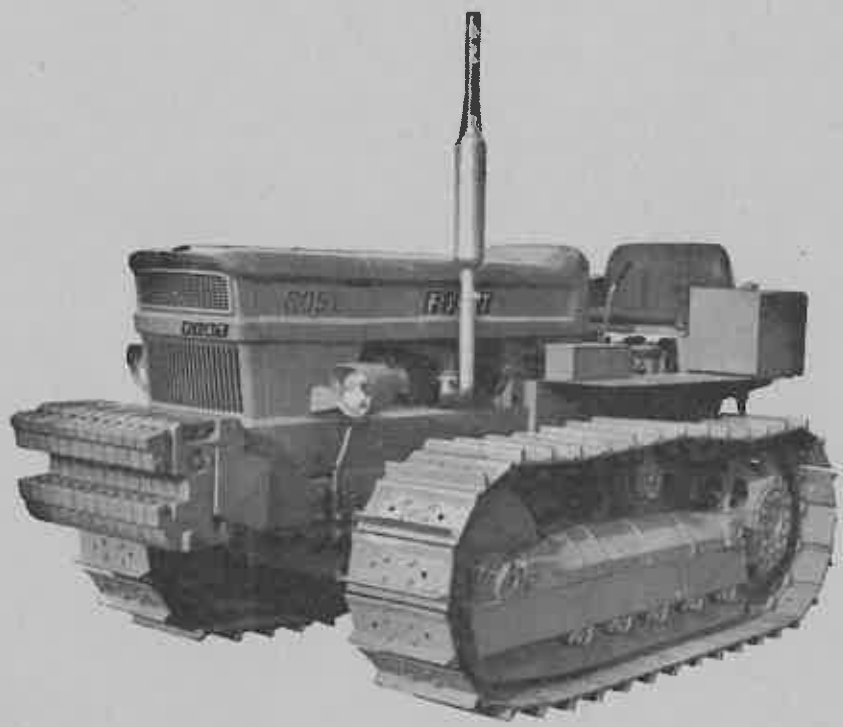
COMITATO PER L'OMOLOGAZIONE
DELLE MACCHINE AGRICOLE

REPORT No. 497

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

FIAT 805 C DIESEL TRACTOR



Manufactured by: FIAT TRATTORI S.p.A.
MODENA (Italy)

Date of tests: September 1974 - February 1975

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

Date of approval: 6th April 1976

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 practical farm work.

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Optional tests

None

PERFORMANCE CURVES

FIG. No.

a) *Power take-off test*

Curves of horsepower, torque, hourly and specific fuel consumption/ crankshaft speed 1

Curves of specific fuel consumption/crankshaft power p.t.o. . . . 2

b) *Drawbar test*

Curves of drawbar horsepower and wheelslip/drawbar pull . . . 3

Curves of travel speed and specific fuel consumption/drawbar pull . . 4

Manufacturer:	FIAT TRATTORI S.p.A. - MODENA (Italy)
Submitted for test by:	The manufacturer
Selected by:	The manufacturer with the agreement of the testing station
Place of running-in	FIAT TRATTORI - Servizio Esperienze - TORINO (Italy)
Duration of running-in:	Engine 50 hours, transmission 30 hours

SPECIFICATION OF TRACTOR

Make:	FIAT
Model:	805
Type:	Track, unit construction
Serial No.:	660001

Engine

Make:	OM
Model:	CO3/75/Var. 50
Type:	4-stroke, direct injection diesel
Serial No.:	000919
Cylinders:	4, vertical, in-line, 110 mm bore x 120 mm stroke, capacity 4562 cm^3, compression ratio 17:1, overhead valves, replaceable cylinder liners.
Fuel system:	Forced feed; CORONA make; double diaphram type fuel pump; FISPA LI-3786 dual fuel filter: a cloth filtering element and replaceable cartridge element preceded by a transparent sediment bowl. Capacity of fuel tank 130 litres. CAV make injection pump model DPA 3342F030; manufacturer's production setting 16.60 to 16.90 l/h at 2100 engine rev/min and 15 °C fuel temperature. BOSCH make injectors model CO3, injector setting 200 ± 5 kg/cm^2.
Governor:	Bosch make, mechanical type RC2/12 B, incorporated in fuel injection pump. Rated engine speed 2100 rev/min. Governed range of speed 700 to 2330 rev/min.

Air Cleaner:	Own make, oil bath with centrifugal precleaner type with automatic dust unloader; oil capacity 0.925 litres.
Lubrication system:	Forced feed from gear-type pump; SAVARA make filter, replaceable cartridge element; oil capacity 12.6 litres. Recommended oil change period. 200 hours, cartridge change period: 400 hours. Recommended oil viscosity SAE 20W-40.
Cooling system:	Water cooled from centrifugal pump (0.50 kg/cm²) with termostatic control; 420 mm dia, 4-blade belt-driven fan. Water temperature gauge. Cooling water radiator capacity 14.4 litres.
Starting system:	Electrical, 12 V, 4 metric/hp BOSCH starting motor.

Electrical system

Voltage:	12 V, negative earth
Alternator:	FIAT, model A 12 M 124/12 V/42X.
Battery:	One 12 V, of MARELLI or TITANO make, model 6 ATP/27 (Marelli) and model 6 DE 12 F (Titano), capacity 136 Ah.

Transmission

Clutch:	Own make, dual plate 12 in. dia overcentre oil bath hand lever operated.
Gearbox:	Own make, sliding gear type, 6 forward speeds and 2 reverse.
Final drive:	Own make, crown wheel and pinion, side steering clutches and spur gear reduction final drives.
Oil capacities:	Gearbox and rear axle 22.8 litres; final drives 4.35 litres each; oil change period: 1600 hours; recommended oil viscosity SAE 90.

Gear No.	*Number of engine revolutions for one revolution of driving wheels*	*Travelling speed for 2100 rev/min rated engine speed km/h*
1	109.410	2.49
2	76.296	3.57
3	59.882	4.54
4	49.386	5.51
5	34.439	7.90
6	27.030	10.07
1 Reverse	23.399	2.91
2 Reverse	42.159	6.46

Power take-off

In centre-line at rear of tractor; independent of the gearbox; hand lever operated.
1 3/8 in. dia, according to ISO Standard, 6 splines.
Height above ground 645 mm.
Proportional engine speed: 656 rev/min at 2100 rev/min rated engine speed; 540 rev/min at 1728 rev/min engine speed.
Direction of rotation: clockwise viewed facing driving end.

Belt pulley

None on the tractor tested.

Power lift

Own make, gear type pump directly driven from the engine; oil from transmission supplied to single acting ram cylinder; Category 2 implement linkage, position control. Oil capacity: 9.5 litres.

Swinging Drawbar

Clevis type sliding on fixed drilled guide. Radius of swing; 1060 mm.
Vertical height to center of clevis: 320 mm and 210 mm. Drawbar hole: 37 mm, distance behind rear axle 755 mm, position relative to p.t.o. 325 mm below and 450 mm to rear (horizontal line). Lateral adjustment: 9 positions, from 0 to 340 mm each side.

Steering

Own make, dry multi-plate steering clutches on axle shafts of the transmission, hand lever operated.

Brakes

Own make, band type acting on outer drums of steering clutches, operated through two pedals.
Parking brake hand lever with ratchet and pawl, acting on both service brakes.

Tracks

Own make, non girder, 36 track plates 400 mm wide, integral grousers 44 mm high, track pitch 160 mm, size of pins 35 mm, track gauge 1830 mm, approximate length of track in ground contact 1836 mm, total ground bearing area 14640 cm^2, nominal ground pressure 0.367 kg/cm^2, tread width 1350 mm.

Suspension

Rigid rear suspension by cross beam supported on track frame through lubricated bushes allowing independent track frame swing. Front suspension by transverse leaf spring.

Track roller frame

Five bottom track rollers and one top carrier roller per side, rolling dia 185 mm, disc-type idler wheel rolling dia 550 mm. Track suspension adjustement by coil spring and hydraulic system.

Sprockets: pitch dia 694 mm, 27 teeth, tooth thickness 55 mm.

Lighting

	Height above ground of centre cm	*Dimensions cm*	*Distance from outside edge of tractor to centre cm*
Headlights	98.5	17.0 dia	43.0
Side lights	98.5	17.0 dia	43.0
Rear lights	108.0	5.5 x 7.0	40.5
Reflectors	108.0	5.5 dia	33.5

Number of grease points

9

CONDITION DURING TEST

Weights

Without driver but with tanks full as tested: 5380 kg including 540 kg front ballast which should not be released when using the tractor (Manufacturer's specification).

Overall dimensions

— length	3.68 m
— width	1.80 m
— height	2.27 m
Remarks:	height, 2.27 m, has been measured at top of exhaust.

Seat

Own make, upholstered mould with back rest without suspension and adjustments.

FUEL AND LUBRICANTS USED IN TESTS

Laboratory and track tests

Fuel:	Diesel oil, density 0.831 kg/l at 15 °C, cetane No. not recorded.
Engine oil:	FIAT AMBRA, viscosity SAE 20W - 40.
Transmission oil:	FIAT AMBRA, viscosity SAE 20W - 40.
Final drives oil:	FIAT AMBRA, viscosity SAE 20W - 40.

COMPULSORY TESTS

1. Power take-off performance

Date and location of tests: 10th June 1974 - L.M.A. - TURIN - Italy

Type of dynamometer: Electrical, swinging frame.

Horse-power	*Speeds*		*Fuel consumption*			
	Engine	*P.t.o.*	*Total*		*Specific*	*HP hours/unit of volume*
metric hp	*rev/min*	*rev/min*	*l/h*	*kg/h*	*g/metric hph*	*metric hph/l*
A - At maximum power: 2 hours test						
72.85	2100	656	16.73	13.90	191	4.36
B - At standard p.t.o. speed (540 rev/min)						
64.15	1728	540	14.20	11.80	184	4.52
C - At manufacturer-recommended speed for drawbar work						
72.85	2100	656	16.73	13.90	191	4.36
D - At part loads						
(i) 85% of the torque at maximum power						
65.04	2200	689	15.16	12.96	194	4.29
(ii) unloaded						
—	2330	—	5.20	4.32	—	—
(iii) 50% of the load defined in (i)						
33.66	2280	713	9.68	8.04	239	3.48
(iv) maximum power						
72.85	2100	656	16.73	13.90	191	4.36
(v) 25% of the load defined in (i)						
16.99	2305	720	7.36	6.12	361	2.31
(vi) 75% of the load defined in (i)						
49.63	2244	701	12.42	10.32	208	4.00

No load, maximum engine speed: 2335 rev/min.

Equivalent crankshaft torque at maximum power: 24.85 mkg.

Maximum equivalent crankshaft torque: 27.87 mkg at 1200 rev/min engine speed.

Mean atmospheric conditions:

temperature	21.0 °C
pressure	737.8 mmHg
relative humidity	57.0 %

Maximum temperature:

coolant	88 °C
engine oil	112 °C
fuel	21 °C
engine air intake	25 °C

2. Drawbar performance

Date and location of tests: 12th and 14th June - 10th October 1974.
Type of track: Clay-loam soil, bare.
Height of drawbar above ground: 320 mm.

Gear.	Travelling speed	Horsepower	Drawbar pull	Engine speed	Trackslip	Fuel consumption		Temperature			Atmospheric conditions		
						Drawbar hp h/l	Specific	Fuel	Coolant	Engine oil	Temperature	Relative humidity	Pressure
No.	km/h	metric hp	kg	rev/min	%	metric hp h/l	g/hph	°C	°C	°C	°C	%	mmHg
1 - Maximum power (ballasted)													
1	2.42	44.81	5000	2210	8.0	3.14	264	28	76	100	23.5	36	740.8
2	3.39	58.76	4680	2112	6.9	3.48	238	30	79	105	23.8	36	740.8
3	4.49	60.70	3650	2108	2.5	3.59	231	33	82	105	24.5	36	740.5
4	5.45	60.15	2980	2105	1.3	3.52	236	35	82	108	24.5	35	740.0
5	7.86	58.95	2025	2109	1.0	3.50	237	35	84	108	25.0	35	740.0
2 - Ten-hour test at 75% of pull at maximum power													
3	4.68	47.93	2765	2195	1.6	3.26	255	33	80	108	11.5	63	746.0

Oil consumption during ten hours duration of test 2): 90 g/h

Drawbar pull: maximum: 5370 kg - Trackslip 15%
Corresponding to 7% trackslip: 4800 kg

3. **Radius of turning space**

2.70 m.

4. **Location of centre of gravity**

	mm
Height above ground	651
Distance forward from the vertical plane containing the axis of the rear wheels	935
Distance from the median plane of the tractor	0

5. **Noise measurement at the driver's ear level**

Date of tests:	10th October 1974
Type of sound level meter and octave filter:	BRUEL & KJAER mod. 2209 and mod. 1613
Type of track:	Clay-loam soil, bare.
Type of frequency analyzer:	octave type, with 10 bands from 31.5 to 16.000 Hz.

RESULTS OF TEST

Gear	*Travelling speed (*) km/h*	*dB (A)*	*Sones*
5	7.90	101	154
6	10.10	103	165

(*) The first gear tested corresponds to the travelling speed nearest to 7.25 km/h

Remarks: No cab or frame fitted on tractor.

6. Power lift and hydraulic pump performance

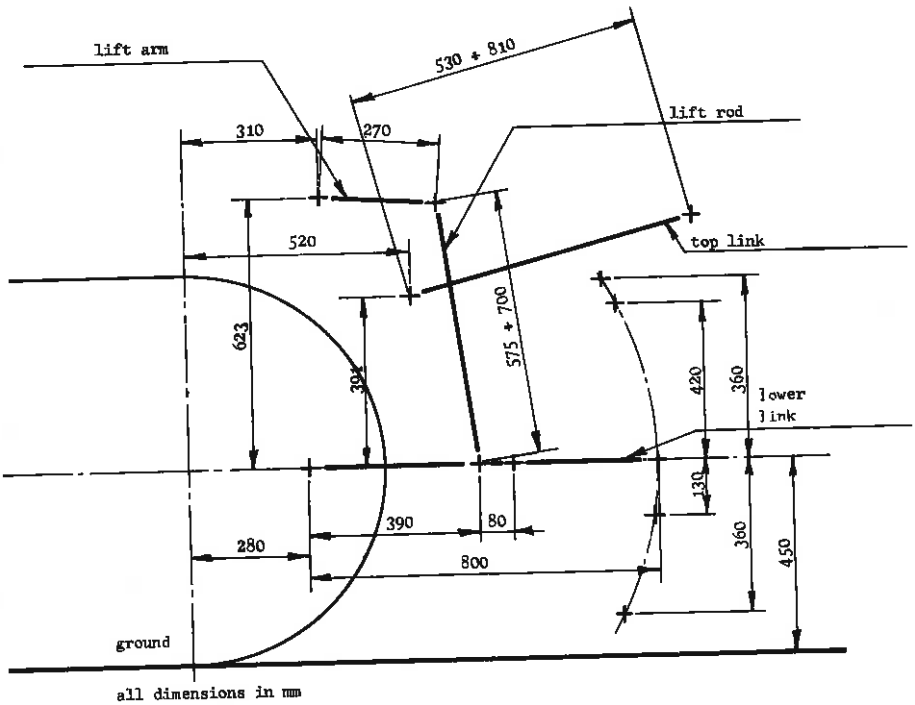
Date of test:	5th February 1975.
Hydraulic fluid:	AP 51 make, viscosity SAE 20.
Type of linkage lock for transport:	none on the tractor tested
Opening pressure of the cylinder over pressure relief valve:	200 kg/cm²

Pump characteristics:

1) - opening pressure of the relief valve:	150 kg/cm²
- sustained pressure by the open relief valve:	190 kg/cm²
2) - pump delivery rate at minimum pressure and rated engine speed:	26.5 l/min
3) - pump delivery rate:	25.5 l/min
- delivery pressure:	150 kg/cm²
- hydraulic power:	8.5 metric mp

Power lift

Dimensions of linkage geometry for the table on page 11



LINKAGE GEOMETRY WHEN CONNECTED TO THE STANDARD FRAME

	Maximum mechanical advantage	*Minimum mechanical advantage*
Projected length in side view:		
— lower links mm	800	800
— lift arms mm	270	270
— lift rods mm	600	685
— top link mm	670	670
Distance of lift rod connection point from pivot of lower link mm	523	523

The following dimensions are given relative to the rear axle centre line 450 mm above the ground level

Lower link pivot point	280 mm behind, 0 mm below	280 mm behind, 0 mm below
Top link pivot point	520 mm behind, 391 mm above	520 mm behind, 391 mm above
Lift arm pivot point	310 mm forward, 623 mm above	310 mm forward, 623 mm above
Maximum and minimum height of lower link hitch points	420 mm above, 130 mm below	360 mm above, 360 mm below
Height of lower link hitch points when locked in transport position	no definite transport position	

LIFTING HEIGHTS IN RELATION TO A HORIZONTAL LINE THROUGH THE LOWER LINK PIVOTING POINT

		cm	—36	—30	—25	—20	—15	—13	—10	—5	0	+5	+10	+15	+20	+25	+30	+35	+40
Lifting force at the hitch points	Maximum mechanical advantage	kg	—	—	—	—	—	—	2040	2090	2160	2200	2225	2225	2225	2200	2200	2180	2160
	Minimum mechanical advantage	kg	1575	—	1650	1710	1755	—	1790	1810	1820	1820	1810	1800	1780	1750	1710	1580	—
	Maximun force exerted throughout whole range 2040 kg Force at which front of tractor is calculated to lift with maximum allowable front ballast - kg																		
Lifting force at the frame	Maximum mechanical advantage	kg	—	—	—	—	1855	—	1900	1925	1915	1890	1860	1830	1780	1750	1680	1625	1525
	Minimum mechanical advantage	kg	1500	1540	1570	1500	1620	—	1635	1635	1625	1600	1580	1560	1515	1480	1435	1385	1330
	Maximum force exerted throught whole range 1525 kg Force at which front of tractor is calculated to lift with maximum allowable front ballast - kg																		

All values of forces correspond to the pressure at maximum hydraulic power (150 kg/cm²) calculated from measurements made at maximum oil pressure (190 kg/cm²).

OFFICER IN CHARGE
(R. Gioia)

HEAD OF L.M.A.
(L. Lisa)

Turin, 20th May 1975

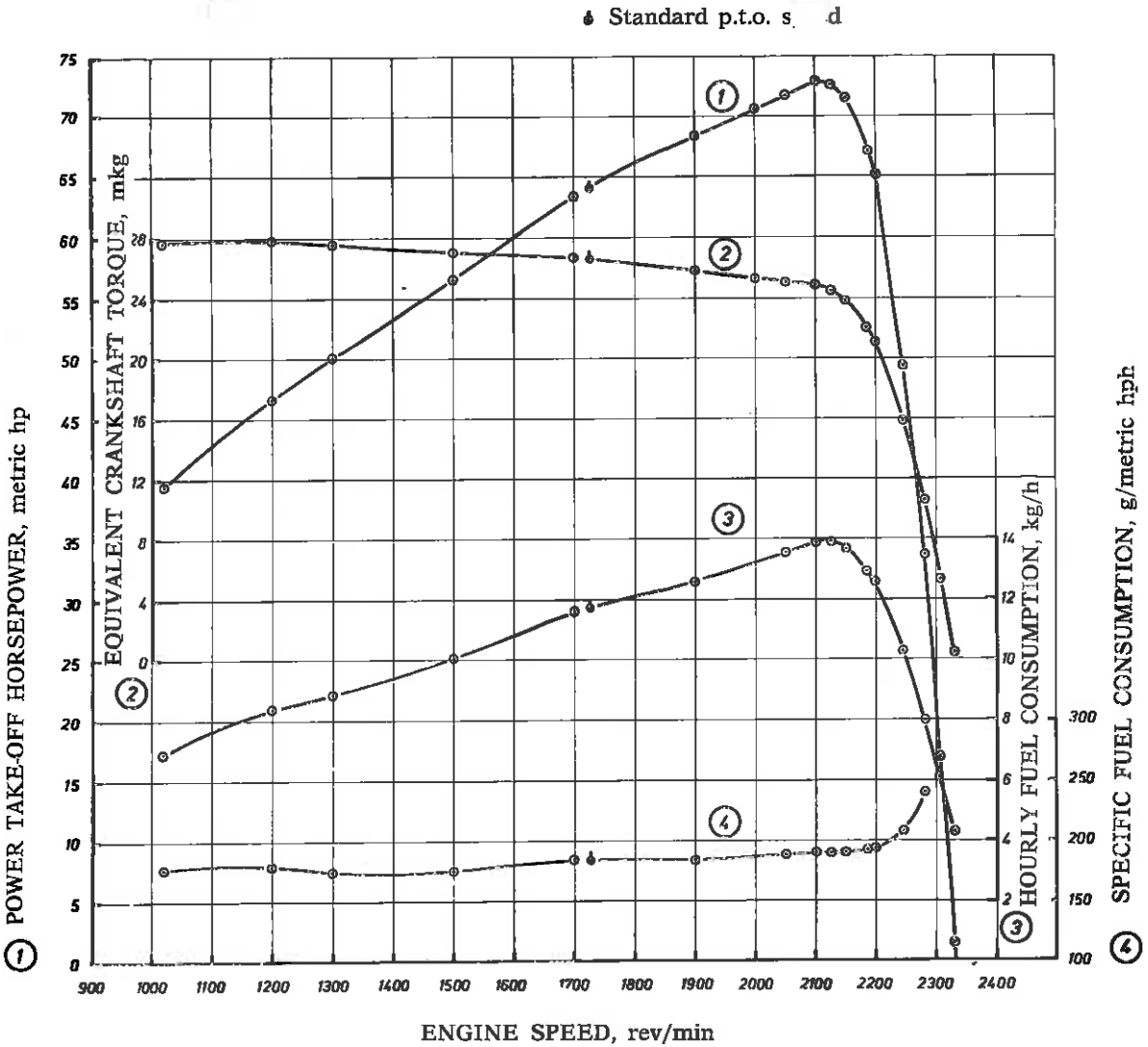


FIG. 1 - POWER TAKE - OFF TEST

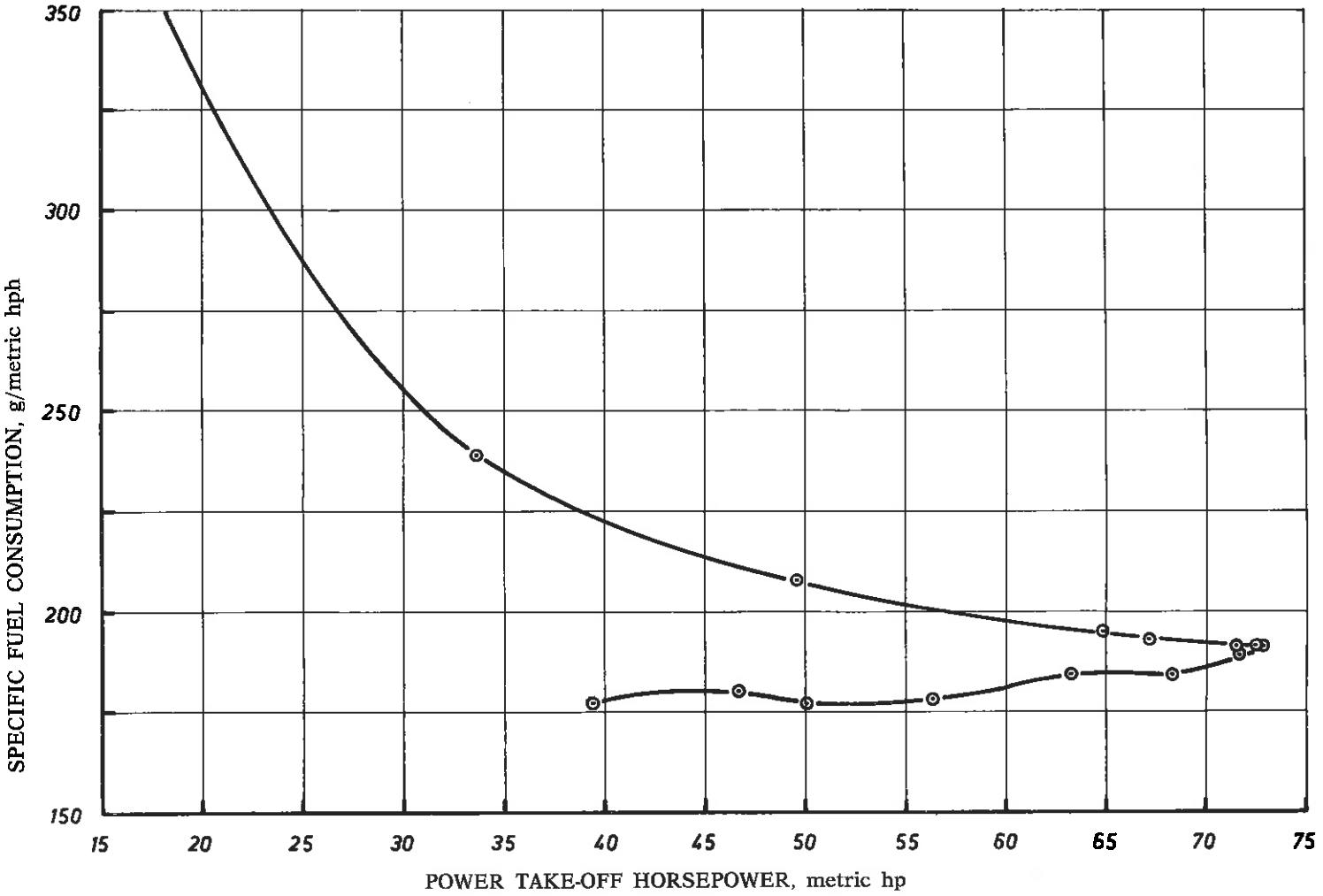


FIG. 2 - POWER TAKE - OFF TEST

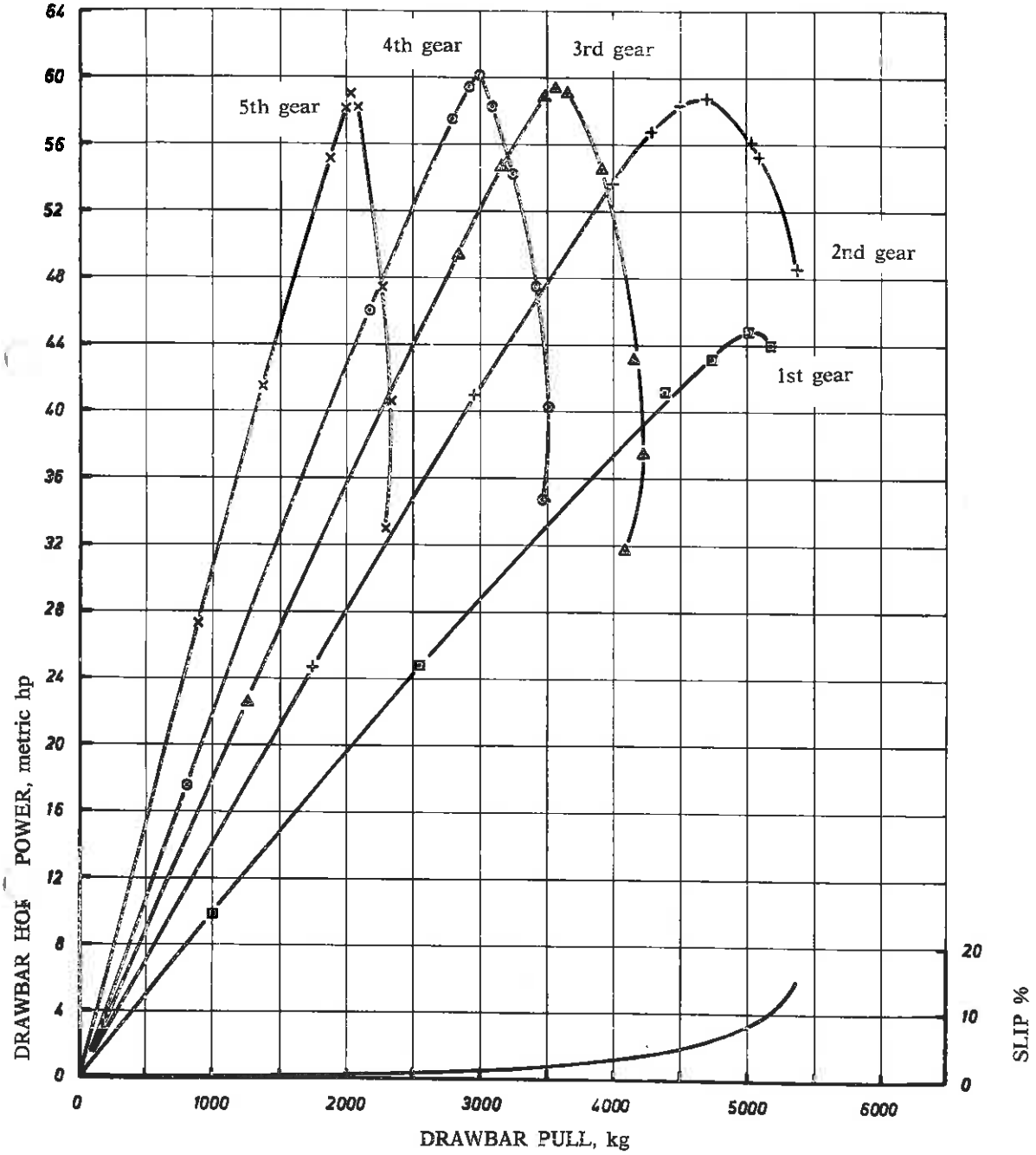


FIG. 3 - DRAWBAR TEST ON CLAY LOAM SOIL

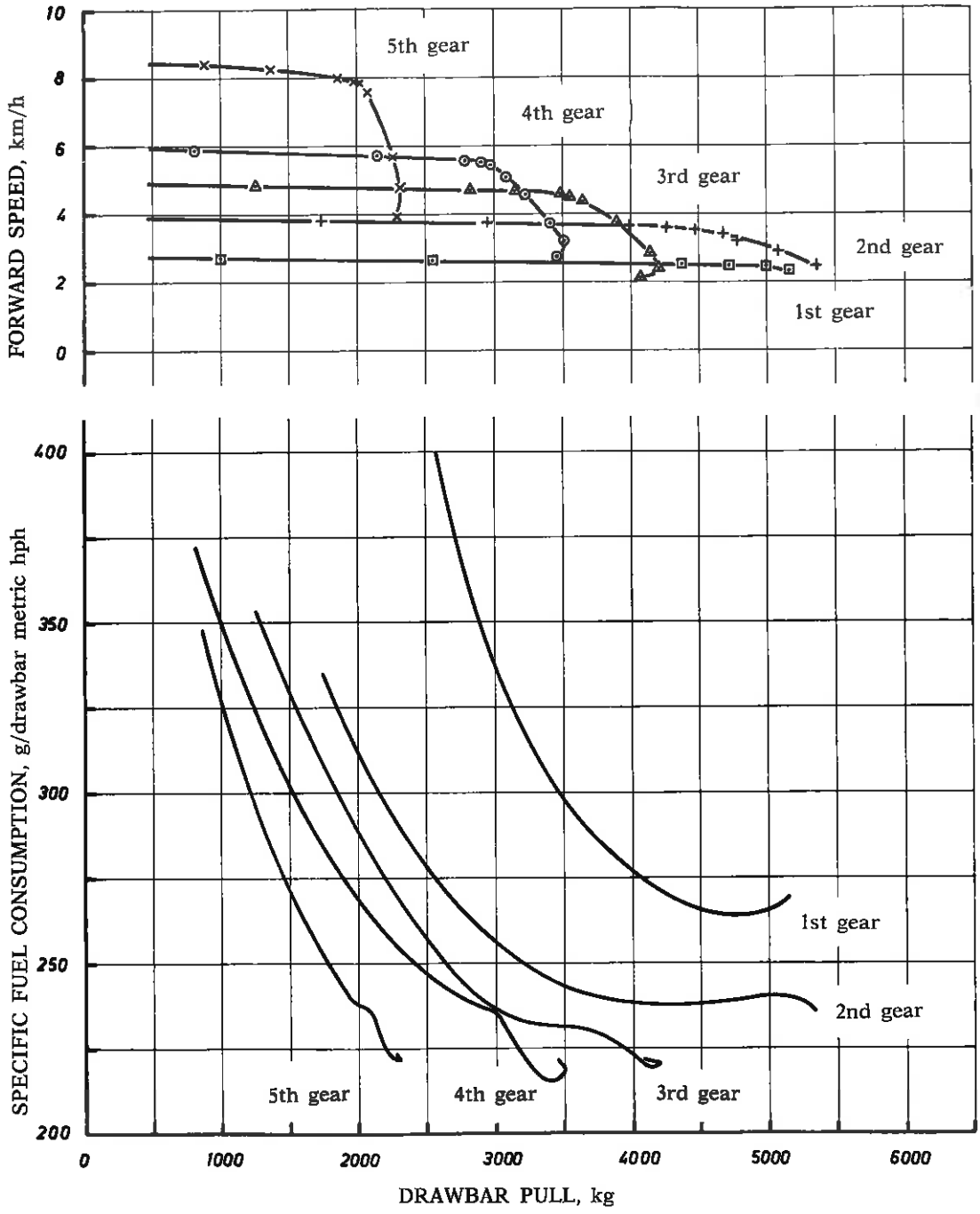


FIG. 4 - DRAWBAR TEST ON CLAY LOAM SOIL