Report on test in accordance with OECD STANDARD CODE

OECD No. **1209/1**

Agricultural Tractor
LANDINI
R 5860 (2WD)

Type denomination

TL 22 N/K



OECD No. **1209/2**

Agricultural Tractor
MASSEY-FERGUSON
353 (2WD)

Type denomination

TL 22 N/V



Manufacturer

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

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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: May till November 1988
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. 1209/1 for LANDINI R 5860 (2WD)
OECD No. 1209/2 for MASSEY-FERGUSON 353 (2WD)

The tractors LANDINI R 5860 (2WD) and
MASSEY-FERGUSON 353 (2WD)
are technically identical in all main respects except colour and denominations.

The tractor LANDINI 5860, serial no. 5369V50012 had been tested in 2 variants: As model DT 5860 (4WD) and as model R 5860 (2WD).

Model DT 5860 was converted into model R 5860 by dismantling the front axle drive and by exchange of front axle and steering.

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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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 20 hours, tractor appr. 60 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	LANDINI respectively MASSEY-FERGUSON
Trade name:	R 5860 respectively 353
Type denomination:	TL 22 N/K respectively TL 22 N/V
Type:	Wheel tractor, unit construction, rear wheel driven
Serial No.:	5369 V 500 12
Start of series:	5368 V 50 001 (see note on page 2)

Engine

Make:	PERKINS
Model:	D3.152 S
Type:	Watercooled 4-stroke Diesel-engine, direct injection, naturally aspirated
Serial No.:	CE 31197 U 81 3447 P
Cylinders:	3, in line, bore 91,5 mm, stroke 127 mm, displacement 2505 cm³, compression ratio 16,5:1 ; replaceable wet cylinder liners
Valves:	Overhead

Fuel system:	PERKINS fuel supply pump; CAV distributor injection pump DPA 3238 F480/DSA 651, serial no. 08226 LEG; manufacturer's production setting 50±1,2 mm³/stroke at rated engine speed and full load; with automatic injection timing device; injection timing 15±2° before TDC static, additional 8° automatic; CAV multihole-injection nozzles PN 2646825; injection pressure 19,0 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 2465 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, 2300 mm above ground

Transmission

Clutch:	LUK, model A2.028.074.08 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
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 varaiants: 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:	MASSEY-FERGUSON not driven, telescopically adjustable
Lubrication:	Gear box, rear axle and hydraulic system have oil in common, see pages 15 and 16

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Total ratios and speeds

Range	Gear	Total ratio engine : driving wheel	Nominal travelling speed *) at rated engine speed of 2250 rev/min km/h
L	1	331,81	1,64
	2	211,09	2,57
	3	167,15	3,25
	4	113,28	4,79
M	1	138,90	3,91
	2	88,36	6,14
	3	69,97	7,76
	4	47,42	11,45
H	1	56,31	9,64
	2	35,82	15,15
	3	28,37	19,14
	4	19,22	28,24
R	1	124,32	4,37
	2	79,09	6,86
	3	62,63	8,76
	4	42,44	12,79

*) calculated with the radius index 640 mm (ISO 4251/1-1984)

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 630 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	0,4378	9,1852
1000	0,2331	17,2522

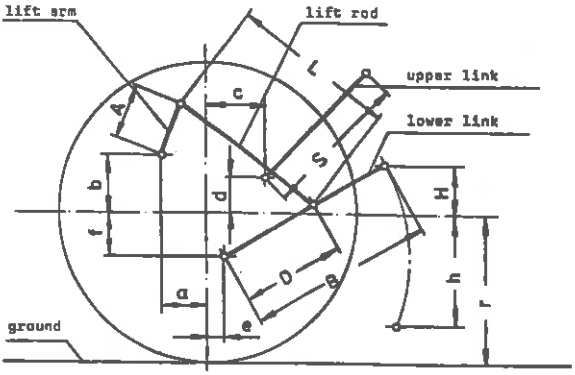
Power lift

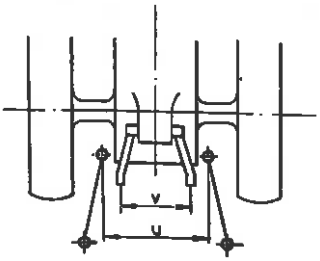
MASSEY-FERGUSON
hydraulic power lift, unit construction;
draft and position control, both infinitely mixable, floating position, lowering throttle (non-adjustable);
adjustable raise control, top link sensing;
open centre system
1 single acting lifting cylinder,
100 mm bore, 127 mm stroke;
cylinder safety 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 (14.9 R 28) Front tyres 7.50 - 16	radius index static radius	(r) (r')	640 376
Length of lift arms		(A)	272
Length of lower links		(B)	855
Distance of lift arm pivot points from rear wheel centre	horizontal vertical	(a) (b)	12 310
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 vertical	(c) (d)	254 256 or 301
Distance of lower link pivot point from rear wheel centre	horizontal vertical	(e) (f)	80 138
Distance of lower link pivot points from lift rod pivot points on lower links		(D)	455
Length of lift rods		(L)	545 to 665, 590

Height of lower link hitch points relative to rear wheels' centre line (situated 640 mm above ground), these data are valid for unloaded power lift:

Length of lift rods	(L)	590	545	665
Linkage distance of lift rods	(D)	455		
Lowest position	(h)	440	335	647 *)
Highest position	(H)	240	315	95
Transport position	(H')	240	315	95

*) 7 mm below ground

Pull attachment

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

Trailer hitch: LANDINI, DGM GA 725 C-87 GEV 1.5; non-automatical, height adjustable;

hole diameter	28 mm
hitch point	
above ground	425, 520, 650 or 745 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	53 mm*)
	maximum	1015 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	680 mm

*) lower link hitch points 7 mm below ground

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Steering	MASSEY-FERGUSON and DANFOSS, model ORBITROL OSPC 80, 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 12,0 MPa; 1 double acting differential ram, bore 45 mm, stroke 165 mm, piston rod 20 mm dia, acting on track rod 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 lever 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 7.50-16 rims 5.50 Fx16
Driving wheels:	At rear, 2 pneumatics 14.9 R 28, rims W12x28
Wheelbase:	2126 mm
Track widths:	At front 1320 to 1820 mm, in steps of 100 mm each variable by extending telescopic half axles at rear 1400 to 1900 mm in steps of 100 mm each variable by adjustable gauge bowl wheels

Permissible tyre combinations:

Tyre sizes		
at front		at rear
6.50 - 16	6 ply	13.6 R 28 123 A8
7.50 - 16	6 ply	14.9 R 28 128 A8
		12.4 R 32 6 ply
		9.5 - 36 6 ply
		420/70 R 28 133 A8

Protective structure: LANDINI TS 19/2 - MASSEY-FERGUSON TS 20/2, 4 post frame, OECD-tested, approval-no. CSS 081/18 for LANDINI R 5860 (TL22N/K), CSS 081/38 for MASSEY-FERGUSON 353 (TL22N/V)

Driver's seat: GRAMMER, DS 44/1H; upholstered seat with back rest, adjustable suspension and hydraulic shock absorber; driver's platform 780 mm above ground, 1 step, 500 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 is running with 1600 rev/min

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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	1070	241
Side lights	110x30	1365	788
Rear lights	70x50	1430	606
Reflectors	45x50	1430	644

TEST CONDITIONS

Overall dimensions

Length: 3540 mm without ballast, 3810 mm with ballast
Width: 1815 mm without ballast, 1880 mm with ballast
Height: 2280 mm to top of protective structure

Ground clearance: 435 mm below bracket of trailer hitch

Tractor mass

			without driver kg	with driver kg
Without ballast:	Mass	front	800	810
		rear	1450	1525
		total	2250	2335
With ballast:	Mass	front	1045	1055
		rear	2055	2130
		total	3100	3185

Ballast

Front:	6 weights, total	216 kg
Rear:	2 weights per wheel, total	240 kg
	water in the tyres	394 kg

Tyres and track widths specifications

	Front	Rear
Tyres:	GOODYEAR	PIRELLI TM 300 S
dimensions	7.50 - 16	14.9 R 28
type	cross-ply	radial
ply rating/load index	6/-	-/128 A8
maximum load	745 kg (30 km/h)	1800 kg
inflation pressure	280 kPa	160 kPa
radius index	376 mm (static)	640 mm
Chosen track width:	1320 mm	1400 mm
Technically permissible axle load:	1050 kg	2800 kg
Technically permissible total weight:	3180 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	1000	250*)
final drives at rear	2 x 2,2		-
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 rear		
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 15

Fuel

type: ARAL Diesel-fuel in conformity with DIN 51601
density: at 15°C at engine test 0,839 g/cm³
at p.t.o. test 0,836 g/cm³
at drawbar power test 0,819 g/cm³

REPAIRS None

REMARKS None

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Landini R 5860

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COMPULSORY TESTS

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

Date of tests: 20th May 1988
Location of tests: DLG-Testing Station Groß-Umstadt
Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

Power	speed		fuel consumption			specific
	engine	p.t.o.	hourly		specific	energy
kW	rev/min	rev/min	l/h	kg/h	g/kWh	kWh/l
Maximum power						
1.1 At 2-hour test						
32,0	2250	625	10,27	8,58	269	3,11
1.2 At rated speed						
32,0	2250	625	10,27	8,58	269	3,11
1.3 At standard p.t.o. speed						
29,6	1944	540	9,01	7,53	255	3,28
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						
32,0	2250	625	10,27	8,58	269	3,11
1.4.2 85% of the torque obtained in 1.4.1						
28,1	2326	646	9,24	7,72	275	3,04
1.4.3 75% of the torque defined in 1.4.2						
21,5	2369	658	7,70	6,43	300	2,79
1.4.4 50% of the torque defined in 1.4.2						
14,6	2416	671	6,09	5,08	348	2,40
1.4.5 25% of the torque defined in 1.4.2						
7,4	2451	681	4,66	3,89	526	1,59
1.4.6 unloaded						
-	2466	685	3,31	2,77	-	-

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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						
29,6	1944	540	9,01	7,53	255	3,28
1.5.2 85% of the torque obtained in 1.5.1						
26,0	2007	558	7,87	6,57	253	3,30
1.5.3 75% of the torque defined in 1.5.2						
20,0	2059	572	6,58	5,50	275	3,03
1.5.4 50% of the torque defined in 1.5.2						
13,7	2116	588	5,17	4,32	316	2,65
1.5.5 25% of the torque defined in 1.5.2						
7,0	2157	599	3,87	3,23	464	1,80
1.5.6 unloaded						
-	2189	608	2,58	2,15	-	-

No load maximum engine speed: 2466 rev/m
Equivalent flywheel torque at rated engine speed: 136 Nm
Maximum equivalent flywheel torque: 159 Nm at 1402 rev/min of the engine

Mean atmospheric conditions

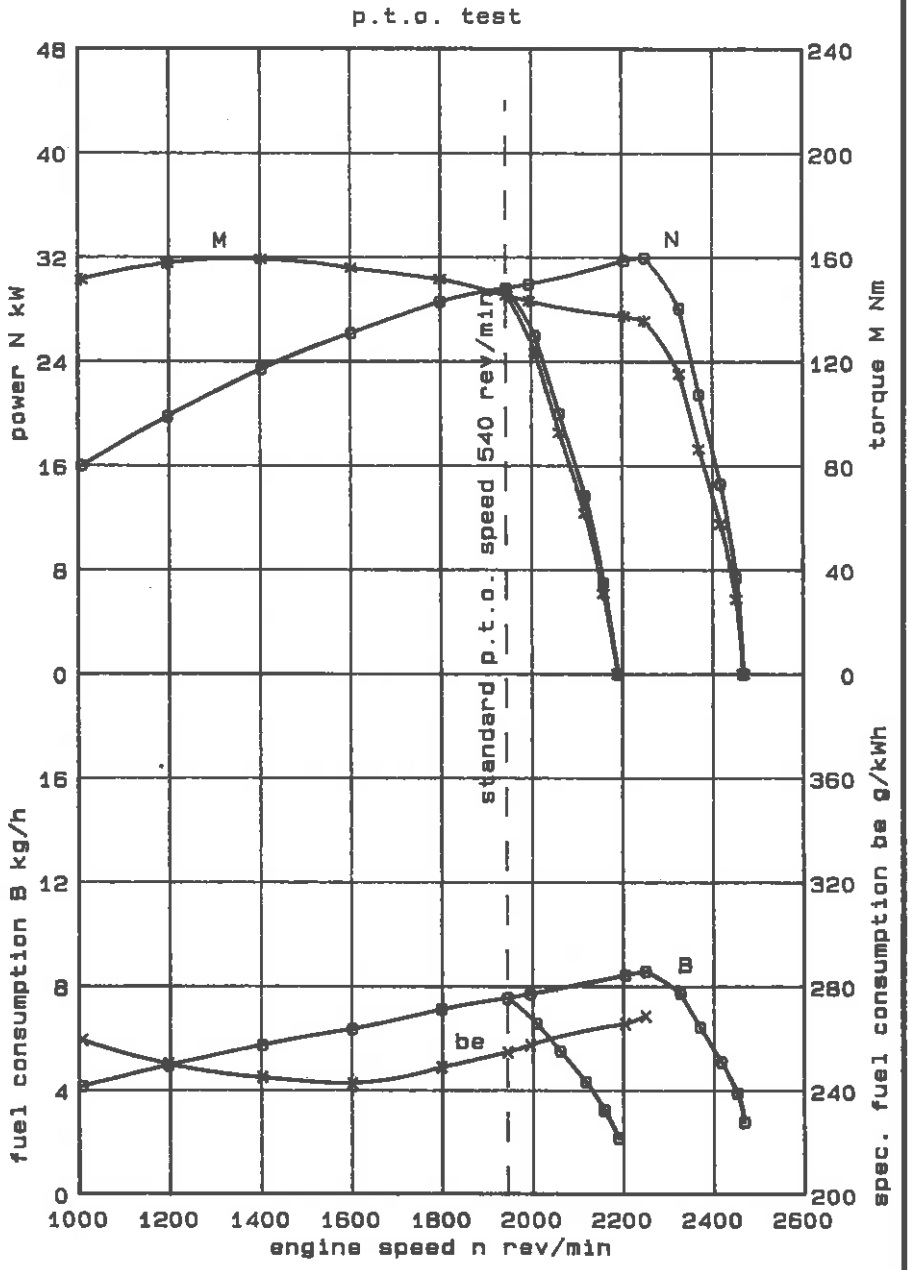
temperature	24 °C
pressure	100 kPa
rel. humidity	40 %

Maximum temperatures

coolant	79 °C
oil	94 °C
fuel	29 °C
air intake	24 °C

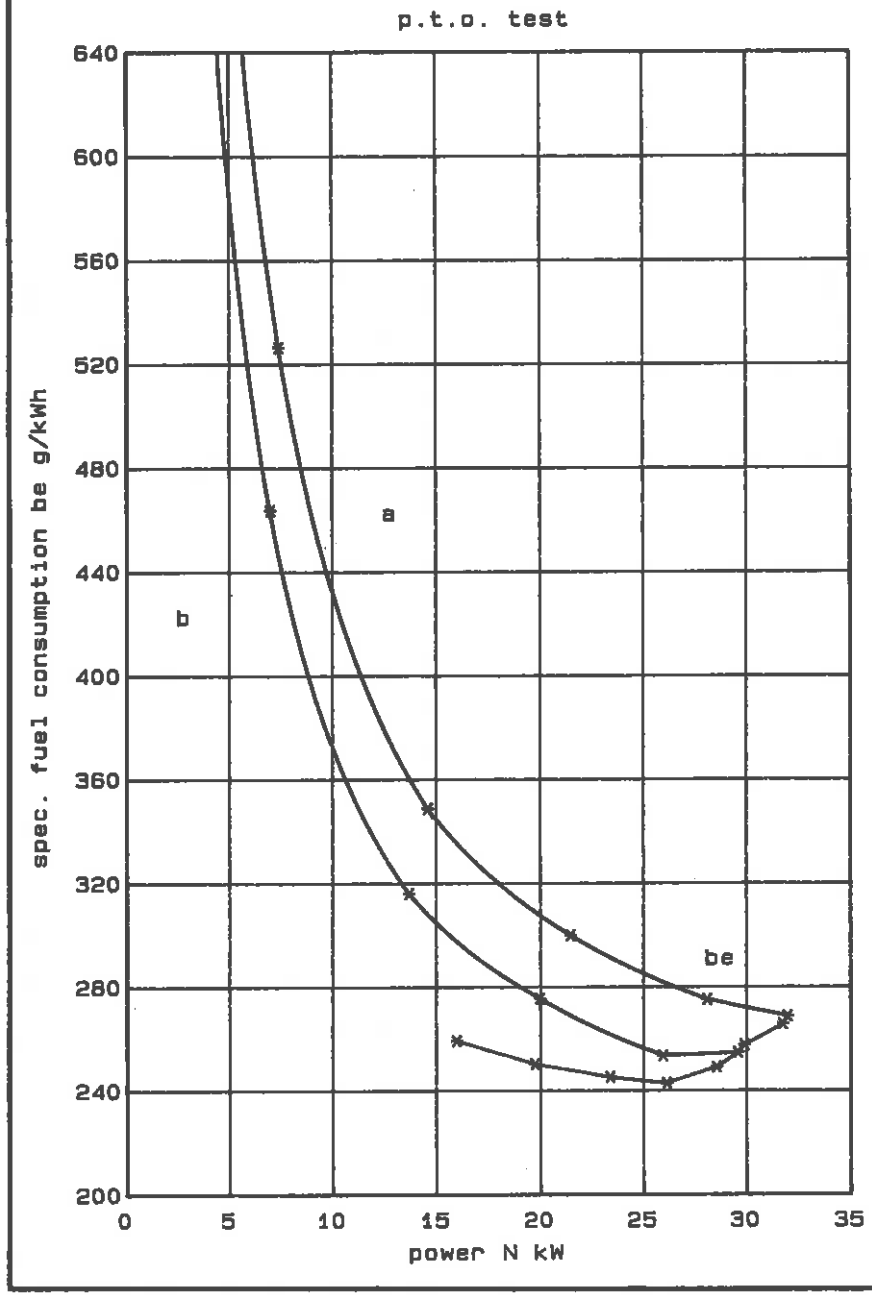
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2 HYDRAULIC POWER AND LIFTING FORCE

Date of tests: 22nd June 1988

2.1 Hydraulic power test

Sustained pressure with relief valve open 16,7 MPa
Pump delivery rate at minimum pressure 37,9 l/min

	Hydraulic power kW	Flow rate l/min	Pressure MPa	Oil temperature °C
At 90% of the actual relief valve setting	8,2	32,6	15,0	35 *)
At max. power	8,5	34,5	14,8	35 *)

Tapping point used for test: At rear of tractor
*) oil temperature in suction line of hydraulic pump more than 60°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 forces	680 mm	795 mm
Vertical movement with lifting forces	660 mm	715 mm
Max. corrected force exerted through full range	14,7 kN	14,4 kN
Corresponding pressure	14,8 MPa	14,8 MPa
Moment about rear axle	-	22,2 kNm
Max. tilt angle of mast from vertical	-	8 °

Lifting heights relative to horizontal lower links

mm	-337	-302	-300	-200	-100	0	+100	+200	+300	+358	+378

Lifting forces at hitch points, corrected to 14,8 MPa

kN		14,7	14,8	17,3	19,0	20,0	20,8	21,3	21,7	21,9	

Lifting forces at standard frame, corrected to 14,8 MPa

kN	14,4		15,3	16,7	17,3	17,4	17,4	17,0	16,3		15,8

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3 DRAWBAR PERFORMANCE

Date of tests: 20th and 21st September 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 600 mm					
3 L	2,88	17,8	22,27	2362	14,9
1 M	3,40	21,0	22,27	2319	15,0
4 L	4,12	24,6	21,51	2254	13,4
2 M	5,54	26,3	16,94	2250	8,2
3 M	7,24	26,8	13,34	2250	5,6
1 H	9,10	26,9	10,65	2250	4,4
4 M	10,91	25,4	8,38	2250	3,3
3.2 Maximum power in tested gears (ballasted tractor) height of drawbar above ground 600 mm					
1 L	1,48	12,0	29,14	2408	14,9
2 L	2,26	18,4	29,24	2347	15,0
3 L	2,81	22,8	29,22	2308	15,0
1 M	3,41	25,6	27,05	2250	11,8
4 L	4,36	26,2	21,62	2250	8,1
2 M	5,71	26,9	16,94	2250	5,7
3 M	7,33	26,6	13,08	2250	4,1
1 H	9,20	26,8	10,50	2250	3,3
4 M	10,98	25,4	8,34	2246	2,6
3.3.1 Five-hour-test at 75% of pull at maximum power in 3 M gear *)					
3 M	7,84	19,6	8,99	2340	3,5
3.3.2 Five-hour-test at pull corresponding to 15% wheel slip in test 3.2 *)					
2 L	2,24	21,4	34,45	2311	-

Total oil consumption during ten hours duration of tests 3.3.1 and 3.3.2 : 21 g/h

*) The tests 3.3.1 and 3.3.2 were carried out with the model DT 5860 (4WD)

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Tyre size front: 7.50 - 16
rear: 14.9 R 28

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: 180 kPa at front and 80 kPa at rear							
376	2,18	24	75	74	16	75	100,1
360	2,27	23	75	75	16	76	100,1
351	2,33	23	75	75	16	75	100,1
327	2,51	24	74	79	17	74	100,1
320	2,56	24	74	80	17	73	100,1
318	2,58	24	75	81	17	78	100,1
336	2,44	24	75	79	17	78	100,1
tyre inflation pressure: 180 kPa at front and 80 kPa at rear							
444	1,84	22	75	80	15	87	101,0
375	2,19	23	75	80	15	84	101,0
349	2,34	23	75	79	15	84	101,0
335	2,44	23	74	79	15	85	101,0
330	2,48	23	74	80	15	82	101,0
320	2,56	23	74	81	15	78	101,0
322	2,54	23	75	80	15	77	101,0
321	2,55	24	75	80	15	79	101,0
338	2,42	24	75	80	16	79	101,1
367	2,23	24	75	83	18	80	100,0
-	-	29	77	90	22	74	99,5

Test 3.3.2 was carried out with additional ballast of 505 kg, relative to the weight of ballasted model DT 5860 (4WD), the figures not quoted are therefore irrelevant

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LANDINI R 5860

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4 TURNING AREA AND TURNING CIRCLE

Wheel equipment — front: 7.50 - 16
rear: 14.9 R 28

Track of wheels — front: 1320 mm
rear: 1400 mm

	With brakes left-hand m	With brakes right-hand m	Without brakes left-hand m	Without brakes right-hand m
Radius of turning area	3,44	3,44	3,85	3,87
Radius of turning circle	3,28	3,30	3,69	3,73

5 LOCATION OF CENTRE OF GRAVITY

Height above ground	763 mm
Distance forward from rear axle centre	741 mm
Distance from tractor's median plane, to the right	2 mm

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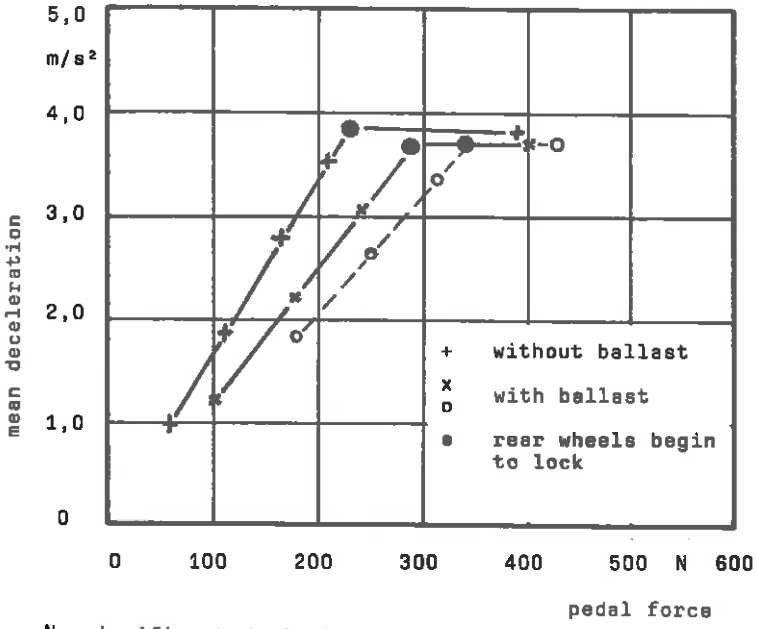
Test No. 88-80

6 BRAKING

Date of tests: 20th and 21st September 1988

	Tractor mass (with driver) front kg	rear kg	total kg	Speed before application of brakes km/h
Without ballast	810	1525	2335	29,8
With ballast	1055	2130	3185	29,7

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	170	160

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7 MEASUREMENT OF EXTERNAL NOISE LEVEL

Date of test: 21st September 1988
Type of track: Concrete
Type of sound level meter: BRÜEL & KJAER model 2233

Results of test

Gear: 4 H
Travelling speed before acceleration: 22,4 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: 21st September 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	21,06	1,44	93,0
2 L	21,07	2,22	93,5
3 L	21,28	2,82	94,0
1 M	20,78	3,37	94,0
4 L	21,14	4,02	95,0
2 M	16,84	5,59	95,0
3 M +)	13,22	7,23	95,5
3 M +)	light load	8,34	91,5
1 H	10,52	9,09	95,0
4 M	8,35	10,89	95,5
2 H	6,25	14,44	95,0
4 H	light load	29,80	94,5

+) The 3 M gear corresponds to the nominal travelling speed nearest to 7,5 km/h

OPTIONAL TEST

8. ENGINE PERFORMANCE

Date of tests: 9th May 1988
Location of tests: DLG-Testing-Station Groß-Umstadt
Type of dynamometer: SCHENCK eddy-current-dynamometer W 150

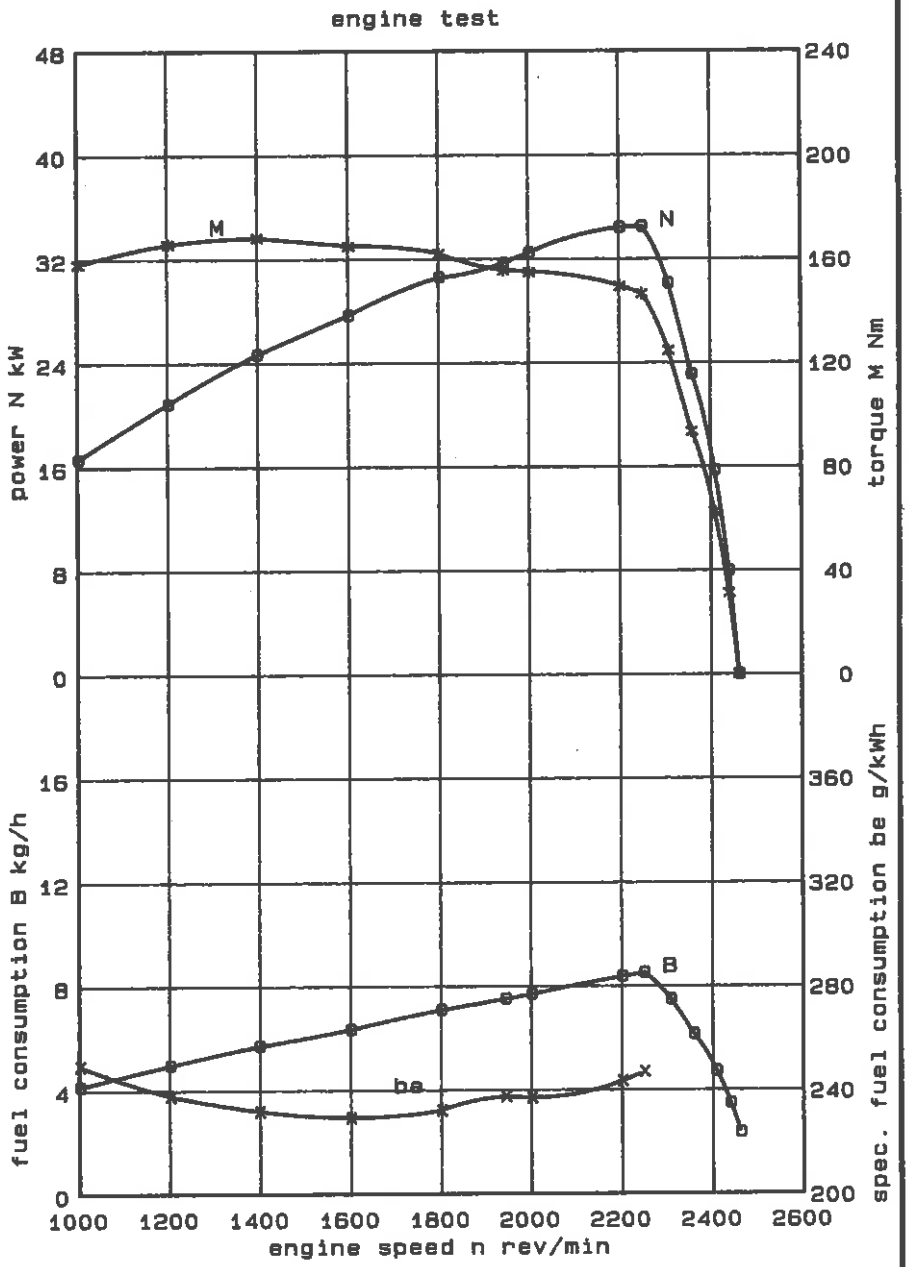
Power kW	Engine speed rev/min	Fuel consumption hourly l/h	Fuel consumption hourly kg/h	Fuel consumption specific g/kWh	Specific energy kWh/l
Maximum power					
8.1 At 2-hour test					
34,5	2250	10,16	8,53	247	3,40
8.2 At rated engine speed					
34,5	2250	10,16	8,53	247	3,40
8.3 At standard p.t.o. speed (540 rev/min)					
31,7	1944	8,96	7,52	237	3,53
8.4 Part loads					
8.4.1 the torque corresponding to maximum power at rated speed					
34,5	2250	10,16	8,53	247	3,40
8.4.2 85% of the torque obtained in 8.4.1					
30,1	2308	8,93	7,49	249	3,37
8.4.3 75% of the torque obtained in 8.4.2					
23,1	2359	7,32	6,14	266	3,15
8.4.4 50% of the torque obtained in 8.4.2					
15,7	2409	5,62	4,72	300	2,79
8.4.5 25% of the torque obtained in 8.4.2					
8,0	2439	4,15	3,48	438	1,91
8.4.6 unloaded					
-	2461	2,82	2,37	-	-

Optimum fuel consumption: 222 g/kWh at 17.1 kW and 1238 rev/min
No load maximum engine speed: 2461 rev/min
Torque at rated engine speed: 146 Nm
Maximum torque: 168 Nm at 1399 rev/min of the engine

Mean atmospheric conditions	temperature	25 °C
	pressure	100 kPa
	relative humidity	40 %
Maximum temperatures	coolant	75 °C
	oil	86 °C
	fuel	24 °C
	engine air intake	24 °C

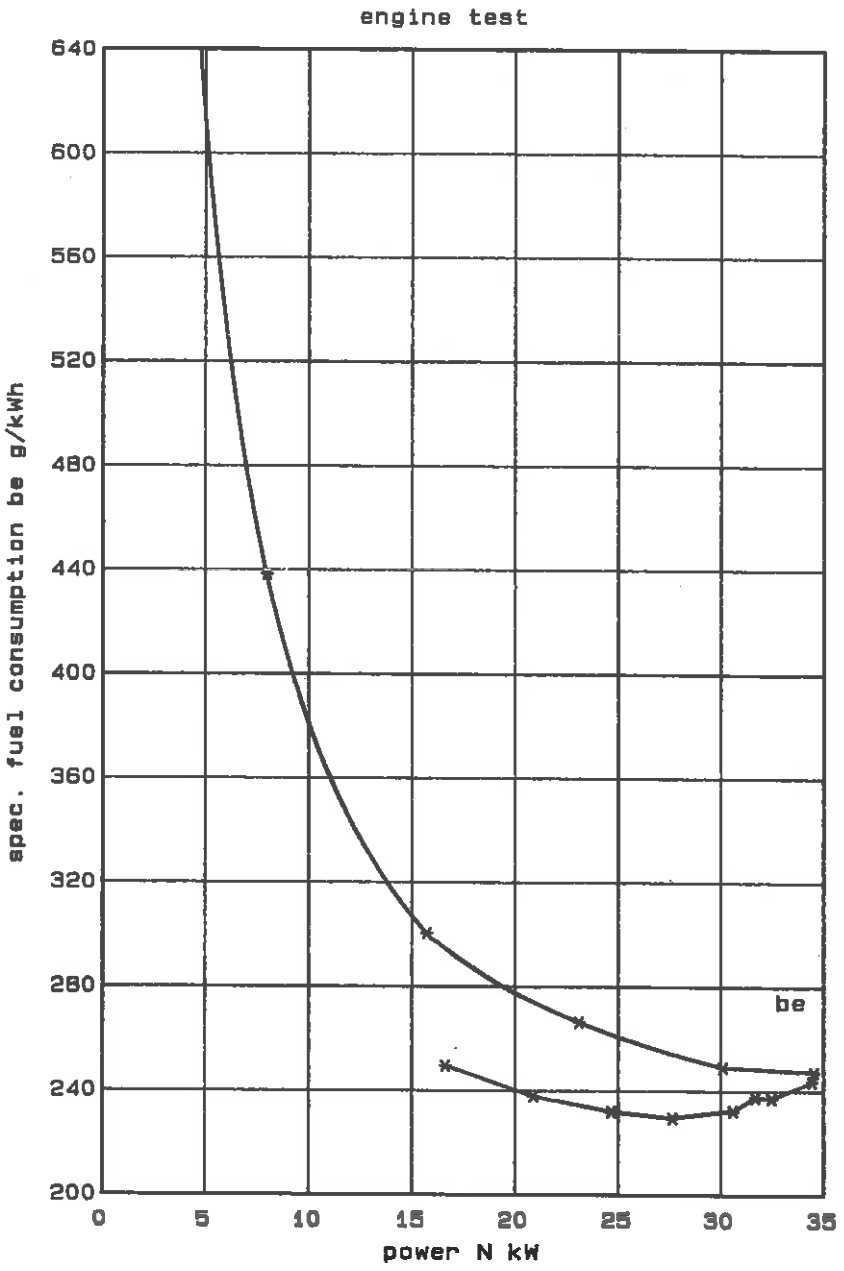
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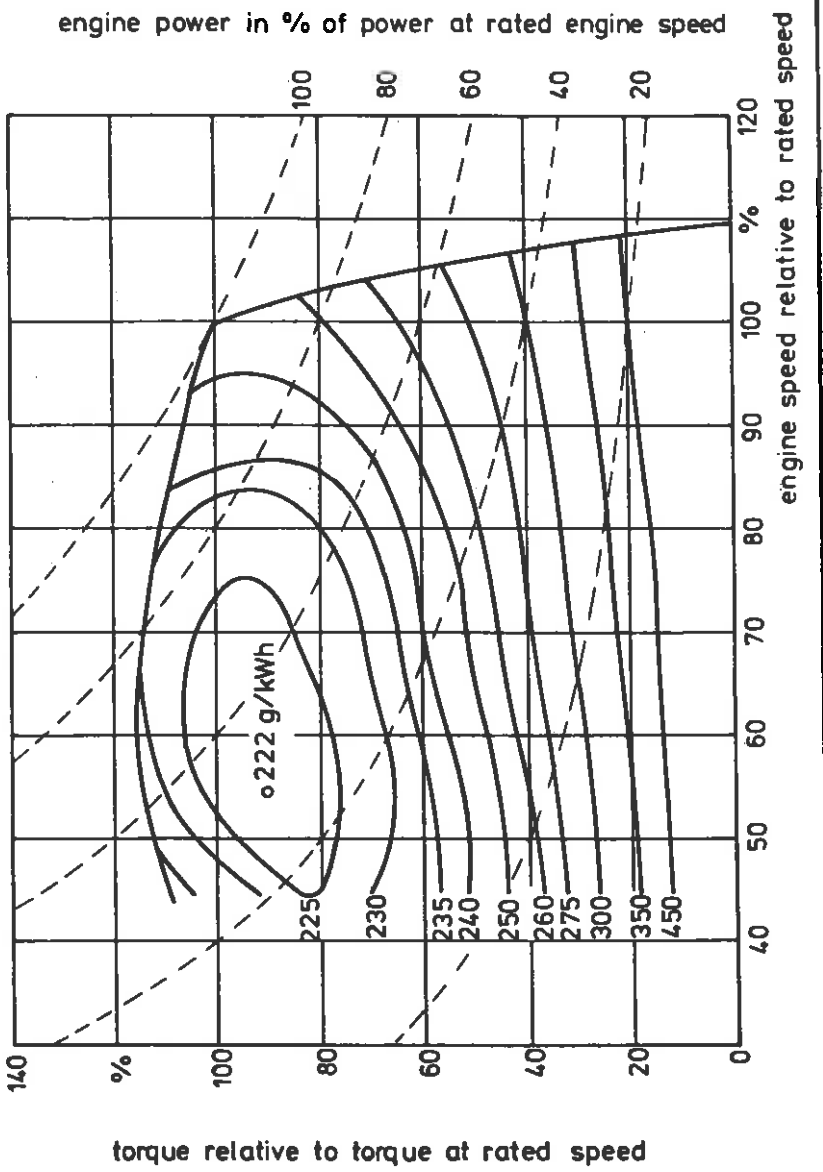
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