



CONSIGLIO NAZIONALE DELLE RICERCHE

ISTITUTO PER LA MECCANIZZAZIONE AGRICOLA

Report No. 1517/T/90

10135 TORINO - Strada delle Cacce 73  
(Italia)

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

TRACTOR: Make: FIAT  
Model: 55-56 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:* 1291 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 practical farm work.

The FIAT 55-56 LM tractor is manufactured in following variants:

1. 55-56 LM/12 model with 12 forward and 3 reverse speeds (4 ×3 gear units)
2. 55-56 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

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| Main power take-off test                                                       |          |
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|                                          |                                                                                          |
|------------------------------------------|------------------------------------------------------------------------------------------|
| Tractor manufacturer's name and address: | FIATGEOTECH S.p.A.<br>Viale delle Nazioni, 55<br>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:          | 55-56 LM/12                                            |
| Type:           | Wheel tractor unit construction, two rear wheel driven |
| Serial No.:     | 078001                                                 |
| 1st serial No.: | 078000                                                 |

#### **Engine:**

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Make:               | FIAT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Model:              | 8035.06                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Type:               | 4-stroke Diesel engine, naturally aspirated, direct injection, water cooled.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Serial No.:         | 206-318801                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Cylinders:          | 3 cylinders, vertical, in-line, 100 mm bore x 115 mm stroke, capacity 2710 cm <sup>3</sup> 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 VEL163 - 1 injection pump, 37184 serial number.<br>Manufacturer's production setting 11,94 l/h at rated engine speed and full load. Injection timing 6° ± 1 before TDC.<br>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.<br>Superpressure system: radiator cap.                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Starting system:              | Electrical, MARELLI or BOSCH make, 12 V 3.5 kW; starting motor pinion coupling solenoid operated.<br>Cold starting aid: CAV make, thermostart model with variable resistance or "start-pilot" as option.<br>Safety device: operable only when the gear box is in the neutral position.                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Electrical system</b>      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 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.<br>Vertical position on engine left side, maximum height above ground 2470 mm.<br>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 2470 mm.                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Transmission to wheels</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 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 synchronized 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.<br>The FIAT 55-56 LM/12 is available in one other variant:<br>- FIAT 55-56 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 55-56 LM/12**

Total ratios and travelling speed (tyres 12.4 R 32 and pressure 230 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                                                               | 0.83                                                              |
| II   |         | 479.174                                                               | 1.25                                                              |
| III  |         | 327.241                                                               | 1.84                                                              |
| IV   |         | 253.348                                                               | 2.38                                                              |
| I    | Normal  | 233.451                                                               | 2.58                                                              |
| II   |         | 155.161                                                               | 3.88                                                              |
| III  |         | 105.964                                                               | 5.68                                                              |
| IV   |         | 82.036                                                                | 7.34                                                              |
| I    | High    | 64.848                                                                | 9.30                                                              |
| II   |         | 43.100                                                                | 13.98                                                             |
| III  |         | 29.434                                                                | 20.48                                                             |
| IV   |         | 22.788                                                                | 26.45                                                             |
| I    | Reverse | 501.769                                                               | 1.20                                                              |
| II   |         | 162.478                                                               | 3.71                                                              |
| III  |         | 45.133                                                                | 13.35                                                             |

# **FIAT 55-56 LM/8**

Total ratios and travelling speed (tyres 12.4 R 32 and pressure 230 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                                                               | 2.58                                                              |
| II   |         | 155.161                                                               | 3.88                                                              |
| III  |         | 105.964                                                               | 5.68                                                              |
| IV   |         | 82.036                                                                | 7.34                                                              |
| I    | High    | 64.848                                                                | 9.30                                                              |
| II   |         | 43.100                                                                | 13.98                                                             |
| III  |         | 29.434                                                                | 20.48                                                             |
| IV   |         | 22.788                                                                | 26.45                                                             |
| I    | Reverse | 162.478                                                               | 3.71                                                              |
| II   |         | 45.133                                                                | 13.35                                                             |

(\*) Calculated with a tyre dynamic radius index of 640 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 635 mm (with tyre 12.4 R 32).

### 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 clockwise, 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: 12.4 R 32 radius index 640 mm;

travelling distance for one revolutions of p.t.o. shaft: 0.470

number of p.t.o. shaft revolution for one revolution of the rear wheels: 7,6

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.

Relief valve pressure setting: 18.6 MPa

Antishock valve setting: 21.0 MPa

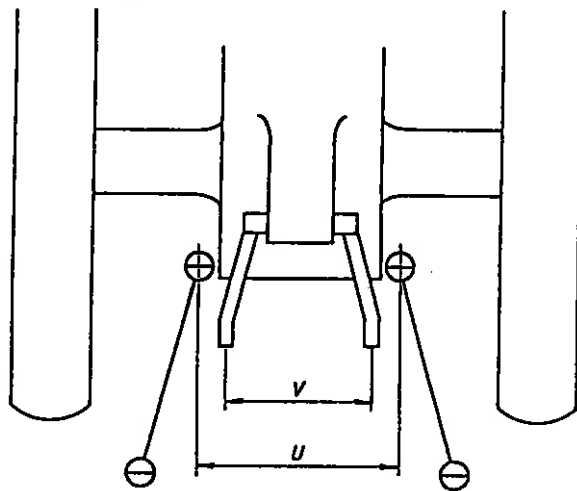
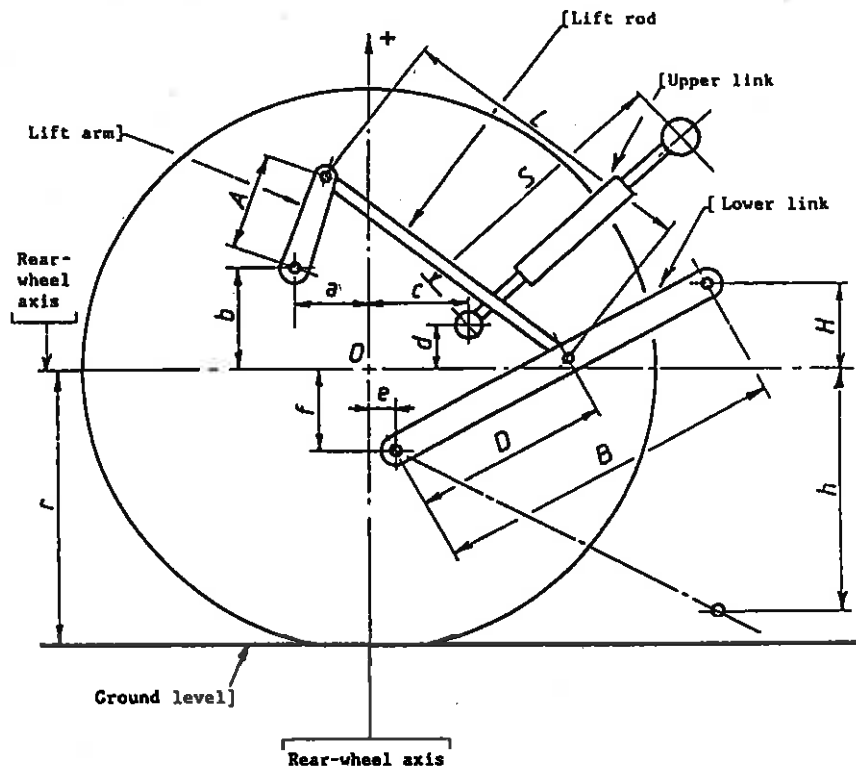
FIAT A31 lift gear pump, directly driven by engine.

Delivery 32.8 l/min at rated engine speed.

There are no cylinder safety valves.

Type of linkage lock for 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 730/1-1977; dimensions see on pag. 9.



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

|                                                                                    |                                        | Dimension<br>or range<br>mm | Settings<br>used in<br>test<br>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<br>2 lower link points                             | (u)                                    | 430                         | 430                               |
| Horizontal distance between the<br>2 lift arm end points                           | (v)                                    | 430                         | 430                               |
| Length of upper link                                                               | (S)                                    | from 650 to 940             | 785                               |
| Distance of upper link<br>pivot point from rear<br>wheel axis                      | : horizontally (c)<br>: vertically (d) | 130<br>from 270 to 320      | 130<br>320                        |
| Distance of lower link<br>pivot point from rear<br>wheel axis                      | : horizontally (e)<br>: vertically (f) | 35<br>105                   | 35<br>105                         |
| Distance of lower link pivot<br>points to lift rod pivot<br>points on lower links  | (D)                                    | 420                         | 420                               |
| Length of lift rods                                                                | (L)                                    | from 470 to 600             | 575                               |
| Height of lower hitch points<br>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<br>when locked in transport position (*) |                                        | from 855 to 1090            | -                                 |

(\*) Assuming the dynamic radius index: 640 mm (ISO 4251/1-1984)

**Swinging drawbar :**

Own make; clevis type.

Vertical height with tyres 12.4 R32 to centre of clevis: min 400 mm max 510 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 adjustments: 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 12.4 R 32) 450-620-750 and 820 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 10,5 kN according to Italian legislation (with tyres 12.4 R 32; 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 24,6 l/min at rated engine speed, one double acting cylinder directly acting on the front wheel, transversally mounted, bore 48 mm, stroke 215 mm, piston rod 22 mm dia; working pressure  $10 \pm 0.2$  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 6.00-16; 8 ply;

Driving wheels :

at rear, two tyres 12.4 R32; 8 ply;

**- Wheelbase :**

2050 mm

Track width adjustment:

|       | Minimum<br>mm | Maximum<br>mm | Adjustment method                 |
|-------|---------------|---------------|-----------------------------------|
| Front | 1400          | 2000          | by 100 mm steps<br>extending axle |
| Rear  | 1414          | 1914          | manual through 8 posi<br>tion     |

Optional tyre:

| Tyre size |       |           |       |
|-----------|-------|-----------|-------|
| At front  |       | At rear   |       |
| 6.00-16   | 8 ply | 12.4 - 28 | 6 ply |
|           |       | 13.6 - 28 | 6 ply |

Protective structure:

FIATAGRI safety frame, TS 28 type. OECD REPORT CSD 0891/78 for the FIAT 55-56 LM/12 (2WD) and CSD 0891/80 for the FIAT 55-56 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 continuous way, longitudinal adjustment 160 mm;

Passenger seat: none

Lighting:

Electrical 12 V, in accordance with Italian legislation

|                        | Height above<br>ground of<br>centre<br>mm | Size<br>mm | Distance from outside<br>edge of lights to<br>median plane of tractor<br>mm |
|------------------------|-------------------------------------------|------------|-----------------------------------------------------------------------------|
| Headlights             | 1030                                      | 180 x 120  | 80                                                                          |
| Sidelights             | 1430                                      | 90 x 60    | 780                                                                         |
| Rearlights             | 1430                                      | 80 x 60    | 665                                                                         |
| Reflectors<br>1st pair | 1180                                      | 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   | 1.74  | 2.24 | 2.47             | 2.37                 |
| Without ballast | 3.48   | 1.72  | 2.22 | 2.47             | 2.37                 |

Ground clearance:

450 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 | 860              | 1250          | 880              | 1270          |
| Rear  | 1280             | 1550          | 1330             | 1600          |
| Total | 2140             | 2800          | 2210             | 2870          |

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/cm³

Tyres and track width specifications

|                                          | Front           | Rear             |
|------------------------------------------|-----------------|------------------|
| Tyres:                                   | MICHELIN        | MICHELIN         |
| dimensions                               | 6.00-16         | 12.4 R 32        |
| ply rating                               | 8               | 8                |
| tyre                                     | diagonal        | radial           |
| maximum load                             | 675 kg (30km/h) | 1605 kg (30km/h) |
| inflation pressure (tyre manufacturer's) | 400 KPa         | 230 KPa          |
| dynamic radius index                     | 345 mm          | 640 mm           |
| Chosen track width:                      | 1400 mm         | 1414 mm          |

Oils and lubrication

- Capacity and change interval

|                                                                  | Capacity<br>dm <sup>3</sup> | Oil change<br>h | Filter change<br>h |
|------------------------------------------------------------------|-----------------------------|-----------------|--------------------|
| Engine                                                           | 7.3                         | 200             | 400                |
| Gear box with hydraulic sistem,<br>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:           | AMBRA SUPER              | As recommended   |
| - Viscosity:      | SAE 15 W 40              |                  |
| - Classification: | MIL-L-2104 C             |                  |
| Transmission oils |                          |                  |
| - Type:           | TUTELA MULTI F           | As recommendend  |
| - Viscosity:      | SAE 20 W 40              |                  |
| - Classification: | MF 1135 and M2<br>C 86 A |                  |
| Hydraulic fluid   |                          |                  |
| - Type:           | TUTELA MULTI F           | As recommended   |
| - Viscosity:      | SAE 20 W 40              |                  |
| - Classification: | MF 1135 and M2<br>C 86 A |                  |
| Steering oil      |                          |                  |
| - Type:           | TUTELA MULTI F           | As recommended   |
| - Viscosity:      | SAE 20 W 40              |                  |
| - Classification: | MF 1135 and M2<br>C 86 A |                  |

- Grease: FIAT TUTELA G9

Number of lubrication points: 9

# COMPULSORY TESTS RESULTS

## (1) MAIN POWER-TAKE-OFF PERFORMANCE

Date and Location of tests: 23/04/1989 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                                       |         |         |                  |          |       |                 |
| 37.23                                                               | 2500    | 686     | 11.92            | 9.95     | 267   | 3.12            |
| POWER AT RATED ENGINE SPEED                                         |         |         |                  |          |       |                 |
| 37.23                                                               | 2500    | 686     | 11.92            | 9.95     | 267   | 3.12            |
| STANDARD POWER-TAKE-OFF SPEED (540±10 rev/min)                      |         |         |                  |          |       |                 |
| 32.10                                                               | 1967    | 540     | 9.58             | 8.00     | 249   | 3.35            |
| PART LOADS                                                          |         |         |                  |          |       |                 |
| (1) the torque corresponding to maximum power at rated engine speed |         |         |                  |          |       |                 |
| 37.23                                                               | 2500    | 686     | 11.92            | 9.95     | 267   | 3.12            |
| (2) 85% of torque obtained in (1)                                   |         |         |                  |          |       |                 |
| 32.88                                                               | 2600    | 714     | 10.32            | 8.62     | 262   | 3.19            |
| (3) 75% of torque defined in (2)                                    |         |         |                  |          |       |                 |
| 25.05                                                               | 2641    | 725     | 8.34             | 6.97     | 278   | 3.00            |
| (4) 50% of torque defined in (2)                                    |         |         |                  |          |       |                 |
| 16.84                                                               | 2663    | 731     | 6.43             | 5.37     | 319   | 2.62            |
| (5) 25% of torque defined in (2)                                    |         |         |                  |          |       |                 |
| 9.26                                                                | 2689    | 738     | 4.86             | 4.06     | 438   | 1.91            |
| (6) unloaded                                                        |         |         |                  |          |       |                 |
| ---                                                                 | 2710    | 744     | 3.01             | 2.51     | ---   | ---             |

| PART LOADS AT STANDARD POWER-TAKE-OFF SPEED (540±10 rev/min)    |         |         |                  |      |          |          |  |
|-----------------------------------------------------------------|---------|---------|------------------|------|----------|----------|--|
| POWER                                                           | SPEED   |         | FUEL CONSUMPTION |      |          | SPECIFIC |  |
|                                                                 | ENGINE  | P.T.O.  | HOURLY           |      | SPECIFIC | ENERGY   |  |
| kW                                                              | rev/min | rev/min | l/h              | kg/h | g/kWh    | kWh/l    |  |
| (1) the torque corresponding to maximum power                   |         |         |                  |      |          |          |  |
| 32.10                                                           | 1967    | 540     | 9.54             | 7.97 | 248      | 3.36     |  |
| (2) 85% of torque obtained in (1)                               |         |         |                  |      |          |          |  |
| 29.33                                                           | 2066    | 587     | 8.59             | 7.17 | 244      | 3.41     |  |
| (3) 75% of torque defined in (2)                                |         |         |                  |      |          |          |  |
| 22.37                                                           | 2149    | 590     | 6.84             | 5.71 | 255      | 3.27     |  |
| (4) 50% of torque defined in (2)                                |         |         |                  |      |          |          |  |
| 15.31                                                           | 2208    | 606     | 5.18             | 4.33 | 282      | 2.96     |  |
| (5) 25% of torque defined in (2)                                |         |         |                  |      |          |          |  |
| 7.83                                                            | 2259    | 620     | 3.53             | 2.95 | 376      | 2.22     |  |
| (6) unloaded                                                    |         |         |                  |      |          |          |  |
| ---                                                             | 2291    | 629     | 2.54             | 2.12 | ---      | ---      |  |
| STANDARD SPECIFIC CONSUMPTION: 262/319/244/282 (g/kWh)          |         |         |                  |      |          |          |  |
| No load maximum engine speed: 2710 rev/min                      |         |         |                  |      |          |          |  |
| Torque (equivalent crankshaft) at rated engine speed: 142.2 N/m |         |         |                  |      |          |          |  |
| Maximum torque: 172.8 Nm at 1400 rev/min of the engine          |         |         |                  |      |          |          |  |
| Mean atmospheric conditions: Temperature 19.5 °C                |         |         |                  |      |          |          |  |
| Pressure 1002.6 mbar                                            |         |         |                  |      |          |          |  |
| Relative Humidity 58 %                                          |         |         |                  |      |          |          |  |
| Maximum Temperature: Coolant 80.0 °C                            |         |         |                  |      |          |          |  |
| Engine oil 106.0 °C                                             |         |         |                  |      |          |          |  |
| Fuel 27.0 °C                                                    |         |         |                  |      |          |          |  |
| Engine air intake 20.5 °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<br>rate<br>l/min | Pressure<br>MPa | Power<br>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 to maximum 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 | 200 mm             | 200 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                                                                                  | 12.10 | 12.40 | 13.30 | 13.85 | 14.00 | 14.00 | 13.65 | 13.30 | 13.10 |
| points                                                                                 |       |       |       |       |       |       |       |       |       |
| kN                                                                                     |       |       |       |       |       |       |       |       |       |
| Corresponding pressure: 16.7 MPa                                                       |       |       |       |       |       |       |       |       |       |
| at the                                                                                 |       |       |       |       |       |       |       |       |       |
| frame                                                                                  | 12.40 | 12.50 | 13.50 | 13.60 | 13.40 | 13.50 | 12.50 | 11.85 | 11.35 |
| kN                                                                                     |       |       |       |       |       |       |       |       |       |
| Corresponding pressure: 16.7 MPa                                                       |       |       |       |       |       |       |       |       |       |

**3. DRAWBAR PERFORMANCE**

Date of tests: 26th March 1990

Type of track: concrete

front: 6.00-16 (8 ply)

rear: 12.4 R 32(8 ply)

|             |                                | Tyre inflation pressure |         |
|-------------|--------------------------------|-------------------------|---------|
|             |                                | Front                   | Rear    |
|             | Height of drawbar above ground |                         |         |
|             |                                | 400 kPa                 | 230 kPa |
| Unballasted | 510 mm                         |                         |         |
| Ballasted   | 740 mm                         | 400 kPa                 | 230 kPa |

| Gear no.<br>and group                                     | Driving<br>speed<br>km/h | Power<br>kW | Drawbar<br>pull<br>daN | Engine<br>speed<br>rev/min | Slip of<br>wheels<br>% | Specific<br>fuel<br>consumption<br>g/kWh | Specific<br>energy<br>kWh/l | Temperatures |               |                     | Atmospheric conditions |                           |                  |  |
|-----------------------------------------------------------|--------------------------|-------------|------------------------|----------------------------|------------------------|------------------------------------------|-----------------------------|--------------|---------------|---------------------|------------------------|---------------------------|------------------|--|
|                                                           |                          |             |                        |                            |                        |                                          |                             | Fuel<br>°C   | Coolant<br>°C | Engine<br>oil<br>°C | Temperature<br>°C      | Relative<br>humidity<br>% | Pressure<br>mbar |  |
| 3.1 - MAXIMUM POWER IN TESTED GEARS (unballasted tractor) |                          |             |                        |                            |                        |                                          |                             |              |               |                     |                        |                           |                  |  |
| 2 Normal                                                  | 3.59                     | 16.90       | 1697                   | 2712                       | 15.0                   | 388                                      | 2.58                        | 22.0         | 80            | 104                 | 10.0                   | 65                        | 985.3            |  |
| 3 Normal                                                  | 5.21                     | 24.42       | 1687                   | 2677                       | 14.6                   | 340                                      | 2.94                        | 22.0         | 80            | 104                 | 10.0                   | 65                        | 985.3            |  |
| 4 Normal                                                  | 6.31                     | 29.57       | 1687                   | 2507                       | 14.5                   | 281                                      | 3.55                        | 23.0         | 80            | 105                 | 10.0                   | 65                        | 985.3            |  |
| 1 High                                                    | 8.81                     | 31.90       | 1304                   | 2510                       | 6.1                    | 261                                      | 3.83                        | 24.0         | 80            | 106                 | 10.0                   | 64                        | 985.3            |  |
| 2 High                                                    | 13.39                    | 30.83       | 829                    | 2501                       | 3.0                    | 265                                      | 3.77                        | 25.0         | 80            | 106                 | 10.0                   | 62                        | 985.3            |  |
| 3 High                                                    | 20.07                    | 28.71       | 515                    | 2497                       | 2.1                    | 289                                      | 3.46                        | 25.0         | 80            | 106                 | 10.0                   | 62                        | 985.3            |  |

|                                                                |       |       |      |      |      |     |      |      |    |     |      |    |       |  |
|----------------------------------------------------------------|-------|-------|------|------|------|-----|------|------|----|-----|------|----|-------|--|
| <b>3.2 - MAXIMUM POWER IN TESTED GEARS (ballasted tractor)</b> |       |       |      |      |      |     |      |      |    |     |      |    |       |  |
| 1 Slow                                                         | 0.77  | 4.60  | 2138 | 2733 | 15.0 | -   | -    | 22.0 | 90 | 103 | 11.0 | 46 | 985.3 |  |
| 2 Slow                                                         | 1.16  | 6.92  | 2143 | 2726 | 14.8 | -   | -    | 23.0 | 90 | 103 | 11.0 | 46 | 985.3 |  |
| 3 Slow                                                         | 1.70  | 10.09 | 2138 | 2720 | 14.9 | -   | -    | 24.0 | 80 | 104 | 11.0 | 46 | 985.3 |  |
| 4 Slow                                                         | 2.19  | 13.03 | 2143 | 2714 | 15.0 | -   | -    | 25.0 | 80 | 105 | 11.0 | 45 | 985.3 |  |
| 1 Normal                                                       | 2.38  | 14.07 | 2128 | 2708 | 14.5 | 419 | 2.38 | 25.0 | 80 | 106 | 11.0 | 46 | 985.3 |  |
| 2 Normal                                                       | 3.51  | 20.92 | 2143 | 2665 | 14.8 | 354 | 2.83 | 25.0 | 80 | 106 | 11.0 | 46 | 985.3 |  |
| 3 Normal                                                       | 4.93  | 28.59 | 2069 | 2542 | 14.4 | 324 | 3.09 | 25.0 | 80 | 106 | 11.0 | 46 | 985.3 |  |
| 4 Normal                                                       | 6.86  | 31.77 | 1667 | 2500 | 6.2  | 305 | 3.28 | 25.0 | 80 | 106 | 11.0 | 46 | 985.3 |  |
| 1 High                                                         | 8.88  | 31.90 | 1294 | 2504 | 4.2  | 307 | 3.26 | 25.0 | 80 | 106 | 11.0 | 46 | 985.3 |  |
| 2 High                                                         | 13.54 | 30.79 | 819  | 2500 | 2.8  | 317 | 3.16 | 25.0 | 80 | 106 | 11.0 | 46 | 985.3 |  |
| 3 High                                                         | 20.09 | 27.91 | 500  | 2501 | 1.5  | 353 | 2.83 | 25.0 | 80 | 106 | 11.0 | 46 | 985.3 |  |

|                                                               |      |       |      |      |     |     |      |    |    |     |      |    |       |  |
|---------------------------------------------------------------|------|-------|------|------|-----|-----|------|----|----|-----|------|----|-------|--|
| <b>3.3.1 - FIVE HOUR TEST at 75% of pull at maximum power</b> |      |       |      |      |     |     |      |    |    |     |      |    |       |  |
| 4 Normal                                                      | 7.50 | 26.03 | 1250 | 2667 | 3.9 | 311 | 3.21 | 25 | 80 | 106 | 12.0 | 35 | 980.0 |  |

|                                                                                                          |      |       |      |      |   |   |   |    |    |     |      |    |       |  |
|----------------------------------------------------------------------------------------------------------|------|-------|------|------|---|---|---|----|----|-----|------|----|-------|--|
| <b>3.3.2 - FIVE HOUR TEST at pull corresponding to 15% wheelslip - with 280 kg as additional ballast</b> |      |       |      |      |   |   |   |    |    |     |      |    |       |  |
| 2 Normal                                                                                                 | 3.69 | 21.97 | 2143 | 2621 | - | - | - | 25 | 80 | 107 | 12.0 | 40 | 980.0 |  |

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: 6.00-16 (8 ply)  
 rear: 12.4 R 32 (8 ply)  
 Track width front: 1440  
 rear: 1414

|                          | With brakes     |                | Without brakes  |                |
|--------------------------|-----------------|----------------|-----------------|----------------|
|                          | Right-hand<br>m | Left-hand<br>m | Right-hand<br>m | left-hand<br>m |
| Radius of turning area   | 3.23            | 3.22           | 3.71            | 3.70           |
| Radius of turning circle | 3.15            | 3.13           | 3.59            | 3.60           |

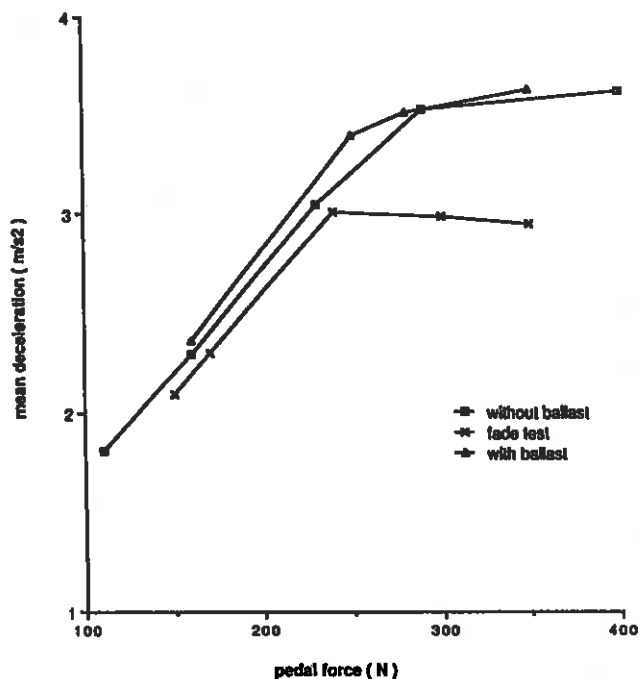
#### 5. LOCATION OF CENTRE OF GRAVITY

|                                                                                 |        |
|---------------------------------------------------------------------------------|--------|
| Height above ground                                                             | 665 mm |
| Distance forward from the vertical plane containing the axis of the rear wheels | 816 mm |
| Distance from the median plane of the tractor, to the left                      | 0 mm   |

#### 6. BRAKING

- Date of tests: 2nd June 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) | 27.15             | 27.00               |

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 21,8 km/h with towing force of 285 KN.

**4.3 Parking braking device test**

|                              | Uphill  | Downhill |
|------------------------------|---------|----------|
| Braking device control force | 10.9 kN | 10.5 kN  |

**7. MEASUREMENT OF EXTERNAL NOISE LEVEL**

- Date of tests: 29th May 1989
- Type of sound level meter: impulse precision BRUEL & KJAER 2209 model.
- Type of track: concrete

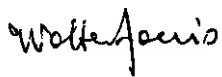
**7.1 Results of test with DGM SA 748 model**

- Gear number: 4 High
- Travelling speed before acceleration: 21,50 km/h
- Sound level: 86,0 dB (A)

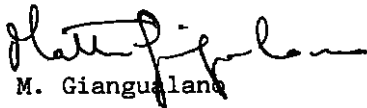
**8. REPAIRS AND ADJUSTMENT DURING TEST — none**

**9. REMARKS — none**

TEST CARRIED OUT BY:

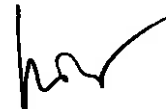


W. Faccio



M. Gianguilano

HEAD OF I.M.A.  
TEST DEPARTMENT

  
R. Gioia

DIRECTOR OF I.M.A.

  
L. Lisa

Turin, 7th May 1990

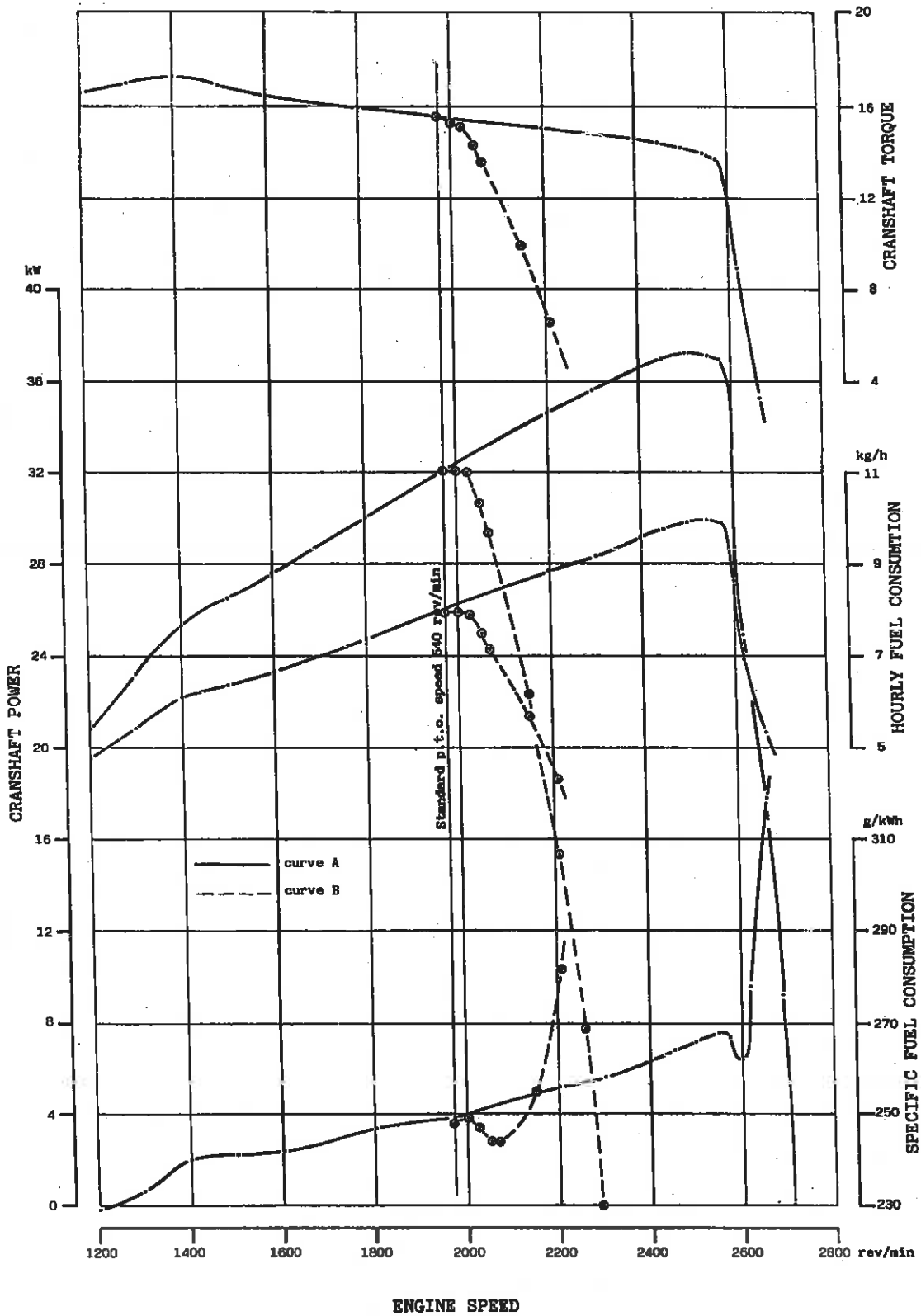
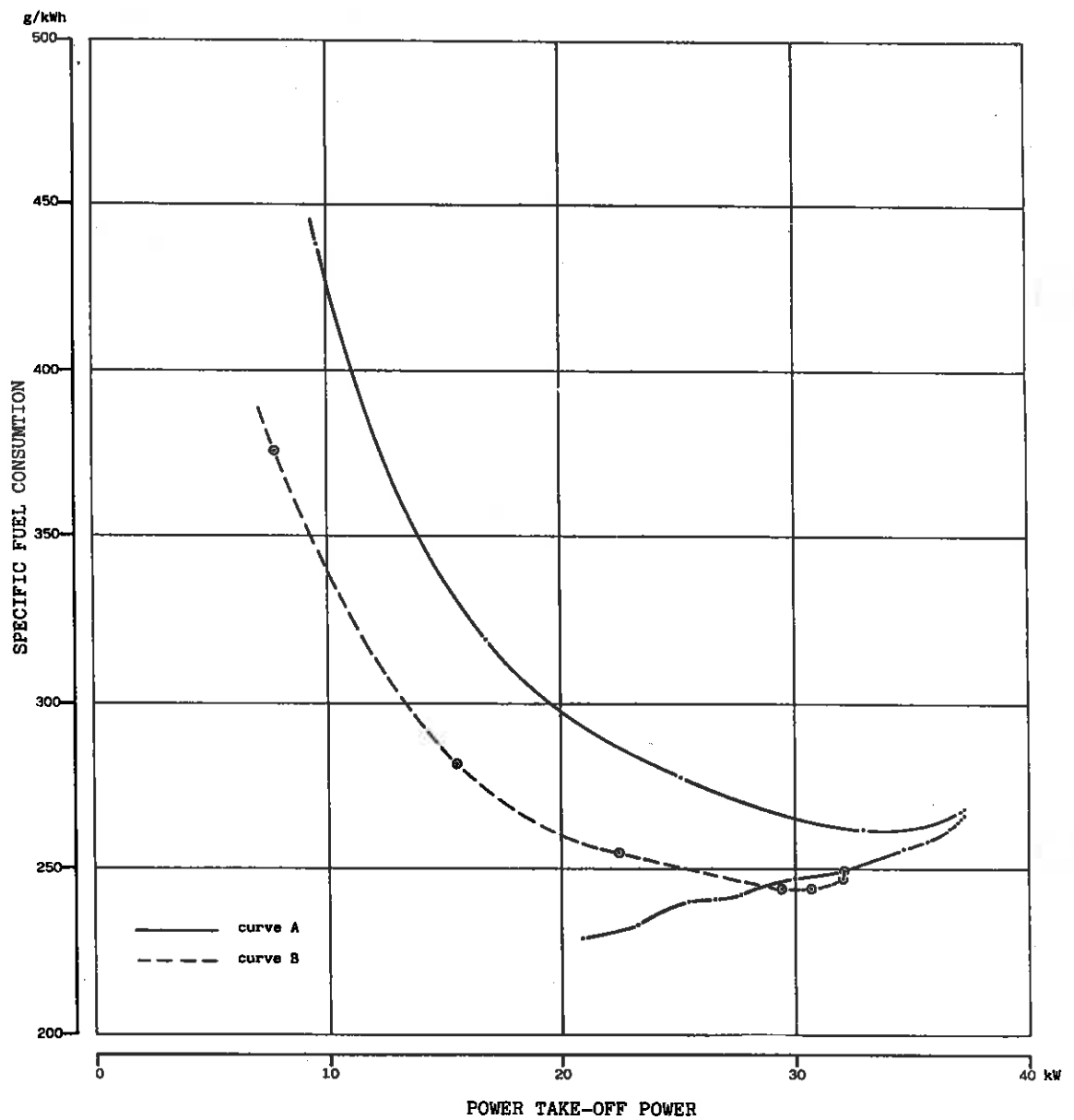


Fig. 1 - POWER TAKE-OFF TEST



**Fig. 2 - POWER TAKE-OFF TEST**







