



# Truck Hydraulics Propane Systems Training

Basic Overview



ENGINEERING YOUR SUCCESS.

# Propane Truck Applications



ENGINEERING YOUR SUCCESS.

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# Roper Pumps



**Important Propane Safety Information**

for you and your family




**Small propane delivery trucks normally use a Roper 3600 Series Pump for home delivery applications. The Roper Series Pump will need a PTO that turns between 60 to 90 % of engine speed depending on the Roper model number required for the application. Ranger also makes a copy of these pumps using the same model numbers. These pumps are not limited to Propane but can also handle Gas and similar fuels.**




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## 3600 Series

Model	Theoretical Capacity	Maximum Speed	Maximum Flow @ Maximum Speed (at Discharge Pressure)	Maximum Pressure	Valve Connection
46110211	1100GPM (41.00 CCREV)	750 RPM	81.5GPM (30.4 M <sup>3</sup> /HR)	125 PSI (8.6 Bar)	2" NPT Flange
46110471	1100GPM (41.00 CCREV)	750 RPM	85.0GPM (31.8 M <sup>3</sup> /HR)	125 PSI (8.6 Bar)	2" NPT Flange
46110717	1100GPM (41.00 CCREV)	750 RPM	117.5GPM (44.3 M <sup>3</sup> /HR)	125 PSI (8.6 Bar)	2" NPT Flange
46110717	1100GPM (41.00 CCREV)	750 RPM	121.5GPM (45.6 M <sup>3</sup> /HR)	125 PSI (8.6 Bar)	2" NPT Flange
46221752	1200GPM (43.00 CCREV)	750 RPM	160GPM (60.4 M <sup>3</sup> /HR)	125 PSI (8.6 Bar)	2" NPT Flange
46221822	1200GPM (43.00 CCREV)	750 RPM	165GPM (61.7 M <sup>3</sup> /HR)	125 PSI (8.6 Bar)	2" NPT Flange
46223752	1200GPM (43.00 CCREV)	900 RPM	208GPM (76.4 M <sup>3</sup> /HR)	125 PSI (8.6 Bar)	2" NPT Flange
46331785	1300GPM (46.50 CCREV)	900 RPM	222GPM (83.4 M <sup>3</sup> /HR)	125 PSI (8.6 Bar)	2" NPT Flange
46433291	1300GPM (46.50 CCREV)	900 RPM	250GPM (92.0 M <sup>3</sup> /HR)	125 PSI (8.6 Bar)	2" NPT Flange
46433745	1300GPM (46.50 CCREV)	900 RPM	468GPM (166.2 M <sup>3</sup> /HR)	125 PSI (8.6 Bar)	2" NPT Flange
46533756	1400PSI (49.60 CCREV)	900 RPM	302GPM (112.9 M <sup>3</sup> /HR)	125 PSI (8.6 Bar)	2" NPT Flange
46533759	1500PSI (53.00 CCREV)	900 RPM	380GPM (142.0 M <sup>3</sup> /HR)	125 PSI (8.6 Bar)	2" NPT Flange



# Manual Transmissions Six Bolt 230/231

## Powershift ('Shift on the Go') Six & Eight Bolt Power Take-Offs

### 230/231 Series

- Designed for both Manual and Automatic transmissions
- Electric-over-air shifting
- 231 offers low profile housing for avoiding clearance problems
- Pressure lubrication option available for both units
- Internal self adjusting shaft brake option (patent # 7159701)
- P.T.O./Dump pump combo valve shift option available



### Series Specifications Chart – 230/231 Series

	230* A,B,D,K & Q w/Pressure Lube	230* A,B,D,K & Q w/Standard Lube	231* A,B,D,K & Q w/Pressure Lube	231* A,B,D,K & Q w/Standard Lube
Standard Output Shaft Size	1-1/4" Round w/key			
Intermittent Torque Rating (Lbs. ft.)	300	250	250	225
Intermittent Torque Rating (N.m.)	407	339	339	305
Horsepower Rating for Intermittent Service				
At 500 R.P.M. of Output Shaft (HP)	29	24	24	21
At 1000 R.P.M. of Output Shaft (HP)	57	48	48	43
At 500 R.P.M. of Output Shaft (Kw)	21	18	18	16
At 1000 R.P.M. of Output Shaft (Kw)	43	36	36	32
Approximate Weight:	49 lbs. [22 kg]			

# Manual Transmissions Six Bolt 236

## 236 Series

- Internal self adjusting shaft brake option (patent # 7159701)
- Wide selection of input gears for virtually all currently produced transmissions
- Helical gears and optional pressure lubrication to extend P.T.O. service life
- Inspection cover for adjusting backlash
- P.T.O./Dump pump combo valve shift option available



## Series Specifications Chart – 236 Series

	236 <sup>D,K &amp; Q</sup>	236 <sup>U</sup>
Standard Output Shaft Size	—— 1-1/4" Round w/key ——	
Intermittent Torque Rating (Lbs. ft.)	250	225
Intermittent Torque Rating (N.m.)	339	305
Horsepower Rating for Intermittent Service		
At 500 R.P.M. of Output Shaft (HP)	24	21
At 1000 R.P.M. of Output Shaft (HP)	48	43
At 500 R.P.M. of Output Shaft (Kw)	18	16
At 1000 R.P.M. of Output Shaft (Kw)	36	32
Approximate Weight:	—— 49 lbs. [22 kg] ——	

# Automatic Transmissions 10 Bolt

## Powershift ('Shift on the Go') Ten Bolt Power Take-Offs

### 277 Series

- Exceeds the torque capacity of a 6-Bolt P.T.O. while offering the tighter sealing of a 10-Bolt pattern
- Five speed ratios and ten output options
- Combo Valve shift option available for P.T.O./Dump Pump systems
- SuperTorque™ gears available for 20% higher intermittent torque ratings
- Cartridge Valve Assembly for reduced interference
- Wet Spline Options available
- Shaft Brake option (patent # 7159701) available for product pump applications



### Specifications Chart – 277 Series

	277*B	277*D	277*G	277*M	277*S	277SB	277SD	277SG	277SM	277SS
						SuperTorque™				
Standard Output Shaft Size						1-1/4" Round w/key				
Intermittent Torque Rating (Lbs. ft.)	335	325	300	265	250	402	390	360	318	265
Intermittent Torque Rating (N.m.)	454	441	407	359	339	545	529	488	431	359
Horsepower Rating for Intermittent Service										
At 500 R.P.M. of Output Shaft (HP)	32	31	29	25	24	38	37	34	30	25
At 1000 R.P.M. of Output Shaft (HP)	64	62	57	50	48	77	74	69	61	50
At 500 R.P.M. of Output Shaft (Kw)	24	23	21	19	18	29	28	26	23	19
At 1000 R.P.M. of Output Shaft (Kw)	48	46	43	38	36	57	56	51	45	38
Approximate Weight:						49 lbs. [22 kg]				

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