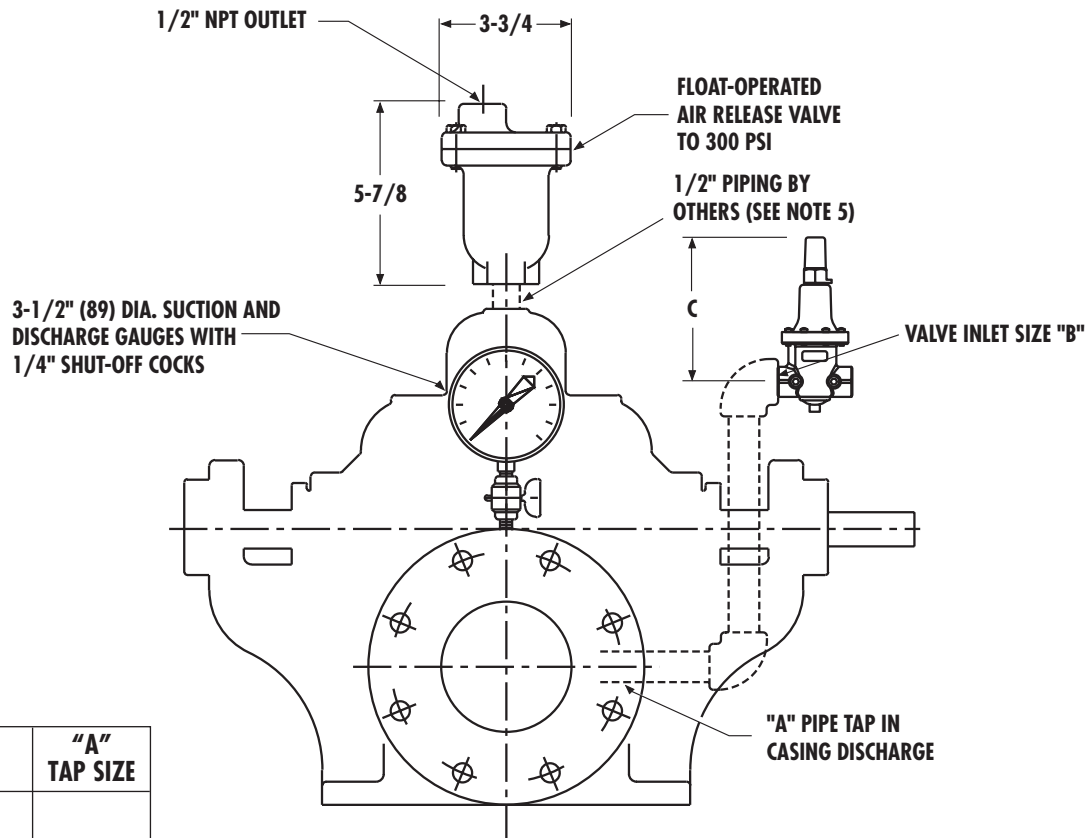


STANDARD FIRE PUMP ACCESSORIES

Date **July 2018**

Supersedes Section 916 Page 201

Dated April 2006



PIPE SIZE	"A" TAP SIZE
2.5" 1823F	1-1/4"
3" 1824F	
4" 1823F	
4" 1824F	
5" 1822F	
5" 1823F	
5" 1824F	
6" 1822F	
6" 1822HHF	
6" 1823HHF	
6" 1823F	
6" 1824F	
6" 1825F	
8" 1822F	
8" 1825F	
8" 1826F	
10" 1823F	2"
10" 1824DF	
8" 1824F	
10" 1824F	3/4"
12" 1824F	
ALL VERTICAL (1840) MODELS	1-1/4"
ALL 2-STAGE (1920) MODELS	
2800/5800 MODELS	
	3/4"

**CASING RELIEF VALVE**

SYSTEM GPM	VALVE INLET SIZE - "B"	"C"	
		psi	psi
250	3/4"	175 psi	300 psi
500			
750			
1000			
1250	6-3/4" (131)		9-1/4" (235)
1500			
2000			
2500			
3000			
3500	1"		8-1/2" (216)
4000			

**NOTES:**

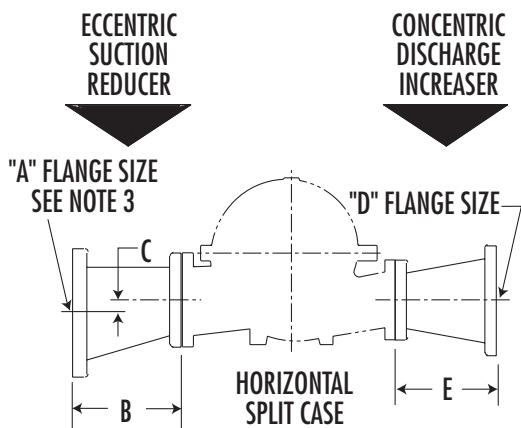
1. Dimensions are in inches (mm) and may vary ± 1/4" (6).
2. Accessories shown are shipped loose for field installation.
3. Casing relief valve is to be adjusted to appropriate pressure upon field installation
4. Casing relief valve is furnished on electric motor driven units only.
5. Two stage pumps require both vent taps piped to air release valve.
6. Suction gauge range is 30"-0-150 PSI for suction pressures up to 75 PSI, or 30"-0-300 PSI for suction pressures over 75 PSI.
7. Discharge gauge range is 0-300 PSI for pumps with rated discharge pressures up to 150 PSI, or 0-600 PSI for pumps with rated discharge pressures over 150 PSI.



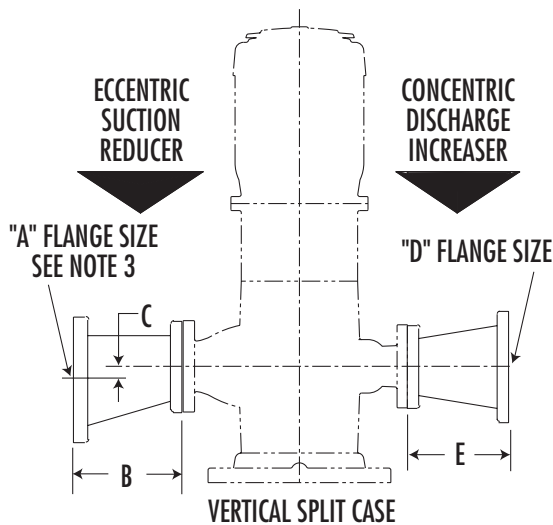
**FAIRBANKS NIJHUIS™ FIRE PUMPS**

OPTION 73 - ECCENTRIC SUCTION REDUCERS

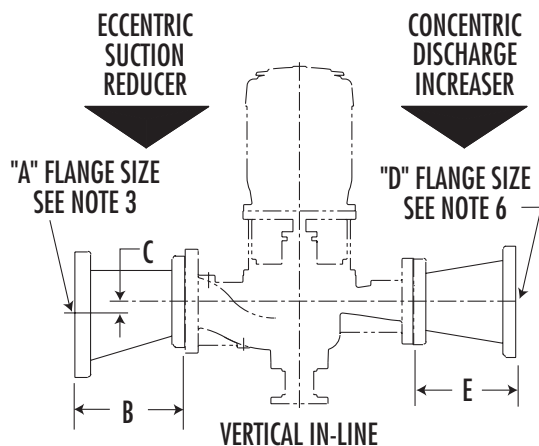
OPTION 74 - CONCENTRIC DISCHARGE INCREASERS



Size	A	B	C
3 X 2	3	6	.5
3 X 2-1/2	3	6	.25
4 X 3	4	7	.5
5 X 4	5	8	.5
6 X 4	6	9	1
6 X 5	6	9	.5
8 x 5	8	11	1.5
8 X 6	8	11	1
10 x 6	10	12	2
10 X 8	10	12	1
12 x 8	12	14	2
12 X 10	12	14	1
14 x 10	14	16	1
14 X 12	14	16	1
16 x 10	16	18	3
16 x 12	16	18	2



OPTION 74 CONCENTRIC DISCHARGE INCREASERS		
Size	D	E
2-1/2 x 3	3	6
3 x 4	4	7
3 x 5	5	8
3 x 6	6	9
4 x 5	5	8
4 x 6	6	9
5 x 6	6	9
5 x 8	8	11
6 x 8	8	11
6 x 10	10	12
6 x 12	12	14
8 x 10	10	12
8 x 12	12	14
10 x 12	12	14
10 x 14	14	16
10 x 16	16	18



**NOTES:**

1. Dimensions are in inches (mm) and may vary  $\pm 1/4"$ .
2. Dimensions applicable to both Class 125 & Class 250 fittings.
3. Illustrations show the intended installation positions and orientation of each fitting: Eccentric Suction Reducers are to be installed with the straight side to the top to prevent air entrapment.
4. Proper pipe supports are required to prevent strain on pump casing.
5. Fittings shown are intended to adapt the fire pump suction and discharge flanges to the actual system manifold pipe sizes. Refer to NFPA 20 for the minimum system manifold size for each flow rating (GPM), but in no case should the system suction pipe be a smaller pipe size than that of the pump suction flange.
6. Refer to Section 911, Page 202 for discharge fittings tapped to accept installation of casing relief valve suitable for use with Model 1590 vertical in-line fire pumps.

NOTE: Suction Reducers and Discharge Increasers for end suction fire pumps are the same dimensions as above.

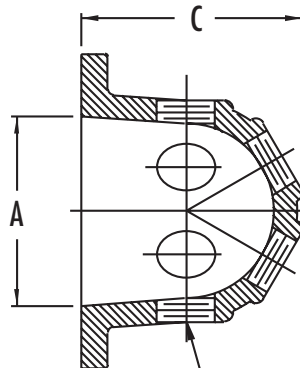
## STANDARD FIRE PUMP ACCESSORIES

Date **April 2006**

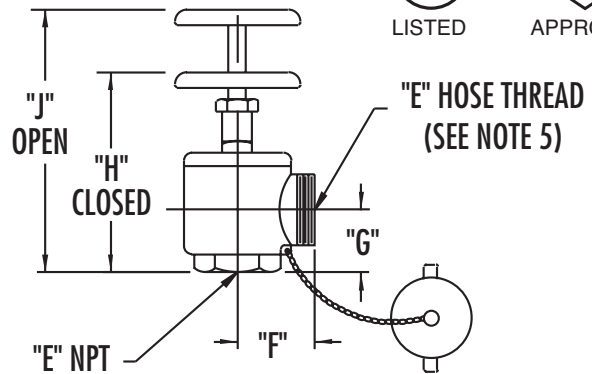
OPTION 75 - TEST MANIFOLD

OPTION 76 - HOSE VALVES

OPTION 77 - BALL DRIP VALVE



QTY "B" SIZE "D" PIPE TAPS FOR HOSE VALVES



OPTION 75 - TEST MANIFOLD	
STD. 125# ASA FLANGES	OPT. 250# ASA FLANGES

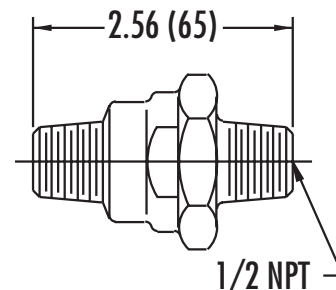
VALVE SIZE "E"	"F"	"G"	"H"	"J"
1-1/2	2.25 (57)	2.00 (51)	6.50 (165)	7.50 (191)
2-1/2	3.5 (89)	2.75 (70)	9.50 (241)	11.00 (297)

OPTION 76 - HOSE VALVE(S)	
WITH CAPS AND CHAINS	WITHOUT CAPS AND CHAINS

PUMP RATING G.P.M.	50	100 150 200	250 300	400 450 500	750	1000	1250 1500 2000	2500	3000	3500	4000 4500	5000
"A" MANIFOLD SUPPLY SIZE	1.5"	2.5"	3"	4"	6"	6"	8"	10"	10"	12"	12"	12"
"B"	1	1	1	2	3	4	6	8	12	12	16	20
"C"	1.00 (25)	1.13 (29)	1.31 (33)	8.50 (216)	10.62 (270)	10.62 (270)	11.75 (298)	12.50 (318)	25.63 (651)	31.63 (803)	31.63 (803)	43.75 (1111)
"D"	1-1/2	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2

**NOTES:**

- Dimensions are in inches (mm) and may vary  $\pm 1/4$  (6).
- Components shown are shipped loose for field installation and assembly.
- Manifold supply size "A" and the number of hose valves ("B") meets or exceeds the minimums specified by N.F.P.A. 20 for the pump ratings indicated.
- Manifolds for 3000 through 5000 GPM ratings consist of multiple sections and may require support (by others).
- 1-1/2" Hose valves furnished with 1-1/2" National Standard Fire Hose Thread: 1.9900 (50.55) O.D. (max.), 6 threads per inch. 2-1/2" Hose valves are furnished with 2-1/2" National Standard Fire Hose Thread: 3.0686 (77.94) O.D. (max.), 7-1/2 threads per inch. Refer to factory for other thread conventions or adaptors.



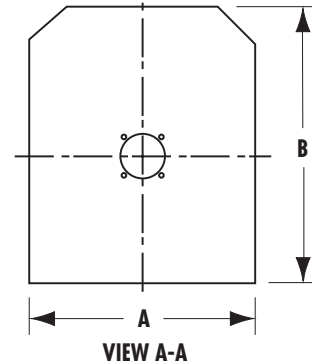
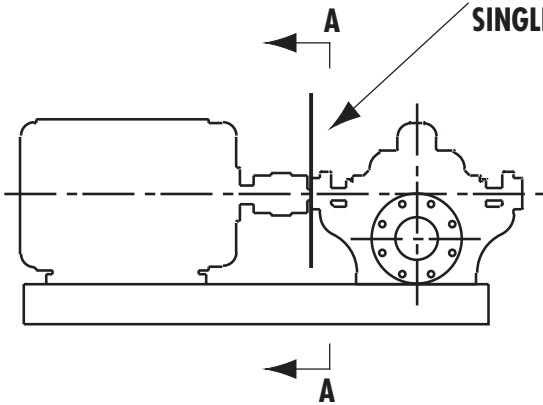
**OPTION 77 - BALL DRIP VALVE**

Designed to drain a branch line leading to an outside test manifold where danger of freezing exists. Opens at zero flow.

# FAIRBANKS NIJHUIS™ FIRE PUMPS

## OPTION 78 - SPLASH PARTITION

**SPLASH PARTITION FOR HORIZONTAL SINGLE & MULTI-STAGE FIRE PUMPS**

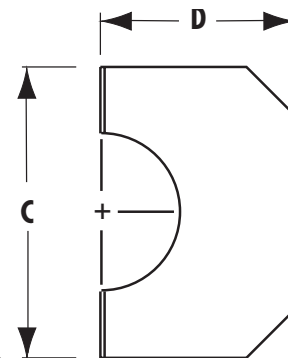
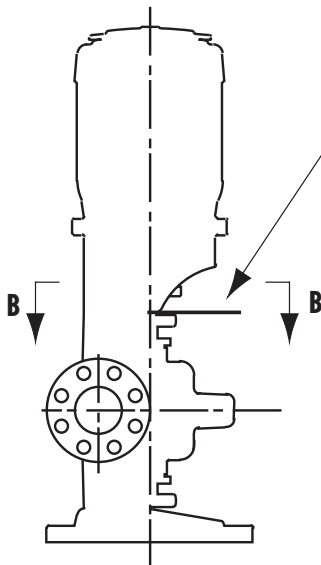


PUMP SIZE	2" 1823F 3" 1824F	4" 1823F	4" 1824F 4" 1922F	5" 1822F 5" 1823F 5" 1922F 5" 1804F 6" 1822F 6" 1822HHF	6" 1823F	6" 1823HHF 6" 1824F 6" 1825F 6" 1922F 8" 1822F 8" 1824F 8" 1825F	10" 1823F 10" 1824F 10" 1824DF 12" 1824F
	A	12 (305)	12 (305)	14 (356)	14 (356)	18 (457)	18 (457)
B	16-3/4 (425)	19-3/4 (502)	20-3/4 (527)	22-1/4 (565)	26-1/4 (667)	27-1/2 (699)	36-3/4 (933)

**NOTES:**

1. Dimensions are in inches (mm) and may vary  $\pm 1/4$  (6) inch.
2. Splash partitions are not available for diesel engine driven units.

**SPLASH PARTITION FOR VERTICAL SINGLE STAGE FIRE PUMPS**

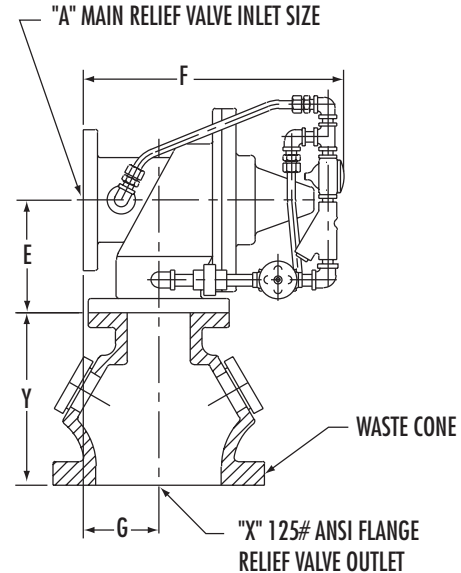
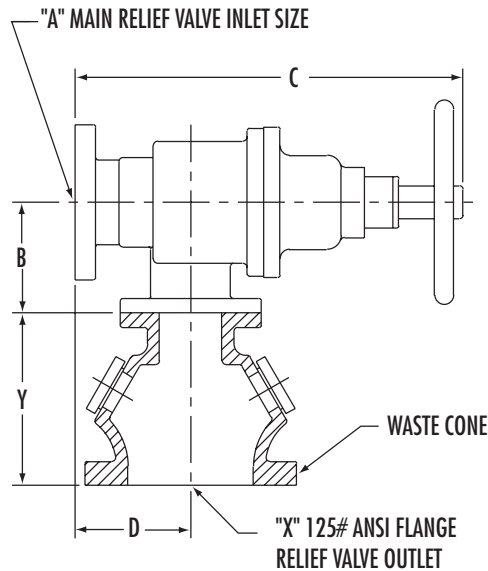


PUMP SIZE	2.5" 1843F 3" 1844F	4" 1843F 4" 1844F 5" 1842F 5" 1843F 5" 1844F 6" 1842F	6" 1843F 6" 1844F 6" 1845F 8" 1842F 8" 1844F
	C	12 (305)	14 (356)
D	8 (203)	10 (254)	13 (330)

OPTION 79 - MAIN RELIEF VALVE

Date **April 2012**

OPTION 80 - WASTE CONE



Spring-Operated Main Relief Valve

- 125# INLET FLANGE
- 250# INLET FLANGE

Pilot-Operated Main Relief Valve

- 125# INLET FLANGE
- 250# INLET FLANGE

Enclosed Waste Cone

Enclosed Waste Cone

PUMP RATING G.P.M.	A	INLET FLANGE RATING	SPRING-OPERATED MAIN RELIEF VALVE			PILOT OPERATED MAIN RELIEF VALVE			WASTE CONE VALVE	
			B	C	D	E	F	G	X	Y
250 500	3	125#	5-7/8 (149)	21-1/4 (540)	6-1/8 (155)	6 (152)	14-7/8 (378)	4 (102)	5 (111)	11 (279)
		250#				6 (152)	15-1/4 (387)	4-3/8		
750	4	125#	6-7/16 (163)	22-5/8 (575)	6-5/8 (168)	7-5/8 (194)	16-15/16 (430)	5-1/16 (129)	6	11 (279)
1000		250#				7-15/16 (202)	17-1/4 (438)	5-3/8 (137)	8	11-1/2 (292)
1250 1500	6	125#	8-1/2 (216)	36 (914)	9-3/8 (238)	10 (254)	19-7/8 (505)	6 (152)	8	14 (356)
2000		250#				10 (254)	20-3/8 (518)	6-1/2 (195)		
2500										
3000 3500	8	125#	Not Available			12-3/4 (324)	22-7/8 (581)	8 (203)	12 (216)	12 (305)
		250#				12-3/4 (324)	22-7/8 (581)	8-1/2		

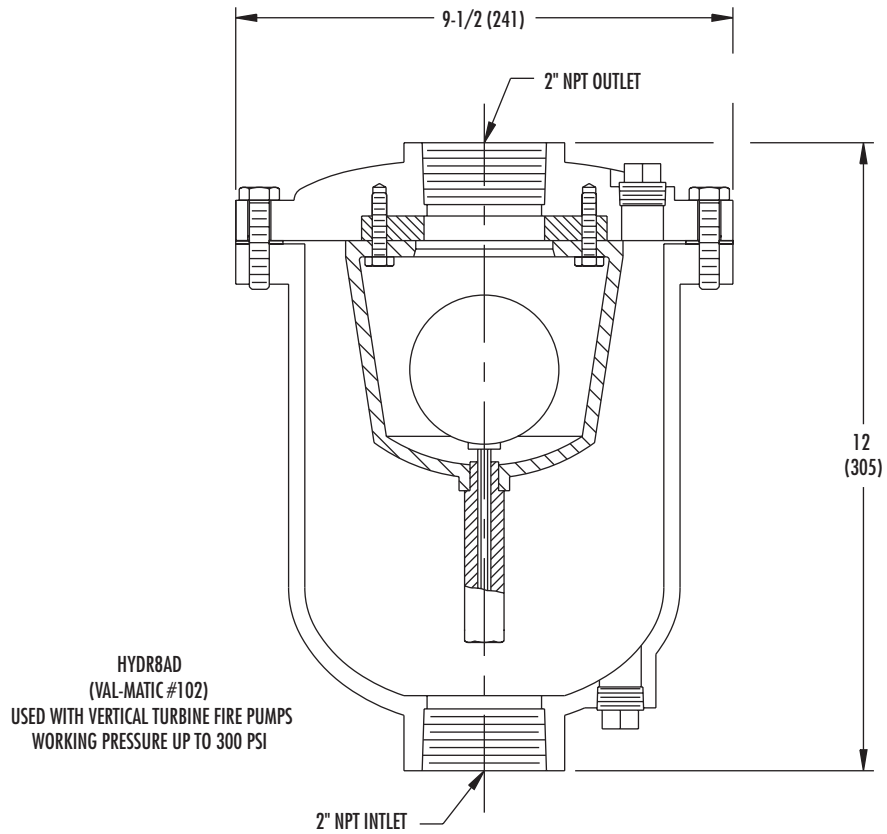
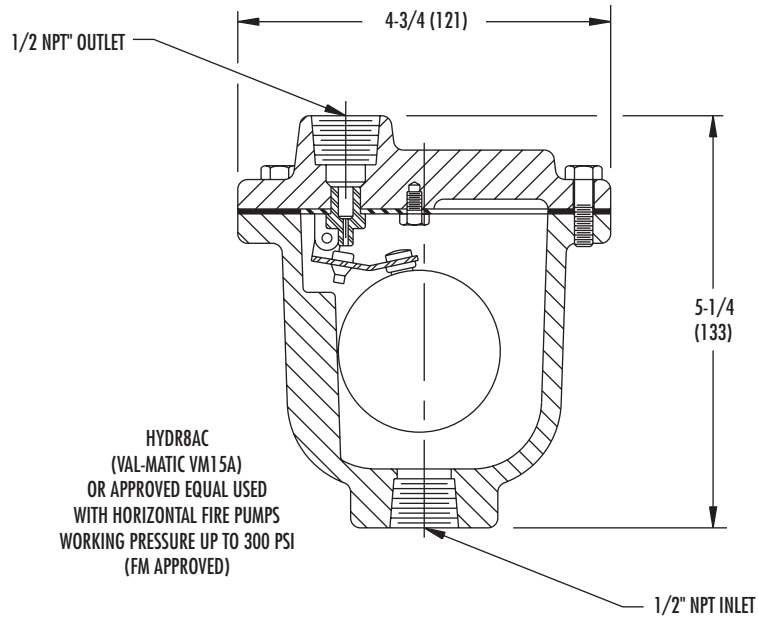
NOTES:

1. All dimensions are in inches (mm) and may vary  $\pm 1/4$  (6).
2. Valves are available with inlet flange ratings of 125# or 250#. All waste cones have 125# flange ratings.
3. Dimensions for conventional relief valves are not affected by flange rating.

4. Relief valve discharge is intended to be piped to waste. Refer to factory if discharge is to be piped to a line where back pressure is present.
5. Maximum operating pressure for valves rated for 125# is 175 PSI.
6. Maximum operating pressure for valves rated for 250# is 300 PSI.

# FAIRBANKS NIJHUIS™ FIRE PUMPS

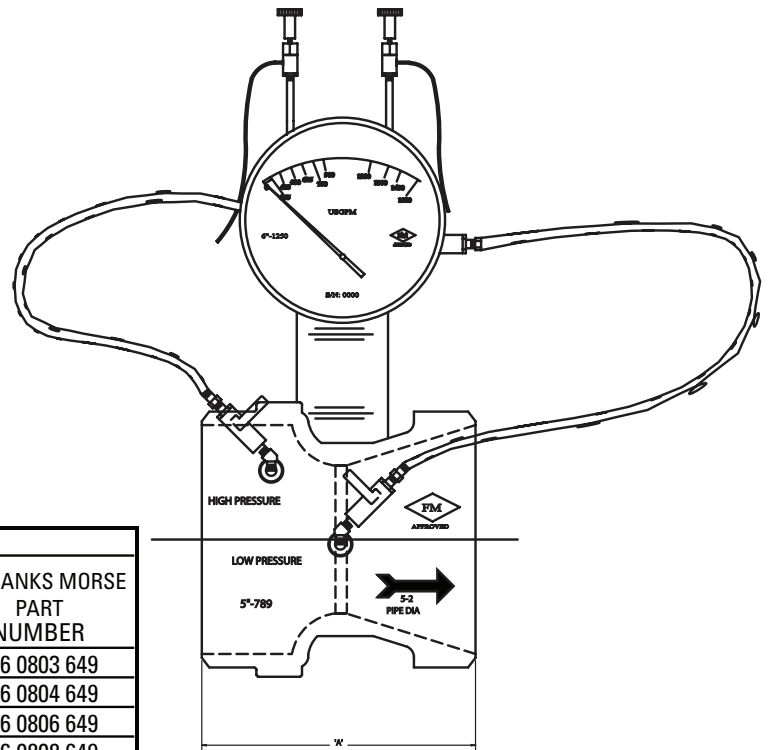
## AUTOMATIC AIR RELEASE VALVE



**NOTES:**

1. All dimensions are in inches (mm) and may vary  $\pm 1/4$  (6).

**Global Vision Flow Meters**



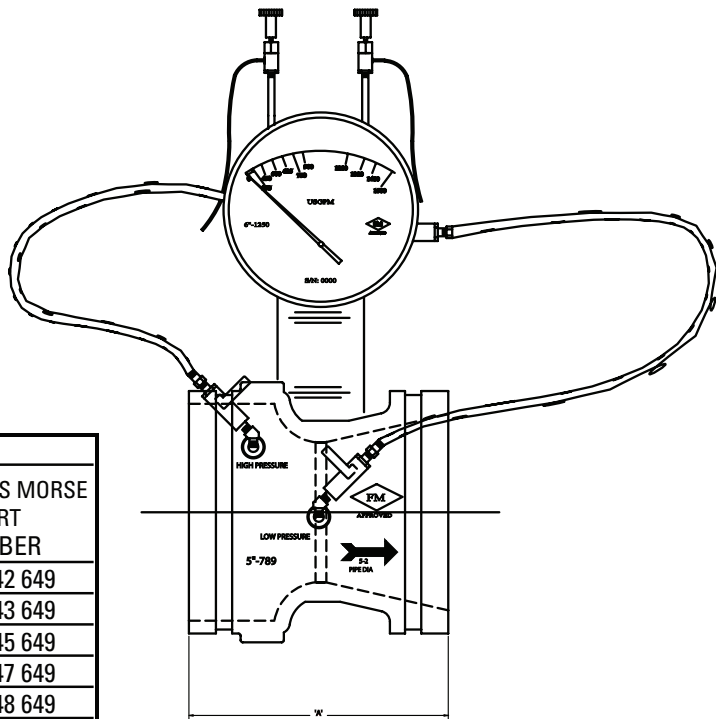
NOMINAL FLOW RATE G.P.M.	PIPE SIZE	BUTT-WELD		
		OPTION NUMBER	"A" DIM.	FAIRBANKS MORSE PART NUMBER
150	3	91AED	4.000	366 0803 649
200	3	91AEE	4.000	366 0804 649
250	4	91AEG	5.375	366 0806 649
300	4	91AEJ	5.375	366 0808 649
400	4	91AEK	5.375	366 0809 649
450	4	91AEL	5.375	366 0810 649
	5	91AEM	6.000	366 0811 649
500	5	91AEP	6.000	366 0813 649
	6	91APC	7.000	366 0814 649
750	5	91APB	6.000	366 0815 649
	6	91APA	7.000	366 0816 649
1000	6	91APD	7.000	366 0817 649
	8	91AFB	7.250	366 0818 649
1250	6	91AFC	7.000	366 0819 649
	8	91AFD	7.250	366 0820 649
1500	8	91AFE	7.250	366 0821 649
	10	91AFF	8.000	366 0822 649
2000	8	91AFG	7.250	366 0823 649
	10	91AFH	8.000	366 0824 649
2500	8	91AFJ	7.250	366 0825 649
	10	91AFK	8.000	366 0826 649
	12	91AFL	12.000	366 0827 649
3000	8	91AFM	7.250	366 0828 649
	10	91AFN	8.000	366 0829 649
	12	91AFP	12.000	366 0830 649
3500	10	91AFR	8.000	366 0831 649
	12	91AFT	12.000	366 0832 649
4000	10	91AFW	8.000	366 0833 649
	12	91AGA	12.000	366 0834 649
4500	10	91AGB	8.000	366 0835 649
	12	91AGC	12.000	366 0836 649
5000	12	91AGE	12.000	366 0838 649

**NOTES:**

1. ACCURACY IS APPROXIMATELY 2%.
2. FLOWMETER IS GLOBAL VISION INCORPORATED VENTURI TYPE RATED FOR 500 PSI WITH BUTT-WELD, GROVVED, OR CLASS 300 FLANGED CONNECTIONS AND FOR 275 PSI WITH CLASS 150 FLANGED CONNECTIONS.
3. PROPER OPERATION REQUIRES THAT MINIMUM DISTANCES OF STRAIGHT PIPE RUNS BE MAINTAINED BOTH UPSTREAM AND DOWNSTREAM FROM FLOWMETER. REFER TO MANUFACTURER'S INSTRUCTIONS BEFORE ATTEMPTING INSTALLATION.
4. METER RANGE IN 50% TO 200% OF NOMINAL FLOW. DIAL IS DIRECT READING IN G.P.M. AND L.P.M. FOR THE SPECIFIED RANGE.
5. PART NUMBER INCLUDES COMPLETE ASSEMBLY OF VENTURI, 4" DIAMETER DIAL AND INTERCONNECTING HOSES.
6. EACH ASSEMBLY TO BE INDIVIDUALLY BOXED, WITH THE AURORA PART NO. CLEARLY MARKED ON THE OUTSIDE OF THE BOX.

**Global Vision Flow Meters**

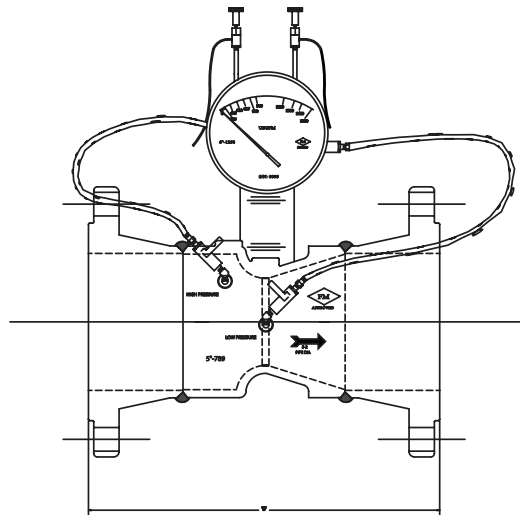
NOMINAL FLOW RATE G.P.M.	PIPE SIZE	GROOVED		
		OPTION NUMBER	"A" DIM.	FAIRBANKS MORSE PART NUMBER
150	3	91AGJ	4.000	366 0842 649
200	3	91AGK	4.000	366 0843 649
250	4	91AGM	5.375	366 0845 649
300	4	91AGP	5.375	366 0847 649
400	4	91AGR	5.375	366 0848 649
450	4	91AGT	5.375	366 0849 649
	5	91AGW	6.000	366 0850 649
500	5	91AHB	6.000	366 0852 649
	6	91AHC	7.000	366 0853 649
750	5	91AHD	6.000	366 0854 649
	6	91AHE	7.000	366 0855 649
1000	6	91AHF	7.000	366 0856 649
	8	91AHG	7.250	366 0857 649
1250	6	91AHH	7.000	366 0858 649
	8	91AHJ	7.250	366 0859 649
1500	8	91AHK	7.250	366 0860 649
	10	91AHL	8.000	366 0861 649
2000	8	91AHM	7.250	366 0862 649
	10	91AHN	8.000	366 0863 649
2500	8	91AHP	7.250	366 0864 649
	10	91AHR	8.000	366 0865 649
3000	12	91AHT	12.000	366 0866 649
	8	91AHW	7.250	366 0867 649
3500	10	91AJA	8.000	366 0868 649
	12	91AJB	12.000	366 0869 649
4000	10	91AJC	8.000	366 0870 649
	12	91AJD	12.000	366 0871 649
4500	10	91AJE	8.000	366 0872 649
	12	91AJF	12.000	366 0873 649
5000	10	91AJG	8.000	366 0874 649
	12	91AJH	12.000	366 0875 649
5000	12	91AJK	12.000	366 0877 649



**NOTES:**

1. ACCURACY IS APPROXIMATELY 2%.
2. FLOWMETER IS GLOBAL VISION INCORPORATED VENTURI TYPE RATED FOR 500 PSI WITH BUTT-WELD, GROOVED, OR CLASS 300 FLANGED CONNECTIONS AND FOR 275 PSI WITH CLASS 150 FLANGED CONNECTIONS.
3. PROPER OPERATION REQUIRES THAT MINIMUM DISTANCES OF STRAIGHT PIPE RUNS BE MAINTAINED BOTH UPSTREAM AND DOWNSTREAM FROM FLOWMETER. REFER TO MANUFACTURER'S INSTRUCTIONS BEFORE ATTEMPTING INSTALLATION.
4. METER RANGE IN 50% TO 200% OF NOMINAL FLOW. DIAL IS DIRECT READING IN G.P.M. AND L.P.M. FOR THE SPECIFIED RANGE.
5. PART NUMBER INCLUDES COMPLETE ASSEMBLY OF VENTURI, 4" DIAMETER DIAL AND INTERCONNECTING HOSES.
6. EACH ASSEMBLY TO BE INDIVIDUALLY BOXED, WITH THE AURORA PART NO. CLEARLY MARKED ON THE OUTSIDE OF THE BOX.

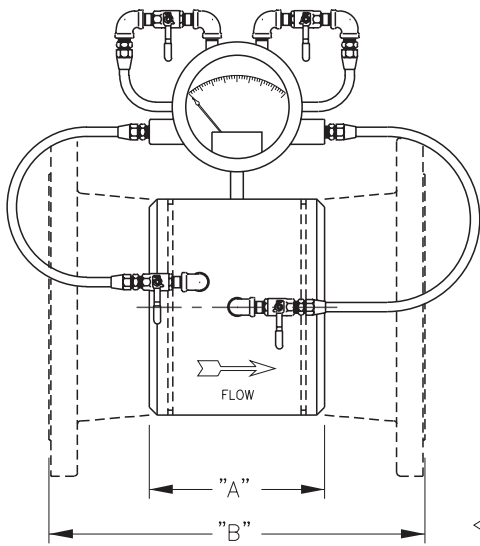




**Global Vision Flow Meters**

NOMINAL FLOW RATE G.P.M.	PIPE SIZE	CLASS 150 FLANGES			CLASS 300 FLANGES		
		OPTION NUMBER	"A" DIM.	FAIRBANKS MORSE PART NUMBER	OPTION NUMBER	"A" DIM.	FAIRBANKS MORSE PART NUMBER
150	3	91AJM	9.375	366 0879 649	91ALR	10.250	366 0916 649
200	3	91AJN	9.375	366 0880 649	91ALT	10.250	366 0917 649
250	4	91AJR	11.375	366 0882 649	91AMA	12.125	366 0919 649
300	4	91AJW	11.375	366 0884 649	91AMC	12.125	366 0921 649
400	4	91AKA	11.375	366 0885 649	91AMD	12.125	366 0922 649
450	4	91AKB	11.375	366 0886 649	91AME	12.125	366 0923 649
	5	91AKC	13.000	366 0887 649	91AMF	13.750	366 0924 649
500	5	91AKE	13.000	366 0889 649	91AMH	13.750	366 0926 649
	6	91AKF	14.000	366 0890 649	91AMJ	14.750	366 0927 649
750	5	91AKG	13.000	366 0891 649	91AMK	13.750	366 0928 649
	6	91AKH	14.000	366 0892 649	91AML	14.750	366 0929 649
1000	6	91AKJ	14.000	366 0893 649	91AMM	14.750	366 0930 649
	8	91AKK	15.250	366 0894 649	91AMN	16.000	366 0931 649
1250	6	91AKL	14.000	366 0895 649	91AMP	14.750	366 0932 649
	8	91AKM	15.250	366 0896 649	91AMR	16.000	366 0933 649
1500	8	91AKN	15.250	366 0897 649	91AMT	16.000	366 0934 649
	10	91AKP	16.000	366 0898 649	91AMW	17.250	366 0935 649
2000	8	91AKR	15.250	366 0899 649	91ANA	16.000	366 0936 649
	10	91AKT	16.000	366 0900 649	91ANB	17.250	366 0937 649
2500	8	91AKW	15.250	366 0901 649	91ANC	16.000	366 0938 649
	10	91ALA	16.000	366 0902 649	91AND	17.250	366 0939 649
	12	91ALB	21.000	366 0903 649	91ANE	22.250	366 0940 649
3000	8	91ALC	15.250	366 0904 649	91ANF	16.000	366 0941 649
	10	91ALD	16.000	366 0905 649	91ANG	17.250	366 0942 649
3500	12	91ALE	21.000	366 0906 649	91ANH	22.250	366 0943 649
	10	91ALF	16.000	366 0907 649	91ANJ	17.250	366 0944 649
4000	12	91ALG	21.000	366 0908 649	91ANK	22.250	366 0945 649
	10	91ALH	16.000	366 0909 649	91ANL	17.250	366 0946 649
4500	12	91ALJ	21.000	366 0910 649	91ANM	22.250	366 0947 649
	10	91ALK	16.000	366 0911 649	91ANN	17.250	366 0948 649
5000	12	91ALL	21.000	366 0912 649	91ANP	22.250	366 0949 649
	12	91ALN	21.000	366 0914 649	91ANT	22.250	366 0951 649

See Notes on pages 207 and 208 section 916



**NOTES:**

1. Accuracy is approximately  $\pm 2\%$ .
2. Flow meter is Gerand Model K Venturi type rated for 500 PSI with butt-weld or grooved connections and for 275 PSI with Class 150 flanged connections.
3. Proper operation requires that minimum distances of straight pipe runs be maintained both upstream and downstream from flowmeter. Refer to manufacturer's instructions before attempting installation.
4. Meter range is 50% to 200% of nominal rated flow. Dial is direct reading in G.P.M. for the specified range.

**GERAND VENTURI FLOW METERS**

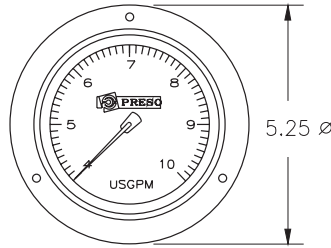
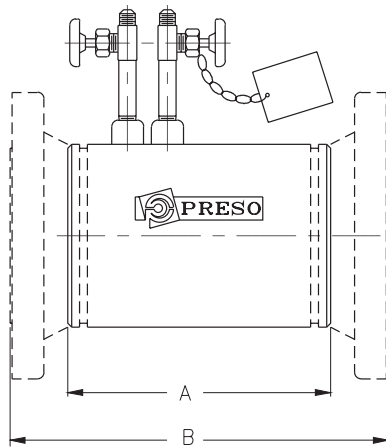
NOMINAL FLOW RATE G.P.M.	PIPE SIZE	BUTT-WELD			GROOVED			CLASS 150 FLANGES		
		OPTION NUMBER	"A" DIM.	FAIRBANKS NIJHUIS PART NUMBER	OPTION NUMBER	"A" DIM.	FAIRBANKS NIJHUIS PART NUMBER	OPTION NUMBER	"B" DIM.	FAIRBANKS NIJHUIS PART NUMBER
100	2.5	91MP	3	366-0377-649	91LN	4	366-0337-649	91PL	9.5	366-0244-649
150	3	91MR	3.5	366-0378-649	91LP	4.38	366-0338-649	91PM	9	366-0245-649
200	3	91MT	3.5	366-0379-649	91LR	4.38	366-0339-649	91PN	9	366-0246-649
	4	91MW	3.5	366-0380-649	91LT	5	366-0340-649	91PP	9.5	366-0247-649
250	4	91NA	3.5	366-0381-649	91M	3.75	366-0154-649	91PR	9.5	366-0248-649
	5	91ND	5	366-0384-649	91MB	5	366-0343-649	91RA	12	366-0251-649
300	4	91NB	3.5	366-0382-649	91LW	3.75	366-0341-649	91PT	9.5	366-0249-649
450	4	91NC	3.5	366-0383-649	91MA	3.75	366-0342-649	91PW	9.5	366-0250-649
	5	91NE	5	366-0385-649	91MC	5	366-0344-649	91RB	12	366-0252-649
500	5	91NF	5	366-0386-649	91N	5	366-0155-649	91RC	12	366-0253-649
	6	91NH	6	366-0388-649	91ME	6	366-0346-649	91RE	13	366-0255-649
750	5	91NG	5	366-0387-649	91MD	5	366-0345-649	91RD	12	366-0254-649
	6	91NJ	6	366-0389-649	91P	6	366-0156-649	91RF	13	366-0256-649
1000	6	91NK	6	366-0390-649	91R	6	366-0157-649	91RG	13	366-0257-649
	8	91NP	7	366-0392-649	91MF	7	366-0347-649	91RJ	15	366-0359-649
1250	6	91NL	6	366-0391-649	91T	6	366-0158-649	91RH	13	366-0258-649
	8	91NR	7	366-0393-649	91MG	7	366-0348-649	91RK	15	366-0360-649
1500	8	91NT	7	366-0394-649	91W	7	366-0159-649	91RL	15	366-0361-649
	10	91PC	8	366-0398-649	91MH	8	366-0349-649	91RR	16	366-0355-649
2000	8	91NW	7	366-0395-649	91AA	7	366-0160-649	91RM	15	366-0362-649
	10	91PD	8	366-0399-649	91MJ	8	366-0350-649	91RT	16	366-0366-649
2500	8	91PA	7	366-0396-649	91AB	7	366-0161-649	91RN	15	366-0363-649
	10	91PE	8	366-0400-649	91MK	8	366-0351-649	91RW	16	366-0367-649
3000	8	91PB	7	366-0397-649	91AC	7	366-0162-649	91RP	15	366-0364-649
	10	91PF	8	366-0401-649	91ML	8	366-0352-649	91TA	16	366-0368-649
3500	10	91PG	8	366-0402-649	91AD	8	366-0163-649	91TB	16	366-0369-649
	12	91PJ	12	366-0406-649	91MM	12	366-0355-649	91TD	21	366-0373-649
4000	10	91PH	8	366-0403-649	91AE	8	366-0164-649	91TC	16	366-0370-649
	12	91PK	12	366-0407-649	91MN	12	366-0356-649	91TE	21	366-0374-649

## OPTION 91 - FLOW METERING SYSTEM

Date **August 2018**

Supersedes Section 916 Page 211

Dated April 2006



**NOTES:**

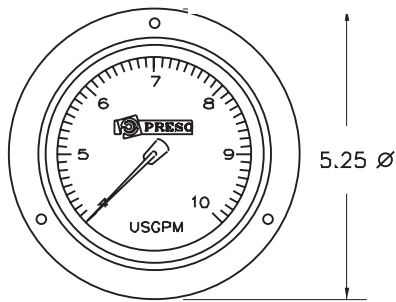
1. Accuracy is approximately  $\pm 2.5\%$ .
2. Flow meter is Preso Type "CV" fabricated steel rated for 250 PSI.
3. Proper operation requires that minimum distances of straight pipe runs be maintained both upstream and downstream from flowmeter. Refer to manufacturer's instructions before attempting installation.
4. Meter range is 50% to 200% of nominal rated flow. Dial is direct reading in G.P.M. for the specified range.

### PRESO VENTURI FLOW METERS

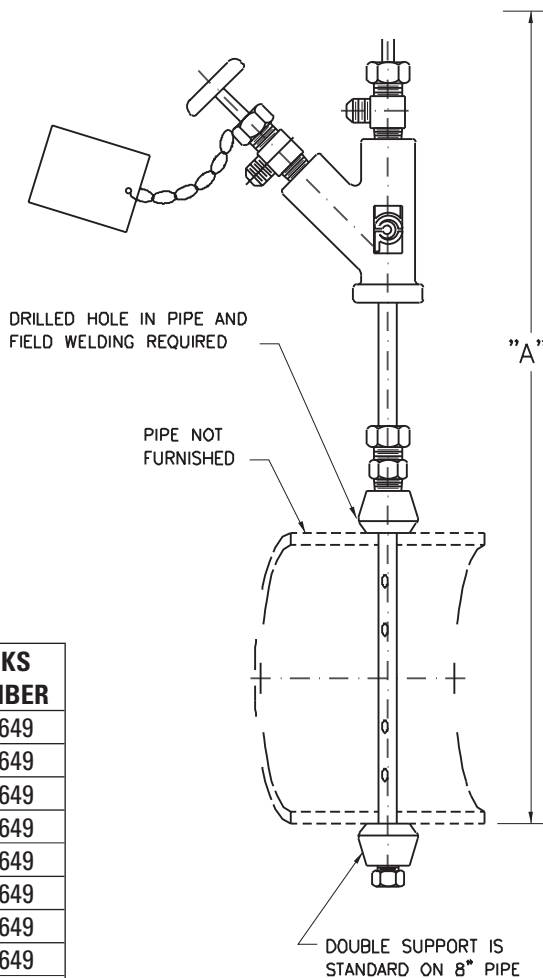
NOMINAL FLOW RATE G.P.M.	PIPE SIZE	BUTT-WELD ENDS			GROOVED ENDS		CLASS 125 FLANGES		
		"A" DIM	OPTION NUMBER	FAIRBANKS NIJHUIS PART NUMBER	OPTION NUMBER	FAIRBANKS NIJHUIS PART NUMBER	"B" DIM	OPTION NUMBER	FAIRBANKS NIJHUIS PART NUMBER
100	2.5	6	91AAN	366-0416-649	91AW	366-0435-649	11.50	91ABR	366-0465-649
150	3	6	91AAP	366-0417-649	91BA	366-0436-649	11.50	91ABT	366-0466-649
200	3	6	91AAR	366-0418-649	91BB	366-0437-649	11.50	91ABW	366-0467-649
250	3.5	6	91AAT	366-0419-649	91BC	366-0438-649	11.63	91ACA	366-0468-649
	4	7	91AAB	366-0177-649	91BD	366-0439-649	13.00	91ACB	366-0469-649
300	4	7	91AAW	366-0420-649	91BE	366-0440-649	13.00	91ACC	366-0470-649
400	4	7	91ABA	366-0421-649	91BF	366-0441-649	13.00	91ACD	366-0471-649
450	4	7	91ABB	366-0422-649	91BG	366-0442-649	13.00	91ACE	366-0472-649
	5	8	91ABC	366-0423-649	91BH	366-0443-649	15.50	91ACF	366-0473-649
500	5	8.5	91AAC	366-0178-649	91BJ	366-0444-649	15.50	91ACG	366-0474-649
750	5	8.5	91AAD	366-0179-649	91BK	366-0445-649	15.50	91ACH	366-0475-649
	6	9.5	91ABD	366-0424-649	91TW	366-0446-649	16.50	91ACJ	366-0476-649
1000	6	9.5	91AAE	366-0180-649	91WA	366-0447-649	16.50	91ACK	366-0477-649
	8	13.5	91ABE	366-0425-649	91WC	366-0449-649	21.50	91ACM	366-0479-649
1250	6	9.5	91AAF	366-0181-649	91WB	366-0448-649	16.50	91ACL	366-0478-649
	8	13.5	91ABF	366-0426-649	91WD	366-0450-649	21.50	91ACN	366-0480-649
1500	8	13.5	91AAG	366-0182-649	91WE	366-0451-649	21.50	91ACP	366-0481-649
	10	16	91ABG	366-0427-649	91WH	366-0454-649	24.00	91ACW	366-0484-649
2000	8	13.5	91AAH	366-0183-649	91WF	366-0452-649	21.50	91ACR	366-0482-649
	10	16	91ABH	366-0428-649	91WJ	366-0455-649	24.00	91ADA	366-0485-649
2500	8	13.5	91AAJ	366-0184-649	91WG	366-0453-649	21.50	91ACT	366-0483-649
	10	16	91ABJ	366-0429-649	91WK	366-0456-649	24.00	91ADB	366-0486-649
3000	12	17.25	91ABL	366-0431-649	91WN	366-0459-649	26.25	91ADE	366-0489-649
	10	16	91AAK	366-0185-649	91WL	366-0457-649	24.00	91ADC	366-0487-649
3500	12	17.25	91ABM	366-0432-649	91WP	366-0460-649	26.25	91ADF	366-0490-649
	10	16	91ABK	366-0430-649	91WM	366-0458-649	24.00	91ADD	366-0488-649
4000	12	17.25	91AAL	366-0186-649	91WR	366-0461-649	26.25	91ADG	366-0491-649
	14	19.25	91ABN	366-0433-649	91WW	366-0463-649	29.25	91ADJ	366-0493-649
4000	12	17.25	91AAM	366-0187-649	91WT	366-0462-649	26.25	91ADH	366-0492-649
	14	19.25	91ABP	366-0434-649	91AAA	366-0464-649	29.25	91ADK	366-0494-649

**FAIRBANKS NIJHUIS™ FIRE PUMPS**

**OPTION 91 - FLOW METERING SYSTEM**



5.25 Ø

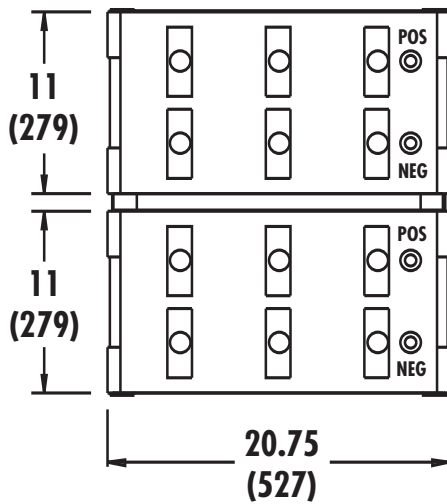


**PRESO ANNULAR FLOW METERS**

NOMINAL FLOW RATE G.P.M.	PIPE SIZE	OPTION NUMBER	"A" DIM.	FAIRBANKS PART NUMBER
100	2.5	91ADL	11	366-0658-649
150	3	91ADM	11.5	366-0659-649
200	3	91ADN	11.5	366-0660-649
250	3.5	91AF	12	366-0166-649
	4	91ADP	12.5	366-0661-649
300	4	91ADR	12.5	366-0662-649
400	4	91ADT	12.5	366-0663-649
450	4	91ADW	12.5	366-0664-649
	5	91AEA	14	366-0665-649
500	5	91AG	14	366-0167-649
750	5	91AH	14	366-0168-649
	6	91TF	15	366-0233-649
1000	6	91AJ	15	366-0169-649
	8	91TG	17	366-0234-649
1250	6	91AK	15	366-0170-649
	8	91TH	17	366-0235-649
1500	8	91AL	17	366-0171-649
	10	91TJ	19-1/8	366-0236-649
2000	8	91AM	17	366-0172-649
	10	91TK	19-1/8	366-0237-649
2500	8	91AN	17	366-0173-649
	10	91TL	19-1/8	366-0238-649
	12	91TM	22-1/8	366-0239-649
3000	10	91AP	19-1/8	366-0174-649
	12	91TN	22-1/8	366-0240-649
3500	10	91AR	19-1/8	366-0175-649
	12	91TP	22-1/8	366-0241-649
	14	91TR	24-7/8	366-0242-649
4000	12	91AT	22-1/8	366-0176-649
	14	91TT	24-7/8	366-0243-649

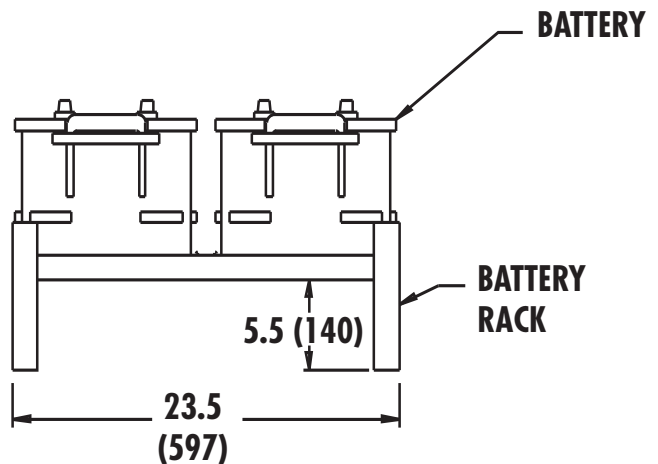
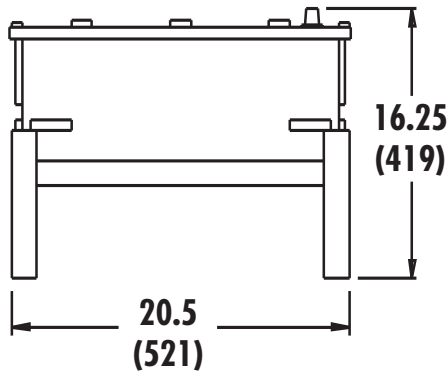
**NOTES:**

1. Accuracy is approximately ± 2.5% of full scale.
2. Flow meter is Preso Model PFB annubar type rated for 250 PSI.
3. Proper operation requires that minimum distances of straight pipe runs be maintained both upstream and downstream from flowmeter. Refer to manufacturer's instructions before attempting installation.
4. Meter range is 50% to 200% of nominal rated flow. Dial is direct-reading in G.P.M. for the specified range.



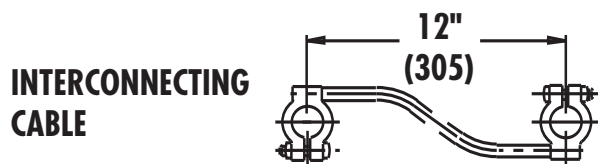
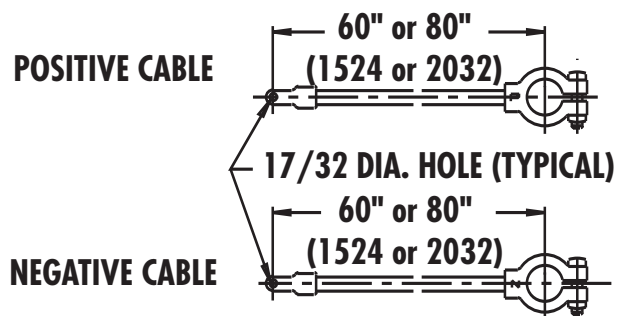
**NOTES:**

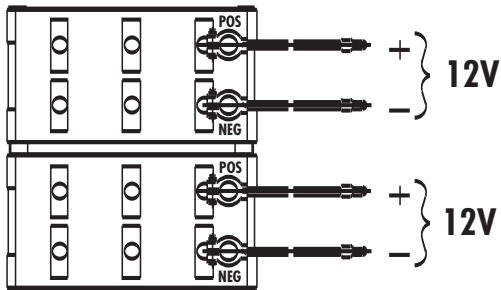
1. Dimensions are in inches (mm) and may vary  $\pm 1/4"$  (6).
2. Batteries are 12 volt, lead-acid type D-8D, approximately 95 lbs. each, dry.
3. Batteries are shipped dry. Electrolyte (approx. 19 quarts per battery) must be procured locally.
4. Refer to Section 916 page 252 for exact number of batteries & cables to be furnished based on the diesel engine manufacturer and model used.
5. Battery racks are fabricated steel, approximately 20 lbs. each.
6. Each rack holds 2 batteries. Racks are not to be stacked.



**NOTES:**

1. All cables are SAE J55BA type SGT with tensile attachment of 700-800 lbs.
2. Positive & negative cables 60" (1524) long are 2/0 gauge; positive & negative cables 80" (2032) long are 3/0 gauge.
3. Terminal clamps have steel reinforced inserts.
4. Not all cable types are required for every engine. Refer to Section 916 page 252 for cable applicability.



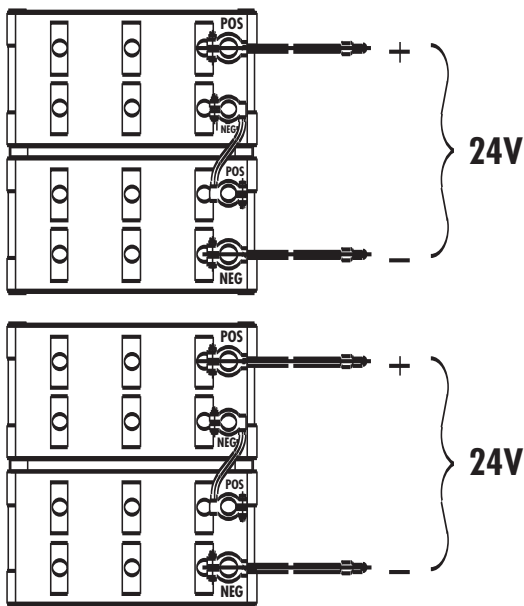


□ 12 VOLT SYSTEM

REQUIRED COMPONENTS	ENGINE APPLICABILITY
(1) BATTERY RACK (2) BATTERIES (2) POSITIVE CABLES (2) NEGATIVE CABLES	CUMMINS: ALL "CFP" MODELS  CLARKE: ALL "JU4H" MODELS ALL "JU64" MODELS ALL "JW6H" MODELS  EDWARDS: ALL MODELS

NOTES:

1. Clarke "VMFP," "JU4H" & "JU6H" Engines require cable sets of different lengths. On these engine models, a 2/0 guage positive and negative cable set 60" (1524 mm) long, and a 3/0 guage positive and negative cable set 80" (2032 mm) long are furnished.
2. Refer to Section 916, Page 251 for details of batteries, racks and cables.



□ 24 VOLT SYSTEM

REQUIRED COMPONENTS	ENGINE APPLICABILITY
(2) BATTERY RACKS (4) BATTERIES (2) POSITIVE CABLES (2) NEGATIVE CABLES (2) INTERCONNECTING CABLES	CLARKE: ALL "JX6H" MODELS  CATERPILLAR: ALL MODELS

# FAIRBANKS NIJHUIS® FIRE PUMPS

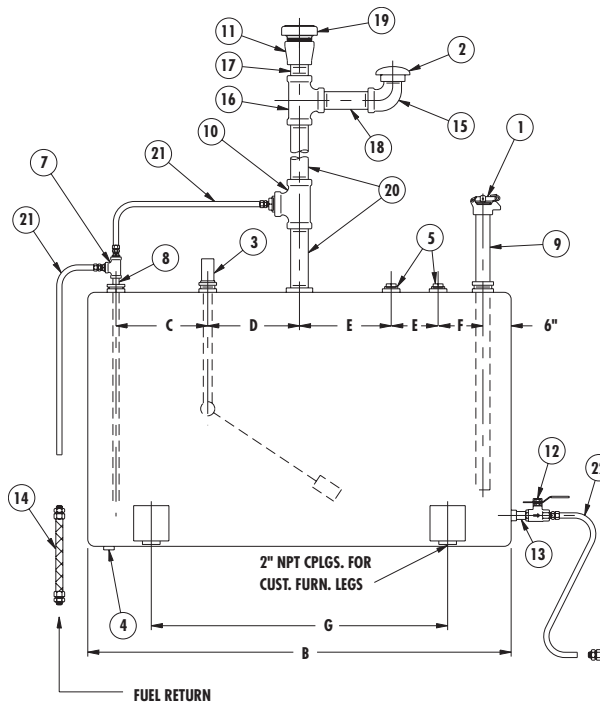
## SINGLE WALL FUEL TANKS WITH STANDARD FITTINGS

Section 916 Page 255

Date June 2018

Supersedes Section 916 Page 255

Dated June 2010



### DIESEL FUEL TANKS:

1. Tanks are constructed and labeled in accordance with UL-142.
2. Fittings shown are consistent with N.F.P.A. 30 and UL-142.
3. Tank to be pitched toward drain 1/4" per foot with outlet on the same elevation as engine fuel pump. Means of elevating tank (by others) may be required.
4. Usable tank volume is total capacity less 5% for sump and 5% for expansion.

NOMINAL TANK SIZE IN GALLONS	USABLE VOLUME IN GALLONS	A	B	C	D	E	F	G	H	L	Z
119	105	24 (609)	61 (1548)	6 (152)	6 (152)	6 (152)	12 (304)	37 (939)	14 (355)	3 (76)	2
187	165	30 (761)	61 (1548)	6 (152)	6 (152)	6 (152)	12 (304)	37 (939)	16 (406)	3 (76)	2
300	270	38 (964)	61 (1548)	6 (152)	6 (152)	6 (152)	13 (330)	37 (939)	23 (584)	3-3/4 (95)	2
359	320	36 (914)	73 (1853)	6 (152)	6 (152)	6 (152)	18 (457)	44 (1117)	23 (584)	3-3/4 (95)	2
572	515	48 (1218)	73 (1853)	6 (152)	6 (152)	6 (152)	19 (483)	44 (1117)	30 (761)	4-3/4 (121)	2
849	766	64 (1626)	61 (1548)	6 (152)	6 (152)	6 (152)	24 (610)	44 (1117)	30 (761)	4-3/4 (121)	3
1100	993	64 (1626)	79 (2007)	6 (152)	6 (152)	6 (152)	31 (787)	44 (1117)	30 (761)	4-3/4 (121)	4

COMPONENTS FURNISHED BY FAIRBANKS NIJHUIS PUMP		
ITEM NO.	QTY. REQ'D	DESCRIPTION
1	1	2" NPT Lockable Fuel Cap
2	1	2" Screened Tank Vent
3	1	Fuel Gauge 1-1/2" NPT
4	1	1" NPT Drain Plug
5	1	2" NPT Pipe Plug
7	1	1/2" Tee
8	1	1/2" Close Nipple
9	1	2" Fuel Fill Pipe
10	1	"Z" x "Z" x 2" Tee
11	1	"Z" Coupling
12	1	3/4" NPT Lockable Fuel Valve
13	1	3/4" Close Nipple
14	2	Fuel Hoses for Supply & Return (Furnished by Engine Mfr.)
15	1	2" Street Elbow
16	1	"Z" x "Z" x 2" Tee
17	1	"Z" Close Nipple
18	1	2" x 6" Nipple
19	1	"Z" Emergency Vent

COMPONENTS FURNISHED BY OTHERS		
ITEM NO.	QTY. REQ'D	DESCRIPTION
20	1	"Z" Diameter Piping for Vent
21	1	1/2" Tubing and Fittings or 1/2" Black Pipe
22	1	3/4" Tubing and Fittings or 3/4" Black Pipe

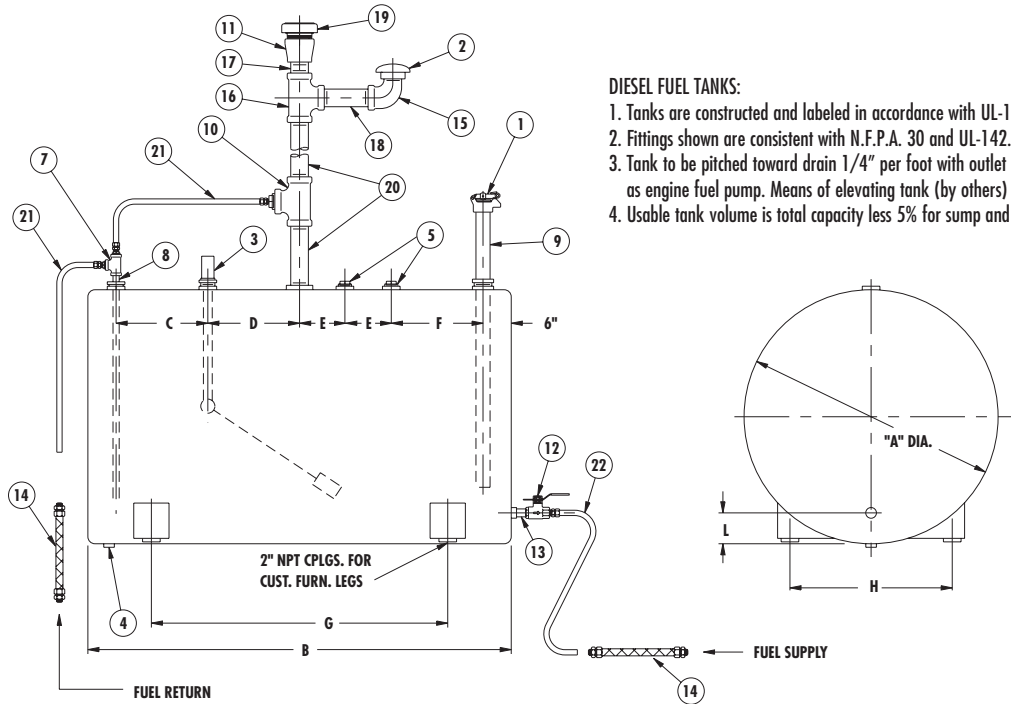
### NOTES

1. All dimensions are in inches and may vary  $\pm 1/4"$ .
2. Components shown are shipped loose for field assembly.
3. Illustration is for component identification only. Actual installation must meet local codes and all applicable standards.
4. Item 10 may consist of a combination of fittings.
5. Refer to Section 916 page 259 for details of Fairbanks Nijhuis-furnished components.
6. Items 11 & 17 not required for 515 gallon tanks.



PENTAIR

FAIRBANKS NIJHUIS™



**DIESEL FUEL TANKS:**

1. Tanks are constructed and labeled in accordance with UL-142.
2. Fittings shown are consistent with N.F.P.A. 30 and UL-142.
3. Tank to be pitched toward drain 1/4" per foot with outlet on the same elevation as engine fuel pump. Means of elevating tank (by others) may be required.
4. Usable tank volume is total capacity less 5% for sump and 5% for expansion.

NOMINAL TANK SIZE IN GALLONS	USABLE VOLUME IN GALLONS	A	B	C	D	E	F	G	H	L	Z
119	105	24 (609)	61 (1548)	6 (152)	6 (152)	6 (152)	12 (304)	37 (939)	14 (355)	3 (76)	4
187	165	30 (761)	61 (1548)	6 (152)	6 (152)	6 (152)	12 (304)	37 (939)	16 (406)	3 (76)	4
300	270	38 (964)	61 (1548)	6 (152)	6 (152)	6 (152)	13 (330)	37 (939)	23 (584)	3-3/4 (95)	4
359	320	36 (914)	73 (1853)	6 (152)	6 (152)	6 (152)	18 (457)	44 (1117)	23 (584)	3-3/4 (95)	4
572	515	48 (1218)	73 (1853)	6 (152)	6 (152)	6 (152)	19 (483)	44 (1117)	30 (761)	4-3/4 (121)	4
849	766	64 (1626)	61 (1548)	6 (152)	6 (152)	6 (152)	24 (610)	44 (1117)	30 (761)	4-3/4 (121)	4
1100	993	64 (1626)	79 (2007)	6 (152)	6 (152)	6 (152)	31 (787)	44 (1117)	30 (761)	4-3/4 (121)	4

COMPONENTS FURNISHED BY OTHERS		
ITEM NO.	QTY. REQ'D	DESCRIPTION
20	1	"Z" Diameter Piping for Vent
21	1	1/2" Tubing and Fittings or 1/2" Black Pipe
22	1	3/4" Tubing and Fittings or 3/4" Black Pipe

COMPONENTS FURNISHED BY Fairbanks Nijhuis PUMP		
ITEM NO.	QTY. REQ'D	DESCRIPTION
1	1	2" NPT Lockable Fuel Cap
2	1	2" Screened Tank Vent
3	1	Fuel Gauge 1-1/2" NPT
4	1	1" NPT Drain Plug
5	1	2" NPT Pipe Plug
7	1	1/2" Tee
8	1	1/2" Close Nipple
9	1	2" Fuel Fill Pipe
10	1	"Z" x "Z" x 2" Tee
11	1	"Z" Coupling
12	1	3/4" NPT Lockable Fuel Valve
13	1	3/4" Close Nipple
14	2	Fuel Hoses for Supply & Return (Furnished by Engine Mfr.)
15	1	2" Street Elbow
16	1	"Z" x "Z" x 2" Tee
17	1	"Z" Close Nipple
18	1	2" x 6" Nipple
19	1	"Z" Emergency Vent

**NOTES**

1. All dimensions are in inches and may vary ± 1/4".
2. Components shown are shipped loose for field assembly.
3. Illustration is for component identification only. Actual installation must meet local codes and all applicable standards.
4. Item 10 may consist of a combination of fittings.
5. Refer to Section 916 page 259 for details of Fairbanks Nijhuis-furnished components.
6. Items 11 & 17 not required for 515 gallon tanks.



# FAIRBANKS NIJHUIS® FIRE PUMPS

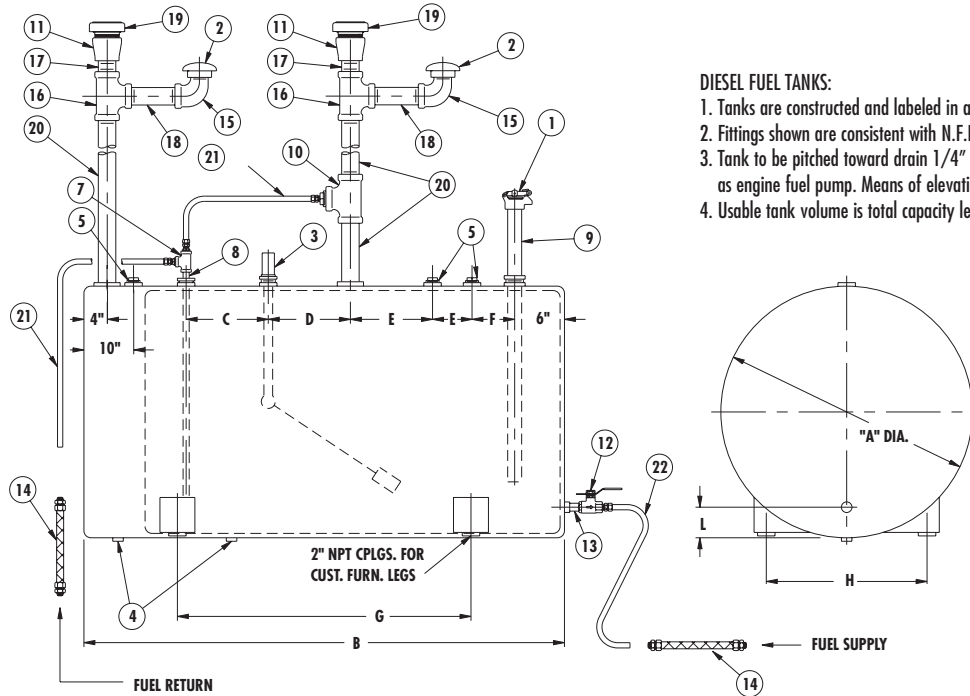
## DOUBLE WALL FUEL TANKS WITH STANDARD FITTINGS

Section 916 Page 257

Date June 2018

Supersedes Section 916 Page 257

Dated September 2014



### DIESEL FUEL TANKS:

1. Tanks are constructed and labeled in accordance with UL-142.
2. Fittings shown are consistent with N.F.P.A. 30 and UL-142.
3. Tank to be pitched toward drain 1/4" per foot with outlet on the same elevation as engine fuel pump. Means of elevating tank (by others) may be required.
4. Usable tank volume is total capacity less 5% for sump and 5% for expansion.

NOMINAL TANK SIZE IN GALLONS	USABLE VOLUME IN GALLONS	A	B	C	D	E	F	G	H	L	Z
119	105	24.5 (622)	73 (1853)	6 (152)	6 (152)	6 (152)	12 (304)	44 (1118)	14 (355)	3 (76)	2
187	165	31 (787)	73 (1853)	6 (152)	6 (152)	6 (152)	12 (304)	44 (1118)	16 (406)	3 (76)	2
300	270	39 (990)	73 (1853)	6 (152)	6 (152)	6 (152)	13 (330)	44 (1118)	22-7/8 (581)	3-3/4 (95)	2
359	320	41 (1041)	73 (1853)	6 (152)	6 (152)	6 (152)	18 (457)	44 (1118)	22-7/8 (581)	4 (102)	2
572	515	51 (1294)	73 (1853)	6 (152)	6 (152)	6 (152)	19 (483)	44 (1118)	30 (761)	5 (127)	2
849	766	65 (1651)	72 (1829)	6 (152)	6 (152)	6 (152)	24 (610)	44 (1118)	30 (761)	4-3/4 (121)	3
1100	993	65 (1651)	84 (2134)	6 (152)	6 (152)	6 (152)	31 (787)	44 (1118)	30 (761)	4-3/4 (121)	4

COMPONENTS FURNISHED BY FAIRBANKS NIJHUIS PUMP		
ITEM NO.	QTY. REQ'D	DESCRIPTION
1	1	2" NPT Lockable Fuel Cap
2	2	2" Screened Tank Vent
3	1	Fuel Gauge 1-1/2" NPT
4	2	1" NPT Drain Plug
5	2	2" NPT Pipe Plug
7	1	1/2" Tee
8	1	1/2" Close Nipple
9	1	2" Fuel Fill Pipe
10	1	"Z" x "Z" x 2" Tee
11	2	"Z" Coupling
12	1	3/4" NPT Lockable Fuel Valve
13	1	3/4" Close Nipple
14	2	Fuel Hoses for Supply & Return (Furnished by Engine Mfr.)
15	2	2" Street Elbow
16	2	"Z" x "Z" x 2" Tee
17	2	"Z" Close Nipple
18	2	2" Nipple
19	2	"Z" Emergency Vent

COMPONENTS FURNISHED BY OTHERS*		
ITEM NO.	QTY. REQ'D	DESCRIPTION
20	2	"Z" Diameter Piping for Vent
21	1	1/2" Black Pipe
22	1	3/4" Black Pipe

### NOTES

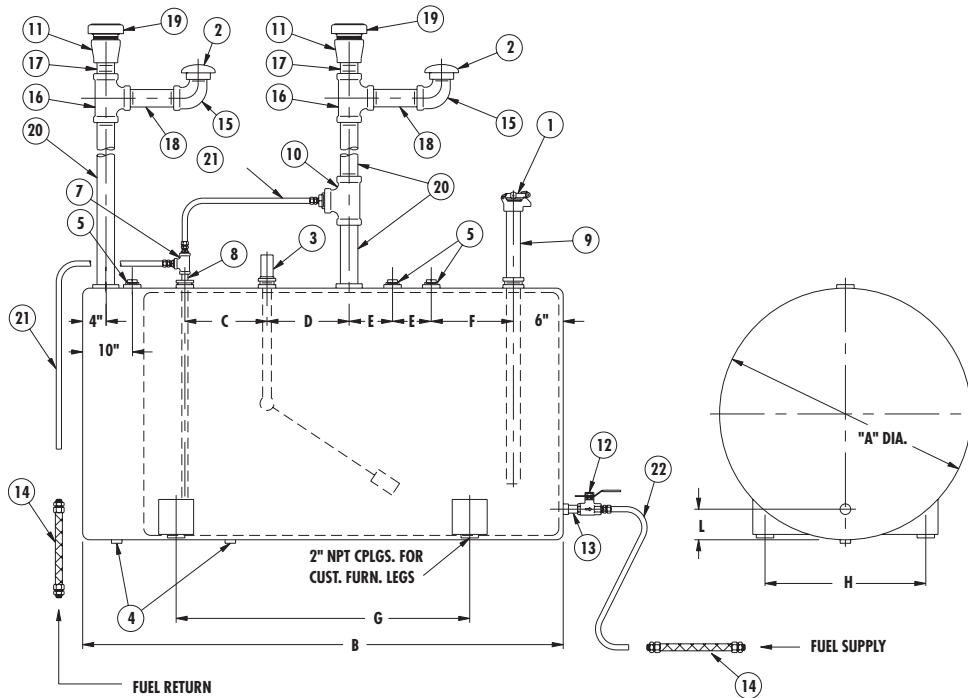
1. All dimensions are in inches (mm) and may vary  $\pm 1/4"$ .
2. Components shown are shipped loose for field assembly.
3. Illustration is for component identification only. Actual installation must meet local codes and all applicable standards.
4. Item 10 may consist of a combination of fittings.
5. Refer to Section 916 page 259 for details of Fairbanks Nijhuis-furnished components.
6. Items 11 & 17 not required for 515 gallon tanks.

\*Included with fire pump package systems.



PENTAIR

FAIRBANKS NIJHUIS™



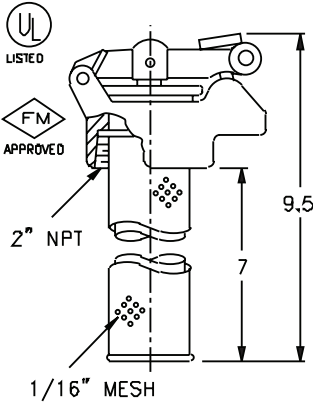
NOMINAL TANK SIZE IN GALLONS	USABLE VOLUME IN GALLONS	A	B	C	D	E	F	G	H	L	Z
119	105	24.5 (622)	73 (1853)	6 (152)	6 (152)	6 (152)	12 (304)	44 (1118)	14 (355)	3 (76)	4
187	165	31 (787)	73 (1853)	6 (152)	6 (152)	6 (152)	12 (304)	44 (1118)	16 (406)	3 (76)	4
300	270	39 (990)	73 (1853)	6 (152)	6 (152)	6 (152)	13 (330)	44 (1118)	22-7/8 (581)	3-3/4 (95)	4
359	320	41 (1041)	73 (1853)	6 (152)	6 (152)	6 (152)	18 (457)	44 (1118)	22-7/8 (581)	4 (102)	4
572	515	51 (1294)	73 (1853)	6 (152)	6 (152)	6 (152)	19 (483)	44 (1118)	30 (761)	5 (127)	4
849	766	65 (1651)	72 (1829)	6 (152)	6 (152)	6 (152)	24 (610)	44 (1118)	30 (761)	4-3/4 (121)	4
1100	993	65 (1651)	84 (2134)	6 (152)	6 (152)	6 (152)	31 (787)	44 (1118)	30 (761)	4-3/4 (121)	4

COMPONENTS FURNISHED BY OTHERS*		
ITEM NO.	QTY. REQ'D	DESCRIPTION
20	2	"Z" Diameter Piping for Vent
21	1	1/2" Black Pipe
22	1	3/4" Black Pipe

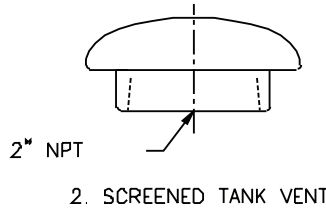
COMPONENTS FURNISHED BY FAIRBANKS NIJHUIS PUMP		
ITEM NO.	QTY. REQ'D	DESCRIPTION
1	1	2" NPT Lockable Fuel Cap
2	2	2" Screened Tank Vent
3	1	Fuel Gauge 1-1/2" NPT
4	2	1" NPT Drain Plug
5	2	2" NPT Pipe Plug
7	1	1/2" Tee
8	1	1/2" Close Nipple
9	1	2" Fuel Fill Pipe
10	1	"Z" x "Z" x 2" Tee
11	2	"Z" Coupling
12	1	3/4" NPT Lockable Fuel Valve
13	1	3/4" Close Nipple
14	2	Fuel Hoses for Supply & Return (Furnished by Engine Mfr.)
15	2	2" Street Elbow
16	2	"Z" x "Z" x 2" Tee
17	2	"Z" Close Nipple
18	2	2" Nipple
19	2	"Z" Emergency Vent

NOTES

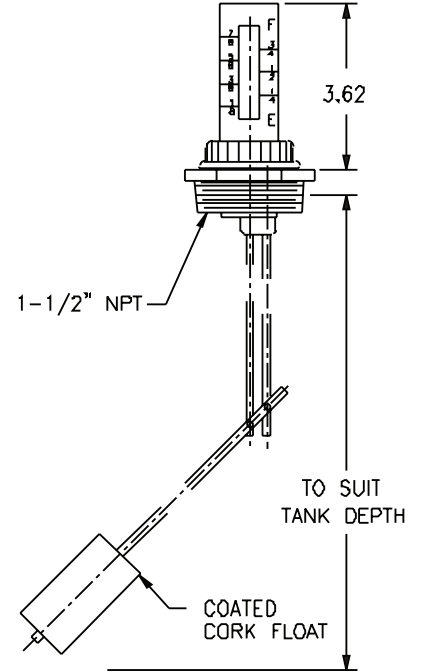
1. All dimensions are in inches (mm) and may vary  $\pm 1/4"$ .
2. Components shown are shipped loose for field assembly.
3. Illustration is for component identification only. Actual installation must meet local codes and all applicable standards.
4. Item 10 may consist of a combination of fittings.
5. Refer to Section 916 page 259 for details of Fairbanks Nijhuis-furnished components.
6. Items 11 & 17 not required for 515 gallon tanks.



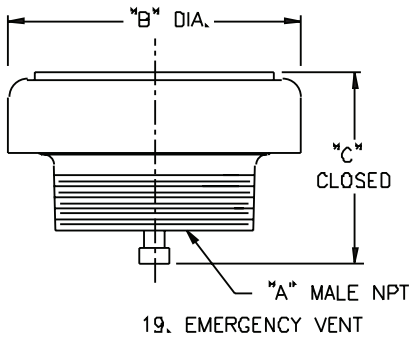
1. LOCKABLE FUEL CAP



2. SCREENED TANK VENT

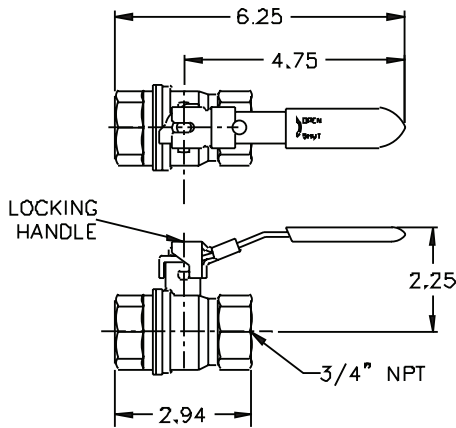


3. FUEL GAUGE

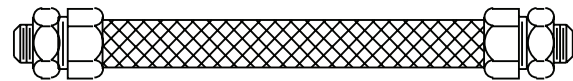


19. EMERGENCY VENT

A	B	C
2"	2.50	3.00
3"	4.35	3.25
4"	5.72	3.25



12. LOCKABLE FUEL VALVE



14. FLAME RESISTANT FLEXIBLE FUEL HOSE  
(2) FURNISHED BY ENGINE MANUFACTURER  
FOR SUPPLY AND RETURN LINES

**NOTES**

1. All dimensions are in inches and may vary  $\pm 1/4"$ .
2. Components shown are shipped loose for field assembly.
3. Illustration is for component identification only. Actual installation must meet local codes and all applicable standards.
4. Refer to Section 916 pages 255 through 258 for the location and applicability of each component shown above

**FAIRBANKS NIJHUIS FIRE  
PUMPS**

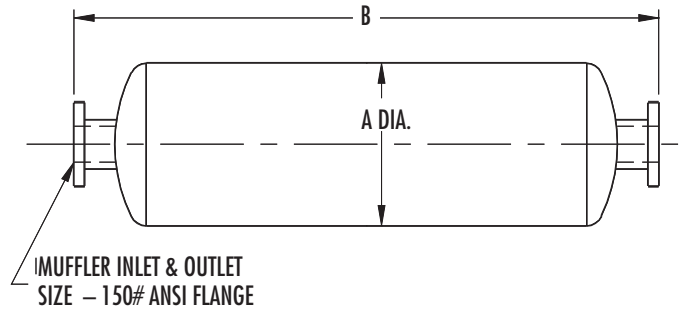
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**DIESEL ENGINE MUFFLERS**

Date **July 2012**

Supersedes Section 916 Page 261

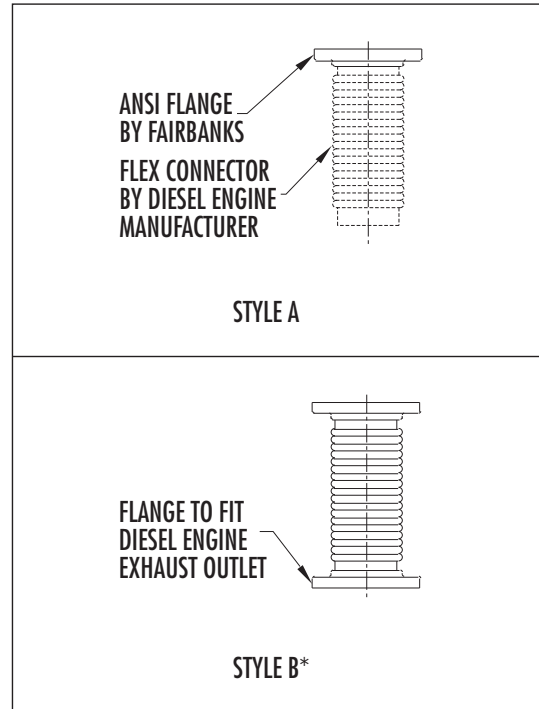
Dated August 2011



ENGINE MODEL	MUFFLER INLET & OUTLET	COMMERCIAL GRADE			RESIDENTIAL GRADE			CRITICAL GRADE		
		A	B	WGT	A	B	WGT	A	B	WGT
<b>CATERPILLAR</b>										
3406C	6" FLANGED	12	42	35	12	54	43	16	73	131
3412C*, 3508C, C18*	8" FLANGED	18	49	110	18	61	124	20	75	220
<b>CLARKE FIRE PROTECTION</b>										
JU4H-UF10, -UF12, -UF14, -UF20, -UF22, -UF24, -UFAB26, -UFAEAO, -UFAEE8, -UFAEF2, -UFADJ2, -UFADJ8	3" NPT	8	36	19	8	42	21	10	42	42
JU4R-UF09, -UF11, -UF13, -UF19, -UF21, -UF23, -UFAEA9, -UFAEE7, -UFAEF1	3" NPT	8	36	19	8	42	21	10	42	42
JU4H-UF30, -UF32, -UF34, -UF40, -UF42, -UF 50, -UF52, -UF54, -UF58, -UFADJG, -UFADPO, -UFADRO, -UFADW8, -UFADY8, -UFAD5G	4" FLANGED	10	36	24	10	46	29	12	55	68
JU4R-UF40, -UF49, UF51 -UF53	4" FLANGED	10	36	24	10	46	29	12	55	68
JU6H-UF30, -UF32, -UF34, -UF 50, -UF52, -UF54, -UF58, -UF60, -UF62, -UF62, -UF68, -UF84, -UFAAPG, -UFAAQ8, -UFAARG, -UFAASO, -UFAB76, -UFABLO, -UFABL8, -UFDO, -UFD2, -UFG8, -UFMO, -UFM2, -UFM8, -UFAD58, -UFAD88, -UFADMO, -UFADM8, -UFADNO, -UFADNG, -UFADP8	5" FLANGED	10	42	27	10	54	34	14	61	92
DP6H SERIES	5" FLANGED	10	42	27	10	54	34	14	61	92
JW6H-UF30, -UF40, UF48	5" FLANGED	10	42	27	10	54	34	14	61	92
DSOH SERIES*	5" FLANGED	10	42	27	10	54	34	14	61	92
DR8H SERIES*	5" FLANGED	10	42	27	10	54	34	14	61	92
JW6H-UF50, -UF58, -UF60, -UF8, -UFAAM8, -UFAA80, -UFADDO, -UFADBO, -UFADFO, -UFADJO, -FAD70, -UFAD80	6" FLANGED	12	42	35	12	54	43	16	73	131
JU6H-UFAD98, -UFADPO, -UFADQO, -UFADRO, -UFADR8, -UFADSO, -UFADS8, -FADTO, -UFADW8 -UFADX8	6" FLANGED	12	42	35	12	54	43	16	73	131
DQ6H SERIES	6" FLANGED	12	42	35	12	54	43	16	73	131
DT2H SERIES*	6" FLANGED	12	42	35	12	54	43	16	73	131
JX6H SERIES	8" FLANGED	18	49	110	18	61	124	20	75	220
<b>CUMMINS</b>										
CFP5E, CFP59, CFP7E Series	4" NPT, FLANGED	10	36	24	10	46	29	12	55	68
CFP83 Series	4" NPT, FLANGED	10	36	24	10	46	29	12	55	68
CFP9E Series	5" NPT, FLANGED	10	42	27	10	54	34	14	61	92
CFP11E Series	5" NPT, FLANGED	10	42	27	10	54	34	14	61	92
CFP15E Series	6" FLANGED	12	42	35	12	54	43	16	73	131
CFP23E Series	8" NPT, FLANGED	18	49	110	18	61	124	20	75	220
CFP30E Series	10" NPT, FLANGED	22	64	205	22	75	220	28	99	360
<b>DEUTZ</b>										
DFP4-2011 Series	3" NPT	8	36	19	8	42	21	10	42	42
DFP4-2012 Series	4" FLANGED	10	36	24	10	46	29	12	55	68
DFP6 Series	6" FLANGED	12	42	35	12	54	43	16	73	131



ENGINE MODEL	MUFFLER CONNECTION SIZE	FLEX CONNECTOR STYLE
<b>CATERPILLAR</b>		
3406C	6" FLANGED	B
3412C*, 3508C, C18*	8" FLANGED	B
<b>CLARKE FIRE PROTECTION</b>		
JU4H-UF10, -UF12, -UF14, -UF20, -UF22, -UF24, -UFAB26, -UFAEAO, -UFAEE8, -UFAEF2, -UFADJ2, -UFADJ8	3" NPT	A
JU4R-UF09, -UF11, -UF13, -UF19, -UF21, -UF23, -UFAEA9, -UFAEE7, -UFAEF1		
JU4H-UF30, -UF32, -UF34, -UF40, -UF42, -UF50, -UF52, -UF54, -UF58, -UFADJG, -UFADPO, -UFADRO, -UFADW8, -UFADY8, -UFAD5G	4" FLANGED	A
JU4R-UF40, -UF49, UF51 -UF53		
JU6H-UF30, -UF32, -UF34, -UF50, -UF52, -UF54, -UF58, -UF60, -UF62, -UF62, -UF68, -UF84, -UFAAPG, -UFAAQ8, -UFAARG, -UFAASO, -UFAB76, -UFABLO, -UFABL8, -UFDO, -UFD2, -UFG8, -UFMO, -UFM2, -UFM8, -UFAD58, -UFAD88, -UFADMO, -UFADM8, -UFADNO, -UFADNG, -UFADP8	5" FLANGED	B
DP6H SERIES		
JW6H-UF30, -UF40, UF48		
DSOH SERIES*		
DR8H SERIES*		
JW6H-UF50, -UF58, -UF60, -UF8, -UFAAM8, -UFAA80, -UFADDO, -UFAD80, -UFADFO, -UFADJO, -FAD70, -UFAD80	6" FLANGED	B
JU6H-UFAD98, -UFADPO, -UFADQO, -UFADRO, -UFADR8, -UFADSO, -UFADS8, -FADTO, -UFADW8 -UFADX8		
DQ6H SERIES		
DT2H SERIES*		
JX6H SERIES		
<b>CUMMINS</b>		
CFP5E, CFP59, CFP7E Series	3" NPT, FLANGED, CUFF	A, B
CFP83 Series	4" NPT, FLANGED, CUFF	A, B
CFP9E Series	4" NPT, FLANGED, CUFF	A, B
CFP11E Series	5" NPT, FLANGED, CUFF	A, B
CFP15E Series	6" FLANGED	B
CFP23E Series	6" FLANGED	B
CFP30E Series	6" FLANGED	B
<b>DEUTZ</b>		
DFF4-2011 Series	3" NPT	A
DFF4-2012 Series	4" FLANGED	B
DFF6 Series	6" FLANGED	B



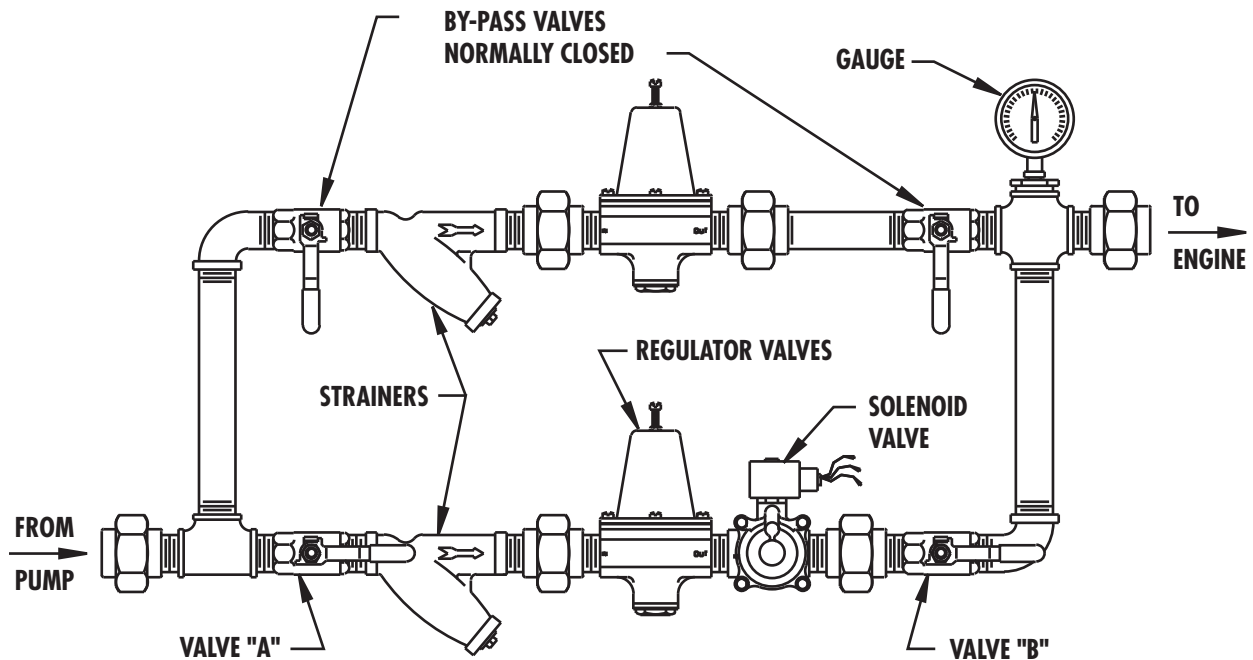
\*FLANGED FLEX CONNECTOR PROVIDED BY DIESEL ENGINE MANUFACTURER. NO ADDITIONAL FLEX CONNECTOR OR ADAPTOR FITTING IS REQUIRED OR PROVIDED BY FAIRBANKS NIJHUIS™.

**DIESEL ENGINE DRIVEN FIRE PUMP  
COOLING WATER PIPING DATA**

Date **April 2006**

Supersedes Section 916 Page 301

Dated January 1997



This instructional data explains the installation and operation of the cooling system for UL listed, FM approved Fire Pump engines equipped with heat exchangers.

Engines equipped with heat exchangers use an engine mounted water pump to circulate jacket water around the tubes of the heat exchanger to maintain proper jacket water temperatures. Cooling water, supplied by the Fire Pump, is piped through the tubes and discharged to waste.

**REQUIREMENTS**

The loop portion of the cooling water supply piping, shown above, incorporates all components required by NFPA and is sized to provide the required volume of water at the proper pressure for the heat exchangers of the engine models listed in Table A.

Model 1800 & 1900 pumps are shipped from the plant with the loop piped between the pump and engine. The pipe and loop sizes are determined by the engine model.

**COMPONENTS**

1. A flushing type strainer is used to protect the regulator valve, solenoid valve and the tubes of the heat exchanger from foreign material.
2. The regulator valve is used to control the volume and pressure of the cooling water.
3. The solenoid valve opens automatically when the engine is started and closes automatically on engine

shutdown to prevent the waste of cooling water. (One red wire must be connected to terminal #1 of the engine junction box, the other red wire to terminal #11 of the engine junction box, and the green wire grounded to the engine block. Refer to applicable wiring diagrams.)

4. The valves in the BYPASS line of the loop are normally CLOSED. They should ONLY be opened to provide cooling water to the engine if the regulator valve or solenoid valve require repair.
5. Valves "A" and "B" are normally OPEN. They should ONLY be closed if repair is required to the regulator valve or solenoid valve.
6. The gauge indicates back pressure on the cooling water discharge. The recommended back pressure to assure adequate flow is 15-20 PSI and should not exceed the allowable pressure shown in Table A.
7. Since cooling loop components are subject to bumps and movement during shipping, all components must be checked for pipe strain and leakage prior to initial startup.

**INSTALLATION -COOLING WATER OUTLET**

The cooling water outlet piping from the engine heat exchanger must be at least the size listed in Table A. The piping must be short, have no valves and discharge into an open waste cone. If deviations from the requirement of discharge to an open waste cone are permitted by the authority having jurisdiction, the proposed plumbing must be reviewed to assure that the back pressure created will not reduce the cooling water flow to below that required for the engine.

**DIESEL ENGINE DRIVEN FIRE PUMP  
COOLING WATER PIPING DATA**

If the outlet piping from two or more engines is connected to a common manifold, the manifold piping should be sized such that the velocity resulting from the combined flow is the same as that in the outlet piping between the manifold and heat exchanger.

Adequate pipe supports must be provided for the loop and outlet piping to minimize vibration and prevent excessive strain at the heat exchanger, pump and engine connections.

Engine coolant should be added in accordance with the engine manufacturer's recommendations.

**OPERATION**

The regulator valve is adjusted during operational tests at the plant and set between 15 and 20 PSI back pressure. If additional

adjusting is necessary, see the following procedure:

With the pump operating at the rated duty, the adjustment is made after the engine block temperature has risen to the level required to open the engine thermostat. The thermostat opens at approximately 170°F. The temperature will stabilize and then decrease slightly. At this point, the regulator is adjusted between 15 and 20 PSI by turning the regulator screw clockwise to increase the pressure and counterclockwise to reduce the pressure. The regulator screw is then locked into place with the locknut provided.

**MAINTENANCE**

1. Strainers must be inspected frequently and kept clean.
2. If cooling water temperature changes, the regulator valve may require adjustment.