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MANUSCRIPT DATA SHEET

I. Author: Dr. Erich Rendulic, Gen. Oberst

II. Title of Report: The effect of extreme cold on weapons, wheeled vehicles and track vehicles

III. Report ordered: 24 February 1947

IV. Sources:

A. Referents: None

B. Documents: Personal experiences.

EUCOM: HD: CHGB: Form 6 A-2

The Effect of Extreme Cold on Weapons, Wheeled Vehicles and Track Vehicles.

(1) Weapons: The extreme cold of the winter of 1941/1942 showed to our surprise that the mechanism of rifles and machine guns and to some extent even the breechblocks of the artillery became absolutely rigid. It was necessary to apply heat to them carefully in order to make them fit for firing again, a condition which soon disappeared again after firing. It became evident that the lubricants used (greases and oils) froze in the extreme cold and became hard as stone. This was an intolerable situation affecting readiness for action as it did. The troops immediately made various experiments and determined that kerosene was cold-resistant and suitable as a lubricant. It was available in the country where it was used for lighting. The only drawback was that as a lubricant it had no lasting properties and had to be renewed frequently. Furthermore it was not known whether it did not attack the metal. At any rate, the result was obtained that the weapons functioned again even in extreme cold.

By winter of 1942/43 we had cold-resistant lubricants available.

No other effect of extreme cold on weapons was noted.

(2) Motor Vehicles: As far as motor vehicles were concerned, it was the same. Completely unaware of the fact that grease and oil had frozen and hardened like stone, we tried at the beginning to make the vehicles start by towing them. The result was that the motor was badly damaged, and the differential was ripped to pieces. It was necessary to thaw out the vehicles by carefully applying heat to them before moving. It took up to 2 hours before the vehicles was ready to start. Extemporized means, as in the case of the weapons, were not available. As far as I

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means, as in the case of the weapons, were not available. As far as I can recall, cold-resistant greases and oils for vehicles were not to be had before the winter of 1942/43.

From the very beginning Chrysantine was available which was mixed with the water for the radiator, preventing freezing in temperatures not below -25° C. In extreme cold the water had to be drained from the vehicle after driving and had to be brought into the quarters. I do not know whether later a substance of greater cold-resistance was found.

Very satisfactory, in summer as well as in winter, were the air-cooled vehicles, not dependent on water, which were manufactured exclusively by the Steyr plants in Austria.

Whether the extreme cold had any effect on special technical features of the vehicles, is not known to me. As far as the actual use of the vehicles by the troops is concerned, any such effect was of no importance

As to track vehicles, I have made no experience beyond that stated above.

It must be mentioned that in extreme cold the dry batteries of the mobile radio stations also froze. It was necessary to provide especially good protection for them on the march.

24 February 1947

[Signed] Dr. RENDULIC
Generaloberst

Translated by L. A. Nowak

July 7, 1948

Reviewed HFKW
19 July 1940