PURDUE UNIVERSITY Extension

PPP-163

Hold it Down!

Fred Whitford, Purdue Pesticide Programs, et al.

Requirements for Chaining Equipment Heavier than 10,000 Pounds

Secure the Load

- A binder from the equipment to the trailer on each corner for a minimum of 4 binders.
- Approved locking devices around bucket.

Calculate Strength Required

- Use the lowest Working Load Limit (WLL) from the chain, hook, and binder.
- Add up the WLL from the four corners.
- Cut the WLL in half per DOT regulations.
- WLL needs to pick up half of the equipment's weight to be in compliance with DOT regulations.

Chains

Chain Link Diameter (inches)	Working Load Limit (pounds)				
	Unmarked or Grade 30	Grade 40	Grade 70	Grade 80	Grade 100
1/4	1,300	2,600	3,150	3,500	4,300
5/16	1,900	3,900	4,700	4,500	5,700
3/8	2,650	5,400	6,600	7,100	8,800
7/16	3,700	7,200	8,750	.....not available.....	
1/2	4,500	9,200	11,300	12,000	15,000
5/8	6,900	13,000	15,800	18,100	22,600

LOAD LIMIT CHECK: A REAL-WORLD EXAMPLE



Collecting the Information

Equipment weighs 15,000 pounds; 1/2 is 7500 pounds

Location	Chain (lbs)	Hook (lbs)	Binder (lbs)	WLL Assigned (lbs) *
Front Right	2,650	6,600	6,600	2,650
Front Left	1,900	6,600	6,600	1,900
Back Right	6,600	8,800	6,600	6,600
Back Left	6,600	6,600	8,800	6,600
			Total WLL:	17,750
	Final Collective WLL Allowed by DOT			17,750/2= 8,875 lbs

*Use the lowest WLL from the chain, hook, and binder combination.

8,875 lbs is greater than 1/2 of the equipment weight (7,500 lbs).
This machine has enough WLL to meet DOT load securement regulations.

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