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SUBJECT: CATERPILLAR D7H BULLDOZER

Caterpillar Tractor Co. have released twelve D7H bulldozers to their dealers for final field tests. Finning Tractor and Equipment Co. operated one at MacMillan Bloedel's Kelsey Bay Division and later at MacMillan Bloedel's Eve River and Franklin River operations.

**MACHINE DESCRIPTION:** The D7H is similar in appearance and has similar features to the high sprocket drive D8L. One major difference, however, is the undercarriage construction. The D8L undercarriage rollers are independently supported, while the D7H rollers are attached to the track frames in the same way as the D7G.

SPECIFICATIONS:

| | D7H | D7G |
|---|---|---|
| Engine | Cat 3308 DIT<br>160 kW @ 2300 RPM | Cat 3306 DIT<br>149 kW @ 2000 RPM |
| Transmission | 3 speed planetary power shift | |
| Max Speed--Forward km/h | 9.9 | 9.9 |
| --Reverse km/h | 11.9 | 11.9 |
| Number of tracked rollers each side | 7 | 6 |
| Std. shoe width (cm) | 61 | 51 |
| Tracked length on ground (cm) | 289.5 | 272 |
| Ground contact area with std. shoe ($cm^2$) | 35 303 | 27 600 |
| Ground pressure with std. shoe (kPa) | 72.4 | 80.9 |
| Weight (kg) | 25 830 | 22 728 |
| Ground clearance (cm) | 58 | 35 |
| Price (f.o.b. Vancouver, approx.) | $332 000 | $312 000 |

**EVALUATION:** The D7H was observed for two days at Kelsey Bay while removing material from a large cut, ripping hardpan, cleaning-up a rock blast, finishing a grade after it had been stripped by a backhoe, and stripping a grade on gentle slopes after the logs and large stumps were removed by a backhoe. Compared to a similar sized bulldozer, such as the D7G, the D7H appeared to have the following advantages:

- The raised drive sprocket reduces impact loads on the final drives, thus reduced maintenance can be expected.

- The D7H is a well balanced machine because of the low engine location, longer length track, wider shoe, and the centralized sprocket drive. Conventional bulldozers, because they are front heavy, tend to bog down when they go into a hole nose first, but the D7H did not appear to have this problem.

- The larger track area and the well distributed machine weight result in lower ground pressure, even though the machine was 3000 kg heavier than the previous model (D7G). The D7H was observed working on subgrade stripping wet "mucky" material up to 1 m in depth without bogging down.

- The modular design should reduce the repair and replacement time for major components (transmission, final drives, steering clutches, and brakes). The radiator is a sectional folded design, so damaged sections could be replaced separately. As a result, Caterpillar estimates 50% savings in repair costs on D8L tractors (similar type of construction as D7H) compared with the conventionally built D8K.

- The high enclosed cab provides the operator with good visibility. The angled seat (15° to the right) permits the operator to see the ground at the front of the blade on the machine's left side as well as the ground behind the machine when backing up or ripping.

- The D7H can make use of the increased power to effectively rip rock.

While no production studies have been conducted to the present time, those who were involved with the trials estimate the productivity of the D7H to be 20 to 30% higher in stripping, ditching, and ripping, compared with the D7G. Caterpillar studies indicate a 26% productivity increase for the D8L over the D8K. Due to the machine similarities, this figure may also be applicable to the D7H and D7G comparison.

**DISADVANTAGES:** Several minor design problems will be corrected by Caterpillar Tractor Co. One problem is the ripper that is often in the way when backing up against a cutbank or when ditching because it sticks out too far and can not be raised high enough to clear obstacles. The problem will be corrected by replacing the parallelogram ripper attachment with a radial type.

The improved performance capabilities would not be fully utilized if the machine is to be used mostly for spreading ballast or bullcooking. However, the D7H may replace older, larger-model crawler tractors.

The increased weight may be a disadvantage when operating on rocky ground where the tracks and rollers of the non-resilient undercarriage could be exposed to high spot-loading.

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

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Caterpillar D7H Bulldozer

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