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THE FOREIGN SERVICE
OF THE
UNITED STATES OF AMERICA

EEW 183

AMERICAN EMBASSY

LONDON: February 1, 1943

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(British Secret)

Wilo Perkins, Esq.,
Executive Director,
Board of Economic Warfare,
Washington, D. C.

Attention: Mr. Charles F. Rayner
Chief, Technical Branch

Dear Sir:

Mr. Bruce, on his return from his visit in Washington, suggested that it might be helpful if the Energy Oil Committee had the details of the methods of calculation by which the gasoline consumption of the various branches of the enemy's military establishment are estimated.

Mr. Bruce presented this suggestion to the Hartley Committee and that Committee, approving the idea, asked that the appropriate members advise me about the methods concerned, so that I could forward them to you.

The War Office has now made an outline of their methods available to us and we have had an opportunity to discuss it with them.

We enclose 19 copies of the War Office's Memorandum on this subject which we believe will be clear to you, and we make the following comments on some of the details only to make sure the method is understood.

We believe the portions of the Memo not entirely clear are limited to those in the Appendices I and II. In these Appendices you will notice a column for consumption by "non-divisional" troops. This heading is intended to cover supply troops, engineer troops and the heavy artillery which, in the German military setup as we understand it from the British War Office, are not attached to a specific Division. The "non-divisional" troops are taken to amount to 60% of the number of divisional troops for Russia, the active front, and 30% of divisional troops for the rest of Europe.

The figures in the columns headed "Divisions" and "Non-divisional" are estimated gasoline consumptions in long tons.

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THE FOREIGN SERVICE
OF THE
UNITED STATES OF AMERICA

BEW 186

AMERICAN EMBASSY
LONDON: February 4, 1943

C O N F I D E N T I A L

(British Secret)

Milo Perkins, Esq.,
Executive Director,
Board of Economic Warfare,
WASHINGTON, D. C.

Attention: Mr. Charles B. Rayner
Chief, Technical Branch.

Dear Sir:

Further in connection with my letter to you of February 1 (BEW 183), with which we transmitted a memorandum outlining the British War Office's methods of estimating German Army consumption of petroleum products, we have now received the corresponding information from the Intelligence Division of the Naval Staff of the Admiralty.

I enclose 19 copies of Commander Cannan's letter of the 3rd February to me on this subject, which I believe will be quite clear to you.

As indicated in our earlier letter, we expect to have the analogous Air Ministry figures shortly.

Yours very truly,

G. S. Walden
Petroleum Attache
per

/s/ David A. Shepard
D.A. Sheppard

cc; Military Attache
Naval Attache
Economic Warfare Division
Office of Strategic Services
Hq. 8th Air Force
G-2, ETOUSA
Ministry of Economic Warfare

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GERMAN AIR FORCE CONSUMPTION - METHOD OF
CALCULATION

The monthly estimates of German Army consumption prepared by the Air Office (M.I.10) for the Hartley Committee are arrived at by means of Table 1 which is based on the tables of vehicle strength* and consumption, for 50 miles, of different types of Division (Table 2, 3 and 4). The other principal documents used in arriving at the result are:-

- (a) The battle order of the German Army, showing distribution of Divisions between the various fronts, which is checked each month by the German Section of M.I. Directorate.
- (b) The Air Office Intelligence Summaries, supplemented by other relevant intelligence regarding military activity.

From this information an estimated figure for the percentage of 'active' and 'quiet' days in the month is deduced for the divisions of each type in each main sector.

Papers showing the working out of the calculations for the German Army for December 1942 are attached at Appendices I and II. At the expiration of each half-year, the calculations for the preceding six months are checked over in the light of any further information which may have become available and adjustments are made if necessary. Thus the final figures incorporated in the periodical Hartley Reports may differ slightly from the total of the month-by-month figures.

* It is pointed out that the figures of vehicle strength in the various types of divisions are only approximate and that actual figures are below establishment figures in many cases.

GENERAL STAFF, G.

DIRECTOR OF AIR FORCE INTELLIGENCE.

29th January, 1943.

M.I.10c.

GERMAN ARMY - PETROL & OIL CONSUMPTION - EASTERN FRONT

(DECEMBER 1942)

	No. of Divs.	Activity per cent		Divisions	Non- Divisional (tons)	Lubs. (tons)	TOTAL Per day (tons)
<u>Finland</u>							
Infantry Divisions	2	25	75	22			
Mountain Divisions	5	25	75	30			
TOTAL	7			52	31	7	90
<u>NORTHERN SECTOR</u>							
Armoured Divisions	2	35	65	92			
Motorised Divisions	4	30	70	104			
Mountain Divisions	2	40	60	15			
Infantry Divisions	28	30	70	336			
Infantry Divs. (Def.)	3	"	"	18			
TOTAL	39			565	340	60	965
<u>CENTRAL SECTOR</u>							
Armoured Divisions	6	50	50	360			
Motorised Divisions	6	"	"	216			
Infantry Divisions	18	45	55	720			
Mountain Divisions	-	-	-	-			
Infantry Divs. (Def.)	4	"	"	30			
Cavalry Divisions	1	50	50	24			
TOTAL	65			1350	810	150	2310
<u>SOUTHERN SECTOR</u>							
Armoured Divisions	13	65	35	950			
Motorised Divisions	8	"	"	345			
Infantry Divisions	44	"	"	880			
Infantry Divs. (Def.)	3	"	"	80			
Mountain Divisions	2	"	"	20			
Cavalry Divisions	-						
TOTAL	75			2275	1535	265	4075
TOTAL FOR EASTERN FRONT				4242	2716	482	7440
TOTAL FOR MONTH (31 days)					230,000 tons		

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APPENDIX II

GERMAN ARMY - PETROL AND OIL CONSUMPTION (OTHER PRODUCTS) DECEMBER 1942

	No. of Divs.	Activity A	per cent Q	Consumption in tons per day		Lubs.	TOTAL per day
				By Divisions	Non-Divisional		
<u>NORWAY</u>							
Infantry Divisions	5	0	100	25			
" " (Defensive)	5	15	85	20			
TOTAL	10			45	15	5	65
<u>WESTERN EUROPE</u>							
Armoured Divisions	3	0	100	45			
Motorised "	3	0	100	35			
Infantry "	18	0	100	90			
" " (Defensive)	22						
	(20)	0	100	50			
TOTAL	46			220	66	18	304
<u>GERMANY AND POLAND</u>							
Infantry Divisions	11	0	100	55			
(Defensive)	8	10	90	32			
(Administrative)	42	0	100	105			
TOTAL	61			192	192	24	408
<u>BALKANS</u>							
Motorised Divisions	1	15	85	20			
Infantry "	7	15	85	50			
TOTAL	8			70	20	6	96
<u>LYBYA AND TUNISIA</u>							
Armoured Divisions	3 (1½)	60	40	100			
Motorised Divisions	2 (1)	60	40	41			
Infantry "	1	60	40	19			
TOTAL				160	80	15	255
TOTAL (OTHER FRONTS)				667	373	68	1128

TOTAL (OTHER FRONTS) for the month 35,000 tons.

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Table 1

Table showing Petrol Consumption of different types of German Division
under ranging conditions of activity

Percentage of active days in month	100	80	60	50	40	30	20	10	0
Average mileage per day	50	42	34	30	26	22	18	14	10

Type of Vehicle	No. of Vehicles		Petrol and diesel oil consumption in tons per day							
Armoured Division	4,525	105	86	68	60	51	42	33	24	15
Motorized (or light) Division	3,550	60	50	41	36	31	26	21	17	12
Infantry (Offensive) Division	1,510	28	23½	19	17	14½	12	10	8	5½
Mountain Division	800	14	12	9½	8½	7	6	5	4	3
Cavalry Division	2,500	40	33	27	24	21	18	14½	11	8
Infantry (Defensive) Division	760	14	12	9½	8½	7	6	5	4	3

Non-divisional vehicles - calculated at from 60% of Divisional Consumption for Offensive formations to

30% of Divisional Consumption for Defensive formations.

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Table 2

Active Petrol Consumption of German Divisions

Based on mileage of 50 miles per day per tank and motor vehicle and 100 miles per day per motor cycle.

ARMoured DIVISION

<u>Type of Vehicle</u>	<u>Number</u>	<u>Gallons/Day</u>	<u>Total gallons</u>
Tanks	200	45	9,000
Armoured Cars	25	10	250
Motor Vehicles	2,850	6.5	18,500
Motor Cycles	1,500	2.5	3,750
			<u>31,500 = 105 tons</u>

MOTORIZED DIVISION

Armoured Cars	50	10	500
Motor Vehicles	2,200	6.5	14,300
Motor Cycles	1,275	2.5	3,200
			<u>18,000 = 60 tons</u>

INFANTRY DIVISION

Armoured Cars	24	10	250
Motor Vehicles	1,100	6.5	7,150
Motor Cycles	400	2.5	1,000
			<u>8,400 = 29 tons</u>

Tanks	1.1 miles per gallon (average)
Motor Vehicles	7.7 "
Motor Cycles	40 "

GENERAL STAFF W. G.

DIRECTOR OF MILITARY INTELLIGENCE, M. I. 10c.

29th January, 1943.

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Table 3

PETROL CONSUMPTION OF GERMAN ARMoured AND MOTORISED DIVISIONS

Armoured Division	No. of vehicles	Litres per 100 km. (A)	M.P.G.	Fuel per 100 km in litres	
Pz. KW III & IV	132	300	0.9	39,600	
II	70	150	1.8	10,500	
Arm. Cond. Vehicles	27	300	0.9	8,100	174,200 litres =
Heavy A.C.s.	12	50	5.6	600	38,400 imp. galls.
					For 50 miles per day
					= 31,200 gallons =
					104 tons per day
Light A.C.s.	36	35	8.0	1,350	
Personnel Lorries	420	35	8.0	14,900	
Tractors	313	60	4.5	18,600	
Lorries, light	453	30	9.0	13,600	
" medium	208	40	7.0	3,300	
" heavy	84	50	5.6	4,200	
" unclassified	1,000	35	8.0	35,000	
Motor Cars	410	23	12.0	2,450	
M/Cs (solo or comb.)	1,400	7	40	9,800	
Total Armoured Division	4,567			174,200	
MOTORISED DIVISION					
Armoured Cars	50	40	7	2,000	
Personnel Vehicles	900	35	8	31,500	99,000 litres =
					21,800 imp. galls.
Tractors	240	60	4.5	14,400	
Lorries, light	360	30	9	10,800	
" medium	675	40	7	27,000	
" heavy	58	50	5.6	2,900	
Motor Cars	68	23	12	2,000	For 50 miles per day
					= 175,000
M/Cs (Solo or comb.)	1,200	7	40	8,400	
TOTAL	3,570			99,000	= 58 tons

(A) Based on German G Manual 1938.

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Table 4

GERMAN INFANTRY DIVISION

<u>Type of Vehicle</u>	<u>Number</u>	<u>Litres per 100 km. (A)</u>	<u>m.p.g.</u>	<u>Total gallons for 50 miles</u>
Armoured Cars	23	50	5.5	210
Light Lorries	170	30	9	950
Personnel Lorries	67	35	8	415
Medium Lorries	388	40	7	2,720
Heavy Lorries	33	50	5.5	300
Field Cookers	136	30	9	750
3-ton bridging Lorries	15	50	5.5	135
Semi-track Tractors	147	60	4.5	1,675
W. T. Lorries	4	35	8	250
Miscellaneous	67	35	8	415
Motor Cars	65	23	12	270
Motor Cycles	400	7	40	500
TOTAL VEHICLES	1,516			8,590 = 28.6 tons

(A) Based on German "Q" Manual 1938.

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