NO. REQD.
1	STANDPIPE - UPPER SECTION	1
1A	STANDPIPE - LOWER SECTION	1
2	ELBOW	1
3A	"O" RING SEAL PLATE	1
4	BONNET	1
5	2 1/2" HOSE NOZZLE CAP	*
6	STEAMER NOZZLE CAP	*
7	MAIN VALVE BOTTOM PLATE	1
8	MAIN VALVE TOP PLATE	1
9	MAIN VALVE SEAT RING	1
10A	OPERATING NUT	1
12	SPRING PIN	1
13	DRAIN CUP	1
14	DRAIN ROD GUIDE	1
15	DRAIN ROD - UPPER EXTENSION	1
16	DRAIN ROD - LOWER EXTENSION	1
17	DRAIN ROD NUT	1
17A	DRAIN ROD LOCK NUT	1
18	CROSS BAR	1
19A	HOLD DOWN NUT	1
20	WRENCH GUIDE	1
21B	MAIN VALVE ROD BOTTOM CAP NUT	1
22	SPRING	1
24	NOZZLE CAP CHAIN BOLT AND NUT	1
25	MAIN VALVE ROD - UPPER SECTION	1
25A	MAIN VALVE ROD - LOWER SECTION	1
26	DRAIN ROD	1
27	WRENCH GUIDE SCREW	1
28A	HOLD DOWN NUT SCREW	1
29	CROSS BAR SET SCREW	1
30	SPRING WASHER	1
34	ELBOW BOLT AND NUT	**
35	"O" RING SEAL PLATE BOLT AND NUT	***
36	BONNET BOLT AND NUT	1
37	2 1/2" HOSE NOZZLE	*
38	STEAMER NOZZLE	*
39	YOKE STEM (BRONZE SHEATHED)	1
41	NOZZLE CAP CHAIN COMPLETE	1
42	2 1/2" NOZZLE CAP GASKET	*
43	STEAMER NOZZLE CAP GASKET	*
44	MAIN VALVE	1
45	MAIN VALVE SEAT RING GASKET	1
46	DRAIN HOLE LINING	1
47	CROSS BAR SET SCREW LOCK NUT	1
49	DRAIN CUP GASKET	1
50	TOP FLANGE GASKET	1
51	BOTTOM FLANGE GASKET	1
53	KEY PIN FOR MAIN VALVE ROD	1
58	LUBRICANT	*
60	STANDPIPE COUPLING	1
61	MAIN ROD COUPLING	1
62	MAIN ROD COUPLING PINS	2
63	MAIN ROD COUPLING SPRINGS	2
65	MIDDLE FLANGE GASKET	1
90	SEAL PLATE "O" RING	2
91	MAIN VALVE ROD BOTTOM GASKET	1
92A	TOP PLATE GASKET	1
95	HOLD DOWN NUT "O" RING	1



STANDARD HYDRANT
AP SMITH #L-76

*As Required

HYDRANT SIZE	4 1/4"	4 1/2"	5
** #34 Elbow Bolt & Nut	8	8	8
*** #35 "O" Ring Seal Plate Bolt & Nut	6	6	6

DISASSEMBLY INSTRUCTIONS

1. Close the gate valve controlling water flow to the hydrant. Remove one hose cap to make certain the hydrant barrel is not pressurized. Open hydrant two to three turns.
2. Remove the bonnet (#4). Loosen hold down nut screw (#28A) and remove the hold down nut (#19A) by turning counterclockwise. Unthread the operating nut (#10A) with an operating wrench by turning in the direction the hydrant opens. Remove the "O" ring seal plate (#3A).
3. Loosen cross bar set screw (#29) and remove the cross bar (#18) and drain rod (#26) as a unit.
4. Telescope the seat removal wrench over the rod (#25) making sure to engage the ears on the top plate (#8) with the notches in the bottom of the wrench. Screw the operating nut on the rod. Thread out the assembly by turning counterclockwise. Remove the wrench and internal parts.
5. Replace any damaged parts, lubricate and re-assemble.
6. Re-install drain rod and cross bar assembly. Make certain the bottom of the drain rod engages the drain cup (#13).
7. Re-install the "O" ring seal plate and fill with an all weather grease. It is recommended that "O" rings (#90 & #95) and the top flange gasket (#50) be replaced anytime a hydrant is disassembled. If the hydrant is an old stuffing box type replace the packing.
8. Examine and lubricate the operating nut and stem threads. Re-install the operating nut and hold down nut.
9. With caps in place close the hydrant, open the control valve. Check for leaks. Close the hydrant, remove a cap. Make certain the repairs were successful. Check that the hydrant drains properly.
10. Replace the bonnet.



EXTENSIONS

HOW TO EXTEND AN "S" SERIES HYDRANT

Regrading of a road may require an existing fire hydrant be raised to accommodate the new ground height. Typically a stop and seat extension or a plain extension is utilized on a one piece hydrant and a groundline extension on a Protectop Hydrant. The text below details how these extensions are made.

STOP AND SEAT TYPE

Installed between elbow top flange and standpipe bottom flange, **reusing original main valve rod and drain rod assemblies.** Extension pieces are available in 6" increments.

Installation: Close valve in line to hydrant. Disassemble hydrant and remove standpipe. Transfer drain cup (#13) from elbow to extension. Screw plug (d) into elbow drain hole. Install extension piece (a) and re-assemble hydrant.

PLAIN TYPE

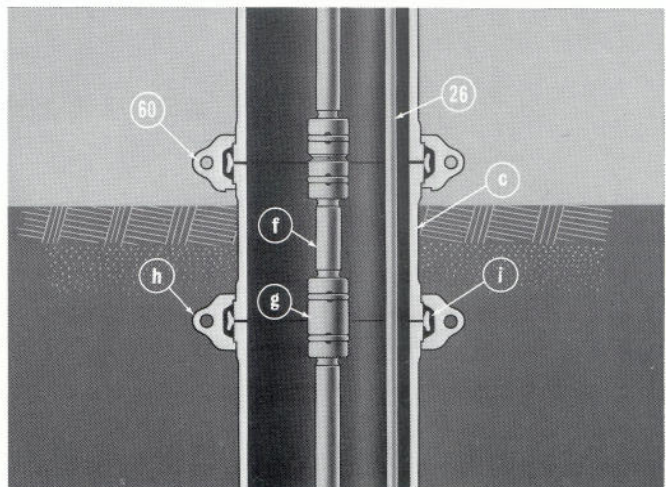
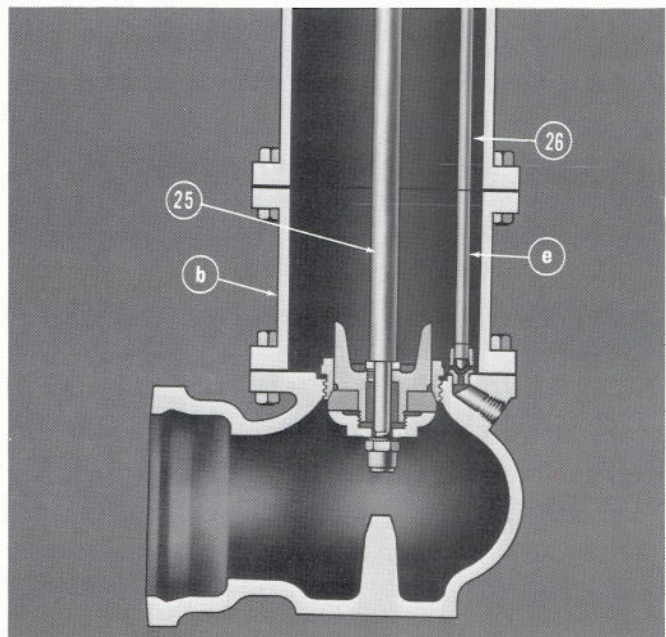
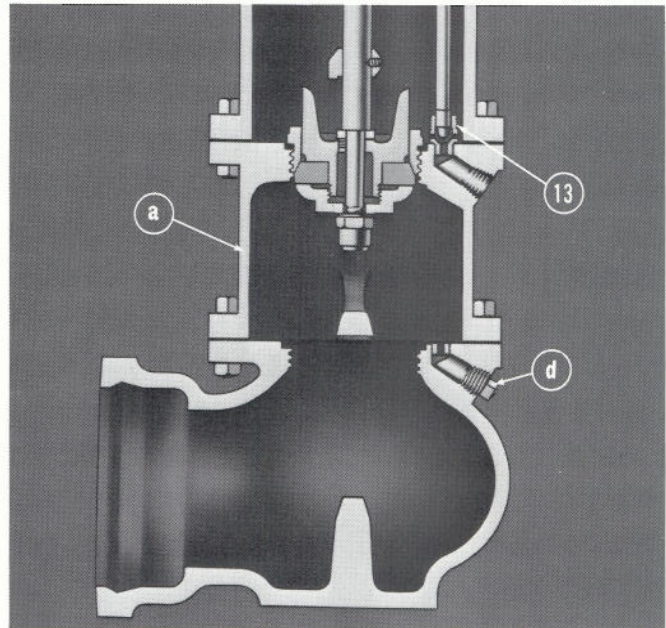
Increased frost protection is achieved as depth of bury is increased by length of extension piece. Installed between elbow top flange and standpipe bottom flange, using **extended (correct length) main valve rod and drain rod assemblies.** Extension pieces, main valve rod and drain rods are available in 6" increments.

Installation: Close valve in line to hydrant. Disassemble hydrant and remove standpipe. Install extension piece (b) and attach standpipe. Re-assemble hydrant employing extended (correct length) main valve rod (#25) and drain rod (#26).

GROUNDLINE TYPE

For Protectop Hydrants installed between standpipe upper and lower sections **using main valve rod and drain rod extensions.** Extension pieces, main valve rod and drain rod extensions are available in 6" increments

Installation: Close valve in line to hydrant. Disassemble and remove standpipe upper section and main valve rod upper section and drain rod. Install main rod extension (f) and coupling (g). Install new longer drain rod (#26) or rod extension (e) as per illustration above. Protectop extension (c) is installed with coupling (h) and gasket (i). Reassemble balance of hydrant section.



ORDERING INSTRUCTIONS

WHEN ORDERING PARTS PLEASE SPECIFY:

1. The valve opening size (4", 4 1/4", 4 1/2", 5" or 6").
2. The year of manufacture.
3. Part number and quantity required.
4. The operating nut size and shape if ordering parts #5, 6 or 10A (see below, measure at bottom of operating nut).
5. The thread detail if ordering parts #5, 6, 37 or 38 (see below).
6. The direction to open if ordering parts #4, 10A or 39 (open left - counterclockwise; open right clockwise).
7. The depth of bury if ordering parts #1A, 25A or 26 (depth of bury same as depth of trench).
8. Inlet size and configuration (mechanical joint or flanged) if ordering part #2.

OPERATING AND NOZZLE CAP NUTS A.W.W.A. Std.: Pentagon 1 1/2" point to flat. If other than A.W.W.A. Std.: Specify Style and Size — measure from points shown:



PENTAGON (5 SIDED)



SQUARE (4 SIDED)

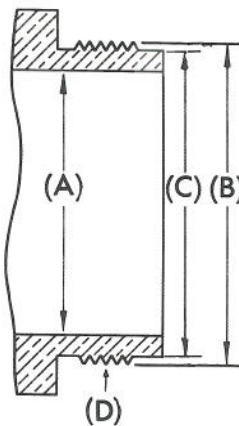


HEXAGON (6 SIDED)

SIZE AND NOZZLE THREAD DETAIL NATIONAL STANDARD

DIMENSIONS IN INCHES

Nominal Inside diameter of Hose Coupling	A	2 1/2	3	3 1/2	4 1/2
Outside diameter of Thread	B	3 1/16	3 5/8	4 1/4	5 3/4
Diameter of Root of Thread	C	2.8715	3.3763	4.0013	5.3970
Number of threads per inch	D	7 1/2	6	6	4



If other than National Standard, Specify:

- (A) I.D.
- (B) Exact O.D. of Thread.
- (D) Exact number of Threads per Inch.

NOTE: Do not measure worn nozzles or Hose Couplings. Furnish new sample nozzle(s) whenever possible.