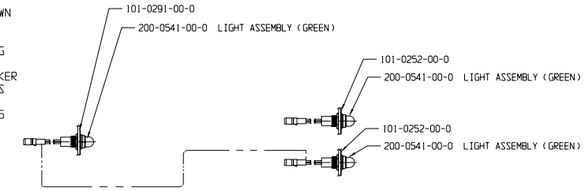
THIS PRODUCT AND ITS COMPONENTS MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS AND OTHER PATENTS PENDING:

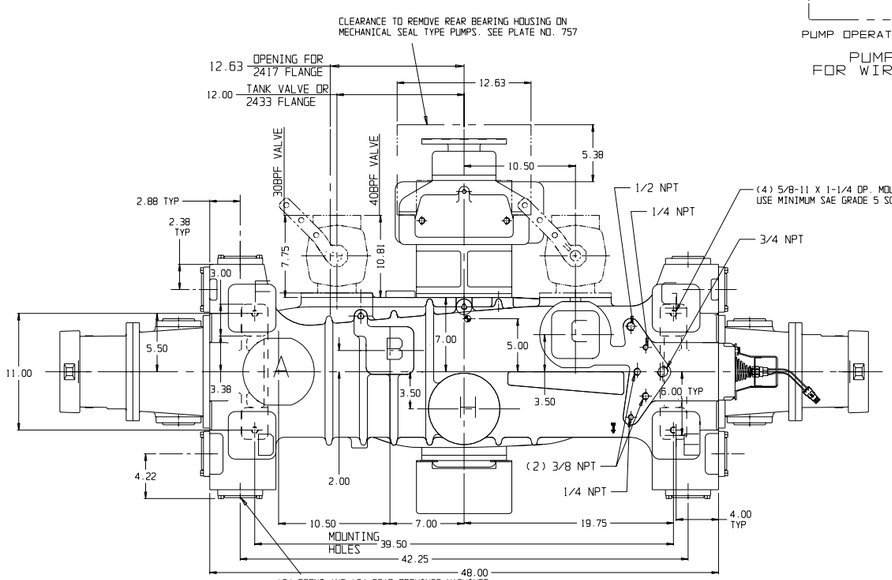
4,337,830 5,018,665
4,587,862 5,139,393
4,653,978

NOTES

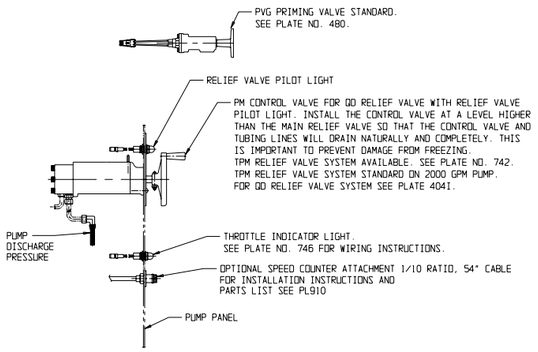
1. REFER TO HALE PUMP/ENGINE COMBINATION LIST TO SELECT PROPER RATIO TO MATCH PUMP WITH ENGINE.
2. WEIGHT OF STANDARD QMAX 1500 G.P.M. PUMP AS SHOWN LESS PRIMING PUMP. = 1275 LBS.
3. ⊕ = CENTER OF GRAVITY.
4. IMPELLER SHAFT SEAL - MECHANICAL SEAL OR PACKING AVAILABLE.
5. APPLY LOCTITE # 246 HIGH TEMPERATURE THREAD LOCKER OR EQUIVALENT TO SCREW THREADS AND TORQUE SCREWS PER HALE ENGINEERING STANDARD ES018-002 .
6. UNLESS OTHERWISE INDICATED FASTENERS ARE GRADE 5 ZINC PLATED STEEL



PUMP SHIFT INDICATOR LIGHTS
FOR WIRING SCHEMATIC SEE PLATE NO. 746



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) = 600 PSI
2HP HIGH PRESSURE PUMP MAXIMUM PUMP PRESSURE (HYDROSTATIC & HYDRODYNAMIC) = 1000 PSI
MAXIMUN POWER INPUT FOR PUMPING = 450 HP.
MAXIMUM TORQUE ON PUMP SHAFT = 2300 LBS-FT
MAXIMUM GEARBOX SHAFT TORQUE (ROAD) = 16,000 LBS-FT

PUMP MODEL	QMAX*-23	QMAX*-25	QMAX*-28	QMAX*-30	QMAX*-35
MAX GEARBOX INPUT RPM	2280	2530	2780	3030	3280
PUMP MODEL	QMAX*-28X	QMAX*-25X	QMAX*-23X	QMAX*-21X	QMAX*-19X
MAX GEARBOX INPUT RPM	1840	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
QMAX*-28.8		EXTRA LONG GEARBOX (XL)	14.56	6.50	5.44	4.06	1.84
QMAX*-25.5			14.75				
QMAX*-23.3			14.90				
QMAX*-21.1			15.06				
QMAX*-19.9			15.25				
QMAX*-23.2		LONG (L)	12.38	6.50	4.31	5.18	2.00
		SHORT (S)	10.50		4.75	2.75	.38
QMAX*-21.0		LONG (L)	12.56		4.31	5.18	2.00
		SHORT (S)	10.68		4.75	2.75	.38
QMAX*-19.8		LONG (L)	12.75		4.31	5.18	2.00
		SHORT (S)	10.88		4.75	2.75	.38
QMAX*-17.7		LONG (L)	12.94		4.31	5.18	2.00
		SHORT (S)	11.06		4.75	2.75	.38
QMAX*-15.5		LONG (L)	13.13		4.31	5.18	2.00
		SHORT (S)	11.25		4.75	2.75	.38

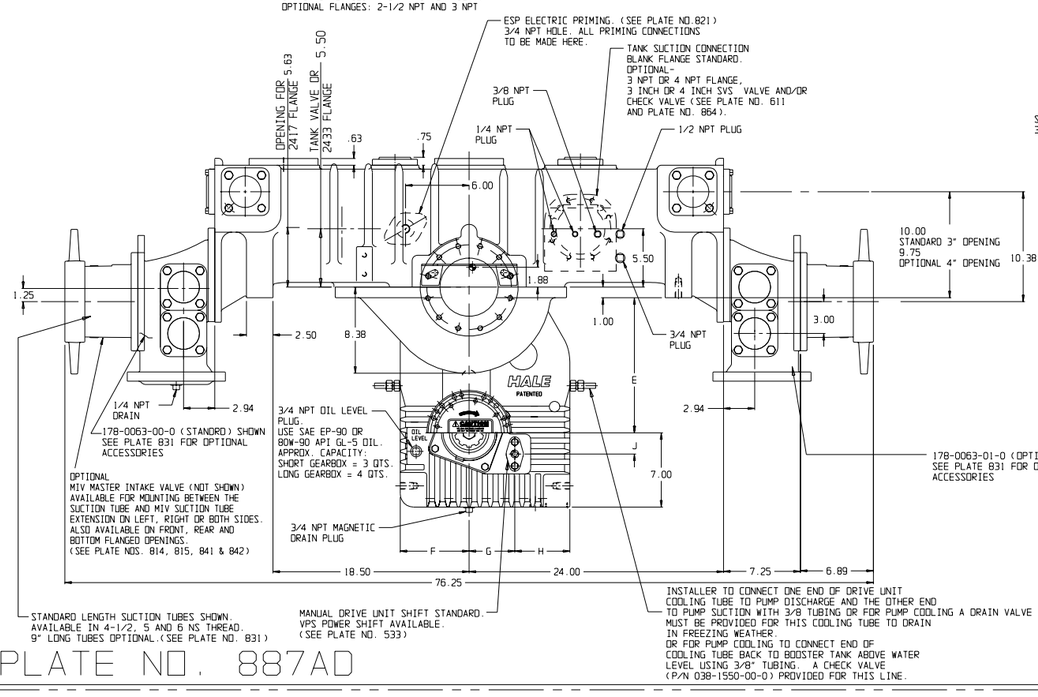
* RATED CAPACITY 1000, 1250, 1500, 1750, 2000 AND 2250 GPM

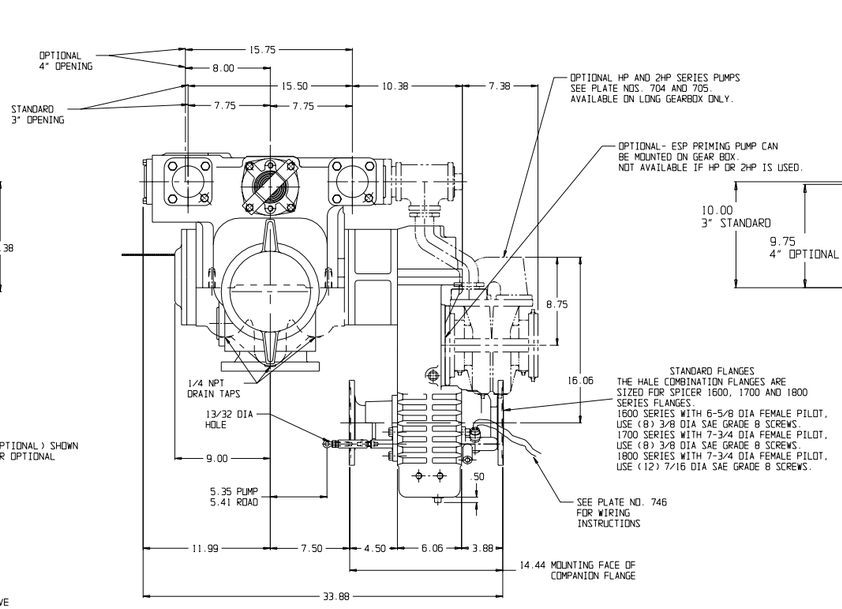
** THE SHORT (S) GEARBOX IS STANDARD AND WILL BE SUPPLIED UNLESS OTHERWISE SPECIFIED.

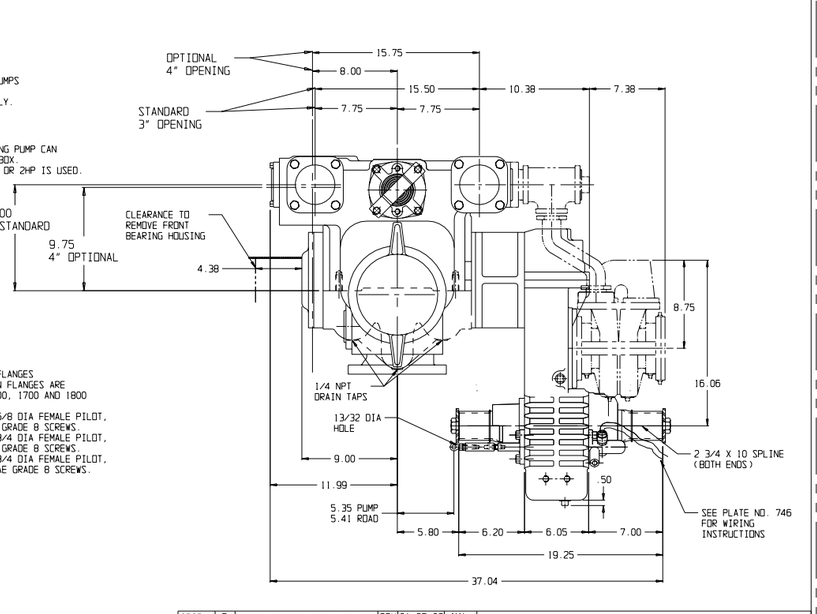
EXAMPLE: THE MODEL NUMBER FOR A 1500 GPM RATED PUMP WITH A 2.28 GEAR RATIO AND A SHORT GEARBOX WOULD BE QMAX150-23S.

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.







ECO NO	REV	CHANGED FROM	BY	DATE	APVD
0303	D	UPDATED TO CURRENT PRODUCTION	DBH	01-25-06	MAL
00-441	C	UPDATED DRAWING	DJK	4-10-00	MAL
99-121	B	UPDATE DRAWING	DPL	6-15-99	RET
98-49	A	RELEASE FOR PRODUCTION	MD	4-1-98	RET

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

DRAWN MD | CHECKED RET | DATE 2-16-98 | SIZE F | SCALE: .20

PLATE NO. 887AD