

IMPROVED HARVESTING METHODS

EQUIPMENT SURVEY NOTES

TRANSPORTING LOGS BY SKYHOOK

The "skyhook" is a radically new log hauling device used to remove logs from hitherto inaccessible stands of timber. It consists essentially of two suspended cables used as tracks to support a self-propelled carriage under which logs are suspended. As adapted for use in the East, the unit is smaller but has a longer cable track than the pilot model that was originally invented to log difficult western mountain areas. In North Carolina hardwood swamps, the skyhook has been used successfully for more than 6 months. Similar operations with conventional hauling methods have been frequently shut down during bad weather while hauling with the skyhook continued.

Essential parts of this device are the carriage, two track cables, open jacks or C-brackets, bracket arms, two traction cables, spars, guys, and other auxiliary cables (fig. 1). Eight roller-bearing sheaves traveling on the track cables support the carriage suspended below them. The carriage is powered by a 115-horsepower motor coupled through a main and an auxiliary transmission to the driving wheels. Transmission gear ratios provide four speeds in either direction. Top speed is 35 miles per hour; loads are carried at about one-half this speed.

The traction cables are gripped in the sheave-type driving wheels (fig. 2), around which they are looped. These 1/2-inch cables are anchored at each end of the run and are not supported by the tree spars, but are tight enough to provide positive traction. A block above each drive wheel keeps the cable from binding.

The hoisting winch is located at the rear of the carriage. Two lines used to support loads underneath the carriage are operated with this winch. The lines are passed through blocks at the rear and front of the carriage (fig. 3) to keep them separated.

The 1-1/4-inch track cables are supported by open jacks on bracket arms attached to spar trees with cables (fig. 1). The bracket arms hold the jacks far enough from the spar trees to provide adequate clearance for the carriage and load. Spars may be growing trees or poles set approximately 400 to 500 feet apart. Since the track cables are fastened to the jacks by means of inverted U-clamps each spar is semi-independent of the others.

Capacity of the North Carolina unit is 10 tons with an adequate safety factor, and log loads average 1,000 board feet. Length of track cables currently in use is 4,000 feet, with a usable hauling distance of about 3,600 feet. A track length of several miles is considered feasible.

Labor costs for installing the system are estimated at about \$300 for the 3,600-foot setup, and log transportation cost at 50 cents per thousand board feet. Life of the unit is unknown, but is estimated to be sufficient to make the investment per mile considerably less than the construction cost of planked roads.

Logs are skidded to the main line with conventional equipment, such as tractors or power skidders. These can be quickly moved with the skyhook in the event of floods. Frequent short moves also lessen damage to unharvested timber. Since right-of-way clearing for the skyhook consists only of felling the timber, the ground is left in favorable condition for tree reproduction.

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† Maintained at Madison, Wisconsin in cooperation with the University of Wisconsin



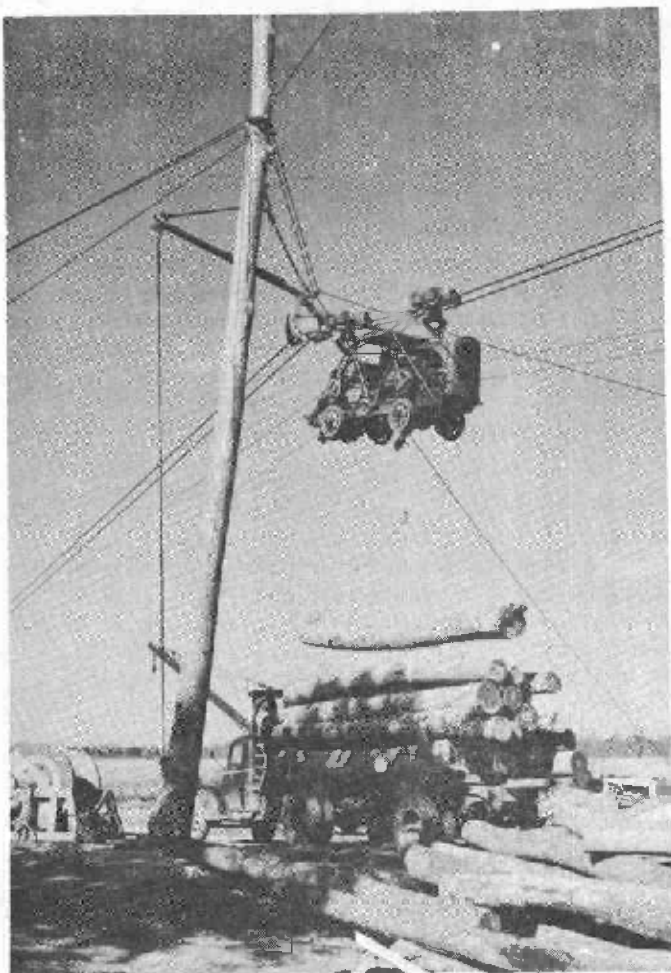


Figure 1.--Skyhook and spar tree assembly.



Figure 2.--Skyhook carriage.

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Figure 3.--Skyhook transporting a load of logs.