

ALL DIMENSIONS, FLUTING & RELIEF NOT SHOWN ARE TO BE TO MANUFACTURERS STANDARD FOR BRASS CASTINGS.

NOTE:--
USE SAME TAP & DIE FOR ② & ③ TH'D.
USE SAME TAP & DIE FOR ④ & ⑤ TH'D.
USE SAME TAP & DIE FOR ⑥ ⑦ ⑧ INT. & ⑩ TH'D.
USE SAME TAP & DIE FOR ⑨ ⑪ ⑫ B INT. & ⑬ TH'D.

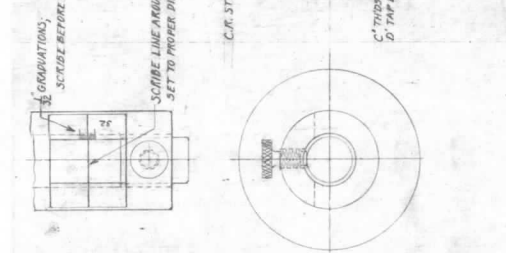
USED ON	NOMINAL SIZE	NUMBER OF THREADS	FORM OF THREADS	TAPS										DIES									
				A	B	C	D	E	F	G	H	J	K	Z	Y	X	W	V	T	S	R	P	
TH'D. ① BULLETIN: N7	75 ³ / ₁₆ "	10	N.F.	2.953	2.8664	2.8014	1 ³ / ₄ "	1 ⁵ / ₈ "	2"	1 ¹ / ₂ "	1"	5 ¹ / ₈ "	6	2.931	2.8664	2.7792	6 ¹ / ₂ "	1 ¹ / ₂ "	4"	5 ¹ / ₈ "	6	3 ¹ / ₁₀ THDS.U.S.	
②	62 ³ / ₁₆ "	14	N.F.	2.441	2.3794	2.3325	1 ³ / ₄ "	1 ⁵ / ₈ "	2"	1 ¹ / ₂ "	1"	8"	6	2.4255	2.3794	2.3174	6"	1 ¹ / ₂ "	3 ¹ / ₂ "	4 ³ / ₈ "	6	—	
③	60 ³ / ₁₆ "	14	N.F.	2.362	2.3014	2.2538	1 ³ / ₄ "	1 ⁵ / ₈ "	2"	1 ¹ / ₂ "	1"	8"	6	2.3465	2.3014	2.2384	6"	1 ¹ / ₂ "	3 ¹ / ₂ "	4 ³ / ₈ "	6	—	
④	3 ¹ / ₂ "	10	N.F.	3.250	3.1634	3.0964	1 ³ / ₄ "	1 ⁵ / ₈ "	2"	1 ¹ / ₂ "	1"	5"	6	3.228	3.1634	3.0765	6 ³ / ₄ "	1 ¹ / ₂ "	4 ¹ / ₂ "	5 ³ / ₈ "	6	—	
⑤	6-4 ³ / ₁₆ "	14	N.F.	2.520	2.4384	2.4118	1 ³ / ₄ "	1 ⁵ / ₈ "	2"	1 ¹ / ₂ "	1"	5"	6	2.5045	2.4384	2.3944	6"	1 ¹ / ₂ "	4 ¹ / ₂ "	5 ³ / ₈ "	6	—	
TH'D. ⑥ BULLETIN: N7	80 ³ / ₁₆ "	10	N.F.	3.150	3.0684	2.9984	1 ³ / ₄ "	1 ⁵ / ₈ "	2"	1 ¹ / ₂ "	1"	5"	6	3.128	3.0684	2.9765	6 ³ / ₄ "	1 ¹ / ₂ "	4 ¹ / ₂ "	5 ³ / ₈ "	6	—	
⑦	70 ³ / ₁₆ "	14	N.F.	2.717	2.6354	2.6084	1 ³ / ₄ "	1 ⁵ / ₈ "	2"	1 ¹ / ₂ "	1"	8"	6	2.7015	2.6354	2.5894	6"	1 ¹ / ₂ "	4 ¹ / ₂ "	5 ³ / ₈ "	6	—	
⑧	91 ³ / ₁₆ "	10	N.F.	2.786	2.6944	2.6478	1 ³ / ₄ "	1 ⁵ / ₈ "	2"	1 ¹ / ₂ "	1"	9"	6	2.7405	2.6944	2.6324	6 ¹ / ₂ "	1 ¹ / ₂ "	4 ³ / ₈ "	5 ³ / ₈ "	6	—	
⑨	73 ³ / ₁₆ "	14	N.F.	3.589	3.4964	3.4315	1 ³ / ₄ "	1 ⁵ / ₈ "	2"	1 ¹ / ₂ "	1"	5"	6	3.561	3.4964	3.4308	6 ³ / ₄ "	1 ¹ / ₂ "	4 ¹ / ₂ "	5 ³ / ₈ "	6	—	
⑩	4 ¹ / ₂ "	8	U.S.F.	4.500	4.4184	4.3763	2"	1 ¹ / ₂ "	2 ¹ / ₂ "	2"	1 ¹ / ₂ "	5 ¹ / ₈ "	8	4.500	4.4184	4.3763	7"	1 ¹ / ₂ "	5"	5 ³ / ₈ "	8	—	
⑪	77 ³ / ₁₆ "	14	N.F.	3.031	2.9484	2.9218	1 ³ / ₄ "	1 ⁵ / ₈ "	2"	1 ¹ / ₂ "	1"	9"	6	3.0155	2.9484	2.9074	6 ³ / ₄ "	1 ¹ / ₂ "	4 ¹ / ₂ "	5 ³ / ₈ "	6	—	
⑫	5 ³ / ₈ "	14	N.F.	3.125	3.0304	3.0045	1 ³ / ₄ "	1 ⁵ / ₈ "	2"	1 ¹ / ₂ "	1"	10"	6	3.2970	3.2504	3.1899	6 ³ / ₄ "	1 ¹ / ₂ "	4 ³ / ₈ "	5 ³ / ₈ "	6	—	
⑬	4 ¹ / ₂ "	8	U.S.F.	4.500	4.4184	4.3763	2"	1 ¹ / ₂ "	2 ¹ / ₂ "	2"	1 ¹ / ₂ "	5 ¹ / ₈ "	8	4.500	4.4184	4.3763	7"	1 ¹ / ₂ "	5"	5 ³ / ₈ "	8	—	
TH'D. ⑭ BAL. VAL. DRG. 3540	3 ¹ / ₂ "	14	N.F.	3.325	3.2304	3.2045	1 ³ / ₄ "	1 ⁵ / ₈ "	2"	1 ¹ / ₂ "	1"	5 ¹ / ₈ "	6	3.2970	3.2504	3.1899	6 ³ / ₄ "	1 ¹ / ₂ "	4 ³ / ₈ "	5 ³ / ₈ "	6	—	
⑮	4 ¹ / ₂ "	8	N.F.	4.125	4.0384	3.9794	2"	1 ¹ / ₂ "	2 ¹ / ₂ "	2"	1 ¹ / ₂ "	10"	6	4.250	4.1684	4.1263	7 ¹ / ₂ "	1 ¹ / ₂ "	4 ³ / ₈ "	5 ³ / ₈ "	6	—	
TH'D. ⑯ DRAIN VAL. DRG. 3716	1 ¹ / ₂ "	8	U.S.F.	1.250	1.1684	1.0873	1"	5 ³ / ₈ "	2 ¹ / ₂ "	2 ¹ / ₂ "	1"	6"	6	1.250	1.1684	1.0873	3 ³ / ₄ "	1 ¹ / ₂ "	1 ³ / ₄ "	2 ³ / ₄ "	4	3 ¹ / ₁₀ THDS.U.S.	
⑰	2 ¹ / ₂ "	12	U.S.F.	2.500	2.4458	2.3915	1 ³ / ₄ "	1 ⁵ / ₈ "	2 ¹ / ₂ "	2 ¹ / ₂ "	1"	5 ¹ / ₈ "	6	2.500	2.4458	2.3915	5 ³ / ₄ "	1 ¹ / ₂ "	3 ¹ / ₄ "	4 ¹ / ₂ "	6	3 ¹ / ₁₀ THDS.U.S.	
⑱	7 ³ / ₁₆ "	14	N.F.	.875	.8134	.7663	1 ³ / ₄ "	1 ⁵ / ₈ "	2"	1 ¹ / ₂ "	1"	5"	4	4.103	4.0384	3.9515	3 ¹ / ₂ "	1 ¹ / ₂ "	1 ³ / ₄ "	2 ¹ / ₄ "	4	3 ¹ / ₁₀ THDS.U.S.	
TH'D. ⑳ BAL. VAL. TYPE 3540	2 ¹ / ₂ "	14	N.F.	2.825	2.7504	2.7045	1 ³ / ₄ "	1 ⁵ / ₈ "	2"	1 ¹ / ₂ "	1"	5 ¹ / ₈ "	6	2.797	2.7504	2.6899	6 ³ / ₄ "	1 ¹ / ₂ "	4 ³ / ₈ "	5 ³ / ₈ "	6	—	
㉑	91 ³ / ₁₆ "	10	N.F.	3.583	3.4964	3.4315	2"	1 ¹ / ₂ "	2"	1 ¹ / ₂ "	1"	5"	6	3.561	3.4964	3.4308	6 ³ / ₄ "	1 ¹ / ₂ "	4 ¹ / ₂ "	5 ³ / ₈ "	6	—	
TH'D. ㉒ DRAIN VAL. DRG. 2748	7 ³ / ₁₆ "	8	U.S.F.	.875	.7938	.7463	1 ¹ / ₂ "	1 ¹ / ₂ "	2"	1 ¹ / ₂ "	1"	5"	4	1.375	1.2884	1.2422	4"	1 ¹ / ₂ "	1 ³ / ₄ "	2 ³ / ₄ "	4	3 ¹ / ₁₀ THDS.U.S.	
⑳	1 ³ / ₈ "	14	U.S.F.	1.375	1.2884	1.2422	1 ¹ / ₂ "	1 ¹ / ₂ "	2"	1 ¹ / ₂ "	1"	5"	4	1.375	1.2884	1.2422	4"	1 ¹ / ₂ "	1 ³ / ₄ "	2 ³ / ₄ "	4	3 ¹ / ₁₀ THDS.U.S.	
㉓	1 ³ / ₈ "	14	R.H.	1.375	1.2861	1.2422	1 ¹ / ₂ "	1 ¹ / ₂ "	2"	1 ¹ / ₂ "	1"	5"	6	1.375	1.2861	1.2422	4"	1 ¹ / ₂ "	1 ³ / ₄ "	2 ³ / ₄ "	4	3 ¹ / ₁₀ THDS.U.S.	
㉔	7 ³ / ₁₆ "	14	N.F.	.875	.8134	.7663	1 ¹ / ₂ "	1 ¹ / ₂ "	2"	1 ¹ / ₂ "	1"	5"	4	1.061	1.0054	.9588	3 ¹ / ₂ "	1 ¹ / ₂ "	1 ³ / ₄ "	2 ³ / ₄ "	4	—	
㉕	27 ³ / ₁₆ "	14	N.F.	1.067	1.0054	.9588	7 ³ / ₁₆ "	5 ³ / ₈ "	2"	1 ¹ / ₂ "	1"	5"	4	1.061	1.0054	.9588	3 ¹ / ₂ "	1 ¹ / ₂ "	1 ³ / ₄ "	2 ³ / ₄ "	4	—	
TH'D. ㉖ GAUGE COCK TYPE 3556	1 ⁵ / ₈ "	14	N.F.	1.625	1.5634	1.5163	1 ³ / ₄ "	1 ⁵ / ₈ "	2"	1 ¹ / ₂ "	1"	5"	6	1.6095	1.5634	1.5163	4 ¹ / ₂ "	1 ¹ / ₂ "	2 ¹ / ₄ "	3 ¹ / ₄ "	6	1 ¹ / ₂ THDS.U.S.	

NOTE:--
SEE MARKED UP BULLETIN N7 FOR TH'D. N°S FOR 1918A & 1918-B INJECTORS.
SEE MARKED UP DRG. N° 3613 OF THE NON-LIFTING LEVER STARTING VALVE, FOR TH'D. N°S.
SEE MARKED UP DRG. N° 3540 OF THE BALANCED NATHAN HIGH PRESSURE INSPECTOR, FOR TH'D. N°S.
SEE MARKED UP DRG. N° 3716 OF THE DRAIN VALVE, FOR TH'D. N°S.
THE TH'D. FOR THE RAIL WASHER VALVE DRG. N° 3481 ARE THE SAME AS THE DRAIN VALVE DRG. N° 3716.
SEE MARKED UP DRG. N° 2748 OF THE DRAIN VALVE, FOR TH'D. N°S.
SEE MARKED UP BULLETIN N° 39 OF THE GAUGE COCK TYPE 3566 FOR TH'D. N°S.
SEE MARKED UP BULLETIN N° 11 OF THE GAUGE COCK TYPE 272-S-1590 FOR TH'D. N°S.
NATHAN MFG. CO. NEW YORK, N.Y.

HAND SIZING TAPS & DIES

3823 AB
AUG. 5, 1937
D 17 F 10

B - DIES 6 & 9, AND 4 & 11 MADE ALIKE 7-21-38
A - TH'D. N°S. 15, 16, 17, 18 & 20, ADDED - 9-22-37



OBSERVATIONS:
SCRAPE BEFORE HANDLING

SCRAPE LINE AROUND ROD WHEN SET TO PROPER DIMENSION X

C.R. STEEL CASE HARDEN

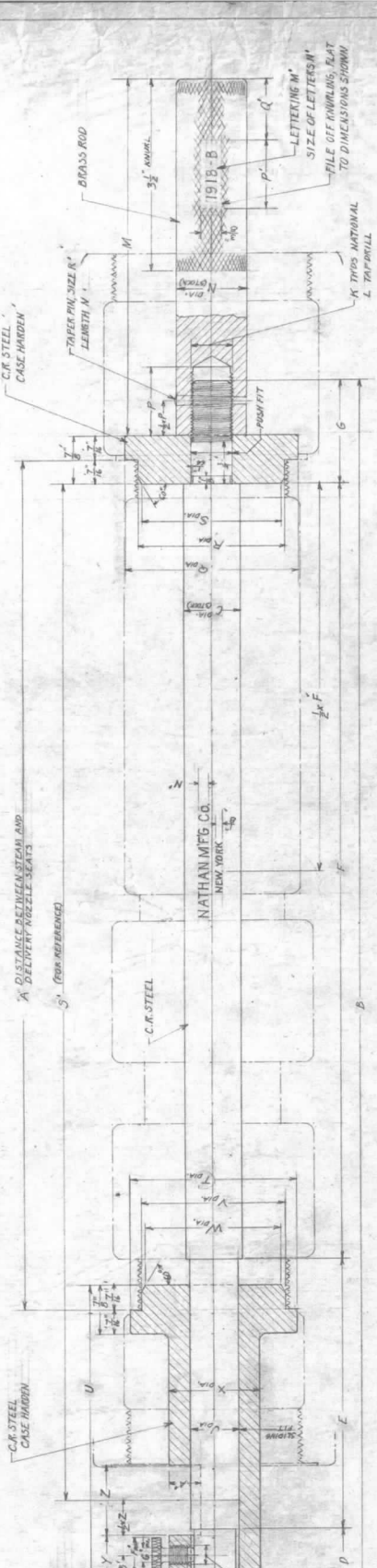
C.R. STEEL CASE HARDEN

C.R. STEEL

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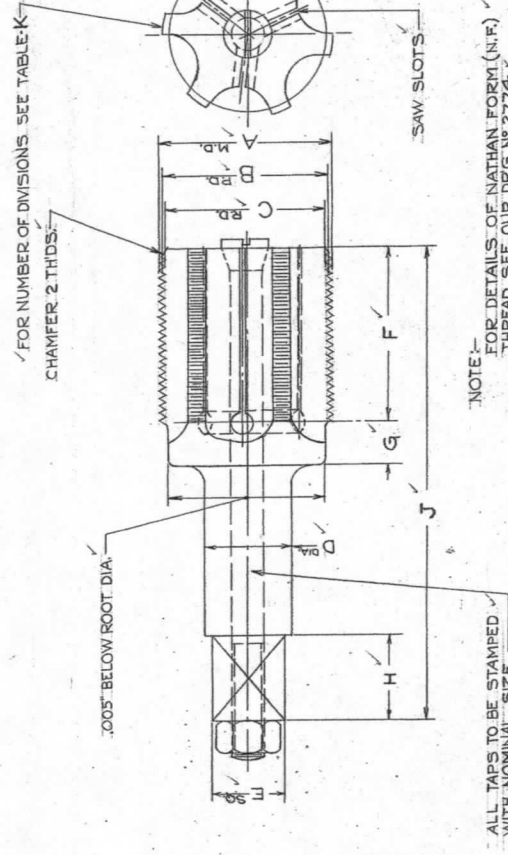
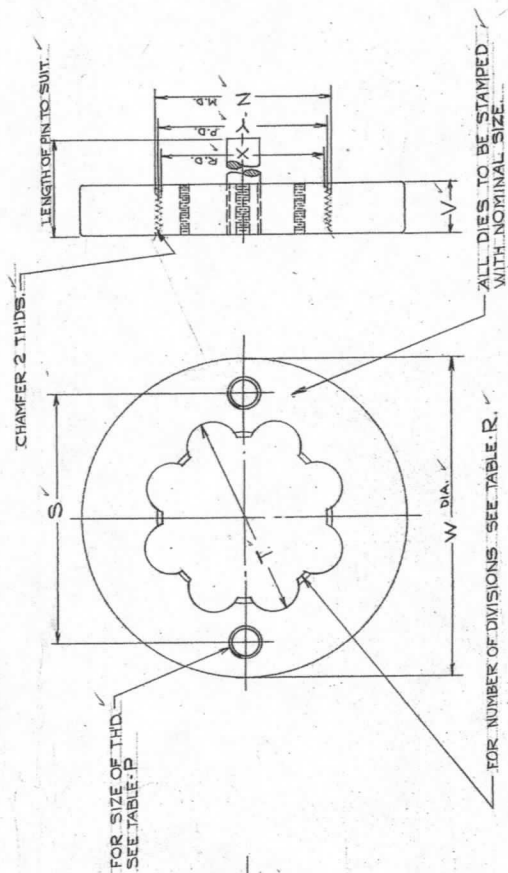
C.R. STEEL CASE HARDEN



LINE	INJECTOR	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A'	B'	C'	D'	E'	F'	G'	H'	I'	J'	K'	L'	M'	N'	O'	P'	Q'	R'	S'				
1	HOSEWHEEL	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
2	HOSEWHEEL	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
3	1918-A	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
4	1918-B	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
5	HOSEWHEEL	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
6	HOSEWHEEL	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

NATHAN MFG CO. NEW YORK
NOZZLE SEAT SPACING GAUGES
FOR NATHAN SIMPLEX NO. 200H
AND 1918 A & B INJECTORS
3987
JUNE 19, 1935
D 88 F 7

NATHAN



NOTE: ALL DIMENSIONS, FLUTING & RELIEF NOT SHOWN ARE TO BE TO MANUFACTURERS' STANDARD FOR BRASS CASTINGS.

NOTE: FOR DETAILS OF NATHAN FORM (N.F.) THREAD SEE OUR DRG. NO. 2774.

NOTE: USE SAME TAP & DIE FOR (2) & (2) 1918-B INT. SHOWN ON DRG. NO. 3823.
 USE SAME TAP & DIE FOR (3) & (3) SHOWN ON DRG. NO. 3823.
 USE SAME TAP & DIE FOR (4) & (4) 1918-B INT. SHOWN ON DRG. NO. 3823.

USED ON	TAPS										DIES												
	NOMINAL SIZE	NUMBER THREADS	FORM OF THREADS	A	B	C	D	E	F	G	H	J	K	Z	Y	X	W	V	T	S	R	P	
THD. (2) BULLETIN NO. 4	69 M	14	N.F.	2.717	2.6554	2.6088	1 3/4	1 3/8	2	1/2	1 1/2	8	6	2.7015	2.6514	2.5934	6 1/8	1 1/4	3 5/8	4 3/4	6	8 1/2	10 THDS. NAT'L
"	3 1/2	14	N.F.	3.9125	3.25064	3.2043	1 3/4	1 1/8	2	1/2	1	10	6	3.2976	3.25064	3.1888	6 7/8	1 1/4	4 1/8	5 1/2	6	8	"
"	87 M	10	N.F.	3.422	3.3386	3.2756	2	1 1/2	2	1/2	1	15	6	3.4032	3.3386	3.2520	7 1/8	1 1/4	4 1/2	5 1/2	6	8	"
THD. (3) BOILER CHECK 2371	90 M	14	N.F.	3.5483	3.4644	3.4951	2	1 1/2	2	1/2	1	5	6	3.5278	3.4644	3.4157	7 1/8	1 1/4	4 7/8	5 3/4	6	8	"
"	4.122	10	N.F.	4.122	4.0354	3.9704	2	1 1/2	2	1/2	1	5	8	4.1007	4.0354	3.9458	7 5/8	1 1/4	5 1/8	6 1/4	8	8	"
THD. (4) BOILER CHECK 2366	73 M	14	N.F.	2.674	2.6018	2.7658	1 3/4	1 5/8	2	1/2	1	5	6	2.6585	2.6218	2.7504	6 1/2	1 1/4	4	5 1/8	6	8	"
"	4	12	NAT'L	4.0007	3.9455	3.8917	2	1 1/2	2	1/2	1	5	8	4.0007	3.9455	3.8917	7 1/2	1 1/4	5	6 1/8	8	8	"
"	3.507	10	N.F.	3.507	3.4204	3.3554	1 3/4	1 5/8	2	1/2	1	5	6	3.4835	3.4204	3.3356	7	1 1/4	4 1/2	5 5/8	6	8	"

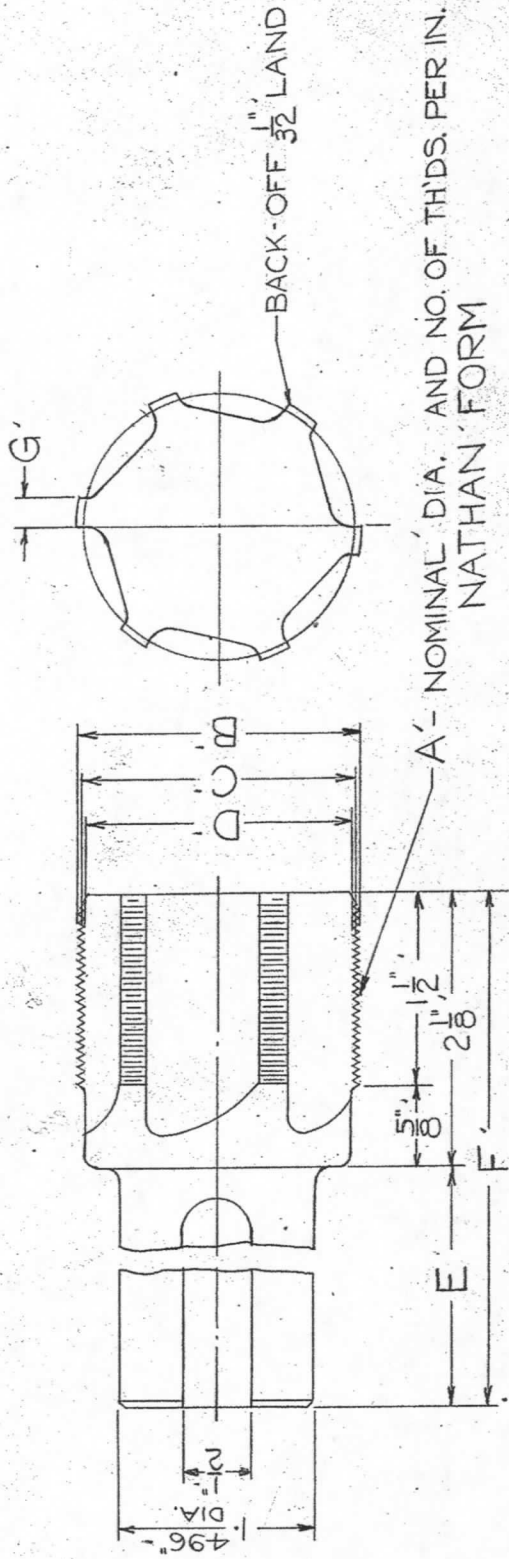
NOTE: SEE MARKED UP BULLETIN NO. 4 FOR THD. NOS. FOR NPT SIMP. N.L.F. INT. SEE MARKED UP DRG. NO. 2371 OF THE 3 TYPE F.W.S. BOILER CHECK WITH STOP VALVE. SEE MARKED UP DRG. NO. 2326 OF THE 2 1/2" BOILER CHECK WITH STOP VALVE FOR USE WITH FEED WATER HEATER.

NATHAN MFG. CO. NEW YORK, N.Y.
 HAND SIZING
 TAPS & DIES

4188
 JAN. 6, 1941

17-10

ME-1-3



NOTE:-

FOR DETAILS OF NATHAN FORM
 THREAD SEE OUR DRG. NO. 2774

G	F	E	D	C	B	A		LINE NO.
						NOMINAL DIA.	TH'DS PER IN.	
$\frac{1}{4}$ "	$3 \frac{5}{8}$ "	$1 \frac{1}{2}$ "	1.5024"	1.5385"	1.5866"	40.3 M.	18	1
$\frac{1}{4}$ "	$5 \frac{5}{8}$ "	$3 \frac{1}{2}$ "	1.7421"	1.7885"	1.8504"	47 M.	14	2
$\frac{9}{32}$ "	$5 \frac{5}{8}$ "	$3 \frac{1}{2}$ "	1.8602"	1.9066"	1.9685"	50 M.	14	3
$\frac{9}{32}$ "	$3 \frac{5}{8}$ "	$1 \frac{1}{2}$ "	2.0024"	2.0385"	2.0866"	53 M.	18	4
$\frac{9}{32}$ "	$5 \frac{7}{8}$ "	$3 \frac{3}{4}$ "	2.0492"	2.0956"	2.1575"	54.8 M.	14	5
$\frac{9}{32}$ "	$3 \frac{5}{8}$ "	$1 \frac{1}{2}$ "	2.1752"	2.2216"	2.2835"	58 M.	14	6
$\frac{5}{16}$ "	$3 \frac{5}{8}$ "	$1 \frac{1}{2}$ "	2.4011"	2.4477"	2.5097"	64 M.	14	7
$\frac{5}{16}$ "	$6 \frac{1}{2}$ "	$4 \frac{3}{8}$ "	2.6082"	2.6546"	2.7165"	69 M.	14	8
$\frac{5}{16}$ "	$3 \frac{5}{8}$ "	$1 \frac{1}{2}$ "	2.9232"	2.9696"	3.0315"	77 M.	14	9
$\frac{1}{32}$ "	$3 \frac{5}{8}$ "	$1 \frac{1}{2}$ "	3.0807"	3.1271"	3.1890"	81 M.	14	10
$\frac{1}{32}$ "	$5 \frac{1}{2}$ "	$3 \frac{3}{8}$ "	3.4387"	3.5037"	3.5697"	91 M.	10	11

REF. - WESTERN MARYLAND RAILWAY CO.
 NATHAN MFG. CO. NEW YORK, N.Y.

TAPS
 FOR
 NO. 10-11-13 SIMP. R. INJECTOR
 NO. 10 SIMP. B. INJECTOR

4446
 JUNE 19, 1942

MI-TL-2

MAINTENANCE TOOLS FOR NATHAN SIMPLEX "R" INJECTORS

	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14
Seat. tool for st. valve seat on st. nozzle.	E-20780	E-20780	E-20780	H-20884	H-20884	H-20884	L-20810	L-20810	N-20834	P-20742
Seat. tool for st. nozzle seat in body	E-20781	E-20781	E-20781	J-20794	J-20794	J-20794	L-20718	L-20718	N-20833	P-20738
Socket wrench for removing st. nozzle	E-14300	E-14300	E-14300	H-14300	H-14300	H-14300	L-14300	L-14300	N-14300	P-14300
Seat. tool for water valve seat in body	E-20801	E-20801	G-20858	K-20748	K-20748	K-20748	L-20720	L-20720	N-20835	N-20835
Seat. tool for heater check seat	E-20809	E-20809	E-20809	K-20747	K-20747	K-20936	L-20721	L-20721	L-20721	
Seat. tool for inlet valve seat	E-20810	E-20810		K-20938	K-20938	K-20938	L-20917	L-20917	N-20838	
Seat. tool for nozzle holder seat	E-20811	E-20811		J-20920	J-20920	K-20937	K-20937	K-20937	N-20837	P-20744
Pipe wrench for removing inlet valve cap & seat	E-14442	E-14442	G-14442	H-14442		H-14442	L-14442	L-14442	N-14442	N-14442
Wrench for removing nozzle holder	E-20838 E-20839	E-20838 E-20839	G-21001 G-21002	H-14754 H-14755	H-14754 H-14755	H-14754 H-14755	H-14754 H-14755	H-14754 H-14755	N-20836 H-14755	
Nozzle extractor	E-20796 E-20797 H-10341	E-20796 E-20797 H-10341	G-20886 G-20887 G-20888	H-14756 H-14757 H-5122	H-14756 H-14757 H-5122	H-14756 H-14757 H-5122	H-14756 H-14757 H-5122	H-14756 H-14757 H-5122	N-14756 N-14757 H-5122	
Seat. tool for st. end	H-20928	H-20928	H-20927	H-20915	H-20915	H-20926	H-20926	H-20926	H-20916	
Seat. tool for water end	H-20928	H-20928	H-20927	H-20916	H-20916	H-20916	L-20899	L-20899	L-20899	
Seat. tool for del. end	H-20928	H-20928	H-20927	H-20915	H-20915	H-20926	H-20926	H-20926	H-20916	
Grind. tool for seat of st. spindle disc	L-20865	L-20865	L-20865	L-20864	L-20864	L-20864	L-20862	L-20862	L-20863	L-20863
Disc nut wrench	L-20866	L-20866	L-20866	L-20867	L-20867	L-20867	L-20869	L-20869	L-20868	L-20868

HAND TOOLS

#17 SIMPLEX NON-LIFTING INJECTOR

<u>Seating Tools</u>	With Manual Overflow "Type HW"	With Automatic Overflow "Type 3871"
Steam nozzle seat on injector body	X-20741	X-20741
Delivery nozzle seat on injector body	X-20742	X-20742
Water valve seat on injector body	N-20707	N-20707
Intermediate check seat on injector body	N-20714	N-20714
Delivery check seat on injector body	X-20743	X-20743
Overflow check seat on overflow body	N-20711	N-20957
Relief Valve seat on part X-1218		X-1233
Seat on automatic overflow operating piston		DT-11730
Seat on sleeve part X-1209 for auto. overflow operating piston		DT-11734
Steam, water, delivery & overflow conn. on injector & overflow	L-21031	L-21031

WRENCHES

Steam nozzle	N-20706	N-20706
Delivery nozzle	N-20705	N-20705

TAPS & DIES FOR SIZING THREADS

Steam nozzle thread	)See following	Ref. (21)	Ref. (21)
Delivery nozzle thread	)reference nos. for	Ref. (22)	Ref. (22)
Intermediate check cap thread)	#17 Inj. Drg. 4188	Ref. (23)	Ref. (23)

NATHAN MANUFACTURING COMPANY

HAND TOOLS

Type 1918 Combination Boiler Check and Stop Valve

<u>seating Tools</u>	<u>2"</u>	<u>2-1/2"</u>
Check Valve seat in body	L-20723	N-20709
Stop Valve Seat in body	L-20709	L-20709

WJL-4

HAND TOOLS

Boiler Checks Used on Union Pacific Railway

For 2" Type 287-A Reversible Boiler Check U.P. Drawing 562-CA-28128

For Stop Valve Seat	H-20918
For Check Valve Seat	H-20919

For 2-1/2" Type 287-A Reversible Boiler Check U.P. Drawing 563-CA-20815

For Stop Valve Seat	J-20893
For Check Valve Seat	J-20869

For 2-1/2" Type F.W.R. Boiler Check U.P. Drawing 563-CA-28130

For Stop Valve Seat	J-20893
For Check Valve seat	J-20892

For 3" Type F.W.R. Boiler Check U.P. Drawing 562-CA-22801

For Stop Valve Seat	B-20962
For Check Valve Seat	B-20956

For 3" Type F.W.S. Boiler Check U.P. Drawing 563-CA-26677

For Stop Valve Seat	B-20994
For Check Valve Seat	B-20866

GAUGE COCKS

Types 3297, 3417, 261-CA-24424, 272-S-1580

Instructions: Type 261-CA-24424 - Drg. 3352
Type 272-S-1580, 3566 - Drg. 3832

Tools: Seating tool for facing spindle while under
pressure - types 3297, 3566, 261-CA-24424 - Drg. 41715 or
42003
(use 42003)

Seating tool for shank 41678, 41708 -
types 3297, 3566 - Drg. 42364

Adapter for facing spindle while under
pressure - type 3566 - Drg. 42048

Reamer for facing spindle while under
pressure - types 3566, 272-S-1580 - Drg. 41563

WATER COLUMN DRAIN VALVES

Types 3716, 2748, 3458

Instructions: Type 3716 - Drg. 3835
Type 2748 - Drg. 3832

Tools: Adapter for facing spindles of valves and
cocks while under pressure - type 2748 - Drg. 42048

Reamer for facing spindles while under
pressure - type 2748 - Drg. 41563

Seating tool for facing spindle while
under pressure - type 3716 - Drg. 42027

Seating tool for facing spindle while
under pressure - type 3458 - Drg. 42029

MI-TL

RAIL WASHER VALVE
(Type 3431)

Instructions:

Tools: Seating tool for facing spindles while under
pressure - type 3431

- Drg. 42029

HAND TOOLS

Type 1918 Balanced Injector Starting Valve

Seating Tools

	<u>2"</u>	<u>2-1/2"</u>
Pilot Valve Seat in main valve	J-20743	J-20743
Main Valve Seat in valve body	J-20721	N-20708

HAND TOOLS

Type 1921 Balanced Injector Starting Valve

<u>Seating Tools</u>	<u>2"</u>	<u>2-1/2"</u>
Pilot Valve Seat in main valve	H-20957	K-20956
Main Valve seat in valve body	J-20721	N-20708

MI-12-13

HAND TOOLS

TYPE 3540 BALANCED INJECTOR STARTING VALVE

<u>Seating Tools</u>	<u>2"</u>	<u>2-1/2"</u>	<u>3"</u>
Pilot valve seat in main valve	L-21050	N-20910	N-20910
Main valve seat	L-21051	N-20911	N-20911
Seat for renewable seat in valve body	CT-9436	CT-9353	CT-9353
Tailpiece seats on valve body	H-20986	L-20900	L-21031

TAPS & DIES FOR SIZING THREADS

Renewable seat thread in body)	See Drg.	Ref. (10)	Ref. (10)	Ref. (10)
Cap thread on body	) 3823-B	Ref. (11)	Ref. (11)	Ref. (11)

MISCELLANEOUS

Grinding tool for main valve	L-21058	N-20921	N-20921
Wrench for renewable seat		N-20923	N-20923

MI-TL-114