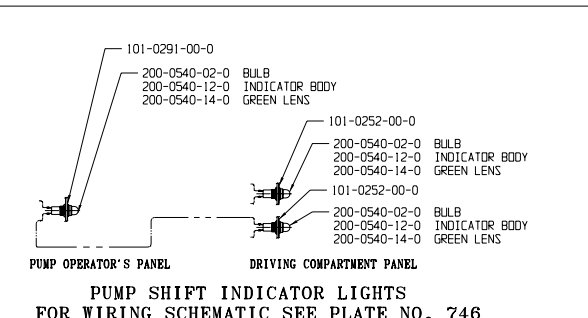
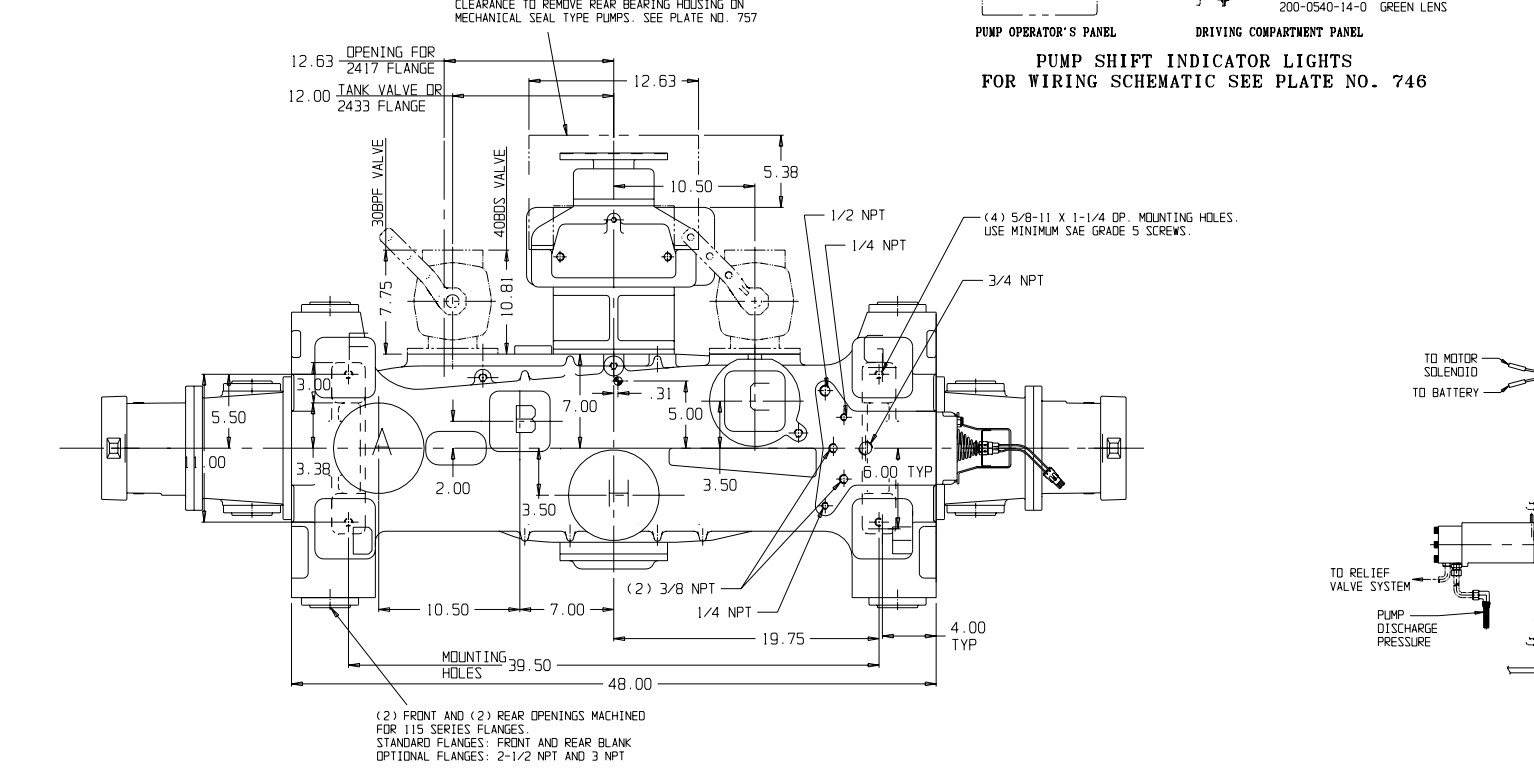


OPTIONAL DISCHARGE FLANGES			
STANDARD	OPTIONAL	STD. CAST HOLE	
A	BLANK	2-1/2, 3 & 4 NPT	4
B	BLANK	1-1/4, 2, 2-1/2 & 3 NPT	3
C	BLANK	2-1/2, 3 & 4 NPT	3
D		2-1/2 & 3 NPT	CAST SOLID
E		2-1/2 & 3 NPT	CAST SOLID
F		2-1/2 & 3 NPT	CAST SOLID
G		2-1/2 & 3 NPT	CAST SOLID
H	BLANK	2-1/2, 3 & 4 NPT	3



WARNING

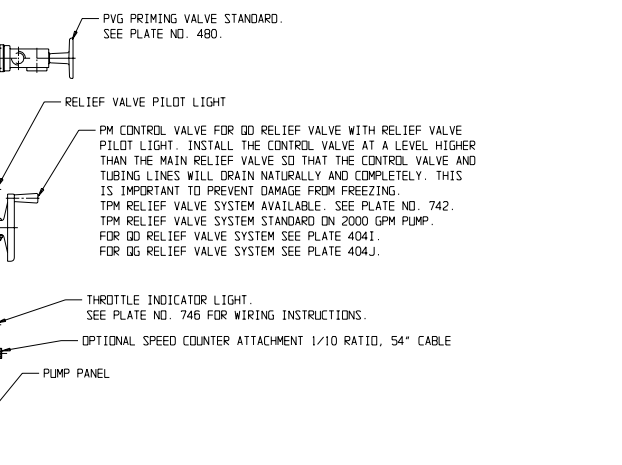
EXCEEDING THESE LIMITS OR FAILURE TO FOLLOW THE RECOMMENDATIONS OUTLINED ON THIS DRAWING COULD DAMAGE THE GEARBOX AND RESULT IN PERSONAL INJURY.
QMAX MIDSHIP MAXIMUM PUMP PRESSURE (HYDROSTATIC & HYDRODYNAMIC) = 500 PSI
MAXIMUM POWER INPUT FOR PUMPING = 350 HP
MAXIMUM TORQUE ON PUMP SHAFT = 2300 LBS-FT
MAXIMUM GEARBOX SHAFT TORQUE (ROAD) = 16,000 LBS-FT

PUMP MODEL	QMD*-28	QMD*-25	QMD*-23	QMD*-21	QMD*-19
MAX GEARBOX INPUT RPM	2800	2530	2780	3030	3280
PUMP MODEL	QMD*-28	QMD*-25	QMD*-23	QMD*-21	QMD*-19
MAX GEARBOX INPUT RPM	840	2040	2230	2430	2650

SEE HALE TORQUE LIMIT CHART F-72 FOR ADDITIONAL DATA. THIS PRODUCT AND ITS COMPONENTS ARE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS AND OTHER PATENTS PENDING:
950,756 3,500,961 3,859,703 4,209,282 4,587,862
3,116,694 3,726,308 3,918,681 4,311,440 4,653,978
3,159,559 3,801,224 4,089,345 4,337,830

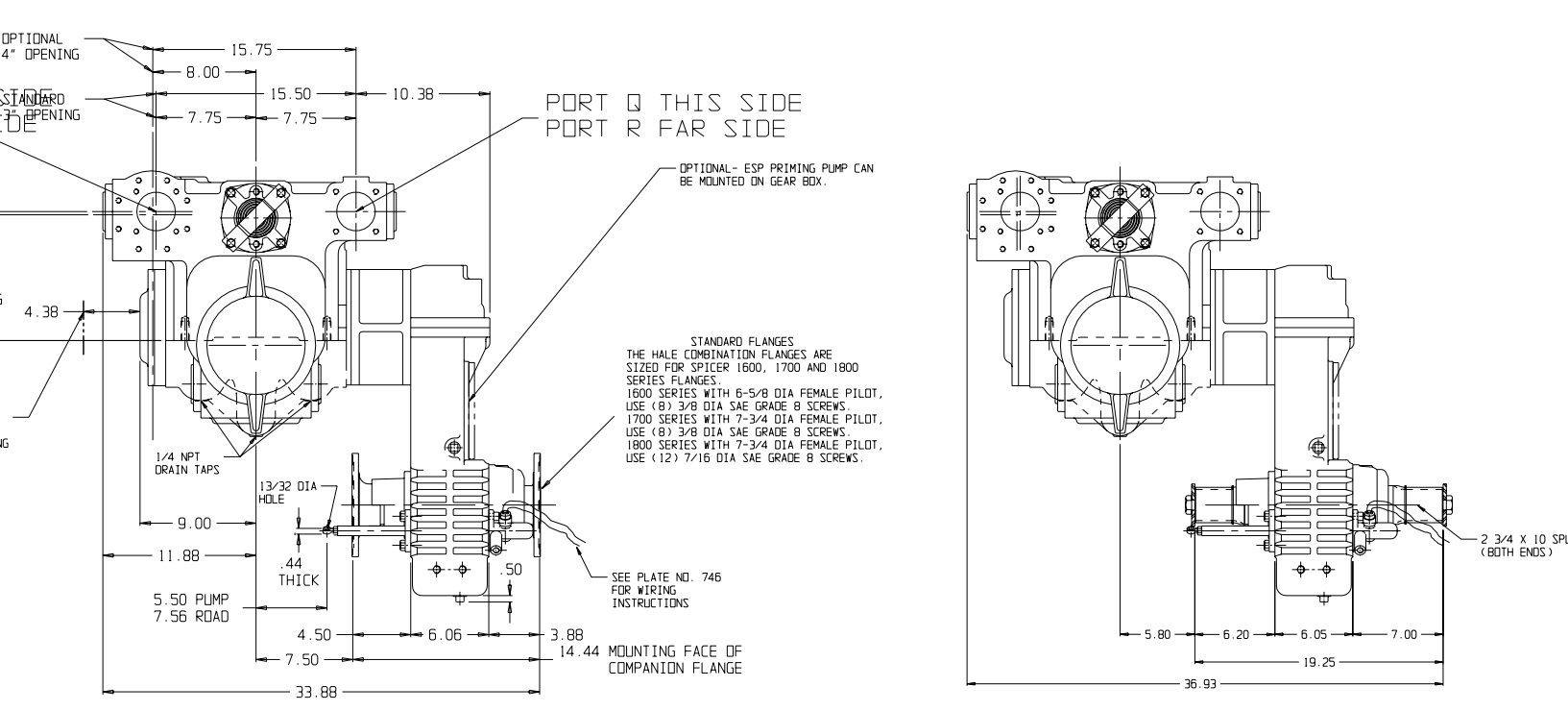
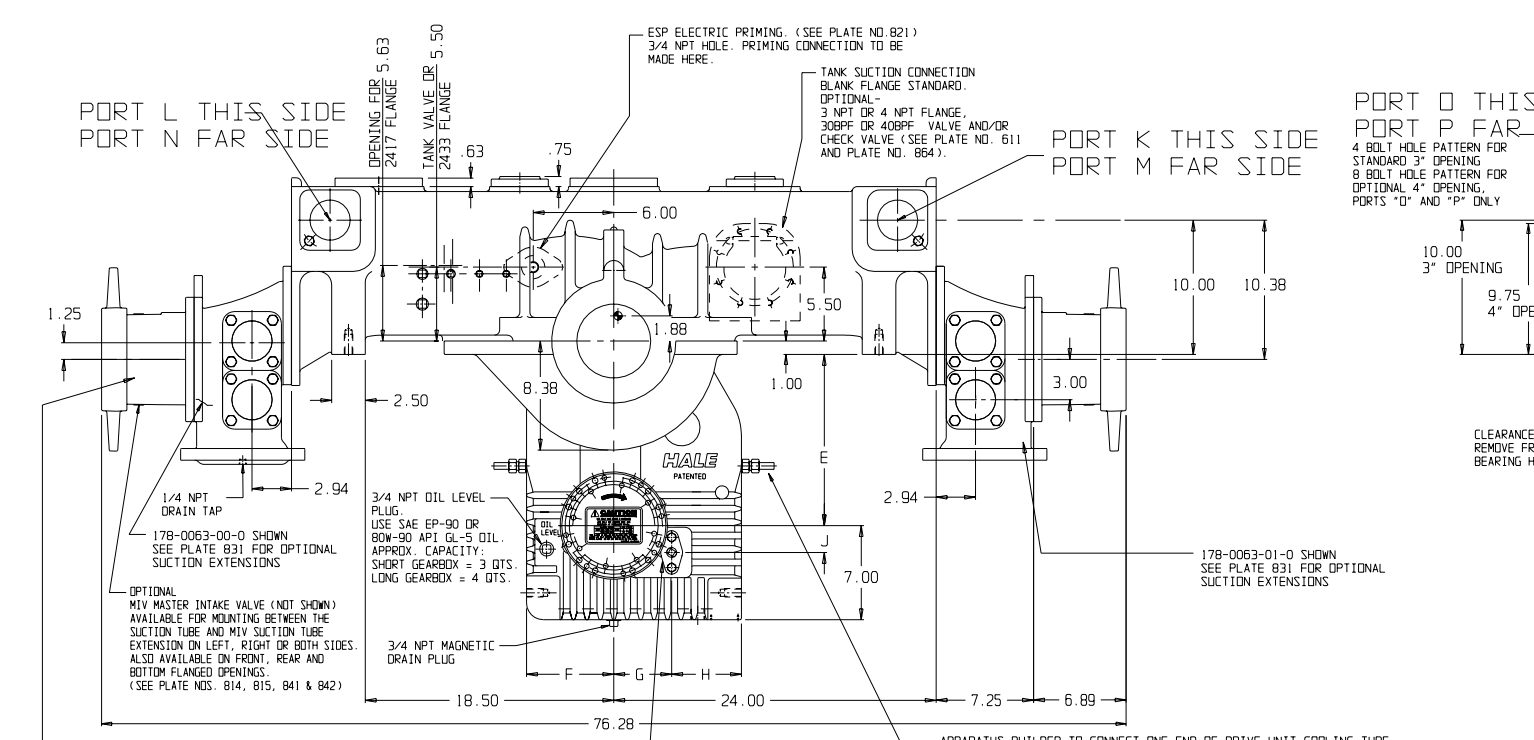
PUMP MODEL	GEAR RATIO	GEARBOX TYPE	DIMENSIONS				
			E	F	G	H	J
QMD*-28.8	2.28	LONG (L)	14.56				
QMD*-28.5	2.28	SHORT (S)	14.75				
QMD*-28.3	2.28	LONG (L)	14.90	6.50	5.44	4.06	1.84
QMD*-27.1	2.28	SHORT (S)	15.06				
QMD*-19.9	2.28	LONG (L)	15.25				
QMD*-23.2	2.28	LONG (L)	12.38		4.31	5.18	2.00
QMD*-23.2	2.28	SHORT (S)	10.50		4.75	2.75	.38
QMD*-22.0	2.28	LONG (L)	12.56		4.31	5.18	2.00
QMD*-22.0	2.28	SHORT (S)	10.68		4.75	2.75	.38
QMD*-19.8	2.28	LONG (L)	12.75		4.31	5.18	2.00
QMD*-19.8	2.28	SHORT (S)	10.88		4.75	2.75	.38
QMD*-17.7	2.28	LONG (L)	12.94		4.31	5.18	2.00
QMD*-17.7	2.28	SHORT (S)	11.06		4.75	2.75	.38
QMD*-15.5	2.28	LONG (L)	13.13		4.31	5.18	2.00
QMD*-15.5	2.28	SHORT (S)	11.25		4.75	2.75	.38

* RATED CAPACITY 1000 AND 1250 GPM
** THE SHORT (S) GEARBOX IS STANDARD AND WILL BE SUPPLIED UNLESS OTHERWISE SPECIFIED.



DRIVE LINE RECOMMENDATIONS
APPARATUS BUILDER SUPPLIED DRIVELINES SHALL BE OF APPROPRIATE SIZE TO MATCH THE CHASSIS AND PUMP REQUIREMENTS WITH INDIVIDUAL JOINT CANCELLATION AND PHASING BEFORE AND AFTER THE PUMP. DRIVE SHAFT BALANCE (INCLUDING YOKES) SHALL NOT EXCEED THE RECOMMENDED LIMIT OF EITHER THE DRIVE SHAFT OR CHASSIS TRANSMISSION MANUFACTURER'S SPECIFICATIONS. DRIVE SHAFT FULL RANGE OPERATING SPEEDS SHALL NOT EXCEED 42% OF ITS CRITICAL SPEED.

- ### NOTES
- REFER TO HALE PUMP/ENGINE COMBINATION LIST TO SELECT PROPER RATIO TO MATCH PUMP WITH ENGINE.
 - WEIGHT OF STANDARD QMD 1250 G.P.M. PUMP AS SHOWN LESS PRIMING PUMP = 1400 LBS.
 - = CENTER OF GRAVITY.
 - IMPELLER SHAFT SEAL - PACKING STANDARD, MECHANICAL SEAL OPTIONAL.



STANDARD LENGTH SUCTION TUBES SHOWN. AVAILABLE IN 4-1/2, 5 AND 6 NS THREAD. 9" LONG TUBES OPTIONAL. (SEE PLATE NO. 831)

MANUAL DRIVE UNIT SHIFT STANDARD. VPS POWER SHIFT AVAILABLE. (SEE PLATE NO. 533)

APPARATUS BUILDER TO CONNECT ONE END OF DRIVE UNIT COOLING TUBE TO PUMP DISCHARGE AND THE OTHER END TO PUMP SUCTION WITH 3/8 TUBING. ALTERNATIVELY THE RETURN LINE CAN BE ROUTED BACK TO THE WATER TANK THRU A 1/4 NPT (MIN) PANEL MOUNTED VALVE LABELLED "PUMP COOLER CLOSE FOR DRAFT". A 1/4 NPT (MIN) CHECKVALVE SHALL BE INSTALLED IN THIS LINE. A DRAIN VALVE MUST BE PROVIDED FOR THIS COOLING TUBE TO DRAIN IN FREEZING WEATHER.

PLATE NO. 1016AA

QMD PUMP

03-279	A	RELEASE FOR PRODUCTION	JFG	9-09-03	MAL	APVD	DATE 9-09-03	SCALE: 20
ECCO	NO REV	CHANGED FROM	BY	DATE	CHECKED	MAL		

HALE PRODUCTS, INC.
A Unit of IDEX Corporation
Conshohocken, PA 19428 USA