



Document Number	Issue Date	Rev. Date
<b>DPL 82847</b>	<b>06/16/05</b>	<b>10/28/19</b>

## Iron CM Series Fire Pump Dimensional Drawings

### CM/CGV High Rise

Basic Pump Dimensions (Without Transmission and CGV High Rise Stage)	
Feature	See Page
Body Dimensions	2
Optional Rear Intake Adapters	3
Tank to Pump Flange Options	4
Discharge Connections	5

Main CM Pump and Transmission									
Pump Type	Transmission		Pump Model		Assembly Number	Drive		Hydraulic Pump Mounting Provision	See Page
	Model	Drive	Main CM Pump	High Rise Stage		Input Rotation (1)	Driveline Type		
Two Stage Series/Parallel with High Rise Stage	C20 Series	Split Shaft, Chain Drive	CMC20B, CMC20C, CMC20D, CMC20E, CMC20F	CGV	82847	CW	Input and Output Shaft	Not Available	6, 7
			CMUC20B, CMUC20C, CMUC20D, CMUC20E, CMUC20F	CGV	82847-1				

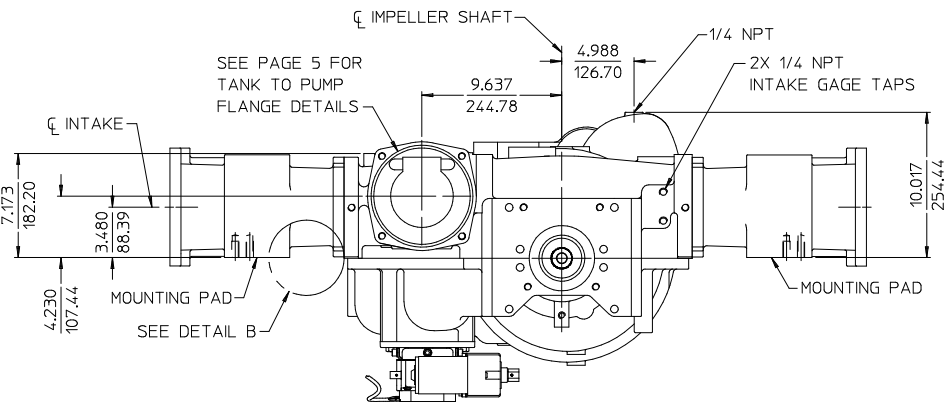
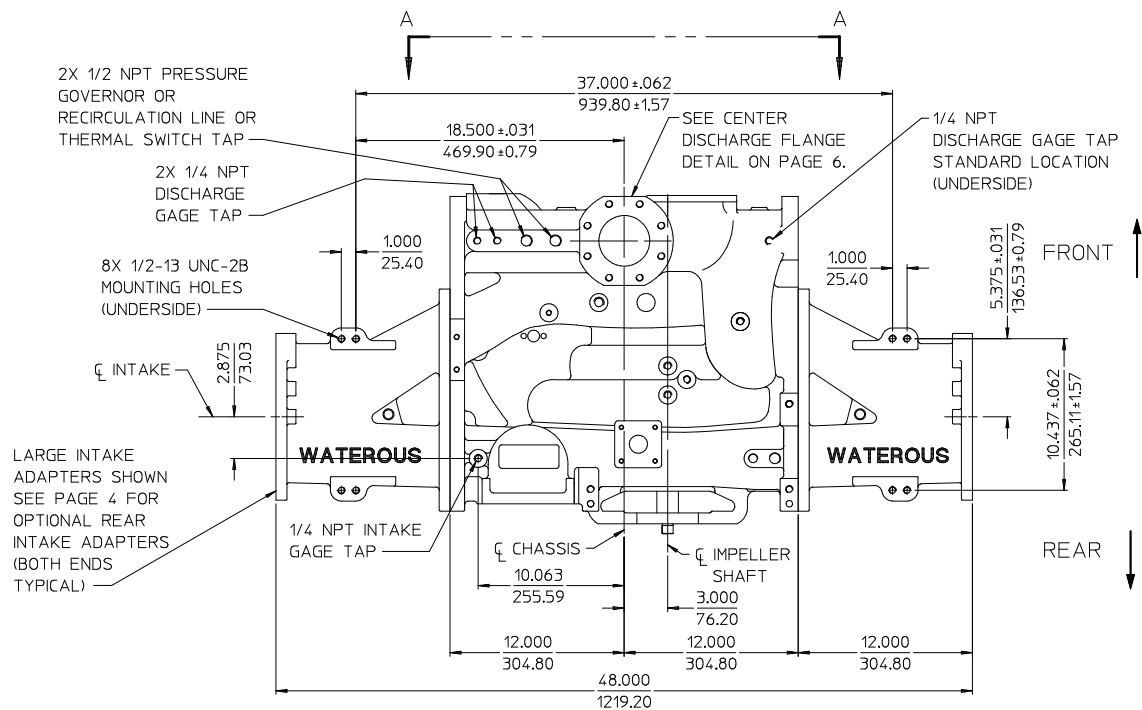
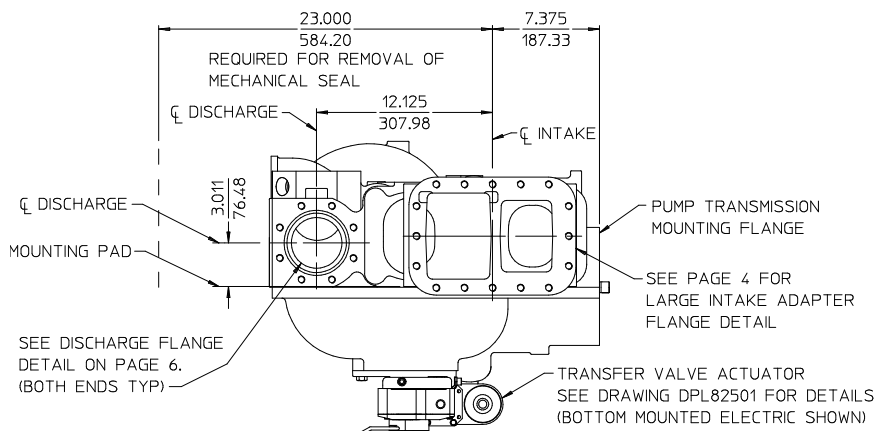
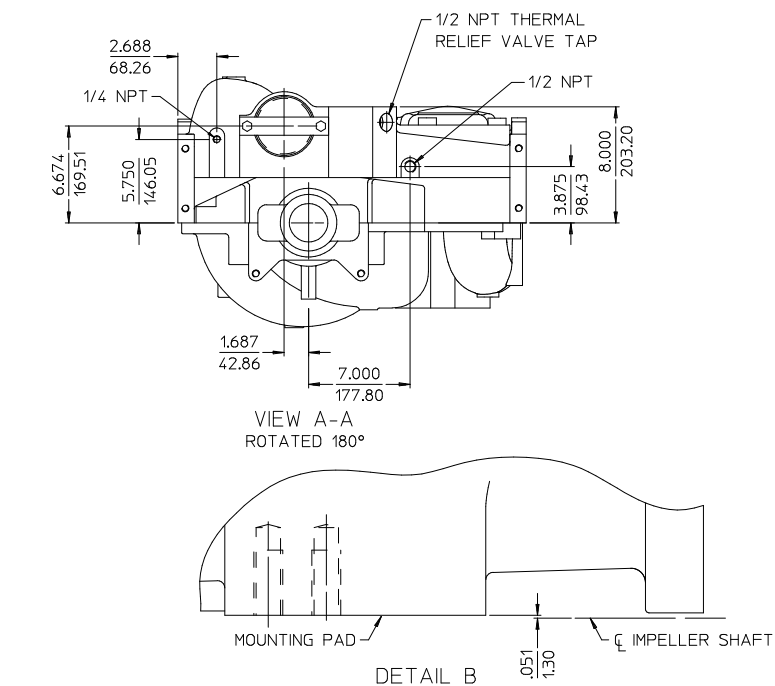
Notes:

1. Input rotation is viewed looking directly at the transmission input shaft or direct drive end yoke.

CGV High Rise Stage			
Component			See Page
Pump Body and Piping	Configuration 81344-1C		8
	Configuration 81344-1D		9
Optional Discharge Valves	3-1/2 in. Standard with Manual Actuator	Valve	10
		Control Panel Layout	11
		Actuator Mounting	
	3-1/2 in. Standard with Electric Actuator	Valve	12
		Control Panel Layout	13
		Actuator Mounting	

C20 Series Transmission Oil Cooler:

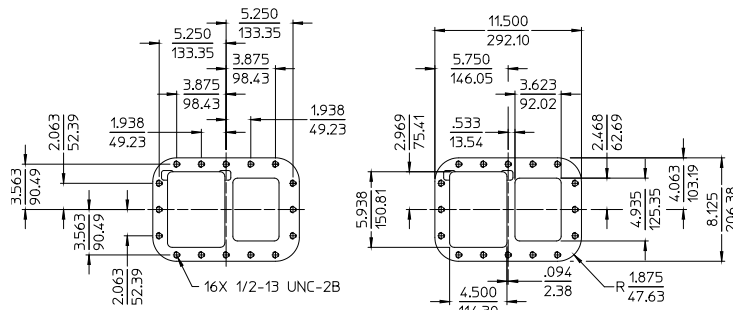
See Page 14



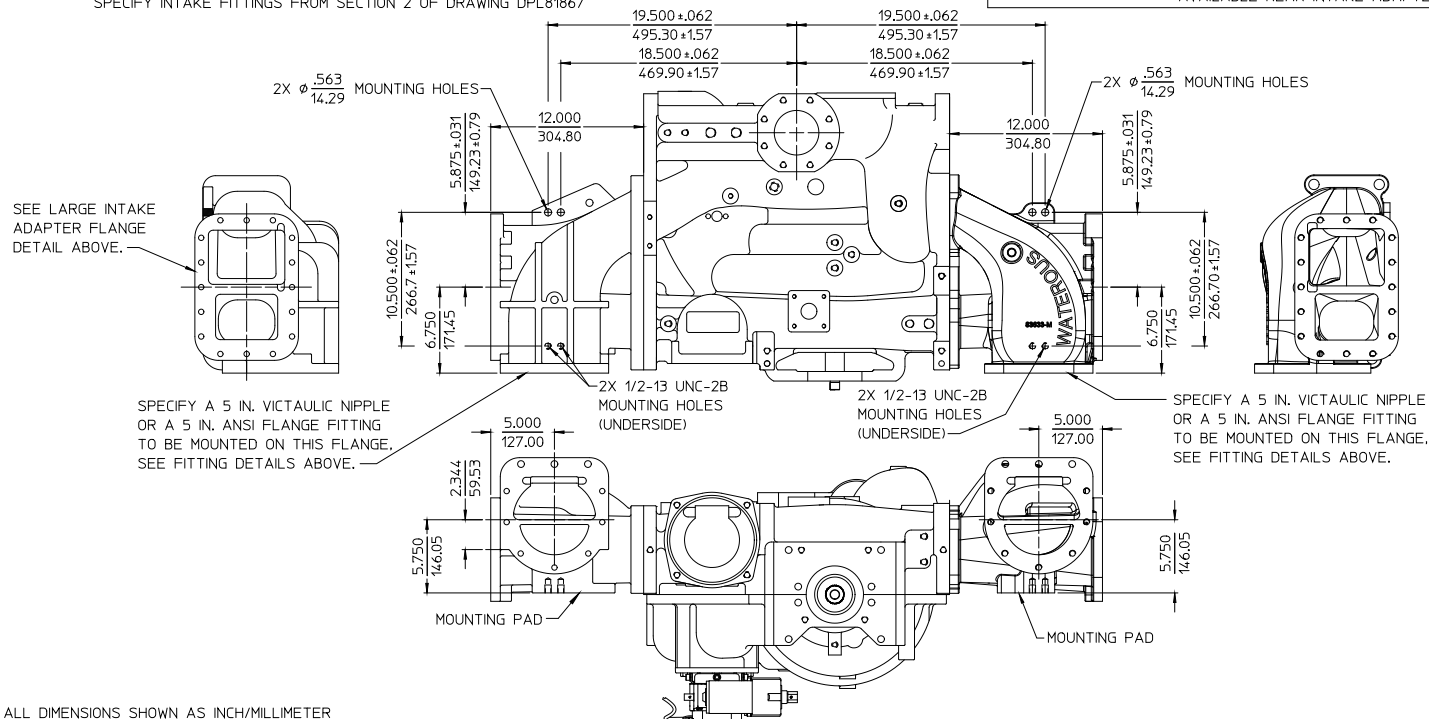
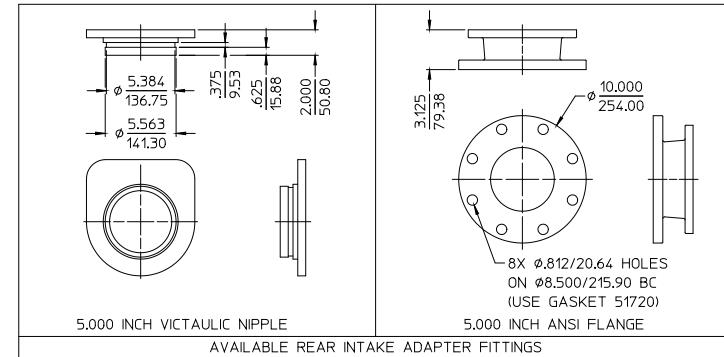
### BODY DIMENSIONS

ALL DIMENSIONS SHOWN AS INCH/MILLIMETER  
(INCH  
MILLIMETER)

CM SERIES FIRE PUMPS  
DPL82847  
WATEROUS COMPANY  
SOUTH ST. PAUL, MN 55075  
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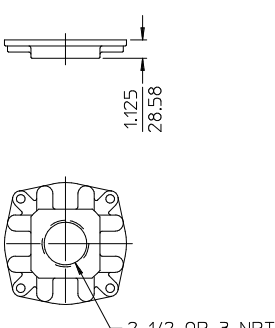
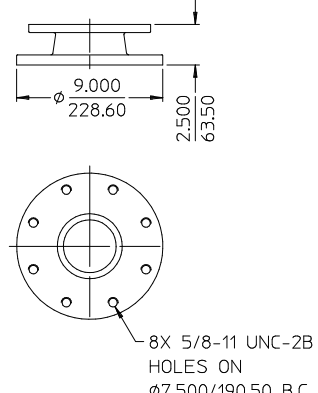
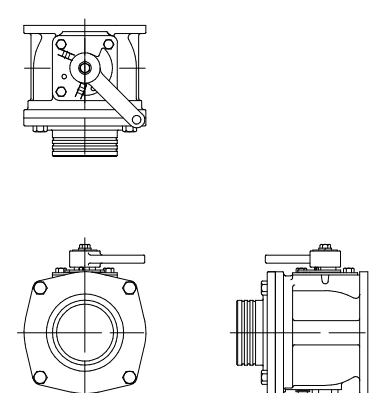
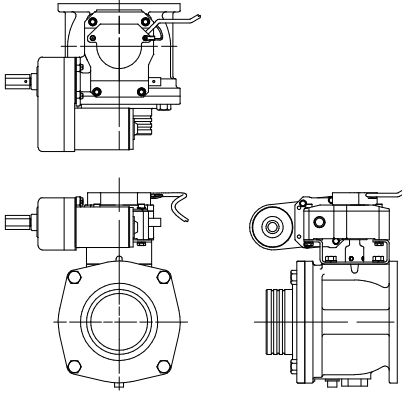
**LARGE INTAKE ADAPTER FLANGE DETAIL**  
SPECIFY INTAKE FITTINGS FROM SECTION 2 OF DRAWING DPL81867

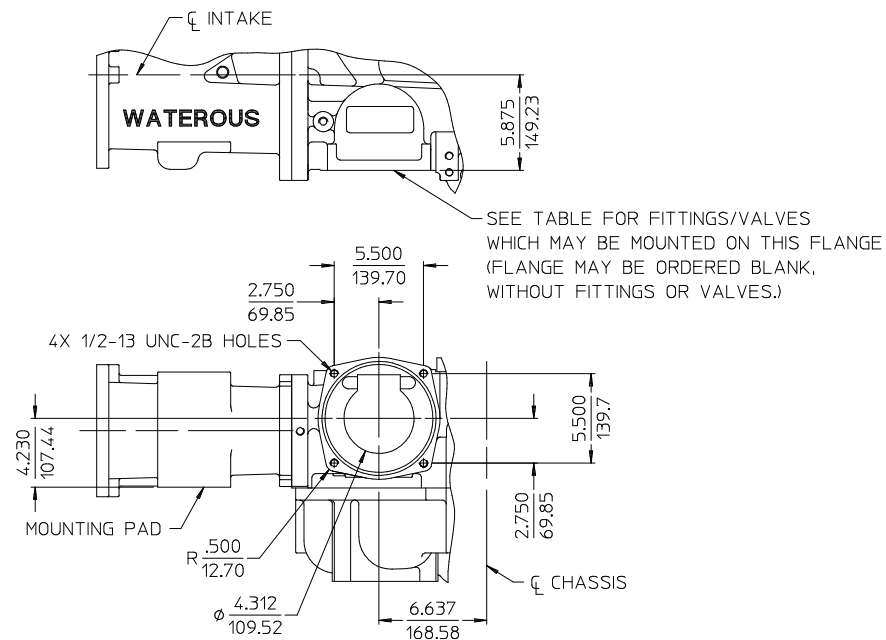


ALL DIMENSIONS SHOWN AS INCH/MILLIMETER  
( $\frac{\text{INCH}}{\text{MILLIMETER}}$ )

**OPTIONAL REAR INTAKE ADAPTERS**

AVAILABLE WITH 5.000 INCH ANSI FLANGE OR 5.000 INCH VICTAULIC NIPPLE

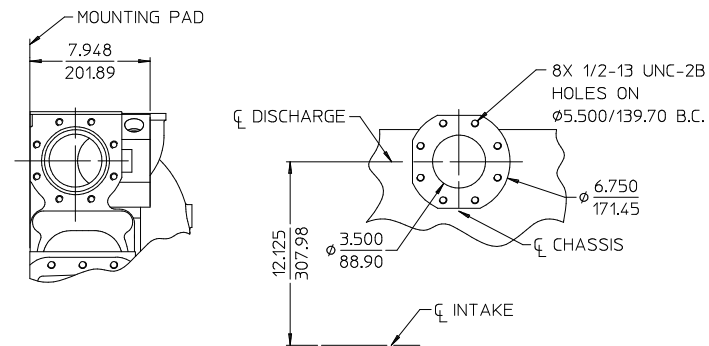
 <p>TAPPED FLANGE</p>	 <p>4.000 INCH ANSI FLANGE (NOTE: NOT AVAILABLE WITH PA TRANSMISSION)</p>	 <p>MANUAL TANK TO PUMP VALVE SEE DRAWING DPL81962 FOR ORDERING DETAILS</p>	 <p>ELECTRIC TANK TO PUMP VALVE WITH ROTARY ACTUATOR SEE DRAWING DPL82771 FOR ORDERING DETAILS</p>
<p><b>OPTIONAL TANK TO PUMP FLANGE FITTINGS/VALVES</b></p>			



**TANK TO PUMP FLANGE**  
USE O-RING W37108-4  
(AVAILABLE WITH OR WITHOUT CHECK VALVE)

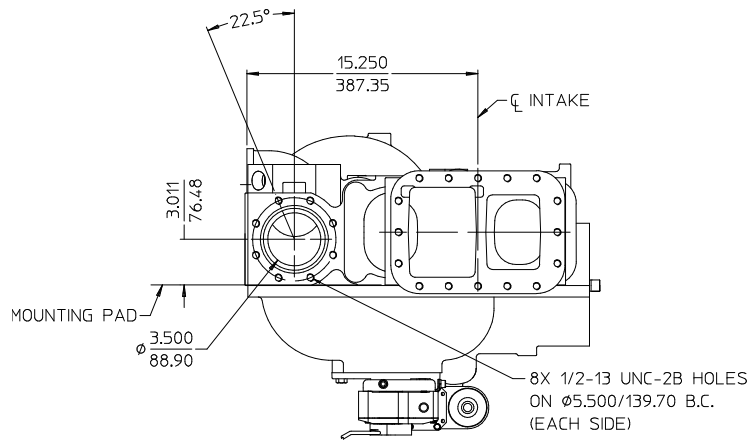
ALL DIMENSIONS SHOWN AS INCH/MILLIMETER  
( $\frac{\text{INCH}}{\text{MILLIMETER}}$ )

CM SERIES FIRE PUMPS  
DPL82847  
WATEROUS COMPANY  
SOUTH ST. PAUL, MN 55075  
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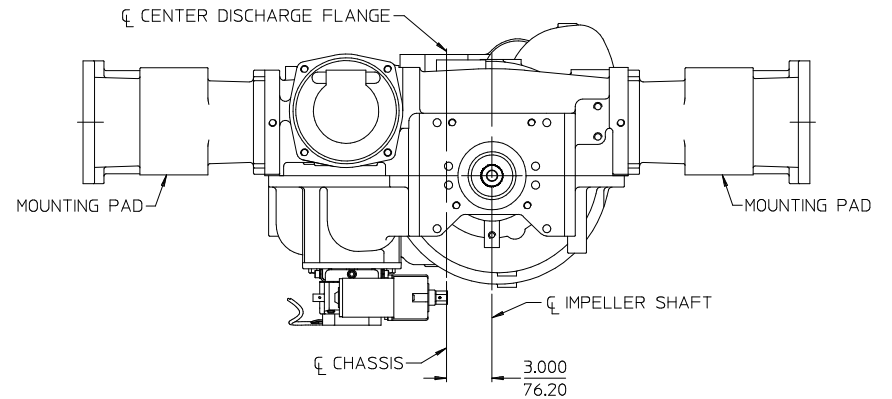
### CENTER DISCHARGE FLANGE

SEE DRAWING DPL82089 FOR INFORMATION ON ORDERING DISCHARGE FITTINGS  
OR SEE WATEROUS "CENTER DISCHARGE PIPING MANUAL" FOR AVAILABLE  
EXISTING ARRANGEMENTS



### NON-ANGLE COMPENSATED SIDE AND FRONT DISCHARGE

DISCHARGE FLANGE CONFIGURATION  
SEE DRAWING DPL82085 FOR INFORMATION ON  
ORDERING DISCHARGE FITTINGS AND VALVES



ALL DIMENSIONS SHOWN AS INCH/MILLIMETER  
( $\frac{\text{INCH}}{\text{MILLIMETER}}$ )

### DISCHARGE CONNECTIONS

CM SERIES FIRE PUMPS  
DPL82847  
WATEROUS COMPANY  
SOUTH ST. PAUL, MN 55075  
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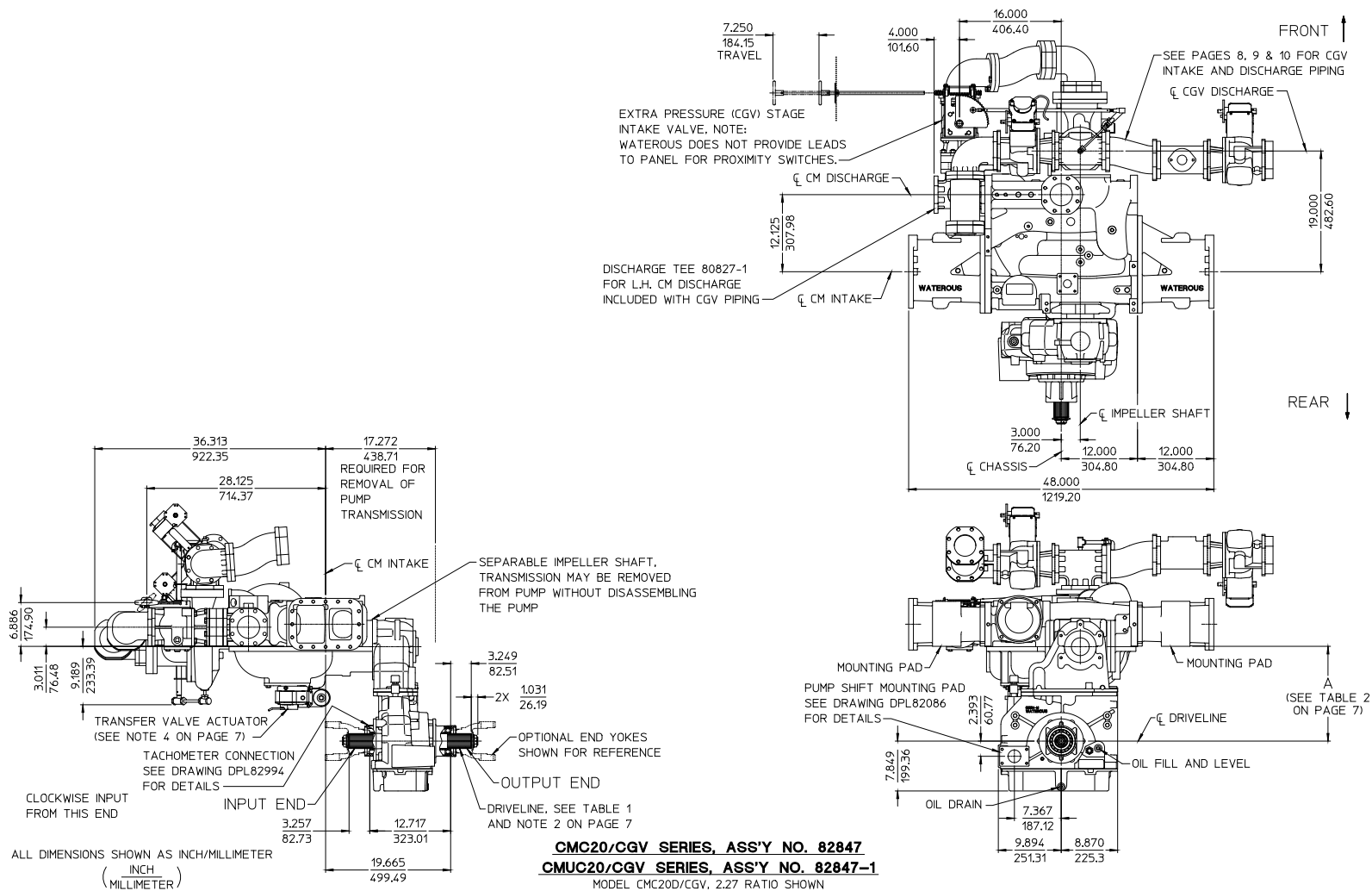


TABLE 1 - AVAILABLE DRIVELINES / MODELS									
DRIVELINE			OPTIONAL END YOKES AND COMPANION FLANGES AVAILABLE FROM WATEROUS				PUMP MODELS		
TYPE	SIZE	SPLINE	YOKE		CROSS AND BEARING KIT	COMPANION FLANGE		CMC20 SERIES	CMUC20 SERIES
			SPICER SERIES	PART NUMBER		SPICER SERIES	PART NUMBER		
EXTRA HEAVY DUTY	2.35 INCH	2.35-46T INVOLUTE	1710 BP	V 2837	V 2839	1480/1610	V 3719	CMC20B, CMC20C, CMC20D, CMC20E, CMC20F	CMUC20B, CMUC20C CMUC20D, CMUC20E CMUC20F
			1810 BP	V 2838	V 2840	1650/1710	V 3619		
			1710 HR	V 4101	-				
			1810 HR	V 4102	-	-	-		
			SPL140	V 3388	V 3389				

TABLE 2 - AVAILABLE RATIOS					
DRIVE TO DRIVEN RATIO	C20B	C20C	C20D	C20E	C20F
	DIMENSION A	DIMENSION A	DIMENSION A	DIMENSION A	DIMENSION A
1.27	12.301/312.45	14.363/364.82	14.876/377.85	16.912/429.56	18.943/481.15
1.41	11.891/302.03	13.950/354.33	14.982/380.54	17.022/432.36	19.053/483.95
1.48	12.377/314.38	13.929/353.80	14.958/379.93	17.002/431.85	19.032/483.41
1.58	12.256/311.30	13.807/350.70	14.839/376.91	16.881/428.78	18.912/480.36
1.69	12.341/313.46	13.890/352.81	14.927/379.15	16.974/431.14	19.012/482.90
1.79	12.009/305.03	14.096/358.04	15.123/384.12	17.178/436.32	19.219/488.16
1.88	12.180/309.37	13.741/349.02	14.768/375.11	16.824/427.33	18.860/479.04
1.97	12.357/313.87	13.921/353.59	14.963/380.06	17.021/432.33	19.063/484.20
2.03	11.947/303.45	14.035/356.49	15.079/383.01	17.137/435.28	19.183/487.25
2.27	12.291/312.19	13.862/352.09	14.907/378.64	16.971/431.06	19.022/483.16
2.46	11.992/304.60	14.093/357.96	15.138/384.51	17.205/437.01	19.256/489.10
2.68	12.220/310.39	13.797/350.44	14.844/377.04	16.916/429.67	18.974/481.94

NOTES:

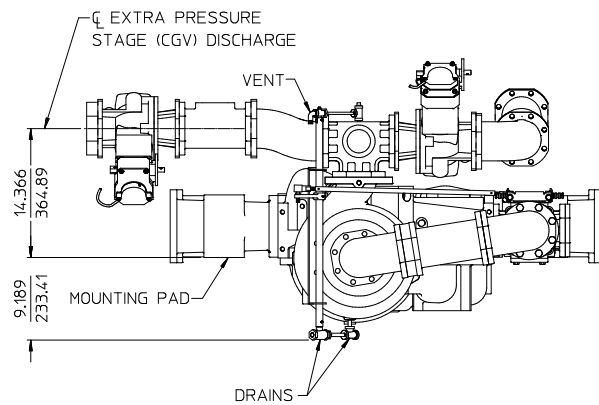
1. SEE DRAWINGS DPL82084-1, DPL82084-2 AND DPL82084-5 FOR PRESSURE CONTROL SYSTEMS.
2. DRIVELINE, SPLINE TYPICAL ON BOTH ENDS, OPTIONAL END YOKES AVAILABLE.
3. SEE DRAWING DPL82994 FOR ADDITIONAL DETAILS OF C20 SERIES TRANSMISSION.
4. BOTTOM MOUNTED ELECTRIC TRANSFER VALVE ACTUATOR IS NOT AVAILABLE WITH C20B TRANSMISSION.  
THE DRIVELINE END YOKE WILL INTERFERE WITH THE ELECTRIC MOTOR.

ALL DIMENSIONS SHOWN AS INCH/MILLIMETER

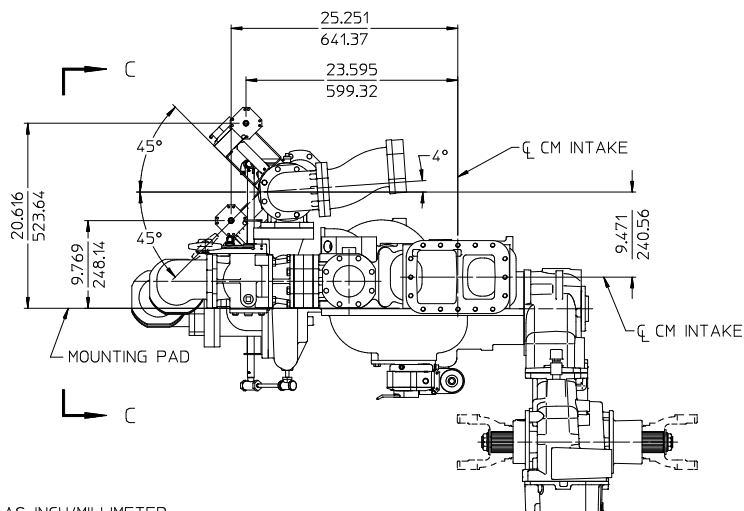
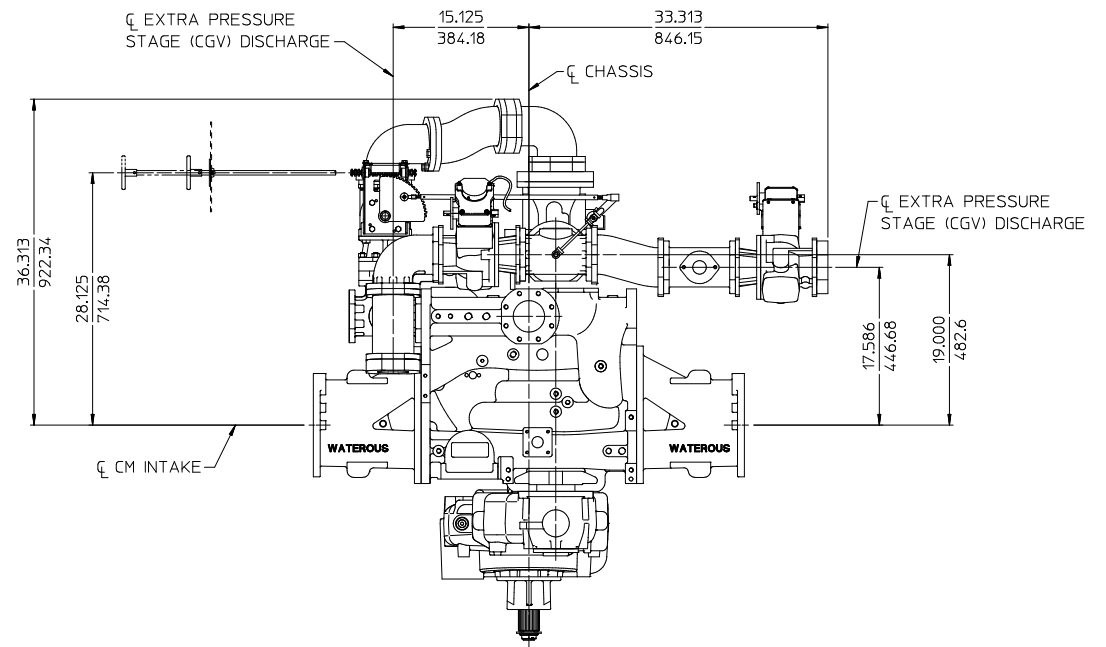
$\left( \frac{\text{INCH}}{\text{MILLIMETER}} \right)$

**CMC20/CGV SERIES, ASS'Y NO. 82847**  
**CMUC20/CGV SERIES, ASS'Y NO. 82847-1**

CM SERIES FIRE PUMPS  
DPL82847  
WATEROUS COMPANY  
SOUTH ST. PAUL, MN 55075  
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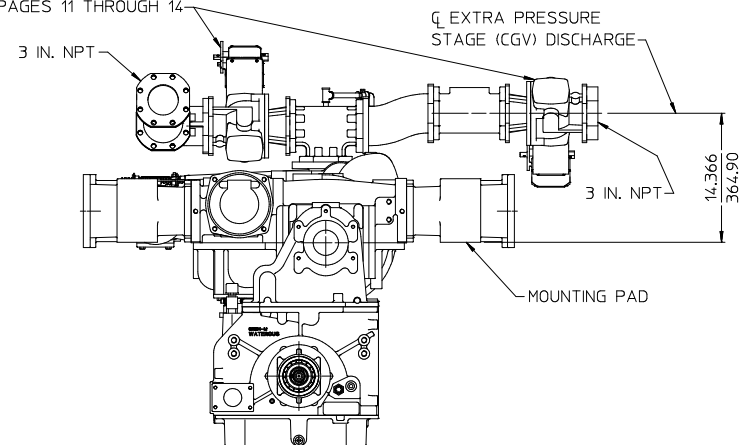


VIEW C-C



ALL DIMENSIONS SHOWN AS INCH/MILLIMETER  
( INCH  
MILLIMETER )

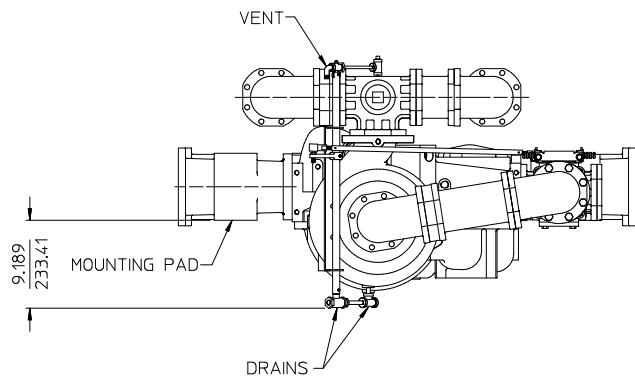
MANUAL OR ELECTRIC DISCHARGE  
VALVES MAY BE MOUNTED HERE.  
SEE PAGES 11 THROUGH 14



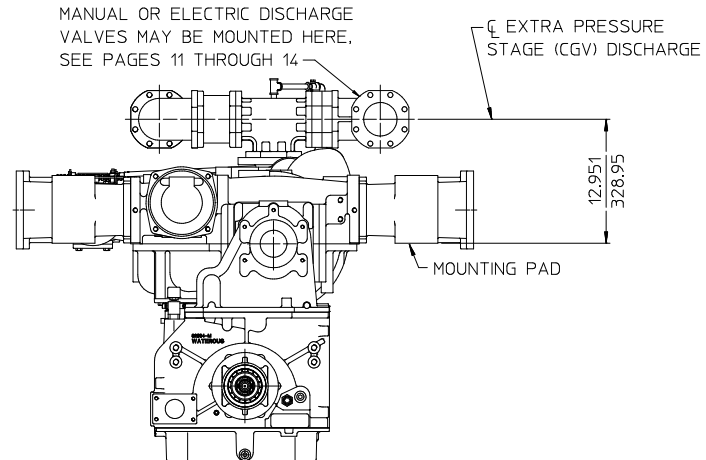
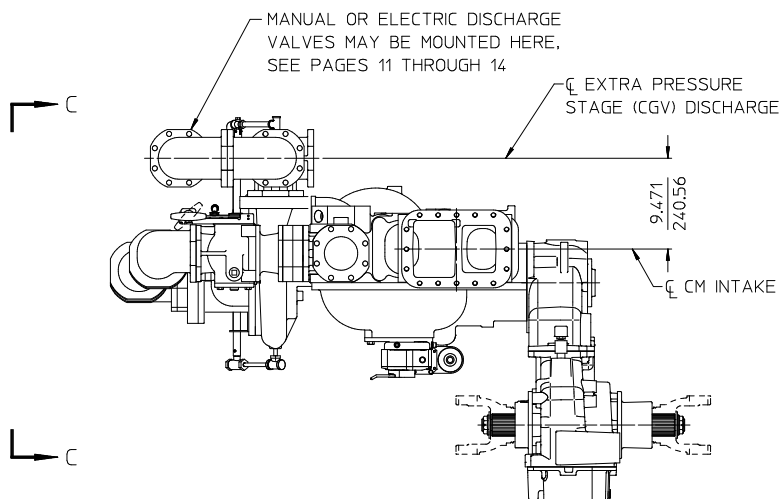
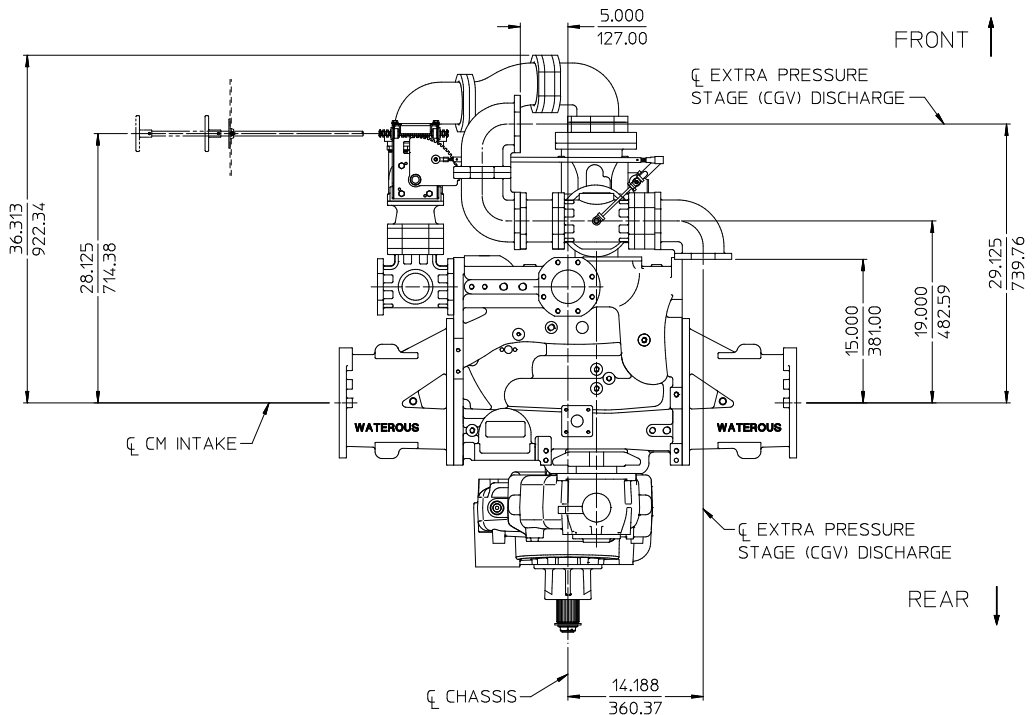
**CGV BODY & PIPING**  
CONFIGURATION 81344-1C

CM SERIES FIRE PUMPS  
DPL82847  
WATEROUS COMPANY  
SOUTH ST. PAUL, MN 55075  
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VIEW C-C

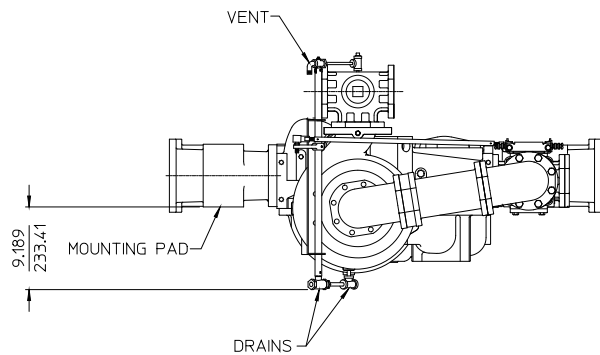


ALL DIMENSIONS SHOWN AS INCH/MILLIMETER  
(INCH  
MILLIMETER)

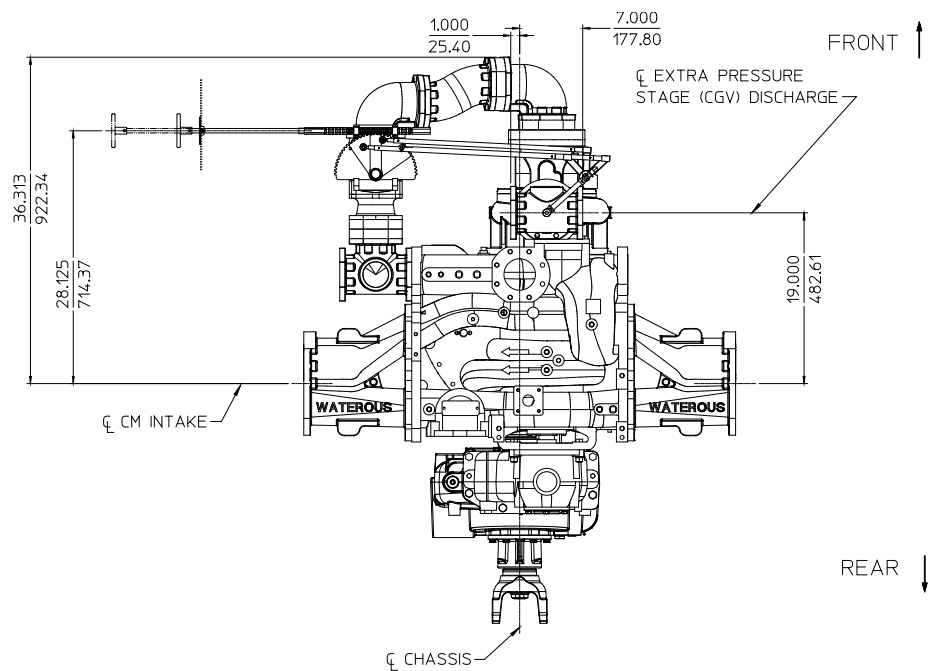
### CGV BODY & PIPING

CONFIGURATION 81344-1D

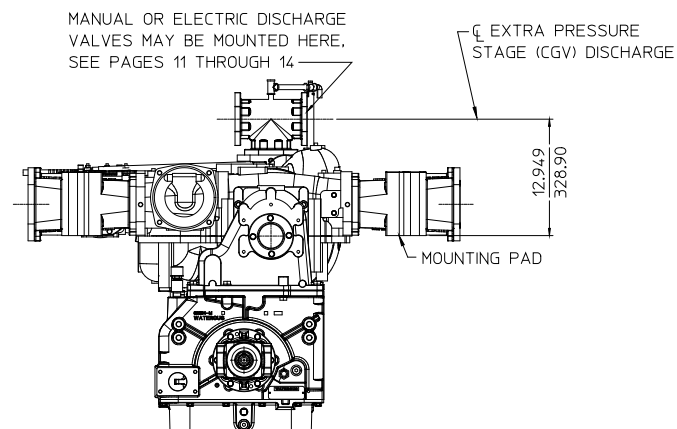
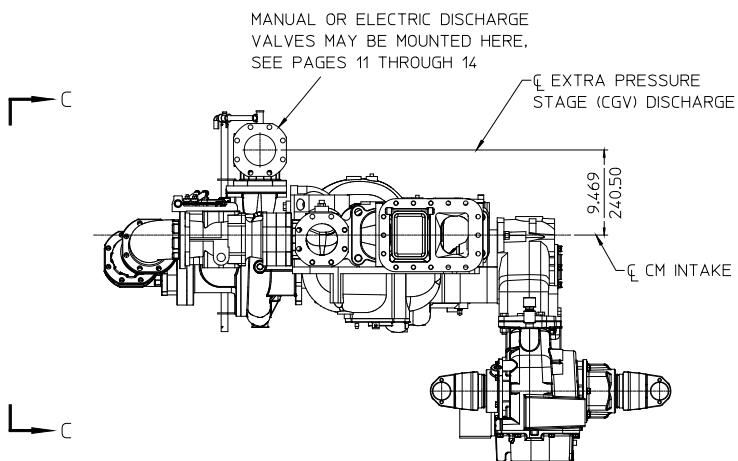
CM SERIES FIRE PUMPS  
DPL82847  
WATEROUS COMPANY  
SOUTH ST. PAUL, MN 55075  
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VIEW C-C



REAR ↓

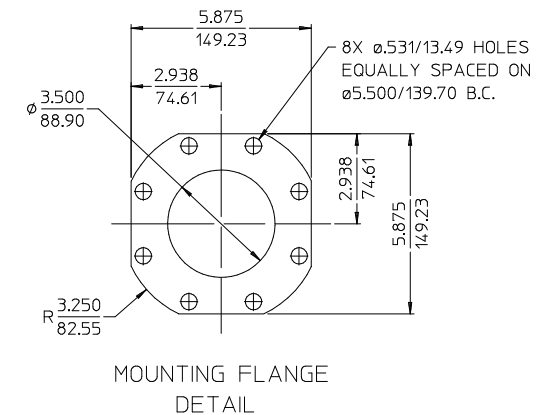
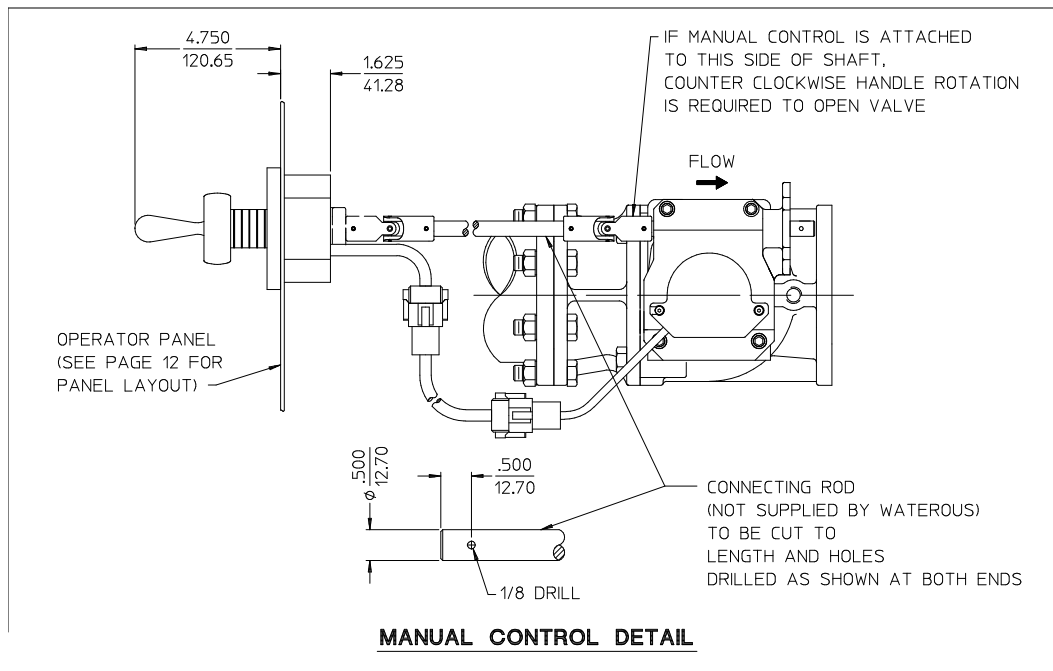


ALL DIMENSIONS SHOWN AS INCH/MILLIMETER  
( INCH )  
( MILLIMETER )

### CGV BODY & PIPING

CONFIGURATION 81344-1E

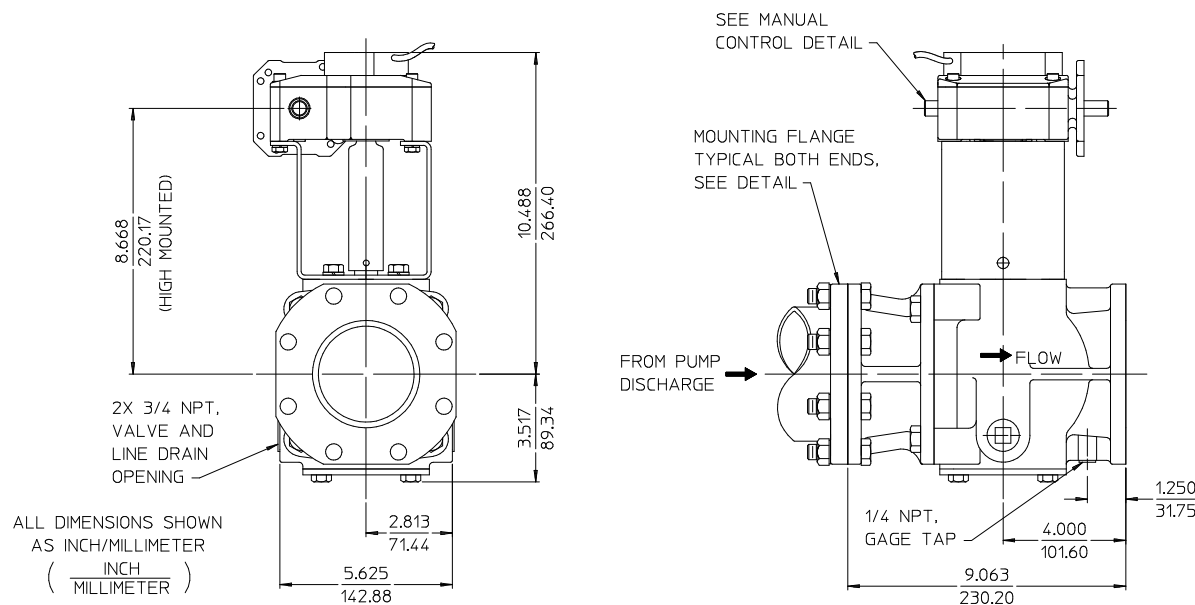
CM SERIES FIRE PUMPS  
DPL82847  
WATEROUS COMPANY  
SOUTH ST. PAUL, MN 55075  
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NOTE: WIRING FURNISHED WITH VALVE IS 10 FEET LONG. IF LONGER WIRING IS NEEDED, ORDER 10 FOOT WIRE EXTENSION KIT K 1051.

NOTES:  
WHEN ORDERING SUPPLY THE FOLLOWING INFORMATION:  
1. VALVE PART NUMBER 82732  
2. SUFFIXES WHICH INDICATE ACTUATOR MOUNTING.

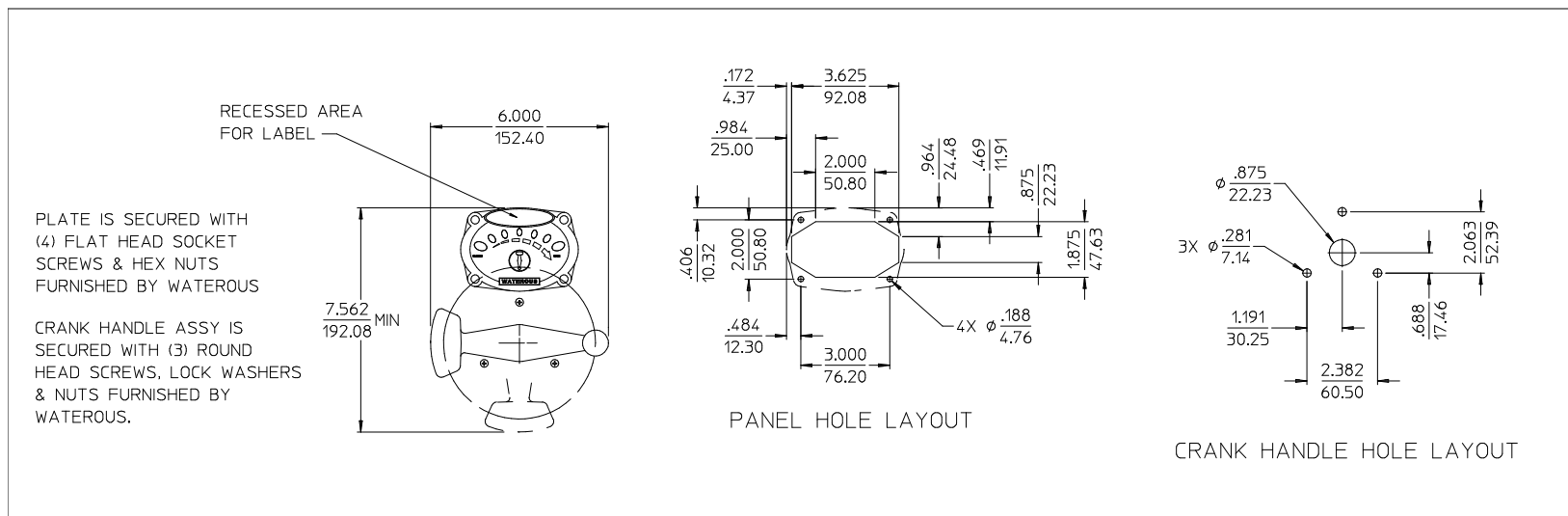
82732-2B (1)  
ACTUATOR MOUNTING CONFIGURATIONS TO VALVE.  
FIGURE NUMBERS 1 OR 4  
SEE PAGE 12 FOR DETAILS.



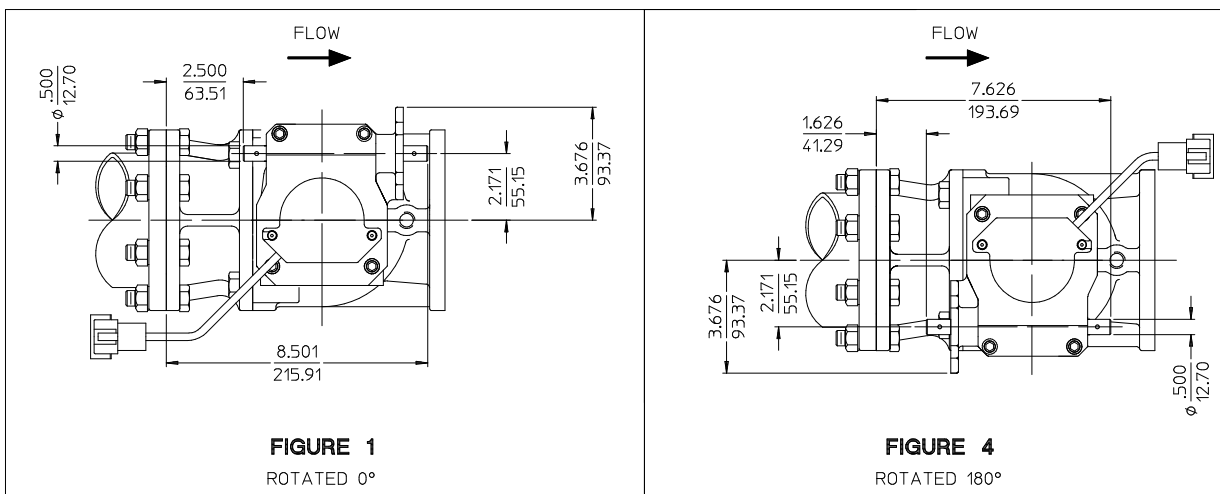
### **3-1/2 STANDARD DISCHARGE VALVE WITH MANUAL ROTARY ACTUATOR**

(FIGURE 1 SHOWN)

CM SERIES FIRE PUMPS  
DPL82847  
WATEROUS COMPANY  
SOUTH ST. PAUL, MN 55075  
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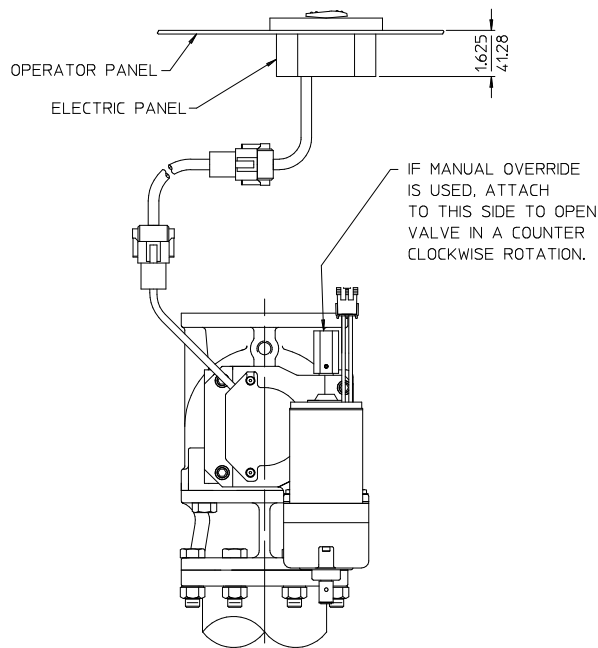
### MANUAL PANEL LAYOUT



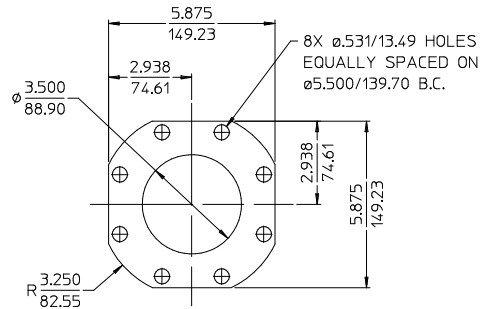
ALL DIMENSIONS SHOWN  
AS INCH/MILLIMETER  
(  $\frac{\text{INCH}}{\text{MILLIMETER}}$  )

### ACTUATOR MOUNTING CONFIGURATIONS

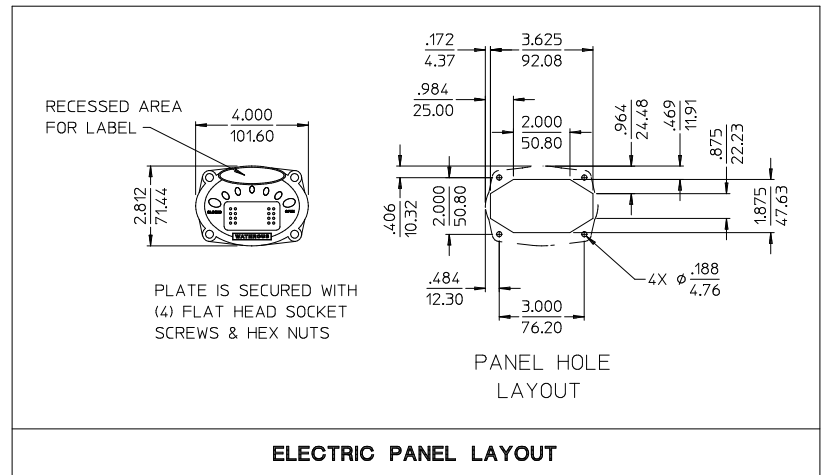
CM SERIES FIRE PUMPS  
DPL82847  
WATEROUS COMPANY  
SOUTH ST. PAUL, MN 55075  
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ALL DIMENSIONS SHOWN  
AS INCH/MILLIMETER  
( INCH  
MILLIMETER )



MOUNTING FLANGE  
DETAIL



ELECTRIC PANEL LAYOUT

NOTE: WIRING FURNISHED WITH VALVE IS  
10 FEET LONG. IF LONGER WIRING IS NEEDED,  
ORDER 10 FOOT WIRE EXTENSION KIT K 1050.

NOTES:

WHEN ORDERING SUPPLY THE FOLLOWING INFORMATION:

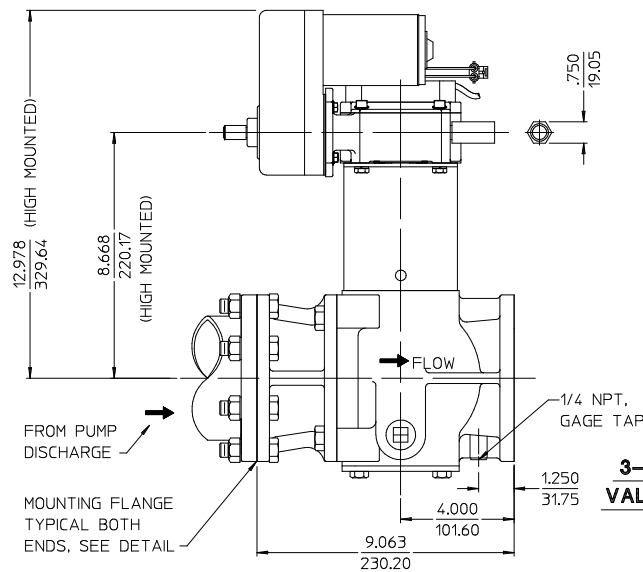
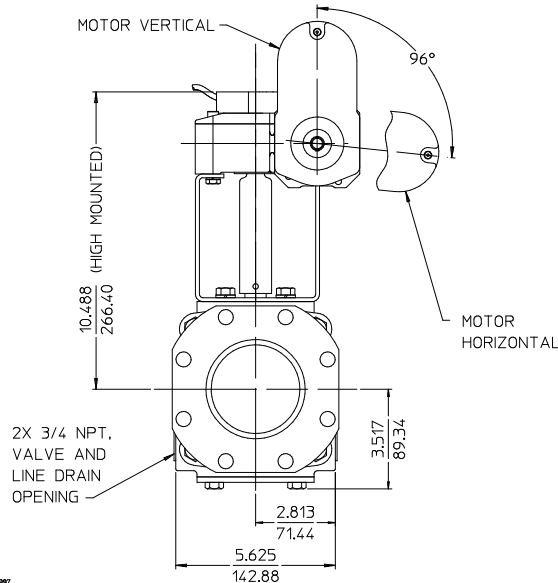
1. VALVE PART NUMBER 82731
2. SUFFIXES WHICH INDICATE ACTUATOR MOUNTING

82731-2A (1)

ACTUATOR MOUNTING CONFIGURATION.  
FIGURE NUMBERS 1, & 7 FOR A VERTICAL MOTOR,  
FIGURE NUMBERS 4, & 8 FOR A HORIZONTAL MOTOR.  
SEE PAGE 14 FOR DETAILS.

ACTUATOR OPTIONS:

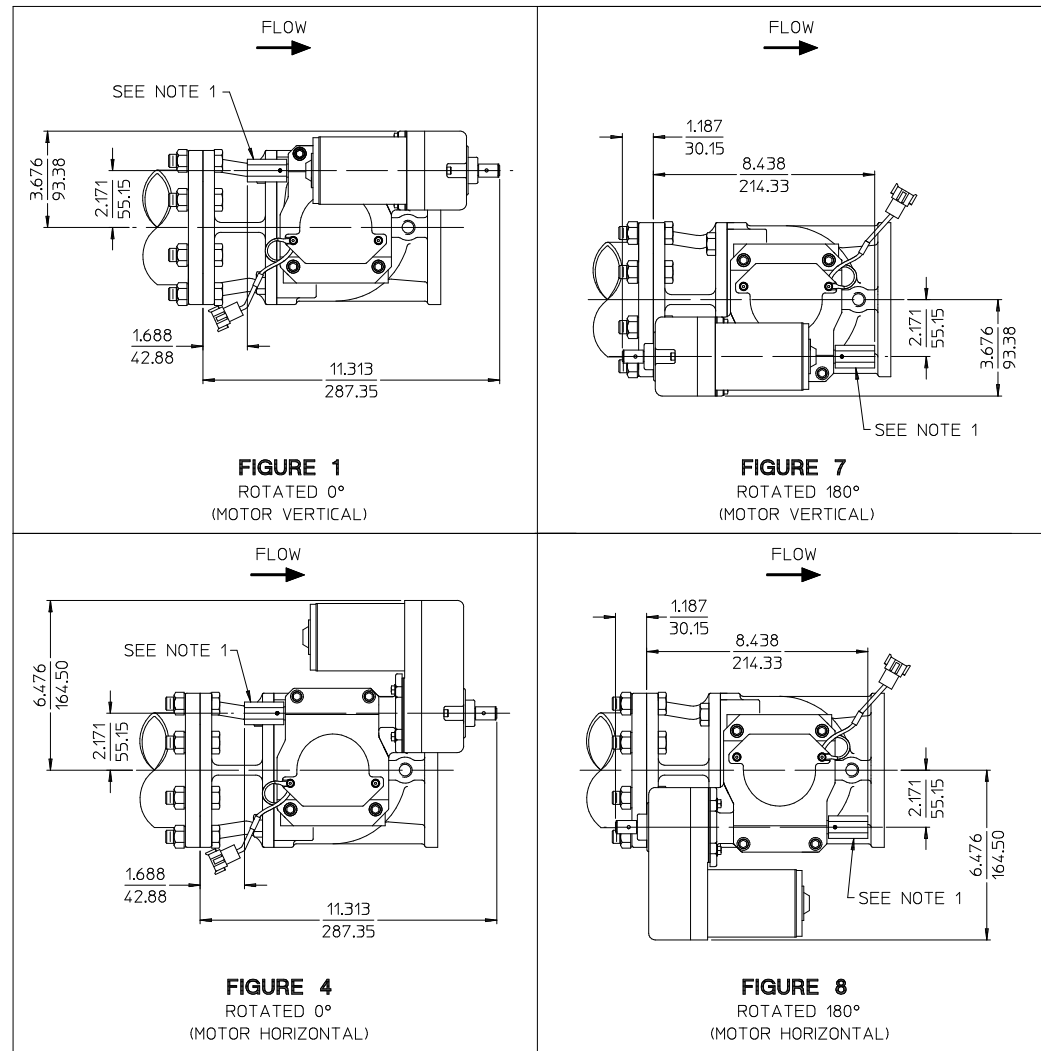
- 2A (12 VOLT, LOW MOUNTED, MOTOR VERTICAL)
- 2B (12 VOLT, LOW MOUNTED, MOTOR HORIZONTAL)
- 2C (12 VOLT, HIGH MOUNTED, MOTOR VERTICAL)
- 2D (12 VOLT, HIGH MOUNTED, MOTOR HORIZONTAL)
- 2E (24 VOLT, LOW MOUNTED, MOTOR VERTICAL)
- 2F (24 VOLT, LOW MOUNTED, MOTOR HORIZONTAL)
- 2G (24 VOLT, HIGH MOUNTED, MOTOR VERTICAL)
- 2H (24 VOLT, HIGH MOUNTED, MOTOR HORIZONTAL)



**3-1/2 STANDARD DISCHARGE  
VALVE WITH ELECTRIC ROTARY  
ACTUATOR**

(FIGURE 7 SHOWN)

CM SERIES FIRE PUMPS  
DPL82847  
WATEROUS COMPANY  
SOUTH ST. PAUL, MN 55075  
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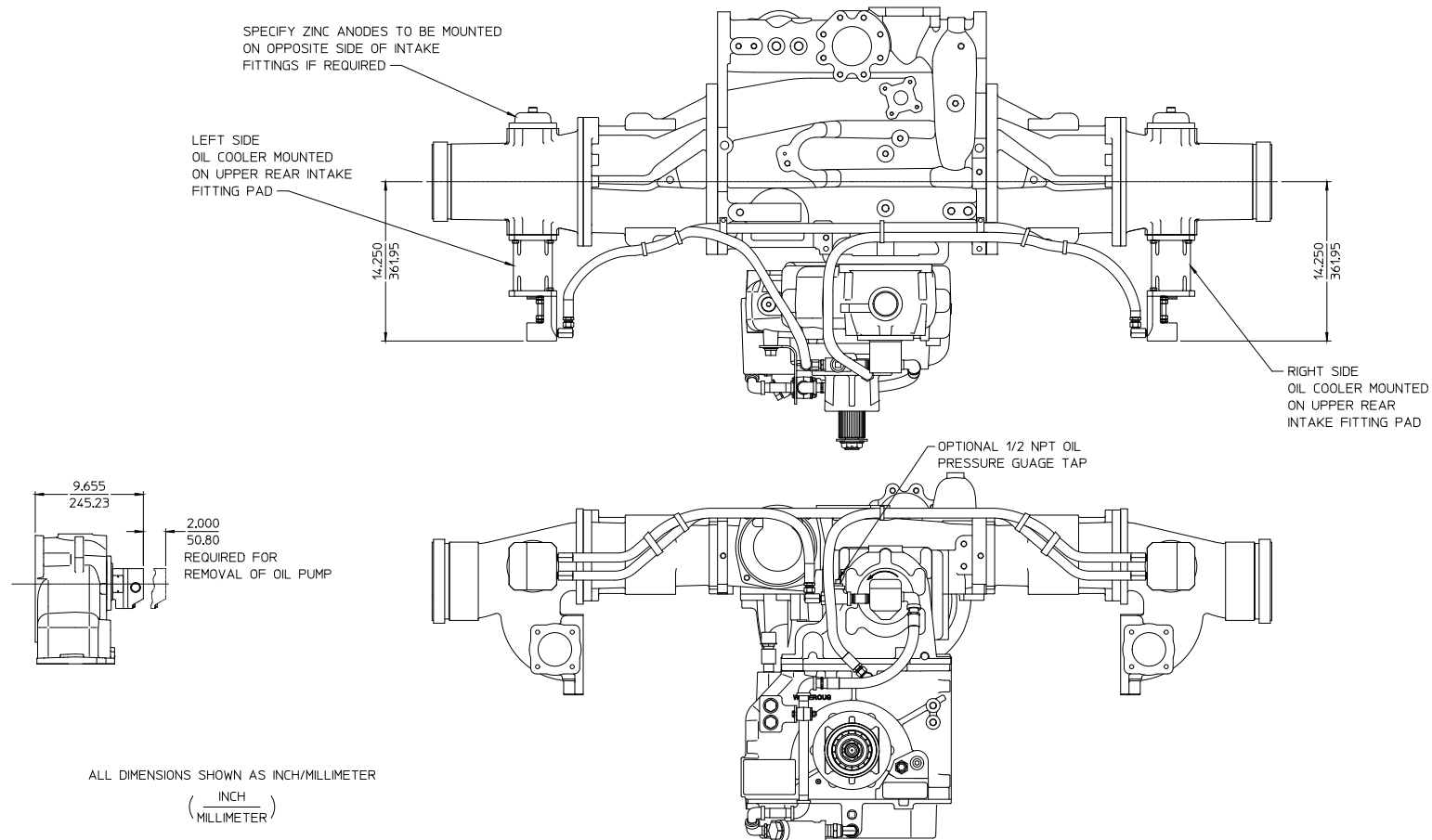


ALL DIMENSIONS SHOWN  
AS INCH/MILLIMETER  
( INCH  
MILLIMETER )

### ACTUATOR MOUNTING CONFIGURATIONS

NOTE:  
1. ADAPTER NUT SHOWN  
(USED FOR MANUAL OVERRIDE)  
WILL ADD .750 TO LENGTH OF SHAFT,  
OR IF NOT USED WILL DECREASE  
LENGTH BY .750.

CM SERIES FIRE PUMPS  
DPL82847  
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**C20 SERIES TRANSMISSION OIL COOLER**