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COMITATO PER L'OMOLOGAZIONE
DELLE MACCHINE AGRICOLE

REPORT No. 1036

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

FIAT 45-66 DT/12/I (4 W. D.)



Manufactured by: FIAT TRATTORI S.p.A.
Via Pico della Mirandola, 72 - MODENA (Italy)

Date of tests: Torino, October 1985 - April 1986

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

Date of approval: 18th December 1986

CONSIGLIO NAZIONALE DELLE RICERCHE
ISTITUTO PER LA MECCANIZZAZIONE AGRICOLA
TORINO - ITALY

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

The FIAT 45-66 DT tractor is manufactured in following variants:

1. 45-66 DT/12 model with 12 forward and 4 reverse speeds (4x4 gear units)
2. 45-66 DT/12/I model with 12 forward and 12 reverse speeds (4x3x2 gear units)
3. 45-66 DT/20 model with 20 forward and 8 reverse speeds (5x4 + 2x4 gear units)

The tests have been made on FIAT 45-66 DT/12/I.

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 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/cm^2	or 1 kg/cm^2	= 0.980665 bar
Torques:	1 mN	= 0.10197 mkg	or 1 mkg	= 9.80665 mN

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PERFORMANCE CURVES

	Fig. No.
a) Power take-off test	
Curves of power, torque, hourly and specific fuel consumption/ crankshaft speed	1
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Tractor manufacturer:	FIAT TRATTORI S.p.A. Via Pico della Mirandola, 72 MODENA - Italy
Submitted for test by:	Manufacturer
Selected by:	Manufacturer with agreement by Istituto per la Meccanizzazione Agricola - Torino (Italy)
Place of running-in:	Istituto per la Meccanizzazione Agricola - Torino
Duration of running-in:	Engine and tractor appr. 70 hours

SPECIFICATION OF TRACTOR

Tractor:

Make:	FIAT
Model:	45-66 DT/12/I
Type:	Four-wheel drive tractor, unit construction
Serial No.:	421465
Ist serial No.:	421000

Engine:

Make:	FIAT
Model:	8035.06
Type:	4-stroke Diesel engine, direct injection, water cooled.
Serial No.:	075482
Cylinders:	3 cylinders, vertical, in-line, 100 mm bore x 115 mm stroke, capacity 2710 cm^3, compression ratio 17:1, overhead in-line valves, replaceable cast-iron dry cylinder liners.
Fuel system:	forced with CORONA model APM 45 FVI pump (optionally FISPA model 4066.03/A); one wire-mesh filter on pump suction side and one CAV filter with replaceable cartridge and sediment bowls on pressure side of injection pump; one standard fuel tank capacity 42 l; CAV DPS DSA 606 rotating plunger injection pump (optionally BOSCH VEL 163-2 rotating plunger pump); manufacturer's production setting 40 ÷ 42 mm^3/stroke at rated engine speed full load; injection timing $0° \pm 1°$ before TDC; BOSCH multihole injectors DLLA 124S (optionally OMAP OLL 124S) injection pressure 230+8 bar — Serial no of injection pump: 08604 CCG
Governor:	CAV centrifugal variable speed governors mechanical type, incorporated in injection pump; governed range of engine speed from 650 to 2800 rev/min; rated engine speed 2500 rev/min (optionally BOSCH centrifugal variable speed governor mechanical type, incorporated in injection pump).

Air cleaner	FIAT make, oil bath air filter, type 18518.218, with cyclone pre-cleaner, type 8323083 WMF. Oil capacity: 0,7 l. Air intake under bonnet. By means of an electrical device with a red advising lamp on the instruments panel.
Lubrication system:	Forced-feed lubrification with gear pump; two filters: one wire mesh type filter on pump suction, and one replaceable cartridges type on pressure side pump of oil to the engine; cartridges change every 400 operating hours; oil capacity including filters 11.7 l; recommended oil FIAT AMBRA SUPER, SAE classification 15W/40, satisfied MIL-L-2104 C specifications; oil change period every 200 operating hours.
Cooling system:	Pressurized water cooling system with centrifugal pump (0.69 bar) and thermostatic control; 340 mm dia, 6 blades, belt driven fan; coolant capacity 12.0 l. Temperature check with thermometer.
Starting system:	Electrical Marelli MT 71 AA (12 V - 2.5 kW) optionally BOSCH JD (12 V - 2.5 kW), starting motor pinion coupling solenoid operated: starting motor operable only with engine clutch disengaged. Cold starting aid: thermostart.
Electrical system:	12 V, negative earth. Alternator MARELLI type AA 125-14V-45A (540 W) or BOSCH type G1-14V-33A-1 (540 W). Battery: one lead acid type; MARELLI 6A TP 30; capacity 100 Ah at 20 hours rating.
Exhaust system:	Own make, DGM-SA 748 (optionally FIAT DGM-SA 1057) interferance type with internal perforated pipe; square shape 95 x 95 mm, 675 mm length; vertical on left side of engine; maximum height above ground 2430 mm.

Transmission:

Clutch:	LUK or OMG make, dry dual disc clutch, one for p.t.o. and the other for gear box, but indipendently operated; disc 280 mm dia; pedal operated for gear box drive and hand level operated for P.T.O. drive.
Gearbox:	Own make. On the 45-66 DT/12/I tractor model tested: mechanical syncronized type, constant mesh gear with total 12 forward and 12 reverse speeds; the transmission consists of three mechanical in series gear units: the first with 4 speeds, the second with 3 positions to select the gear groups (normal, medium, high) the third with two positions to select the forward and reverse speeds; each unit is operated by own lever. The FIAT 45-66 DT tractor is available in the other two variants: – 45-66 DT/20 model with 20 forward and 8 reverse speeds; three series gear units: the first with four speeds, the second with four positions to select the gear groups (normal, medium, high, reverse), the third with two positions to engage or disengage on

additional drive creeper gear to have 2 more forward ranges (low, superlow) and 1 more reverse range (low).
- 45-66 DT/12 model with 12 forward and 4 reverse speeds; two series gear units: the first with four speeds, the second with four positions to select the gear groups (normal, medium, high and reverse).

Rear axle and final drive: Own make, mechanical type with Gleason crown wheel and pinion; bevel gear type differential with mechanical pedal operated and self-disengaging lock; epycicloidal final drives.

Front axle and final drive: Own make, mechanical type with crown wheel and pinion; differential lock not available; epycicloidal final drives.

Gear lubrication: Capacity gear box, rear axle, power lift (commons): 40.8 l; one filter in full flow with by-pass valve and replaceable cartridge; filters change period 400 operating hours; capacity final rear drives: 7.8 l; capacity front axle: 4.3 l; capacity final front drives: 1.6 l; change period 1600 operating hours. Recommended oil FIAT TUTELA MULTI F, SAE classification 20W/40 or any oil conforming MIL L 2104 C or API-CD.

FIAT 45-66 DT/12 model

- Total ratios and speeds (tyres 13.6-28 and pressure 1.6 bar)

Gear	Group	Number of engine revolutions for one revolution of the driving wheel	Nominal travelling speed(*) from rated engine speed (2500 rev/min) km/h
I	Normal	428.689	1.34
II		269.414	2.13
III		211.774	2.71
IV		132.894	4.32
I	Medium	166.133	3.46
II		104.408	5.50
III		82.070	7.00
IV		51.502	11.16
I	High	65.151	8.82
II		40.945	14.03
III		32.185	17.85
IV		20.197	28.45
I	Reverse	157.084	3.66
II		98.721	5.82
III		77.600	7.41
IV		48.696	11.80

(*) Calculated with the radius index of 610 mm

FIAT 45-66 DT/12/I model

– Total ratios and speeds (tyres 13.6-28 and pressure 1.6 bar)

Gear	Group	Number of engine revolutions for one revolution of the driving wheel	Nominal travelling speed(*) from rated engine speed (2500 rev/min) km/h
I	Normal	428.689	1.34
II		269.414	2.13
III		211.774	2.71
IV		132.894	4.32
I	Medium	166.133	3.46
II		104.408	5.50
III		82.070	7.00
IV		51.502	11.16
I	High	65.151	8.82
II		40.495	14.03
III		32.185	17.85
IV		20.197	28.45
I	Revese normal	432.546	1.33
II		271.838	2.11
III		213.679	2.69
IV		134.090	4.29
I	Reverse medium	167.628	3.43
II		105.347	5.45
III		82.809	6.94
IV		51.965	11.06
I	Reverse high	65.737	8.74
II		41.313	13.91
III		32.474	17.70
IV		20.379	28.20

(*) Calculated with the radius index of 610 mm

FIAT 45-66 DT/20 model

– Total ratios and speeds (tyres 13.6-28 and pressure 1.6 bar)

Gear	Group	Number of engine revolutions for one revolution of the driving wheel	Nominal travelling speed(*) from rated engine speed (2500 rev/min) km/h
I	Super low	1665.460	0.35
II		1046.680	0.55
III		822.747	0.70
IV		516.298	1.11
I	Normal	428.689	1.34
II		269.414	2.13
III		211.774	2.71
IV		132.894	4.32
I	Low	645.432	0.89
II		405.627	1.42
III		318.843	1.80
IV		200.085	2.87
I	Medium	166.133	3.46
II		104.408	5.50
III		82.070	7.00
IV		51.502	11.16
I	High	65.151	8.82
II		40.945	14.03
III		32.185	17.85
IV		20.197	28.45
I	Reverse low	610.274	0.94
II		383.534	1.50
III		301.478	1.91
IV		189.185	3.04
I	Reverse	157.084	3.66
II		98.721	5.82
III		77.600	7.41
IV		48.695	11.80

(*) Calculated with the radius index of 610 mm

Power take off:

Indipendent p.t.o. driven by 2nd plate of dual disc clutch; three interchangeable shafts, automatic selection of speed changing p.t.o. shafts; hand lever operated. Position: rear of tractor, in median plane; height above ground 610 mm (with tyre 13.6-28).

Proportional engine speed p.t.o.:

– 540 rev/min p.t.o.: distance behind rear axle 280 mm; diameter of p.t.o. shaft end 34.9 mm; 6 splines, according to I.S.O. STANDARD; no power restriction, 614 rev/min at rated engine speed; standard p.t.o. speed 540 rev/min at engine speed 2199 rev/min; p.t.o. shaft rotates clockwisely, viewed from tractor rear.

p.t.o. transmission ratio: $\frac{\text{engine speed}}{\text{p.t.o. speed}} = 4.071$

– 1000 rev/min p.t.o.: distance behind rear axle 260 mm; diameter of p.t.o. shaft end 34.9 mm; 21 splines, according to I.S.O. STANDARD. 1050 rev/min at rated engine speed, standard p.t.o. speed 1000 rev/min at engine speed 2381 rev/min; p.t.o. shaft rotates clockwisely viewed from tractor rear.

p.t.o. transmission ratio: $\frac{\text{engine speed}}{\text{p.t.o. speed}} = 2.381$

Proportional ground speed p.t.o.:

– 540 rev/min p.t.o.: travelling distance for one revolution of p.t.o. shaft 518 mm with tyre 13.6-28; number of p.t.o. shaft revolutions for one revolution of rear wheels 7.4 rev.; p.t.o. shaft rotates clockwisely viewed from tractor rear.

– 1000 rev/min p.t.o.: travelling distance for one revolution of p.t.o. shaft 304 mm with tyre 13.6-28; number of p.t.o. shaft revolutions for one revolution of rear wheels 12.6 rev; p.t.o. shaft rotates clockwisely viewed from tractor rear.

Power lift:

Own make; hydraulic power lift in unit construction. Draft and position control operated by two independent levers; lift-o-matic device to raise and to low lower links.

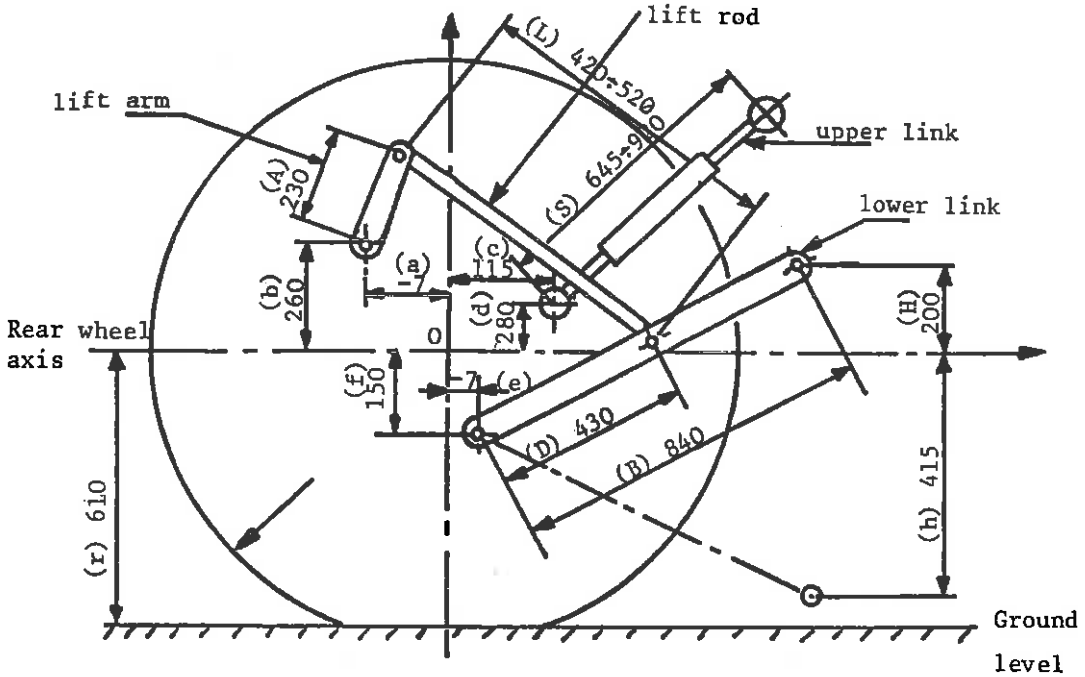
Hydraulic system:

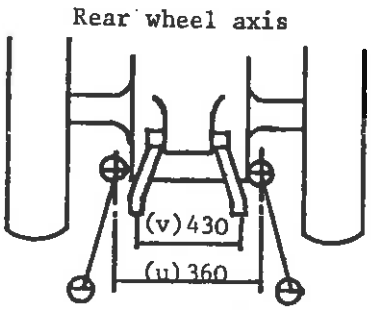
open centre system; own make gear pump A 31, directly driven by engine; delivery 32.8 l/min at rated engine speed; one hydraulic oil filter with paper cartridge; filter change period 400 operating hours.
Own make control valve; maximum working pressure

175 ÷ 186 bar. Single acting cylinder with 100 mm bore and 128 mm stroke; over pressure relief valve in cylinder set 215 bar. Type of linkage lock for transport: hydraulic.
Maximum 3 double acting additional control valves with oil tapping at rear of tractor available.
Oil capacity (common at gear box and rear axle): 40.8 l.
Maximum volume of oil available to external cylinders: 22 l. Recommended oil: see transmission oils. Oil change period 1600 operating hours.

Implement linkage:
three point linkage, joint balls category 2 according to I.S.O. STANDARD 730; dimensions see on pag. 10.

POWER LIFT





State setting of hydraulic power lift for test

– Rear tyres (size 13.6-28) radius index		(r) :	610 mm
– Front tyres (size 9.50-20) radius index		(r') :	445 mm
– Length of lift arms		(A) :	230 mm
– Lenght of lower links		(B) :	840 mm
– Distance of lift arm pivot point from rear wheel centre line:	horizontally	(a) :	−7 mm
	vertically	(b) :	260 mm
– Horizontal distance between the 2 lower link points		(u) :	360 mm
– Horizontal distance between the 2 lift arm end points		(v) :	430 mm
– Length of upper link		(S) :	from 645 to 920 mm
– Distance of upper link pivot point from rear wheel centre line:	horizontally	(c) :	115 mm
	vertically	(d) :	280 mm
– Distance of lower link pivot point from rear whell centre:	horizontally	(e) :	−7 mm
	vertically	(f) :	150 mm
– Distance of lower lift pivot points to lift rod pivot points on lower links		(D) :	430 mm
– Length of lift rods		(L) :	from 420 to 520 mm
– Height of lower hitch points:			
- in low position		(h) :	415 mm
- in high position relative to the rear wheel centre line, situated 610 mm above the ground level		(H) :	200 mm
– Height of lower link hitch points when locked in transport position			Any height within lift range

Pull attachment:

Swinging drawbar and sector guide:
own make. Heights above ground with tyres 13.6-28 max 420 mm, min 310 mm. Two possible positions inverting (180°) the drawbar; distance of hitch point from rear axle 660 mm behind horizontally; distance of hitch point from p.t.o. shaft end 300 mm max and 190 mm min below vertically and 350 mm behind horizontally with 1000 p.t.o. shaft end (330 mm behind with 540 p.t.o. shaft end); lateral adjustments 190 mm on right and left hands; distance of pivot point from rear axle 80 mm horizontally: one drawbar pin hole, 30 mm dia.

Trailer hitch:
own make, clevis type; height above ground, with tyres 13.6-28, 770 mm max and 425 mm min distance of hitch point from rear axle 360 mm horizontally; distance of

hitch point from p.t.o. shaft end: vertically from 170 mm below to 175 mm above, horizontally 110 behind with 1000 p.t.o. shaft end (90 mm with 540 p.t.o. shaft end); max vertical load 1200 daN, (with tyres 14.9 R 28; 6 ply) according to Italian legislation; one trailer hitch pin hole, 28.5 mm dia.

Holed drawbar:
fitted on hitch points of lower links; number 7 holes; distance between holes 80 mm, 28 mm dia holes, 32 mm thickness 80 mm width, height above ground min 180 mm, max 950 mm (with tyres 13.6-28); horizontal distance to p.t.o. shaft end 525 mm with 1000 p.t.o. shaft end (505 mm with 540 p.t.o. shaft end).

Steering:

Hydrostatic control with indipendent hydraulic circuit, DANFOSS make, OSPC 100; gear pump FIAT C 25, 19 l/min delivery, one double acting cylinder directly acting on front axle, transversely mounted, bore 48 mm, stroke 200 mm, piston rod 20 mm; working pressure 125 bar; oil capacity 1.8 l; oil filter: one metal cartridge in oil reservoir; oil change period 1600 operating hours, filter change period 400 operating hours.
Recommended oil FIAT TUTELA MULTI F, SAE classification 20 W/40 or any oil according to MIL L 2104 C or API - CD.

Brakes:

Service brakes:
own make, oil bath disc brake type, axle shaft mounted two discs 162 mm dia, 4.7 mm thickness; mechanically acting on rear differential half shaft; operated by 2 indipendent pedals locked together for road drive. Hydraulic trailer braking take off available as optional.

Parking brake:
hand lever operated; it operates the same brake as the foot brake; the final part of the parking brake linkage is the same of service brake.

Steering brake:
divided pedal of service brake, for normal use locked together.

Wheels:

Steering wheels:
at front, 2 diagonal type tyres GOOD YEAR 9.5-20, 8 ply; maximum permissible load per tyre 975 kg at 2.8 bar inflation pressure and max 30 km/h speed; track width adjustement from 1380 mm to 1820 through the following range of track width: 1490 - 1450 - 1560 - 1645 - 1715 - with disc bulge facing either inward or outward.

Driving wheels:
at front and at rear; rear wheels: 2 diagonal type tyres GOOD YEAR 13.6-28, 6 ply; maximum permissible load per tyre 1430 kg at 1.6 bar inflation pressure and max 30 km/h speed; track width adjustment from 1200 mm thorugh steps of 100 mm to 1800 mm with disc bulge facing either inward or outward.
Possible combinations of tyres:

Tyre size	
at front	at rear
9.5 - 20 8 ply	13.6 - 28 6 ply
7.5 R 20 6 ply	12.4 R 28 6 ply
8.3 R 24 4 ply	12.4 R 32 6 ply
11.2 R 20 6 ply	14.9 R 28 6 ply

Wheelbase: 1910 mm.

Cab:

Own make, CS 20 type, mounted by 4 silent blocks on tractor; main frame stamped sheet-metal made.

Noise reduction materials:
- roof: 10-12 mm sound deadening panel, ACUSTICELL make, ABS type;
- platform: 15-30 mm sound deadening panel, ASBITON make, foamed polyurethane;
- fenders: 12.5 mm sound deadening panel, ASBITON make, foamed polyurethane;
- other parts: 6 mm sound deadening panel, ASBITON make, foamed polyurethane;

Engine-water heat exchanger heating-system, 3-step blower for fresh and warm air.

Glasses: windscreen and doors tempered security glasses AROSIO make, E3 43R 002566 approval.
Lateral glasses: tempered security glass AROSIO make, E3 43R 002941 approval.

Rear window: tempered security glass AROSIO make, E3 43R 002564.

Option: FIAT TS 31 frame O.E.C.D. - tested safety frame, approval numbers: CSD N. 0892/3.

Seat:

Driver's seat:
BOSTROM make, XH Baltic III model, upholstered seat with back rest, adjustable spring with shock absorber; height of unloaded seat above driver's platform adjustable from 450 mm to 510 mm in three positions, longitudinal adjustment 150 mm.

Passenger seat:
not available.

Number of grease points: 14.

Overall dimensions (tyres size 9.5 - 20 front and 13.6 - 28 rear)

	Lenght	Width		Height to top of		
		mini	maxi	exhaust silencer	safety cab	safety frame
	m	m	m	m	m	m
With ballast	3.28	1.62	2.17	2.43	2.27	2.33
Without ballast	3.28	1.62	2.14	2.43	2.27	2.33

Ground clearance: 310 mm below front wheel's differential.

Lighting equipment: Electrical 12 V, in accordance with Italian legislation.

	Height above ground of centre with tyres: 9.5 - 20 front 13.6 - 28 rear	Size	Distance from outside edge of tractor to centre (°)
	mm	mm	mm
Headlights	1025	140 x 90	690
Side lights	1350	115 x 35	245
Rear lights	1340	80 x 60	285
Reflectors: 1st pair	1205	90 x 55	180

(°) Track setting: 1380 mm at front
1300 mm at rear

TEST CONDITIONS

Track setting: 1380 mm at front
1300 mm at rear

Weights: Tractor (with safety cab, tank fuel, without driver)

	Front kg	Rear kg	Total kg
Without ballast	930	1270	2200
With ballast	1050	1750	2800

Ballasts:

	Weights		Water (kg)
	Number	Total mass (kg)	
Front wheels Front weight	- 3	- 90	- -
Rear wheels	4	200	310

Fuel and lubricants used in tests

Fuel: Esso Diesel oil; specific gravity: 0.845 Kg/l at 15 °C; cetane number: not recorded; the fuel is in conformity with our National Standard;

Engine oil: FIAT AMBRA SUPER SAE 15W/40

Transmission oil, hydraulic oil, steering oil: FIAT TUTELA MULTI F SAE 20 W 40

Grease: FIAT TUTELA G9

COMPULSORY TESTS

(1) MAIN POWER TAKE-OFF PERFORMANCE

Date and location of tests: 22nd September 1985, I.M.A. - Torino (Italy).

Type of dinamometer: parasitic currents, BORGHI SAVERI FA300-30SP.

Power	Speed		Fuel consumption			Specific energy
	engine	p.t.o.	hourly		specific	
kW	rev/min	rev/min	l/h	kg/h	g/kWh	kWh/l
Maximum power At 2-hour test						
29.77	2500	614	9.24	7.81	262	3.22
Power at rated engine speed						
29.77	2500	614	9.24	7.81	262	3.22
Standard power-take-off speed (540±10 rev/min)						
28.01	2200	540	8.30	7.01	250	3.37
Part loads (1) The torque corresponding to maximum power at rated engine speed						
29.77	2500	614	9.24	7.81	262	3.22
(2) 85% of torque obtained in (1)						
27.02	2671	656	8.86	7.49	277	3.05
(3) 75% of torque defined in (2)						
20.42	2690	661	7.34	6.20	304	2.78
(4) 50% of torque defined in (2)						
13.71	2711	666	6.04	5.10	372	2.27
(5) 25% of torque defined in (2)						
6.91	2732	671	4.62	3.90	564	1.50
(6) unloaded						
-	2740	673	-	-	-	-

Power	Speed		Fuel consumption			Specific energy
	engine	p.t.o.	hourly		specific	
kW	rev/min	rev/min	l/h	kg/h	g/kWh	kWh/l
Part loads, AT STANDARD POWER-TAKE OFF SPEED (540 REV/MIN) (1) The torque corresponding to maximum power available						
28.01	2200	540	8.30	7.01	250	3.37
(2) 85% of torque obtained in (1)						
25.05	2313	568	7.65	6.46	258	3.27
(3) 75% of torque defined in (2)						
18.98	2338	574	6.45	5.45	287	2.94
(4) 50% of torque defined in (2)						
12.82	2368	582	4.97	4.20	328	2.58
(5) 25% of torque defined in (2)						
6.45	2387	586	3.91	3.30	512	1.65
(6) unloaded						
-	2406	591	-	-	-	-

STANDARD SPECIFIC FUEL CONSUMPTION: 277/372/258/328 g/kWh

No load maximum engine speed: 2740 rev/min

Torque (equivalent crankshaft) at maximum power (2 hours): 113.7 Nm

Maximum torque (equivalent crankshaft): 144.6 Nm at 1200 rev/min of the engine

Mean atmospheric conditions:
- temperature 17.0 °C
- pressure 999 mbar
- relative humidity 51%

Maximum temperatures:
- coolant 88 °C
- engine oil 115 °C
- fuel 32 °C
- engine air intake 21 °C

(2) DRAWBAR PERFORMANCE

			with ballasts	without ballasts
Date of tests:	21st - 27th March 1986	Tyre size: - front: 9.5 - 20; 8 ply;	inflation pressure:	2.8 bar	2.8 bar
Type of track:	concrete	- rear: 13.6 - 28; 6 ply;	inflation pressure:	1.6 bar	1.6 bar

Height of drawbar above ground: 400 mm with and without ballasts

Gear	Driving speed Km/h	Power KW	Drawbar pull daN	Engine speed rev/min	Slip of wheels %	Specific fuel consumption g/KWh	Specific energy KWh/l	Temperatures			Atmospheric conditions		
								Fuel °C	Coolant °C	Engine oil °C	Temperature °C	Relative humidity %	Pressure mbar
1 - MAXIMUM POWER (ballasted)													
I Normal	1.27	8.25	2344	2710	15.0	-	-	15.0	85	93	3.5	78	989.3
II Normal	2.01	13.06	2344	2693	15.0	456	1.85	15.5	85	95	3.5	78	989.3
III Normal	2.54	16.53	2344	2681	15.0	399	2.11	16.5	86	97	3.5	78	989.3
I Medium	3.20	20.84	2344	2651	15.0	360	2.35	17.0	86	99	3.5	78	989.3
IV Normal	3.86	23.99	2236	2556	14.9	321	2.63	17.5	87	102	3.5	78	989.3
II Medium	5.09	25.12	1775	2511	10.2	307	2.76	18.5	88	105	3.5	78	989.3
III Medium	6.63	25.45	1383	2506	8.0	305	2.77	19.0	88	107	3.5	78	989.3
I High	8.51	25.73	1089	2500	6.0	303	2.79	19.0	89	110	3.5	78	989.3
IV Medium	10.91	25.29	834	2498	4.6	306	2.76	20.0	90	112	3.5	78	989.3
II High	14.04	23.72	608	2501	2.5	329	2.57	20.0	90	113	3.5	78	989.3
2 - FIVE HOUR TEST at 75% of pull at maximum power													
II Medium	5.55	20.52	1331	2665	7.1	358	2.36	21.5	88	105	6.0	73	989.3
3 - FIVE HOUR TEST at pull corresponding to 15% wheel slip in test (1)													
I Medium	3.27	21.31	2344	2653	-	-	-	21.0	89	106	6.0	73	968.0
4 - MAXIMUM POWER (unballasted)													
I Medium	3.16	17.82	2030	2670	15.0	418	2.02	19.0	85	93	8.0	45	990.6
IV Normal	3.91	22.03	2030	2640	15.0	350	2.42	19.5	85	95	8.0	47	990.6
II Medium	4.95	24.66	1795	2510	11.2	316	2.67	20.0	87	98	8.0	50	990.6
III Medium	6.53	25.26	1393	2505	7.6	311	2.72	20.5	88	100	7.5	54	990.6
I High	8.40	25.62	1098	2500	5.5	308	2.74	21.0	88	104	7.0	58	989.3
IV Medium	10.92	25.14	829	2502	3.0	312	2.71	21.0	90	108	6.0	62	989.3
II High	13.94	23.55	608	2501	2.5	335	2.52	21.5	90	111	5.0	64	989.3

Oil consumption during ten hours duration of test (2) and (3): 16 g/h

(3) TURNING SPACE AND TURNING CIRCLE:

Wheel equipment: front 9.5 - 20 (8 ply)
rear 13.6 - 28 (6 ply)

Track of wheels: front 1380 mm
rear 1300 mm

Front wheel drive disengaged

	With brakes		Without brakes	
	Right-hand	Left-hand	Right-hand	Left-hand
	m	m	m	m
Radius of turning space	4.11	4.07	4.54	4.51
Radius of turning circle	3.98	3.94	4.41	4.38

(4) LOCATION OF CENTRE OF GRAVITY:

Height above ground	mm 770
Distance forward from the vertical plane containing the axis of the rear wheels	mm 783
Distance from the median plane of the tractor	mm 3 left

(5) BRAKING (front wheel drive disengaged)

Date of tests: 26th March 1986
Tractor masses during tests with driver:

	Front kg	Rear kg	Total kg
without ballast	930	1340	2270
with ballast	1050	1820	2870

Speed before application of brakes: 28.45 km/h
Type 0 test (cold brakes)

BALLASTED TRACTOR:

Braking device control force	daN	19.6	23.5	27.5	33.3	45.1	48.9
Mean deceleration	m/s^2	1.7	2.0	2.1	2.3	2.7	2.7

UNBALLASTED TRACTOR:

Braking device control force	daN	11.8	16.4	28.5	34.3	44.1	49.0
Mean deceleration	m/s^2	1.5	2.0	2.5	2.6	2.7	2.7

Type I test (fade):

Braking device control force	daN	18.6	24.5	26.5	31.4	38.2	43.1
Mean deceleration	m/s^2	1.9	2.1	2.1	2.5	2.7	2.7

Maximum deviation of tractor from its original course: none
Abnormal vibration: none
The brakes were heated by towing of the tractor for 1 km

PARKING BRAKING DEVICE TEST

	Ballasted tractor		Unballasted tractor	
	on slope of 18%		on slope of 12% with trailer of 3000 kg	
	Up	Down	Up	Down
Braking device control	26	35	24	32

(6) MEASUREMENT OF EXTERNAL NOISE LEVEL

Date of tests: 27th March 1986
Type of sound level meter: BRUEL & KJAER mod. 2209
Type of track: concrete
Position of the exhaust pipe: vertical on the left hand of the engine

Results of tests:
Gear: IV high
Travelling speed before acceleration: 23.25 km/h
Sound level: 84.0 dB (A)

(7) NOISE MEASUREMENT AT THE DRIVER'S EAR LEVEL

Date of tests: 27th March 1986
Type of sound level meter: BRUEL & KJAER mod. 2209
Type of track: concrete
Tractor with FIAT CS 20 safety cab

Results of tests:

Gear	Drawbar pull at which the tractor develops the maximum sound level	Measured travelling speed		Sound level
		Nominal	Effective	
	daN	km/h	km/h	dB(A)
(i) all openings closed				
3. M (*)	1280	7.00	7.30	87.0
3. M (*)	light load	7.00	7.67	84.0
top gear	light load	28.45	30.98	85.0
(ii) cab with open windows and doors (optional)				
3. M (*)	1280	7.00	7.31	91.0
3. M (*)	light load	7.00	7.60	88.5
top gear	light load	28.45	30.95	91.0

(*) the 3. M gear corresponds to the nominal travelling speed nearest to 7.5 km/h.

(8) POWER LIFT AND HYDRAULIC PUMP PERFORMANCE:

Date of tests: 30th April 1986

POWER LIFT

	Height of lower hitch point above ground in down position	Vertical movement	Maximum force exerted through full range	Corresponding pressure of hydraulic fluid	Moment about rear axle	Maximum tilt angle of mast over range of lift
	mm	mm	daN	bar	daNm	degrees
At the hitch points	195	615	1460	167.4	1216	-
On the frame	182	650	1290	167.4	1861	14°

Temperature of hydraulic fluid at start of test: 65 °C.

Lifting heights relative to horizontal links

mm	−265	−200	−150	−100	0	+50	+100	+200	+250	+280	+350

Lifting forces at hitch points

mm	1460	1580	1720	1765	1835	1845	1805	1720	1700	1680	1650

Lifting forces at test frame

mm	1540	1580	1650	1660	1630	1560	1510	1440	1385	1350	1290

HYDRAULIC PUMP PERFORMANCE:

– Sustained pressure with relief valve open:	186 bar
– Opening pressure of the pressure regulator:	180 bar
– Hydraulic pressure corresponding to 90% of the minimum setting of the opening pressure of the relief valve:	167.4 bar
– Delivery:	21.6 l/min
– Power:	7.1 kW
– Pressure specified by the manufacturer for an external hydraulic motor:	
– Pressure:	159 bar
– Delivery:	33 l/min
– Power:	8.7 kW
– Temperature of hydraulic fluid:	65 °C

– Tapping point used for test: at rear of tractor

(9) - REPAIRS AND ADJUSTMENTS DURING TEST = none

(10) - REMARKS = none

TEST CARRIED OUT BY:

M. Gianguatano

HEAD OF I.M.A.
TEST DEPARTMENT

R. Gioia

DIRECTOR OF I.M.A.

L. Lisa

Turin, 3rd June 1986

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– Temperature of hydraulic fluid:	65 °C

– Tapping point used for test: at rear of tractor

(9) - REPAIRS AND ADJUSTMENTS DURING TEST = none

(10) - REMARKS = none

TEST CARRIED OUT BY:

W. Faccio

M. Giangualano

HEAD OF I.M.A.
TEST DEPARTMENT

R. Gioia

DIRECTOR OF I.M.A.

L. Lisa

Turin, 3rd June 1986

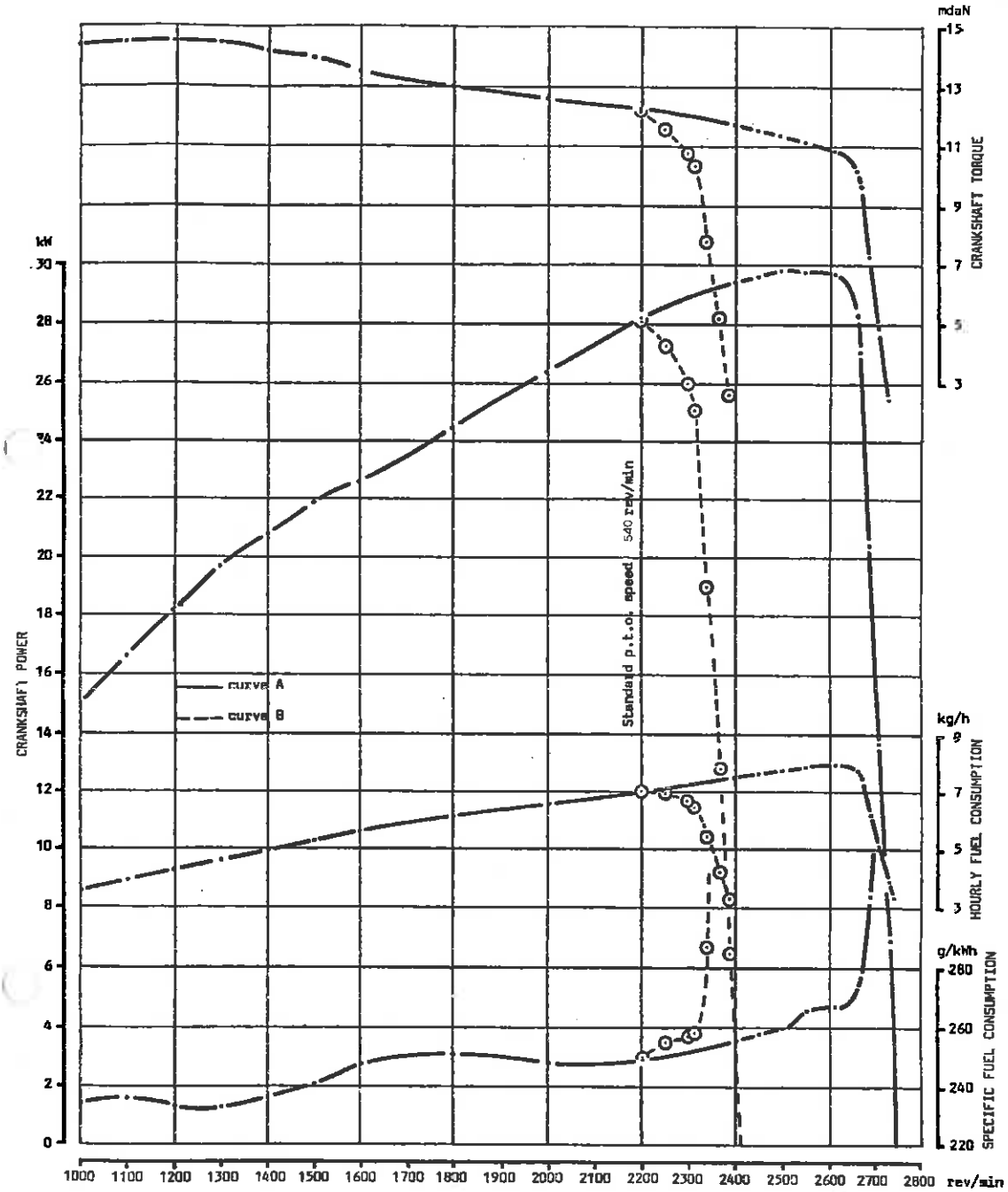


Fig. 1 - POWER TAKE-OFF TEST

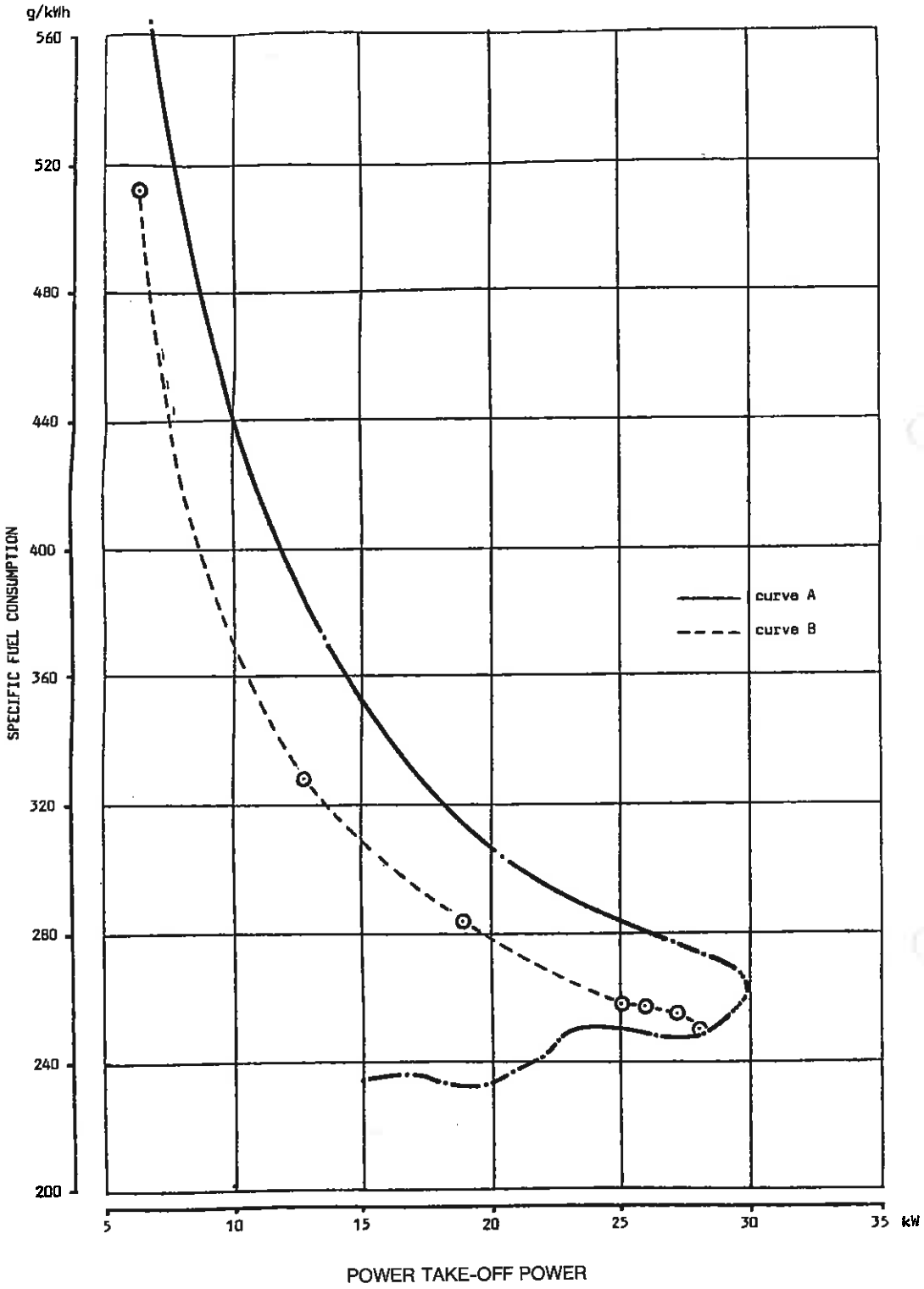


Fig. 2 - POWER TAKE-OFF TEST