COMITATO PER L'OMOLOGAZIONE
DELLE MACCHINE AGRICOLE

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REPORT No. 717

REPORT ON TEST IN ACCORDANCE WITH O.E.C.D. TEST
CODE FOR AGRICULTURAL TRACTORS OF:

MASSEY FERGUSON MF 1134-4 DIESEL TRACTOR
(LANDINI DT 14500 DIESEL TRACTOR)



Manufactured by: MASSEY FERGUSON S.p.A. – Massey Ferguson Division
Works of FABBRICO (Reggio Emilia) – Italy

Date of tests: October 1978 – June 1979

This report has been approved by the O.E.C.D. Coordinating Center (C.N.E.E.M.A., France) as being in accordance with the O.E.C.D. Tractor Test Code.

Date of approval:

The MASSEY FERGUSON MF 1134-4 tractor and the LANDINI DT 14500 tractor being mechanically similar, the tests have not been repeated and the approval number is valid for both models of tractor.

CONSIGLIO NAZIONALE DELLE RICERCHE
LABORATORIO PER LA MECCANIZZAZIONE AGRICOLA
TORINO – ITALY

This bulletin is based on engineering tests in accordance with the O.E.C.D. Tractor Code. It does not contain an evaluation of the performance of the tractor on pratical farm work.

In this report all performance characteristics are given simultaneously according to the International System of Units and to the former used Technical System of Units (numbers enclosed in brackets).

The relation between the two systems is given by the following formulas:

Forces:	1 N	= 0.10197 kg	or 1 kg	= 9.80665 N
Powers:	1 kW	= 1.35962 metric hp	or 1 metric hp	= 0.73550 kW.
Pressures:	1 bar	= 1.01972 kg/cm2	or 1 kg/cm2	= 0.980665 bar
Rotation speeds:	1 rd/s	= 9.54930 rev/min	or 1 rev/min	= 0.10472 rd/s
Torques:	1 mN	= 0.10197 mkg	or 1 mkg	= 9.80665 mN

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PERFORMANCE CURVES

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Manufacturer:	MASSEY FERGUSON S.p.A. - Massey Ferguson Division Works of FABBRICO (Reggio Emilia) - Italy
Submitted for test by:	The Manufacturer
Selected by:	The Manufacturer with the agreement of the testing station
Place of running-in:	Works of FABBRICO (Reggio Emilia) - Italy
Duration of running-in:	60 hours

SPECIFICATION OF TRACTOR

TRACTOR	
Make:	MASSEY FERGUSON
Model:	MF 1134-4
Type:	TL 24 DT/A -Wheel tractor unit construction, four wheel driven
Serial No.:	2240000
ENGINE	
Make:	PERKINS
Model	AT6. 3544
Type:	4-stroke, direct injection diesel
Serial No.:	3544 U 422 L
Cylinders:	6 cylinders, vertical, in-line, 98.48 mm bore x 127 mm stroke, capacity 5800 cm^3, compression ratio 16 : 1, overhead in-line valves, replaceable cast-iron dry cylinder liners.
Fuel system:	Forced feed; DELCO diaphragm-type fuel pump; 2 CAV paper filters, type 2656818 replaceable cartridge element; capacity of fuel tank 180 litres; CAV model DPA 3269 F 910 injection pump, serial No. R 26091XU; manufacturer's production setting 30.5 to 31 l/h at 251.3 rad/s (2400 rev/min) rated engine speed and 15 °C fuel temperature. Injection pump timing 28° $\pm$ 1 before TDC. CAV injectors, model BDLL, serial No. 150 S 6737; injector setting 205.9 $\pm$ 5 bar (210 $\pm$ 5 kg/cm^2).
Governor:	CAV mechanical type, incorporated in fuel injection pump; governed range of engine speed 78.5 to 281.7 rad/s (750 to 2690 rev/min) rated engine speed 251,3 rad/s (2400 rev/min).
Air cleaner:	DONALDSON main cleaner, model FHG 08-0200 dry type; DONALDSON pre-cleaner cap type, GAH00-0466 model.

Lubrication system:	Forced feed from gear-type pump; one screen type filter installed on pump suction and one, PERKINS 2654403 model, replaceable cartridge type filter installed on the pressure line to the engine; oil capacity 16 litres; recommended oil change period: 100 hours; cartridge change period: 200 hours; recommended oil: MILL-L 2104 C, viscosity SAE 20.
Cooling system:	Water cooled from centrifugal pump 0.69 bar (0.7 kg/cm^2) with thermostatic control; 508 mm diameter, 6 blade, belt-driven fan; cooling water capacity 26 litres. Temperature visual control with thermometer.
Starting system:	LUCAS make M 50 G model; pinion coupling solenoid operated, electric motor, 12 V; low temperature starting device (<15°C), CAV make, 4 NB "thermostart" model.

ELECTRICAL SYSTEM

Voltage:	12 V, negative earth.
Generator:	LUCAS make, 18 ACR model.
Battery:	SCAINI make, 62061 model, lead acid type, capacity 120 Ah at 20 hours rating.
EXHAUST SILENCER:	Own make, DGM-SA 932 model, oval shape, interference type with internal perforated pipe; total length 1454 mm. Muffler dimensions: - length 559 mm - internal section 235 x 127 mm vertical position on engine right side, maximum height above ground 3150 mm

TRANSMISSION

Clutch:	LUK make, independent dry dual disc clutch, 330 mm dia plates; driving part pedal operated; p.t.o. part hand lever operated.
Gearbox:	Own make, mechanical type with total 12 forward and 4 reverse speeds; the transmission consists of two mechanical in series gear groups: the first with four speeds, the second with four positions to select the gear ratios (low, normal, high and reverse); each group is operated by own lever.
Rear axle and final drive:	Own make, mechanical type with Gleason crown wheel and pinion; bevel gear type differential with pedal operated and self-disengaging lock; spur gear final drive.

Oil capacity: Rear transmission unit 85 litres; front differential 11 litres; final drives 3.5 litres each.

Oil change period: Rear transmission unit 1500 hours, front differential 1200 hours.

Recommended oil: API .GL3, viscosity SAE 85 W/90

Gear of 1st group No.	Combination of 2nd group	Number of engine revolutions for one revolution of driving wheels		Travelling speed at rated engine speed 251.3 rad/s (2400 rev/min) (*)	
		Front	Rear	km/h	m/s
1st	Low	290.96	399.59	1.97	0.547
2nd		226.77	311.43	2.53	0.703
3rd *		183.72	252.31	3.13	0.869
4th *		146.46	201.13	3.92	1.089
1st *	Normal	111.77	153.49	5.14	1.428
2nd		87.10	119.62	6.59	1.831
3rd *		70.56	98.89	8.14	2.261
4th		56.25	77.25	10.21	2.836
1st	High	45.31	62.23	12.67	3.519
2nd		35.31	48.49	16.27	4.519
3rd		28.61	39.29	20.08	5.578
4th		22.82	31.31	25.19	6.997
1st	Reverse	108.15	148.52	5.31	1.475
2nd		84.28	115.75	6.31	1.892
3rd		68.29	93.79	8.41	2.336
4th		54.43	74.75	10.55	2.931

(*) Calculated with the rolling circumference of 5478 mm according to manufacturer's specifications

POWER TAKE-OFF: Independent p.t.o. driven through the hand lever operated clutch disc; in centre line at rear of tractor; proportional engine speed;
44.4 mm (1 3/4 in) dia according to ASAE 3, 6 splines; height above ground 835 mm, distance from vertical plane of rear axle 520 mm.
Two standard rotation speeds preselectable by hand lever:

- 56.5 rad/s (540 rev/min) at 218 rad/s (2082 rev/min) engine speed; 65.1 rad/s (622 rev/min) at 251.3 rad/s (2400 rev/min) rated engine speed;
- 104.7 rad/s (1000 rev/min) at 218.9 rad/s (2090 rev/min) engine speed; 120.2 rad/s (1148 rev/min) at 251.3 rad/s (2400 rev/min) rated engine speed.

Direction of rotation: clockwise viewed facing driving end.

POWER LIFT

Own make, hydraulic power lift, unit construction; draught control, position control, floating position; type with two single-acting ram cylinders; feeding system from live gear pump directly driven by engine independently from the p.t.o. shaft.
One screen type installed on pump suction and one, replacable cartridge type in the return line.
Possibility of using 3 auxiliary oil tappings.
Oil: the same of gearbox and rear axle (85 litres), 15 litres may be taken off by oil tappings; oil change period 1200 hours.
Recommendend oil API GL3, viscosity: SAE 85 W 90.
Three point linkage category 2 (ISO R 730).

SWINGING DRAWBAR:

Own make; clevis type sliding on a drilled guide. Vertical height to centre of clevis: maximum 635 mm minimum 510 mm above ground; adjustments obtained changing the setting of the drawbar on the drilled guide; clevis coupling pin diameter 28 mm; distance of hitch point from rear axle: 130 mm forward.
Position relative to p.t.o.:
- 400 mm behind
- 200 mm below, top position (635 mm)
- 325 mm below, lowest position (510 mm).

Lateral adjustments: 3 position (one in the middle and one for each side at 280 mm).

Pivot position relative to rear wheels 920 mm.

HITCH:

Height above ground 660-740-920 and 1010 mm, changeable by sliding on drilled guides; hitch hole 28 mm dia; distance of hitch hole to rear axle center 650 mm; position relative to p.t.o. 175 and 95 mm vertical, below; 85 and 175 mm vertical, above; 130 mm horizontal, to rear.

STEERING:

Steering wheel type acting on front wheels; power assisted by hydraulic device DANFOSS-ORBITROL make, OSP B 100 model. Oil capacity 4 litres. Oil change period 1200 hours. Recommended oil GM DEXCRON, viscosity 3.5°E at 50°C.

BRAKES:

GIRLING make, multiple disc oil-bath type on rear axle high speed shafts; independent or combined pedal operated, hand lever with ratchet operating both brakes for parking.

WHEELS

Front wheels: Two, steering and driving; PIRELLI "Tractor cinturato" tyres 14.9/13-28, 6 ply rating; W-13" x 28 rim; maximum permissible lood on each tyre: 1680 kg at 1.5 bar; track width 1800 mm.

Rear wheels: Two, driving; PIRELLI "Tractor cinturato" tyres, 20.8-38, 8 ply rating; maximum permissible lood on each tyre: 3305 kg at 1.3 bar; W 18L x 38 rim; track width 1800 mm by 6 steps to 2340 mm changed by reversing wheel centres and offset lugs on rims.

Wheelbase: 2790 mm.

LIGHTING Electrical 12 V, according to D.G.M. italian regulation.

	Height above ground of centre mm	Dimensions mm	Distance from outside edge of tractor at 1800 mm rear track-width to centre mm
Head lights	1180	200 x 200	1020
Side lights	1840	60 x 75	280
Front direction indicators	1840	60 x 90	195
Rear lights	1810	60 x 80	320
Rear direction indicators	1810	60 x 120	215
Stop lights	1810	60 x 100	410
Reflectors	1315	45 x 50	140

NUMBER OF GREASE POINTS (WHOLE TRACTOR): 16

OVERALL DIMENSIONS

	Length m	Width m		Height m	
		max.	min.	(1)	(2)
With ballast	4.98	2.87	2.42	3.15	2.80
Without ballast	4.66	2.87	2.42	3.15	2.80

Remarks:
- Length measured from ballast end to lower link end in horizontal position;
- (1) height measured at top of vertical exhaust;
- (2) height measured at top of the safety frame;
- ground clearance 0.47 m measured at the front differential gear.

SEAT: BOSTROM make; upholstered cushion and back rest; double acting hydraulic damper suspension; longitudinal adjustment 180 mm; vertical adjustment continuos.

SAFETY FRAME: Own make; MFL "TS 4" model; tested according to O.E.C.D. code (in course of approval) and optionally safety cab MF "CS 1" model, O.E.C.D. report n° CSD 0050/1 a C.

CONDITIONS DURING TEST

WEIGHTS (Tractor weight without driver but with tank full and safety frame)

	Front kg	Rear kg	Total kg
Without ballast	1950	3500	5450
With ballast	3000	4930	7930

BALLAST

	No. of weights	Total weight kg (excluding water)	Water kg
Front wheels	-	-	400
Rear wheels	6	450	1100
Additional weight (*)	14	530	-

(*) Mounted on front part of tractor's framework
Track width during test: Front 1800 mm, rear 1800 mm

FUEL AND LUBRICANTS USED IN TESTS

LABORATORY AND TRACK TESTS

Fuel:	ESSO Diesel oil specific gravity 0.831 kg/l at 15°C, cetane number not recorded.
Engine oil:	MOBIL DELVAC OIL 1320, viscosity SAE 20.
Transmission, power lift and front differential oil:	MOBIL FLUID 422, viscosity SAE 85 W 90
Power steering oil:	MOBIL ATF 220, viscosity 3.5 °E at 50°C.

COMPULSORY TESTS

1. POWER TAKE-OFF PERFORMANCE

Date and location of tests: 19th October 1978 - L.M.A. TURIN (Italy)
Type of dynamometer: electrical, swinging frame

Power	Speed		Fuel consumption		Specific energy
	Engine	p.t.o.	Horary	Specific	
kW (metric hp)	rad/s (rev/min)	rad/s (rev/min)	l/h	g/kWh (g/metric hph)	kWh/l (metric hph/l)
AT MAXIMUM POWER: 2 hour test					
96.6 131.3	251.3 2400	120.2 1148	25.50 l/h 30.69	264 194	3.15 4.28
AT THE SPEED RECOMMENDED BY MANUFACTURER FOR DRAWBAR WORK					
96.6 131.3	251.3 2400	120.2 1148	30.69	264 194	3.15 4.28
AT PART LOADS IN THE ZONE CONTROLLED BY THE GOVERNOR IN THE RATE SPEED					
(i) 85% of the torque at maximum power					
84.6 115.0	259.0 2473	123.9 1183	27.73	272 200	3.05 4.15
(ii) unloaded					
-	274.4 2620	-	8.95	-	-
(iii) 50% of the load defined in (i)					
43.7 59.3	267.4 2553	127.9 1221	18.63	354 261	2.35 3.18
(iv) maximum power					
96.6 131.3	251.3 2400	120.2 1148	30.69	264 194	3.15 4.28
(v) 25% of the load defined in (i)					
22.1 30.1	271.0 2588	129.6 1238	13.86	521 383	1.59 2.17
(vi) 75% of the load defined in (i)					
64.6 87.9	264.0 2521	126.3 1206	23.10	297 218	2.79 3.81

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Power	Speed		Fuel consumption		Specific energy
	Engine	p.t.o.	Horary	Specific	
kW (metric hp)	rad/s (rev/min)	rad/s (rev/min)	l/h	g/kWh (g/metric hph)	kWh/l (metric hph/l)
AT PART LOADS IN THE ZONE CONTROLLED BY THE GOVERNOR IN THE STANDARD p.t.o. SPEED - 104.7 rd/s (1000 rev/min)					
(i) 85% of the torque at maximum power					
82.0 111.5	226.9 2167	108.6 1037	25.27	256 188	3.24 4.41
(ii) unloaded					
-	244.5 2335	-	7.65	-	-
(iii) 50% of the load defined in (i)					
42.6 57.9	235.5 2249	112.7 1076	16.17	315 232	2.63 3.58
(iv) maximum power					
93.0 126.5	218.9 2090	104.7 1000	27.80	248 183	3.35 4.55
(v) 25% of the load defined in (i)					
21.7 29.5	239.8 2290	114.8 1096	11.99	459 338	1.81 2.46
(vi) 75% of the load defined in (i)					
63.1 85.5	233.0 2215	111.0 1060	20.22	266 196	3.12 4.23

STANDARD SPECIFIC FUEL CONSUMPTION: 272, 354, 256, 315 g/kWh

No load, maximum engine speed: 274.4 rad/s(2620 rev/min)

Equivalent crankshaft torque at maximum power: 384.2 mN (39.18 mkg)

Maximum equivalent crankshaft torque: 468.8 mN (47.80 mkg) at 157.1 rad/s (1500 rev/min)

Mean atmospheric conditions:

temperature	21.5	°C
pressure	992.0	mbar (744 mmHg)
relative humidity	62.0	%

Maximum temperatures:

coolant	90	°C
engine oil	108	°C
engine air intake	23	°C

6. DRAWBAR PERFORMANCE

Date and location of tests: 2010 - 21st May and 1st June [illegible]
Type of track: concrete
Height of draught line above the ground: 610 mm

Gear	Travelling speed		Power	Drawbar pull	Engine speed	Wheelslip	Fuel consumption		Temperature			Atmospheric conditions		
							Specific energy	Specific consumpt.	Fuel	Coolant	Engine oil	Temperature	Relative humidity	Pressure
No.	km/h	m/s	kW (metric hp)	N (kg)	rad/s (rev/min)	%	kWh/l (m.hph/l)	g/kWh (g/m.hph)	°C	°C	°C	°C	%	mbar (mmHg)
1 - MAXIMUM POWER (ballasted)														
1 slow	1.83	0.507	35.5 (48.4)	70020 (7140)	265.6 (2536)	11.9	-	-	-	86	100	28	60	730.3 (744.7)
2 slow	2.34	0.649	45.6 (62.1)	70315 (7170)	264.3 (2524)	11.0	-	-	-	86	100	28	60	730.3 (744.7)
3 slow	2.84	0.788	55.4 (75.4)	70315 (7170)	261.5 (2497)	12.5	2.26 (3.08)	367 (270)	20	86	100	28	60	730.3 (744.7)
4 slow	3.49	0.970	68.2 (92.7)	70315 (7170)	256.9 (2453)	12.6	2.51 (3.41)	331 (244)	20	86	100	28	60	730.6 (745.0)
1 normal	4.74	1.317	83.6 (113.6)	63500 (6475)	250.5 (2392)	7.1	2.72 (3.69)	306 (225)	20	90	102	28	60	730.6 (745.0)
2 normal	6.26	1.739	87.5 (118.9)	50310 (5130)	251.3 (2400)	6.3	2.86 (3.89)	291 (214)	20	90	105	26	65	730.8 (745.2)
3 normal	7.77	2.157	86.7 (118.0)	40210 (4100)	250.8 (2395)	4.0	2.85 (3.88)	291 (214)	18	90	105	23	68	730.8 (745.2)
4 normal	9.88	2.744	85.8 (116.7)	31285 (3190)	251.2 (2399)	2.8	2.81 (3.82)	296 (218)	18	90	105	19	70	730.8 (745.2)
2 - FIVE HOUR TEST AT 75% OF PULL AT MAXIMUM POWER														
3 normal	6.54	1.818	68.6 (93.3)	37755 (3850)	259.3 (2476)	3.7	2.63 (3.57)	316 (233)	22	90	102	25.6	71	732.6 (747.0)
3 - FIVE HOUR TEST AT PULL CORRESPONDING TO 15% WHEELSLIP IN TEST (1)														
2 slow	-	-	-	71390 (7280)	257.8 (2462)	-	-	-	-	90	102	27.5	70	732.6 (747.0)
4 - MAXIMUM POWER (unballasted)														
4 slow	3.60	1.000	52.4 (71.2)	52375 (5340)	262.4 (2506)	11.9	2.41 (3.27)	345 (254)	22	85	96	27.5	70	732.6 (747.0)
1 normal	4.65	1.292	68.3 (92.9)	52900 (5395)	260.0 (2483)	12.4	2.50 (3.41)	332 (244)	22	85	98	29	62	732.6 (747.0)
2 normal	5.90	1.639	84.1 (114.3)	51290 (5230)	250.8 (2395)	10.2	2.76 (3.75)	301 (221)	22	85	102	25	73	732.6 (747.0)
3 normal	7.63	2.119	86.9 (118.1)	40990 (4180)	250.7 (2394)	5.9	2.84 (3.87)	292 (215)	22	90	102	23	80	732.4 (746.8)
4 normal	9.77	2.713	87.3 (118.7)	32165 (3280)	215.1 (2398)	4.1	2.87 (3.90)	289 (213)	22	90	105	29	62	732.6 (747.0)
1 high	12.31	3.420	86.4 (117.4)	25250 (2575)	251.5 (2402)	2.6	2.83 (3.84)	298 (216)	22	90	105	29	62	732.6 (747.0)

Total oil consumption during ten hours duration of tests (2) and (3): 106 g/h

(1) Those figures not quoted are irrelevant due to the additional ballast:
- maximum drawbar pull at 15% wheelslip: 71390 N (7280 kg) (with ballast)
- maximum drawbar pull at 15% wheelslip: 53935 N (5500 kg) (without ballst)

3. TURNING SPACE AND TURNING CIRCLE

Wheel equipment: Front 14.9/13-28; 6 ply rating
rear 20.8-28; 8 ply rating

Track of wheels: Front 1800 mm
rear 1800 mm

	With brakes		Without brakes	
	Right-hand m	Left-hand m	Right-hand m	Left-hand m
Radius of turning space	4.62	4.67	7.07	6.82
Radius of turning circle	4.36	4.41	6.81	6.56

4. LOCATION OF CENTRE OF GRAVITY

Height above ground	mm	974
Distance forward from the vertical plane containing the axis of the rear wheels	mm	981
Distance from the median plane of the tractor	mm	0

5. BRAKING

Date of test: 31st May 1979

Type of track: concrete

Type of decelerometer: MOTO METER, recording type

Weight of tractor with driver: with ballast 8000 kg
without ballast 5520 kg

COLD BRAKES

		With ballast	Without ballast
Travelling speed of tractor	km/h	25.0	25.0
Max. deceleration	m/s^2	6.0	7.2
Stopping distance	m	6.0	5.0
Force exerted on the brake pedal	N (kg)	509.9 (52)	588.4 (60)
Force exerted on the brake pedal to achieve a deceleration of 2.5 m/s^2	N (kg)	274.6 (28)	215.7 (22)

BRAKE FADE CHARACTERISTICS (HOT TESTS)

	with ballast	without ballast
[Maximum deceleration hot/maximum deceleration cold] x 100	103%	103%
[Stopping distance cold/stopping distance hot] x 100	103%	100%
[Force on pedal cold/force on pedal hot] x 100	100%	100%

PARKING BRAKE

Efficiency of handbrake on a slope of 16 per cent: with a 343 N (35 kg) pull on handbrake no wheel rotation occurs with tractor facing first up and then down the slope.

6. MEASUREMENT OF AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 30th May 1979

Type of sound level meter: BRUEL & KJAER model 2209

Type of track: concrete

Position of exhaust pipe: vertical, on engine right side, max height above ground 3.15 m

RESULTS OF TEST

- gear: 4 high
- travelling speed before acceleration: 18.9 km/h
- sound level: 87 dB (A)

7. NOISE MEASUREMENT AT THE DRIVER'S EAR LEVEL

Date of test: 30th May 1979

Type of sound level meter and octave filter: BRUEL & KJAER model 2209 and model 1613

Type of track: concrete

Type of frequency analyzer: octave type, with 10 bands from 31.5 to 16.00 Hz

RESULTS OF TEST

Gear	Travelling speed km/h	Sound level dB (A)
1st LD	1.97	98.5
2nd LD	2.53	98.5
3th LD	3.13	98.5
4th LD	3.92	98.5
1st normal	5.14	98.5
2nd normal	8.14 (*)	97.0

(*) Gear tested corresponding to the travelling speed nearest to 7.50 km/h

8. POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

Date of test: 23th May 1979

Hydraulic fluid: API GL 3, viscosity SAE 85 W/90

Type of linkage lock transpsort: none on the tractor tested

PUMP CHARACTERISTICS

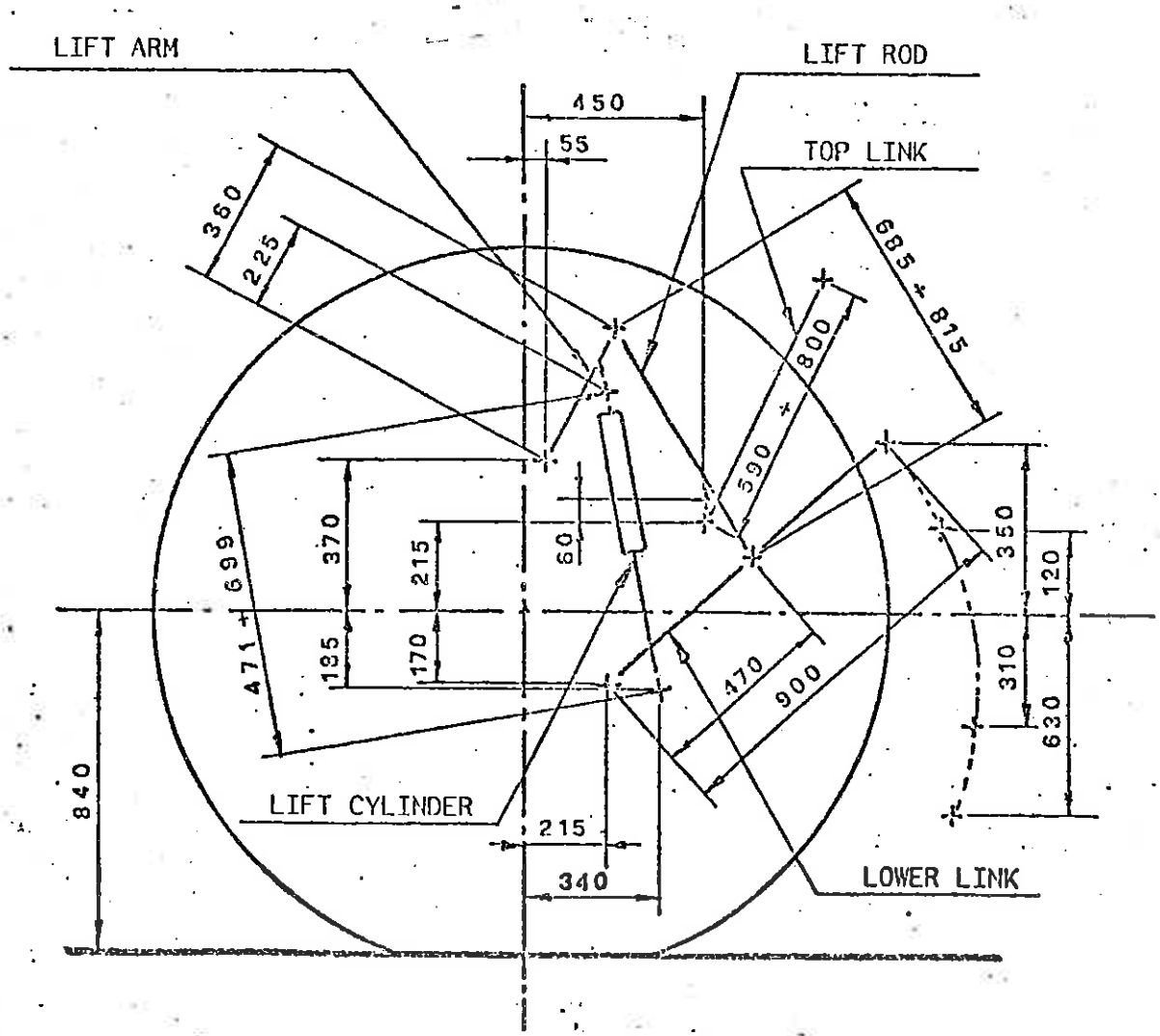
1 - Opening pressure on the relief valve: 166.7 bar (170 kg/cm^2)
- substained pressure by the open relief valve: 181.4 bar (185 kg/cm^2)

2 - pump delivery rate at minimum pressure and rated engine speed: 62 l/min

3 - pump delivery rate: 58.5 l/min
- delivery pressure: 166.7 bar (170 kg/cm^2)
- hydraulic power: 16.3 kW (22.1 metric hp)

POWER LIFT

Dimensions of linkage geometry for the table on page 14



LINKAGE GEOMETRY WHEN [illegible] TO THE STANDARD FRAME

	Maximum mechanical advantage	Minimum mechanical advantage
Projected length in side view:		
- lower link mm	900	900
- lift arms mm	360	360
- lift rods mm	815	685
- top link mm	650	660
Distance of lift rod connection point from pivot point of lower link mm	470	470
The following dimension are given relative to the rear axle centre line 840 mm above the ground level		
Lower link pivot point	215 mm behind, 170 mm below	215 mm behind, 170 mm below
Top link pivot point	450 mm behind, 215 mm above	450 mm behind, 215 mm above
Lift arm pivot point	55 mm behind, 370 mm above	55 mm behind, 370 mm above
Maximum and minimum height of lower link hitch points	120 mm above, 630 mm below	350 mm above, 310 mm below
Height of lower link hitch points when locked in transport position	no definite transport position	

		cm	- 46	- 45	- 40	- 35	- 30	- 25	- 20	- 18	- 15	- 14	- 10	- 5	0	+ 5	+ 10	+ 15	+ 20
Lifting force at hitch points	max. mech. advantage	N kg	-	-	-	-	-	-	-	-	-	41875 (4270)	43050 (4390)	44520 (4540)	45895 (4680)	47365 (4830)	48740 (4970)	50210 (5120)	51485 (5250)
	min. mech. advantage	N kg	39815 (4060)	-	41480 (4230)	42460 (4330)	43930 (4480)	45210 (4610)	46385 (4730)	-	47560 (4850)	-	48640 (4960)	49720 (5070)	50505 (5150)	51680 (5270)	52560 (5360)	53350 (5440)	54035 (5510)
	Maximum force exerted through whole range: 41875 N (4270 kg) Force at which front of tractor is calculated to lift with maximum allowable front ballast: - N (- kg)																		
Lifting force at the frame	max. mech. advantage	N kg	41435 (4225)	-	41285 (4210)	41090 (4190)	40990 (4180)	40795 (4160)	40600 (4140)	-	40405 (4120)	-	40160 (4095)	40010 (4080)	39865 (4065)	39815 (4060)	39670 (4045)	39375 (4015)	39030 (3980)
	min. mech. advantage	N kg	-	-	-	-	-	-	-	37660 (3840)	38050 (3880)	-	38540 (3930)	38980 (3975)	39325 (4010)	39420 (4020)	39520 (4030)	39375 (4015)	39130 (3990)
	Maximum force exerted through whole range: 38245 N (3900 kg) Force at which front of tractor is calculated to lift with maximum allowable front ballast: - N (- kg)																		

		cm	+ 25	+ 26.5	+ 29	+ 30	+ 33	+ 35	+ 36	+ 40	+ 45	+ 49.5	+ 50	+ 52	+ 55	+ 60	+ 65	+ 67.5	+ 72
Lifting force at hitch points	max. mech. advantage	N kg	52955 (5400)	-	-	54425 (5550)	-	55895 (5700)	-	56975 (5810)	57860 (5900)	58250 (5940)	-	-	-	-	-	-	-
	min. mech. advantage	N kg	54721 (5580)	54920 (5600)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifting force at the frame	max. mech. advantage	N kg	38640 (3940)	-	-	38490 (3925)	38245 (3900)	-	-	-	-	-	-	-	-	-	-	-	-
	min. mech. advantage	N kg	38735 (3950)	-	-	38245 (3900)	-	37655 (3840)	-	36970 (3770)	26285 (3700)	-	35600 (3630)	-	34815 (3550)	34080 (3475)	33340 (3400)	32900 (3355)	-

All values of forces correspond to the pressure at maximum hydraulic power 166.7 bar (170 kg/cm2) calculated from measurements made at maximum oil pressure 181.4 bar (185 kg/cm2)

HEAD OF L.M.A.
TEST DEPARTMENT

R. Gioia

DIRECTOR OF L.M.A.

L. Lisa

Turin, 28th April 1980

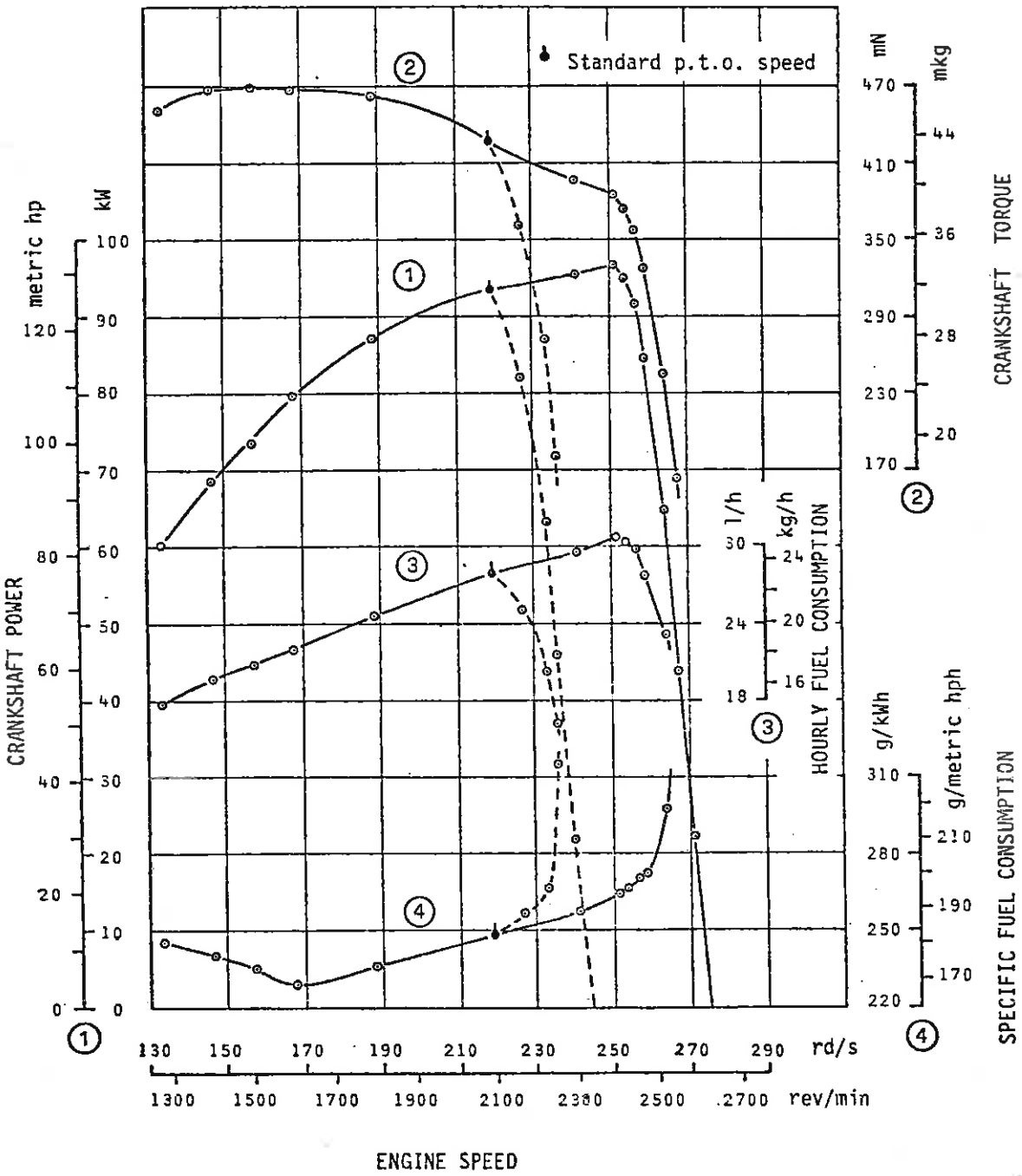


FIG. 1 - POWER TAKE - OFF TEST

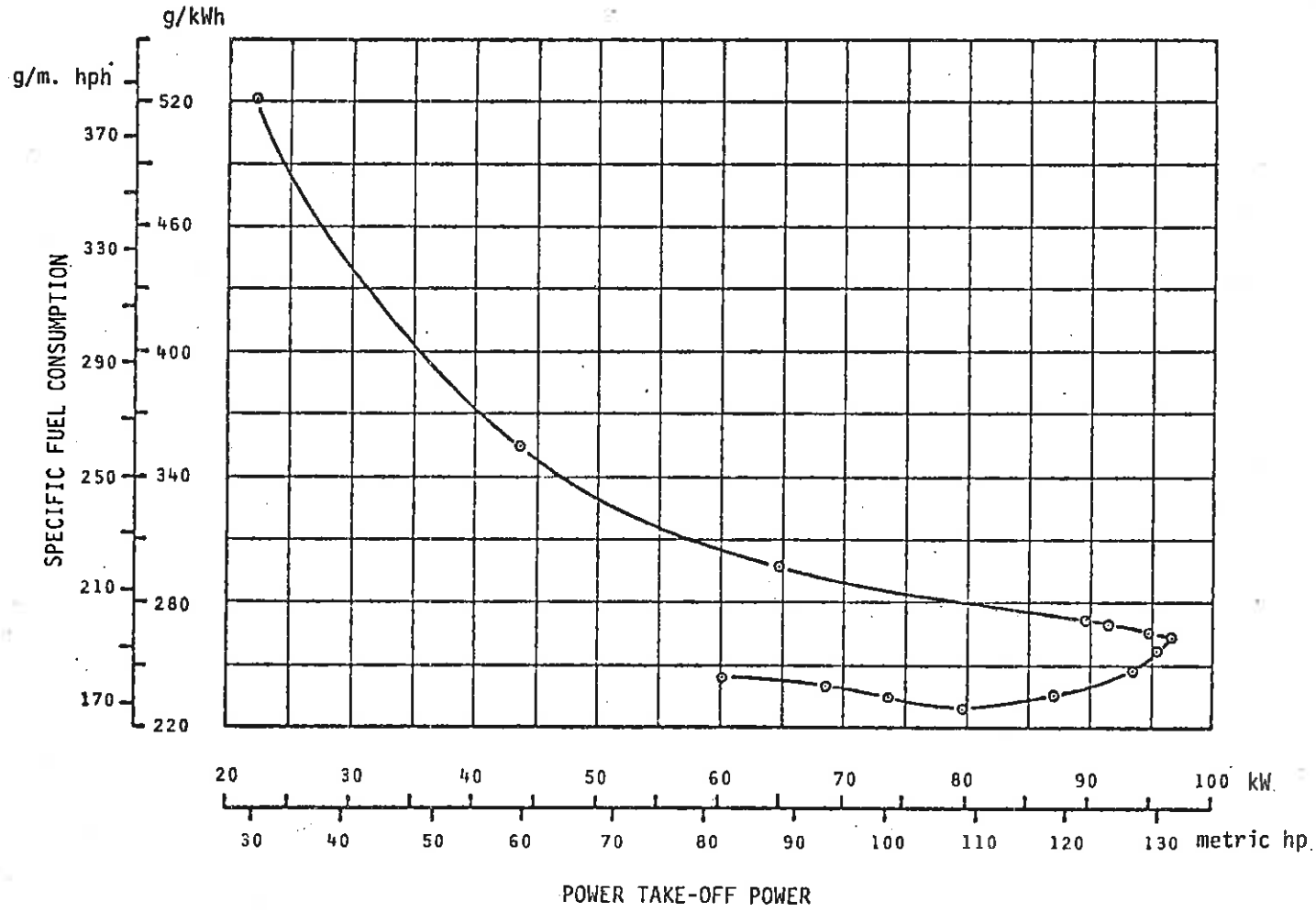


FIG. 2 - POWER TAKE - OFF TEST

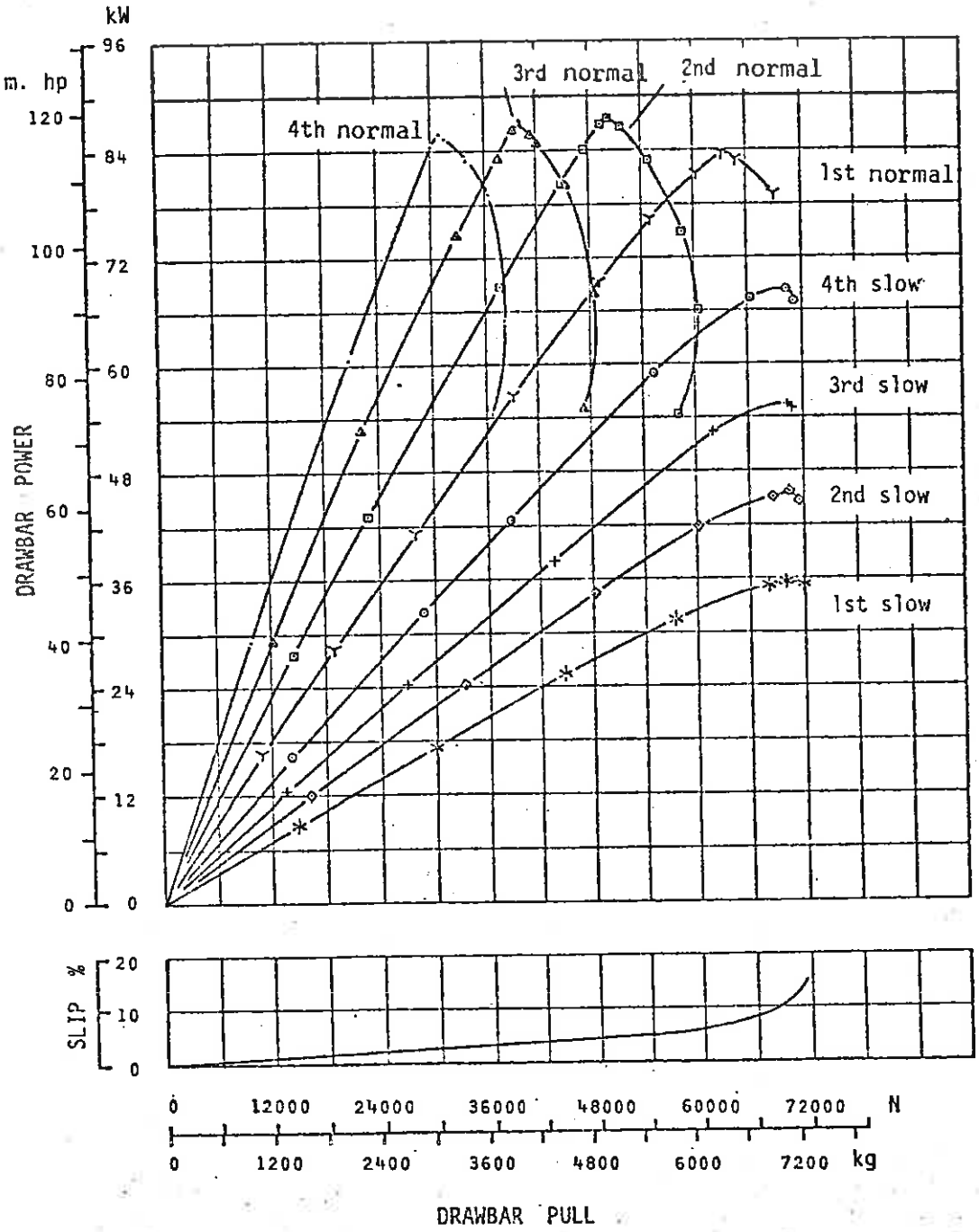


FIG. 3 - DRAWBAR TEST ON CONCRETE, WITH BALLAST

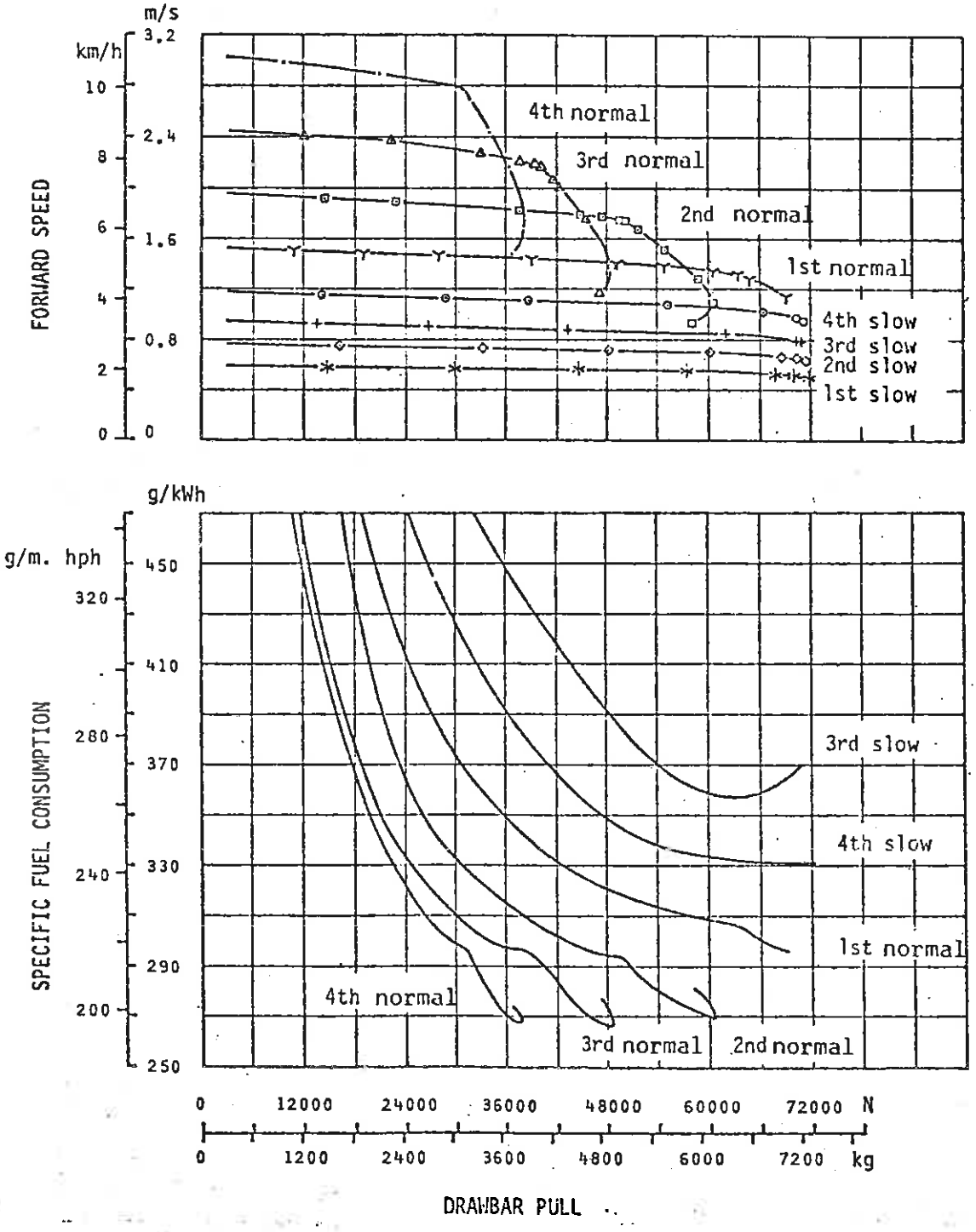


FIG. 4 - DRAWBAR TEST ON CONCRETE, WITH BALLAST

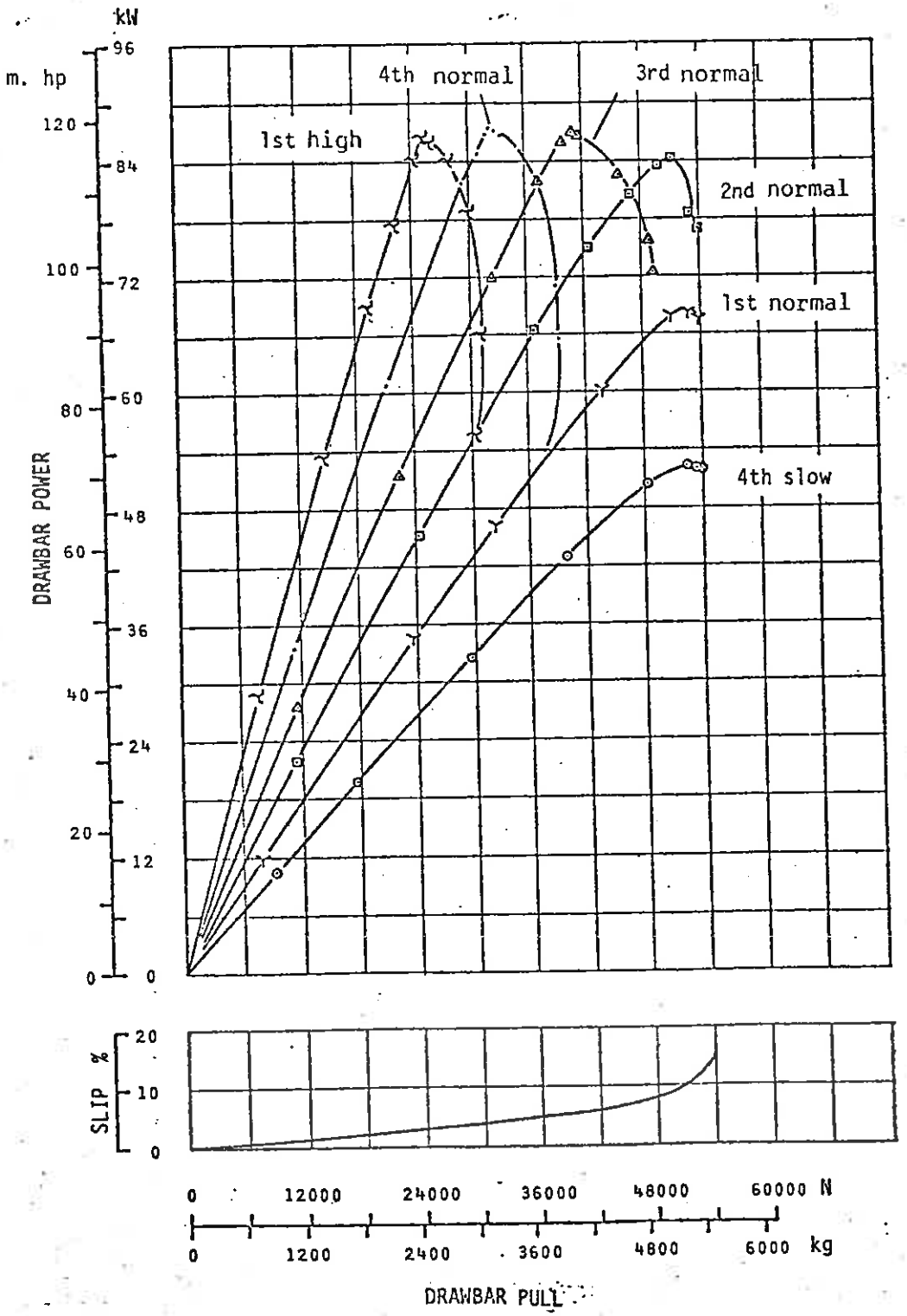


FIG. 5 - DRAWBAR TEST ON CONCRETE, WITHOUT BALLAST

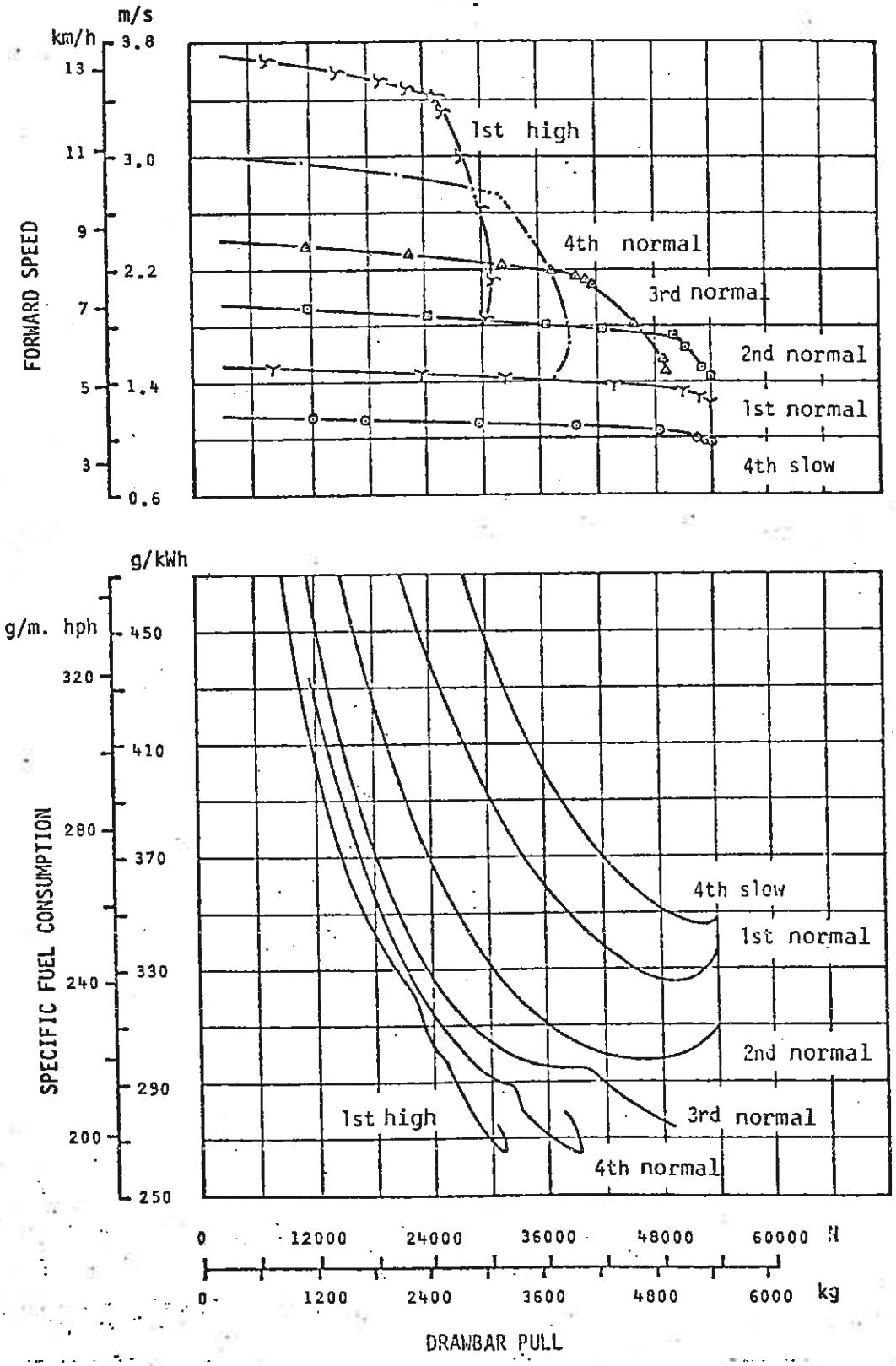


FIG. 6 - DRAWBAR TEST ON CONCRETE, WITHOUT BALLAST