

CONFIDENTIAL

OFFICE OF STRATEGIC SERVICES  
Research and Analysis Branch

*Europe 4115*  
*Italy*  
*O.S.S. Report*

AXIS GROUND FORCE REQUIREMENTS OF  
PETROLEUM IN 1942

12 April 1943

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OF PETROLEUM IN 1942

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A. Total Consumption

Total Axis ground force consumption in 1942 may preliminarily be estimated at 5.3 million tons, of which 5,050,000 tons were gasoline and Diesel oil, and 250,000 tons lubricating oil.

This total exceeds the British estimate of 4.4 million tons by 900,000 tons. Most of this difference (750,000 tons) can be attributed to the fact that the British estimate includes no allowance for the increase in vehicular consumption on the Russian front under winter conditions of snow and mud and that no account is taken of waste and losses in the actual theatre of operations. Apart from these sources of difference, the fact that widely different methods of estimation were used introduced a disagreement of only 150,000 tons in the 1942 consumption by Axis ground forces.

B. Eastern Front

1. The petroleum requirements for Axis ground forces on the Eastern Front during 1942 have been estimated on the basis of a campaign analysis made by the Military Supply Section of the Research and Analysis Branch of OSS. Seven degrees of activity have been established, defined mainly by the intensity of fighting and the scale of move-

ment. They are: major push, heavy fighting, localized fighting, siege, inactive front, training and rest. For each month of 1942 and for each front (Finland, Northern Front, Central Front, Southern Front, and Caucasian Front) the number of infantry, motorized and armored divisions engaged in the various degrees of activity have been established for German and for Axis satellite divisions.

2. The German ground force petroleum consumption has been broken down into two parts:

- (a) Oil requirements at the front for fighting, and
- (b) Oil requirements for the transportation of supplies from the railheads to the front.

a. Oil consumption at the front was computed from the number of division-months in each sort of activity multiplied by the consumption per division-month in that sort of activity. The consumption per division-month associated with any given degree of activity was estimated largely on the basis of daily mileage figures for each type of vehicle in each type of activity given in the O.S.S. Report #49, "An Estimate of the Consumption of Petroleum on the Eastern Front by the German Army and Air Force, June 22-December 6, 1941". The daily mileage for "localized fighting" closely corresponded with figures for "field service" given in U.S.A.F.M. 101-10 "The Staff Officers Field Manual" (Par. 88). The number of vehicles of each type of division and the motor fuel consumption per vehicle mile were derived from German military handbooks and British sources.

One-third of the divisional trucks have been excluded from this computation on the grounds that they would be used for transportation from railhead to the front rather than for transportation at the front.

To the total divisional consumption so estimated, 66 per cent was then added for all non-divisional consumption, in rough proportion to the ratio of non-divisional to divisional troops. The lower combat requirements of non-divisional troops are balanced by the service functions of these troops.

b. Oil requirements for the transportation of supplies from railheads to the front were calculated on the basis of monthly tonnage requirements for each kind of division in each type of activity, and distance of front from railheads. G.H.Q. supplies were assumed to travel, on the average, half the distance from railhead to front. Motor fuel requirements per ton-mile were calculated on the basis of the composition of the truck fleet believed to be available. Requirements for self-propelled ordnance replacements were estimated on the basis of U.S. replacement rates.

3. The same process of estimation has been applied to establish the consumption at the front of Axis satellite divisions, except that the basic consumption rates per division were put at two-thirds of the corresponding rates for German divisions, and non-divisional requirements were put at 50 per cent of divisional demand. The requirements

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(Quantities in thousand metric tons)

|  | <u>German</u>     |                            | <u>Axis<br/>Satellites</u> |              |
|--|-------------------|----------------------------|----------------------------|--------------|
|  | <u>Divisional</u> | <u>Non-<br/>Divisional</u> | <u>Total</u>               | <u>TOTAL</u> |
| <u>Eastern Front</u>                             |                   |                            |                            |              |
| Consumption at Front                             | 1,760             | 1,174                      | 284                        | 3,218        |
| Supply: Railhead to<br>Front                     |                   | 260                        | 24                         | 284          |
| Wastage and Loss (10%)                           |                   | <u>319</u>                 | <u>31</u>                  | <u>350</u>   |
| Total Eastern Front                              |                   | 3,513                      | 339                        | 3,852        |
| <u>Other Areas</u>                               |                   |                            | <u>Total</u>               |              |
| North Africa                                     |                   |                            | 240                        |              |
| Germany, Poland, & Baltic                        |                   |                            | 180                        |              |
| Italy  |                   |                            | 70                         |              |
| Other Axis Satellites <sup>1/</sup>              |                   |                            | 100                        |              |
| Occupied Western & Northern Europe <sup>2/</sup> |                   |                            | 175                        |              |
| Balkan, Crete, Dodecanese Islands                |                   |                            | 183                        |              |
| Todt Organization                                |                   |                            | <u>500</u>                 |              |
| GRAND TOTAL GROUND FORCE CONSUMPTION             |                   |                            |                            | 5,300        |

1/ Hungary, Rumania, Bulgaria, Slovakia

2/ France, Holland, Belgium, Denmark, Norway