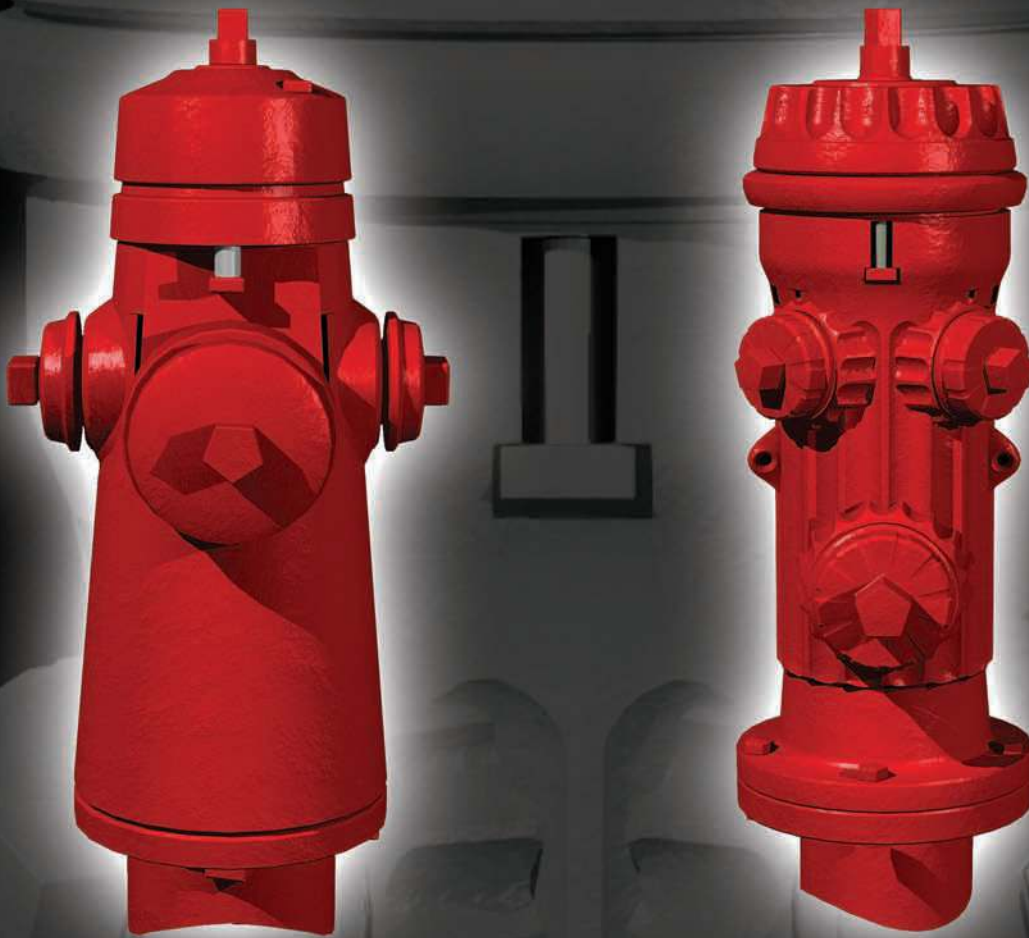




SLIDE GATE HYDRANT MAINTENANCE MANUAL



TERMINAL CITY IRON WORKS LTD.

Unit#3 9494 – 198th Street, Langley, BC V1M 3C8

This Maintenance Manual is intended to give a guide to Hydrant Maintenance.

The Manual covers:

- Maintenance and Service procedures
- Parts list for T.C. Slide Gate Fire Hydrants
- Trouble shooting to find the problem.

The Manual does not deal with specific problems but rather assists you in explaining the problem to those in maintenance who are required to keep the hydrants fire-fighting fit. More specific detailed information is available upon request.

INSPECTION

It is recommended that fire hydrants be inspected twice a year. The generally accepted times are during Spring and Fall. It is also strongly recommended that hydrants be serviced immediately after they have been used by the fire department at a fire, or after extensive flow such as flushing mains, etc.

SERVICE CALL

The spring inspection is a “service” call, and will check out the hydrant after the results of winter frost, ground heave, snow, road salt and sand, etc. have left their mark.

The general procedure is to **fully** open the hydrant and the outlet caps left on in order to pressurize the hydrant.

The operating characteristics which will be covered in this simple operation are:

- insufficient number of turns to open – (should have 27 to 29 for Side Gate)
- hard-binding operation in opening and closing.
- leakage through stuffing box seals.
- leakage at outlets and outlet caps.
- leakage at ground-line flange gasket.
- leakage through CLOSED drain port.
- continuous turning of the operating spindle with no opening of the hydrant taking place.

After checking for the above on this inspection the hydrant should be fully closed and one of the 2¹/₂-inch outlet caps removed.

The operating characteristics which will be covered in this simple operation are:

- non-drainage of hydrant (feel for suction when hand placed over open port for correct drainage).
- leakage past valve seat (continuous running of water).
- plugged drain preventing drainage.

If any of the above characteristics are present then the spring “service” call will become a MAINTENANCE call.

None of the above listed characteristics should be present in the hydrant, and if they are, then they should be corrected.

MAINTENANCE & SERVICE CALL:

The fall inspection is a maintenance call and will require the removal of internal operation parts for visual inspection. The general procedure is to shut off the isolating gate valve on the line into the hydrant and after opening the hydrant to the full open position the operating mechanism, valve and internal parts are removed from the hydrant for inspection, lubrication and replacement of worn or damaged parts.

A careful inspection should be made of:

- the straightness of the operating spindle and “off-pitch” or twist of the thread on the main gate screw.
- the main Gate rubber, drip valve rubber,

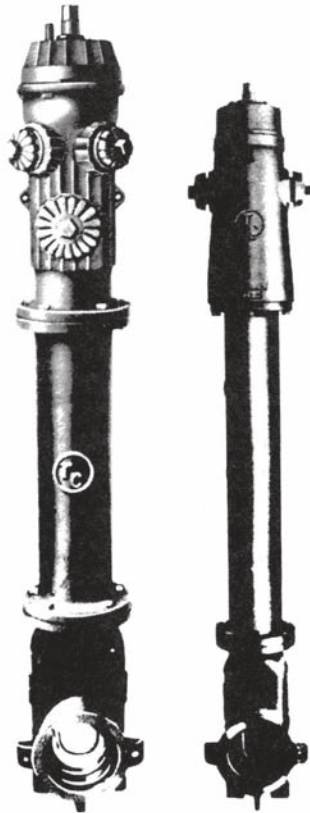
After replacement of damaged and worn parts and after complete lubrication of all moving parts the hydrant is re-assembled.

The hydrant **now MUST BE SERVICED** as was done in the spring call, that is, open the hydrant full and pressurize the hydrant with water and follow with a check of all the spring call characteristics.

The servicing AFTER maintenance assures that two very important points have been covered.

1. The **isolating gate valve has been turned back on** in order to pressurize or fill the hydrant with water.
2. A check is made of the correctness of the work done on maintenance. All gaskets are tight, the correct number of turns, ease of operation, correct drainage, etc. The hydrant has been left in working order.

FIRE HYDRANTS - Slide Gate



No. 1 No. 20 or No. 20P

When ordering Terminal City Slide Gate Fire Hydrants, please give information listed below:

Type of Hydrant:

- No. 1: 2 - 2 1/2 - inch outlets and a pumper outlet.
- No. 1 - 1: 2 - 2 1/2 - inch outlets and a pumper outlet.
- No. 20: 2 - 2 1/2 - inch outlets.
- No. 20P: 2 - 2 1/2 - inch outlets and a pumper outlet.

Depth of Bury:

The distance from the ground line to the centre line of the inlet connection in inches. Available in increments of 6-inch.

Direction of Operation:

The hydrants are normally supplied to open by rotating the spindle in a counter-clockwise direction.

Operating Spindle Nut:

- Shape and size.
- Pentagon - 1 1/2 - inch from point to flat.
- Square - 1 1/4 - inch from point to flat.
- Three sided - 1 7/16 - inch arc from point to flat.

Thread Specifications:

- The 2 1/2 - inch outside diameter.
- Outlets - Pitch of thread.
- The pumper - Outside diameter in mm.
- Outlet - Pitch of thread.

Inlet Connections:

- Size - 6-inch
- Style - Mechanical Joint, Push - On, Flanged

- Terminal City Slide Gate Fire Hydrants are readily serviceable with proper design to give unrestricted maximum flow.
- Terminal City Slide Gate Fire Hydrants have all working parts accessible for inspection and servicing.
- Terminal City Slide Gate Fire Hydrants are assembled with all parts manufactured to give interchangeability.
- Terminal City Slide Gate Fire Hydrants are provided with automatic self-draining thus leaving the hydrant completely dry for cold weather conditions. Where normal hydrant drainage is impossible special arrangements can be provided.
- Terminal City Slide Gate Fire Hydrants are designed to prevent contact of the seating surfaces during opening and closing thereby eliminating wear of the seating surfaces.
- Terminal City Slide Gate Fire Hydrants are provided with 2 1/2-inch outlets and operating pentagon manufactured to the British Columbia Fire Hose Thread Specifications (unless otherwise specified).
- Terminal City Slide Gate Fire Hydrants are made in the following styles:

No.1 Hydrant: Constructed with 2 - 2 1/2-inch outlets and a pumper outlet. The inside diameter of the barrel is 6 3/8 inch.

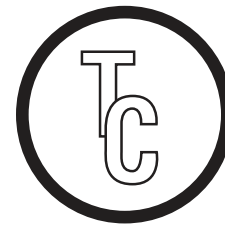
No. 20 Hydrant: Constructed with 2 - 2 1/2 -inch outlets. The inside diameter of the barrel is 5 3/4 -inch.

No. 20P Hydrant: Similar to the No. 20 with the addition of a pumper outlet.

Material Specifications: All cast iron parts are manufactured to ASTM A-126-B. All bronze parts are manufactured to ASTM B-62. Stainless steel for main spindle type 416.

Mild steel to SAE 1020.

When ordering parts for the No. 10 or No. 2 Hydrant, prefix the part numbers with No. 10 or No. 2. – e.g. if ordering a main gate casting specify part No. 2 - 40 or No. 10 - 6.

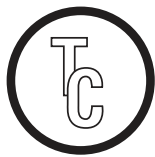


NO.	NAME	MATERIAL	NO.	NAME	MATERIAL
863-1	Barrel	Cast Iron	631	Operating Stem Gland "O" Ring	Syn. Rubber
IX	No. 1 Hydrant Extension	Cast Iron	50	Nut	Mild Steel
2	Bottom End	Cast Iron	53	Pumper Hose Outlet Cap Gasket	Rubber Red
6	Main Gate	Cast Iron	55	Square Stem to Collar Pin	Mild Steel
8	Stem Collar	Cast Iron	60	Ind. & Plain Hose Outlet Cap Gasket	Rubber Red
9	Ind. & Plain Hose Outlet Cap	Cast Iron	67	Nut, Extension Bolt	Mild Steel
863-10	Plain Hose Outlet	Bronze	68	Extn. to Barrel & Bottom End Gasket	Rubber CBS
11	Main Gate Screw	St'ls St'l	69	Sq. Stem to Main Gate Screw Pin	Mild Steel
11A	Square Stem to Screw Coupling	Ductile Iron	70	Bolt, Ind. Cut-off Gate Chain	Brass
12	Main Gate Wedge Nut	Bronze	71	Chain, Ind. Cut-off Gate	Galv. Steel
13	Main Gate Seat Ring	Bronze	617	Bonnet Bolt	Brass
14	Main Gate Seat Plate	Bronze	623	Operating Stem	Mang Bronze
15	Main Gate Seat Nut	Bronze	628	Head	Cast Iron
16	Screwed End Piece	Bronze	629	Bonnet	Cast Iron
17	Drip Cup	Bronze	630	Independent Cut-off Screw	Yellow Brass
18	Drip Valve Washer	Bronze	22	Square Stem	Mild Steel
19	Drip Valve Bolt	Bronze	66	Head Gasket	
20	Drip Valve Nut	Bronze	40	Main Gate (#20)	Cast Iron
21	Drain Action Spring	St'ls St'l	41	Main Gate Wedge Nut (#20)	Bronze
23	Gate Valve Rubber	Rubber	42	Bottom End (#20)	Cast Iron
24	Drip Valve Rubber	Rubber	43	Main Gate Seat Ring (#20)	Bronze
25	Pumper Hose Outlet	Bronze	44	Main Gate Seat Plate (#20)	Bronze
26	Pumper Hose Outlet Cap	Cast Iron	46	Head Gasket (#20)	Rubber
863-27	Independent Hose Outlet	Bronze	47	Extn. to Barrel & Bottom End Gasket (#20)	Rubber
28	Independent Cut-off Gate	Bronze	48	Barrel to Extn. Stud (#20)	St'ls St'l
31	Independent Cut-off Nut	Bronze	59	Plain Hose Outlet Cap (#20)	Cast Iron
863-33	Independent Cut-off Screw Gland	Bronze	IOIX	No. 20 Hyd't Extn. (#20)	Cast Iron
37	Barrel to Head Bolt	St'l ASTM A -31 -40	222	Square Stem (#20)	Mild Steel
38	Extension Bolt	Mild Steel	616	Operating Stem (#20)	Mang. Bronze
863-40	Ind. Cut-off Screw Gland "O" Ring	Syn. Rubber	617	Bolt Hex Head	Bronze
863-41	Ind. & Plain Hose Outlet "O" Ring	Syn. Rubber	618	Bonnet	Cast Iron
863-42	Ind. & Plain Hose Outlet Locking Ring	Bronze	620	Head	Cast Iron

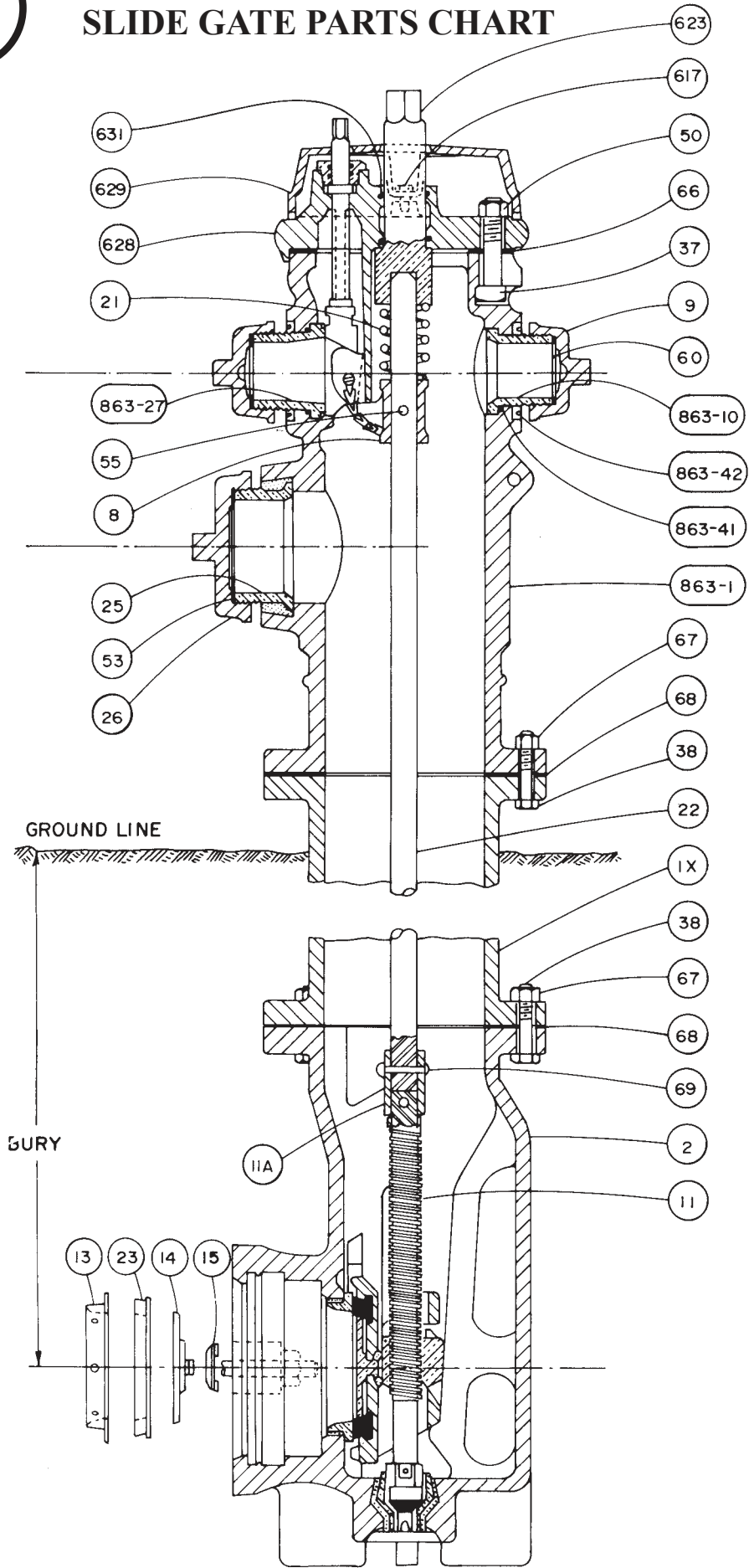
When ordering parts for No. 10 or No.2 Hydrants prefix part numbers with No. 10 or No.2

SERVICE and MAINTENANCE

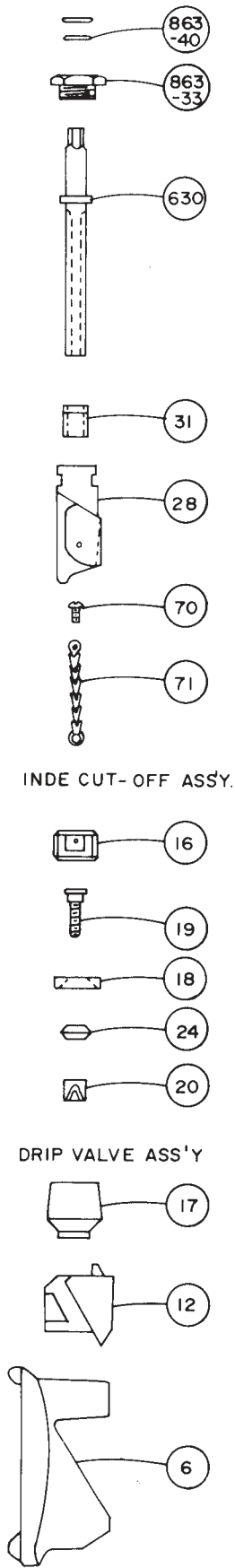
EVERY 6 MONTHS:-	No.	Name of Part	LUBRICATION	Remarks
			Recommended Grease	
<p>Flush out by removing plain nozzle cap (not shown) and opening main gate at least 12 turns. Upon closing hydrant after flushing place hand over nozzle opening to check that vacuum is being created. This shows that hydrant is draining properly.</p> <p>EVERY YEAR:-</p> <p>a. Lubricate - see table.</p> <p>b. Inspect Packing - replace if it has gone hard.</p> <p>c. Inspect Rubber Surfaces on Main Gate and Drip Valve for tears & pitting caused by Silt, Rocks Etc. - replace if damaged.</p> <p>d. Inspect all other internal components such as Drip Valve, Wedge Nuts. Main Gate Etc.</p>	11	Main Gate Screw	Environmentally Friendly Food Grade Grease	Give ample coating
	12	Main Gate Wedge Nut		Give ample coating
	9, 10, 25, 26, 27	Threads of 2 1/2" & Pumper Outlet & Caps		Give ample coating where spindle passes through stuffing box & where shoulder of spindle bears against head. Seal off top of packing with grease to prevent freezing.
	7	Top Spindle		
		Top Spindle Packing		



FIRE HYDRANT SLIDE GATE PARTS CHART

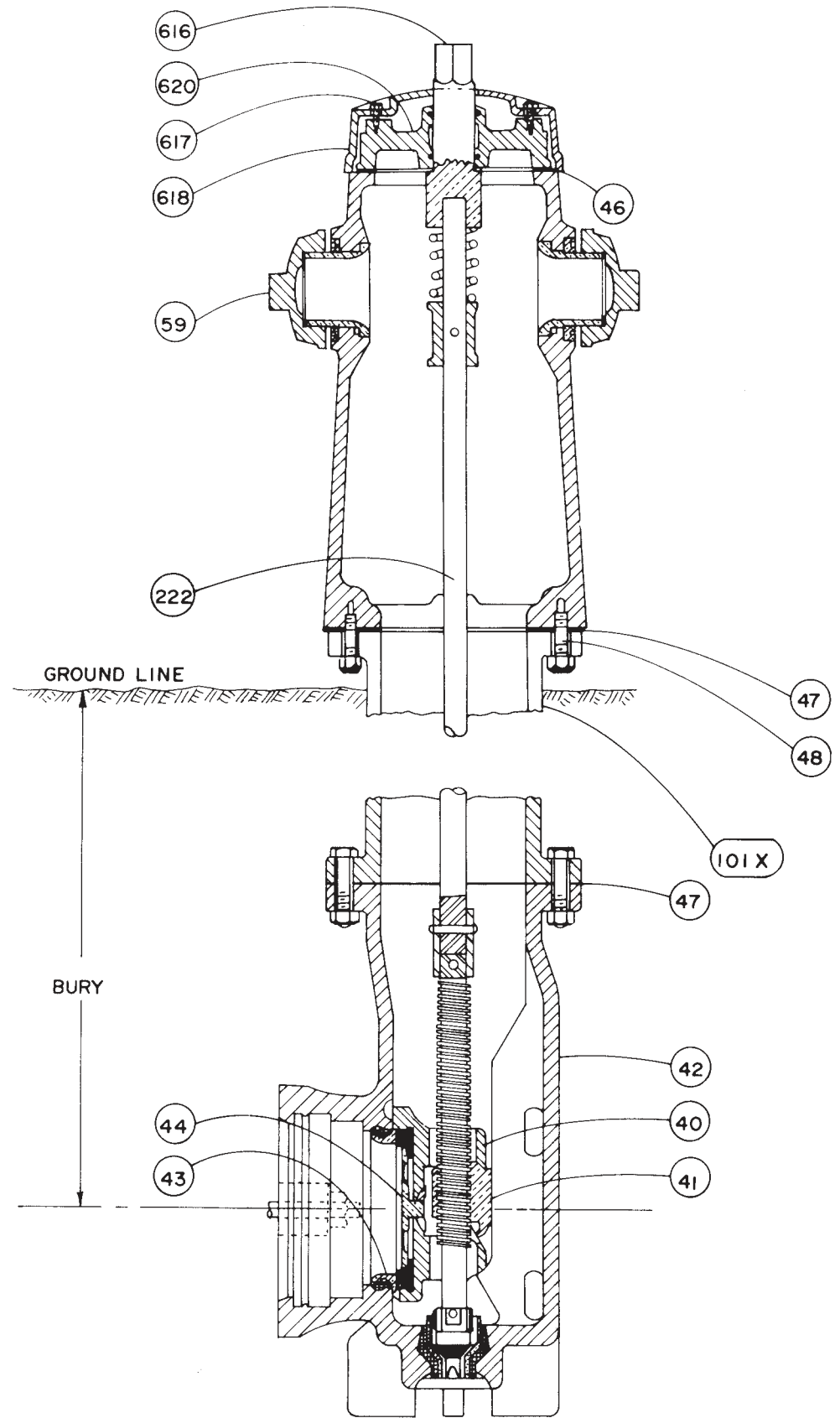


NO. 1 HYDRANT



INDE CUT- OFF ASS'Y.

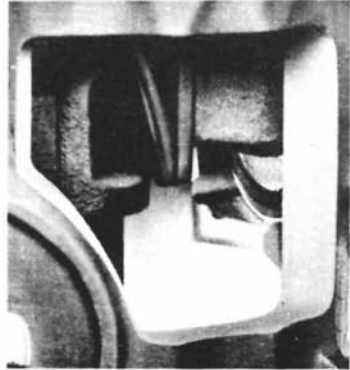
DRIP VALVE ASS'Y



NO. 20 HYDRANT
NO. 20P HYDRANT



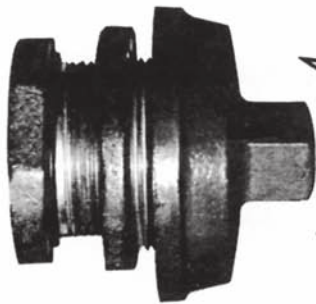
MAXIMUM FLOW – SELF DRAINING SLIDE GATE *Hydrants*



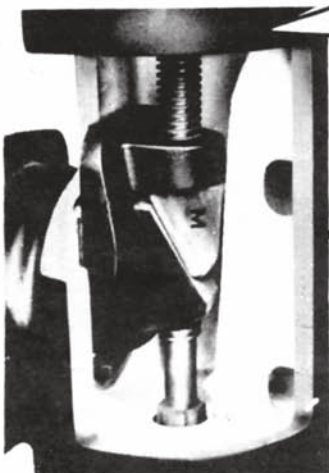
Independent Cut Off Valve



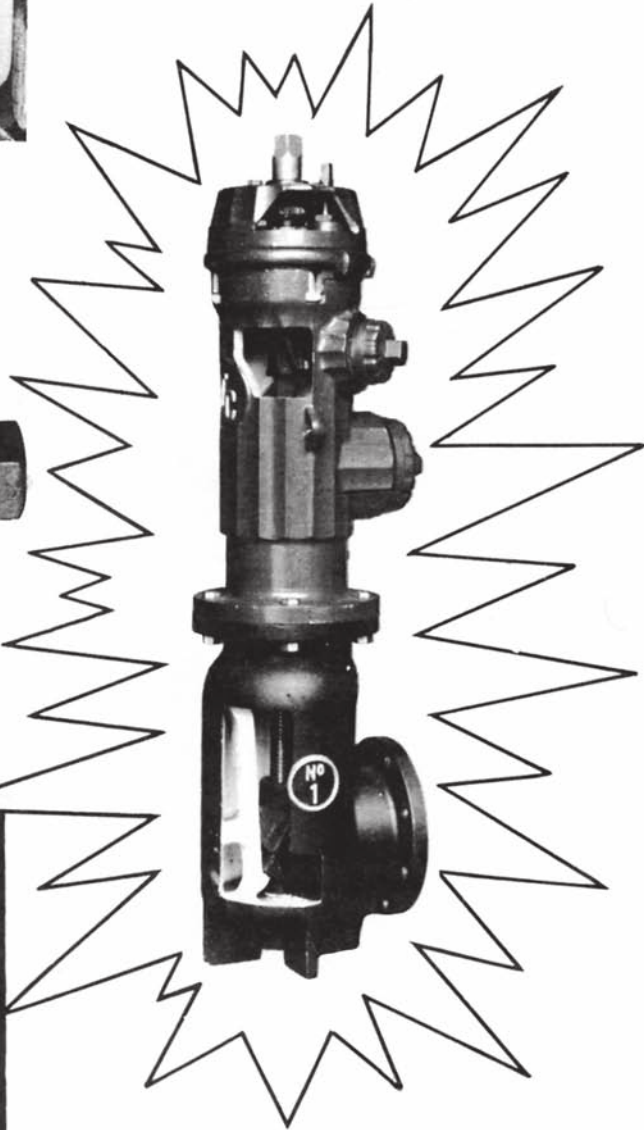
“O” Ring Packing Gland



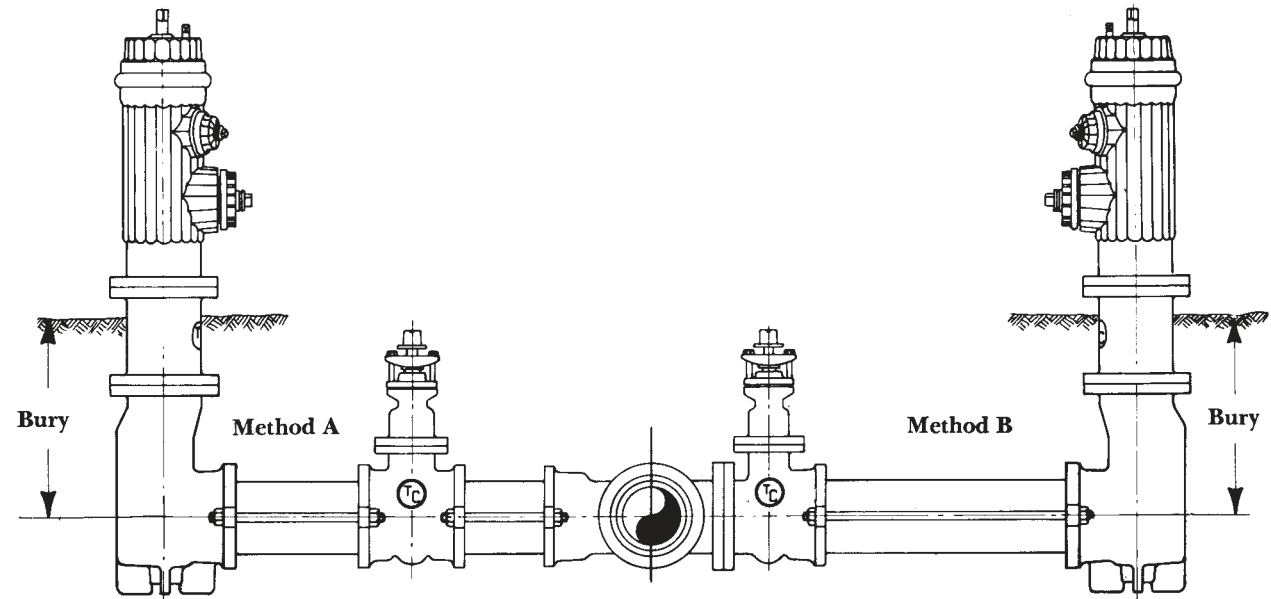
2 1/2” “O” Ring Outlet
Assembly Pat. #720007



Main Gate Assembly



TWO SUGGESTED METHODS OF INSTALLING HYDRANTS TO THE MAIN



The purpose of the following suggested methods of installation is to allow flexibility so that a minimum of direct vehicular impact to the hydrant would be transferred to the main.

Method A: This method requires a hub end tee from the main connected by a nipple of pipe to a hub end valve. The valve, in turn is connected by another nipple of pipe to the hub end inlet connection of the hydrant. The hub ends on the branch of the tee, valve and hydrant are provided with tie lugs to carry the tie rods as shown.

Method B: This method requires a hub x hub run x flange branch from the main with a flange x hub valve bolted to the flange outlet of the tee. A nipple of pipe is used to connect the hub of the valve to the hub inlet connection of the hydrant. The hubs of the valve and hydrant are provided with tie lugs to carry the tie rods as shown.

DIRECTIONS FOR REMOVING INTERNAL PARTS

From a study of the hydrant drawing shown on page 7 the following details may be easily followed.

- Shut off the water supply to the hydrant and open the hydrant no less than eight turns.
- Take off the bonnet by removing the two bonnet nuts.
- Take off the head assembly by removing the two head nuts.
- The entire gate assembly may now be lifted out by means of the operating rod.
- When the gate reaches the top of the hydrant, turn to bring it out through the widest diameter, being careful not to injure the face of the gate rubber.

DIRECTIONS FOR RE-ASSEMBLING INTERNAL PARTS

Care must be taken to insure the proper location of the gate and drain mechanism for re-assembly.

- Have gate assembly approximately half way up the main gate screw.
- Drop the gate assembly through the widest diameter of the top of the body, then turn so that the face of the gate faces the inlet of the hydrant. Lower carefully by the square stem until the drip valve is properly located in the drip cup.
- Re-assemble the head assembly and bonnet.
- Open and close the hydrant two or three times to assure correct alignment and proper functioning of all parts before turning on the water.

DIRECTIONS FOR EXTENDING HYDRANTS

Follow directions for removing internal parts.

- Remove the top body section.
- Place required length of extension. Extensions are available in multiples of 6-inch.
- Replace the top body section after being sure the flange faces and gaskets are clean.
- Add the square steel rod supplied with the extension assembly to the TOP of the existing square rod for 12-inch and longer extensions. For a 6-inch extension the square rod supplied with the extension assembly **MUST BE FITTED and PINNED** into the main gate spindle coupling 11A and tightened by set screw onto the existing square rod.

Extension assemblies are in 6-inch increments for extending hydrants. They are supplied complete with rod, coupling and one set of body bolts and gasket.

TROUBLE SHOOTING FROM OPERATING CHARACTERISTICS

1. Fire Hydrant fails to open upon rotation of the operating spindle:

Slide Gate Hydrant:

- stripped thread on main spindle or main gate nut (11; 12).
- broken spindle coupling (11 A).
- broken main spindle (11).
- top operating spindle not engaged with operating rod (623 & 616—22 & 222).

2. Fire Hydrant will not open or operating spindle will not turn:

Slide Gate Hydrant:

- hard, worn, overtightened packing in the hydrant head or packing gland binding on the top spindle (623 & 616).
- bent main gate spindle and/or “off-pitch” thread on the main spindle and main gate nut causing a seized unit (11,12).

3. Fire Hydrant will not shut off:

Slide Gate Hydrant:

- foreign material trapped on the seating surfaces (23;13).
- damaged and worn rubber seat (23)
- damaged seat ring (13)
- foreign material trapped in the bottom end not allowing the main gate to travel down to the internal stop position (2;6)

4. Non-Draining of the Hydrant after shutoff:

- the outlet caps replaced onto the outlets immediately after closing of the hydrant. Allow at least 15 minutes before replacing caps.
- foreign material plugging the drain hole or an elbow or boot completely encased in concrete.
- the hydrant could have been manufactured as a "non-drain style". The non-draining feature is available for areas of high ground water table and the hydrant must be pumped out after use.
- in the case of the SLIDE GATE HYDRANT also watch for the drain assembly broken off the end of the main spindle and laying in the drip cup in the boot (2, 11 & drip assembly).

5. Leakage around hydrant barrel at the surface of the ground:

- drain mechanism is not closed.
- offset line from the main is cracked at the socket entrance to the hydrant or a leaking joint in the hydrant socket.
- foreign material trapped in the drain..
- foreign material trapped on seating surface preventing final 2 to 3 turns of the main valve closure.
- worn drip valve rubber

6. External leakage from HEAD, Outlet Caps, Groundline Flange or Stuffing Box:

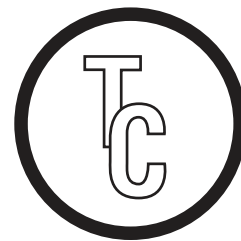
- damaged gaskets.
- worn or damaged “O” rings.
- hard dry’worn flax packing.

7. Fire Hydrant is hard operating:

- lack of lubrication.
- bent main spindles.
- “off-pitch” threads.
- stuffing box flax packing too hard and worn.
- stuffing box “O” rings jammed with silt from external or internal source.
- stuffing box and/or gland pulled down on an angle thus binding the operating spindle.

8. Vibrating or Chattering Fire Hydrant:

- worn rubber seat.
- soft rubber seat.
- use of too many short extension assemblies.
- loose rubber seat.





SELF-DRAINING STANDPIPE



The Terminal City two-inch self-draining stand pipe is a factory assembled unit specifically designed and constructed to take the place of "in-field" component assembled units.

The self-draining stand pipe can be supplied with 2 1/2" B.C. Std hose outlet.

MATERIALS

The unit is manufactured with bronze operating and draining components. The valve seating surface, main body, operating thread and spindle are manufactured with A.S.T.M. B-62 bronze.

The stuffing box and draining mechanism have "0" ring rubber gaskets for sealing purposes.

Polyurethane anti-score seating material is used for the valve disc facing.

ACCESSIBILITY

All moving parts subject to wear are readily accessible from above ground by the removal of the top body casting.

DRAINING MECHANISM

When the stand pipe is not in use the drain ports remain open, thereby providing a dry barrel for frost conditions. During the first turn of the operating rod water is expelled through the drain ports as well as rising in the barrel of the stand pipe. This allows the drain ports to be flushed and removes any foreign material which may become lodged in the mechanism. During the remaining opening turns the drain mechanism is closed.

After closing it is recommended that the stand pipe be allowed to drain before replacing the port cap on the outlet.

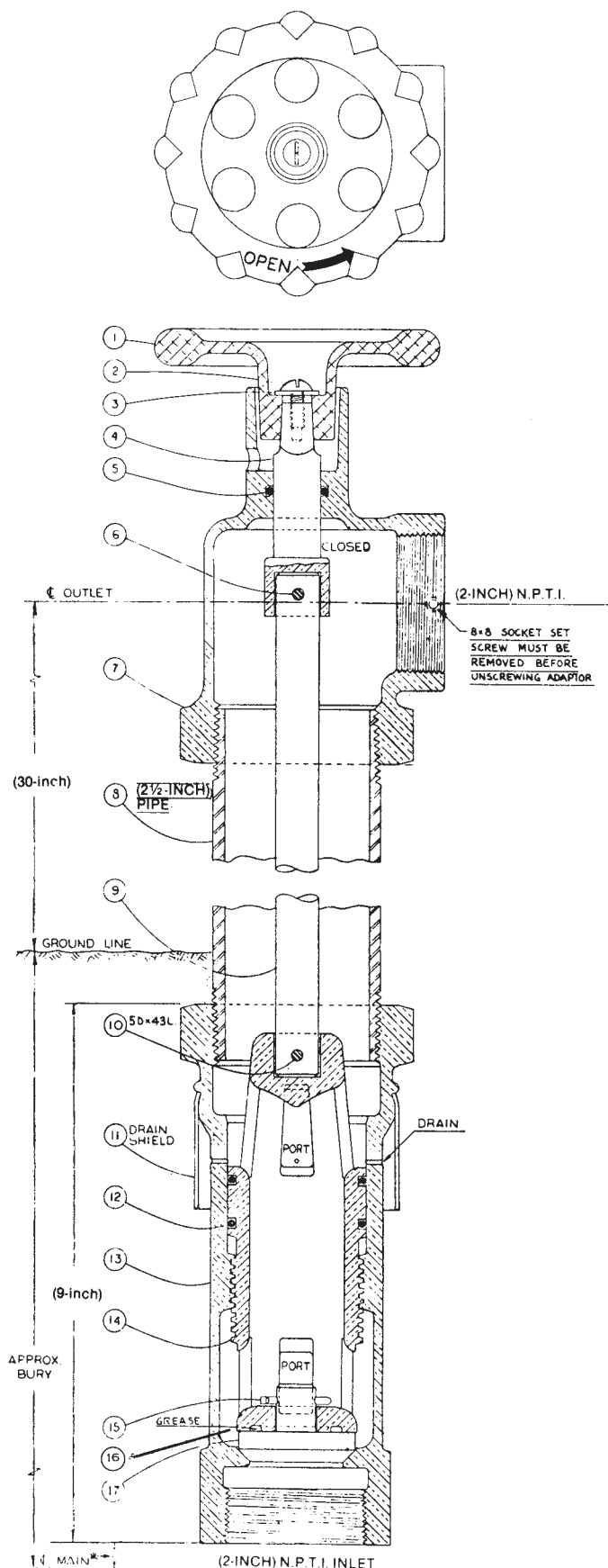
PARTS LIST

Part No.	NAME	Material
1	Handwheel	Aluminum
2	Handwheel Bolt	Brass
3	Washer	Brass
4	Handwheel Stem	Cast Bronze
5	Top End "0" Ring	Houghton — 211
6	Handwheel Stem Pin	St'l's Steel
7	Top End	Cast Iron
8	Pipe	Steel
9	Operating Rod	Steel
10	Gate Pin	Stainless Steel
11	Drain Shield	Plastic
12	Screwed Gate "0" Ring	Houghton — 227
13	Bottom End	Cast Bronze
14	Screwed Gate	Cast Bronze
15	Cotter Pin	Brass
16	Valve Discwasher	Steel
17	Valve Disc	Urethane

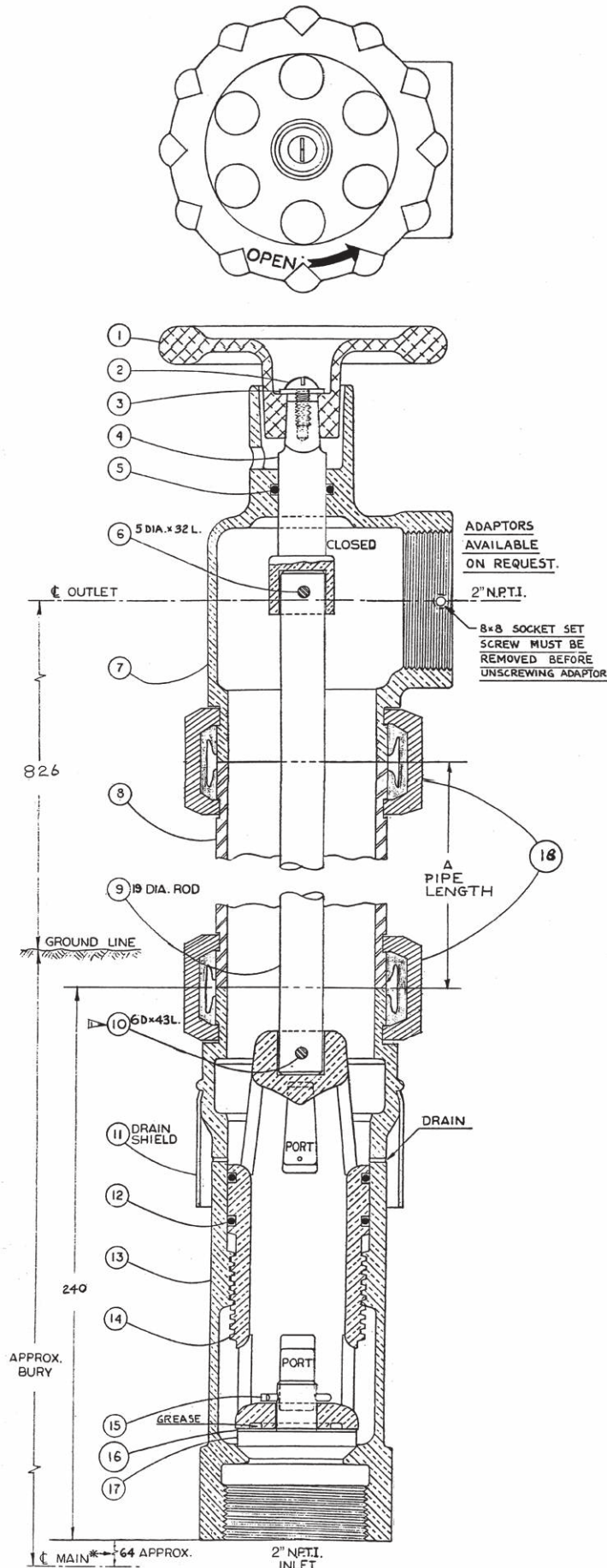
MATERIAL SPECIFICATIONS

Cast Iron (C.I.) to ASTM A-126-B
Mild Steel (M. St.) to SAE 1020
Bronze (Br ^z) to ASTM B-62
Urethane, Durometer 60

TCIW SELF-DRAINING STANDPIPE



TCIW SELF-DRAINING STANDPIPE



	Bury	Pipe	Rod
.150m	0' - 6"	2' - 0"	2' - 4 3/4"
.300m	1' - 0"	2' - 6"	2' - 10 3/4"
.450m	1' - 6"	3' - 0"	3' - 4 3/4"
.600m	2' - 0"	3' - 6"	3' - 10 3/4"
.750m	2' - 6"	4' - 0"	4' - 4 3/4"
.900m	3' - 0"	4' - 6"	4' - 10 3/4"
1.05m	3' - 6"	5' - 0"	5' - 4 3/4"
1.20m	4' - 0"	5' - 6"	5' - 10 3/4"
1.35m	4' - 6"	6' - 0"	6' - 4 3/4"
1.50m	5' - 0"	6' - 6"	6' - 10 3/4"
1.65m	5' - 6"	7' - 0"	7' - 4 3/4"
1.80m	6' - 0"	7' - 6"	7' - 10 3/4"
1.95m	6' - 6"	8' - 0"	8' - 4 3/4"
2.10m	7' - 0"	8' - 6"	8' - 10 3/4"
2.25m	7' - 6"	9' - 0"	9' - 4 3/4"
2.40m	8' - 0"	9' - 6"	9' - 10 3/4"
2.55m	8' - 6"	10' - 0"	10' - 4 3/4"
2.70m	9' - 0"	10' - 6"	10' - 10 3/4"
2.85m	9' - 6"	11' - 0"	11' - 4 3/4"
3.00m	10' - 0"	11' - 6"	11' - 10 3/4"
3.15m	10' - 6"	12' - 0"	12' - 4 3/4"
3.30m	11' - 0"	12' - 6"	12' - 10 3/4"
3.45m	11' - 6"	13' - 0"	13' - 4 3/4"
3.60m	12' - 0"	13' - 6"	13' - 10 3/4"
3.75m	12' - 6"	14' - 0"	14' - 4 3/4"
3.90m	13' - 0"	14' - 6"	14' - 10 3/4"

PARTS LIST		
Part No.	NAME	Material
1	Handwheel	D.I.
2	Handwheel Bolt	Brass
3	Washer	Brass
4	Handwheel Stem	Cast Bronze
5	Top End "O" Ring	Houghton — 211
6	Handwheel Stem Pin	Stainless Steel
7	Top End	Cast D I
8	Pipe	Steel
9	Operating Rod	Steel
10	Gate Pin	Stainless Steel
11	Drain Shield	PVC
12	Screwed Gate "O" Ring	Houghton — 227
13	Bottom End	Cast Bronze
14	Screwed Gate	Cast Bronze
15	Cotter Pin	Brass
16	Disc Washer	Stainless Steel
17	Valve Disc	Urethane
18	Coupling	D.I.
	Top Coupling (Primer)	
	Bottom Coupling (Galv.)	S.S Nuts & Bolts

MATERIAL SPECIFICATIONS	
Cast Iron (C.I.) to ASTM A-126-B	
Mild Steel (M. St.) to SAE 1020	
Ductile Iron (D.I.) to ASTM A536 (65-45-12)	
Bronze (Br'z) to ASTM B-62	
Urethane, Durometer D60	

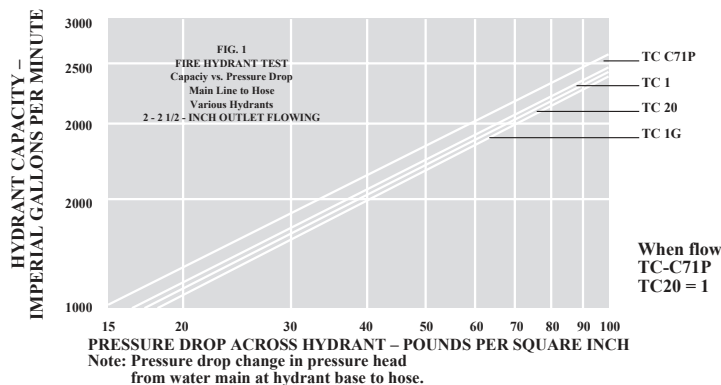
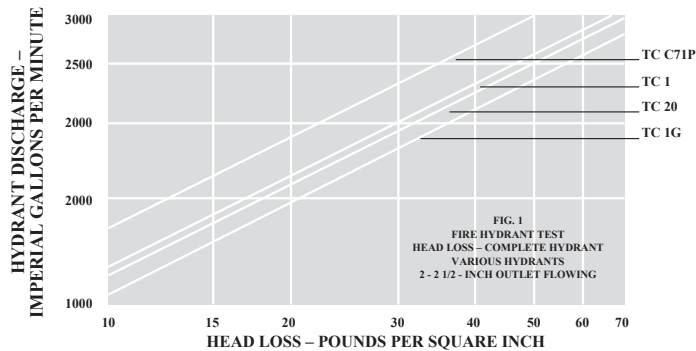
ENGINEERING DATA (IMPERIAL)

PRESSURE IN LBS. PER SQUARE INCH AND EQUIVALENT HEAD OF WATER IN FEET,
ALSO HEAD OF WATER IN FEET AND EQUIVALENT PRESSURE IN I.B. PER SQUARE INCH

LB or FT.	EQUIVALENT		LB or FT.	EQUIVALENT		LB or FT.	EQUIVALENT	
	HEAD FT.	PRESSURE PSI		HEAD FT.	PRESSURE PSI		HEAD FT.	PRESSURE PSI
1	2.31	.4325	105	242.77	45.41	205	473.98	88.66
5	11.56	2.16	110	254.33	47.57	210	485.54	90.82
10	23.12	4.32	115	265.89	49.73	215	495.10	92.98
15	34.68	6.48	120	277.45	51.90	220	508.66	95.15
20	46.24	8.65	125	289.01	54.06	225	520.22	97.31
25	57.80	10.81	130	300.57	56.22	230	531.78	99.47
30	69.36	12.97	135	312.13	58.38	235	543.34	101.63
35	80.92	15.13	140	323.69	60.55	240	554.90	103.80
40	92.48	17.31	145	335.25	62.71	245	566.46	105.96
45	104.04	19.46	150	346.81	64.87	250	578.02	108.12
50	115.60	21.62	155	358.37	67.03	255	589.58	110.28
55	127.16	23.78	160	369.93	69.20	260	601.14	112.45
60	138.72	25.95	165	381.49	71.36	265	612.70	114.61
65	150.28	28.11	170	393.05	73.52	270	624.26	116.77
70	161.84	30.27	175	404.61	75.68	275	635.82	118.93
75	173.40	32.43	180	416.17	77.85	280	647.38	121.10
80	184.96	34.60	185	427.73	80.01	285	658.94	123.26
85	196.52	36.76	190	439.29	82.17	290	670.50	125.42
90	208.08	38.92	195	450.85	84.33	295	682.06	127.58
95	219.64	41.08	200	462.42	86.50	300	693.63	129.75
100	231.25	43.25						

FIRE HYDRANT HEAD LOSSES

- TC-C71P = Compression Hydrant 2-2¹/₂ - inch and 1 - pumper outlet.
- TC-1 = No. 1 Slide Gate Hydrant 2 - 2¹/₂ - inch and 1 - pumper outlet.
- TC-20 = No. 20 Slide Gate Hydrant 2 - 2¹/₂ - inch outlet.
- TC-1G = No. 1 Slide Gate Hydrant 2 - 2¹/₂ - inch and 1 - pumper outlet (1 - 2¹/₂ c/w independent cut-off valve).



HEAD LOSS COEFFICIENTS FOR FIRE HYDRANTS

Both Hose Outlets Operating

Based on Hose Connection Velocity - V

$$hL = \frac{KV^2}{2g}$$

Hydrant Identification	K
TC 1	0.740
TC 20	.794
TC C71P	.595

PUMPER OUTLET OPERATING ONLY

Based on Pumper Connection Velocity - V

TC C71P	0.843
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When flowing 1500 Imp. gal./min. - Head Loss through the hydrant
 TC-C71P = 13 p.s.i. TC-1 = 17¹/₂
 TC20 = 18¹/₂ p.s.i. TC-1G = 21 p.s.i.

ENGINEERING DATA (METRIC)

PRESSURE IN kPa AND EQUIVALENT HEAD OF WATER IN METRES,
ALSO HEAD OF WATER IN METRES AND EQUIVALENT PRESSURE IN kPa

kPa or METRES	EQUIVALENT		kPa or METRES	EQUIVALENT		kPa or METRES	EQUIVALENT	
	HEAD METRES	PRESSURE kPa		HEAD METRES	PRESSURE kPa		HEAD METRES	PRESSURE kPa
0.5	0.051	4.896	22	2.244	215.402	44	4.488	430.804
1	0.102	9.791	23	2.346	225.193	45	4.590	440.595
2	0.204	19.582	24	2.448	234.984	46	4.692	450.386
3	0.306	29.373	25	2.550	244.775	47	4.794	460.177
4	0.408	39.164	26	2.652	254.566	48	4.896	469.968
5	0.510	48.955	27	2.754	264.357	49	4.998	479.759
6	0.612	58.746	28	2.856	274.148	50	5.100	489.550
7	0.714	68.537	29	2.958	283.939	60	6.120	587.460
8	0.816	78.328	30	3.060	293.730	70	7.140	685.370
9	0.918	88.119	31	3.162	303.521	80	8.160	783.280
10	1.020	97.910	32	3.264	313.312	90	9.180	881.190
11	1.122	107.701	33	3.366	323.103	100	10.200	979.100
12	1.224	117.492	34	3.468	332.894	110	11.220	1077.010
13	1.326	127.283	35	3.570	342.685	120	12.240	1174.920
14	1.428	137.074	36	3.672	352.476	130	13.260	1272.830
15	1.530	146.865	37	3.774	362.267	140	14.280	1370.740
16	1.632	156.656	38	3.876	372.058	150	15.300	1468.650
17	1.734	166.447	39	3.978	381.849	160	16.320	1566.560
•18	1.836	176.238	40	4.080	391.640	170	17.340	1664.470
19	1.938	186.029	41	4.182	401.431	180	18.360	1762.380
20	2.040	195.820	42	4.284	411.222	190	19.380	1860.290
21	2.142	205.611	43	4.386	421.013	200	20.400	1958.200

HEAD LOSS COEFFICIENTS FOR FIRE HYDRANTS

Both Hose Outlets
Operating

Based on Hose Connection
Velocity - V

$$hL = \frac{KV^2}{2g}$$

Hydrant Identification	K
TC 1	0.740
TC 20	.794
TC C71P	.595

PUMPER OUTLET OPERATING ONLY

Based on Pumper
Connection Velocity - V

TC C71P	0.843
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FIRE HYDRANT CAPACITIES FIG.1

- TC-C71P = Compression Hydrant 2 - 65mm and 1 pumper outlet.
TC-1 = No. 1 Slide Gate Hydrant 2 - 65mm and 1 pumper outlet.
TC-20 = No. 20 Slide Gate Hydrant 2 - 65mm outlets.

FIRE HYDRANT HEAD LOSSES FIG.2

- When flowing 6000 litres/min. – Head loss through the hydrant
TC-C71P = 74.5 kPa TC-20 = 96.2 kPa
TC-1 = 96.2 kPa

