Report on test in accordance with OECD STANDARD CODE

OECD No. **1214/1**

Agricultural Tractor
LANDINI
DT 6060 (4WD)

Type denomination

TL 39 DT/K



OECD No. **1214/2**

Agricultural Tractor
MASSEY-FERGUSON
363-4 (4WD)

Type denomination

TL 39 DT/V



Manufacturer

Massey-Ferguson S.p.A., Landini Division
I-42042 Fabbrico (R.E.) Italy

Deutsche Landwirtschafts-Gesellschaft e.V.
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This is a report on a tractor test in accordance with OECD STANDARD CODE for the Official Testing of Agricultural Tractor Performance (C(87)53(Final), Code I).

It does not contain an evaluation of the tractor on practical work.

Duration of tests: October 1988 till February 1989
DLG-Testing Station for Agricultural Machinery, Max-Eyth-Weg 1,
D-6114 Groß-Umstadt

This report has been approved by the OECD Co-Ordinating Centre (CEMAGREF, France) as being in accordance with the OECD STANDARD CODE.

Date of approval: 23 rd August 1989
OECD No. 1214/1 for LANDINI DT 6060 (4WD)
OECD No. 1214/2 for MASSEY-FERGUSON 363-4 (4WD)

The tractors LANDINI DT 6060 and
MASSEY-FERGUSON 363-4
are technically identical in all main respects except colour and denominations.

In this report all performance characteristics are given corresponding to the International System of Units.

The reference to the former used Technical System of Units is given by the following relations:

Forces	1 kN	=	1000 N	=	102 kp
Powers			1 kW	=	1,36 PS
Pressures	1 MPa	=	10 bar	=	10,2 kp/cm²
	100 kPa	=	1000 mbar	=	750,10 mm Hg

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PRÜFUNGS-ABTEILUNG
LANDINI DT 6060

Test No. 88-81

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Tractor manufacturer:	MASSEY-FERGUSON S.p.A. I-42042 Fabbrico (R.E.), Italy
Location of tractor assembly:	I-42042 Fabbrico
Submitted for test by:	Manufacturer
Selected by:	Manufacturer with agreement by DLG
Place of running-in:	Fabbrico and Groß-Umstadt
Duration of running-in:	Engine and tractor appr. 18 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	LANDINI respectively MASSEY-FERGUSON
Trade name:	DT 6060 respectively 363-4
Type denomination:	TL39DT/K respectively TL39DT/V
Type:	Wheel tractor, unit construction, four wheel driven
Serial No.:	5371V52132
Start of series:	5371V51001

Engine

Make:	PERKINS
Model:	T 3.152.4
Type:	Watercooled 4-stroke Diesel-engine, direct injection, turbo charged
Serial No.:	CN 31198U815253P
Cylinders:	3, in line, bore 91,5 mm, stroke 127 mm, displacement 2505 cm³, compression ratio 15,5:1;; replaceable wet cylinder liners
Valves:	Overhead

Supercharging

Make:	SCHWITZER
Model/Type:	S2A 2674A152, exhaust driven
Max.pressure:	55 kPa

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Fuel system:	PERKINS fuel supply pump; CAV distributor injection pump DPA 3238F471/DSA 649, serial no. 31626 LEG; manufacturer's production setting 61+2 mm³/stroke at rated engine speed and full load; with automatic injection timing device; injection timing 17+3° before TDC static, additional 8° automatic; CAV multihole-injection nozzles PN 2645k603, injection pressure 21,0 MPa, CAV fuel filter with replaceable paper element; capacity of fuel tank 86 dm³
Governor:	CAV centrifugal variable speed governor, governed range of engine speed 750 to 2530 rev/min, rated engine speed 2250 rev/min;
Air cleaner:	FISPA oil bath air filter, cyclone pre-cleaner; no maintenance indicator; air intake in front of engine, below bonnet
Lubrication system:	Forced feed with gear pump; strainer in sump, PERKINS oil filter in full flow, replaceable filter
Cooling system:	Water cooling with impeller pump, overpressure relief valve set to 70 kPa, thermostat with by-pass; fan with 4 blades with 394 mm dia, water capacity 10,5 dm³
Starting system:	Electrical; LUCAS solenoid pre engaged-drive starter motor 2,5 kW; depressed pedal of clutch as safety device; ISKRA flame plug in intake manifold
Electrical equipment:	12 Volt, negative earth; LUCAS 3-phase alternator 12 V 500 W; 1 lead acid battery, 72 Ah at 20 hours rating, test current for low temperature 420 A

Exhaust silencer:	ANSA, DGM SA 1269, expansion type silencer, vertical, 130 x 100 mm oval, 660 mm long; on the left, beside the engine bonnet, mouth showing upwards, 2320 mm above ground

Transmission

Clutch:	LUK dry dual-disc clutch; pedal operated travel drive, disc 280 mm dia, organic lining; hand lever operated p.t.o. drive, disc 280 mm dia, organic lining
Gear box:	MASSEY-FERGUSON synchronized speed change gear with 4 gears, collar shifted range gear with 3 forward ranges (L, M and H) and 1 reverse range (R); total 12 forward and 4 reverse speeds, 2 gear shift levers; two further gear box models on request available: 1. gear arrangement as described above, additional range gear with 3 ranges, in 3 variants: Standard range combined with a) creeper and underdrive range, or b) creeper and overdrive range, or c) underdrive and overdrive range; in each case total: 36 forward and 12 reverse speeds 2. change gear with 4 gears, range gear with 3 forward ranges, reversing gear (acting on 4x3 forward speeds), combined in 3 variants with a) creeper range, or b) underdrive range, or c) overdrive range; in each case total: 24 forward and 12 reverse speeds
Rear axle and final drives:	MASSEY-FERGUSON bevel gear drive, bevel gear differential with pedal operated lock, self disengaging; spur gear final drives
Front axle and final drives:	MASSEY-FERGUSON, driven by jointless central propeller shaft, hand lever operated, collar shifted; bevel gear drive, planetary final drives, No-spin differential optionally available
Lubrication:	Gear box, rear axle and hydraulic system have oil in common, see pages 15 and 16

Total ratios and speeds

Range	Gear	Total ratio engine : driving wheel	Nominal travelling speed *) at rated engine speed 2250 rev/min km/h
L	1	331,81	1,78
	2	211,09	2,79
	3	167,15	3,53
	4	113,28	5,20
M	1	138,90	4,24
	2	88,36	6,67
	3	69,97	8,43
	4	47,42	12,43
H	1	56,31	10,47
	2	35,82	16,46
	3	28,37	20,78
	4	19,22	30,66
R	1	124,32	4,74
	2	79,09	7,45
	3	62,63	9,41
	4	42,44	13,89

*) calculated with the radius index 695 mm (ISO 4251/1-1984)

Number of revolutions of front wheels for one revolution of rear wheels: 1,3632

Power take-off

Main p.t.o.: Shiftable by hand lever (collar shifting) to independent or ground speed p.t.o. and by second hand lever to 540 or 1000 rev/min;
p.t.o. speed indicator lamps

1 p.t.o. shaft at rear of tractor, in tractor's median plane; height above ground 685 mm, horizontal distance to rear wheels centre line 265 mm;
35 mm dia, 6 splines, in conformity with ISO 500/1979, type 1, when using 540 rev/min speed

Power take-off proportional to engine speed
(independent p.t.o.): Driven by second plate of dry dual-disc clutch; sense of rotation clockwise (viewed to tractor's rear)

P.t.o. type	P.t.o. speed rev/min	Engine speed rev/min	Ratio engine : p.t.o.	Power restriction kW
540	540	1944	3,6000	-
	625	2250		
1000	1000	1917	1,9167	-
	1174	2250		

Power take-off proportional to ground speed:
Driven by rear axle drive, sense of rotation clockwise (at forward movement, viewed to tractor's rear)

P.t.o. type	Travel distance per p.t.o. revolution m	Number of p.t.o. revolutions per rear wheel revolution
540	0,4754	9,1852
1000	0,2531	17,2522

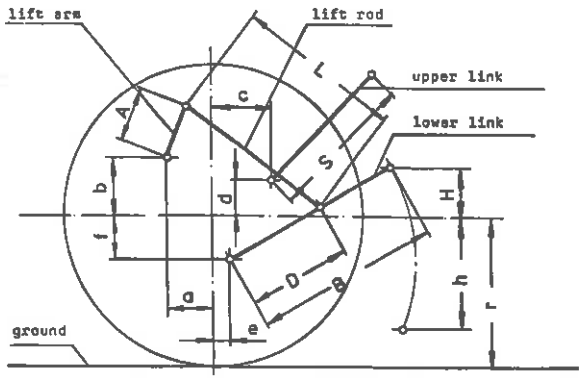
Power lift

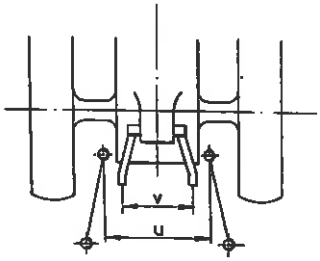
MASSEY-FERGUSON
hydraulic power lift, unit construction;
draft and position control, both infinitely mixable, floating position, lowering throttle (non-adjustable);
adjustable raise control, top link sensing;
open centre system;
1 single acting lifting cylinder,
100 mm bore, 127 mm stroke;
cylinder safety valve set to 19,0 MPa

no linkage lock for transport;
SUNDSTRAND/TUROLLA gear type pump TFA/211 S,
gear driven by engine;
delivery 36 l/min at rated engine speed, relief valve pressure setting 17,0+0,5 MPa;
1 hydraulic oil filter within suction line;
hydraulic oil circuit in common with gear box lubrication, reservoir within gear box;

MASSEY-FERGUSON control valve,
1 double acting OMC additional control valve, 2 oil couplings ar rear of tractor;
maximum volume of oil available to external cylinders 5 dm³

Three-point linkage — category 2 acc. to ISO 730/I-1977





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Dimensions of rear implement linkage (projected lengths in mm, underlined dimensions are valid for power lift measurements p.21)

Rear tyres 16.9 R 30	radius index	(r)	695
Front tyres 12.4 R 24	radius index	(r')	540
Length of lift arms		(A)	272
Length of lower links		(B)	855
Distance of lift arm pivot points from rear wheel centre	horizontal	(a)	12
	vertical	(b)	310
Horizontal distance between lower link pivot points		(u)	390
Horizontal distance between lift arm end points		(v)	525
Length of upper link		(S)	590 to 790, 680
Distance of upper link pivot point from rear wheel centre	horizontal	(c)	254
	vertical	(d)	256 or 301
Distance of lower link pivot point from rear wheel centre	horizontal	(e)	80
	vertical	(f)	138
Distance of lower link pivot points from lift rod pivot points on lower links		(D)	455
Length of lift rods		(L)	545 to 665, 610

Height of lower link hitch points relative to rear wheels' centre line (situated 695 mm above ground), these data are valid for unloaded power lift:

Length of lift rods	(L)	610	545	665
Linkage distance of lift rods	(D)	455		
Lowest position	(h)	495	337	630
Highest position	(H)	178	295	80
Transport position	(H')	178	295	80

Pull attachment

Swinging drawbar: Optionally available (not fitted on tested tractor)

Trailer hitch: LANDINI, DGM GA 725 C-87 6t V1.5; non-automatical, height adjustable;

hole diameter	28 mm
hitch point	
above ground	480, 575, 705 or 800 mm
behind rear wheel axis	
horizontal	395 mm
distance from p.t.o. shaft end	
vertical, above	20 or 115 mm
below	110 or 205 mm
horizontal	130 mm
maximum permissible vertical load	15 kN

Holed drawbar: Long bar; length 1500 mm, thickness 30 mm, width 80 mm, length between joint balls 770 mm; 7 holes between joint balls with 80 mm distance each, 2 holes outside the joint balls on either side with 120 mm distance each, holes' diameter 22 mm and 24 mm alternately; at each end of the bar 1 hole with 32 mm dia;

height above ground	minimum	125 mm
	maximum	1050 mm
holes' centre line behind p.t.o. shaft end		710 mm

(lower links in horizontal position)

Towing hitch: At front of tractor,

height above ground	710 mm

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Steering	MASSEY-FERGUSON and DANFOSS, model ORBITROL OSPC 100 , hydrostatic steering; separate oil circuit fed by SUNDSTRAND/ TUROLLA gear type pump TFA/211 S directly driven by front end of crankshaft; delivery 24,8 l/min at rated engine speed, working pressure 15,0 MPa; 1 double acting ram (symmetrical design), bore 57 mm, stroke 234 mm, piston rod 32 mm dia, acting on steering levers of front axle; oil filter incorporated in steering oil tank
Brakes	
Service brake:	SIRMAC, 7 x 5,5 inches pedal operated muscle power brake with mechanical transmission, acting on rear axle of tractor; wet disc brakes on the differential half shafts with 4 lining discs each with 178 mm dia
Parking brake:	Mechanically actuated by hand levex with ratchet, acting on the discs of service brake
Steering brake:	Divided pedals of service brake, for normal use locked together
Trailer braking take-off:	None
Wheels	
Steering wheels:	At front, 2 pneumatics 12.4 R 24, rims W10x24
Driving wheels:	At front and at rear, rear wheels: 2 pneumatics 16.9 R 30, rims W14Lx30
Wheelbase:	2109 mm
Track widths:	At front 1413, 1501, 1601, 1689 1517, 1605, 1705, 1793 mm, variable by adjustable gauge bowl wheels, at rear 1300 to 2000 mm in steps of 100 mm each variable by adjustable gauge bowl wheels

Permissible tyre combinations:

Tyre sizes

at front	at rear
9.5/9 - 24 6 ply	9.5 R 36 6 ply
9.5/9 - 28 6 ply	8.3/8 - 44 6 ply
11.2 R 24 114 A8	12.4 R 36 6 ply 14.9 R 30 129 A8 16.9 R 28 6 ply
12.4 R 20 116 A8	14.9 R 28 128 A8 420/70 R 28 133 A8
12.4 R 24 119 A8	16.9 R 30 6 ply

Protective structure: LANDINI TS 19/2 - MASSEY-FERGUSON TS 20/2, 4 post frame, OECD-tested, approval-no. CSS 081/13 for LANDINI DT 6060 (TL39DT//K), CSS 081/33 for MASSEY-FERGUSON 363-4 (TL39DT/V)

Driver's seat: GRAMMER, DS 44/1H; upholstered seat with back rest, adjustable suspension and hydraulic shock absorber; driver's platform 830 mm above ground, 1 step, 555 mm above ground; range of adjustment of unloaded seat: longitudinal 200 mm vertical 510 to 570 mm (stepless) above platform

Running-time meter: Electronic, counts real operating hours, when engine speed rises above 800 rev/min, otherwise is off

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Lighting — Electrical 12 Volt, in accordance with Italian legislation

	Size mm	Height above ground of centre mm	Distance from outside edge of lights to median plane of tractor mm
Head lights	130 dia	1105	245
Side lights	110x30	1445	790
Rear lights	70x50	1504	600
Reflectors			
1st pair	45x50	1504	645
2nd pair	80 dia	590	400

TEST CONDITIONS

Overall dimensions

Length:	3624 mm without ballast, 3810 mm with ballast
Width:	1925 mm without ballast, 1925 mm with ballast
Height:	2370 mm to top of protective structure 2320 mm to exhaust pipe's mouth
Ground clearance:	420 mm below front axle

Tractor mass

			without driver kg	with driver kg
Without ballast:	Mass	front	1125	1135
		rear	1520	1595
		total	2645	2730
With ballast:	Mass	front	1625	1635
		rear	2235	2310
		total	3860	3945

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Ballast

Front:	8 weights, total	288 kg
	water in the tyres	177 kg
Rear:	2 weights per wheel, total	240 kg
	water in the tyres	510 kg

Tyres and track widths specifications

	Front	Rear
Tyres:	MICHELIN BIB'X	MICHELIN BIB'X
dimensions	12.4 R 24	16.9 R 30
type	radial	radial
ply rating/load index	-/119 A8	-/137 A8
maximum load	1360 kg	2300 kg
inflation pressure	160 kPa	160 kPa
radius index	540 mm	695 mm
Chosen track width:	1501 mm	1500 mm
Technically permissible axle load:	1635 kg	3400 kg
Technically permissible total weight:	3950 kg	

Oils and lubrication

Capacity and change interval:

	Capacity dm³	Oil change h	Filter change h
engine	6,7	250	250
gear box including rear axle and hydraulic system	33,0		250 *)
front axle	5,8		-
final drives at front	2x1,4	1000	-
final drives at rear	2x2,2		-
steering system	2,3		500 *)

*) only filter cleaning

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Specifications

	Recommended	Used during test
Engine oil:		
type	engine oil	MF SUPER UNIVERSALOIL
viscosity		
winter	SAE 10W, 20W or 10W/30	SAE 15W/40
summer	SAE 20W or 20W/30	
tropics	SAE 30, 20W/40 or 20W/50	
for all conditions	SAE 15W/40	
classification	API - CC	API - CC
Transmission oils:		
Gearbox, rear axle hydraulic system		
type	super tractor oil universal	MF SUPER UNIVERSALOIL
viscosity	SAE 15W/40	SAE 15W/40
classification	API - CD/API -GL4	API - CD/API - GL4
Final drives at front and at rear, front axle		
type	gear oil	MOBILUBE GX85W/90-A
viscosity	SAE 85W/90	SAE 85W/90
classification	API - GL4	API - GL4
Steering oil:		
Steering system		
type	automatic transmission fluid	MOBIL ATF 200
viscosity	-	-
classification	Type A, SUFFIX A	

Grease: Multi purpose grease
number of lubrication points 13

Fuel

type: ARAL Diesel-fuel in conformity with DIN 51601
density: at 15°C at engine test 0,838 g/cm³
at p.t.o. test 0,822 g/cm³
at drawbar power test 0,837 g/cm³

REPAIRS None

REMARKS None

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COMPULSORY TESTS

1. MAIN POWER TAKE OFF PERFORMANCE (540 rev/min)

Date of tests: 21st October 1988
Location of tests: DLG-Testing Station Groß-Umstadt
Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

Power kW	Speed Engine rev/min	Speed P.t.o. rev/min	Fuel consumption hourly l/h	Fuel consumption hourly kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Maximum power						
1.1 At 2-hour test						
40,5	2250	625	12,30	10,11	250	3,29
1.2 At rated speed						
40,5	2250	625	12,30	10,11	250	3,29
1.3 At standard p.t.o. speed						
37,5	1944	540	10,83	8,90	238	3,46
1.4 Part loads, the governor hand lever in the position corresponding to maximum power at full load (curve a)						
1.4.1 the torque corresponding to maximum power at rated speed						
40,5	2250	625	12,30	10,11	250	3,29
1.4.2 85% of the torque obtained in 1.4.1						
35,2	2297	638	10,96	9,01	256	3,21
1.4.3 75% of the torque defined in 1.4.2						
26,9	2340	650	9,16	7,53	280	2,93
1.4.4 50% of the torque defined in 1.4.2						
18,6	2432	676	7,49	6,16	331	2,48
1.4.5 25% of the torque defined in 1.4.2						
9,5	2480	689	5,51	4,53	478	1,72
1.4.6 unloaded						
-	2527	702	3,55	2,92	-	-

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Power kW	Speed Engine rev/min	Speed P.t.o. rev/min	Fuel consumption hourly l/h	Fuel consumption hourly kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
1.5 Part loads, the governor hand lever in the position corresponding to the standard p.t.o. speed at full load (curve b)						
1.5.1 the torque corresponding to maximum power						
37,5	1944	540	10,83	8,90	238	3,46
1.5.2 85% of the torque obtained in 1.5.1						
32,6	1993	554	9,67	7,95	243	3,38
1.5.3 75% of the torque defined in 1.5.2						
25,2	2050	570	7,99	6,57	261	3,15
1.5.4 50% of the torque defined in 1.5.2						
17,6	2143	595	6,51	5,35	305	2,70
1.5.5 25% of the torque defined in 1.5.2						
8,9	2175	604	4,45	3,65	410	2,00
1.5.6 unloaded						
-	2210	614	2,88	2,37	-	-

No load maximum engine speed: 2527 rev/min
Equivalent flywheel torque at rated engine speed: 172 Nm
Maximum equivalent flywheel torque: 199 Nm at 1453 rev/min of the engine

Mean atmospheric conditions

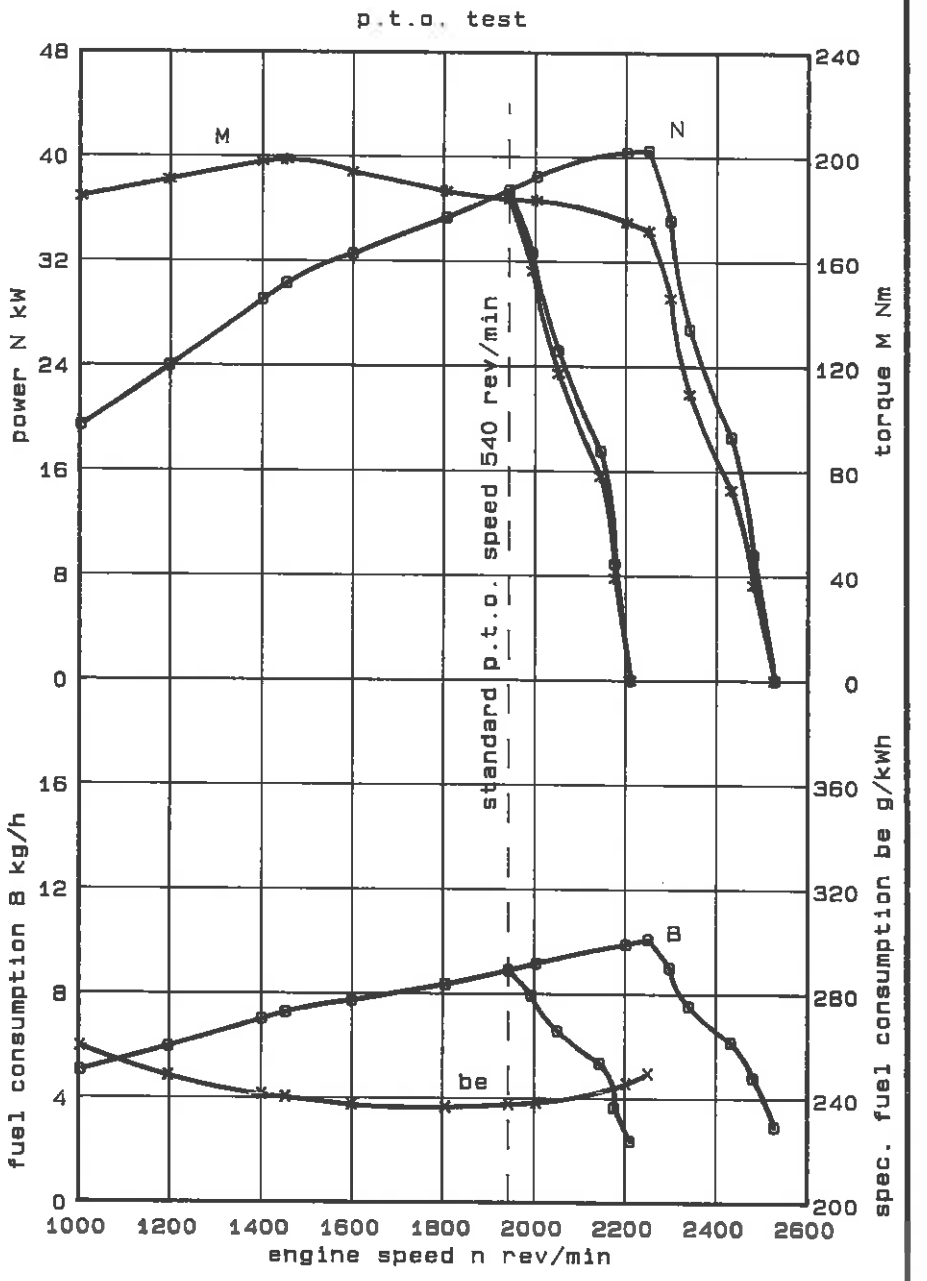
temperature	19 °C
pressure	101 kPa
rel. humidity	56 %

Maximum temperatures

coolant	84 °C
oil	106 °C
fuel	18 °C
air intake	20 °C

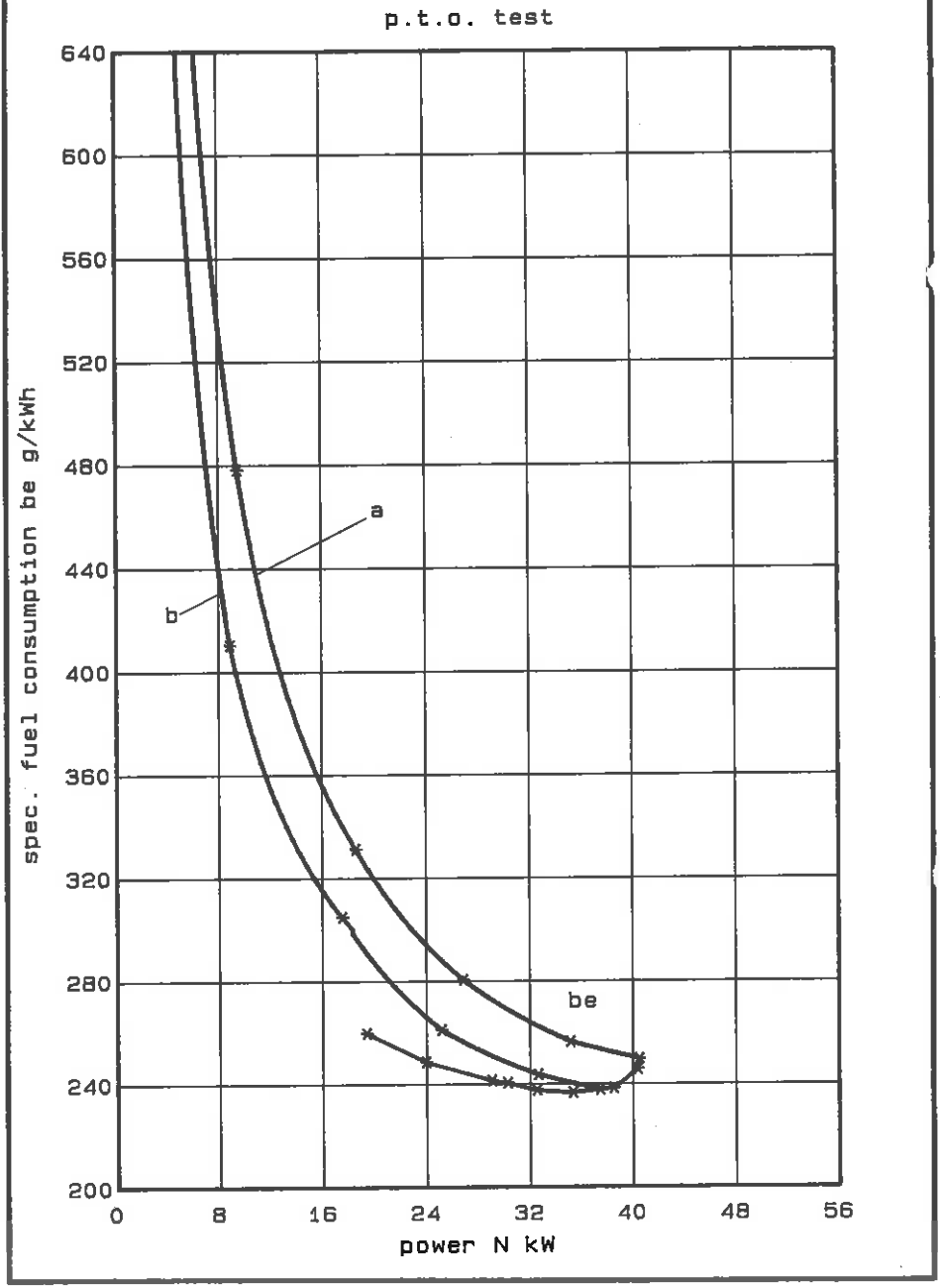
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2 HYDRAULIC POWER AND LIFTING FORCE

Date of tests: 31st January 1989

2.1 Hydraulic power test

Sustained pressure with relief valve open 17,4 MPa
Pump delivery rate at minimum pressure 37,6 l/min

	Hydraulic power kW	Flow rate l/min	Pressure MPa	Oil temperature °C
At 90% of the actual relief valve setting	7,9	30,2	15,7	39 +)
At max. power	9,0	35,9	15,1	39 +)

Tapping point used for test: At rear of tractor

+) Oil temperature in suction line of hydraulic pump more than 65°C

2.2 Power lift test

	At the hitch point	On the frame
Height of lower hitch points above ground in down position	200 mm	200 mm
Vertical movement without lifting force	673 mm	800 mm
Vertical movement with lifting force	645 mm	740 mm
Max. corrected force exerted through full range	14,6 kN	13,5 kN
Corresponding pressure	15,1 MPa	15,1 MPa
Moment about rear axle	-	20,9 kNm
Max. tilt angle of mast from vertical	-	9,5°

Lifting heights relative to horizontal lower links

mm	-407	-400	-357	-300	-200	-100	0	+100	+200	+288	+300	+333

Lifting forces at hitch points, corrected to 15,1 MPa

kN			14,6	16,0	17,5	18,8	19,7	20,3	20,5	21,2		

Lifting forces at standard frame, corrected to 15,1 MPa

kN	13,5	13,7		15,2	15,6	16,0	16,2	16,0	15,6		14,7	14,5

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3 DRAWBAR PERFORMANCE

Date of tests: 7th till 14th November 1988
Type of track: Concrete

Gear	Driving speed km/h	Power kW	Drawbar pull kN	Engine speed rev/min	Slip of wheels %
3.1 Maximum power in tested gears (unballasted tractor) height of drawbar above ground 490 mm					
3 L	3,15	24,6	28,14	2300	14,9
1 M	3,74	29,4	28,34	2275	15,0
4 L	4,74	32,3	24,56	2250	11,0
2 M	6,28	33,5	19,19	2246	7,9
3 M	8,10	33,0	14,66	2254	5,8
1 H	10,21	33,3	11,73	2254	4,6
4 M	12,28	30,4	8,92	2254	3,3
3.2 Maximum power in tested gears (ballasted tractor) height of drawbar above ground 470 mm					
1 L	1,63	17,6	38,80	2387	15,0
2 L	2,46	26,6	38,90	2293	15,1
3 L	3,17	32,4	36,85	2254	11,7
1 M	3,95	33,6	30,58	2254	8,3
4 L	4,94	33,8	24,66	2246	6,0
2 M	6,47	33,3	18,54	2254	4,3
3 M	8,22	32,8	14,35	2246	3,2
1 H	10,36	31,7	11,01	2250	2,3
3.3.1 Five-hour-test at 75% of pull at maximum power in 2 M gear					
2 M	6,73	25,9	13,88	2304	3,0
3.3.2 Five-hour-test at pull corresponding to 15% wheel slip in test 3.2					
2 L	2,32	25,1	38,96	2279	-

Total oil consumption during ten hours duration of tests 3.3.1 and 3.3.2 : 14 g/h

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Tyre size front: 12.4 R 24
rear: 16.9 R 30

Specific fuel consumption g/kWh	Specific energy kWh/l	Temperatures Fuel °C	Coolant °C	Engine-oil °C	Atmospheric conditions Tempe-rature °C	Relative humidity %	Pressure kPa
tyre inflation pressure: 80 kPa at front and at rear							
345	2,43	29	82	94	10	68	100,4
325	2,57	28	84	96	11	68	100,5
315	2,66	28	86	89	3	89	100,5
305	2,74	29	86	99	3	88	100,5
308	2,72	26	87	101	3	85	100,5
306	2,73	27	87	102	3	84	100,5
333	2,52	27	86	100	5	80	100,5
tyre inflation pressure: 80 kPa at front and at rear							
400	2,09	25	83	86	8	66	100,3
337	2,48	25	83	89	8	68	100,3
313	2,67	27	86	99	9	77	100,3
303	2,76	33	85	102	8	78	100,3
301	2,78	34	85	104	9	77	100,3
305	2,74	33	85	98	9	78	100,4
311	2,69	32	85	99	9	77	100,4
320	2,61	34	85	100	9	73	100,4
326	2,57	26	80	94	7	94	100,0
-	-	31	80	95	12	80	100,6

Test 3.3.2 was carried out with additional ballast of 552 kg
the figures not quoted are therefore irrelevant

4 TURNING AREA AND TURNING CIRCLE (front wheel drive disengaged)

Wheel equipment front: 12.4 R 24
rear: 16.9 R 30

Track of wheels front: 1501 mm
rear: 1500 mm

	With brakes		Without brakes	
	left-hand m	right-hand m	left-hand m	right-hand m
Radius of turning area	3,95	3,93	4,55	4,53
Radius of turning circle	3,69	3,68	4,29	4,29

5 LOCATION OF CENTRE OF GRAVITY

Height above ground	828 mm
Distance forward from rear axle centre	876 mm
Distance from tractor's median plane	0 mm

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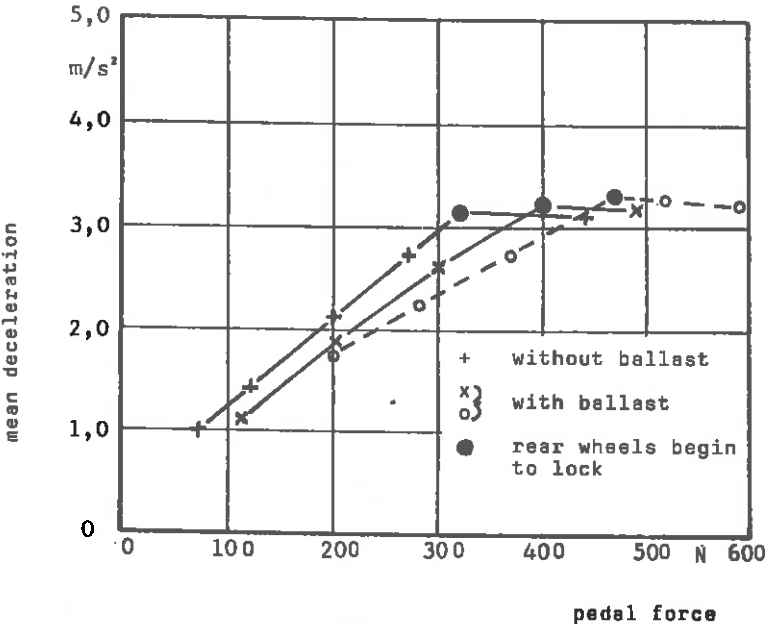
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6 BRAKING (Front wheel drive disengaged)

Date of tests: 8th and 9th November 1988

	Tractor mass (with driver) front kg	rear kg	total kg	Speed before application of brakes km/h
Without ballast	1135	1595	2730	31,7
With ballast	1635	2310	3945	31,1

6.1 Cold service braking device test
6.2 Fade test



No significant deviation of tractor from original course and no abnormal vibrations

Brakes-heating: Actuating of brake for 1 km with pedal force corresponding to 1 m/s²

6.3 Parking braking device test

	Ballasted tractor on 18% - slope up	down
Braking device control force N	160	160

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7 MEASUREMENT OF EXTERNAL NOISE LEVEL

Date of test: 25th October 1988
Type of track: Concrete
Type of sound level meter: BRÜEL & KJAER model 2233

Results of test

Gear: 4 H (Front wheel drive disengaged)
Travelling speed before acceleration: 23,8 km/h
Sound level: 86,5 dB(A)

APPENDIX

MEASUREMENT OF NOISE IN THE PROTECTIVE STRUCTURE

with 4-post frame LANDINI TS 19/2

Date of test: 27th October 1988
Type of track: Concrete
Type of sound level meter: BRÜEL & KJAER model 2233

Gear	Drawbar pull kN	Travelling speed km/h	Sound level dB(A)
1 L	26,08	1,55	93,0
2 L	26,90	2,45	93,5
3 L	27,20	3,08	95,0
1 M	27,23	3,79	96,0
4 L	24,19	4,70	96,5
2 M +)	19,22	6,27	96,0
2 M +)	light load	6,89	92,0
3 M	14,60	8,12	95,5
1 H	11,75	10,19	95,0
4 M	8,96	12,20	95,0
2 H	6,36	16,36	94,5
4 H *)	light load	31,70	94,0

+) The 2 M gear corresponds to the nominal travelling speed nearest to 7,5 km/h

*) Front wheel drive disengaged

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OPTIONAL TEST

8. ENGINE PERFORMANCE

Date of tests: 17th October 1988
Location of tests: DLG-Testing-Station Groß-Umstadt
Type of dynamometer: SCHENCK eddy-current-dynamometer W 150

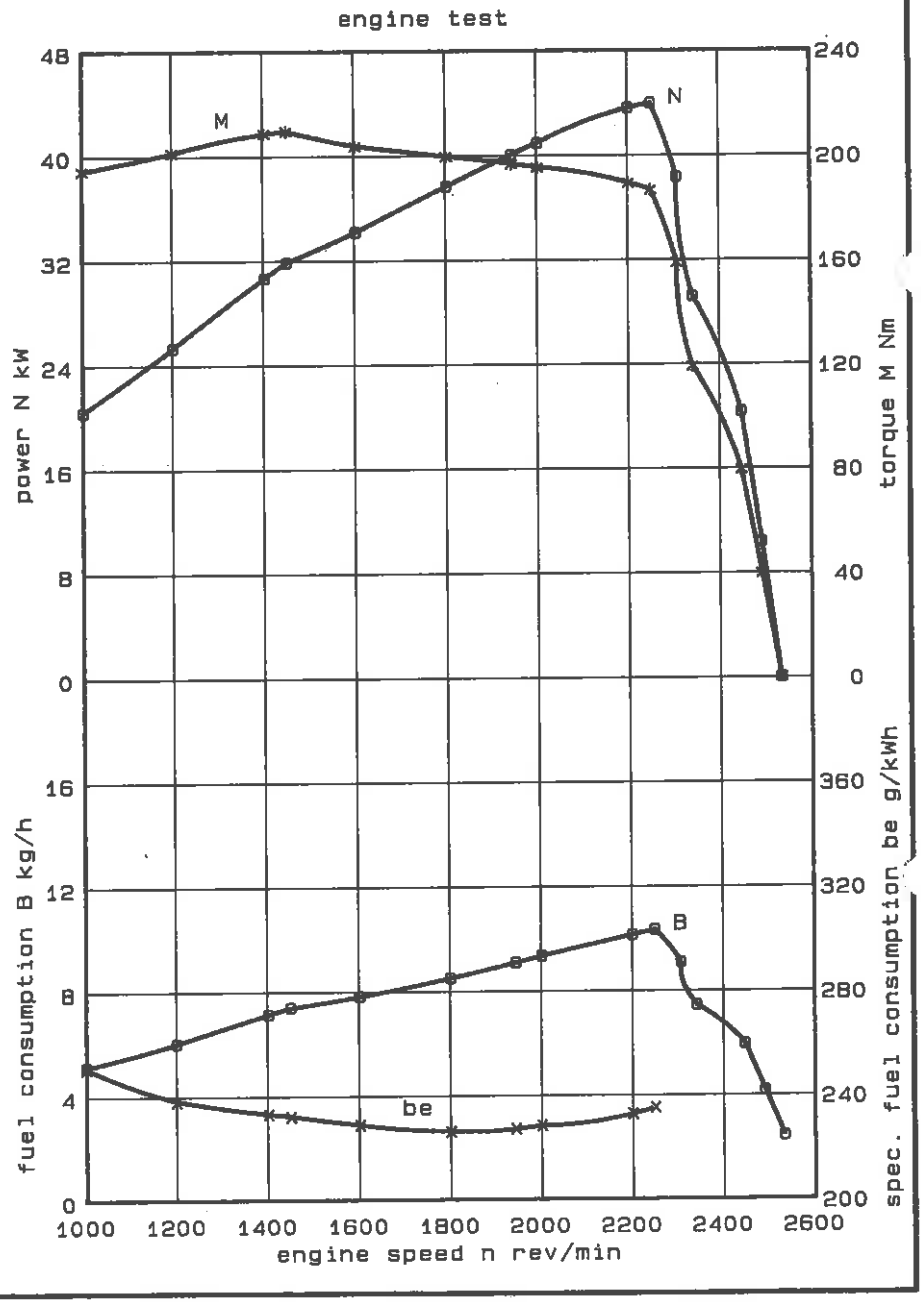
	Power kW	Engine speed rev/min	Fuel consumption hourly l/h	Fuel consumption hourly kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Maximum power						
8.1 At 2-hour test	44,0	2250	12,57	10,34	235	3,50
8.2 At rated engine speed	44,0	2250	12,57	10,34	235	3,50
8.3 At standard p.t.o. speed (540 rev/min)	40,0	1944	11,06	9,09	227	3,62
8.4 Part loads						
8.4.1 the torque corresponding to maximum power at rated speed	44,0	2250	12,57	10,34	235	3,50
8.4.2 85% of the torque obtained in 8.4.1	38,3	2307	11,05	9,08	237	3,47
8.4.3 75% of the torque obtained in 8.4.2	29,2	2341	9,06	7,44	255	3,22
8.4.4 50% of the torque obtained in 8.4.2	20,3	2447	7,25	5,96	293	2,81
8.4.5 25% of the torque obtained in 8.4.2	10,3	2491	5,06	4,16	403	2,04
8.4.6 unloaded	-	2533	2,98	2,45	-	-

Optimum fuel consumption: 217 g/kWh at 19,4 kW and 1238 rev/min
No load maximum engine speed: 2533 rev/min
Torque at rated engine speed: 187 Nm
Maximum torque: 210 Nm at 1451 rev/min of the engine

Mean atmospheric conditions	temperature	20 °C
	pressure	100 kPa
	relative humidity	60 %
Maximum temperatures	coolant	85 °C
	oil	106 °C
	fuel	20 °C
	engine air intake	21 °C

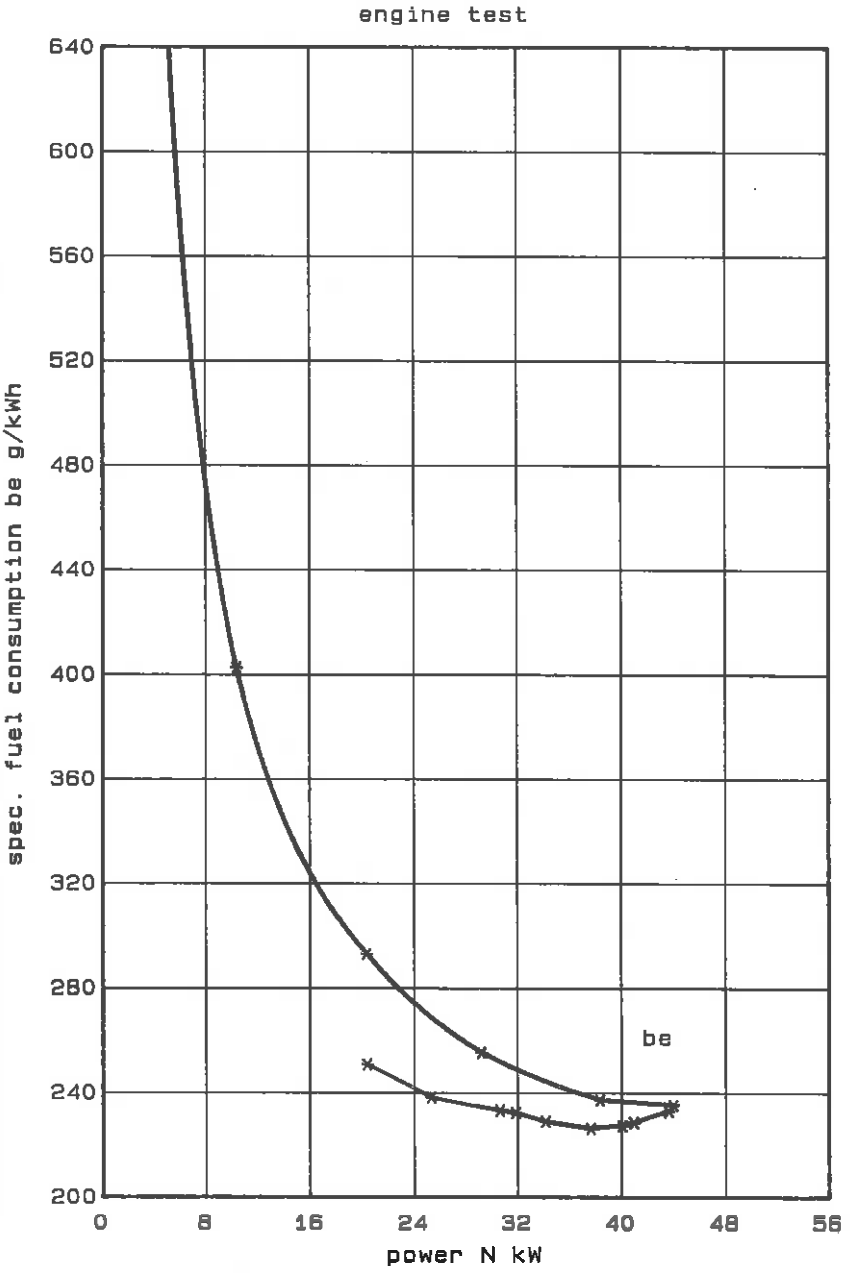
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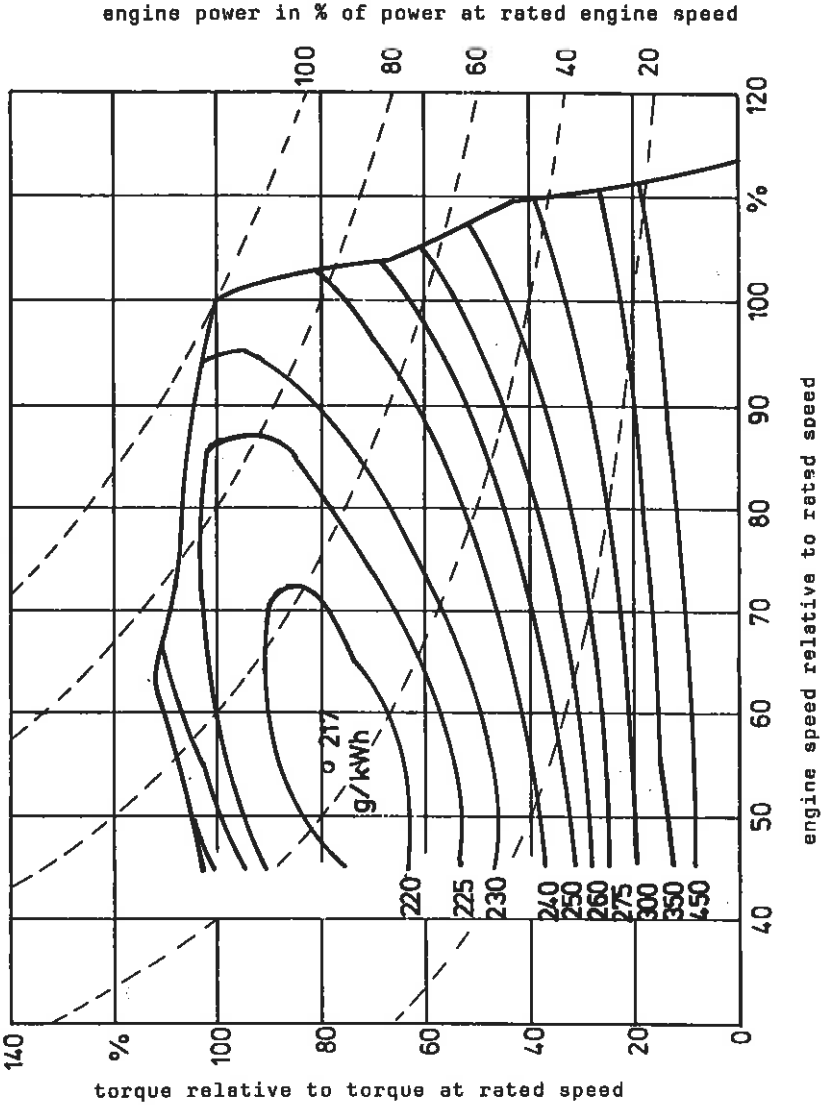
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