

**COMITATO PER L'OMOLOGAZIONE
DELLE MACCHINE AGRICOLE**

REPORT No. 944

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

FIAT 140-90 DT/12 (4 WD)



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

Date of tests: Torino - May 1984 - February 1985

**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: 9 August 1985

**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 140-90 DT tractor is manufactured in following variants:

1. 140-90 DT/12 model with 12 forward and 4 reverse speeds (4×4 gear units)
2. 140-90 DT/24 model with 24 forward and 8 reverse speeds ($4 \times 4 \times 2$ gear units).
3. 140-90 DT/I model with 16 forward and 16 reverse speeds ($4 \times 4 \times 2$ gear units).
4. 140-90 DT/IS model with gear units and groups similar to those of the 140-90 DT/I model, but with different ratios.

The tests have been made on FIAT 140-90 DT/12

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	= 0.10196 mkg	or 1 mkg	= 9.80665 mN

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PERFORMANCE CURVES

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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 TRATTORI S.p.A.
Model: 140-90 DT/12
Type: Four-wheel-drive tractor, unit construction
Serial No.: 259005
1st Serial No.: 259000

Engine:

Make: FIAT
Model: 8065.25
Type: 4-stroke Diesel engine, direct injection, water cooled, turbo super-charged

Serial No.: 000109

Cylinders: 6 cylinders, vertical, in-line, 104 mm bore x 115 mm. stroke, capacity 5861 cm³, compression ratio 16.5:1, overhead in-line valves, replaceable cast-iron dry cylinder liners.

Supercharger: GARRET, model T 04B/Y7/1.00E; maximum supercharge pressure 0,84 ± 0,05 bar.

Fuel system: Fuel-supply pump type FP/KS 22 AD6/2, fixed to injection pump; one wire-mesh filter on pump suction side and two filters make CAV type 2 FAS 5845310 with replaceable cartridge and sediment bowls on pressure side of injection pump; one standard fuel tank capacity 180 l and two optional tanks capacity 50 l each; Weber-Altecnica PES 6 A 90 D in line injection pump; manufacturer's production setting 53.5 ÷ 54.6 mm³ /stroke at rated engine speed; injection timing 25° ± 1° before TDC; BOSCH multihole injectors EPPZ210F3; injection pressure 234 ± 4 bar.

Serial n° of injection pump: 774774

Governor:	BOSCH, mechanical type, RQV 300, incorporated in injection pump; governed range of engine speed from 650 to 2735 rev/min; rated engine speed 2500 rev/min.
Air cleaner:	Donaldson main cleaner, ELB 10-0060 dry paper element filter, with two replaceable cartridges under bonnet; Donaldson pre-cleaner, PBH00-0823 centrifugal above bonnet; electrical maintenance indicator.
Lubrication system:	Forced-feed lubrication with gear pump; three filters: one wire mesh type filter on pump suction, two replaceable cartridges type on pressure side pump of oil to the engine; cartridges change every 400 operating hours; oil capacity including filters 15.2 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; 470 mm dia, 6 blades, belt driven fan; coolant capacity 19 l. Temperature check with thermometer.
Starting system:	Electrical Marelli MT 68 LB (12 V - 3.5 kW) or BOSCH JF (12 V - 3 kW), starting motor pinion coupling solenoid operated; starting motor operable only with engine clutch disengaged; cold starting aid; thermostart or star-pilote.
Electrical system:	12 V, negative earth. Alternator MARELLI type AA 125-14V-65A (780 W) or BOSCH type K1-14V-65A 21 (780 W). Battery: one lead acid type; MARELLI 6A TM 25-A or SCAINI 64072 or MARELLI 6A TP 33; respective capacities 132, 140, 176 Ah at 20 hours rating.
Exhaust system:	Own make, DGM-SA 1092, interference type with internal perforated pipe; square shape 107 x 107 mm, 820 mm length; vertical on left side of engine; maximum height above ground 3170 mm.

Transmission:

Clutch:

LUK or VALEO make, dry single disc clutch, only for travel, on the primary shaft of the gear box; disc 355,6 mm dia; pedal operated. Own make. On the 140-90 DT/12 tractor model tested: mechanical synchronized type, constant mesh gear with total 12 forward and 4 reverse speeds; the transmission consists of two mechanical in series gear units: the first with 4 speeds, the second with 4 positions to select the gear groups (low, medium, high and reverse); each unit is operated by own lever.

Gearbox:

The FIAT 140-90 DT tractor is available in the other three variants:

— 140-90 DT/24 model with 24 forward and 8 reverse speeds; three series gear units: the first with four speeds, the second with four positions to select the gear groups (low, medium, high, reverse), the third with two positions to select direct or crawling speeds;

— 140-90 DT/I model with 16 forward and 16 reverse speeds; three series gear units: the first with four speeds, the second with four positions to select the gear groups (low, normal, medium, high), the third with two positions to select the forward and reverse speeds;

— 140-90 DT/IS model with gear units and groups similar to those of the 140-90 DT/I model, but with different ratios.

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; epicyclic final drives.

Front axle and
final drive:

Own make, mechanical type with crown wheel and pinion; NO-SPIN type automatic lock, epicyclic final drives.

Gear lubrication:

Gear box capacity 18.3 l; rear axle, final rear drives and power lift circuit 58.9 l; front axle and final front drives 12.9 l; change period 1600 operating hours; two filters in full flow with by-pass valve and replaceable cartridge; filters change period 400 operating hours. Recommended oil FIAT TUTELA MULTI F, SAE classification 20W/40 or any oil conforming MIL L 2104 C or API-CD.

FIAT 140-90 DT/12 model

— Total ratios and speeds (tyres 20.8-38 and pressure 1.6 bar)

Gear	Group	Number of engine revolutions for one revolution of the driving wheel	Nominal travelling speed (*) for rated engine speed (2500 rev/min) km/h
I II III IV	Low	382.864 250.448 205.089 136.889	2.10 3.22 3.93 5.88
I II III IV	Medludm	170.371 111.509 91.302 60.944	4.73 7.22 8.82 13.22
I II III IV	High	75.424 49.360 40.412 26.983	10.68 16.31 19.22 29.85
I II III IV	Reverse	204.810 134.025 109.768 73.263	3.93 6.01 7.34 10.99

(*) Calculated with the radius index of 855 mm

FIAT 140-90 DT/24 model

— Total ratios and speeds (tyres 20.8-38 and pressure 1.6 bar)

Gear	Group	Number of engine revolutions for one revolution of the driving wheel	Nominal travelling speed (*) for rated engine speed (2500 rev/min) km/h
I II III IV	Low (crawling speed)	4143.000 2711.610 2220.440 1482.060	0.19 0.30 0.36 0.54
I II III IV	Low	382.684 250.448 205.089 136.889	2.10 3.22 3.93 5.88
I II III IV	Medium (crawling speed)	1844.640 1207.310 988.624 659.870	0.44 0.67 0.81 1.22
I II III IV	Medium	170.371 111.509 91.302 60.944	4.73 7.22 8.82 13.22
I II III IV	High (crawling speed)	816.607 534.464 437.656 292.120	0.97 1.51 1.82 2.76
I II III IV	High	75.424 49.360 40.412 26.983	10.68 16.31 19.92 29.85
I II III IV	Reverse (crawling speed)	2217.300 1451.215 1188.337 793.157	0.36 0.55 0.68 1.02
I II III IV	Reverse	204.810 134.025 109.768 73.263	3.93 6.01 7.34 10.99

(*) Calculated with the radius index of 855 mm

FIAT 140-90 DT/I model

— Total ratios and speeds (tyres 20.8-38 and pressure 1.6 bar)

Gear	Group	Number of engine revolutions for one revolution of the driving wheel	Nominal travelling speed (*) for rated engine speed (2500 rev/min) km/h
I II III IV	Low	382.684 250.448 205.089 136.889	2.10 3.22 3.93 5.88
I II III IV	Normal	189.048 123.711 101.324 67.614	4.26 6.51 7.95 11.91
I II III IV	Medium	170.371 111.509 91.302 60.944	4.73 7.22 8.82 13.22
I II III IV	High	75.424 49.360 40.412 26.983	10.68 16.31 19.92 29.85
I II III IV	Reverse low	478.347 313.019 256.370 171.119	1.68 2.57 3.14 4.71
I II III IV	Reverse normal	236.294 154.655 126.639 84.534	3.41 5.21 6.36 9.53
I II III IV	Reverse medium	212.896 139.394 114.144 76.172	3.78 5.78 7.06 10.57
I II III IV	Reverse high	94.263 61.692 50.532 37.709	8.54 13.06 15.94 23.89

(*) Calculated with the radius index of 855 mm

FIAT 140-90 DT/IS model

— Total ratios and speeds (tyres 20.8-38 and pressure 1.6 bar)

Gear	Group	Number of engine revolutions for one revolution of the driving wheel	Nominal travelling speed (*) for rated engine speed (2500 rev/min) km/h
I II III IV	Low	250.458 205.028 169.523 136.850	3.22 5.93 4.75 5.89
I II III IV	Normal	123.665 101.326 83.688 67.549	6.50 7.22 7.96 8.83
I II III IV	Medium	111.444 91.237 75.424 60.879	9.62 10.68 11.93 13.23
I II III IV	High	49.367 40.412 33.416 26.980	16.33 19.92 24.11 29.85
I II III IV	Reverse low	313.072 256.272 211.890 171.054	2.58 3.14 3.81 4.70
I II III IV	Reverse normal	154.580 126.542 104.611 84.437	5.20 6.36 7.69 9.53
I II III IV	Reverse medium	139.303 114.047 94.263 76.074	5.78 7.06 8.54 10.57
I II III IV	Reverse high	61.709 50.515 41.769 33.709	13.05 15.94 19.28 23.89

(*) Calculated with the radius index of 855 mm

Power take off:

Independent p.t.o. driven by independent multidisc clutch, hydraulically controlled; 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 795 mm (with tyre 20.8-38).

Proportional engine speed p.t.o.:

— **540 rev/min p.t.o.:** distance behind rear axle 566 mm; diameter of p.t.o. shaft end 34.9 mm or 44.4 mm; 6 splines, according to I.S.O. STANDARD; 597 rev/min at rated engine speed; standard p.t.o. speed 540 rev/min at engine speed 2261 rev/min; p.t.o. shaft rotates clockwise, viewed from tractor rear.

p.t.o. transmission ratio: $\frac{\text{engine speed}}{\text{p.t.o. speed}} = 4.187$

— **1000 rev/min p.t.o.:** distance behind rear axle 548 mm; diameter of p.t.o. shaft end 34.9 mm; 21 splines, according to I.S.O. STANDARD, 1017 rev/min at rated engine speed, standard p.t.o. speed 1000 rev/min at engine speed 2458 rev/min; p.t.o. shaft rotates clockwise viewed from tractor rear.

p.t.o. transmission ratio: $\frac{\text{engine speed}}{\text{p.t.o. speed}} = 2.458$

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 sistem:

open centre sistem; own make gear pump A 42, directly driven by engine; delivery 55.7 l/min at rated engine speed; two hydraulic oil filters with paper catridges; filters change period 400 operating hours.

Own make control valve; maximum working pressure 175 ÷ 183 bar. Single acting cylinder with 115 mm bore and 159 mm stroke; over pressure relief valve in cylinder set to 215 bar; one or two single acting additional ram with 75 mm bore and 150 mm stroke. Maximum 3 double acting additional control valves with oil tappings at rear of tractor available; pump suction inside the rear transmission box.

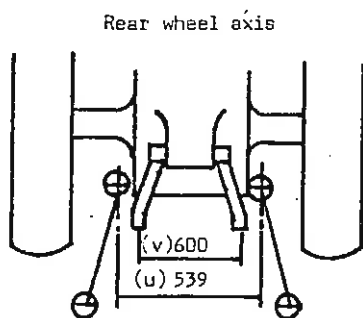
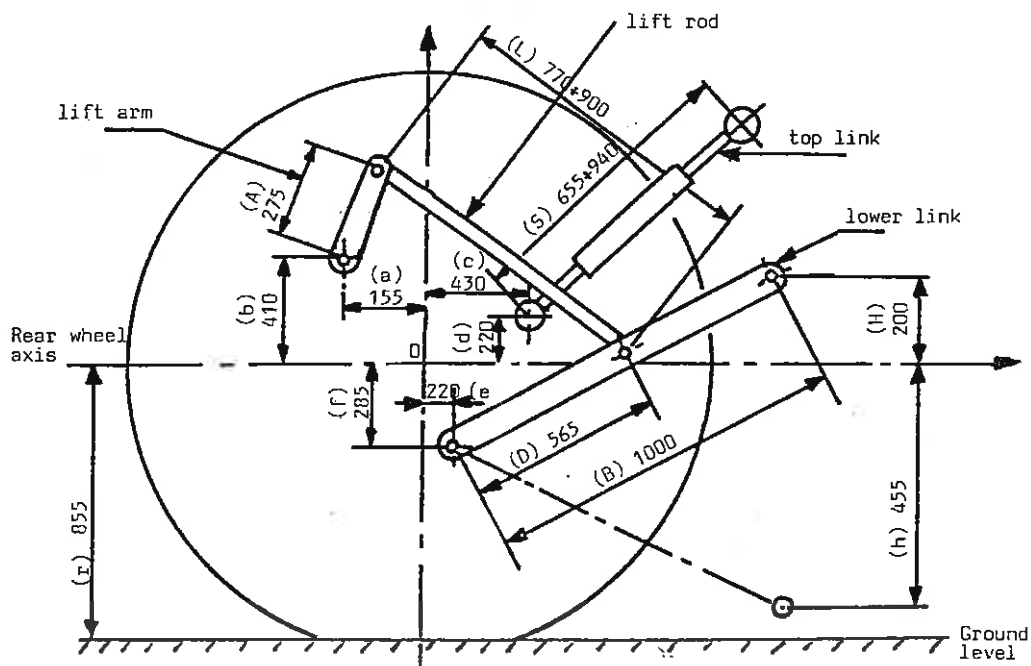
Max oil capacity (common at gear box and rear axles): 58.9 l oil delivery which may be taken be taken of through oil tapping 32 l.

Implement linkage:

three point linkage, quick couplers optional, not fitted on tested tractor; joint balls category 2 according to I.S.O. STANDARD 730. Available joint balls category 3; from category 2 to category 3 changing lower link end; dimensions see on pag. 11.

POWER LIFT

Dimensions of linkage geometry for the table on page 11.



State setting of hydraulic power lift for test

— Rear tyres (size 20.8-38) radius index	(r) :	855 mm
— Front tyres (size 16.9-28) radius index	(r') :	670 mm
— Length of lift arms	(A) :	275 mm
— Length of lower links	(B) :	1000 mm
— Distance of lift arm pivot point from rear wheel centre line:	horizontally	(a) : 155 mm
	vertically	(b) : 410 mm
— Horizontal distance between the 2 lower link points	(u) :	539 mm
— Horizontal distance between the 2 lift arm end points	(v) :	600 mm
— Length of upper link	(S) :	from 655 to 940 mm
— Distance of upper link pivot point from rear wheel centre line	horizontally	(c) : 430 mm
	vertically	(d) : 220 mm
— Distance of lower link pivot point from rear wheel centre	horizontally	(e) : 220 mm
	vertically	(f) : 285 mm
— Distance of lower lift pivot points to lift rod pivot points on lower links	(D) :	565 mm
— Length of lift rods	(L) :	from 770 to 900 mm
— Height of lower hitch points:		
♦ in low position	(h) :	455 mm
♦ in high position relative to the rear wheel centre line, situated 855 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 20.8-38 max 575 mm, min 460 mm. Two possible positions inverting (180°) the drawbar; distance of hitch points from rear axle 1005 mm behind horizontally; distance of hitch point from p.t.o. shaft end 335 mm max and 220 mm min below vertically and 457 mm behind horizontally with 1000 p.t.o. end (439 mm behind with 540 p.t.o. end); lateral adjustments 280 mm on right and left hands; distance of pivot point from rear axle 295 mm vertically and 305 mm horizontally; one drawbar pin hole, 31 mm dia.

Trailer hitch:

own make, clevis type; height above ground (with tyres 20.8-38), 1000 mm max and 555 mm min distance of hitch point from rear axle 770 mm horizontally; distance of hitch point from p.t.o. shaft end: vertically from 240 mm below to 205 mm above, horizontally 227 behind with 1000 p.t.o. shaft end (209 mm with 540 p.t.o. shaft end); max vertical load 1470 daN, according to Italian legislation.

Holed drawbar:

fitted on hitch points of lower links; number 9 holes; distance between holes 80 mm, 33 mm dia holes, 32 mm thickness 80 mm width, height above ground min 340 mm, max 1025 mm (with tyres 20.8-38); horizontal distance to p.t.o. shaft end 1220 mm.

Steering:

Hydrostatic control with independent hydraulic circuit, DANFOSS make, OSPC 160, incorporating hand control for emergency; gear pump FIAT CX 31 RP, 19 l/min delivery, 2 cylinders directly acting on front axle, transversely mounted, bore 50 mm, stroke 185 mm, piston rod 22 mm; working pressure 125 bar; oil capacity 1 l; oil filter: one paper cartridge; oil change period 1600 operating hours, filter change period 400 operating hours.

Recommended oil FIAT TUTELA MULTI F, SAE classification 20W/40 or any oil conforming MIL L 2104 C or API-CD.

Brakes:**Service brakes:**

own make, wet disc brake type, one disc 370 mm dia, 10 mm thickness; hydraulically acting on rear differential half shaft; operated by 2 independent pedals locked together for road drive. Hydraulic trailer braking take off available as optional.

Parking brake:

independent, mechanic; hand lever operated acting on two discs sets on driving pinion shaft. Discs 107.5 mm dia, 7 mm thickness.

Steering brake:

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

Wheels:**Steering wheels:**

at front, 2 radial type tyres PIRELLI 16.9-28, 6 ply; maximum permissible load per tyre 1655 kg at 1,3 bar inflation pressure and max 35 km/h speed; track width adjustment continuous from 1800 mm to 2230 mm rotating the wheels on discs (rail system).

Driving wheels:

at front and at rear; rear wheels: two radial type tyres PIRELLI 20.8-38, 10 ply; maximum permissible load per tyre 3130 kg at 1,3 bar inflation pressure and max 35 km/h speed; track width continuous adjustment from 1620 mm to 2220 mm rotating the wheels on discs (rail system).

Possible combinations of tyres:

Tyre size	
at front	at rear
16.9 - 28 6 ply	20.8 - 38 10 ply
18.4 - 70 6 ply	20.8 - 38 10 ply
14.9 - 28 8 ply	18.4 - 38 8 ply
14.9 - 28 8 ply	23.1 - 34 8 ply

Wheelbase: 2670 mm

Cab:

Own make, CS 5 type mounted by 6 silent blocks on tractor; main frame stamped sheet-metal made.

Noise reduction materials:

- roof: 6 mm sound deadening panel, Keller make, AutoKell-MB type;
- platform: 26 mm sound deadening panel, Keller make, AutoKell-T type;
- fenders: 8 or 12 mm sound deadening panel, Keller make, AutoKell-MB type;
- other parts: 3 mm sound deadening panel, UNIROYAL make, ABS type.

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

Assembly and mounting bolts: see Report CSD N° 0410/19-a (C) ÷ 78-a(C).

Glasses: windscreen and rear window tempered security glasses SAINT-GOBAIN make, Security-L type, IGM 0594 VT approval.

Doors and lateral glasses: tempered security glasses DETAG make, DGM 336008 VT approval.

Option: FIAT CS 13 cab., or FIAT TS 18 frame.

Seat:

Driver's seat:

GRAMMER make, DS 85 H/90 AR model, upholstered seat with back rest and arm rests, adjustable spring with shock absorber; height of unloaded seat above driver's platform adjustable from 580 mm to 640 mm in three positions, longitudinal adjustment 150 mm; seat revolving around vertical axis to the left and right each about 25°

Passenger seat:

own make, mounted on front part of mudguard, left side; available as optional.

Number of grease points: 24.

Overall dimensions (tyres size: 16.9-28 front and 20.8-38 rear)

	Lenght	Width		Height to top of	
		mini	maxi	exhaust silencer	safety cab or frame
	m	m	m	m	m
With ballast	4.90	2.23	2.75	3.17	2.97
Without ballast	4.68	2.23	2.75	3.17	2.97

Ground clearance: 450 mm below swinging drawbar frame.

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

	Height above ground of centre with tyres: 16.9 - 28 front 20.8 - 38 rear	Size	Distance from outside edge of tractor to centre (°)
	mm	mm	mm
Headlights	1280	180 × 120	905
Side lights	1870	35 × 110	332
Rear lights	1970	100 × 60	240
Reflectors: 1st pair	1670	90 × 55	115
2nd pair	710	90 × 55	660

(°) Track setting: 1800 mm at front
1720 mm at rear

TEST CONDITIONS

Track setting: 1900 mm at front, 1720 mm at rear
Weights: Tractor (with safety cab, standard and optional tanks fuel, without driver)

	Front kg	Rear kg	Total kg
Without ballast	2250	4050	6300
With ballast	3020	5280	8300

Ballasts:

	Weights		Water (kg)
	Number	Total mass (kg)	
Front wheels	—	—	—
Front weight	10 + support	540	—
Rear wheels	6	390	870
Additional	4	200	—

Fuel and lubricants used in tests

Fuel: Esso Diesel oil; specific gravity: 0.831 kg/l at 15°C; cetane number: not recorded
Engine oil: FIAT AMBRA SUPER SAE 15W/40
Transmission oil,
hydraulic oil, steering
oil: FIAT TUTELA MULTI SAE 20 W 40

COMPULSORY TESTS

(1) MAIN POWER TAKE-OFF PERFORMANCE (1000 rev/min)

Date of tests: 8th May 1984

Location of tests: Istituto per la Meccanizzazione Agricola - Torino (Italy)

Type of dynamometer: Electrical, swinging frame

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						
94.41	2500	1017	28.30	23.52	249	3.34
At standard p.t.o. speed						
94.37	2458	1000	27.87	23.16	245	3.39
At the speed recommended by Manufacturer for drawbar work						
94.41	2500	1017	28.30	23.52	249	3.34
Part loads , the governor hand lever in the position corresponding to the maximum power at full load (curve a)						
(i) 85% of the torque at maximum power at 2-hour test						
83.32	2596	1056	26.59	22.10	265	3.13
(ii) unloaded						
—	2736	1113	9.05	7.52	—	—
(iii) 50% of the load defined in (i)						
42.81	2667	1085	17.55	14.58	341	2.44
(iv) maximum power						
94.41	2500	1017	28.30	23.52	249	3.34
(v) 25% of the load defined in (i)						
21.68	2701	1099	13.09	10.88	502	1.66
(vi) 75% of the load defined in (i)						
63.45	2635	1072	22.17	18.42	290	2.86

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 , the governor hand level in the position corresponding to the standard p.t.o. speed at full load (curve b)						
(i) 85% of the torque at maximum power at standard p.t.o. speed						
83.65	2564	1043	26.15	21.73	260	3.20
(ii) unloaded						
—	2711	1103	—	—	—	—
(iii) 50% of the load defined in (i)						
42.99	2635	1072	14.73	14.24	332	2.92
(iv) maximum power						
94.37	2458	1000	27.87	23.16	245	3.39
(v) 25% of the load defined in (i)						
21.79	2672	1087	12.47	10.36	476	1.75
(vi) 75% of the load defined in (i)						
63.70	2603	1059	21.61	17.96	282	2.95

Standard specific fuel consumption (g/kWh):

265/341/260/332

No load maximum engine speed:

2736 rev/min

Equivalent crankshaft torque at maximum power (2 hours):

361 Nm

Maximum equivalent crankshaft torque:

465 Nm at 1550 rev/min of the engine

Mean atmospheric conditions:

— temperature 23.0 °C

— pressure 980.6 mbar

— relative humidity 45%

Maximum temperature:

— coolant 84 °C

— engine oil 123 °C

— fuel 28 °C

— engine air intake 29 °C

(3) DRAWBAR PERFORMANCE

Date of tests: 10th September 1984
 Type of track: concrete
 Height of drawbar above ground: 460 mm. with ballasts and without ballasts

Tyre size: - front: 16.9-28; 6 play;
 - rear: 20.8-38; 10 play;

Inflation pressure:
 Inflation pressure:

with ballasts 1.3 bar
 without ballasts 1.3 bar

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/1	Temperatures			Atmospheric conditions		
								Fuel °C	Coolant °C	Engine oil °C	Temperature °C	Relative humidity %	Pressure mbar
1 - MAXIMUM POWER (ballasted)													
I Low	1.97	36.48	6669	2688	15.0	336	2.48	36.0	80	112	29.0	85	975
II Low	2.96	54.82	6669	2645	15.0	315	2.64	36.0	80	115	29.0	80	975
III Low	3.59	66.42	6669	2615	14.7	312	2.67	37.0	81	118	30.0	73	975
I Medium	4.26	77.96	6590	2550	13.7	299	2.78	37.5	83	118	30.0	69	975
IV Low	5.53	83.04	5403	2500	8.0	283	2.94	38.0	84	121	30.5	66	976
II Medium	6.93	83.81	4354	2503	6.4	282	2.95	38.0	84	121	30.5	58	976
III Medium	8.61	84.92	3550	2498	4.5	277	3.00	38.5	85	124	31.0	40	976
I High	10.56	84.56	2883	2500	3.4	279	2.98	39.0	85	127	31.0	24	976
IV Medium	13.21	80.61	2197	2502	2.5	292	2.85	39.0	87	127	31.0	25	976
2 - FIVE HOUR TEST at 75% of pull at maximum power													
IV Low	5.92	66.54	4050	2600	5,6	325	2.56	39.5	82	110	31.0	45	980
3 - FIVE HOUR TEST at pull corresponding to 15% wheelslip in test (1)													
III Low	3.80	70.36	6669	2592	-	-	-	39.5	83	111	31.5	56	980
4 - MAXIMUM POWER (unballasted)													
III Low	3.61	55.03	5492	2640	15.0	328	2.53	40.0	81	113	30.5	78	984
I Medium	4.32	65.85	5492	2625	15.0	301	2.76	40.0	81	113	30.5	55	984
IV Low	5.21	78.94	5452	2540	14.8	295	2.82	41.0	82	118	30.5	40	984
II Medium	6.86	83.69	4393	2507	7.4	281	2.96	41.0	82	120	31.5	38	985
III Medium	8.55	84.08	3540	2502	5.2	280	2.97	42.0	82	120	31.5	45	985
I High	10.48	85.20	2927	2500	4.0	277	3.00	42.0	84	124	32.0	40	985
IV Medium	13.12	81.84	2246	2498	2.9	287	2.90	41.5	85	124	32.0	36	984
II High	16.30	79.04	1746	2499	2.3	298	2.79	41.5	85	126	32.0	37	984

Oil consumption during ten hours duration of test: 105 g/h

(3) TURNING SPACE AND TURNING CIRCLE:

Wheel equipment: front 16.9-28 (6 ply)
rear 20.8-38 (8 ply)

Track of wheels: front 1900 mm
rear 1720 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	5.51	5.37	6.35	6.30
Radius of turning circle	5.26	5.12	6.10	6.05

(4) LOCATION OF CENTRE OF GRAVITY:

Height above ground	mm	1090
Distance forward from the vertical plane containing the axis of the rear wheels	mm	965
Distance from the median plane of the tractor	mm	8 right

(5) BRAKING (front wheel drive disengaged)

Date of tests: 24th January 1985

Tractor masses during tests with driver:

	Front kg	Rear kg	Total kg
without ballast	2250	4120	6370
with ballast	3020	5350	8370

Speed before application of brakes: 29.85 km/h

Type 0 test (cold brakes)

BALLASTED TRACTOR:

Braking device control force	daN	16.7	19.1	24.5	30.9	35.3	39.2
Mean deceleration	m/s ²	2.3	2.4	2.7	3.1	3.2	3.2

UNBALLASTED TRACTOR:

Braking device control force	daN	19.6	25.5	27.5	29.4	36.0	40.5
Mean deceleration	m/s ²	2.3	2.7	2.8	3.0	3.0	3.0

Type I test (fade)

Braking device control force	daN	18.6	23.0	25.0	27.5	33.8	37.2
Mean deceleration	m/s ²	2.3	2.8	3.0	3.3	3.4	3.4

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 force:	daN	36	40	32	36.5

(6) MEASUREMENT OF EXTERNAL NOISE LEVEL

Date of tests: 17th October 1984

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: 21.97 km/h

Sound level: 84.0 dB (A)

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

Date of tests: 17th October 1984

Type of sound level meter: BRUEL & KJAER mod. 2209

Type of track: concrete

Tractor with FIAT CS 5 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				
2. M (*)	4220	7.22	6.85	79.5
2. M (*)	light load	7.22	7.82	77.5
top gear	light load	29.85	31.55	79.0
4. M	2160	13.22	13.38	80.5
(ii) cab with open windows and doors (optional)				
2. M (*)	4160	7.22	7.00	90.0
2. M (*)	light load	7.22	7.82	87.0
top gear	light load	29.85	31.20	92.5

(*) The 2. M gear corresponds to the nominal travelling speed nearest to 7.5 km/h

(8) POWER LIFT AND HYDRAULIC PUMP PERFORMANCE:

Date of tests: 13th and 14th June 1984

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	400	655	3300	167	—	—
On the frame	328	780	2850	167	5215	14°

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

Tilting angle of mast from vertical position to uppermost position: 10°

a) Standard version

Lifting heights relative to horizontal plane including the lower link pivot point.

mm	—170	—160	—100	0	+100	+200	+300	+370	+485
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Lifting forces at hitch points

daN	3310	3345	3380	3440	3480	3480	3375	3340	3300
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Lifting forces at test frame

daN	3675	3655	3620	3505	3395	3280	3075	2975	2850
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b) Optional version (with one supplementary cylinder)

Lifting heights relative to horizontal lower links

mm	—170	—160	—100	0	+100	+200	+300	+370	+485
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Lifting forces at hitch points

daN	4490	4545	4615	4660	4710	4780	4640	4620	4610
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Lifting forces at test frame

daN	4790	4770	4750	4675	4580	4470	4210	4080	3910
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c) Optional version (with two supplementary cylinder)

Lifting heights relative to horizontal links

mm	—207	—160	—100	0	+ 100	+ 200	+ 300	+ 370	+ 439
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Lifting forces at hitch points

daN	5970	6020	6040	6140	6190	6270	6180	6140	6100
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Lifting forces at test frame

daN	6310	6270	6250	6180	6085	5940	5670	5510	5280
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HYDRAULIC PUMP PERFORMANCE:

- Sustained pressure with relief valve open: 175 bar
- Opening pressure of the pressure regulator: 167 bar
- Hydraulic pressure corresponding to 90% of the minimum setting of the opening pressure of the relief valve: 157.5 bar
 - Delivery: 54 l/min
 - Power: 14.2 kW
- Pressure specified by the manufacturer for an external hydraulic motor:
 - Pressure: 155 bar
 - Delivery: 54 l/min
 - Power: 13.9 kW
 - Temperature of hydraulic fluid: 65 °C
- Tapping point used for test: at rear of tractor

(9) REPAIRS AND ADJUSTMENTS DURING TESTS: none

(10) REMARKS: none

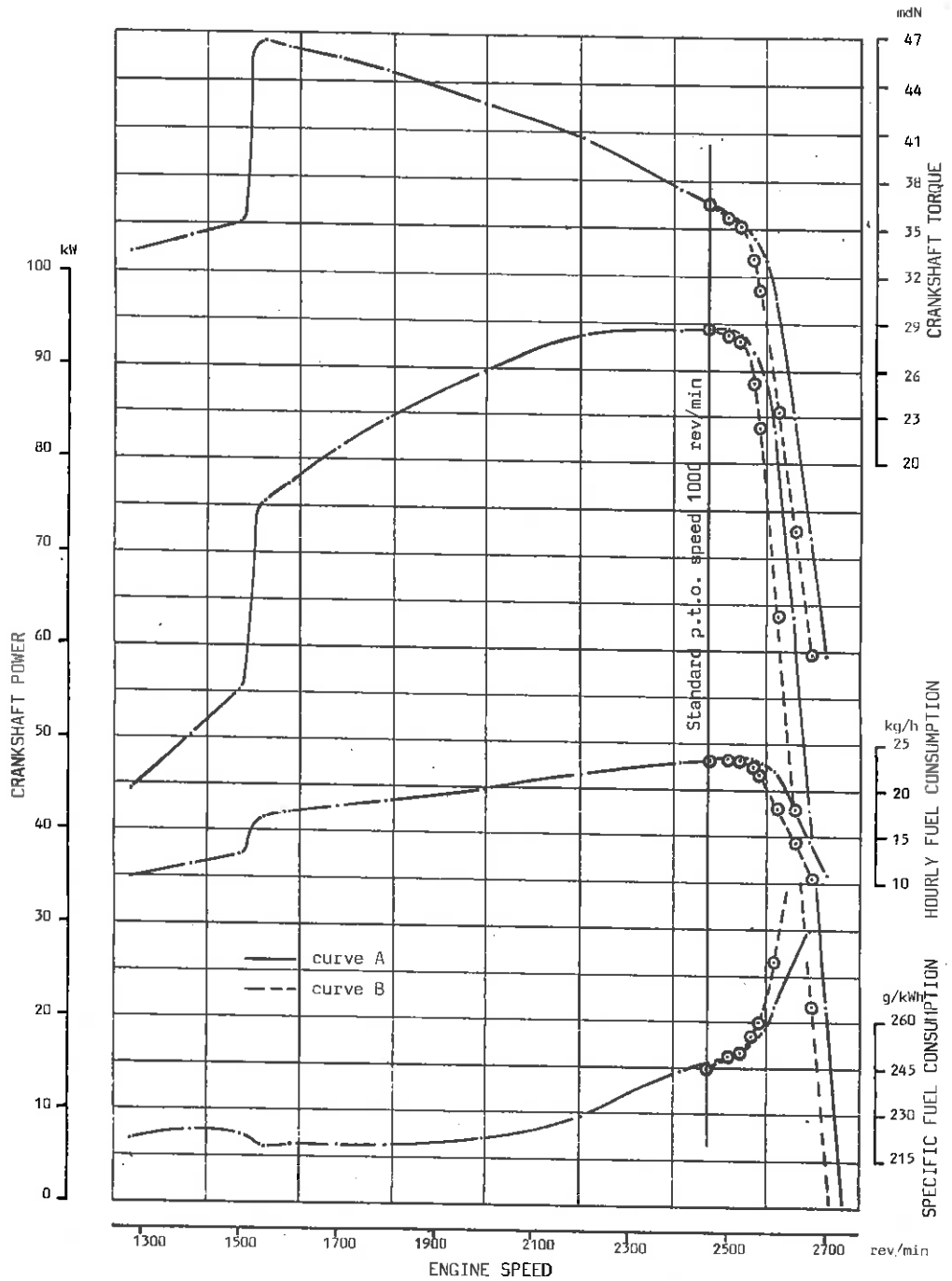


Fig. 1 - POWER TAKE-OFF TEST

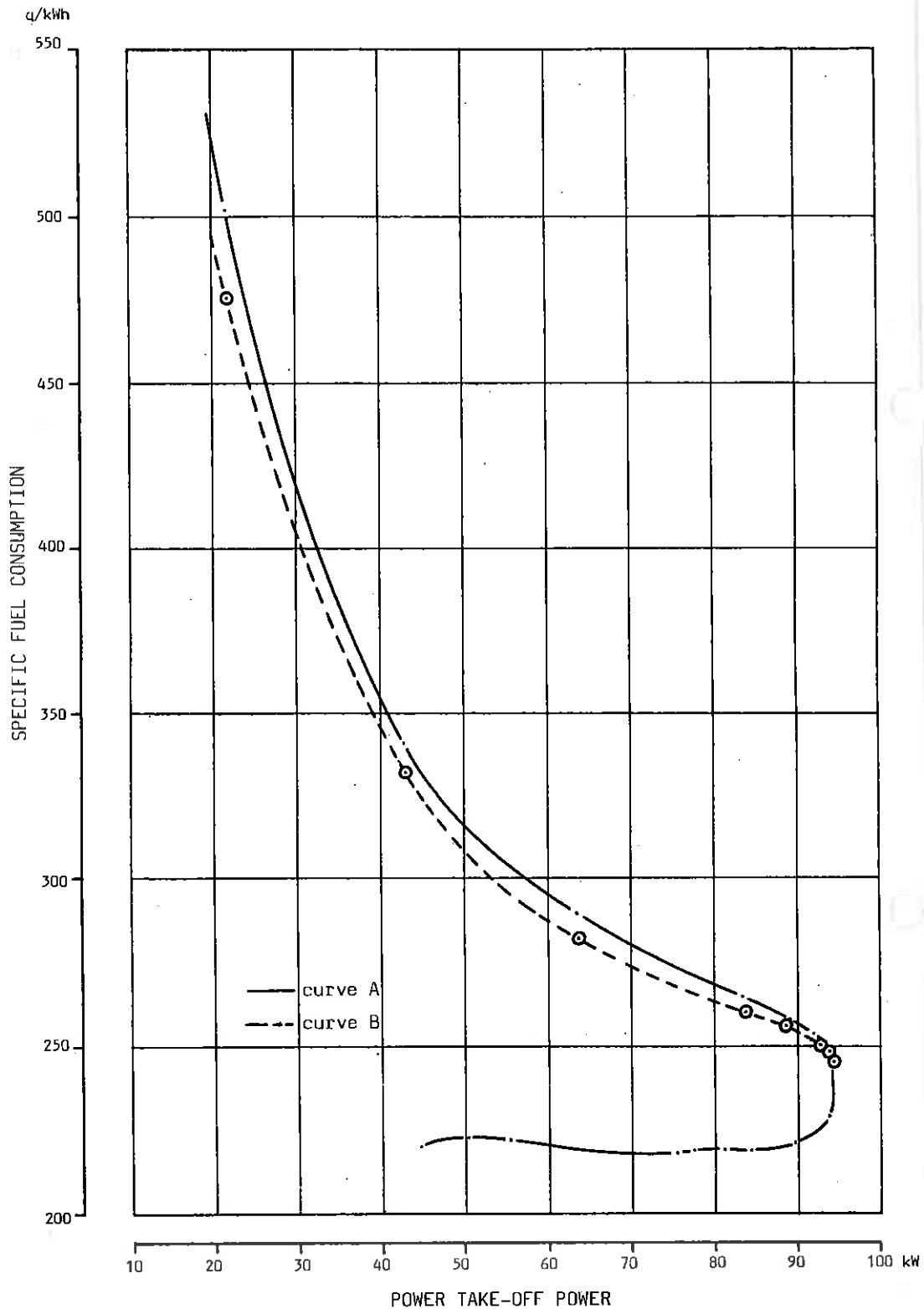
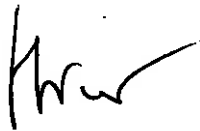


Fig. 2 - POWER TAKE-OFF TEST

HEAD OF I.M.A.
TEST DEPARTMENT



R. Gioia

DIRECTOR OF I.M.A.



L. Lisa

Turin, 21st May 1985



