WATEROUS

GASOLINE ENGINE/PUMP RATIO WORK SHEET
NOTE: This form is to be used as a guide and may change without notice.

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S.O. _____   Pump Model _____   Impeller(s) _____

Engine _____   HP _____   RPM _____   Injectors _____

Truck Transmission _____   Torque Converter Model _____   Ratio _____   Altitude _____ Ft

_____ GPM @ _____ PSI   _____ GPM @ _____ PSI   _____ GPM @ _____ PSI

Impeller RPM = _____   Impeller RPM = _____   Impeller RPM = _____

Ratio: _____ _____   _____ _____   _____ _____

Eng RPM _____ _____   _____ _____   _____ _____

Net curve HP available	A	——————	——————	——————	——————	——————	——————
* Deduction for losses	B	——————	——————	——————	——————	——————	——————
A minus B	C	——————	——————	——————	——————	——————	——————
** HP deduction for altitude	D	——————	——————	——————	——————	——————	——————
C minus D	E	——————	——————	——————	——————	——————	——————
*** HP deduction for Auto Trans	F	——————	——————	——————	——————	——————	——————
E minus F = available HP	G	——————	——————	——————	——————	——————	——————
Published pump HP required plus 5%	H	——————	——————	——————	——————	——————	——————
Surplus HP	I	——————	——————	——————	——————	——————	——————

*For Chevrolet, Chrysler and International engines deduct 12% from net curve. For GMC engines deduct 5% for engine variation from any as–installed engine curve.

**Engine Manufacturers Guidlines: To determine horsepower deduction for altitude above 500 ft sea level use the following formula which is based on 2000 ft altitude.   Example: 1.5 alt x .035 x HP on line C = deduction for altitude.
When interpretation of engine curve is questionable please contact engine distributor and/or engine manufacturer for qualification.

*** Automatic Transmission Deduction:

RPM	AT–500	MD–Series MT–Series	RPM	HT–700
1000	5 HP	3 HP	1000	7 HP
1500	6 HP	4 HP	1300	9 HP
1750	7 HP	5 HP	1500	11 HP
2000	8 HP	6 HP	1600	12 HP
2250	9 HP	7 HP	1700	13 HP
2500	10 HP	8 HP	1800	14 HP
2750	11 HP	9 HP	1900	15 HP
3000	12 HP	10 HP	2000	16 HP

Determine maximum stall torque:

_____ x _____ x _____ = _____

Maximum Engine Torque   Torque Converter Ratio   Highest Numerical Trans Ratio   Stall Torque

Booster Reel Performance at 60 GPM:

_____ x _____ = _____ — — _____

Maximum Engine RPM   Ratio   Impeller RPM   Maximum PSI from pump curve

Pump Transmission Driveline Ratings:

1.75”–10	4100 lb–ft
2”–10	6100 lb–ft
2”–38	9100 lb–ft
2.35”–46	16000 lb–ft

Refer to F–1052 for permissible speeds and loads for driven sprockets.

NOTE: Refer to pump performance curve and determine maximum pressure that can be obtained. Determine if sufficient engine power is available.

GASOLINE ENGINE/PUMP RATIO WORK SHEET – METRIC

NOTE: This form is to be used as a guide and may change without notice.

S.O. _____ Pump Model _____ Impeller(s) _____

Engine _____ kW _____ RPM _____ Injectors _____

Truck Transmission _____ Torque Converter Model _____ Ratio _____ Altitude _____ m

_____ l/min @ _____ bar _____ l/min @ _____ bar _____ l/min @ _____ bar

Impeller RPM = _____ Impeller RPM = _____ Impeller RPM = _____

Ratio: _____ _____ _____ _____ _____ _____

Eng RPM _____ _____ _____ _____ _____ _____

Net curve kW available	A	_____	_____	_____	_____	_____	_____
* Deduction for losses	B	_____	_____	_____	_____	_____	_____
A minus B	C	_____	_____	_____	_____	_____	_____
** kW deduction for altitude	D	_____	_____	_____	_____	_____	_____
C minus D	E	_____	_____	_____	_____	_____	_____
*** kW deduction fro Auto Trans	F	_____	_____	_____	_____	_____	_____
E minus F = available kW	G	_____	_____	_____	_____	_____	_____
Published pump kW required plus 5%	H	_____	_____	_____	_____	_____	_____
Surplus kW	I	_____	_____	_____	_____	_____	_____

*Suggested percentage deductions that must be taken from engine power curve for losses due to engine accessories and engine variation are as follows:
For Caterpillar, Cummins, Ford, GMC & Mack, deduct 12% from net engine power curve;
For Detroit Diesel and International deduct 15% from net engine power curve.
NOTE: Computer scan will also provide predictable kW deductions.

** Engine Manufacturer's Guidelines: To determine kilowatt deduction for altitude above 152.4m sea level use the following formula which is based on 609.6m altitude.   Example: 1.5 alt x .035 x kW on line C = deduction for altitude.
When interpretation of engine curve is questionable, please contact engine distributor and/or engine manufacturer for qualification.

*** Automatic Transmission Deduction:

RPM	AT–500	MD–Series MT–Series	RPM	HT–700
1000	3.7 kW	2.2 kW	1000	5.2 kW
1500	4.5 kW	3.0 kW	1300	6.7 kW
1750	5.2 kW	3.7 kW	1500	8.2 kW
2000	6.0 kW	4.5 kW	1600	8.9 kW
2250	6.7 kW	5.2 kW	1700	9.7 kW
2500	7.5 kW	6.0 kW	1800	10.4 kW
2750	8.2 kW	6.7 kW	1900	11.2 kW
3000	8.9 kW	7.5 kW	2000	11.9 kW

Determine maximum stall torque:

_____ x _____ x _____ = _____

Maximum Engine Torque   Torque Converter Ratio   Highest Numerical Trans Ratio   Stall Torque

Booster Reel Performance at 227 l/min

_____ x _____ = _____ – – _____

Maximum Engine RPM   Ratio   Impeller RPM   Maximum bar from pump curve

Pump Transmission Driveline Ratings:

1.75"–10	5560 N•m
2"–10	8272 N•m
2"–38	12340 N•m
2.35"–46	21760 N•m

Refer to F–1052 for permissible speeds and loads for driven sprockets.

NOTE: Refer to pump performance curve and determine maximum pressure that can be obtained. Determine if sufficient engine power is available.