TRACTOR-MOUNTED LADDER FOR TREE-CROWN STUDIES AND SEED COLLECTION

Darroll D. Skilling, Research Forester
Lake States Forest Experiment Station, U. S. Forest Service
St. Paul, Minn.

The aerial ladder will extend to 45 ft. (13.7 m.) without an upper support and is relatively inexpensive. The unit, because of the crawler-type steering, can maneuver through the forest with very little difficulty.

The ladder framework is made of 2½ x 2½ x ¼ inch (64 x 64 x 6 mm.) angle iron. The framework is bolted to the body of the tractor (fig. 1).

A 45 ft. (13.7 m.) heavy-duty, magnesium extension ladder is fastened to this framework by means of a pivot pin made of ¾ inch (19 mm.) steel pipe. This pin fits inside one of the hollow ladder rungs. The ladder, which weighs only 66 lb. (30 kg.) can be easily raised into position by one man. It is then locked into one of three positions at the base of the ladder depending on the angle desired. To give added rigidity, two 20 ft. (6.1 m.) sections of lightweight steel tubing (made from TV antenna stock) are then fastened to the rear of the framework and to the ladder (fig. 2).

This complete operation can be performed by one man in approximately 4 minutes.

No further bracing is necessary if the top of the ladder rests in the tree crown. If it is not so supported, however, and the ladder is extended beyond 35 ft. (10.7 m.), the tip should be guyed to the rear of the tractor with a rope or lightweight cable. As a safety precaution, the climber should not remain on the ladder when the unit is being moved.

Figure 1

Figure 2

When not in use, the ladder can be removed from the framework by taking out one cotter pin and pulling the pivot pipe out of the ladder rung. The framework remains on the tractor and acts as a protective canopy for the operator.

The cost of the steel needed for the framework was approximately $55. Labor for welding and layout was $65. The 45 ft. (13.7 m.) extension ladder cost $200 plus transportation charges.

Although this ladder was designed for a study of terminal bud growth, it could easily be used for many other jobs in forest research. Safe methods of cone collection and hand pollination in seed orchards are rapidly becoming important. Entomologists have need of aerial ladders for insect collection and caging studies. Because of its high degree of maneuverability, the unit described here lends itself easily to any forest condition where tree crown access is needed.

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