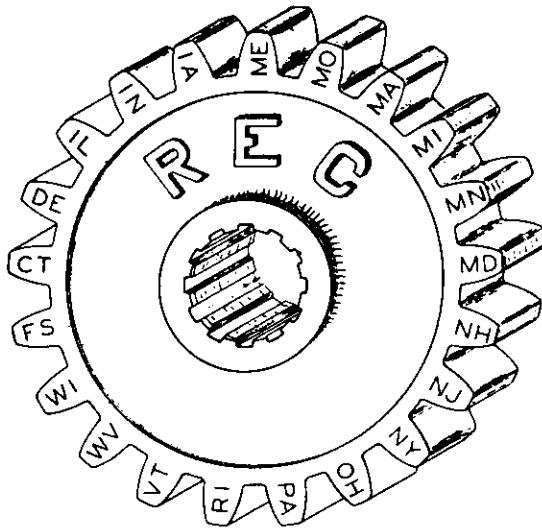


ROSCOMMON EQUIPMENT CENTER



PROJECT NO. 13
EVALUATION OF THE
BOMBARDIER J-5 WITH
ACCESSORIES

FINDINGS

Connecticut - Connecticut has used J-5 Bombardiers for nearly 10 years. All have been fitted with two tanks for a total capacity of 118 gallons, a Pacific Marine Type BE pump, and 100 feet of garden hose.

They have been used successfully on many fires, mainly for mopup of inaccessible portions of large fires and remote "way-back" hiker fires. They have no complaints regarding excessive maintenance costs. However, they have not used them for long distances (more than 3-5 miles) and while their terrain is rocky, and in some places fairly boggy, it is not excessively steep.

Kentucky - Their J-5 was purchased in 1970 after they had used it on a trial basis for nearly a year. The plow was installed at the Sieco factory in Georgia. The hydraulic hatch was designed independently by an engineer with the Bombardier agency. The plow appears to be a "Medium" with 18" discs (marked DMC-103125), there is no other identification.

The unit pulls the plow at a good speed (1/4-3 mph). The unit performs well on most fires, plowing on fairly level ground in grass and light fuels. This unit is used on an estimated 20 fires per year for an average of 1/2 hour/fire.

The State has critically analyzed the units performance and have determined several problems and areas for improvement:

- (1) The rocking motion of the Bombardier tends to pull the plow from the furrow when traversing slopes. The rhythm of the suspension, coupled with rough ground has a tendency to bounce the unit, causing it to roll. Perhaps modification of the hitch, or plowing at slower speeds would correct this.
- (2) The seated operator cannot see the plow to determine the adjustments needed for proper depth and angle. No apparent solution.
- (3) The unit has rolled over several times. No one has been injured. Each time the unit has been righted and driven without replenishing oil, gas, or battery fluid. A determination of the maximum slope that can safely be negotiated is needed.
- (4) The single fan belt provided, breaks at least once a year. A double belt is thought to be the solution.

- (5) The hydraulic system is currently powered via a power take-off from the transmission, and the pressure is lost every time the clutch is depressed, such as when shifting gears. A system that transmits power directly from the engine would be better. (Note - The Wisconsin unit seems to have solved this problem.)

Maine - Two of the Maine units are equipped with saddle tanks that total approximately 75 gallons. They have used a variety of small pumps (Homelite, Panama, etc.) with small independent power units.

Their major use has been hauling hose and other equipment in logistical support. They feel the outfit is very good for boggy areas and are well satisfied with its performance and durability.

Minnesota - Minnesota has 21 machines, over half of the Bombardiers in use by fire control agencies. For swampy areas they feel it is a valuable tool. They began using all terrain vehicles on swamp grass fires in 1960 and feel that J-5s are the best for their situation. Two 150-gallon water tanks and a variety of small pumps with 150 feet of 1" rubber hose is the standard installation.

They often use an interesting suppression tactic. By driving on or parallel to the fire edge, they depress the dry grass into the wet swamp with the tracks. There are occasional problems with the Bombardiers tipping on one side in soft going and being damaged by the fire.

They plan a major overhaul after 2,000 hours and replacement after 3,000 hours.

New Jersey - New Jersey has one unit (purchased in 1974) and has installed two saddle tanks with a total capacity of 100 gallons and a small pump. They are using it in the rough and rugged North Jersey Division on fires in steep country, and for the short time involved they are well satisfied. They currently have another on order which they plan to use in the pine barrens and swamps of South Jersey.

Wisconsin - They presently have a J-5 equipped with a front mounted blade, two 50-gallon water tanks and independent pump, and a Sieco fire plow. They feel the unit performs satisfactorily for fire suppression, primarily in wet areas.

The unit is also used for mowing brush and came equipped with a Vickers vane hydraulic 20 gpm motor, capable of producing 23 hp at 1250 rpm. This motor provided the hydraulic pressure to operate the brush mower and to raise and lower the small dozer blade. The mower is not used on fire suppression. However, the Vickers motor had the right rpm's to operate a Viking Model AV137 water pump. Nothing is lost hydraulically in the operation of the bull-dozer blade or the plowing operation by the normal pumping operation on a fire. These three operations are not made simultaneously.

This system has been field tested on fires for four years and they are very happy with it.

SUMMARY

- (1) Bombardier J-5s have been used for 2-16 years by several fire organizations, mainly in the Northeastern and Lake States.
- (2) The conditions of use and the techniques of modification and use very considerably.
- (3) The ability to reliably negotiate bogs and swamps is apparently one of the best features of the machine.
- (4) The most common and valuable use is to pump water on fires or sections of fires that are inaccessible by other methods. 100 gallons or less in two tanks seems best unless the unit will be used strictly on flat ground such as in Minnesota.
- (5) While two States have a plow mounted on a Bombardier and they are apparently working satisfactorily, it seems significant that additional units have not been added to their fleet. It appears that such a unit is suited only for very local and specific application.
- (6) This will be the final report on this study, and Project #13 of the Roscommon Equipment Center is closed.

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