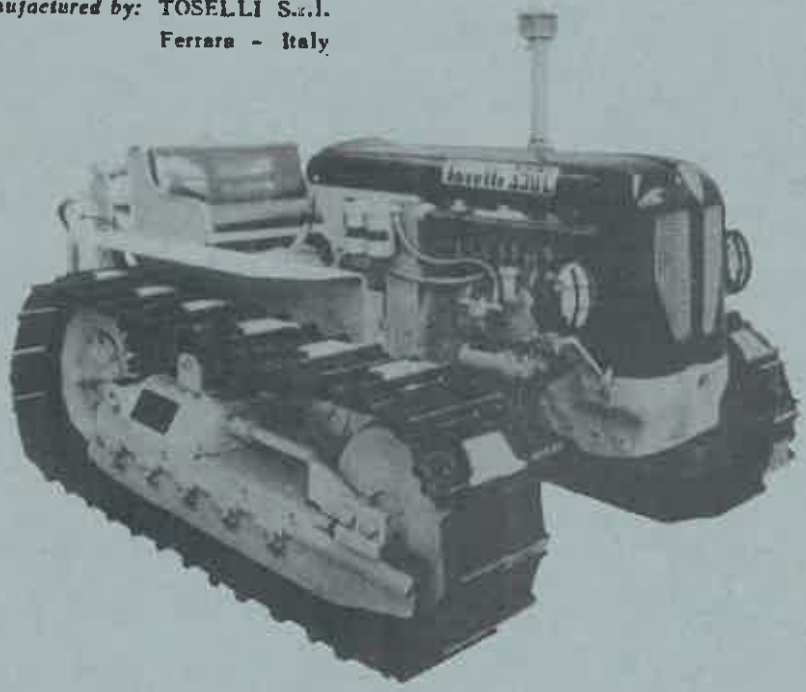
COMITATO DI COORDINAMENTO PER L'OMOLOGAZIONE
DELLE MACCHINE AGRICOLE IN ITALIA

REPORT No. 207/O.E.C.D.

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

TOSELLI 350L

Manufactured by: TOSELLI S.r.l.
Ferrara - Italy



Date of Test: September/October 1965
Test No.: 207/ O.E.C.D.

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

Date of approval: 9th March 1966

Serial No.: 110

CENTRO NAZIONALE MECCANICO AGRICOLO
TORINO - ITALY

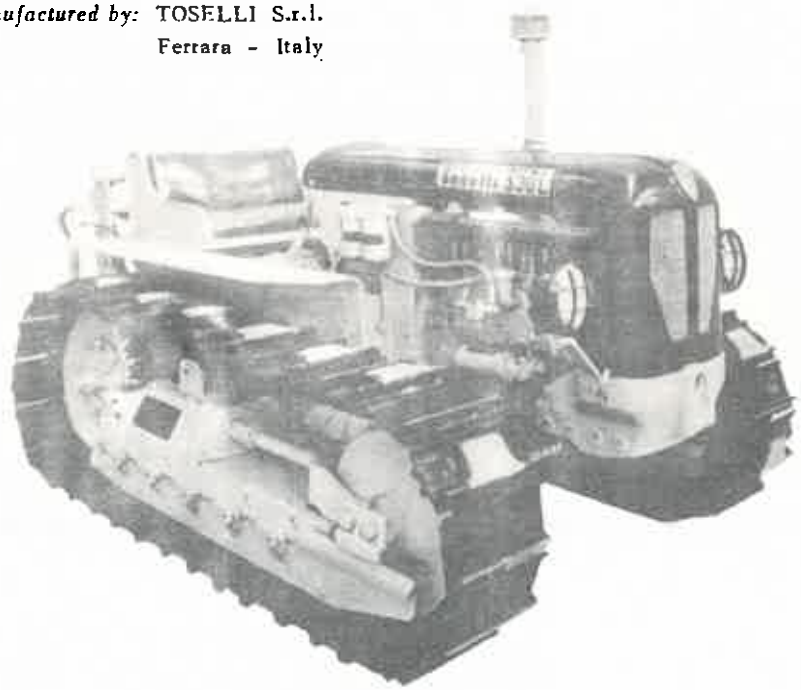
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CENTRO NAZIONALE MECCANICO AGRICOLO
TORINO - ITALY

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APPENDIX

POWER TAKE-OFF TEST

	Fig.
Curves of power take-off horsepower, equivalent crankshaft torque and specific fuel consumption engine speed	1
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DRAWBAR TEST

Curves of drawbar horsepower and trackslip drawbar pull	3
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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

PART I

SPECIFICATION OF TRACTOR

Tractor

Make:	TOSELLI
Model:	350 L
No.:	Serial No.: 2141

Engine

Make:	V.M. Cento (Ferrara), Type 310, direct injection diesel, Serial No. 1787
Cylinders:	3 cylinders, vertical, in-line, 100 mm × 110 mm stroke, compression ratio 17 : 1, overhead valves
Rated speeds:	2200 rev/min governor setting - no load engine speed 2375 ± 10 rev/min
Fuel system:	Fuel - Diesel oil : Injection pump: BOSCH Type PFR 1K 80/247; injector nozzles FL BOSIO Type BLL 160 SV/428. Manufacturer's production setting for injection pump: 9.70 Kg/h to 9.90 Kg/h at 2200 rev/min engine speed at 15 °C fuel temperature (bench test figures); injection pressure 180 ± 5 Kg/cm^2. SAVARA A.C. Type 6007/80 fuel feed pump and one BOSCH Type FY/D 5/303 filter on pressure side. Capacity of fuel tank 32 l
Governor:	V.M., mechanical, incorporated in fuel injection pump. Governed range of engine speed 350 rev/min to 2200 rev/min
Air cleaner:	One FISPA Type 2222-03 with replaceable cartridge element dry pre-cleaner and one FISPA Type 2132.26, oil bath cleaner oil capacity 0.65 l

Oiling system: Forced feed gear type pump with metal strainer in sump and one cartridge element oil filter Type DUCCA FO 2695. Recommended oil change period: 120 ÷ 150 h. Oil capacity engine sump 8.0 l

Cooling system: Air cooled, impeller assisted with 210 mm dia 8-blades belt driven fan

Transmission

Clutch: PITTERI & VIOLINI 250 mm dia, single plate dry clutch, pedal operated

Gearbox: Own make, sliding gear Type, 8 forward speeds and 2 reverse, comprising 4 - speed gearbox and dual range reduction gear at inputend

Differential: Crown wheel and pinion and differential with bull gear final drives

Oil capacities: Transmission 8.0 l, final drive 1.2 l each

GEAR No.	NUMBER OF ENGINE REVOLUTIONS FOR ONE REVOLUTION OF DRIVING WHEEL	THEORETICAL TRAVELLING SPEED FOR 2200 REV/MIN RATED SPEED OF ENGINE, Km/h
1	146.01	1.41
2	104.85	1.97
3	71.90	2.87
4	58.57	3.52
5	53.70	3.84
6	42.06	4.90
7	28.84	7.15
8	21.54	9.56
1 R.	146.81	1.40
2 R.	58.89	3.50

Steering device:	Clutch and brake steering, with hand levers operating dry multi-disc clutches
Brakes:	Separetely hand levers operated contracting band brakes, acting upon the steering clutch outer drums, foot-pedal is provided for combined operation. A parking hand lever with ratchet and pawl permits to use both brakes at the same time
Sprockets:	Pitch dia 486 mm, 25 teeth, face width 35 mm
Tracks:	Non-Girder, track pitch 125 mm, 28mm dia pins, 300 mm wide track plates, 34 per track, integral grousers 41 mm; track gauge 1380 mm; approximate length of track in ground contact 1380 mm; total area of contact with ground 8280 cm^2; pressure on ground 0.271 Kg/cm^2
Suspension:	Front idler wheels 386 mm rolling dia, 5 botton track rollers per track at 180 mm centres, rolling dia 140 mm. Rear suspension by cross beam supported on track frames through lubricated bushes allowing independent track frame swing. Front suspension by transverse leaf spring. Manual lubrication by grease

Belt Pulley:

Location:	At rear of the tractor driven from engine clutch through bevel gear. The belt pulley assembly is fitted instead of the p.t.o. shaft
Diameter/width:	250 mm × 150 mm
Speeds:	1232 rev/min giving 16.13 m/s linear speed at 2200 rev/min rated engine speed
Direction of rotation:	Anti-clockwise viewed from tractor right side

Power take-off

Main:	6-spline, 34.9 mm (1 $\frac{3}{8}$ in.) dia, in centre-line at rear of tractor

Height above ground:	430 mm
Proportional engine speed:	706 rev/min at 2200 rev/min rated engine speed 540 rev/min at 1683 rev/min engine speed
Direction of rotation:	Clockwise viewed from tractor rear
Proportional ground speed:	1 revolution of p.t.o. for approximately 33.5 mm of travel

Drawbar: Tested with swinging drawbar. Vertical height to centre of clevis from 270 mm to 320 mm

Electrical equipment

Voltage:	12 V
Generator:	BOSCH Type EH - 14 V 11 A 25
Batteries:	One 12 V, capacity 70 amp h.

Overall dimensions

Overall length:	2.22 m
Overall width:	1.46 m
Overall heigth:	1.42 m to top of exhaust pipe 1.09 m to top of bonnet
Minimum ground clearance:	0.21 m to botton of swinging drawbar

Weight: With full fuel tank, oil standard track shoes, no driver, 2344 Kg

Special remarks: Power lift and directional reverse unit (optional)

PART II

LABORATORY TESTS

1. Compulsory tests: Power take-off test

Date and location of tests: 19th October 1965, C.N.M.A. Torino - Italy

Type of dynamometer: Electrical, swingin frame

Fuel: Diesel oil, density 0.831 Kg/l at 15 °C
Cetane No. not recorded

Engine oil: S.A.E. 20

Transmission oil: S.A.E. 90

HORSEPOWER	SPEEDS		EQUIVALENT CRANKSHAFT TORQUE	FUEL CONSUMPTION			TEMPERATURE			ATMOSPHER. CONDITIONS	
	ENGINE	P. T. O.		PER HOUR	SPECIFIC	HP HOURS/UNIT OF VOLUME	COOLANT	OIL	FUEL	AIR TEMP.	ATMOS. PRESSURE
metric hp	rev/min	rev/min	mkg	l/h	g/metric hph	metric hph/l	°C	°C	°C	°C	mmHg
A. Maximum power											
45.39	2228	715	14.59	11.68	214	3.89	80	85	11.0	9.5	734.2
B. Power at standard p.t.o. speed (540 rev/min)											
35.01	1683	540	14.90	9.10	216	3.85	70	78	11.0	10.0	734.0
C. Power at maximum torque											
40.62	1900	610	15.31	10.22	209	3.97	75	82	11.0	9.5	743.2
D. Power at rated speed											
45.31	2200	706	14.75	11.56	212	3.92	75	85	11.0	10.0	734.2
No load, maximum engine speed: 2378 rev/min											

2. Supplementary test: Engine test (in installed condition)

Date and location of test: 18th October 1965, C.N.M.A. Torino, Italy

Type of dynamometer: Electrical, swinging frame

Fuel: Diesel oil, density 0.831 Kg/1 at 15°C
Cetane No. not recorded

Engine oil: S.A.E. 20

HORSEPOWER	SPEED	CRANKSHAFT TORQUE	FUEL CONSUMPTION			TEMPERATURE			ATMOSPHER. CONDITIONS	
			PER HOUR	SPECIFIC	HP HOURS/UNIT OF VOLUME	COOLANT	OIL	FUEL	AIR TEMP.	ATMOSPHER. PRESSURE
metric hp	rev/min	mkg	l/h	g/metric hph	metric hph/l	°C	°C	°C	°C	mmHg
A. Maximum power										
48.62	2225	15.65	11.77	201	4.13	78	85	11.0	9.0	735.9
B. Power at standard p.t.o. speed (540 rev/min)										
37.95	1683	16.15	9.10	199	4.17	74	80	11.0	9.0	735.9
C. Power at maximum torque										
42.98	1900	16.20	10.25	195	4.19	75	80	11.0	9.0	735.8
D. Power at rated speed										
48.53	2200	15.80	11.53	198	4.21	78	85	11.0	9.0	735.9
No load, maximum engine speed: 2598 rev/min										

PART III

DRAWBAR TESTS ON ARTIFICIAL TRACK

Date of tests:	30th October 1965
Type of track:	Clay loam soil
Position of governor control lever:	Fully open, giving no load engine speed 2370 ± 10 rev/min
Fuel:	Diesel oil, density 0.831 Kg/l at 15 °C Cetane No. not recorded
Engine oil:	S.A.E. 20
Transmission oil:	S.A.E. 90
Weight without driver:	2240 Kg
Height of drawbar above ground:	320 mm

1) Maximum powers and pulls

GEAR	MAXIMUM POWERS						AIR TEMP.	ATMOS. PRESSURE	MAXIMUM PULLS	
	HORSEPOWER	CORRESPONDING PULL	TRACK SLIP	ENGINE SPEED	SPEED	ENGINE COOLANT TEMP.			PULL	REASON FOR STALL
No.	metric hp	Kg	%	rev/ min	Km/h	°C	°C	mmHg	Kg	
1	11.26	2252	9.2	2318	1.35	70	8.0	731.0	2252	Track slip
2	15.68	2313	10.8	2293	1.83	70	8.0	731.0	2313	Track slip
3	22.40	2282	10.8	2279	2.65	70	8.0	731.0	2322	Track slip
4	27.61	2287	10.2	2264	3.26	72	8.0	732.5	2287	Track slip
5	29.46	2247	9.2	2230	3.54	72	7.0	732.5	2247	Track slip
6	35.03	2025	7.9	2218	4.67	76	7.0	733.0	2100	Engine stall
7	32.43	1218	0.7	2222	7.19	76	5.0	734.0	1322	Engine stall
8	30.08	846	0.6	2216	9.60	76	5.0	734.0	901	Engine stall

2) Fuel consumption

GEAR	OPTIMUM FUEL CONSUMPTION			RANGE OF PULL, OVER WHICH SPECIFIC FUEL CONSUMPTION DOES NOT EXEED OPTIMUM CONSUMPTION BY MORE THAN 10%
	SPECIFIC FUEL CONSUMPTION	HP HOURS/ UNIT OF VOLUME	CORRESPONDING PULL	
No.	g/metric D.B. h.p.h.	D.B. metric h.p.h. /1	Kg.	Kg
1	368	2.26	2214	1772 - 2252 (M.S.P.)
2	305	2.72	2275	1650 - 2313 (M.S.P.)
3	280	2.97	2100	1465 - 2322 (M.S.P.)
4	257	3.23	2287	1590 - 2287 (M.S.P.)
5	263	3.16	2000	1300 - 2247 (M.S.P.)
6	260	3.20	1700	1190 - 2100 (M.S.P.)
7	284	2.93	1322	685 - 1322 (M.S.P.)
8	305	2.72	730	901 (M.S.P.)

(★) The drawbar specific fuel consumption curves in 4th gear had no clearly marked minima and the value shown for optimum fuel consumption in these gear are those corresponfing to maximum drawbar horsepower.

PART IV

1. Location of centre of gravity

Height above ground:	420 mm
Distance forward from the vertical plane containing the axis of the sprockets:	645 mm
Distance from the median plane parallel to the longitudinal axis of the tractor bisecting the track:	0

2. Radius of turning space: 1.85 m

PART V

1. Repairs and adjustments during tests: None

2. Remarks: None

TEST ENGINEER
(S. Sarcinelli)

DIRECTOR OF MECHANICAL DEPARTMENT
(G. Priorelli)

DATE: 30th October 1965

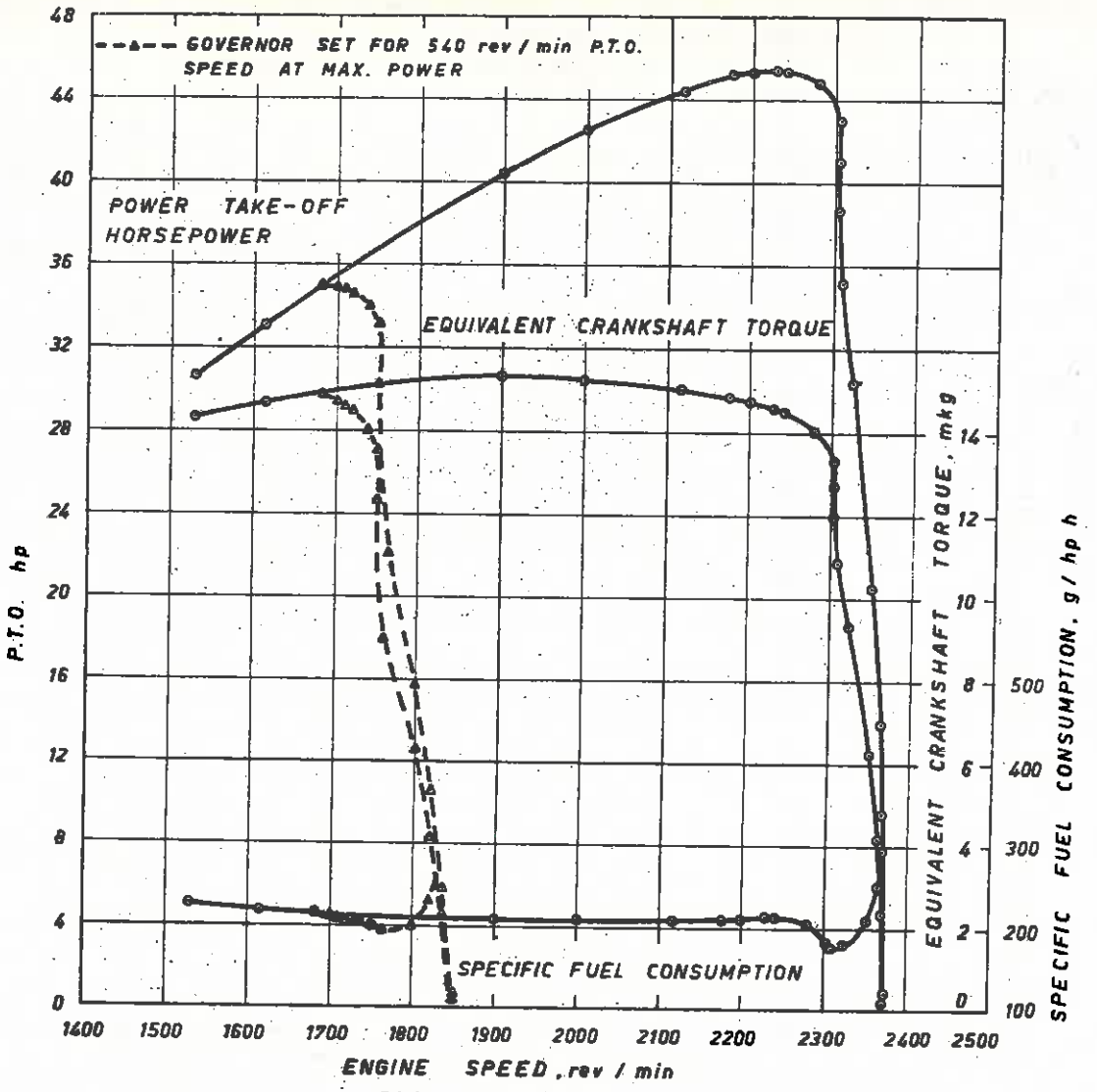


FIG. 1 - POWER TAKE-OFF TEST

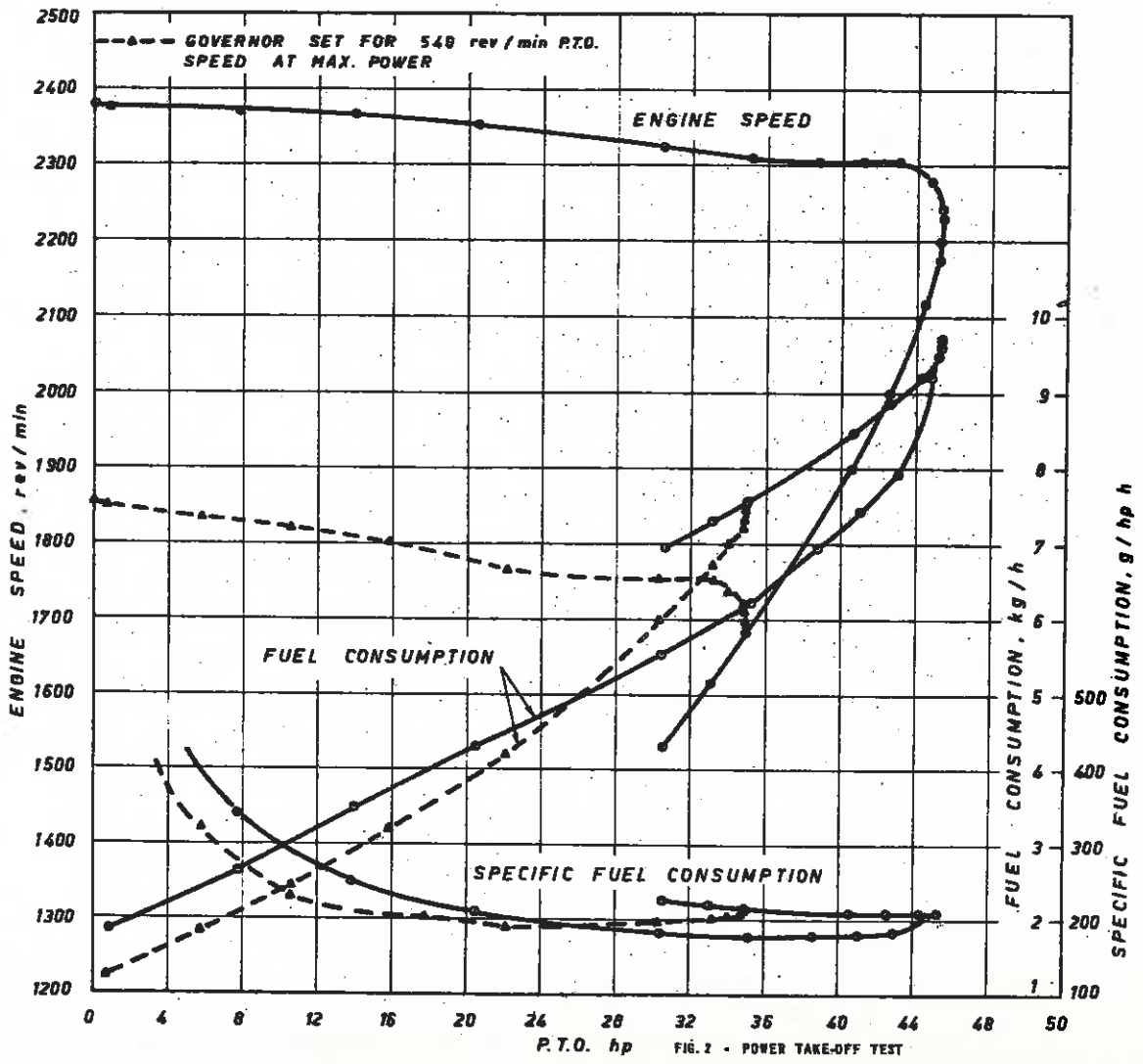


FIG. 2 - POWER TAKE-OFF TEST

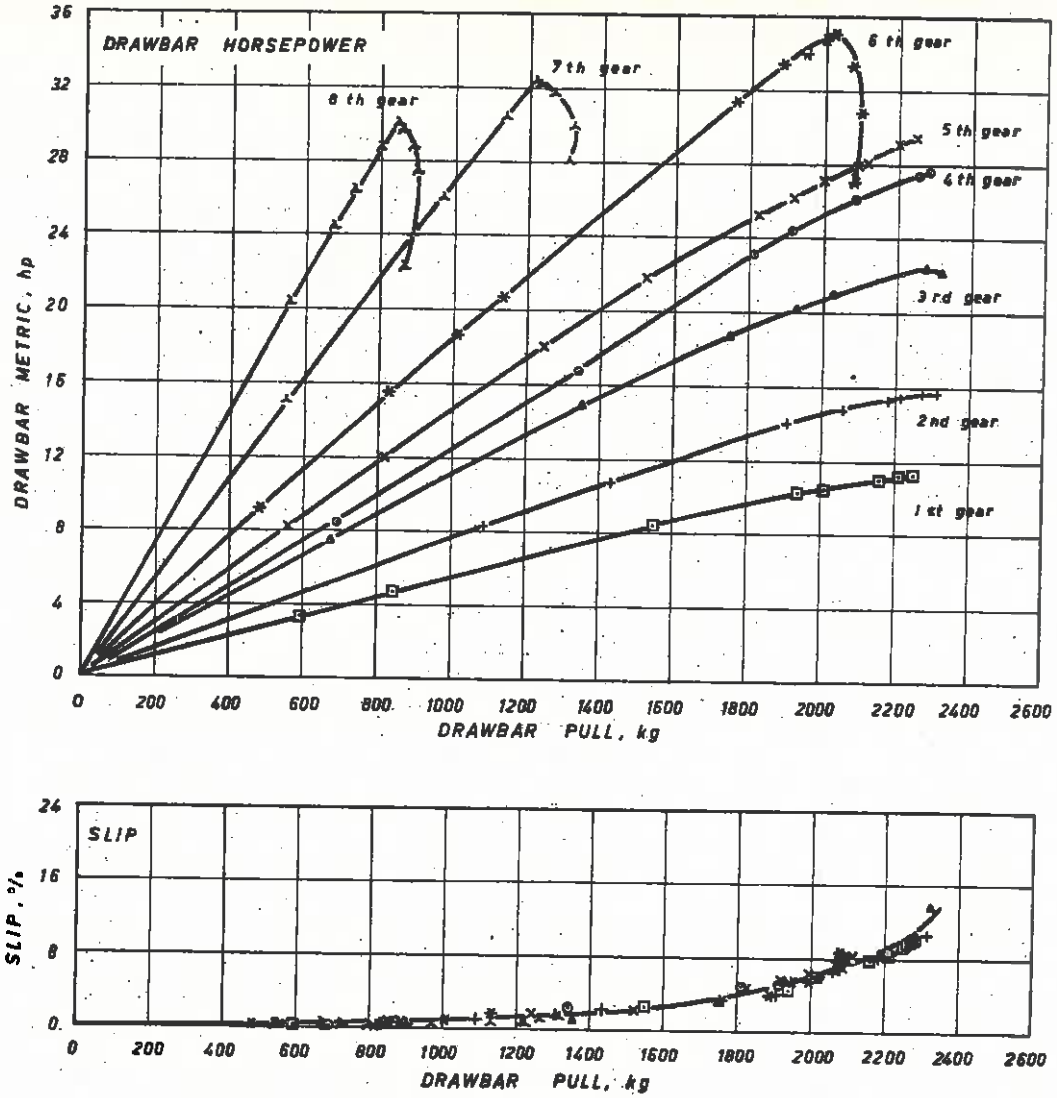
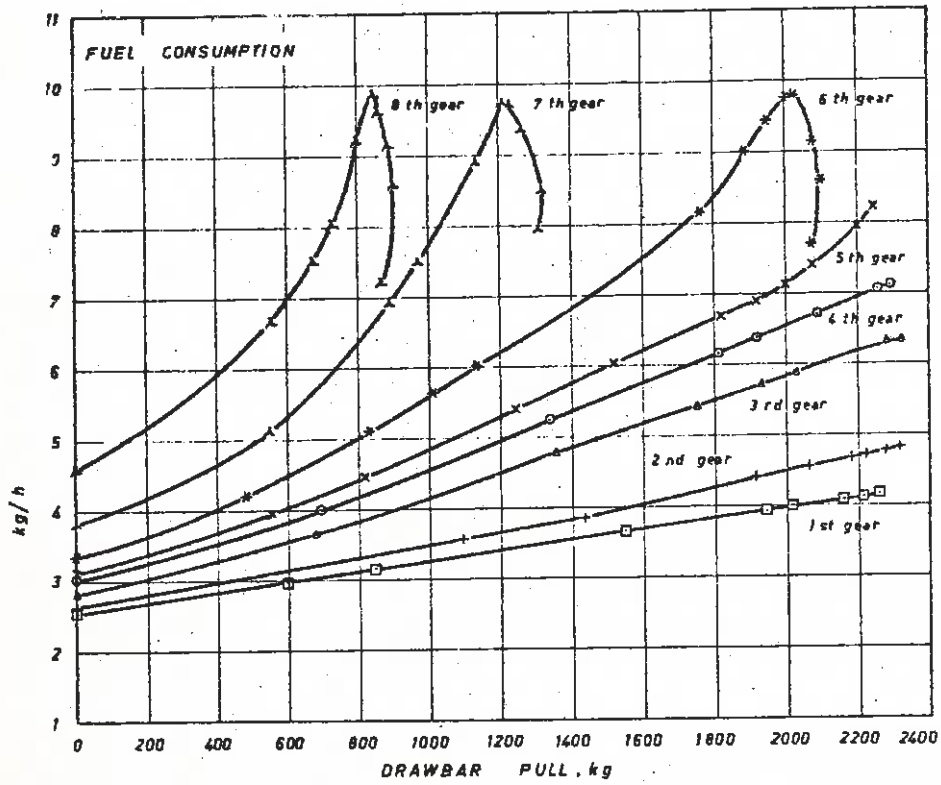


FIG. 3 - DRAWBAR TEST ON CLAY LOAM SOIL



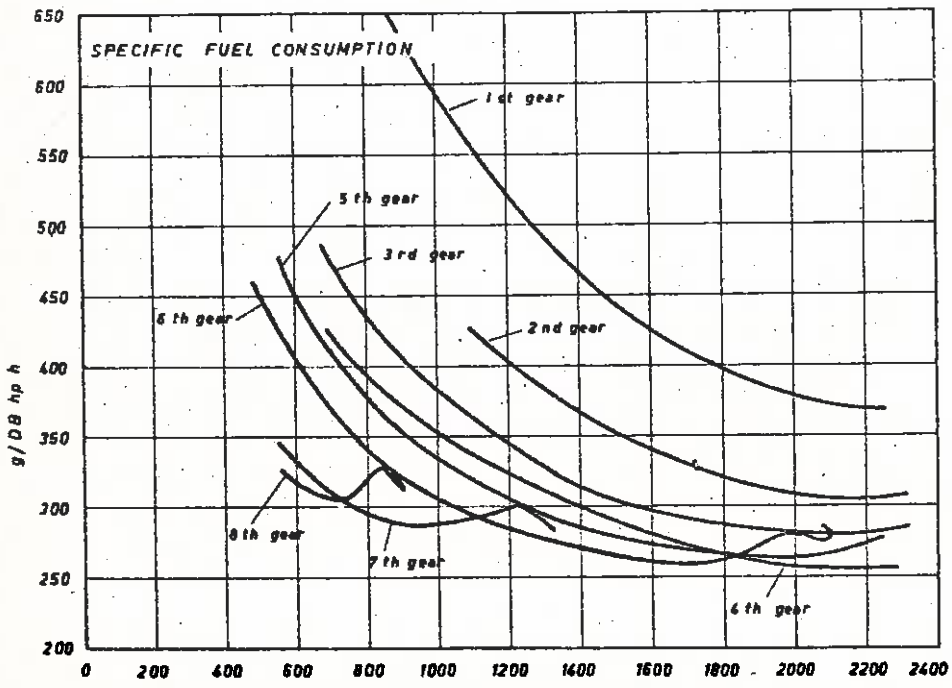


FIG. 6 - DRAWBAR TEST ON CLAY LOAM SOIL