

August 1989

Field Note No.: Cable Yarding--8
Previous Note Reference Nos.: None

TILTING CAB ON A MADILL 144 GRAPPLE YARDER

BACKGROUND

While cable yarding downhill on steep slopes, operators must tilt their heads back to see up the slope. Continuous downhill yarding usually results in severe neck and back fatigue. Brian Evans (MacMillan Bloedel Limited, Kennedy Lake Division) proposed that a tilting cab be designed to increase operator comfort, reduce fatigue, and minimize the number of neck and back problems reported by grapple-yarder operators. To test the concept, MacMillan Bloedel modified a Madill 144 grapple yarder to allow the cab front to tilt upwards at an angle of approximately ten degrees. By tilting the full cab, the operator remains in the same position relative to all hand and foot controls. FERIC viewed the modified machine in October 1988.

DESCRIPTION

S. Madill Ltd. of Nanaimo, B.C. modified the cab so it could be used in a level or fully tilted position only. The Madill 144 was already equipped with a cab riser, which was necessary for door-opening clearance in the tilted position. The following modifications were made to convert the conventional level cab to a tilting cab:

- The bolts of the two front cab mounts were removed and two hydraulic cylinders installed, a procedure which required minor cutting and trimming of the cab.
- A hydraulic hand pump was mounted at the rear of the cab riser.
- Hinges were installed on the rear cab mounts.
- The air manifold was modified.
- Air hoses under the cab were lengthened to provide slack for lifting.
- Two light ballasts located under the cab were re-located.
- Two locking spacers were constructed to support the raised cab.

The cab could be raised from the level position (Figure 1) using the hydraulic hand pump. When the cab was raised the full 25 cm (Figure 2), two locking spacers (Figure 3) were installed to provide stability and to meet Workers' Compensation Board regulations. The spacers were installed on each side of the cab front as extensions to the cab mounts.

The total cost of these modifications was approxi-

mately \$7000. This cost was high because all work was completed in the field on a weekend, and living and travel expenses were included. Of the total cost, the parts component was approximately \$2500. The

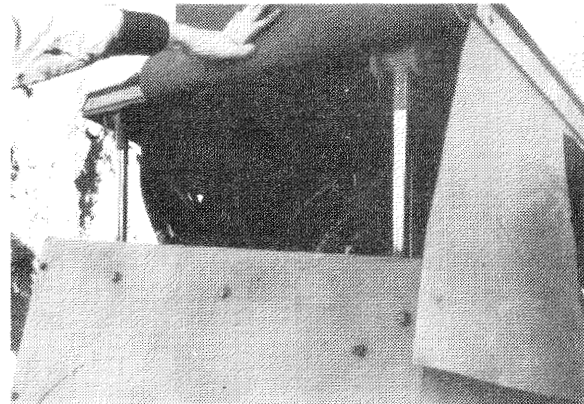


Figure 1. Cab in tilted position.

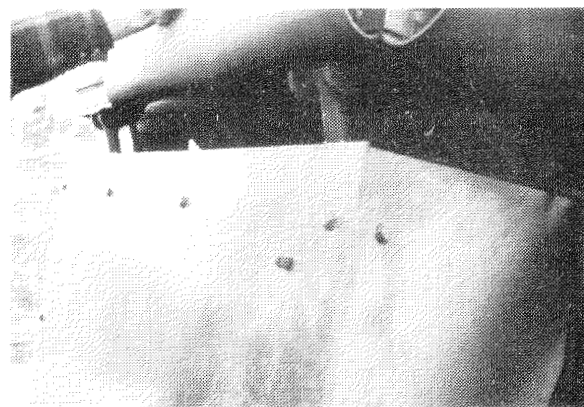


Figure 2. Cab in level position.

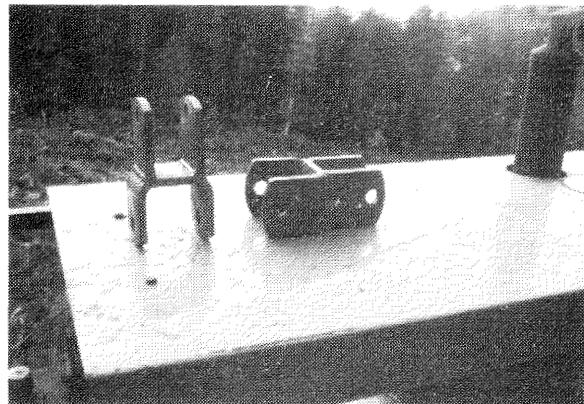


Figure 3. Locking plates.

labour cost could be reduced if modifications are made in the shop during routine maintenance or when a machine is purchased.

MacMillan Bloedel Limited views the tilting cab as a success and anticipates making additional modifications in the near future. These will allow the operator to raise, lower, and stabilize the cab at any position without leaving the cab, and will utilize the yarder's hydraulic system. These additional modifications are expected to allow the cab to be raised or lowered by one person in two minutes.

MacMillan Bloedel Limited plans to extend the backstop (guarding in front of cab) up to the next cross-beam of the boom. At present, the operator's view is partially obstructed by the backstop support brace (Figure 4) when the cab is tilted. By extending the backstop, the cross brace can be raised and the operator's visibility will improve.

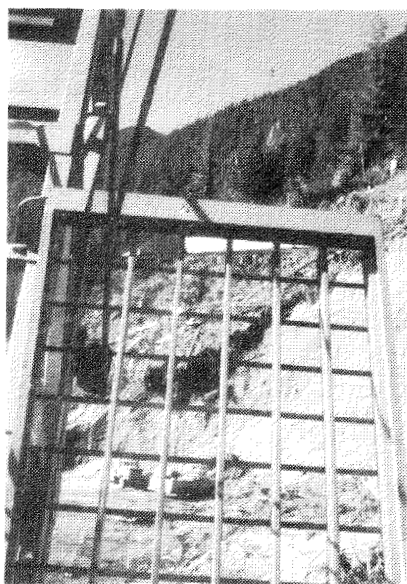


Figure 4. View from cab when it is tilted.

EVALUATION

Comments from the operator and staff concerning the tilting cab were generally positive. The only problem mentioned was the 30 minutes required to raise and lower the cab with the current system. The operator would only raise the cab if he planned to yard downhill for at least a full day. This limitation will be overcome when the current proof-of-concept design is converted to an actual production unit.

When the cab was tilted, the operator reported that he experienced increased comfort, less stress, and no neck or back pain. The locking spacers ensure the cab

remains stable during downhill yarding operations. There is no noticeable increase in shock and vibration within the cab.

INFORMATION

The information contained in this report is based on limited field observation and is only published to disseminate information to FERIC member companies. More information may be obtained from:

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