

ROSCOMMON EQUIPMENT CENTER



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Utility Vehicle Flamethrower Apparatus

National Association of State Foresters
in Cooperation with
Michigan's Forest Fire Experiment Station

REC NewsNote No. 18

Utility Vehicle Flamethrower Apparatus

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Disclaimer

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Introduction

Michigan is a state with many less accessible areas and the Michigan Department of Natural Resources (MI DNR) has invested in developing a flamethrower unit as a tool to help meet the objectives of their prescribed burning efforts.

Safe and reliable ignition of different fuel types in difficult to traverse terrain is vital to wildland firefighters during prescribed burning operations.

The MI DNR's flamethrower's ability to project burning matter while creating a high intensity sustained heat some distance away from the wildland firefighter is beneficial to reach remote pockets of fuels regardless of whether those fuels are wetland fuels or sparse vegetation that are intended to be consumed during a prescribed burn.

Design

To develop the plans, the REC staff worked directly with Michigan's Forest Fire Officers' to fully understand their tactical & logistical needs for this device. REC staff members participated in several prescribed burns to validate the device and collect end user comments regarding the usage of the flamethrower.

The flamethrower device that was developed is a direct result of many hours of field usage and close interaction with MI DNR field staff.

The flamethrower device is powered by an auxillary gasoline driven engine and pumping arrangement that Michigan has made able to be fastened down & transported in a utility vehicle with a rear cargo bed. This pump arrangement is built upon a fabricated metal pallet that gives it a "slip-on" type configuration which allows the unit to be movable and able to be used on multiple utility type vehicles.

The flamethrower device is intended to be operated with two qualified individuals. Maintaining good visual & verbal communication, one person slowly drives the utility vehicle carrying the pumping unit along the intended fireline and the second individual carries & uses the flamethrower wand for ignition.

The design of this device includes several safety features such as a handheld fire extinguisher, noise deflecting shielding and an automatic flamethrower wand extinguishing system.

The flamethrower wand automatic extinguishing system is comprised of a hinged door on the flame holding end of the flamethrower wand and a carbon dioxide delivery system. Both of these systems are controlled and operated by the release of a "tether" cable. *(similar tethering systems are commonly built into most treadmill machines found on the market today. These are designed to stop the machine in case of a fall while exercising).*

Simply put, when fitted correctly and in the event that the flamethrower wand operator drops the wand while igniting the fireline, the hinged door will close and a pulse of CO₂ gas will extinguish the flameholding end of the flamethrower.

The fuel that the flamethrower device "shoots" or projects outward is Michigan DNR's standard drip torch fuel. This is a mixture of liquid gasoline and diesel fuel in a mixture of 1/3 part gasoline to 2/3 parts diesel fuel. Ignition of the projected fuel is accomplished by setting the diesel fuel soaked "wick" aflame with a propane torch and then operating the flamethrower wand to project the drip torch fuel across the wick flame.

Appendix A includes pictures of the flamethrower device that was developed.

Appendix A





Further Information

For further information regarding this or any other REC product , please contact the REC Program Administrator at:

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