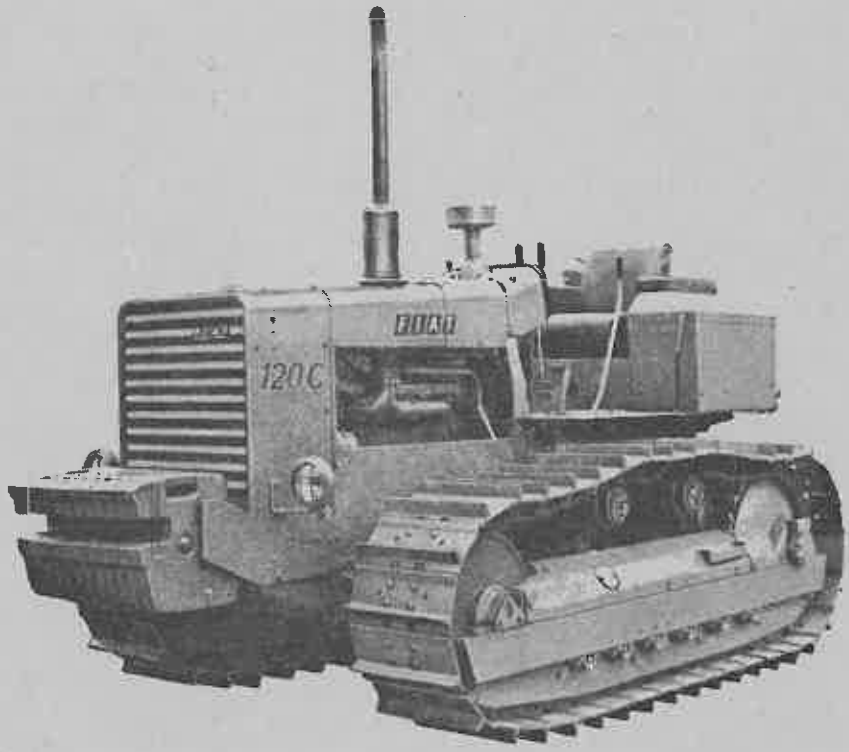
COMITATO PER L'OMOLOGAZIONE
DELLE MACCHINE AGRICOLE

REPORT No. 484

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

FIAT 120 C DIESEL TRACTOR



Manufactured by: FIAT-ALLIS S.p.A.
LECCE (Italy)

Date of tests: July - October 1974

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 . . 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-ALLIS S.p.A., - LECCE (Italy)
Submitted for test by:	The manufacturer
Selected by:	The manufacturer with the agreement of the testing station
Place of running-in	FIAT-ALLIS - Servizio Esperienze - TORINO (Italy)

SPECIFICATION OF TRACTOR

Make:	FIAT
Model:	120 C
Type:	Track, unit construction
Serial No.:	750001

Engine

Make:	OM
Model:	CP3/100
Type:	4-stroke, direct injection diesel
Serial No.:	300715
Cylinders:	Six, vertical, in-line, 110 mm bore x 130 mm stroke, capacity 7412 cm^3, compression ratio 17 : 1, overhead valves, replaceable cylinder liners.
Fuel system:	Forced feed: own make plunger type fuel pump; model FP/KS 22 A/L4/4. FISPA or SAVARA make, dual fuel filter: a cloth filtering element and replaceable cartridge element preceded by a transparent sediment bowl. Fuel: diesel oil Capacity of fuel tank 228 liters (*)

(*) *With auxiliary production tank.*

	OM - Bosch licence injection pump model PES 6 A 90 B 410: LA/177, serial No. 01928; (*) manufacturer's production setting 24.5 to 25.0 l/h at 2000 engine rev/min and 15 °C fuel temperature. OM make injectors model DLL 140 S1 F, injector setting 200 ± 5 kg/cm².
Governor:	Bosch make, mechanical type RPVA 250 - 1000 F 144 incorporated in fuel injection pump. Rated engine speed 2000 rev/min. Governed range of speed 700 to 2180 rev/min.
Air cleaner:	Own make, oil bath with centrifugal precleaner type with automatic dust unloader; oil capacity 2.1 liters.
Lubrication system:	Forced feed from gear-type pump, with pick up screen in sump and double cartridge type filters, SAVARA make, installed on the pressure line to the engine. Oil capacity (engine sump) 17 liters. Recommended oil change period: 300 hours. Cartridge change period: 600 hours. Recommended oil viscosity: SAE 40.
Cooling system:	Water cooled from centrifugal pump (0.75 kg/cm²) with thermostatic control; 496 mm dia, 4-blade belt-driven fan. Water temperature gauge. Cooling water radiator capacity 27 liters.
Starting system:	Electrical, 24 V, 4 CV MARELLI model M 125 starting motor.

Electrical system

Voltage:	24 V, negative earth.
Alternator:	FIAT, model A 12 M 124/24/26.
Battery:	Two 12 V in series, of MARELLI or TITANO make, model 6 ATP/21 (Marelli) and model 6 DE 10 F (Titano), capacity 110 Ah.

(*) *Alternatively fuel pump BOSCH type PES 6A 90D.*

Transmission

Clutch: FIAT make, dual plate 14 in. dia overcentre oil-bath hand lever operated.

Gearbox: FIAT make, sliding gear type, 5 forward speeds and 1 reverse.

Final drive: FIAT make, crown wheel and pinion, side steering clutches and spur gear double reduction final drives.

Oil capacities: Gearbox 23.5 liters; engine clutch 17.5 liters; final drives 10 liters each; oil change period: 600 hours engine clutch; 1200 hours gearbox and final drives; recommended oil viscosity SAE 90.

Gear No.	*Number of engine revolutions for one revolution of driving wheels*	*Travelling speed for 2000 rev/min rated engine speed km/h*
1	90.872	3.03
2	58.907	4.68
3	48.901	5.63
4	38.933	7.07
5	30.777	8.95
Reverse	71.118	3.87

Power take-off

In centre-line at rear of tractor. Not independent, engaged through the same clutch as the gearbox and through a dog clutch hand lever operated.
1¾ in. dia, according to ISO Standard, 6 splines.
Height above ground 590 mm.
Proportional engine speed: 1212 rev/min at 2000 rev/min rated engine speed; 1000 rev/min at 1650 rev/min engine speed.
Direction of rotation clockwise viewed from tractor rear.

Belt pulley

None.

Power lift

None.

Swinging drawbar

Clevis type sliding on fixed drilled guide. Radius of swing: 1570 mm.

Vertical height to center of clevis: 410 mm and 370 mm.
Drawbar hole: 37 mm, distance behind rear axle 800 mm, position relative to p.t.o. 175 mm below and 740 mm to rear (horizontal line).
Lateral adjustment: 9 positions, from 0 to 360 mm each side.

Steering

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

Brakes

FIAT 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

FIAT make, not girder, 38 track plates 450 mm wide, integral grousers 53 mm high, track pitch 170 mm, size of pins 35 mm, track gauge 2140 mm, approximate lenght of track in ground contact 2140 mm, total ground bearing area 19260 cm^2, nominal ground pressure 0.393 kg/cm^2, tread width 1550 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

Six bottom track rollers and two top carrier rollers per side, rolling dia 185 mm, disc-type idler wheel rolling dia 542 mm. Track suspension adjustement by coil spring and hydraulic system.
Sprockets: pitch dia 737.2 mm, 27 teeth, tooth thickness 60 mm, rolling dia 683.2 mm.

Lighting

	Height above ground of centre cm	*Size dia cm*	*Distance from outside edge of tractor to centre cm*
Headlights	98.5	13	45
Side lights	98.5	13	45
Rear lights	117.0	6.5	39
Reflectors	111.5	5.5	39

Number of grease points

8

CONDITION DURING TEST

Weights

Without driver but with tanks full, as tested: 7740 kg including 540 kg front ballast which should not be released when using the tractor (Manufacturer's specification).

Overall dimensions

— length 4.16 m
— width 2.03 m
— height 2.71 m

Remarks: Height, 2.71 m, has been measured at top of exhaust.

Seat

Make BREMSHEY with F.I.S.A. spring suspension type. Range of adjustment: horizontal 140 mm; vertical 45 mm squab angle from 7° to 29°.

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 AGERTER, viscosity SAE 40

Transmission oil: FIAT AW 90/M, viscosity SAE 90 EP

Final drives oil: FIAT AW 90/M, viscosity SAE 90 EP

COMPULSORY TESTS

1. Power take-off performance

Date and location of tests: 1st July 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 vol.*
metric hp	*rev/min*	*rev/min*	*l/h*	*kg/h*	*g/metric hph*	*metric hp h/l*
A - MAXIMUM POWER: 2-hour test						
110.44	2000	1212	24.93	20.72	188	4.43
B - STANDARD p.t.o. SPEED (1000 rev/min)						
98.00	1650	1000	21.23	17.64	180	4.61
C - MANUFACTURER-RECOMMENDED SPEED FOR DRAWBAR WORK						
110.44	2000	1212	24.93	20.72	188	4.43
D - PART LOADS						
96.25	2051	1243	21.66	18.00	187	4.44
—	2175	—	7.22	6.00	—	—
49.64	2115	1282	13.43	11.16	225	3.70
110.44	2000	1212	24.93	20.72	188	4.43
25,20	2147	1301	9.82	8.16	324	2.57
73.30	2082	1262	17.33	14.40	196	4.23

No load, maximum engine speed: 2180 rev/min

Equivalent crankshaft torque at maximum power: 39.55 mkg

Maximum equivalent crankshaft torque: 43.46 mkg at 1300 rev/min engine speed

Mean atmospheric conditions:

temperature	27.0 °C
pressure	748.0 mmHg
relative humidity	53 %

Maximum temperature:

coolant	85 °C
engine oil	120 °C
fuel	30 °C
engine air intake	35 °C

2. Drawbar performance

Date and location of tests: 4th July - 16th July 1974
Type of track: Clay-loam soil, bare
Height of drawbar above ground: 410 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	2.98	81.12	7350	2025	11.8	3.39	245	35	72	100	21.5	52	746.0
2	4.63	89.17	5200	2005	2.9	3.60	231	37	74	110	23.0	44	746.0
3	5.58	88.49	4330	2004	2.7	3.60	231	42	76	115	24.5	42	746.0
4	7.09	87.97	3350	1998	1.1	3.60	231	42	76	115	28.0	35	745.0
2 - TEN-HOUR TEST AT 75% OF PULL AT MAXIMUM POWER													
2	4.72	69.05	3950	2045	2.2	4.12	243	44	72	105	23.1	78	742.5

OIL CONSUMPTION DURING TEN HOURS DURATION OF TEST 2): 90 g/h

DRAWBAR PULL: Maximum: 7550 kg - Trackslip: 15%
Corresponding to 7% trackslip: 6770 kg

3. **Radius of turning space** 2.55 m

4. **Location of centre of gravity**

	mm
Height above ground	670
Distance forward from the vertical plane containing the axis of the rear wheels	1115
Distance from the median plane of the tractor	0

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

Date of tests:	16th July 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*
4	7.20	101	129
5	9.10	102	144

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

OFFICER IN CHARGE
(R. Gioia)

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

Turin, 10th October 1974

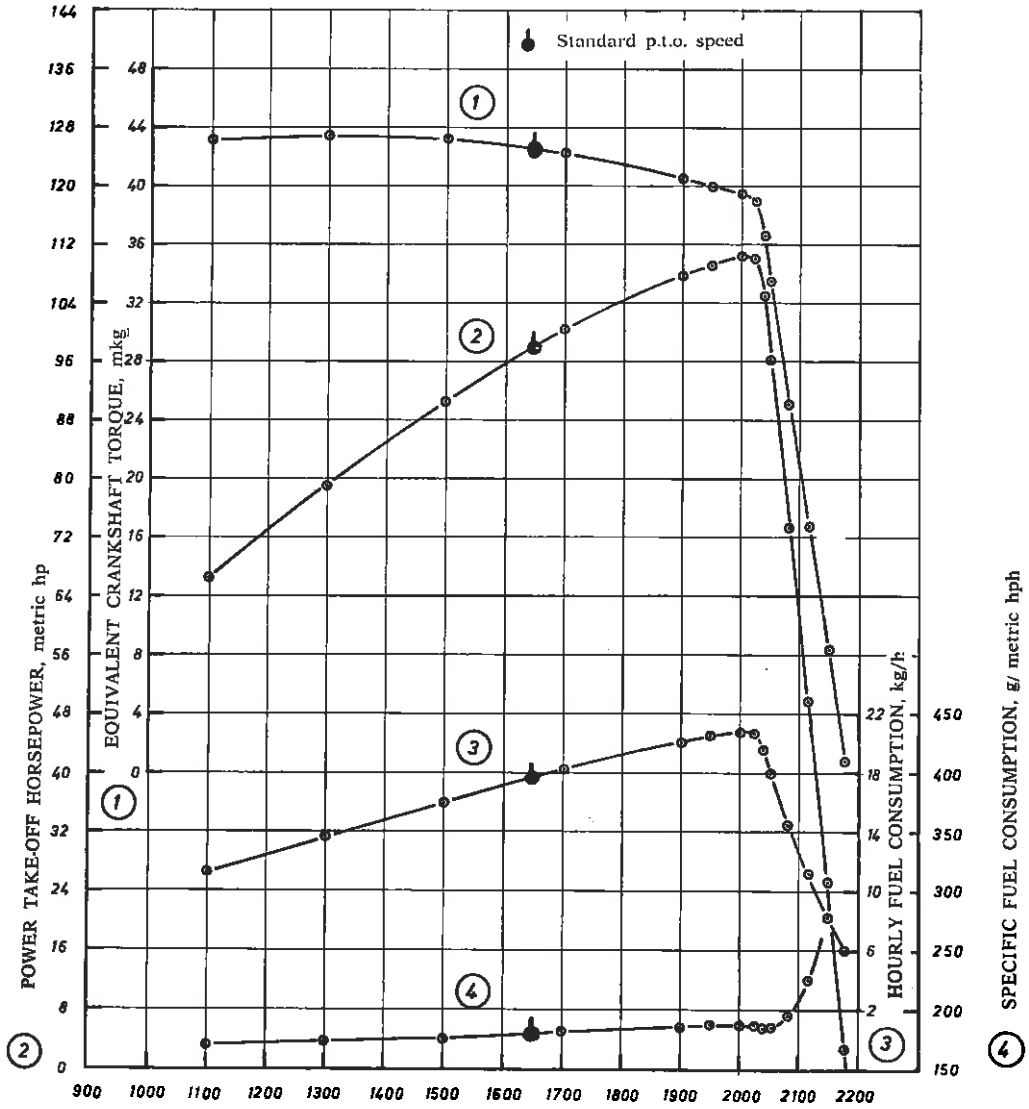


FIG. 1 - POWER TAKE - OFF TEST

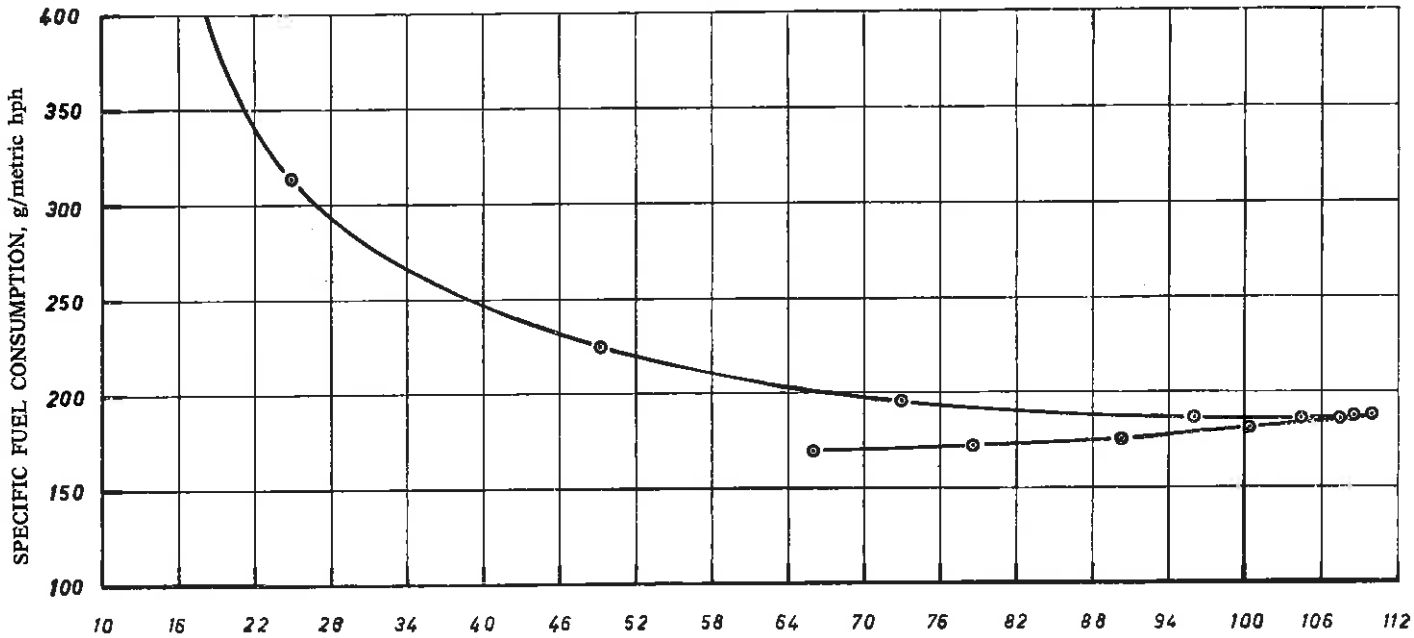


FIG. 2 - POWER TAKE - OFF TEST

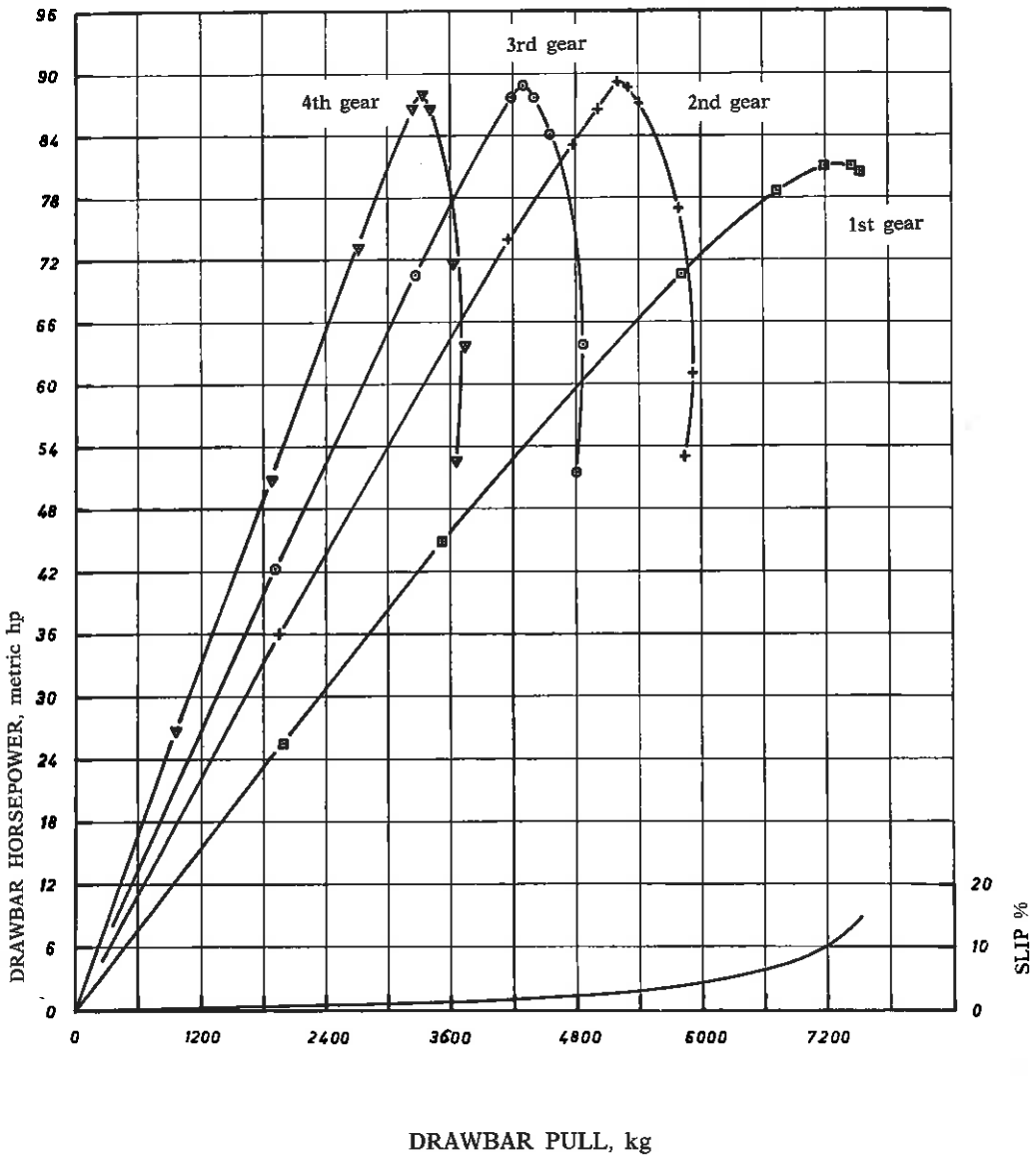


FIG. 3 - DRAWBAR TEST ON CLAY LOAM SOIL

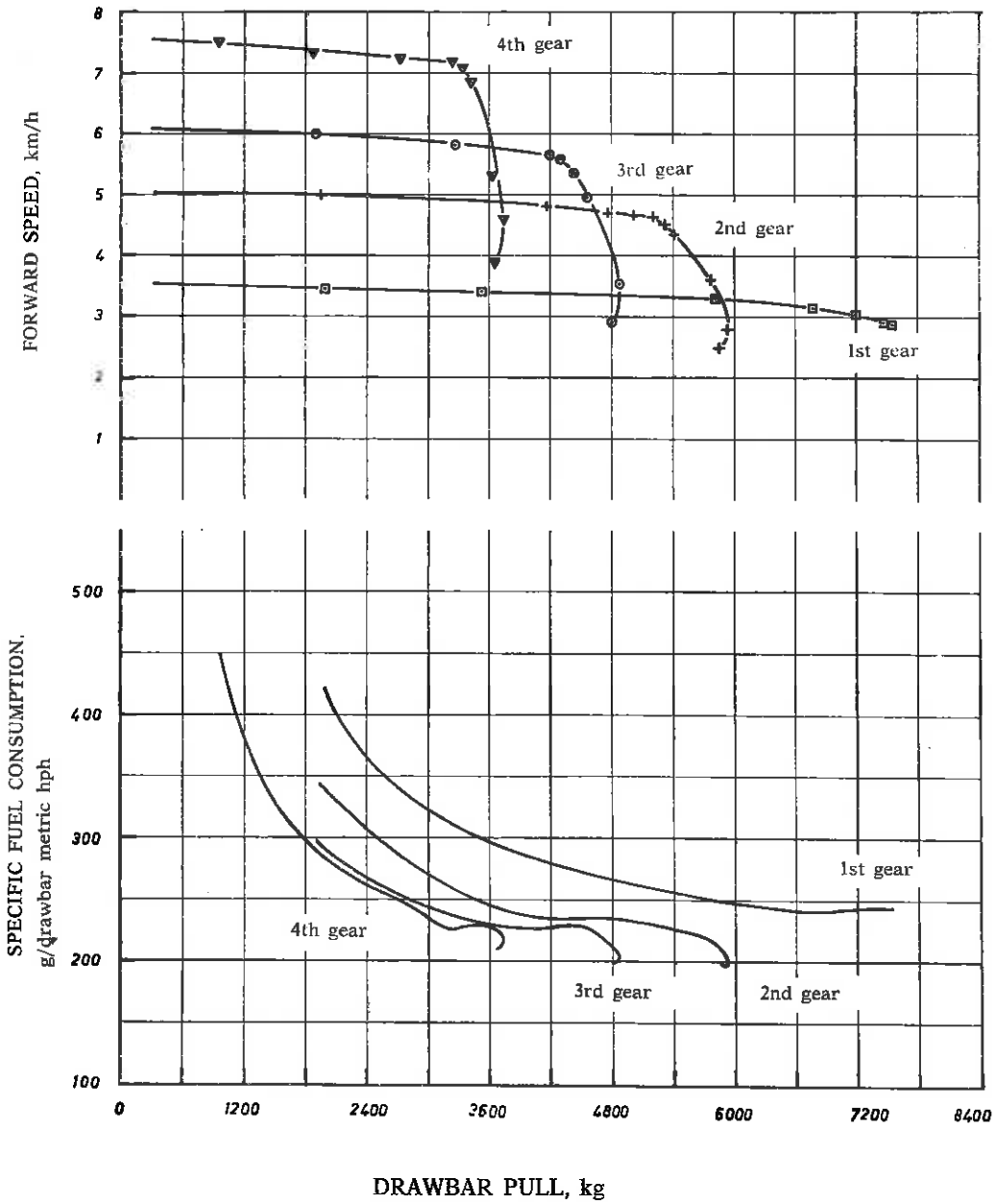


FIG. 4 - DRAWBAR TEST ON CLAY LOAM SOIL