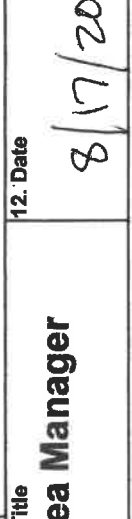
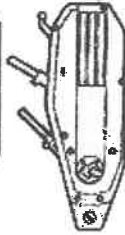


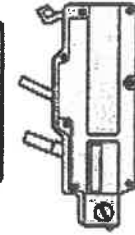
U.S. Department of Agriculture Forest Service		1. WORK PROJECT/ACTIVITY	2. LOCATION	3. UNIT
JOB HAZARD ANALYSIS (JHA) References-FSH 6709.11 and -12 (Instructions on Reverse)		Grip Hoiste and Rigging	CRGNSA	CRGNSA
		4. NAME OF ANALYST	5. JOB TITLE	6. DATE PREPARED
		Roland Rose	Battalion Chief/ Fire Fuels Planner	3/24/2016
7. TASKS/PROCEDURES		8. HAZARDS		
Entire project		<p>9. ABATEMENT ACTIONS Engineering Controls * Substitution * Administrative Controls * PPE</p> <p>Do a complete equipment check and tailgate safety session before leaving vehicles. Ensure this includes what is planned so each person knows what's expected and what emergency procedures may be needed in case of an accident.</p>		
Use of wire rope, establishing the correct wire rope size and type for the work load	Injury or death	Failure of rope strength can result in loss of load and risk serious injury to ground crew	Use of four-strand wire rope. Wire rope should be inspected for frays or kinks in wire prior to use. Utilize grip hoist to manually lift and lower load. Review attached load and rigging chart on next page.	
Placement and stability of anchors	Unstable placement; the load exceeds the stability of the anchor. Climbing tree to place and maintain anchor. Elevating tripod upon boulders above trail.		Anchors must be strong enough to safely withstand the force required to move loads. Anchors set for hoists and winches should be set at a convenient height to provide safe and effective operation.	
Working load calculations	Equipment failure, (hoist, wire rope, blocks)		Maintain a working load of 5:1, never load gear more than 1/5 the limit.	
Working load calculations	Estimation on distance, and weight distribution		Properly calculate loads prior to use of rigging. Estimate load weight and size prior to applying tension.	
Line Safety	Improper inspection of equipment. Faulty setup of equipment.		Crew members will be educated and trained on how to inspect, setup, and operate equipment. All equipment will be inspected prior to use. Use of Personal Protective Equipment at all times (hard hats, safety glasses, gloves, etc.)	
Shear Pins	Incorrect placement or improper use of pins can lead to overloading rigging system		Only use pins rated for grip hoist. Do not use nails, files, drill bits or anything else in place of shear pins.	
WORK SITE SAFETY Communication	Lack of experience working with rigging equipment and understanding rigging terminology. Other work site noise sources that inhibit hearing.		Coordinate how the crew will communicate prior to loading. Use verbal and nonverbal communication to move load (hand signals and radios). Always acknowledge that commands have been received and understood. The crew will be briefed and educated on the terminology and use of equipment prior to handling.	

Stability of Worksite	Slips trips and falls	Analyze work site for slippery or loose rocks, falling hazards on the ground or overhead (snags) hazards.
Fly Away Zone	Working under the rigging equipment. Exposure to anchor, block, or line failure	Avoid areas where failed rigging would likely go and communicate those areas to others that may not be aware.
Tripods	Tipping over, Pin/Cotter or chain failure	Never have force vector outside of base of tripod Check and verify that cotter pins are engaged Placement of safety chains at base of tripod
Public Safety/Traffic Control	Debris falling onto trail and/or Failure of rigging equipment	Assign crew members as trail guards as needed. Incorporate qualified road guards as needed. When practicable post signs to notify public of possible trail closures, dangerous equipment and estimated time travel through work area at trailheads.
All field tasks	Lack of Communication	<ul style="list-style-type: none"> • Ensure 9 line is covered including communications specific to all work locations involved. • Ensure everyone knows their role in case of an emergency and have back up plans • Test communications in areas where you are unsure if they work. • Don't rely solely on cell phones, when in poor cell phone areas ensure Dispatch is briefed on the project and potential emergency actions. • Check in with Dispatch prior to initiating saw work and again when saw work is completed. Go through Duty Officer if Dispatch is down. •
10. Line Officer Signature		11. Title Area Manager
		12. Date 8/17/2016

TU
range
material
handling
and
manriding

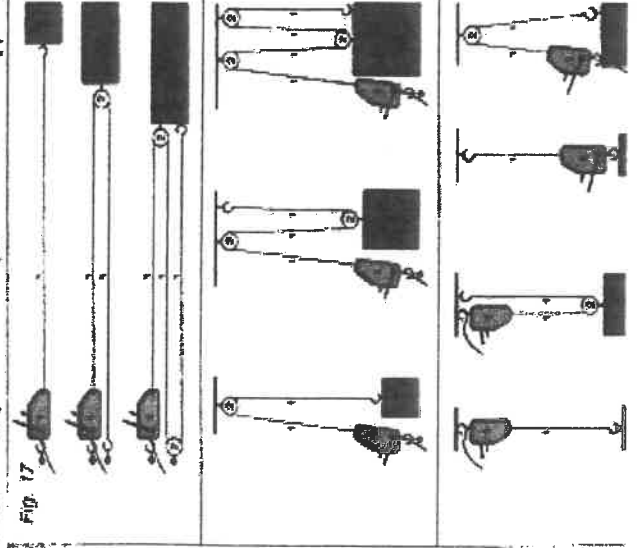


light-duty
range
only for
material
handling



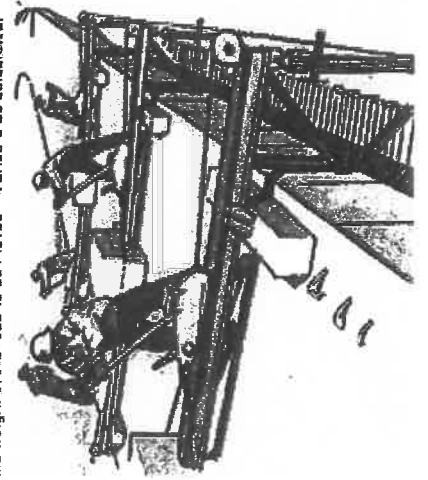
model	Approx. speed per min. (rpm)	nominal capacity lbs. (kg)	weight machine (lbs.)	lbs. (kg) wire rope	dimensions in. (mm) machines	handls. req. (no.)	special: TIRFOR w. c. dia. in. (mm)	break strain lbs. (kg)
TU-17	7-9	2,000* (900)	18.5 (8.4)	300/9m (8 (3.0))	20-3/4x3-1/4x1-1/2 (530x290x119)	28/18 (730/450)	5/16 (8.3)	10,000 (4,500)
TU-2B	7-9	4,000* (1,800)	41 (20)	600/18m (28.9 (13))	28-1/2x5-3/4 (730x350x145)	45/26 (1147/648)	7/16 (11.5)	20,000 (9,000)
TU-32	5	8,000* (3,600)	59.5 (27)	300/9m (8 (3.5))	27-1/2x6-1/8 (705x355x158)	45/26 (1147/648)	5/8 (12.5)	40,000 (18,200)
T-508	7-9	2,000* (900)	14.25 (6.5)	300/9m (8 (3.5))	16-1/2x9-7/8x3-7/8 (420x250x99)	27/16 (690/405)	5/16 (8.3)	10,000 (4,500)
T-516	6	4,000* (1,800)	30 (13.5)	600/18m (28.9 (13))	20-7/8x12-7/16x5 (530x315x127)	45/26 (1147/648)	7/16 (11.5)	20,000 (9,000)
T-532	6	8,000* (3,600)	51 (24)	300/9m (8 (3.5))	24-7/16x14-5/8x10 (631x357x148)	45/26 (1147/648)	5/8 (12.5)	40,000 (18,200)

Capacity for material handling ** Capacity for manriding (All conversions are approximate.)



Increase the capacity of the TIRFOR

The lifting and pulling power of GRIPHOIST-TIRFOR machines can be greatly increased by the use of multiple sheave blocks. These can increase the nominal capacity of the GRIPHOIST-TIRFOR machine by 2, 3 or 4 times or more (see diagram opposite). For most applications, an allowance must be made for friction in the sheaves. Ensure that the capacity of the blocks and fittings and anchor points are suitable for the load. When using the GRIPHOIST-TIRFOR for pulling purposes it should be remembered that the necessary pulling effort is not equal to the weight of the load to be moved. It should be calculated.



HOSPITALS

NAME	ADDRESS	TRAVEL TIME (MIN)		PHONE	HELIPAD?		BURN CENTER	
		AIR	GROUND		YES	NO	YES	NO
Mid Columbia Medical Center	1700 E 19 th The Dalles, OR 97058	NA	15-45	541-296-1111	x			x
Providence Hood River Memorial	811 13 th Hood River, OR 97031	NA	15-30	541-386-3911	x			x
Skyline Hospital (Level 4)	211 Skyline White Salmon, WA 98672	NA	15-30	509-491-1101	x			x
Immanuel Medical Center (Burn center and level 1)	2801 N Gantenbein Portland, OR 97227	30-40	60	503-413-4232	x		x	
OHSU (level 1 trauma)	3181 SW Sam Jackson Park Rd. Portland, OR 97239	30-40	60	503-494-8311	x			x
SW Washington Med Center (level 2)	400 NE Mother Joseph Place Vancouver, WA 98664	NA	80	360-256-2000	x			x
Harbor View Med (Burn Center & level 1)	325 9 th Ave. Seattle, WA	120	NA	206-731-3000	x		x	
Mt Hood Med Center	24800 SE Stark St. Gresham, OR 97030	NA	60	503-674-1122	x			x

