

PIPELAYERS

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Features:

- **Hydrostatic transmission** on PL61.
- **Planetary power shift** transmission on 572R2, 583T, 587R, and 587T models.
- **Kick-out helps prevent boom bending** as boom approaches near-vertical.
- **Sealed and Lubricated Track.**
- **Simplified Controls** for all functions including raise, lower, quick-drop and power down, high and low range and speed adjustments.
- **Modular design of major components and accessory drive system** for simplified repair.
- **Separate, self-energizing brakes** for boom and hook winches.
- **Positive track pin retention** (583T, 587R, and 587T).
- **Hydraulic Drawworks** with two independently driven hydraulic motors for boom and hook winches.



MODEL	PL61		572R Series 2		583T		
Flywheel Power	92 kW	125 hp	179 kW	240 hp	231 kW	310 hp	
Operating Weight (with full fuel tank and operator)	17 000 kg	37,480 lb	31 845 kg	70,206 lb	45 359 kg	100,000 lb	
Engine Model	C6.6 ACERT		3176C		C15 ACERT		
Rated Engine RPM	2100		2100		1850		
No. of Cylinders	6		6		6		
Displacement	6.6 L	403 in ³	10.3 L	629 in ³	15.2 L	928 in ³	
Lift Capacity at 1.22 m (4'0") Overhang	18 145 kg	40,000 lb	40 800 kg	90,000 lb	63 504 kg	140,000 lb	
Standard Boom Length	5.49 m	18'0"	6.1 m	20'0"	7.3 m	24'0"	
Width of Standard Shoe	560 mm	22"	660 mm	26"	710 mm	28"	
Length of Track on Ground	2645 mm	8'8"	3.176 m	10'5"	3.556 m	11'8"	
Ground Contact Area (with standard shoes)	3 m ²	4650 in ²	4.19 m ²	6500 in ²	5.10 m ²	7896 in ²	
Track Gauge	2 m	6'7"	2.235 m	7'4"	2.34 m	7'8"	
Fuel Tank Refill Capacity	295 L	78 U.S. gal	479 L	127 U.S. gal	409 L	108 U.S. gal	
GENERAL DIMENSIONS:							
Height to Top of Stack	2.91 m	9'7"	3.18 m	10'5"	3.454 m	11'4"	
Height to Top of Counterweight or Winch	2.45 m	8'1"	2.9 m	9'6"	3.505 m	11'6"	
Height with ROPS (boom removed)	2958 mm	9'8.5"	3454 mm	11'4"	3728 mm	12'3"	
Width, Weights Retracted	3 m	9'10"	3.66 m	12'0"	3.73 m	12'3"	
Minimum Shipping Width (both side frames removed)	2560 mm	8'5"	2.895 m	9'6"	3.07 m**	10'1"***	
Shipping Width (left frame removed)	2816 mm	9'3"	3.66 m	12'0"	3.61 m*	11'10"*	
Overall Length	3.78 m	12'5"	4.74 m	15'6"	5.23 m	17'2"	
Ground Clearance	360 mm	14"	416 mm	16.4"	470 mm	18.5"	
DRUMS and CABLES:							
Drum Capacity	Load	73 m	239'	80 m	263'	181 m	594'
	Boom	49.4 m	162'	52 m	170'	181 m	594'
Cable Diameter	Load	16 mm	0.62"	19 mm	0.75"	19 mm	0.75"
	Boom	16 mm	0.62"	19 mm	0.75"	19 mm	0.75"
Drum Diameter	Load	216 mm	8.5"	254 mm	10"	317 mm	12.5"
	Boom	245 mm	9.63"	224 mm	8.5"	317 mm	12.5"
Adjustable Counterweights		7 @		2 @		2 @	
	67.7 kg ea	149 lb ea	370 kg ea	815 lb ea	300 kg ea	662 lb ea	
	114.8 kg ea	253 lb ea	479 kg ea	1055 lb ea	430 kg ea	948 lb ea	
		9 @		7 @		5 @	
						6 @	
					535 kg ea	1180 lb ea	
					9036 kg	19,920 lb	
Total Weight Extendable	1231 kg	2714 lb	5073 kg	11,184 lb			
	LGP Option						
Operating Weight 610 mm (24")	17 800 kg	39,242 lb					
Shipping Width:							
Boom Removed	3200 mm	10'6"					
Counterweight Removed	3116 mm	10'3"					
Frame, Brackets, Winches Removed	2760 mm	9'1"					
Track Shoe Width	610 mm	24"					
	760 mm	30"					
Ground Contact Area:							
610 mm (24") Shoes	3.2 m ²	4690 in ²					
760 mm (30") Shoes	4 m ²	6200 in ²					

*Boom and counterweight only removed.

**Counterweight frame, counterweight mounting brackets, boom, and boom mounting brackets removed.



MODEL

587R

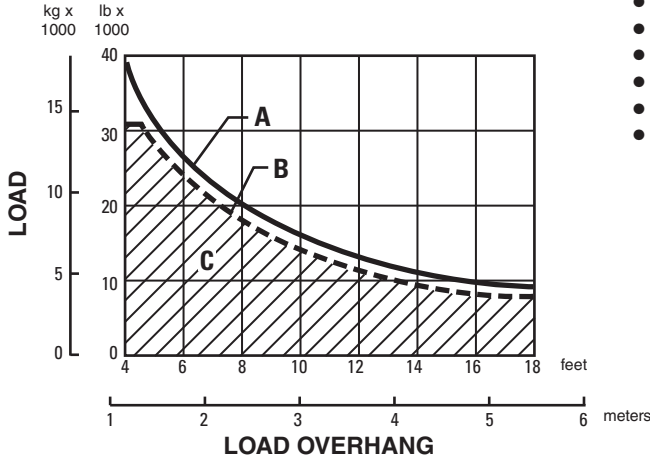
587T

Flywheel Power	262 kW	351 hp	273 kW	366 hp
Operating Weight (with full fuel tank and operator)	53 442 kg	117,820 lb	53 070 kg	117,000 lb
Engine Model	3406C DITA		C15 ACERT	
Rated Engine RPM	1900		1800	
No. of Cylinders	6		6	
Displacement	14.6 L	893 in³	15.2 L	928 in³
Lift Capacity at 1.22 m (4'0") Overhang	91 625 kg	202,000 lb	91 625 kg	202,000 lb
Standard Boom Length	8.5 m	28'0"	8.5 m	28'0"
Width of Standard Shoe	864 mm	34"	864 mm	34"
Length of Track on Ground	3.587 m	11'9"	3.587 m	11'9"
Ground Contact Area (with standard shoes)	6.2 m ²	9613 in²	6.2 m ²	9613 in²
Track Gauge	2.54 m	8'4"	2.54 m	8'4"
Fuel Tank Refill Capacity	568 L	150 U.S. gal	568 L	150 U.S. gal
GENERAL DIMENSIONS:				
Height to Top of Counterweight or Winch	3.505 m	11'6"	3.505 m	11'6"
Height with ROPS (boom removed)	—		3835 mm	12'7"
Width, Weights Retracted	4.343 m	14'3"	4.343 m	14'3"
Minimum Shipping Width	3.860 m*	12'8" **	3.860 m*	12'8" **
Shipping Width (boom and counterweight removed)	4.038 m	13'3"	4.038 m	13'3"
Overall Length	5.486 m	18'0"	5.486 m	18'0"
Ground Clearance	457 mm	18"	457 mm	18"
DRUMS and CABLES:				
Drum Capacity	Load	181 m	181 m	594'
	Boom	181 m	181 m	594'
Cable Diameter	Load	19 mm	19 mm	0.75"
	Boom	19 mm	19 mm	0.75"
Drum Diameter	Load	317 mm	317 mm	12.5"
	Boom	317 mm	317 mm	12.5"
Adjustable Counterweights		2 @	2 @	
	285 kg		285 kg	628 lb
	640 kg	6 @	640 kg	1410 lb
	714 kg	7 @	714 kg	1574 lb
Total Weight Extendable	12 900 kg	28,440 lb	12 900 kg	28,440 lb

*Counterweight frame, counterweight mounting brackets, and boom removed.

PL61

LIFTING CAPACITY* 5.49 m (18'0") BOOM



***Specified Equipment:**

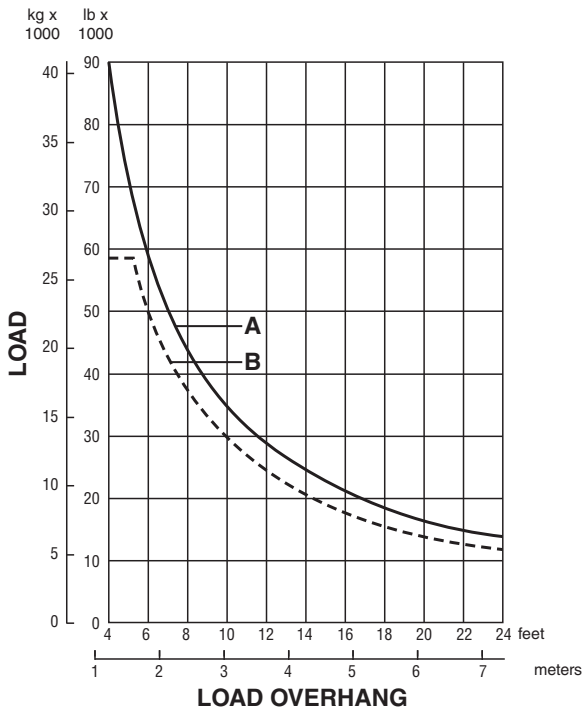
- 16 mm (5/8") diameter wire rope.
- 183.3 kN (41,200 lb) minimum breaking strength.
- 3 part load line.
- 3 part boom line.
- 1231 kg (2714 lb) counterweight extended.
- Standard 5.49 m (18'0") Boom.
- Total operating weight
Narrow — 17 000 kg (37,480 lb).
LGP — 17 800 kg (39,242).

KEY

- A — Lift capacity at tipping point per ISO 8813
- B — Rated load capacity per ANSI/ASME B30.14
- C — Working range per ANSI/ASME B30.14

572R Series 2

LIFTING CAPACITY* 6.1 m or 7.3 m (20'0" or 24'0") BOOMS



***Specified Equipment:**

- 19 mm (3/4") dia. wire rope 261.66 kN (58,800 lb) minimum breaking strength.
- 4 part load line.
- 4 part boom line.
- 5073 kg (11,184 lb) counterweight extended.
- Standard 6.1 m (20'0") Boom.

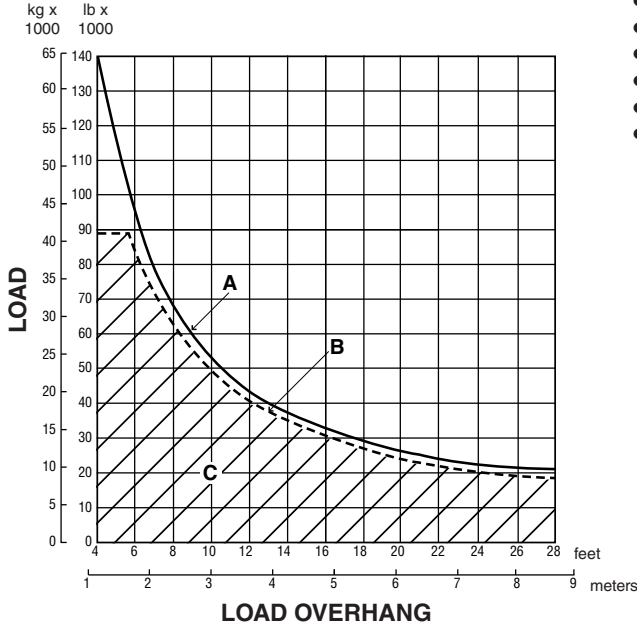
KEY

- A — Max lift
- B — Rated lift

NOTE: ISO stands for the International Standards Organization. ANSI stands for American National Standard Institute.

583T

LIFTING CAPACITY* 7.3 m, 8.5 m (24'0", 28'0") BOOMS



***Specified Equipment:**

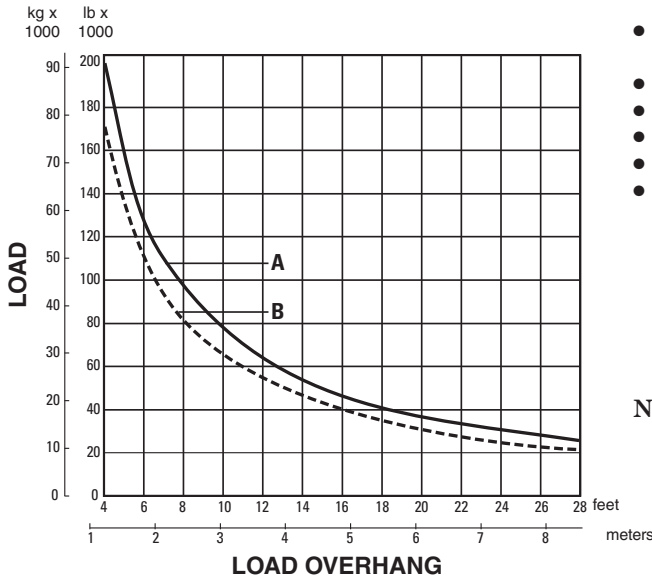
- 19 mm (3/4") diameter wire rope.
- 26 672 kg (58,800 lb) minimum breaking strength.
- 6 part load line.
- 5 part boom line.
- 9036 kg (19,920 lb) counterweight extended.
- Standard 7.3 m (24'0") Boom.
- Total operating weight 45 359 kg (100,000 lb).

KEY

- A — Max lift capacity per ISO 8813
- B — Rated load per ANSI/ASME B30.14
- C — Working range per ANSI/ASME B30.14

587R/T

LIFTING CAPACITY* 8.5 m (28'0") BOOM



***Specified Equipment:**

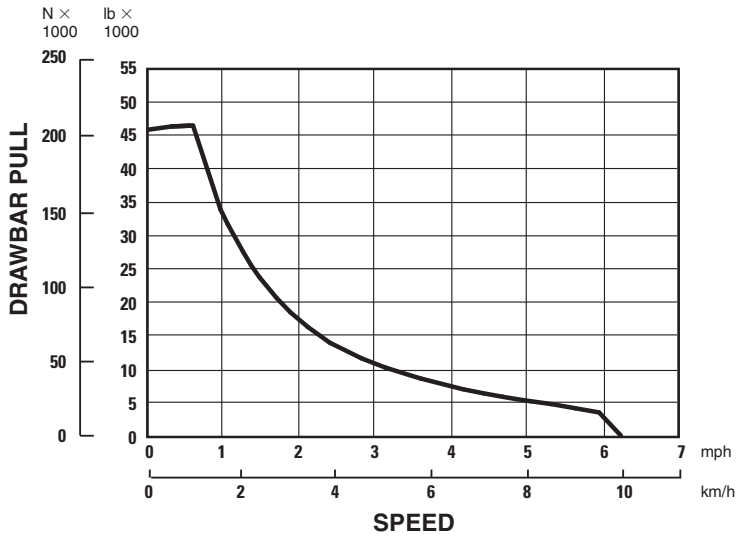
- Load: 19 mm (3/4") dia. wire rope 26 672 kg (58,800 lb) minimum breaking strength.
- Boom: 19 mm (3/4") dia. wire rope 26 672 kg (58,800 lb) minimum breaking strength.
- 8 part load line.
- 5 part boom line.
- 12 900 kg (28,440 lb) counterweight extended.
- Standard 8.5 m (28'0") Boom.
- Total operating weight 53 070 kg (117,000 lb).

KEY

- A — Max lift
- B — Rated lift

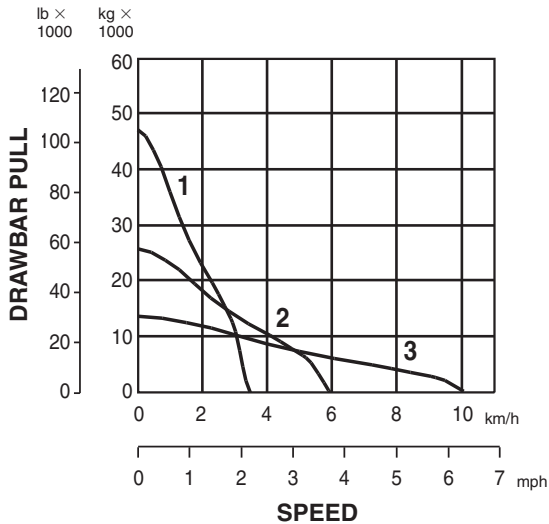
NOTE: ISO stands for the International Standards Organization. ANSI stands for American National Standard Institute.

PL61

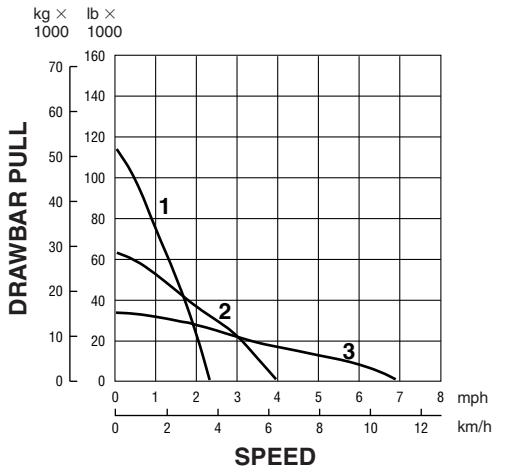


NOTE: Usable pull will depend upon weight and traction of equipped tractor.

572R Series 2



583T



KEY

- 1 — 1st Gear
- 2 — 2nd Gear
- 3 — 3rd Gear

MODEL	PL61				572R Series 2			
	Forward		Reverse		Forward		Reverse	
Travel Speeds (at rated RPM)	km/h	mph	km/h	mph	km/h	mph	km/h	mph
1st Gear	3.1	1.9	3.8	2.3	3.5	2.2	4.5	2.8
2nd Gear	5.4	3.3	6.7	4.1	6.1	3.8	7.9	4.9
3rd Gear	10.0	6.2	10.0	6.2	10.6	6.6	13.5	8.4
Hydrostatic	10.0	6.2	10.0	6.2	—	—	—	—

MODEL	583T				587R				587T			
	Forward		Reverse		Forward		Reverse		Forward		Reverse	
Travel Speeds (at rated RPM)	km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph	km/h	mph
1st Gear	3.5	2.3	4.7	2.9	3.2	2.0	4.3	2.7	3.2	2.0	4.3	2.7
2nd Gear	6.4	4.0	8.1	5.0	5.6	3.5	7.4	4.6	5.8	3.6	7.6	4.7
3rd Gear	10.8	6.8	13.8	8.6	9.7	6.0	12.6	7.8	10.0	6.2	12.9	8.0

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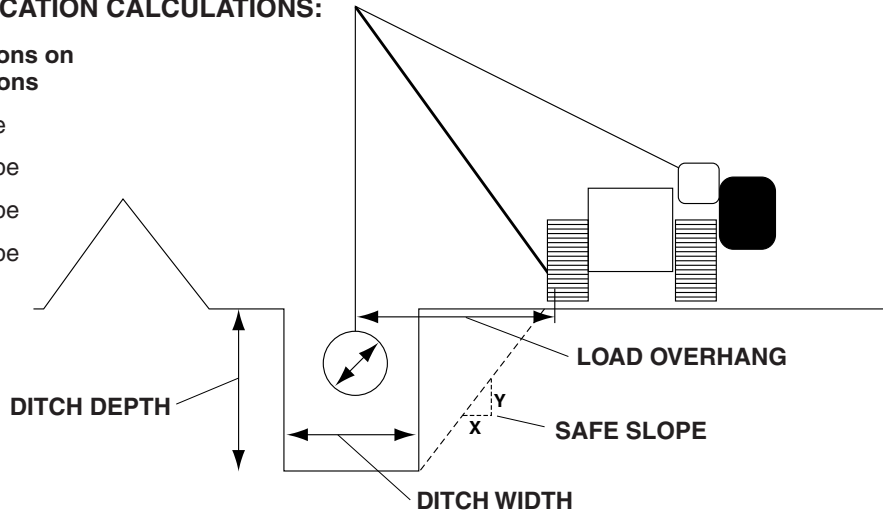
MODEL	PL61		572R Series 2	
	m/min	ft/min	m/min	ft/min
Pipelayer Hook Speeds per minute, Bare drum at rated engine RPM				
Low Raise & Lower	33.0	108	11.0	37
Hi Raise & Lower	69.5	228	22.0	72

MODEL	583T		587R/T	
	m/min	ft/min	m/min	ft/min
Pipelayer Hook Speeds per minute, Bare drum at rated engine RPM				
Low Raise	26.0	85	—	—
Low Lower	22.0	73	15.5	50.8
Hi Lower	30.0	98	15.5	50.8

PIPELAYER APPLICATION CALCULATIONS:

Typical pipelayer applications on flat, firm underfoot conditions

- PL61** laying 8" to 16" pipe
- 572R2** laying 16" to 24" pipe
- 583T** laying 24" to 36" pipe
- 587R/T** laying 36" to 56" pipe



The chart above provides general information representing typical pipelayer applications. While the following scenario explores many of the variables involved in pipelaying it does not cover all the possible variables that must be considered by pipelaying contractors.

When sizing pipelayers for an application there are many considerations other than the machine's SAE rated lift capacity. These include but are not limited to:

- pipe diameter and weight per linear foot
- ditch width and depth
 - ditch width is typically $2 \times$ pipe diameter
 - ditch depth is typically $>2.5 \times$ pipe diameter
- distance from the ditch (safe slope) required by soil stability conditions
 - typically 2:1 (meaning the pipelayer must be $2 \times$ ditch depth from the ditch edge)

- acceptable distance between pipe lifting points while suspended (to prevent bending)
 - determined by the pipe's bending characteristics. If the lifting points are too far apart a pipe can sag enough due to its own weight that it will damage itself.
- the operating safety factor desired by the contractor
- the length of pipe that will need to be suspended while laying-in
 - determined by pipe bending characteristics, terrain, etc.
- ground conditions, road bed preparation

An important consideration is the necessary load overhang. This is the distance from the center of the pipe to the tractor's left track rail. The load overhang required for an application can be estimated by:

- load overhang = safe slope \times ditch depth + $(0.5 \times$ ditch width)

The pipelayer's rated load capacity at a specific load overhang (per ANSI/ASME B30.14) can be found in the load capacity graphs in this section of the performance handbook. Once the load capacity is determined the maximum lift point spacing can be estimated by:

- max lift point spacing = $\frac{\text{load capacity at load overhang}}{\text{safety factor} \times \text{pipe weight per linear foot}}$

The maximum distance between pipe lift points (based on pipe bending characteristics) may be a shorter distance than the maximum spacing between lift points as calculated based on pipelayer load capacity. If this is the case, then in order to avoid damaging the pipe, the shorter distance should be considered to be the maximum distance between pipelayers.

As an example, consider a project involving 0.5" wall 24" diameter pipe which has a weight per linear foot of 125.5 lb and the soil has a safe slope of 2. Using the above formulas:

- the ditch depth would be $3 \times 2 \text{ ft} = 6 \text{ ft}$ deep
- the ditch width would be $2 \times 2 \text{ ft} = 4 \text{ ft}$
- the load overhang would be $2 \times 6 \text{ ft} + (0.5 \times 4 \text{ ft}) = 14 \text{ ft}$

Using the 572R Series 2's lift capacity chart we find that the 572R Series 2 has an ANSI rated load capacity of approximately 21,250 lb at a 14 ft load overhang.

When using rated load numbers it is important to understand that the lift capacity charts are based on SAE and ANSI test procedures that rate pipelayers on level, concrete surfaces. Working on softer underfoot conditions, working on slopes, (and other) can greatly reduce the pipelayer's load capacity.

If the contractor employs a safety factor of 2 then the maximum spacing between pipe lift points is:

$$\frac{21,250 \text{ lb}}{2 \times 125.5 \text{ lb/ft}} = 84.7 \text{ ft}$$

It is important to remember that this is the distance between the lift points, not the distance nose-to-tail between pipelayers. For this example, assume that 500 ft of pipe must be suspended during the laying-in process.

$$\frac{500 \text{ ft}}{84.7 \text{ ft per pipelayer}} = 5.9 \text{ which means that six pipelayers are needed}$$

The number of pipelayers required could also be determined by a second method:

$$\frac{\text{ft of pipe suspended} \times \text{pipe weight per ft} \times \text{safety factor}}{\text{rated load at overhang}}$$

In this case:

$$\frac{500 \text{ ft} \times 125.5 \text{ lb/ft} \times 2}{21,250 \text{ lb}} = 5.9 \text{ which again implies six pipelayers}$$

If, in this same example, soil conditions required a safe slope of 2.33 then the load overhang would have been 16 ft. At this load overhang the 572R Series 2's rated load capacity is approximately 18,125 lb. Using the equations above, this results in 72.2 ft between lift points which means that seven 572R Series 2 pipelayers are now necessary. Using the second method:

$$\frac{500 \text{ ft} \times 125.5 \text{ lb/ft} \times 2}{18,125 \text{ lb}} = 6.9 \text{ again implying that seven 572R2 pipelayers are needed}$$

Rather than adding another pipelayer, 583T's could be used. At a 16 ft load overhang the 583T has a rated load capacity of 29,400 lb. This translates to 117.1 ft between lift points. If the pipe's bending characteristics will allow this space between lift points, the job could be done with only five 583T's.

