

Roscommon Equipment Center Program

Project No. 46

SEAT COVERINGS FOR FOREST FIRE TRACTORS

First Published April 1987
Reformatted for Web Page August 2000

ACKNOWLEDGEMENTS

The Wisconsin Department of Natural Resources provided the information on materials for this report. Forest fire personnel from the States of New Jersey and Michigan were surveyed to determine the extent of damage, if any, caused by fire or burning embers to tractor seats during suppression activity.

SEAT COVER FLAMMABILITY

The flammability of modern furniture has received considerable attention of the Fire Service in recent years. There has been some concern that radiant heat or embers might ignite the seats of tractors during fire plowing or dozing operations. REC contacted experienced tractor operators in New Jersey and Michigan to survey occurrence of seat damage or ignition by embers or radiant heat from forest fires. No problem was reported except in instances where fire consumed a tractor left in the fire path, or where a tractor became totally involved in fire from ignition of accumulated debris. In short, the seat and seat coverings themselves were not the first material ignited, nor did they exhibit any substantial damage from the forest fire in a situation where the operator was able to remain with the tractor. Results of this survey indicate that there should be no concern about spontaneous ignition of the seat covers under conditions in which the tractor operator would still remain with the tractor. Also, there is concern that embers would result in damage that would require repair to the seat itself. This appears to be a minimal problem, but one that occurs occasionally. The report highlights the characteristics of good seat covers and how to go about repairs.

MATERIAL SELECTION

Tractor plows and fireline dozers receive rough use and most fire agencies find that the seat covers need replacement long before the tractor is taken out of operation.

Ideal materials for tractor seat covers would exhibit the following seven characteristics:

1. Water Resistant - Rain or water absorbed into the seat cover will obviously make it uncomfortable for the operator until it dries out.
2. Durability and Resistance to Wear - The tractor may be subject to harsh use. Ideally, the material being used will last as long as the tractor is in operation. This will eliminate sewing or replacement of the covers.

3. Weatherability - The tractors are subject to direct exposure to the climate. The tractor seat cover will need to withstand deterioration from the sun's rays. It should be rot or mildew resistant. The material must not crack in cold weather and yet must withstand high temperatures and extreme radiant heat.
4. Flame Resistance - Making a seat covering that is totally fireproof is not practical. The goal here is to find a fabric that will retard ignition if exposed to any source of high heat, flame, or ember.
5. Solvent Resistance - The fabric should not break down when exposed to grease, oils, or similar solvents.
6. Color - Color is not important except that dark browns or black will not show the dirt and ash that the seat is subject to during use.
7. Comfort - The material should be soft and flexible enough so that it is not irritating to the operator during what is often long hours of use.

There are many materials that might be suitable for tractor seat covers. The Wisconsin Department of Natural Resources has investigated possible materials and found that Uniroyal "Naugahyde" upholstery material, referred to as "Neochrome II®" (NEO-22) as one that exhibits the seven characteristics listed above. It meets or exceeds the federal flame resistance specification: CCC-A-680-A. It exhibits good durability and weatherability. The price of "Neochrome II®" is about \$27.00* per yard, depending upon the quantity purchased. Other materials may meet the above criteria, but it is not practical to list all materials because of periodic changes in manufacturer's lines. We suggest that you use this criteria when discussing material selection with vendors.

*Estimated price as of August 2000.

MAKING THE SEAT COVER PATTERNS

The existing seat covers and arm rests are removed from one tractor. Patterns are made from these covers. Make the patterns large enough to allow the new covers to be installed over the cushions without having to remove the existing covering. Once the patterns are made, they can be used for making coverings for tractors with the same design.

MAKING THE COVERS

In most regions the agency will be able to find a seamstress who has commercial grade equipment and is capable of making these coverings at a reasonable cost. Agencies interested in doing their own sewing should check the availability of sewing machines through Federal Excess Property.