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AXIS EUROPEAN ARMED FORCES' CONSUMPTION  
OF LIQUID PETROLEUM PRODUCTS, JAN.-JUNE 1944

Prepared for the  
Military Subcommittee of the Enemy Oil Committee

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A. AXIS ARMED FORCE CONSUMPTION, 1944

Table 1

- CONSUMPTION OF LIQUID PETROLEUM PRODUCTS BY GERMAN AND SATELLITE  
ARMED FORCES BY FRONTS, JAN.-JUNE 1944 AND JUNE 1944

(thousand metric tons)

|                               | <u>Jan.-June 1944</u> | <u>June 1944</u> |
|-------------------------------|-----------------------|------------------|
| I. EASTERN FRONT              |                       |                  |
| A. Ground Forces              |                       |                  |
| 1. German                     | 1,955                 | 216              |
| 2. Satellite                  | 65                    | 11               |
| B. Air Forces                 | 322                   | 53               |
| C. Navy                       | 50                    | 8                |
| D. Todt                       | 68                    | 11               |
| Total                         | <u>2,460</u>          | <u>299</u>       |
| II. MEDITERRANEAN             |                       |                  |
| A. Ground Forces              |                       |                  |
| 1. German in Italy            | 179                   | 33               |
| 2. German in Balkans          | 58                    | 11               |
| 3. Satellite                  | 45                    | 8                |
| B. Air Forces                 | 152                   | 27               |
| C. Navy                       | 97                    | 16               |
| D. Todt                       | 35                    | 6                |
| Total                         | <u>566</u>            | <u>101</u>       |
| III. WESTERN & CENTRAL EUROPE |                       |                  |
| A. Ground Forces              | 106                   | 46               |
| B. Air Forces                 | 533                   | 111              |
| C. Navy                       | 749                   | 149              |
| D. Todt                       | 68                    | 11               |
| Total                         | <u>1,456</u>          | <u>317</u>       |
| IV. GRAND TOTAL               | 4,482                 | 717              |
| of which:                     |                       |                  |
| A. Ground Forces              | 2,408                 | 325              |
| B. Air Forces                 | 1,007                 | 191              |
| C. Navy                       | 896                   | 173              |
| D. Todt                       | 171                   | 28               |

Table 2

CONSUMPTION OF LIQUID PETROLEUM PRODUCTS BY GERMAN AND SATELLITE  
ARMED FORCES BY PRODUCTS, JAN.-JUNE 1944

(thousand metric tons)

|                   | <u>Ground</u> | <u>Air</u> | <u>Navy</u> | <u>Total</u> |
|-------------------|---------------|------------|-------------|--------------|
| Aviation Gasoline | -             | 808        | 7           | 815          |
| Motor Fuel        | 1,785         | 123        | 22          | 1,930        |
| Lubricants        | 91            | 35         | 18          | 144          |
| Diesel Oil        | 703           | 41         | 221         | 965          |
| Fuel Oil          | -             | -          | 628         | 628          |
|                   | <hr/>         | <hr/>      | <hr/>       | <hr/>        |
| Total             | 2,579         | 1,007      | 896         | 4,482        |

Total consumption by Axis armed forces in the six months' period, January through June, 1944, is estimated at nearly  $4\frac{1}{2}$  million metric tons. Of the total, about 2.6 million tons was required by the ground forces (including Todt), about 1 million tons by the air forces, and nearly .9 million tons by the navy. The detailed breakdown is shown in Table 1. The breakdown by products is shown in Table 2.

The British Hartley Committee estimated consumption in the first six months of 1944, without allowance for increased consumption necessitated by invasion, at  $4\frac{1}{2}$  million tons. Our estimate of the increase in consumption in June attributable to the invasion is about 80,000 tons. If this amount is added to the British estimate, it would then be less than 2 percent higher than the American estimate.

B. AXIS EUROPEAN GROUND FORCE CONSUMPTION, 1944.

Table 3.

CONSUMPTION OF LIQUID PETROLEUM PRODUCTS BY GERMAN AND SATELLITE  
GROUND FORCES BY FRONTS, JAN.-JUNE 1944 AND JUNE 1944

(thousand metric tons)

|                               | <u>JAN.-JUNE 1944</u> | <u>June 1944</u> |
|-------------------------------|-----------------------|------------------|
| I. EASTERN FRONT              |                       |                  |
| A. German                     | 1,955                 | 216              |
| B. Satellite                  | 65                    | 11               |
| C. Todt                       | 68                    | 11               |
|                               | <hr/>                 | <hr/>            |
| Total                         | 2,088                 | 238              |
| II. MEDITERRANEAN             |                       |                  |
| A. German in Italy            | 179                   | 33               |
| B. German in Balkans          | 58                    | 11               |
| C. Satellite                  | 45                    | 8                |
| D. Todt                       | 35                    | 6                |
|                               | <hr/>                 | <hr/>            |
| Total                         | 317                   | 58               |
| III. WESTERN & CENTRAL EUROPE |                       |                  |
| A. France & Lowlands          | { 106                 | 41               |
| B. Norway & Denmark           |                       | 2                |
| C. Germany & Central Europe   |                       | 3                |
| D. Todt                       | 68                    | 11               |
|                               | <hr/>                 | <hr/>            |
| Total                         | 174                   | 57               |
| IV. GRAND TOTAL               | 2,579                 | 353              |

Table 4

CONSUMPTION OF LIQUID PETROLEUM PRODUCTS BY GERMAN AND SATELLITE  
GROUND FORCES BY PRODUCTS, JAN.-JUNE 1944

(thousand metric tons)

Jan.-June 1944

Motor Fuel

1,785

Lubricants

91

Diesel Oil

703

Total

2,579



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1. Strength of German Army, by Fronts, 1944. In estimating consumption of liquid petroleum products by the German ground forces in 1944 the official G-2 monthly OB estimates, showing the number of divisions by types at each major front, have been used. The total number of German divisions in May 1944 was about 325, of which nearly one-sixth were Panzer and Panzer-Grenadier divisions. More than 90 divisions were classified as "Limited Employment" and "Static" divisions, the former comprising divisions intended for such special purposes as the holding of conquered territory and the latter including divisions only capable of defensive fighting in the sectors which they were formed to hold. Most of the German strength (about 195 divisions) were concentrated on the Eastern Front, while about 70 divisions were stationed in the West (more than half of these were, however, limited employment and static divisions), nearly 25 in Italy, and an equal number in the Balkans. The number of satellite divisions is put at something over 100, but large elements of low fighting potentialities are included in this number.

2. Strength of German Divisions, 1944. The T. O. of German infantry divisions reveals a shift from three battalion regiments to two battalion regiments. This means a considerable reduction in size. Even so, there is much evidence to indicate that actual strength is frequently below T. O. In addition, certain divisions intended for limited employment or static roles contain foreigners and Germans either above or below the

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best combat age limits. It seems clear that the overall manpower shortage is one of the most important problems confronting the German High Command.

3. Motor Vehicles, Tanks, etc. It has been assumed on the basis of very incomplete and unsatisfactory evidence that the vehicular strength and the strength in tanks and armored cars per division in March 1944 was 5 percent below the strength per division used in estimating consumption in 1943. This assumed decline is less than the probable decline in manpower in the German army during the same period, but it is believed that the Germans have been better able to replace losses in vehicles, etc., than in manpower. The assumption leads to a total military truck strength in March 1944 of about 355,000, of which about 40,000 are estimated to have been converted to substitute fuels, as compared to an estimated 375,000 military trucks in July 1943, of which about 23,000 were converted.

It is highly unlikely that important savings of liquid motor fuel can be achieved through further conversions of military trucks. On the contrary, it is probably to be expected that some converted military trucks in the West will be shifted to liquid motor fuel now that the German forces there are confronted with invasion.

4. Other Assumptions.

a. Non-divisional vehicular strength is estimated at 30 to 50 percent of divisional strength, depending on the front and the degree of fighting activity.



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b. Wastage and losses are estimated at  $2\frac{1}{2}$  to  $7\frac{1}{2}$  percent of total consumption, depending on the front and the degree of fighting activity.

c. A winter allowance of 20 percent of total consumption is made for the Eastern Front for the first three months of 1944.

d. Consumption in June is estimated to have been at the May rate except in the West, where activity is assumed to be heavy to intense for 24 days for all divisions in France and the Lowlands. Even though many of these divisions are not yet engaged, it is believed that a considerable regrouping and strengthening of all troops is in progress.

5. Consumption in June as compared with possible level of consumption under heavy to intense fighting.

a. Eastern Front. Consumption under heavy to intense fighting might rise by about 100,000 tons over June.

b. Mediterranean area. No increase in consumption over June is to be expected in Italy, but a rise in consumption in the Balkans of about 25,000 tons could occur should the German and satellite forces stationed there become engaged in heavy to intense fighting.

c. Western and Central Europe. A rise in consumption of about 25,000 tons over June could occur if all available forces become engaged in heavy to intense fighting.

6. Consumption by the Todt Organization is assumed to be at the 1943 level, with half of the equipment operating on substitute fuels. Consumption is allocated 40 percent to the West, 40 percent to the Eastern

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Front, and 20 percent to the Mediterranean area.

7. Consumption by satellite ground forces is assumed to be at the same level as in 1943 and is allocated by fronts as in 1943.

C. AXIS EUROPEAN AIR FORCE CONSUMPTION, 1944.

Table 5.

CONSUMPTION OF LIQUID PETROLEUM PRODUCTS BY GERMAN AND SATELLITE  
AIR FORCES BY FRONTS, JAN.-JUNE 1944 AND JUNE 1944

(thousand metric tons)

|               | <u>Jan.-June 1944</u> | <u>June 1944</u> |
|---------------|-----------------------|------------------|
| West          | 533                   | 111              |
| Mediterranean | 152                   | 27               |
| Russia        | 322                   | 53               |
| Total         | <u>1,007</u>          | <u>191</u>       |

Table 6.

CONSUMPTION OF LIQUID PETROLEUM PRODUCTS BY GERMAN AND SATELLITE  
AIR FORCES BY PRODUCTS, JAN.-JUNE 1944

(thousand metric tons)

|                   | <u>Jan.-June 1944</u> |
|-------------------|-----------------------|
| Aviation Gasoline | 808                   |
| Motor Fuel        | 123                   |
| Lubricants        | 35                    |
| Diesel Oil        | 41                    |
|                   | <hr/>                 |
| Total             | 1,007                 |

1. The methodology used in estimating GAF consumption of liquid petroleum products in 1944 is the same as that used in 1943. For the Western and Mediterranean Theaters observed sortie data are available, but for the Eastern front only strength data are known. To the observed sorties in the West and the Mediterranean have been added non-operational sorties based on U. S. experience. Sorties on the Eastern Front have been estimated by assuming a "maximum rate" of utilization based on U. S. experience. No change has been made in the estimated consumption per sortie.

Transport sorties are assumed to be 16 per month per plane and coastal sorties to be 15 per month per plane.

2. Consumption by the ground establishment of the GAF is estimated on the basis of 75,000 trucks. Conversion of 15 percent of GAF vehicles in Russia and the Mediterranean and of 30 percent of those in the West is assumed. Consumption of motor fuel per vehicle is estimated at a little less than one-half ton per month.

3. Consumption in June in the West by combat craft is assumed to rise 50 percent over May.

4. Consumption by satellite air forces is estimated to be at the 1943 level and is allocated to the same fronts.

D. AXIS EUROPEAN NAVAL CONSUMPTION, 1944.

Table 7.

CONSUMPTION OF LIQUID PETROLEUM PRODUCTS BY GERMAN AND SATELLITE  
NAVAL FORCES BY FRONTS, JAN.-JUNE 1944 AND JUNE 1944\*

(thousand metric tons)

|                | <u>Jan.-June 1944</u> | <u>June 1944</u> |
|----------------|-----------------------|------------------|
| Black Sea      | 50                    | 8                |
| Mediterranean  | 97                    | 16               |
| Western Europe | 749                   | 149              |
|                | <hr/>                 | <hr/>            |
| Total          | 896                   | 185              |

\* Allocation by fronts as follows: Rumanian Navy - Black Sea; French and Italian units seized by the Germans - Mediterranean; German Navy - Western Europe. No more precise breakdown is possible, but this allocation probably <sup>over</sup>understates consumption in the Mediterranean and <sup>under</sup>overstates consumption in the West.

Table 8

CONSUMPTION OF LIQUID PETROLEUM PRODUCTS BY GERMAN AND SATELLITE  
NAVAL FORCES BY FRONTS, JAN.-JUNE 1944

(thousand metric tons)

|                   | <u>Jan.-June 1944</u> |
|-------------------|-----------------------|
| Aviation Gasoline | 7                     |
| Motor Fuel        | 22                    |
| Lubricants        | 18                    |
| Diesel Oil        | 221                   |
| Fuel Oil          | 628                   |
| Total             | <hr/> 896             |

1. Consumption by German and satellite naval forces is based altogether on data provided by the U. S. Navy on the number and type of vessels, days at sea per month, and daily consumption per vessel at sea and in port.

2. An increase over the average monthly activity for destroyers and small craft of 25 percent is assumed in June.