CONSIGLIO NAZIONALE DELLE RICERCHE

ISTITUTO PER LA MECCANIZZAZIONE AGRICOLA

10135 TORINO - Strada delle Cacce 73
(Italia)

Report No. 1516/T/90

TEST IN ACCORDANCE WITH THE OECD FULL CODE FOR THE OFFICIAL TESTING OF AGRICULTURAL TRACTORS

TRACTOR: Make: **FIAT**
Model: **60-56 LM/12**
Type: **2 WD**



Manufactured by: FIATGEOTECH S.p.A. - Modena - Italy

Date and location of tests: April 1989 - March 1990 - Turin (Italy)

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

Number and date of approval: 1292 dated 15th November 1990

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 pratical farm work.

The FIAT 60-56 LM tractor is manufactured in following variants:

1. 60-56 LM/12 model with 12 forward and 3 reverse speeds (4×3 gear units)
2. 60-56 LM/8 model with 8 forward and 2 reverse speeds (4×2 gear units)

In this report all performance characteristics are given corresponding to the International System of Units.

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ANNEX

Fig. No.

Main power take-off test

Curves of power, torque, hourly and specific fuel consumption/crankshaft speed 1
Curves of specific fuel consumption/crankshaft power p.t.o. 2

Tractor manufacturer's name and address:	FIATGEOTECH S.p.A. Viale delle Nazioni, 55 MODENA - Italy
Submitted for test by:	Manufacturer
Selected by:	Manufacturer with agreement by Istituto per la Meccanizzazione Agricola - Torino (Italy)
Place of running-in:	FIATGEOTECH - San Matteo - Modena (Italy)
Duration of running-in:	Engine and tractor appr. 50 hours
Location of test:	Istituto per la Meccanizzazione Agricola - Torino (Italy)

SPECIFICATION OF TRACTOR:

Tractor:

Make:	FIAT
Model:	60-56 LM/12
Type:	Wheel tractor unit construction, two rear wheel driven
Serial No.:	463001
1st serial No.:	463000

Engine:

Make:	FIAT
Model:	8035.05
Type:	4-stroke Diesel engine, naturally aspirated, direct injection, water cooled.
Serial No.:	206-321945
Cylinders:	3 cylinders, vertical, in-line, 104 mm bore x 115 mm stroke, capacity 2931 cm^3 compression ratio 17 : 1, overhead in-line valves, replaceable cast-iron dry cylinder liners.
Fuel system:	Forced feed; CORONA model APM 45 FVI fuel pump (optionally FISPA model 4066.03/A); 1 wire-mesh filter on pump suction side and 1 CAV filter with replaceable cartridge element; changing interval: 400 working hours ; capacity of fuel tank: 60 litres; BOSCH model VEL 163 injection pump, 37001 serial number. Manufacturer's production setting 12.43 l/h at rated engine speed and full load. Injection timing 6° ± 1 before TDC. BOSCH or OMAP multihole injectors, model DLLA 124S (BOSCH) or OLL 124S (OMAP), Serial No. none, Injectors pressure 23 ± 0.8 MPa.
Governor:	BOSCH centrifugal variable speed governor, mechanical type, incorporated in fuel injection pump, governed range engine speed 650 to 2800 rev/min; rated engine speed 2500 rev/min.
Air cleaner:	FIAT main cleaner, 18518.212 model oil bath type with one replaceable cartridge. Oil capacity: 0.7 litres. Air inlet under bonnet in front of engine. Maintenance indicator: none.
Lubrication system:	Forced feed from gear-type pump; one, FIAT make, replaceable cartridge type filter installed on the pressure line to the engine.

Cooling system:	Water cooled with centrifugal impeller pump, overpressure relief valve set to 70 KPa, thermostat with by-pass; 392 mm dia, 4 blades, belt driven fan; cooling water capacity 10 litres. Temperature visual control with thermometer. Superpressure system: radiator cap.
Starting system:	Electrical, MARELLI or BOSCH make, 12 V 3.5 kW; starting motor pinion coupling solenoid operated. Cold starting aid: CAV make, thermostart model with variable resistance or "start-pilot" as option. Safety device: operable only when the gear box is in the neutral position.
Electrical system	
Voltage:	12 V, negative earth.
Generator;	Alternator MARELLI make, AA 108, three phase, 14 V; 500 W power.
Battery:	One, MARELLI make, 434470-ES; capacity: 92 Ah at 20 hours rating.
Exhaust silencer	FIAT make, DGM-SA 748 model, circular shape 78 mm dia., expansion type; length 675 mm. Vertical position on engine left side, maximum height above ground 2500 mm. As option: FIAT make, DGM-SA 1057 model, square shape 95 x 95 mm, expansion type, 675 mm length; vertical position on engine left side; height above ground 2500 mm.
Transmission to wheels	
Clutch:	LUK or VALEO make, independent dry dual disc clutch; 280 mm dia plates; travelling part: pedal operated; p.t.o. part: hand lever operated.
Gearbox:	Own make. On the tractor model tested: mechanical type syncronized constant mesh gear with total 12 forward and 3 reverse speeds; the transmission consists of two mechanical in series gear units: the first with five speeds fully synchronized (four forward and one reverse), the second with three positions to select the gear ratios (slow, normal and high); each unit is operated by own lever. The FIAT 60-56 LM/12 is available in one other variant: - FIAT 60-56 LM/8 model with 8 forward and 2 reverse speeds; the transmission consists of two mechanical in series gear units: the first with five speeds (four forward and one reverse), the second with two positions to select the the gear group (normal and high).
Rear axle and final drive:	Own make, costant mesh gear type; mechanical differential locking, pedal operated; spur gear final drive.
Front axle:	Own make, telescopic adjustable axle.

FIAT 60-56 LM/12

Total ratios and travelling speed (tyres 16.9 - 28 and pressure 170 KPa)

Gear	Group	Number of engine revolutions for one revolution of the driving wheels	Nominal travelling speed (*) at rated engine speed (2500 rev/min) km/h
I	Slow	720.952	0.87
II		479.174	1.31
III		327.241	1.92
IV		253.348	2.49
I	Normal	233.451	2.70
II		155.161	4.06
III		105.964	5.95
IV		82.036	7.69
I	High	64.848	9.73
II		43.100	14.64
III		29.434	21.44
IV		22.788	27.70
I	Reverse	501.769	1.25
II		162.478	3.88
III		45.133	13.98

FIAT 60-56 LM/8

Total ratios and travelling speed (tyres 16.9 - 28 and pressure 170 KPa)

Gear	Group	Number of engine revolutions for one revolution of the driving wheels	Nominal travelling speed (*) at rated engine speed (2500 rev/min) km/h
I	Normal	233.451	2.70
II		155.161	4.06
III		105.964	5.95
IV		82.036	7.69
I	High	64.848	9.73
II		43.100	14.64
III		29.434	21.44
IV		22.788	27.70
I	Reverse	162.478	3.88
II		45.133	13.98

(*) Calculated with a tyre dynamic radius index of 670 mm (ISO 4251/1 - 1984)

POWER TAKE OFF

Main:

Type: independent; shiftable by hand lever to independent or ground speed p.t.o.; one shaft.
Method of engagement: by means of dry dual disc clutch with hand lever.
Position: rear of tractor, in median plane; height above ground 665 mm (with tyre 16.9-28).

Proportional engine speed p.t.o.:

- 540 rev/min: distance behind rear axle 260 mm; diameter of p.t.o. shaft end 35 mm; 6 splines, in conformity with ISO 500/1979; no power restriction; 686 rev/min at rated engine speed; standard p.t.o. speed 540 rev/min at engine speed 1967 rev/min; p.t.o. shaft rotates clockwisely, viewed from tractor rear.
  Ratio of rotation speed:

$$\text{Engine/p.t.o. ratio} = \frac{2500}{686} = 3.643$$

P.t.o. proportional to ground speed:

size of tyres: 16.9 - 28, radius index 670 mm;
travelling distance for one revolutions of p.t.o. shaft: 0.492
number of p.t.o. shaft revolution for one revolution of the real wheels: 7.9.
Direction of rotation with forward gear engaged: clockwise, viewed from tractor rear.

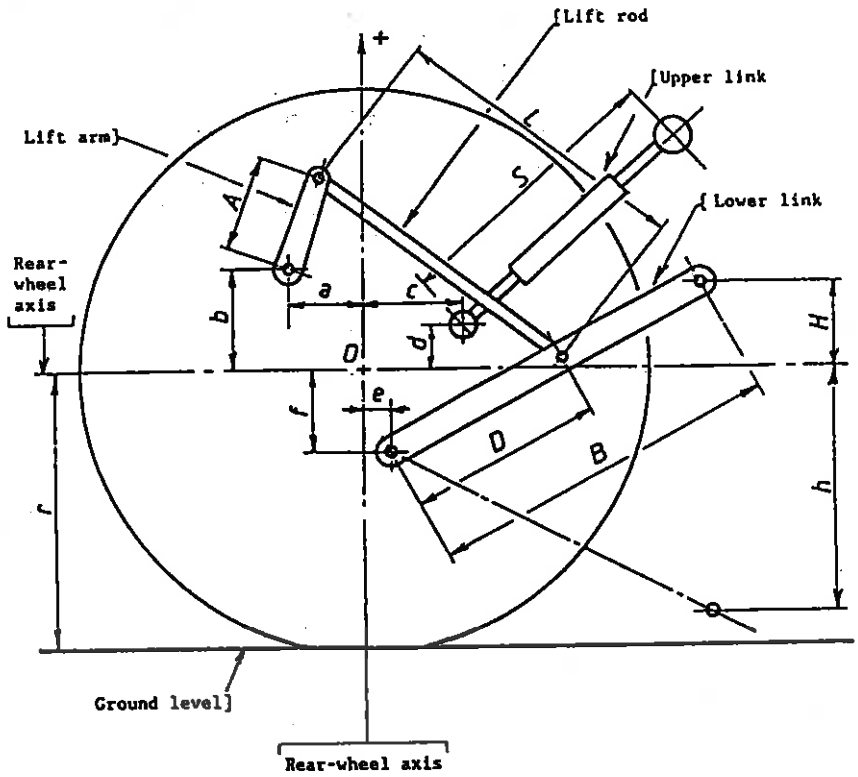
POWER LIFT:

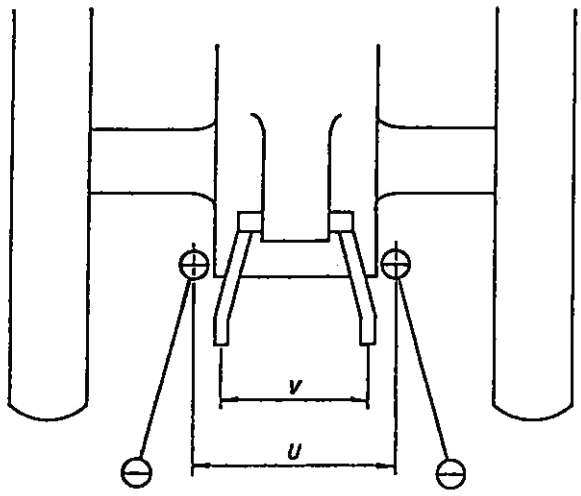
Own make; hydraulic power lift in unit construction, draught and position control operated by two independent levers; lift-o-matic device to raise and to low lower links.

- Hydraulic system: open centre system with hydraulic oil circuit in common with gear box. One single acting cylinder with 100 mm bore and 128 mm stroke.
  Rillef valve pressure setting: 18.6 MPa
  Antishock valve setting: 21.0 MPa
  FIAT A31 lift gear pump, directly driven by engine.
  Delivery 32.8 l/min at rated engine speed.

There are no cylinder safety valves.
Type of linkage lock fo transport: hydraulic. Site of oil reservoir: gearbox cast housing. Number two tapping points on the rear part of tractor. Maximum volume of oil available to external cylinders 0.8 litres.

Implement linkage:
three point linkage, joint balls category 2, according to I.S.O. STANDARD 730/I-1977; dimensions see on pag. 9 .





Dimension of linkage geometry (when connected to the standard frame)

		Dimension or range mm	Settings used in test mm
Length of lift arms	(A)	220	220
Length of lower links	(B)	900	900
Distance of lift arm pivot: horizontally	(a)	- 40	- 40
point from rear-wheel axis: vertically	(b)	345	345
Horizontal distance between the 2 lower link points	(u)	430	430
Horizontal distance between the 2 lift arm end points	(v)	430	430
Length of upper link	(S)	from 650 to 940	785
Distance of upper link pivot point from rear : horizontally	(c)	130	130
wheel axis : vertically	(d)	from 270 to 320	320
Distance of lower link pivot point from rear : horizontally	(e)	35	35
wheel axis : vertically	(f)	105	105
Distance of lower link pivot points to lift rod pivot points on lower links	(D)	u 420	420
Length of lift rods	(L)	from 470 to 600	575
Heigth of lower hitch points relative to the rear-wheel axis:			
- in low position	(h)	from 145 to 505	435
- in high position	(H)	from 215 to 450	260
Height above ground of lower hitch points when locked in transport position (*)		from 885 to 1120	-

(*) Assuming the dynamic radius index: 670 mm (ISO 4251/1-1984)

Swinging drawbar:

Own make; clevis type.
Vertical height with tyres 16.9-28, to centre of clevis: min 430 mm max 540 mm above ground; adjustments obtained changing the setting of the drawbar on the drilled guide; clevis coupling pin diameter 28 mm; distance of hitch point from rear axle horizontally: 620-665-710 mm behind, changeable by sliding on drilled guide.
Position relative to p.t.o., horizontally and vertically:
- 450-405-360 mm behind
- from 125 mm below to 235 mm below
Lateral adjustements: 5 position (one in the middle and two for each side at 135 mm and 270 mm).
Pivot position relative to rear wheels horizontally 115 mm.
Maximum vertical load: not allowed by italian legislation and by manufacturer.

Hitch:

Own make; clevis type; height above ground (with tyres 16.9-28; 8 ply) 480-650-780 and 850 mm, changeable by sliding on drilled guides; hitch hole 28 mm dia; distance of hitch hole to rear axle horizontally 325 mm; position relative to p.t.o.: vertical 185 and 15 mm below; 115 and 185 mm above; 65 mm horizontal, behind.
Maximum vertical load 15 kN according to italian legislation (with tyres 16.9-28, 8 ply)

Holed drawbar:

Available as option.

Steering:

Own make, hydrostatic control, with independent hydraulic circuit. Distributor DANFOSS make, Orbitrol OSPC 100; gear pump delivery 22.8 l/min at rated engine speed, one double acting cylinder directly acting on the front wheel, transversaly mounted, bore 48 mm, stroke 215 mm, piston rod 22 mm dia; working pressure 10 ± 0.2 MPa.
Oil capacity 1.8 litres. One wire-mesh oil filter, own make.

Brakes:

Service brake:
Own make, multiple oil bath disc brakes type, 6 plates each wheel, mechanically acting on rear wheels; operated by two independent pedals locked together for road drive.
Trailing braking take-off: hydraulic.

Parking brake:
Own make, hand lever operated; the parking brake acts on the final part of service brake by means of different linkage.

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

Wheels

Steering wheels:
at front, two tyres 7.50-16; 8 ply;
Driving wheels:
at rear, two tyres 16.9-28; 8 ply;

- Wheelbase:

2050 mm

- Track width adjustment:

	Minimum mm	Maximum mm	Adjustment method
Front	1440	2040	by 100 mm steps extending axle
Rear	1414	1914	manual through 8 position

Optional tyre:

Tyre size			
At front		At rear	
7.50-16	6 ply	12.4-36	6 ply
		14.9-28	6 ply
		12.4-32	6 ply

Protective structure: FIATAGRI safety frame, TS 28 type. OECD REPORT CSD 0891/74 for the FIAT 60-56 LM/12 (2WD) and CSD 0891/76 for the FIAT 60-56 LM/8 (2 WD) tractors.

Seat:

Driver's seat:
GRAMMER make, DS 44/2H model, upholstered seat with back rest, double acting hydraulic damper suspension; height of unloaded seat above driver's platform adjustable from 590 mm to 640 mm in a continuos way, longitudinal adjustment 160 mm;

Passenger seat: none

Lighting: Electrical 12 V, in accordance with Italian legislation

	Height above ground of centre mm	Size mm	Distance from outside edge of lights to median plane of tractor mm
Headlights	1060	180 x 120	80
Sidelights	1460	90 x 60	780
Rearlights	1460	80 x 60	665
Reflectors 1st pair	1210	90 x 55	760

TEST CONDITIONS

Overall dimensions

	Length	Width		Height to top of	
		mini	maxi	exhaust silencer	protective structure
	m	m	m	m	m
With ballast	3.76	1.89	2.36	2.50	2.40
Without ballast	3.48	1.87	2.34	2.50	2.40

Ground clearance: 480 mm below part of hydraulic circuit under the gear box

Tractor mass:
(with safety frame and full fuel tank):

	Without driver		With driver	
	Without ballasts	With ballasts	Without ballasts	with ballasts
	kg	kg	kg	kg
Front	830	1250	850	1270
Rear	1360	1600	1410	1650
Total	2190	2850	2260	2920

Ballasts:

	Weights		Water (kg)
	Number	Total mass (kg)	
Front wheels	-	-	-
Front weight	10	330	-
Rear wheels	6	330	-
Optional	-	-	-

Fuel:

- Type: Esso Diesel oil, in conformity with national standard.
- Density at 15° C: 0.831 g/cm^3

Tyres and track width specifications

	Front	Rear
Tyres:	GOOD YEAR	GOOD YEAR
dimensions	7.50-16	16.9-28
ply rating	8	8
tyre	diagonal	diagonal
maximum load	745 kg (30km/h)	1800 kg (30km/h)
inflaction pressure (tyre manufacturer's)	280 KPa	160 KPa
dynamic radius index	375 mm	670 mm
Chosen track width:	1440 mm	1414 mm

Oils and lubrication

- Capacity and change interval

	Capacity dm^3	Oil change h	Filter change h
Engine	7.3	200	400
Gear box with hydraulic sistem, rear axle and final reduction	40	400	–
Steering system	1.8	800	300

- Specifications (SAE, API, MIL-L, ISO)

	Recommended	Used during test
Engine oil - Type: - Viscosity: - Classification:	 AMBRA SUPER SAE 15 W 40 MIL-L-2104 C	As recommended
Trasmission oils - Type: - Viscosity: - Classification:	 TUTELA MULTI F SAE 20 W 40 MF 1135 and M2 C86 A	As recommended
Hydraulic fluid - Type: - Viscosity: - Classification:	 TUTELA MULTI F SAE 20 W 40 MF 1135 and M2 C86 A	As recommended
Steering oil - Type: - Viscosity: - Classification:	 TUTELA MULTI F SAE 20 W 40 MF 1135 and M2 C86 A	As recommended

- Grease: FIAT TUTELA G9

Number of lubrication points: 9

COMPULSORY TESTS RESULTS

(1) MAIN POWER-TAKE-OFF PERFORMANCE

Date and Location of tests: 24/04/1989 I.M.A.,TORINO,ITALY
Type of dynamometer: PARASITIC CURRENTS,BORGHI & SAVERI FA 300-30 SP

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 - 2 - hour test						
40.71	2500	686	12.43	10.33	254	3.28
POWER AT RATED ENGINE SPEED						
40.81	2500	686	12.38	10.29	252	3.30
STANDARD POWER-TAKE-OFF SPEED (540+-10 rev/min)						
35.06	1967	540	10.05	8.35	238	3.49
PART LOADS						
(1) the torque corresponding to maximum power at rated engine speed						
40.81	2500	686	12.38	10.29	252	3.30
(2) 85% of torque obtained in (1)						
37.04	2656	728	11.43	9.50	256	3.24
(3) 75% of torque defined in (2)						
28.27	2703	742	9.15	7.60	269	3.09
(4) 50% of torque defined in (2)						
19.05	2732	750	7.07	5.88	308	2.69
(5) 25% of torque defined in (2)						
9.62	2758	757	5.35	4.45	463	1.80
(6) unloaded						
---	2768	760	3.40	2.83	---	---

PART LOADS AT STANDARD POWER-TAKE-OFF SPEED (540+-10 rev/min)

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
(1) the torque corresponding to maximum power						
35.06	1967	540	9.99	8.30	237	3.51
(2) 85% of torque obtained in (1)						
31.47	2077	570	8.97	7.45	237	3.51
(3) 75% of torque defined in (2)						
24.46	2153	591	7.28	6.05	247	3.36
(4) 50% of torque defined in (2)						
16.88	2226	611	5.66	4.70	278	2.98
(5) 25% of torque defined in (2)						
8.62	2273	624	3.93	3.27	379	2.19
(6) unloaded						
---	2313	635	2.70	2.24	---	---

STANDARD SPECIFIC CONSUMPTION: 256/308/237/278 (g/kWh)
No load maximum engine speed: 2768 rev/min
Torque (equivalent crankshaft) at rated engine speed: 155.5 N/m
Maximum torque: 185.2 Nm at 1400 rev/min of the engine
Mean atmospheric conditions: Temperature 19.0 C
Pressure 1002.6 mbar
Relative Humidity 50 %
Maximum Temperature: Coolant 81.0 C
Engine oil 110.0 C
Fuel 30.0 C
Engine air intake 19.0 C

2. HYDRAULIC POWER AND LIFTING FORCE

- Date of tests: 17th November 1989

2.1 Hydraulic power test

- Sustained pressure with relief valve open: 17 MPa
- Pump delivery rate at minimum pressure: 26 l/min

	Flow rate l/min	Pressure MPa	Power kW
Flow rate corresponding to a hydraulic pressure equivalent to 90 per cent of the actual relief valve pressure setting and corresponding hydraulic power	25.35	16.7	6.93
Flow rate and hydraulic pressure corresponding tomaximum hydraulic power	25.35	17.0	7.04

- Tapping point used for test: at rear of tractor
- Temperature of hydraulic fluid: 65° C

2.2 Power lift test

	at the hitch point		on the frame	
Height of lower hitch points above ground in down position	235	mm	235	mm
Vertical movement	695	mm	695	mm
Maximum corrected force exerted through full range	12.1	kN	11.35	kN
Corresponding pressure of hydraulic fluid	16.7	MPa	16.7	MPa
Moment about rear-wheel axis	–	kNm	17.54	kNm
Maximum tilt angle of mast from vertical	–	degrees	4	degrees

Lifting heights relative to the horizontal plane including the lower link pivot points									
mm	- 325	- 300	- 200	- 100	- 0	100	+ 200	+ 300	+ 370
Lifting forces									
at the hitch points kN	12.10	12.40	13.30	13.85	14.00	14.00	13.65	13.30	13.10
Corresponding pressure: 16.7 MPa									
at the frame kN	12.40	12.50	13.50	13.60	13.40	13.50	12.50	11.85	11.35
Corresponding pressure: 16.7 MPa									

3. DRAWBAR PERFORMANCE

Date of tests: 21st till 23rd March 1990

Type of track: concrete

Tyre size: front: 7.50-16 (8 ply)

rear: 16.9-28 (8 ply)

	Height of hitch above ground	Tyre inflation pressure Front	Rear
Unballasted	540 mm	280 kPa	160 kPa
Ballasted	775 mm	280 kPa	160 kPa

Gear no. and group	Driving speed	Power	Drawbar pull	Engine speed	Slip of wheels	Specific fuel consumption	Specific energy	Temperatures Fuel	Coolant	Engine oil	Atmospheric conditions Temperature	Relative humidity	Pressure
	km/h	kW	daN	rev/min	%	g/kWh	kWh/l	°C	°C	°C	°C	%	mbar
3.1 - MAXIMUM POWER IN TESTED GEARS (unballasted tractor)													
2 Normal	3.69	18.82	1863	2630	14.9	351	2.85	25	79	100	20	35	997.3
3 Normal	5.22	26.61	1834	2564	14.3	324	3.09	26	79	102	21	33	997.3
4 Normal	7.05	33.21	1697	2501	8.3	307	3.26	27	80	105	22	31	997.3
1 High	9.19	34.80	1363	2504	5.5	293	3.41	28	81	107	23	29	997.3
2 High	14.19	33.63	853	2499	2.9	304	3.29	29	81	109	24	27	997.3
3 High	21.12	30.51	520	2503	1.4	333	3.00	30	81	110	25	25	997.3
3.2 - MAXIMUM POWER IN TESTED GEARS (ballasted tractor)													
1 Slow	0.80	5.36	2403	2711	15.0	-	-	25	79	100	13	85	989.3
2 Slow	1.20	7.96	2383	2685	14.5	-	-	25	79	102	14	83	989.3
3 Slow	1.75	11.51	2363	2653	14.0	-	-	26	80	104	15	80	989.3
4 Slow	2.22	14.85	2403	2632	15.0	-	-	27	80	106	16	77	989.3
1 Normal	2.40	16.00	2403	2620	15.0	363	2.76	27	81	108	17	74	989.3
2 Normal	3.58	23.81	2393	2593	14.7	319	3.13	28	81	110	18	71	989.3
3 Normal	5.25	33.41	2290	2493	13.3	305	3.28	30	81	110	19	67	989.3
4 Normal	7.24	35.11	1746	2497	5.4	289	3.46	30	81	110	20	64	989.3
1 High	9.29	35.18	1363	2497	4.0	290	3.45	30	81	110	21	61	989.3
2 High	14.28	33.43	843	2510	2.5	305	3.28	30	81	110	22	55	989.3
3 High	20.99	30.03	515	2496	1.5	338	2.96	30	81	110	22	50	989.3
3.3.1 - FIVE HOUR TEST at 75% of pull at maximum power													
4 Normal	7.58	27.55	1309	2577	4.1	296	3.38	30	81	110	20.0	60	990.0
3.3.2 - FIVE HOUR TEST at pull corresponding to 15% wheelslip - with 280 kg as additional ballast													
2 Normal	3.77	25.18	2403	2557	-	-	-	30	81	110	19.5	52	992.0

Oil consumption during ten hours tests 3.3.1 and 3.3.2: 40 g/h

Test 3.3.2 was carried out with additional ballasts; so, the not quoted figures are irrelevant

4. TURNING AREA AND TURNING CIRCLE

Wheel equipment front: 7.50-16 (8 ply)
rear: 16.9-28 (8 ply)
Track width front: 1440
rear: 1414

	With brakes		Without brakes	
	Right-hand	Left-hand	Right-hand	left-hand
	m	m	m	m
Radius of turning area	3.25	3.28	3.70	3.73
Radius of turning circle	3.14	3.17	3.54	3.57

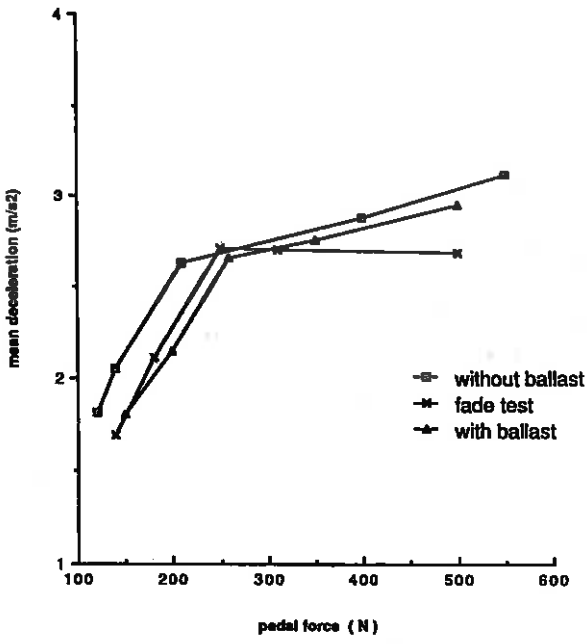
5. LOCATION OF CENTRE OF GRAVITY

Height above ground	680 mm
Distance forward from the vertical plane containing the axis of the rear wheels	771 mm
Distance from the median plane of the tractor, to the left	0 mm

6. BRAKING

- Date of tests: 17th April 4th May 1989

6.1 Cold service braking device test - 6.2 Fade test



Cold service braking device test

	Ballasted tractor	Unballasted tractor
Speed before application of brakes (km/h)	29.00	28.85

Fade test

Maximum deviation of the tractor from its original course: none

- Abnormal vibration: none

- Brake heating method: by means of towing the tractor for 1 km at 23.2 km/h with towing force of 284 KN.

6.3 Parking braking device test

	Uphill	Downhill
Braking device control force	11.5 N	11.1 kN

7. MEASUREMENT OF EXTERNAL NOISE LEVEL

- Date of tests: 17th April 1989
- Type of sound level meter: impulse precision BRUEL & KJAER 2209 model.
- Type of track: concrete

7.1 Results of test with DGM SA 748 model

- Gear number: 4 High
- Travelling speed before acceleration: 23.00 km/h
- Sound level: 85.5 dB (A)

8. REPAIRS AND ADJUSTMENT DURING TEST = none

9. 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, 2nd May 1990

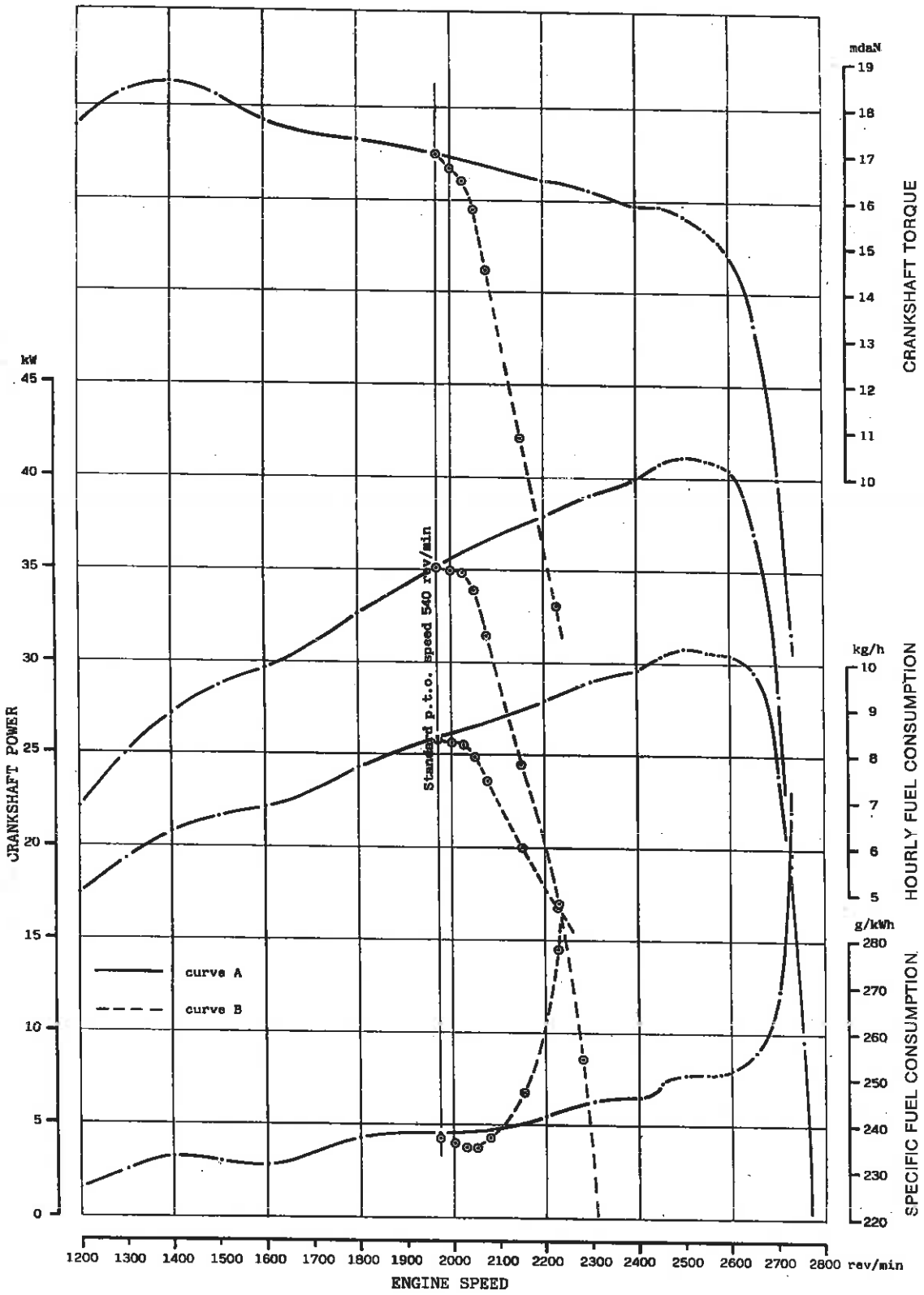


Fig. 1 - POWER TAKE-OFF TEST

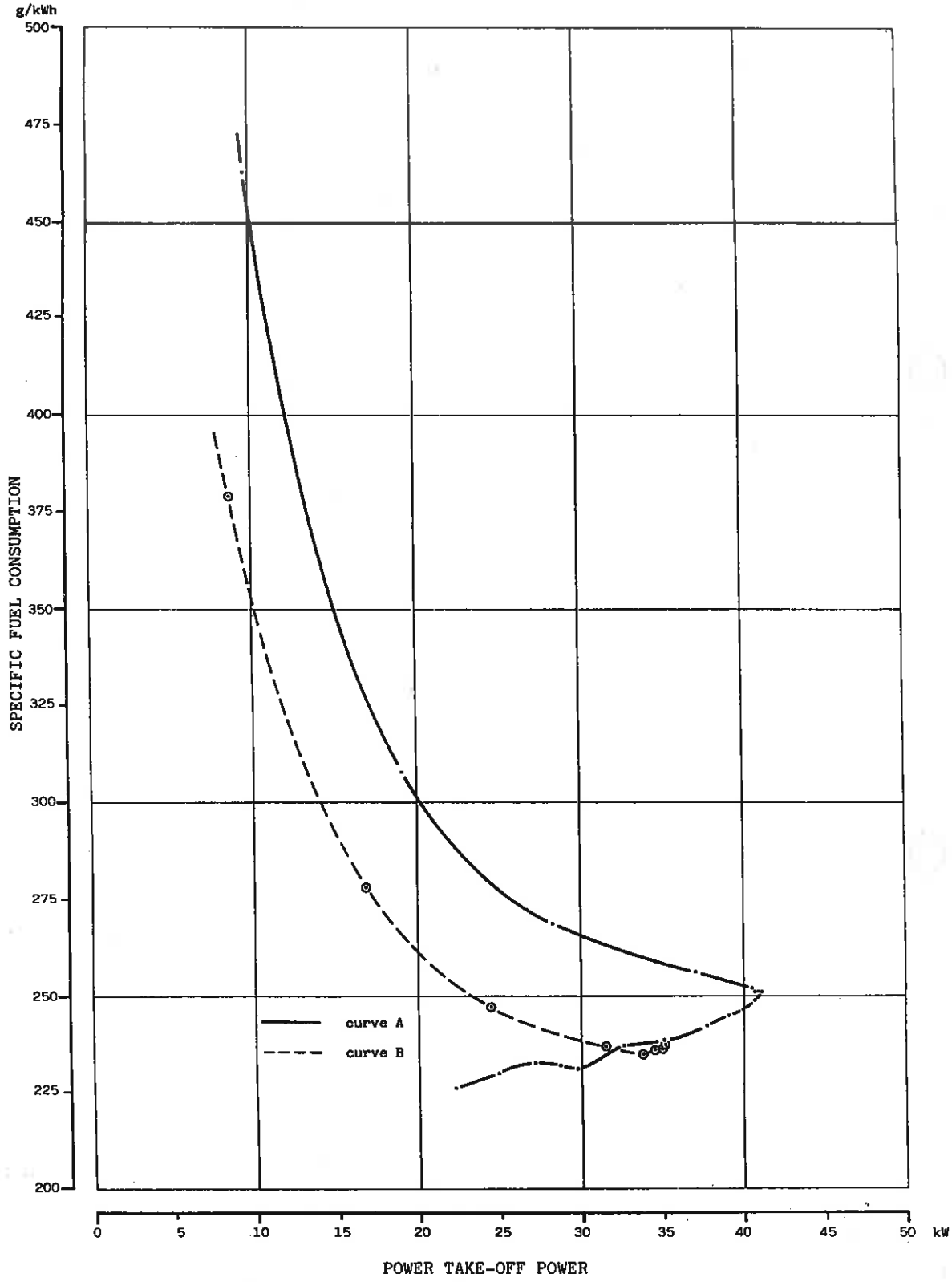


Fig. 2 - POWER TAKE-OFF TEST