CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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SECURITY INFORMATION

25X1

COUNTRY	Hungary	REPORT	
SUBJECT	"Hot Boxes" on the Hungarian Railroads	DATE DISTR.	17 June 1953
		NO. OF PAGES	2
DATE OF INFO.		REQUIREMENT NO.	RD
PLACE ACQUIRED		REFERENCES	

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This is UNEVALUATED Information

THE SOURCE EVALUATIONS IN THIS REPORT ARE DEFINITIVE.
THE APPRAISAL OF CONTENT IS TENTATIVE.
(FOR KEY SEE REVERSE)

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1. The axles of railroad cars are always made of high-quality steel. To save the axles from wearing out, the load is transmitted to the journal through a journal box lined with soft metal. Friction, which produces heat, then arises between the revolving journal and the stationary journal box. The case of the journal box serves at the same time as a lubricant which pours oil between the journal and the journal box, thereby eliminating the heat produced by the friction.

2. Hot boxes occur when the journal is heated to a high temperature, as a result of which the journal box melts or breaks, and, finally the lubricating lining within the journal box burns. The reason for hot boxes is usually very difficult to find. No serious damage is caused when a hot box is noticed in time by the train personnel and the car in question is taken out of the train.

3. It is not unusual that the journal gets stuck; this can be remedied by lathing and polishing. The diameter of the journal is then shortened by 1 - 2 mm., which, however, does not affect the usefulness of the axle. However, a burned-out journal box must be relined with a tin alloy.

4. Perhaps the most frequent reason for a hot box is the ineffectiveness of the lubricant. Perhaps the reason for this condition is that water gets into the lubricant, or the tin alloy lining of the journal box becomes cracked, or sand or metal shavings get into the journal box. A hot box may be due to sabotage, but as a rule it occurs due to inadequate maintenance.

5. According to long railroad experience, tin gives the best sliding properties on the steel journal. Experience has also shown that the tin content in the box lining alloy must be increased in proportion to the load which the journal box carries.

25 YEAR RE-REVIEW

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6. The box alloy of railroad freight cars contains 14 percent of tin on all European railroads, with a deviation of 1-2 percent as between the various countries. The box alloy used on locomotives, on the other hand, contains 60-70 percent of tin. As is well known, tin is not mined in Europe. For this reason the supply of tin for the purpose of the railroads in war time presents a problem. Actually, the situation is not disastrous, because the old tin alloy can be melted down. Consequently, new tin requirements represent only a fraction of the total.

7. In an emergency the tin content is gradually reduced, as for example from 14 to 13 to 12 percent. This procedure does not add perceptibly to the number of hot box occurrences. However, it cannot be used on locomotives, where the alloy must contain an adequate percentage of tin.

8. The Hungarian State Railroads have been experimenting on a large scale with journal box metals which contain no tin whatever. These experiments have shown some promise of success.

9. The import requirements of the Hungarian State Railroads in tin, can be estimated at 30 tons per year. In an emergency one third of this quantity is sufficient. The box alloy also contains lead in addition to tin.