CONSIGLIO NAZIONALE DELLE RICERCHE
ISTITUTO PER LA MECCANIZZAZIONE AGRICOLA
Strada delle Cacce, 73 - 10135 TORINO (Italia)

Report No. 1901/T/1994

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

TRACTOR: Make: S+L+H
Model: HURLIMANN 6135 VDT
Type: 4 WD



| | |
|---|---|
| Manufactured by: | S+L+H S.p.A. - TREVIGLIO (Italy) |
| Date and location of the tests: | October 1991 - I.S.M.A. - Treviglio (BG) (Italy) |
| Date and location of the checks: | August - September 1994 - IMA - Torino (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: 1338/2 - 11th October 1994

## PRELIMINARY REMARK

The HÜRLIMANN 6135 VDT (4WD) and the LAMBORGHINI 135 VDT (4WD) (see tractor test OECD No. 1338 of 06/12/1991) tractors are technically identical in all main respects, except with regard to the following items:

- model designation
- colour
- side bonnets design
- supercharging
- starting system
- generator
- driver's seat
- passenger's seat
- height above ground of headlights.

Therefore, tests have not been repeated, and approval number is valid for the both tractor models.
All tests were carried out on the LAMBORGHINI 135 VDT (4WD).

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

The S+L+H HÜRLIMANN 6135 VDT tractor is manufactured in following variants:

1. with 24 forward and 24 reverse speeds (6x4 gear units plus inverter);

2. with 36 forward and 36 reverse speeds (12x3 gear units plus inverter);

3. with 48 forward and 48 reverse speeds (12x4 gear units plus inverter);

Checks have been carried out on tractor with the third variant.

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

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| Compulsory main power take-off test | |
| Curves of power, torque, hourly and specific fuel consumption/cranckshaft speed | 1 |
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| | |
|---|---|
| Tractor manufacturer's name and address: | S+L+H S.p.A.<br>Viale Cassani, 15<br>24047 TREVIGLIO (BG) - Italy |
| Submitted for checks by: | Manufacturer |
| Selected for checks by: | Manufacturer with the agreement of IMA |
| Place of running-in: | TORINO - Italy |
| Duration of running-in: | Engine and tractor appr. 50 hours |
| Location of checks: | IMA - Torino - Italy |

## I. SPECIFICATION OF TRACTOR

### TRACTOR

| | |
|---|---|
| Make: | S+L+H S.p.A. |
| Model: | HÜRLIMANN 6135 VDT |
| Type: | wheeled tractor, unit construction |
| Number of driving wheels: | 4WD |
| Serial number: | H 6135 VT *1168* |
| First serial number: | 1001 |

### ENGINE

| | |
|---|---|
| Make: | S+L+H S.p.A. |
| Model: | 1000.6 WT |
| Type: | 4-stroke Diesel engine, direct injection, water cooled, turbo charged |
| Serial number: | 001820 |

### Cylinders

| | |
|---|---|
| Number/disposition: | 6, vertical, in-line |
| Bore/stroke: | 105 x 115.5 mm |
| Capacity: | 6000 $cm^3$ |
| Compression ratio: | 16 : 1 |
| Arrangement of valves: | overhead |
| Cylinder liners: | wet liners |

### Supercharging

| | |
|---|---|
| Make: | GARRETT |
| Model: | 70707-4 |
| Type: | turbocharger |
| Pressure: | 93 kPa |
| Available options: | |
| Make: | SCHWITZER |
| Model: | S2B |
| Type: | turbocharger |
| Pressure: | 93 kPa |

**Fuel system**

| | |
|---|---|
| Fuel feed system: | AC CORONA type fuel feed pump |
| Make, model and type of fuel filter: | FIAMM FNA 255/00 |
| Capacity of fuel tank: | 210 $dm^3$ |
| Make, model and type of injection pump: | BOSCH PFR 1K 90A 517, immersed pump, one for cylinder, in line injection pump |
| Serial number: | none |
| Available options: | |
| Make, model and type of injection pump: | BOSCH PFR 1K 90A 503, immersed pump, one for cylinder, in line injection pump |
| Serial number: | none |
| Manufacturer's production setting of injection pump: | |
| - flow rate: | 60 ± 2 $mm^3$/stroke at rated speed and full load corresponding 27.23 $dm^3$/h |
| - timing: | 16.0° ± 0.5° before TDC |
| Make, model and type of injectors: | BOSCH DLLA 150 S 925 multihole injection nozzles |
| Injection pressure: | 18 ± 1 MPa |

**Governor**

| | |
|---|---|
| Make: | S+L+H |
| Model: | 527.16 |
| Type: | electronic |
| Governed range of engine speed: | from 650 to 2709 rev/min |
| Rated engine speed: | 2500 rev/min |

**Air cleaner**

| | |
|---|---|
| Pre-cleaner: | none |
| Main cleaner: | |
| Make: | DONALDSON |
| Model: | FLG 10-0220 |
| Type: | dry paper element filter with two replaceable cartridge elements; DONALDSON make, P13-3138 type for the internal one and XLP77-2555 type for the external one |
| Location of air intake: | left front side above the main cleaner under the bonnet |
| Maintenance indicator: | with the warning lamp on the dashboard |

**Lubrication system**

| | |
|---|---|
| Type of feed pump: | forced feed from gear pump |
| Type of filter: | FIAMM FT 48 03 IN |
| Number: | 2 |

**Cooling System**

| | |
|---|---|
| Type of coolant: | water |
| Type of pump: | impeller |
| Specification of fan: | propeller fan driven by engine shaft |
| Number of fan blades: | 6 |
| Fan diameter: | 500 mm |
| Coolant capacity: | 18 $dm^3$ |
| Type of temperature control: | electrical control |
| Superpressure system: | 0.6 bar |

**Starting system**

| | |
|---|---|
| Make: | ISKRA |
| Model: | AZ J3557 12 V |
| Type: | electromagnetic engagement |
| Available options: | |
| Make: | BOSCH |
| Model: | JF 12 V |
| Type: | electromagnetic engagement |
| Starter motor power rating: | 3.0 kW |
| Cold starting aid: | none |
| Safety device: | preventing engine start in gear |

**Electrical system**

| | |
|---|---|
| Voltage: | 12 V, negative earth |
| Generator: | |
| - Make: | ISKRA |
| - Model: | AAK3563 14V 65A |
| - Type: | Alternator |
| - Power: | 780 W |
| Available options: | |
| - Make: | BOSCH |
| - Model: | K1 14V 65A |
| - Type: | Alternator |
| - Power: | 780 W |
| Battery: | 1 lead acid, FIAMM make, 2.9559.036.0 model |
| - Rating: | 155 Ah at 20 hours |

**Exhaust system**

| | |
|---|---|
| Make: | S+L+H |
| Model: | DGM SA 1686 |
| Type: | one reflection absorption chamber |
| Location: | on the left side of engine cowling, vertical position |

**TRANSMISSION TO WHEELS**

**Clutch** — utilized only for travelling

| | |
|---|---|
| Make: | S+L+H |
| Model: | 527.23 |
| Type: | indipendent, single disk dry clutch |
| Number of plates: | 1 |
| Diameter of plates: | 330 mm |
| Method of operation: | hydraulically operated by pedal |

**Gearbox**

| | |
|---|---|
| Make: | S+L+H |
| Model: | 527.22 |
| Type: | mechanical syncromesh speed change gear |
| Arrangement: | six speeds forward, with four ranges, one electrohydraulic shifted reduction gear (hi/lo) and one reverse group |
| Number of gears: | 48 forward and 48 reverse |
| Available options: | |
| - Arrangement: | six speeds forward, with three ranges, one electro-hydraulic shifted reduction gear (hi/lo) and one reverse group |
| - Number of gears: | 36 forward and 36 reverse |

| | |
|---|---|
| - Arrangement: | six speeds forward, with four ranges and one reverse group |
| - Number of gears: | 24 forward and 24 reverse |

**Rear axle and final drives**

| | |
|---|---|
| Make: | S+L+H |
| Model: | 527.44 |
| Type: | bevel gear differential and epyciclic final drive |
| Differential lock | |
| - Make: | S+L+H |
| - Model: | 527.35 |
| - Type: | electrohydraulic |
| - Method of engagement: | by push button |
| - Method of disengagement: | by push button |
| Available options: | |
| - Make: | S+L+H |
| - Model: | SBA original SAME system |
| - Type: | electrohydraulic |
| - Method of engagement: | by push button |
| - Method of disengagement: | by push button or automatically when steering angle exceeds 17 degrees, or when forward speed exceeds 15 km/h |

**Front axle and final drives**

| | |
|---|---|
| Make: | S+L+H |
| Model: | 527.43 |
| Type: | S+L+H system with central shaft, bevel gear drive, differential and epyciclic final drives |
| Differential lock | |
| - Make: | S+L+H |
| - Model: | 527.46 |
| - Type: | electrohydraulic |
| - Method of engagement: | by push button |
| - Method of disengagement: | by push button |
| Available options: | |
| - Make: | S+L+H |
| - Model: | SBA original SAME system |
| - Type: | electrohydraulic |
| - Method of engagement: | by push button |
| - Method of disengagement: | by push button or automatically when steering angle exceeds 17 degrees, or when forward speed exceeds 15 km/h |

**HÜRLIMANN 6135 VDT with 48 forward and 48 reverse speeds**

Total ratios and travelling speeds (tyres 20.8 R 38 and pressure 130 kPa)

| Gear no. | Group or range | Number of engine revolutions for one revolution of the driving wheels | Nominal travelling speed (*) at rated engine speed of 2500 rev/min km/h |
|---|---|---|---|
| | | **FORWARD** | |
| 1 | R lo | 4127.3 | 0.195 |
| 1 | R hi | 3537.6 | 0.228 |
| 2 | R lo | 3200.8 | 0.252 |
| 2 | R hi | 2743.5 | 0.294 |
| 3 | R lo | 2462.2 | 0.327 |
| 3 | R hi | 2110.4 | 0.382 |
| 4 | R lo | 1920.5 | 0.420 |
| 4 | R hi | 1646.1 | 0.490 |
| 5 | R lo | 1459.2 | 0.552 |
| 1 | S lo | 1375.8 | 0.586 |
| 5 | R hi | 1250.7 | 0.644 |
| 1 | S hi | 1179.2 | 0.683 |
| 6 | R lo | 1137.1 | 0.709 |
| 2 | S lo | 1066.9 | 0.755 |
| 6 | R hi | 974.6 | 0.827 |
| 2 | S hi | 914.5 | 0.881 |
| 3 | S lo | 820.7 | 0.982 |
| 3 | S hi | 703.5 | 1.145 |
| 4 | S lo | 640.2 | 1.259 |
| 4 | S hi | 548.7 | 1.469 |
| 5 | S lo | 486.4 | 1.657 |
| 5 | S hi | 416.9 | 1.983 |
| 1 | N lo | 397.4 | 2.027 |
| 6 | S lo | 379.0 | 2.126 |
| 1 | N hi | 340.7 | 2.365 |
| 6 | S hi | 324.9 | 2.480 |
| 2 | N lo | 308.2 | 2.614 |
| 2 | N hi | 264.2 | 3.050 |
| 3 | N lo | 237.1 | 3.399 |
| 3 | N hi | 203.2 | 3.965 |
| 4 | N lo | 184.9 | 4.357 |
| 4 | N hi | 158.5 | 5.084 |
| 5 | N lo | 140.5 | 5.734 |
| 5 | N hi | 120.4 | 6.690 |
| 6 | N lo | 109.5 | 7.359 |
| 6 | N hi | 93.9 | 8.586 |
| 1 | F lo | 86.5 | 9.314 |
| 1 | F hi | 74.2 | 10.866 |
| 2 | F lo | 67.1 | 12.010 |
| 2 | F hi | 57.5 | 14.012 |
| 3 | F lo | 51.6 | 15.612 |
| 3 | F hi | 44.2 | 18.215 |
| 4 | F lo | 40.3 | 20.016 |
| 4 | F hi | 34.5 | 23.353 |
| 5 | F lo | 30.6 | 26.343 |
| 5 | F hi | 26.2 | 30.734 |
| 6 | F lo | 23.8 | 33.807 |
| 6 | F hi | 20.4 | 39.442 |

(*) Calculated with a tyre dynamic radius index of 855 mm (ISO 4251/1 - 1988).

Number of revolutions of front wheels for one revolution of rear wheels: 1.2571

| Gear no. | Group or range | Number of engine revolutions for one revolution of the driving wheels | Nominal travelling speed (*) at rated engine speed of 2500 rev/min km/h |
|---|---|---|---|
| | | REVERSE | |
| 1 | R lo | 3906.7 | 0.206 |
| 1 | R hi | 3348.5 | 0.241 |
| 2 | R lo | 3029.7 | 0.266 |
| 2 | R hi | 2596.9 | 0.310 |
| 3 | R lo | 2330.6 | 0.346 |
| 3 | R hi | 1997.6 | 0.403 |
| 4 | R lo | 1817.7 | 0.443 |
| 4 | R hi | 1558.1 | 0.517 |
| 5 | R lo | 1381.3 | 0.583 |
| 1 | S lo | 1302.2 | 0.619 |
| 5 | R hi | 1183.9 | 0.681 |
| 1 | S hi | 1116.2 | 0.722 |
| 6 | R lo | 1076.3 | 0.749 |
| 2 | S lo | 1009.9 | 0.798 |
| 6 | R hi | 922.5 | 0.873 |
| 2 | S hi | 865.6 | 0.931 |
| 3 | S lo | 776.9 | 1.037 |
| 3 | S hi | 665.9 | 1.210 |
| 4 | S lo | 605.9 | 1.330 |
| 4 | S hi | 519.4 | 1.552 |
| 5 | S lo | 460.4 | 1.750 |
| 5 | S hi | 394.6 | 2.042 |
| 1 | N lo | 376.2 | 2.142 |
| 6 | S lo | 358.8 | 2.246 |
| 1 | N hi | 322.5 | 2.499 |
| 6 | S hi | 307.5 | 2.620 |
| 2 | N lo | 291.8 | 2.762 |
| 2 | N hi | 250.1 | 3.222 |
| 3 | N lo | 224.4 | 3.590 |
| 3 | N hi | 192.4 | 4.189 |
| 4 | N lo | 175.1 | 4.603 |
| 4 | N hi | 150.0 | 5.731 |
| 5 | N lo | 133.0 | 6.058 |
| 5 | N hi | 114.0 | 7.068 |
| 6 | N lo | 103.6 | 7.775 |
| 6 | N hi | 88.8 | 9.071 |
| 1 | F lo | 81.9 | 9.840 |
| 1 | F hi | 70.2 | 11.480 |
| 2 | F lo | 63.5 | 12.688 |
| 2 | F hi | 54.4 | 14.803 |
| 3 | F lo | 48.9 | 16.494 |
| 3 | F hi | 41.9 | 19.243 |
| 4 | F lo | 38.1 | 21.146 |
| 4 | F hi | 32.7 | 24.672 |
| 5 | F lo | 29.0 | 27.830 |
| 5 | F hi | 24.8 | 32.470 |
| 6 | F lo | 22.6 | 35.715 |
| 6 | F hi | 19.3 | 41.669 |

(*) Calculated with a tyre dynamic radius index of 855 mm (ISO 4251/1 - 1988).

Number of revolutions of front wheels for one revolution of rear wheels: 1.2571

**HÜRLIMANN 6135 VDT with 36 forward and 36 reverse speeds**

Total ratios and travelling speeds (tyres 20.8 R 38 and pressure 130 kPa)

| Gear no. | Group or range | Number of engine revolutions for one revolution of the driving wheels | Nominal travelling speed (*) at rated engine speed of 2500 rev/min km/h |
|---|---|---|---|
| | | **FORWARD** | |
| 1 | S lo | 1375.8 | 0.586 |
| 1 | S hi | 1179.2 | 0.683 |
| 2 | S lo | 1066.9 | 0.755 |
| 2 | S hi | 914.5 | 0.881 |
| 3 | S lo | 820.7 | 0.982 |
| 3 | S hi | 703.5 | 1.145 |
| 4 | S lo | 640.2 | 1.259 |
| 4 | S hi | 548.7 | 1.469 |
| 5 | S lo | 486.4 | 1.657 |
| 5 | S hi | 416.9 | 1.933 |
| 1 | N lo | 397.4 | 2.027 |
| 6 | S lo | 379.0 | 2.126 |
| 1 | N hi | 340.7 | 2.365 |
| 6 | S hi | 324.9 | 2.480 |
| 2 | N lo | 308.2 | 2.614 |
| 2 | N hi | 264.2 | 3.050 |
| 3 | N lo | 237.1 | 3.399 |
| 3 | N hi | 203.2 | 3.965 |
| 4 | N lo | 184.9 | 4.357 |
| 4 | N hi | 158.5 | 5.084 |
| 5 | N lo | 140.5 | 5.734 |
| 5 | N hi | 120.4 | 6.690 |
| 6 | N lo | 109.5 | 7.359 |
| 6 | N hi | 93.9 | 8.586 |
| 1 | F lo | 86.5 | 9.314 |
| 1 | F hi | 74.2 | 10.866 |
| 2 | F lo | 67.1 | 12.010 |
| 2 | F hi | 57.5 | 14.012 |
| 3 | F lo | 51.6 | 15.612 |
| 3 | F hi | 44.2 | 18.215 |
| 4 | F lo | 40.3 | 20.016 |
| 4 | F hi | 34.5 | 23.353 |
| 5 | F lo | 30.6 | 26.343 |
| 5 | F hi | 26.2 | 30.734 |
| 6 | F lo | 23.8 | 33.807 |
| 6 | F hi | 20.4 | 39.442 |

(*) Calculated with a tyre dynamic radius index of 855 mm (ISO 4251/1 - 1988).

Number of revolutions of front wheels for one revolution of rear wheels: 1.2741

| Gear no. | Group or range | Number of engine revolutions for one revolution of the driving wheels | Nominal travelling speed (*) at rated engine speed of 2500 rev/min km/h |
|---|---|---|---|
| REVERSE | | | |
| 1 | S lo | 1302.2 | 0.619 |
| 1 | S hi | 1116.2 | 0.722 |
| 2 | S lo | 1009.9 | 0.798 |
| 2 | S hi | 865.6 | 0.931 |
| 3 | S lo | 776.9 | 1.037 |
| 3 | S hi | 665.9 | 1.210 |
| 4 | S lo | 605.9 | 1.330 |
| 4 | S hi | 519.4 | 1.552 |
| 5 | S lo | 460.4 | 1.750 |
| 5 | S hi | 394.6 | 2.042 |
| 1 | N lo | 376.2 | 2.142 |
| 6 | S lo | 358.8 | 2.246 |
| 1 | N hi | 322.5 | 2.499 |
| 6 | S hi | 307.5 | 2.620 |
| 2 | N lo | 291.8 | 2.762 |
| 2 | N hi | 250.1 | 3.222 |
| 3 | N lo | 224.4 | 3.590 |
| 3 | N hi | 192.4 | 4.189 |
| 4 | N lo | 175.1 | 4.603 |
| 4 | N hi | 150.0 | 5.371 |
| 5 | N lo | 133.0 | 6.058 |
| 5 | N hi | 114.0 | 7.068 |
| 6 | N lo | 103.6 | 7.775 |
| 6 | N hi | 88.8 | 9.071 |
| 1 | F lo | 81.9 | 9.840 |
| 1 | F hi | 70.2 | 11.480 |
| 2 | F lo | 63.5 | 12.688 |
| 2 | F hi | 54.4 | 14.803 |
| 3 | F lo | 48.9 | 16.494 |
| 3 | F hi | 41.9 | 19.243 |
| 4 | F lo | 38.1 | 21.146 |
| 4 | F hi | 32.7 | 24.672 |
| 5 | F lo | 29.0 | 27.830 |
| 5 | F hi | 24.8 | 32.470 |
| 6 | F lo | 22.6 | 35.715 |
| 6 | F hi | 19.3 | 41.669 |

(*) Calculated with a tyre dynamic radius index of 855 mm (ISO 4251/1 - 1988).

Number of revolutions of front wheels for one revolution of rear wheels: 1.2741

**HÜRLIMANN 6135 VDT with 24 forward and 24 reverse speeds**

Total ratios and travelling speeds (tyres 20.8 R 38 and pressure 130 kPa)

| Gear no. | Group or range | Number of engine revolutions for one revolution of the driving wheels | Nominal travelling speed (*) at rated engine speed of 2500 rev/min km/h |
|---|---|---|---|
| | | **FORWARD** | |
| 1 | R | 3537.6 | 0.228 |
| 2 | R | 2743.5 | 0.294 |
| 3 | R | 2110.4 | 0.382 |
| 4 | R | 1646.1 | 0.490 |
| 5 | R | 1250.7 | 0.644 |
| 1 | S | 1179.2 | 0.683 |
| 6 | R | 974.6 | 0.827 |
| 2 | S | 914.5 | 0.881 |
| 3 | S | 703.5 | 1.145 |
| 4 | S | 548.7 | 1.469 |
| 5 | S | 416.9 | 1.933 |
| 1 | N | 340.7 | 2.365 |
| 6 | S | 324.9 | 2.480 |
| 2 | N | 264.2 | 3.050 |
| 3 | N | 203.2 | 3.965 |
| 4 | N | 158.5 | 5.084 |
| 5 | N | 120.4 | 6.690 |
| 6 | N | 93.9 | 8.586 |
| 1 | F | 74.2 | 10.866 |
| 2 | F | 57.5 | 14.012 |
| 3 | F | 44.2 | 18.215 |
| 4 | F | 34.5 | 23.353 |
| 5 | F | 26.2 | 30.734 |
| 6 | F | 20.4 | 39.442 |
| | | **REVERSE** | |
| 1 | R | 3348.5 | 0.241 |
| 2 | R | 2596.9 | 0.310 |
| 3 | R | 1997.6 | 0.403 |
| 4 | R | 1558.1 | 0.517 |
| 5 | R | 1183.9 | 0.681 |
| 1 | S | 1116.2 | 0.722 |
| 6 | R | 922.5 | 0.873 |
| 2 | S | 865.6 | 0.931 |
| 3 | S | 665.9 | 1.210 |
| 4 | S | 519.4 | 1.552 |
| 5 | S | 394.6 | 2.042 |
| 1 | N | 322.5 | 2.499 |
| 6 | S | 307.5 | 2.620 |
| 2 | N | 250.1 | 3.222 |
| 3 | N | 192.4 | 4.189 |
| 4 | N | 150.0 | 5.371 |
| 5 | N | 114.0 | 7.068 |
| 6 | N | 88.8 | 9.071 |
| 1 | F | 70.2 | 11.480 |
| 2 | F | 54.4 | 14.803 |
| 3 | F | 41.9 | 19.243 |
| 4 | F | 32.7 | 24.672 |
| 5 | F | 24.8 | 32.470 |
| 6 | F | 19.3 | 41.669 |

(*) Calculated with a tyre dynamic radius index of 855 mm (ISO 4251/1 - 1988).

Number of revolutions of front wheels for one revolution of rear wheels: 1.2741

**POWER TAKE OFF**

**Main power take-off**

| | |
|---|---|
| Type and method of engagement: | independent, engaged or disengaged by push button. Driven by multiplate wet clutch independent of travel clutch; ISO Standard 500-1979 |
| Number of shafts: | 1 |
| Method of changing power take-off shaft ends and speeds: | it is possible, through 6 screws, to mount one PTO shaft end at 6 or 21 splines. Speed selection by external hand lever combined with a lever at the left hand side of the seat |

**Power take-off proportional to engine speed**

**540 rev/min**

| | |
|---|---|
| Location: | at rear of tractor, in tractor's median plane |
| Diameter of power take-off shaft end: | 35 mm |
| Number of splines: | 6, in conformity with ISO 500/1991 type 1 |
| Height above ground: | 830 mm |
| Distance from the median plane of the tractor: | 0 mm |
| Distance behind rear-wheel axis: | 475 mm |
| PTO speed at rated engine speed: | 605 rev/min |
| Engine speed at standard power take-off speed: | 2229 rev/min |
| Ratio of rotation speeds (engine speed/p.t.o. speed): | 4.1278 |
| Power restriction and maximum torque: | 143 kW, 2524 Nm |
| Direction of rotation (viewed from behind tractor): | clockwise |

**1000 rev/min**

| | |
|---|---|
| Location: | at rear of tractor, in tractor's median plane |
| Diameter of power take-off shaft end: | 35 mm |
| Number of splines: | 21, in conformity with ISO 500/1991 type 2 |
| Height above ground: | 830 mm |
| Distance from the median plane of the tractor: | 0 mm |
| Distance behind rear-wheel axis: | 475 mm |
| PTO speed at rated engine speed: | 1033 rev/min |
| Engine speed at standard power take-off speed: | 2421 rev/min |
| Ratio of rotation speeds (engine speed/p.t.o. speed): | 2.4211 |
| Power restriction and maximum torque: | 143 kW, 1363 Nm |
| Direction of rotation (viewed from behind tractor): | clockwise |

**775 rev/min**

| | |
|---|---|
| Location: | at rear of tractor, in tractor's median plane |
| Diameter of power take-off shaft end: | 35 mm |
| Number of splines: | 21 |
| Height above ground: | 830 mm |
| Distance from the median plane of the tractor: | 0 mm |
| Distance behind rear-wheel axis: | 475 mm |
| PTO speed at rated engine speed: | 784 rev/min |
| Engine speed at standard power take-off speed: | 2470 rev/min |
| Ratio of rotation speeds (engine speed/p.t.o. speed): | 3.188 |
| Power restriction and maximum torque: | 143 kW, 1762 Nm |
| Direction of rotation (viewed from behind tractor): | clockwise |

**1300 rev/min**

| | |
|---|---|
| Location: | at rear of tractor, in tractor's median plane |
| Diameter of power take-off shaft end: | 35 mm |
| Number of splines: | 21 |
| Height above ground: | 830 mm |
| Distance from the median plane of the tractor: | 0 mm |
| Distance behind rear-wheel axis: | 475 mm |
| PTO speed at rated engine speed: | 1337 rev/min |
| Engine speed at standard power take-off speed: | 2431 rev/min |
| Ratio of rotation speeds (engine speed/p.t.o. speed): | 1.869 |
| Power restriction and maximum torque: | 143 kW, 1050 Nm |
| Direction of rotation (viewed from behind tractor): | clockwise |

**Power take off proportional to ground speed**
(separated syncromesh shaft, not adjustable to 540 - 775 - 1000 - 1300 rev/min)

| | |
|---|---|
| Location and method of engagement: | at rear of tractor, in tractor's median plane, engaged or disengaged by hand level at the left hand side of the seat |
| Number of shafts: | 1 |
| Travelling distance for one revolution of power take-off shaft: | 0.214 m |
| Number of power take-off shaft revolutions for one revolution of rear driving wheels: | 25.00 |
| Direction of rotation with forward gear engaged (viewed from behind tractor): | clockwise |

**Secondary power take-off**

| | |
|---|---|
| Type and method of engagement: | independent, engaged or disengaged by push button. Driven by multiplate wet clutch independent of travel clutch; ISO Standard 500-1979 |

| | |
|---|---|
| Number of shafts: | 1 |
| Method of changing power take-off shaft ends and speeds: | none |

**Power take-off proportional to engine speeds**

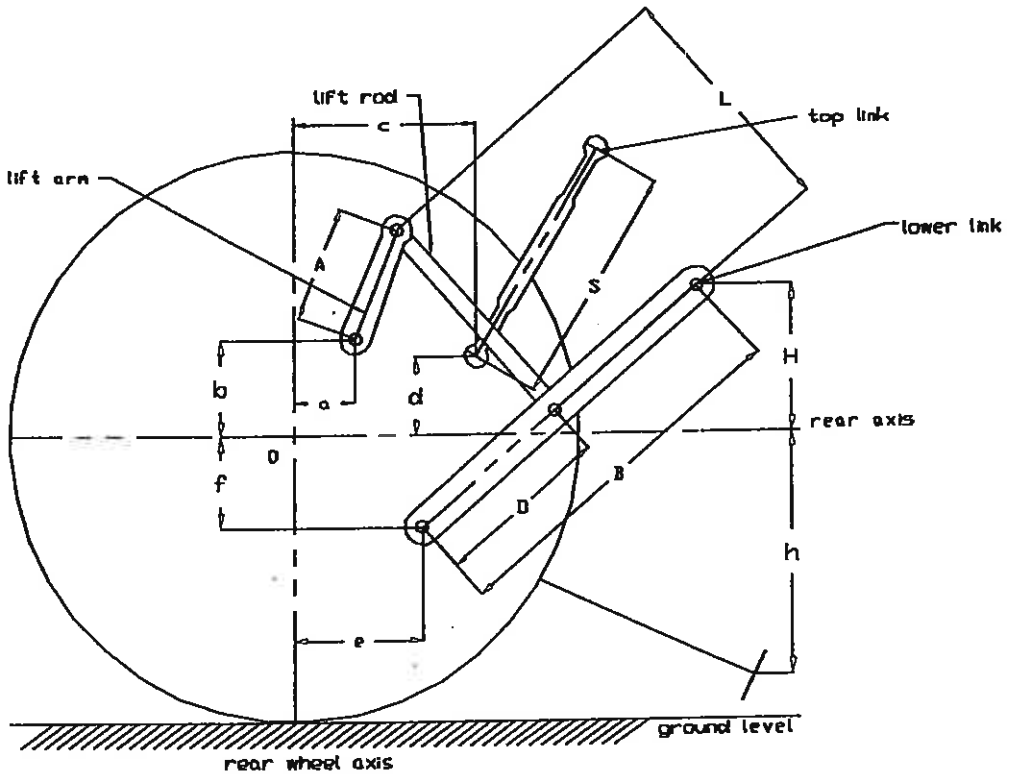
| | |
|---|---|
| Location: | at front of tractor, in tractor's median plane |
| Dimension: | ISO Standard 500-1979 type 2 (35 mm - 21 splines) |
| Ratio of rotation speeds (engine speed/p.t.o. speed): | 1.869 |
| Direction of rotation (viewed from facing driving end): | anticlockwise |

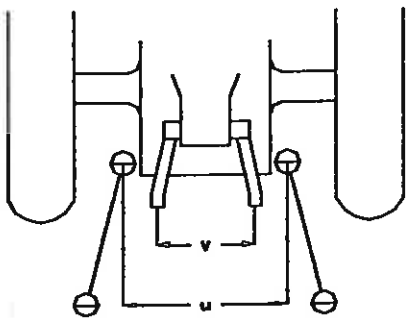
**REAR POWER LIFT**

| | |
|---|---|
| Make: | S+L+H |
| Model: | 527.59 electronic control |
| Type: | load sensing |
| Type of hydraulic system: | open centre system |
| Type and number of cylinders: | 1 internal single acting, and 2 external single acting |
| Type of linkage lock for transport: | mechanical, with screwed tie rods that lock the lower links |
| Relief valve pressure setting: | 18 $\pm$ 0.5 MPa |
| Opening pressure of anti-shock valve: | 21.0 MPa |
| Opening pressure of cylinder safety valve: | none |
| Lift pump type: | hydraulic rotary pump, driven by engine shaft, pump BOSCH make, HY/ZFS 11/22.5 R206V |
| Transmission between pump and engine: | mechanical |
| Type and number of filters: | 1, replaceable paper cartridge |
| Site of oil reservoir: | gear-box |
| Type, number and location of tapping points: | 6 ways distributor at rear of tractor |
| Maximum volume of oil available to external cylinders: | 15 $dm^3$ |

**Three point linkage**

| | |
|---|---|
| Category: | 2nd, implement attachment with three point linkage and lower links with quick connection, in conformity with ISO Standard 730/I-1990 |
| Category adapter: | 3rd |


lift rod
c
L
top link
lift arm
lower link
A
S
H
b
a
d
rear axis
0
f
B
D
h
e
ground level
rear wheel axis


v
u

**REAR POWER LIFT**

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

| | | Dimension or range mm | Settings used in test mm |
|---|---|---|---|
| Length of lift arms | (A) | 280 | 280 |
| Length of lower links | (B) | 840 | 840 |
| Distance of lift arm pivot point from rear wheel axis: - horizontally | (a) | 135 | 135 |
| - vertically | (b) | 402 | 402 |
| Horizontal distance between the 2 lower link points | (u) | 550 | 550 |
| Horizontal distance between the 2 lift arm end points | (v) | 580 | 580 |
| Length of upper link | (S) | from 500 to 770 | 729 |
| Distance of upper link pivot point from rear wheel axis: - horizontally | (c) | 335 | 335 |
| - vertically | (d) | 217-282-347 | 282 |
| Distance of lower link pivot point from rear wheel axis: - horizontally | (e) | 220 | 220 |
| - vertically | (f) | 230 | 230 |
| Distance of lower link pivot points to lift rod pivot points on lower links | (D) | 430-470 | 430 |
| Length of lift rods | (L) | from 730 to 870 | 825 |
| Heigth of lower hitch points relative to the rear wheel axis: - in low position | (h) | from 429 to 747 | 655 |
| - in high position | (H) | from 4 to 247 | 75 |
| Height above ground of lower hitch points when locked in transport position (*) | | | 930 |

(*) Assuming the dynamic radius index: 855 mm (ISO 4251/1-1988)

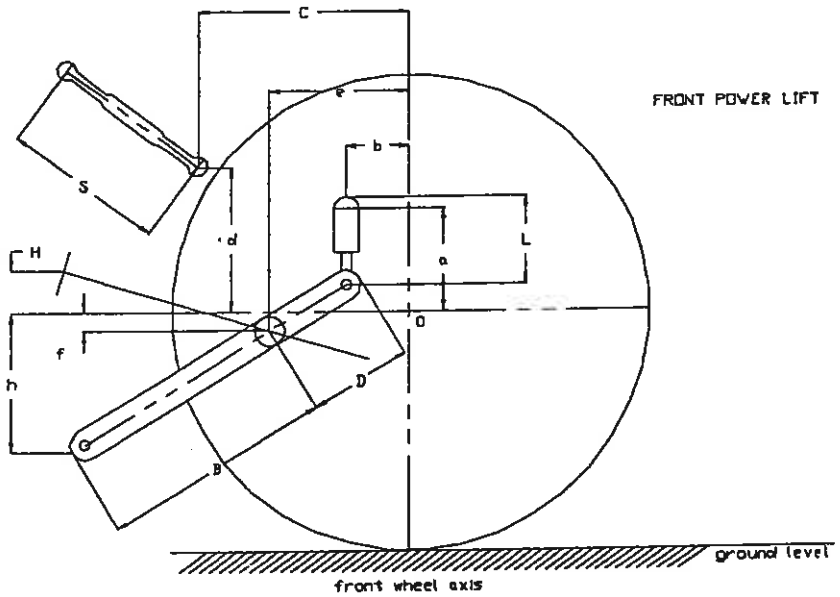
**FRONT POWER LIFT**

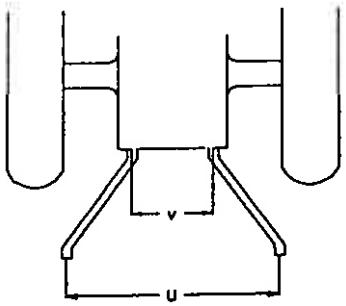
| | |
|---|---|
| Make: | S+L+H |
| Model: | ORIGINAL SAME SYSTEM, 526.59 FRONT electronic control |
| Type and number of cylinders: | 2 at single acting |
| Type of linkage lock for transport: | none |
| Relief valve pressure setting: | 18 ± 0.5 MPa |
| Opening pressure of anti-shock valve: | 21.0 MPa |

| | |
|---|---|
| Lift pump type: | hydraulic rotary pump, driven by engine shaft, pump BOSCH make |
| Transmission between pump and engine: | mechanical |
| Type and number of filters: | 1, replaceable paper cartridge |
| Site of oil reservoir: | gear-box |

**Three point linkage**

| | |
|---|---|
| Category: | 2nd, implement attachment with three point linkage and lower links with quick connection, in conformity with ISO Standard 730/I-1990 |
| Category adapter: | none |



**FRONT POWER LIFT**

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

| | | Dimension or range mm | Settings used in test mm |
|---|---|---|---|
| Length of lower links | (B) | 920 | 920 |
| Distance of cylinders pivot point from front wheel axis: - horizontally | (a) | 328 | 328 |
| - vertically | (b) | 320 | 320 |
| Horizontal distance between the 2 lower link points | (u) | 870 | 870 |
| Horizontal distance between the 2 lift arm end points | (v) | 360 | 360 |
| Length of upper link | (S) | from 510 to 690 | 599 |
| Distance of upper link pivot point from front wheel axis: - horizontally | (c) | 625-640 | 640 |
| - vertically | (d) | 360-420 | 420 |
| Distance of lower link pivot point from front wheel axis: - horizontally | (e) | 470 | 470 |
| - vertically | (f) | 60 | 60 |
| Distance of lower link pivot points to cylinders points on lower links | (D) | 180 | 180 |
| Length of cylinders: | | | |
| - in low position | (L) | 329 | 329 |
| - in high position | (L) | 503 | 503 |
| Heigth of lower hitch points relative to the front wheel axis: | | | |
| - in low position | (h) | | 440 |
| - in high position | (H) | | 225 |
| - Height above ground of lower hitch points (*) | | | 920 |

(*) Assuming the dynamic radius index: 695 mm (ISO 4251/1-1988)

**SWINGING DRAWBAR** (optional not fitted on tested tractor)

| | |
|---|---|
| Type: | 97313 |
| Height above ground (tyre size 20.8 R 38): | |
| - max: | 565 mm |
| - min: | 490 mm |
| Type of adjustment: | reversible |
| Distance of hitch point from rear wheel axis: | |
| - horizontally: | 815 mm |

| | |
|---|---|
| Distance of hitch point from power take-off shaft end: | |
| - vertically: | 290 - 365 mm below |
| - horizontally: | 485 mm behind |
| Lateral adjustment(centre of clevis): | |
| - right hand: | 270 mm |
| - left hand: | 270 mm |
| Distance of pivot point from rear wheel axis, horizontally: | 485 mm forward |
| Diameter of drawbar pin hole: | 33 mm |
| Maximum vertical permissible load: | not specified |

**TRAILER HITCH**

| | |
|---|---|
| Type: | SAME DGM-GA 1189/C |
| Hole diameter: | 28 mm |
| Height above ground: | |
| - min: | 525 mm |
| - max: | 790 mm |
| Distance of hitch point from rear wheel axis, horizontally: | 560 mm |
| Distance of hitch point from power take-off shaft end: | |
| - vertically: | 175 mm below, 20 mm above |
| - horizontally: | 110 mm |
| Maximum vertical permissible load: | 14.7 kN |

**HOLED DRAWBAR**

| | |
|---|---|
| Number of holes: | 7 |
| Distance between holes: | 100 mm |
| Hole diameter: | 28.5 |
| Thickness/width of the drawbar: | 30/80 mm |
| Height above ground with tyre 20.8 R 38: | |
| - minimum: | 300 mm |
| - maximum: | 1050 mm |
| Horizontal distance behind power take-off shaft end: | 590 mm |

**STEERING**

| | |
|---|---|
| Make: | DANFOSS |
| Model: | ORBITROL OSPC 160 OR |
| Type: | hydrostatic |
| Method of operation: | |
| - pump: | hydrostatic steering with BOSCH hydraulic gear pump HY/ZFS 11/11 L201 |
| - rams: | two double acting rams acting directly on front axle |
| Working pressure: | 15 MPa |

**BRAKES**

**Service brake:**

| | |
|---|---|
| **Make:** | **S+L+H** |
| **Model:** | **524.54** |

| | |
|---|---|
| Type: | oil bath disc, total 6 discs, 4 at front (2 for wheel) and 2 at rear (1 for wheel), all mounted before the final drive. Front disc 224 mm dia, rear disc 280 mm dia, FRENDO HDT 303 lining material |
| Method of operation: | hydraulically actuated with 2 pedals |
| Trailer braking take-off: | none |

**Parking brake:**

| | |
|---|---|
| Type: | fully independent of service brake, 4 oil bath disc mounted on the pinion shaft in the gear box, ISOBOND SINTERIX lining material |
| Method of operation: | mechanical by hand lever |

**WHEELS**

**Steering wheels**

| | |
|---|---|
| Number: | 2 |
| Location: | at front |

**Driving wheels**

| | |
|---|---|
| Number: | 4 |
| Location: | 2 at front and 2 at rear |

| Tyre matching | | | |
|---|---|---|---|
| At front | | At rear | |
| 16.9 R 30 | 6 ply | 20.8 R 38 | 8 ply |
| 14.9 R 30 | 129 A8 | 18.4 R 38 | 146 A8 |
| 480/70 R 28 | 140 A8 | 520/70 R 38 | 150 A8 |

**Wheelbase:** 2750 mm

**Track width adjustment**

| | Minimum mm | Maximum mm | Adjustement method |
|---|---|---|---|
| Front | 1800 | 2060 | Changing the position of the rims with respect to the disc |
| Rear | 1750 | 2250 | Changing the position of the rims in respect to the disc |

**PROTECTIVE STRUCTURE**

| | |
|---|---|
| Make: | S+L+H |
| Model: | C 32 |
| Type: | cab, not tiltable |
| Manufacture's name and address: | S+L+H S.p.A.,<br>Viale F. Cassani 15<br>24047 TREVIGLIO (BG) - Italy |
| OECD approval number: | CSD 1261/2 |

**DRIVER'S SEAT**

| | |
|---|---|
| Make: | GRAMMER |
| Model: | LS 95H1/90 A |
| Type: | upholstered seat with back rest |
| Type of suspension: | adjustable spring |
| Type of damping: | shock absorber |
| Range of adjustment: | |
| - longitudinal: | 150 mm |
| - vertical: | 60 mm |
| Available options: | |
| Make: | KAB |
| Model: | U Series XH2 |
| Type: | upholstered seat with back rest |
| Type of suspension: | adjustable spring |
| Type of damping: | shock absorber |
| Range of adjustment: | |
| - longitudinal: | 150 mm |
| - vertical: | 60 mm |

**PASSENGER'S SEAT**

| | |
|---|---|
| Location: | on the left side of the cab |
| Number of places: | 1 |

**LIGHTING**

| | Height above ground of centre* mm | Size mm | Distance from outside edge of lights to median plane of tractor mm |
|---|---|---|---|
| Headlights | 1180 | 170 x 110 | 240 |
| Sidelights | 1875 | 110 x 35 | 860 |
| Rearlights | 1865 | 115 x 70 | 800 |
| Reflectors | 1815 | 110 X 35 | 800 |

(*) with tyres: 16.9 R 30 front - 20.8 R 38 rear

**II. TEST CONDITIONS**

**Overall dimensions** (with tyres 16.9 R 30 front and 20.8 R 38 rear)

| | Length | Width | | Height at top of | |
|---|---|---|---|---|---|
| | | minimum | maximum | protective structure | exhaust silencer |
| | mm | mm | mm | mm | mm |
| Ballasted | 5255 | 2250 | 2500 | 2890 | 2905 |
| Unballasted | 5140 | 2250 | 2500 | 2890 | 2905 |

**Ground clearance** (unballasted tractor): 520 mm

Clearance-limiting part: differential of the front axle

**Tractor mass** (with protective structure and full fuel tank):

| | Ballasted | | Unballasted | |
|---|---|---|---|---|
| | Without driver kg | With driver kg | Without driver kg | With driver kg |
| Front | 3090 | 3110 | 2510 | 2530 |
| Rear | 3050 | 3105 | 2930 | 2985 |
| Total | 6140 | 6215 | 5440 | 5515 |

**Ballast**

| | Weights | | Water (kg) |
|---|---|---|---|
| | Number | Total mass (kg) | |
| Front wheels | - | - | - |
| Front weight | 1 | 400 | - |
| Rear wheels | 6 | 300 | - |

**Tyres and track width specifications**

| | Front | Rear |
|---|---|---|
| Tyres: | | |
| - dimensions | 16.9 R 30 | 20.8 R 38 |
| - ply rating | 6 | 8 |
| - type | radial | radial |
| - maximum load (tyre manufacturer') | 14.9 kN | 24.3 kN |
| - maximum load (tractor manufacturer's) | 14.5 kN | 24.0 kN |
| - inflaction pressure (tyre manufacturer's) | 130 kPa | 130 kPa |
| - dynamic radius index | 695 mm | 855 mm |
| Chosen track width: | 1720 mm | 1840 mm |

**Oils and lubrication**

Capacity and change interval

| | Capacity $dm^3$ | Oil change h | Filter change h |
|---|---|---|---|
| Engine with filter | 15.0 | 150 | 300 |
| Gear box with power lifts, rear axle, final drive and hydraulic system | 97.0 | 1200 | 2400 (*) |
| Front axle | 13.0 | 1200 | - |
| Front final drive | 5.0 | 1200 | - |

(*) or when the warning lamp is lighted.

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

| | Recommended | Used during test |
|---|---|---|
| Engine oil<br>- Type:<br>- Viscosity:<br>- Classification: | AGIP DIESEL SIGMA S SAE 30<br>12.50 cSt<br>API SE-CD | As recommended |
| Hydraulic fluid<br>- Type:<br>- Viscosity:<br>- Classification: | AGIP ROTRA THT<br>11.50 cSt<br>API GL 4 | As recommended |
| Front and rear axle, final drives and gear box<br>- Type:<br>- Viscosity:<br>- Classification: | AGIP ROTRA THT<br>11.50 cSt<br>API GL 4 | As recommended |
| Steering oil<br>- Type:<br>- Viscosity:<br>- Classification: | AGIP ROTRA THT<br>11.50 cSt<br>API GL 4 | As recommended |

Grease: GREASE 30
- Number of lubrication points: 10

**Fuel**

Type: AGIP DIESEL, DIN 51601, in conformity with national standard.

Density at 15 °C: 0.834 g/cm$^3$

## COMPULSORY TEST RESULTS

1. **MAIN POWER-TAKE-OFF**
   - Date and location of tests: 15th October 1991 - I.S.M.A. TREVIGLIO (BG)
   - Type of dynamometer: ZOELLNER B 500

| Power | Speed | | Fuel consumption | | | Specific energy |
|---|---|---|---|---|---|---|
| | Engine | P.t.o. | Hourly | | Specific | |
| kW | rev/min | | kg/h | l/h | g/kWh | kWh/l |
| 1.1 **MAXIMUM POWER** - TWO HOUR TEST | | | | | | |
| 93.5 | 2501 | 1033 | 22.71 | 27.23 | 243 | 3.43 |
| 1.2 POWER AT RATED ENGINE SPEED | | | | | | |
| 93.5 | 2501 | 1033 | 22.71 | 27.23 | 243 | 3.43 |
| 1.3 STANDARD POWER TAKE OFF SPEED (1000 ± 25 rev/min) | | | | | | |
| 92.5 | 2424 | 1001 | 22.14 | 26.55 | 239 | 3.49 |
| 1.4 **PART LOADS** | | | | | | |
| 1.4.1 the torque corresponding to maximum power at rated engine speed | | | | | | |
| 93.5 | 2501 | 1033 | 22.71 | 27.23 | 243 | 3.43 |
| 1.4.2 85% of torque obtained in 1.4.1 | | | | | | |
| 82.0 | 2574 | 1063 | 21.08 | 25.28 | 257 | 3.24 |
| 1.4.3 75% of torque defined in 1.4.2 | | | | | | |
| 62.8 | 2623 | 1084 | 17.47 | 20.95 | 278 | 3.00 |
| 1.4.4 50% of torque defined in 1.4.2 | | | | | | |
| 42.4 | 2659 | 1098 | 13.88 | 16.64 | 328 | 2.54 |
| 1.4.5 25% of torque defined in 1.4.2 | | | | | | |
| 21.4 | 2685 | 1109 | 10.39 | 12.46 | 486 | 1.72 |
| 1.4.6 unloaded | | | | | | |
| ---- | 2709 | 1119 | 6.89 | 8.26 | ---- | ---- |
| 1.5 **PART LOADS AT STANDARD POWER TAKE OFF SPEED** (1000 ± 25 rev/min) | | | | | | |
| 1.5.1 the torque corresponding to maximum power | | | | | | |
| 92.5 | 2424 | 1001 | 22.14 | 26.55 | 239 | 3.49 |
| 1.5.2 85% of torque obtained in 1.5.1 | | | | | | |
| 81.1 | 2498 | 1032 | 20.02 | 24.00 | 247 | 3.38 |
| 1.5.3 75% of torque defined in 1.5.2 | | | | | | |
| 62.1 | 2551 | 1054 | 16.62 | 19.93 | 268 | 3.11 |
| 1.5.4 50% of torque defined in 1.5.2 | | | | | | |
| 41.8 | 2582 | 1066 | 13.47 | 16.15 | 322 | 2.59 |
| 1.5.5 25% of torque defined in 1.5.2 | | | | | | |
| 21.0 | 2607 | 1077 | 10.03 | 12.02 | 477 | 1.75 |
| 1.5.6 unloaded | | | | | | |
| ---- | 2632 | 1087 | 6.58 | 7.89 | ---- | ---- |

**STANDARD SPECIFIC FUEL CONSUMPTION:** 257/328/247/322 g/kWh

- No load maximum engine speed: 2709 rev/min
- Torque (1) at maximum power at rated engine speed: 357.4 Nm
- Maximum torque (1) (engine speed: 1319 rev/min): 510.5 Nm
- Mean atmospheric conditions:
  - . Temperature: 22 °C
  - . Pressure: 99 kPa
  - . Relative humidity: 60%
- Maximum Temperatures:
  - . Coolant: 85 °C
  - . Engine oil: 113 °C
  - . Fuel: 30 °C
  - . Engine air intake: 25 °C

(1) The torque is the equivalent crankshaft torque

## 2. HYDRAULIC POWER AND LIFTING FORCE

- Date of tests: 16th October 1991 - I.S.M.A. TREVIGLIO (BG)

### 2.1 HYDRAULIC POWER TEST

- Sustained pressure with relief valve open: 18.8 MPa
- Pump delivery rate at minimum pressure: 61.0 l/min

| | Flow rate l/min | Power kW | Pressure MPa | Oil temp. °C |
|---|---|---|---|---|
| Flow rate corresponding to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting and corresponding hydraulic power | 50.8 | 13.55 | 16.0 | 63 |
| Flow rate and hydraulic pressure corresponding to maximum hydraulic power | 50.0 | 15.42 | 18.5 | 66 |

- Tapping point used for test: at rear of tractor

### 2.2 REAR 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 | 730 | mm | 772 | mm |
| Maximum corrected force exerted through full range | 40.22 | kN | 44.14 | kN |
| Corresponding pressure of hydraulic fluid | 18.50 | MPa | 18.50 | MPa |
| Moment about rear-wheel axis | 42.63 | kNm | 73.71 | kNm |
| Maximum tilt angle of mast from the vertical | - degress | | 3 degress | |

| Lifting heights relative to the horizontal plane including the lower pivot points | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | -425 | -400 | -300 | -200 | -100 | 0 | 100 | 200 | 300 | 305 | 347 |
| Lifting forces | | | | | | | | | | | |
| at the hitch points kN | 40.22 | 41.00 | 42.30 | 44.34 | 47.87 | 50.62 | 52.97 | 55.82 | 57.78 | 57.83 | - |
| Corresponding presure: 18.5 MPa | | | | | | | | | | | |
| at the frame kN | 44.14 | 45.06 | 46.15 | 48.76 | 51.01 | 52.58 | 54.12 | 55.73 | 55.37 | - | 53.56 |
| Corresponding pressure: 18.5 MPa | | | | | | | | | | | |

## 2.3 FRONT POWER LIFT TEST

| | at the hitch point | | on the frame | |
|---|---|---|---|---|
| Height of lower hitch points above ground in down position | 255 | mm | 255 | mm |
| Vertical movement | 665 | mm | 665 | mm |
| Maximum corrected force exerted through full range | 15.20 | kN | 12.07 | kN |
| Corresponding pressure of hydraulic fluid | 18.50 | MPa | 18.50 | MPa |
| Moment about rear-wheel axis | 18.39 | kNm | 21.97 | kNm |
| Maximum tilt angle of mast from the vertical | - degress | | - degress | |

| Lifting heights relative to the horizontal plane including the lower pivot points | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| mm | -380 | -300 | -200 | -100 | 0 | 100 | 200 | 285 |
| Lifting forces | | | | | | | | |
| at the hitch points kN | 22.85 | 20.79 | 19.32 | 18.24 | 17.36 | 16.53 | 15.65 | 15.20 |
| Corresponding presure: 18.5 MPa | | | | | | | | |
| at the frame kN | 23.45 | 20.21 | 18.07 | 16.48 | 15.04 | 13.62 | 12.55 | 12.07 |
| Corresponding pressure: 18.5 MPa | | | | | | | | |

## 3. DRAWBAR PERFORMANCE

**Date of tests:** 17th to 24th October 1991 - I.S.M.A. TREVIGLIO (BG)
**Type of track:** concrete
**Tyre size** - front: 16.9 R 30 6 ply
- rear: 20.8 R 38 8 ply

| | Height of hitch above ground | Tyre inflaction pressure | |
|---|---|---|---|
| | | Front | Rear |
| Unballasted | 675 mm | 130 kPa | 130 kPa |
| Ballasted | 670 mm | 130 kPa | 130 kPa |

| Gear no. and group | Driving speed | Power | Drawbar pull | Engine speed | Slip of wheels | Specific fuel consumption | Specific energy | Temperature | | | Atmospheric conditions | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Fuel | Coolant | Engine oil | Temperature | Relative humidity | Pressure |
| | km/h | kW | daN | rev/min | % | g/kWh | kWh/l | °C | °C | °C | °C | % | kPa |
| 3.1 - MAXIMUM POWER IN TESTED GEARS (unballasted tractor) | | | | | | | | | | | | | |
| 1R lo | 0.18 | 1.75 | 3501 | 2688 | 15 | 5846 | 0.152 | 38 | 79 | 99 | 16 | 75 | 100.3 |
| 1R hi | 0.21 | 2.40 | 4121 | 2687 | 15 | 4000 | 0.209 | 38 | 79 | 99 | 16 | 75 | 100.3 |
| 2R lo | 0.23 | 2.65 | 4148 | 2687 | 15 | 3642 | 0.229 | 38 | 79 | 100 | 16 | 74 | 100.4 |
| 2R hi | 0.27 | 3.16 | 4217 | 2687 | 15 | 3054 | 0.273 | 39 | 78 | 100 | 15 | 75 | 100.3 |
| 3R lo | 0.30 | 3.53 | 4236 | 2686 | 15 | 2861 | 0.291 | 39 | 78 | 100 | 16 | 75 | 100.4 |
| 3R hi | 0.35 | 4.15 | 4271 | 2676 | 15 | 2446 | 0.341 | 39 | 81 | 101 | 16 | 75 | 100.3 |
| 4R lo | 0.38 | 4.54 | 4306 | 2685 | 15 | 2258 | 0.369 | 38 | 81 | 100 | 16 | 75 | 100.4 |
| 4R hi | 0.45 | 5.39 | 4315 | 2683 | 15 | 1948 | 0.428 | 38 | 80 | 99 | 15 | 75 | 100.3 |
| 5R lo | 0.50 | 5.01 | 4330 | 2679 | 15 | 1830 | 0.456 | 39 | 81 | 100 | 16 | 76 | 100.3 |
| 1S lo | 0.53 | 6.42 | 4364 | 2674 | 15 | 1869 | 0.446 | 39 | 81 | 101 | 15 | 76 | 100.3 |
| 5R hi | 0.58 | 6.90 | 4286 | 2676 | 15 | 1710 | 0.488 | 37 | 82 | 102 | 16 | 76 | 100.4 |
| 1S hi | 0.62 | 7.43 | 4318 | 2675 | 15 | 1629 | 0.512 | 38 | 83 | 102 | 16 | 76 | 100.4 |
| 6R lo | 0.64 | 7.54 | 4244 | 2675 | 15 | 1618 | 0.515 | 38 | 80 | 102 | 16 | 77 | 100.3 |
| 2S lo | 0.68 | 8.17 | 4327 | 2671 | 15 | 1518 | 0.549 | 37 | 81 | 101 | 17 | 76 | 100.2 |
| 6R hi | 0.75 | 9.18 | 4409 | 2672 | 15 | 1345 | 0.620 | 37 | 81 | 101 | 17 | 77 | 100.2 |
| 2S hi | 0.80 | 9.44 | 4249 | 2670 | 15 | 1324 | 0.630 | 37 | 82 | 102 | 17 | 77 | 100.3 |
| 3S lo | 0.89 | 10.47 | 4235 | 2669 | 15 | 1203 | 0.693 | 35 | 82 | 102 | 17 | 77 | 100.3 |
| 3S hi | 1.03 | 12.26 | 4286 | 2667 | 15 | 1044 | 0.799 | 35 | 81 | 103 | 17 | 77 | 100.2 |
| 4S lo | 1.13 | 13.42 | 4276 | 2663 | 15 | 984 | 0.848 | 36 | 80 | 103 | 18 | 77 | 100.3 |
| 4S hi | 1.32 | 15.66 | 4271 | 2661 | 15 | 852 | 0.978 | 36 | 81 | 103 | 18 | 77 | 100.4 |
| 5S lo | 1.49 | 18.25 | 4411 | 2658 | 15 | 773 | 1.079 | 37 | 82 | 104 | 18 | 78 | 100.4 |
| 5S hi | 1.74 | 20.13 | 4167 | 2657 | 15 | 704 | 1.185 | 36 | 84 | 103 | 18 | 78 | 100.3 |
| 1N lo | 1.82 | 21.07 | 4169 | 2652 | 15 | 676 | 1.233 | 36 | 83 | 103 | 18 | 78 | 100.3 |
| 6S lo | 1.91 | 22.06 | 4159 | 2653 | 15 | 653 | 1.278 | 36 | 82 | 104 | 17 | 78 | 100.4 |
| 1N hi | 2.12 | 24.02 | 4081 | 2652 | 15 | 601 | 1.388 | 36 | 81 | 103 | 18 | 78 | 100.4 |
| 6S hi | 2.22 | 25.78 | 4182 | 2647 | 15 | 566 | 1.473 | 34 | 81 | 103 | 18 | 79 | 100.4 |
| 2N lo | 2.34 | 26.99 | 4153 | 2643 | 15 | 574 | 1.452 | 34 | 82 | 104 | 18 | 79 | 100.3 |
| 2N hi | 2.72 | 31.02 | 4107 | 2634 | 15 | 525 | 1.587 | 35 | 82 | 103 | 19 | 79 | 100.3 |
| 3N lo | 3.01 | 34.17 | 4087 | 2624 | 15 | 509 | 1.638 | 35 | 81 | 104 | 19 | 79 | 100.2 |
| 3N hi | 3.50 | 38.57 | 3969 | 2616 | 15 | 464 | 1.797 | 35 | 81 | 105 | 19 | 79 | 100.2 |
| 4N lo | 3.83 | 43.62 | 4101 | 2603 | 15 | 431 | 1.935 | 34 | 80 | 104 | 18 | 78 | 100.2 |
| 4N hi | 4.42 | 50.14 | 4057 | 2590 | 15 | 397 | 2.101 | 34 | 80 | 104 | 18 | 79 | 100.2 |
| 5N lo | 5.05 | 55.23 | 3938 | 2579 | 14 | 373 | 2.236 | 35 | 79 | 105 | 19 | 79 | 100.3 |
| 5N hi | 5.86 | 65.64 | 4033 | 2533 | 13 | 340 | 2.455 | 35 | 80 | 105 | 19 | 79 | 100.4 |
| 6N lo | 6.52 | 66.76 | 3687 | 2506 | 11 | 345 | 2.421 | 34 | 80 | 105 | 19 | 80 | 100.3 |
| 6N hi | 7.76 | 69.00 | 3202 | 2501 | 9 | 335 | 2.491 | 34 | 81 | 104 | 19 | 80 | 100.4 |
| 1F lo | 8.53 | 72.29 | 3052 | 2506 | 8 | 318 | 2.621 | 35 | 81 | 105 | 19 | 80 | 100.4 |
| 1F hi | 10.01 | 73.38 | 2640 | 2498 | 7 | 315 | 2.644 | 34 | 80 | 106 | 19 | 80 | 100.3 |
| 2F lo | 11.22 | 69.58 | 2233 | 2506 | 6 | 331 | 2.523 | 34 | 80 | 105 | 19 | 80 | 100.4 |

| Gear no. and group | Driving speed km/h | Power kW | Drawbar pull daN | Engine speed rev/min | Slip of wheels % | Specific fuel consumption g/kWh | Specific energy kWh/l | Temperature | | | Atmospheric conditions | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Fuel °C | Coolant °C | Engine oil °C | Temperature °C | Relative humidity % | Pressure kPa |
| 3.2 - MAXIMUM POWER IN TESTED GEARS (ballasted tractor) | | | | | | | | | | | | | |
| 1R lo | 0.18 | 2.01 | 4026 | 2683 | 15 | 5149 | 0.162 | 39 | 80 | 100 | 18 | 83 | 99.3 |
| 1R hi | 0.21 | 2.41 | 4126 | 2683 | 15 | 4303 | 0.194 | 38 | 80 | 100 | 18 | 83 | 99.3 |
| 2R lo | 0.23 | 2.81 | 4393 | 2682 | 15 | 3708 | 0.225 | 38 | 79 | 101 | 18 | 83 | 99.3 |
| 2R hi | 0.27 | 3.56 | 4742 | 2681 | 15 | 3048 | 0.274 | 38 | 80 | 101 | 18 | 83 | 99.3 |
| 3R lo | 0.30 | 3.82 | 4587 | 2682 | 15 | 2736 | 0.305 | 37 | 81 | 100 | 19 | 83 | 99.4 |
| 3R hi | 0.35 | 4.30 | 4428 | 2681 | 15 | 2535 | 0.329 | 37 | 81 | 100 | 19 | 83 | 99.3 |
| 4R lo | 0.38 | 4.75 | 4499 | 2678 | 15 | 2358 | 0.354 | 36 | 80 | 101 | 19 | 83 | 99.2 |
| 4R hi | 0.44 | 5.61 | 4590 | 2674 | 15 | 2103 | 0.397 | 37 | 81 | 101 | 18 | 84 | 99.2 |
| 5R lo | 0.50 | 7.19 | 5178 | 2672 | 15 | 1697 | 0.492 | 37 | 83 | 102 | 19 | 84 | 99.3 |
| 1S lo | 0.53 | 7.61 | 5172 | 2670 | 15 | 1643 | 0.508 | 37 | 83 | 103 | 19 | 83 | 99.3 |
| 5R hi | 0.58 | 8.37 | 5198 | 2670 | 15 | 1496 | 0.558 | 36 | 82 | 102 | 19 | 83 | 99.2 |
| 1S hi | 0.62 | 8.83 | 5129 | 2671 | 15 | 1393 | 0.599 | 37 | 82 | 102 | 19 | 83 | 99.2 |
| 6R lo | 0.64 | 9.27 | 5217 | 2669 | 15 | 1359 | 0.614 | 36 | 82 | 103 | 19 | 84 | 99.2 |
| 2S lo | 0.68 | 9.67 | 5123 | 2669 | 15 | 1305 | 0.639 | 36 | 81 | 103 | 18 | 83 | 99.2 |
| 6R hi | 0.74 | 10.54 | 5129 | 2667 | 15 | 1214 | 0.687 | 36 | 82 | 103 | 18 | 83 | 99.3 |
| 2S hi | 0.79 | 11.09 | 5054 | 2667 | 15 | 1159 | 0.720 | 37 | 83 | 103 | 18 | 83 | 99.3 |
| 3S lo | 0.88 | 11.98 | 4903 | 2667 | 15 | 1071 | 0.779 | 36 | 83 | 104 | 17 | 83 | 99.3 |
| 3S hi | 1.03 | 14.59 | 5099 | 2665 | 15 | 894 | 0.932 | 35 | 83 | 104 | 18 | 82 | 99.4 |
| 4S lo | 1.13 | 16.29 | 5190 | 2661 | 15 | 804 | 1.037 | 35 | 84 | 104 | 18 | 82 | 99.4 |
| 4S hi | 1.31 | 18.41 | 5061 | 2659 | 15 | 747 | 1.117 | 35 | 82 | 104 | 17 | 81 | 99.3 |
| 5S lo | 1.48 | 20.74 | 5047 | 2653 | 15 | 699 | 1.193 | 34 | 82 | 105 | 17 | 81 | 99.2 |
| 5S hi | 1.72 | 24.32 | 5092 | 2651 | 15 | 602 | 1.384 | 34 | 82 | 105 | 17 | 82 | 99.2 |
| 1N lo | 1.80 | 25.83 | 5168 | 2645 | 15 | 592 | 1.408 | 34 | 83 | 106 | 18 | 83 | 99.2 |
| 6S lo | 1.89 | 25.80 | 4915 | 2646 | 15 | 591 | 1.411 | 34 | 82 | 105 | 17 | 83 | 99.4 |
| 1N hi | 2.09 | 29.31 | 5050 | 2637 | 15 | 553 | 1.509 | 34 | 83 | 106 | 18 | 83 | 99.5 |
| 6S hi | 2.20 | 30.54 | 4998 | 2637 | 15 | 531 | 1.570 | 35 | 83 | 106 | 17 | 83 | 99.5 |
| 2N lo | 2.31 | 32.30 | 5036 | 2634 | 15 | 506 | 1.648 | 35 | 83 | 106 | 17 | 83 | 99.6 |
| 2N hi | 2.69 | 36.63 | 4903 | 2624 | 15 | 472 | 1.766 | 34 | 82 | 106 | 17 | 83 | 99.5 |
| 3N lo | 2.99 | 41.45 | 4992 | 2621 | 15 | 425 | 1.964 | 34 | 83 | 106 | 17 | 84 | 99.6 |
| 3N hi | 3.45 | 48.43 | 5057 | 2594 | 15 | 405 | 2.062 | 33 | 82 | 106 | 17 | 84 | 99.5 |
| 4N lo | 3.78 | 52.71 | 5021 | 2585 | 15 | 385 | 2.166 | 33 | 81 | 106 | 17 | 84 | 99.4 |
| 4N hi | 4.37 | 60.84 | 5013 | 2563 | 15 | 355 | 2.349 | 34 | 82 | 107 | 16 | 83 | 99.4 |
| 5N lo | 4.83 | 67.25 | 5014 | 2513 | 15 | 339 | 2.460 | 35 | 81 | 407 | 16 | 83 | 99.5 |
| 5N hi | 5.88 | 70.59 | 4323 | 2498 | 11 | 326 | 2.560 | 36 | 82 | 107 | 17 | 83 | 99.4 |
| 6N lo | 6.61 | 72.17 | 3931 | 2501 | 9 | 319 | 2.617 | 36 | 81 | 108 | 17 | 83 | 99.3 |
| 6N hi | 7.82 | 73.34 | 3377 | 2513 | 8 | 311 | 2.683 | 36 | 82 | 107 | 17 | 82 | 99.3 |
| 1F lo | 8.59 | 72.00 | 3018 | 2516 | 7 | 312 | 2.672 | 36 | 81 | 107 | 17 | 83 | 99.3 |
| 3.3.1 - FIVE HOUR TEST at 75% of pull at maximum power | | | | | | | | | | | | | |
| 6N lo | 6.96 | 56.85 | 2942 | 2572 | 7 | 373 | 2.233 | 37 | 88 | 106 | 16 | 81 | 99.8 |
| 3.3.2 - FIVE HOUR TEST at pull corresponding to 15% wheelslip - with 380 kg as additional ballast | | | | | | | | | | | | | |
| 5N lo | 5.12 | 71.25 | 5016 | 2550 | - | - | - | 38 | 88 | 106 | 15 | 78 | 100.2 |

Oil consumption during ten hours tests 3.3.1 and 3.3.2: 70 g/h

Tests 3.3.2 was carried out with additional ballast; so. the not quoted figures are irrelevant.

## 4. TURNING AREA AND TURNIG CIRCLE

Wheel equipment front: 16.9 R 30 6 ply
rear: 20.8 R 38 8 ply
Track width front: 1720
rear: 1840

| | With brakes | | Without brakes | |
|---|---|---|---|---|
| | Right-hand m | Left-hand m | Right-hand m | Left-hand m |
| Radius of turning area | 5.42 | 5.48 | 5.90 | 5.97 |
| Radius of turning circle | 5.16 | 5.22 | 5.70 | 5.77 |

## 5. LOCATION OF CENTRE OF GRAVITY

| | |
|---|---|
| Height above ground | 1021 mm |
| Distance forward from the vertical plane containing the axis of the rear wheels | 1262 mm |
| Distance from the median plane of the tractor | 0 mm |

## 6. BRAKING

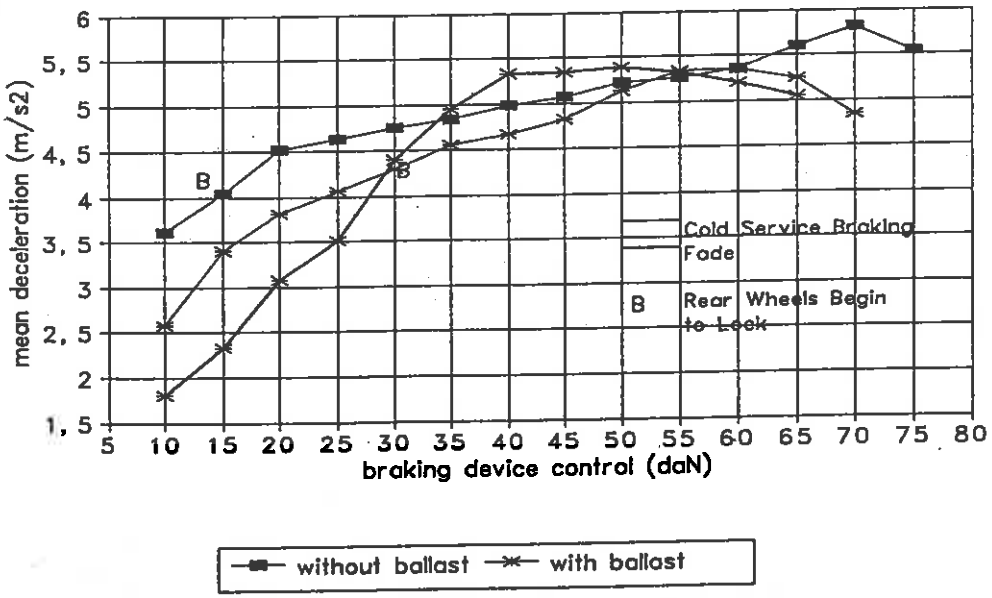
- Date of tests: 30th November 1990 - I.S.M.A. TREVIGLIO (BG)
- Type of track: asphalt
- Type of decelerometer: PEISELER

- Tractor masses during test (*)

| | front axle kg | rear axle kg | total kg |
|---|---|---|---|
| ballasted | 2820 | 5395 | 8215 |
| unballasted | 2530 | 2955 | 5525 |

(*) tractor carring a driver and the decelerometer (85 kg)

### 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) | 42.5 | 42.5 |

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

6.3 **Parking braking device test**

| | Uphill | Downhill |
|---|---|---|
| Braking device control force | 15.70 daN | 14.71 daN |

7. **MEASUREMENT OF EXTERNAL NOISE LEVEL**

- Date of tests: 25th October 1991 - I.S.M.A. TREVIGLIO (BG)
- Sound level meter:
  - . make: BRUEL & KJAER
  - . model: 2231
  - . type: impulse precision
- Type of track: concrete
- Gear number: 6 F hi
- Travelling speed before acceleration: 32.0 km/h
- Sound level: 85.7 dB(A)

8. **REPAIRS** = none

9. **REMARKS** = none

The Responsible of Homologation

R. MARENGO

The Director

S. POTECCHI

Torino, 2nd September 1994

HURLIMANN 6135 VDT

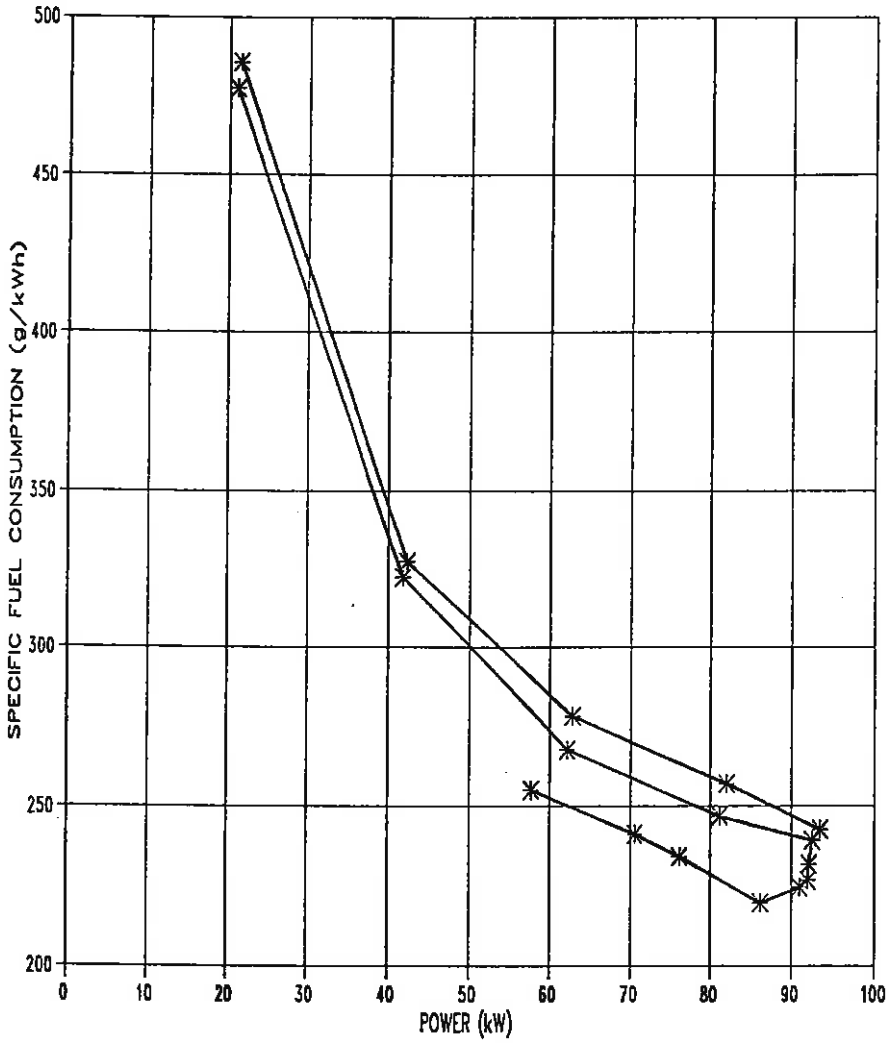



Fig. 1 - POWER TAKE-OFF TEST

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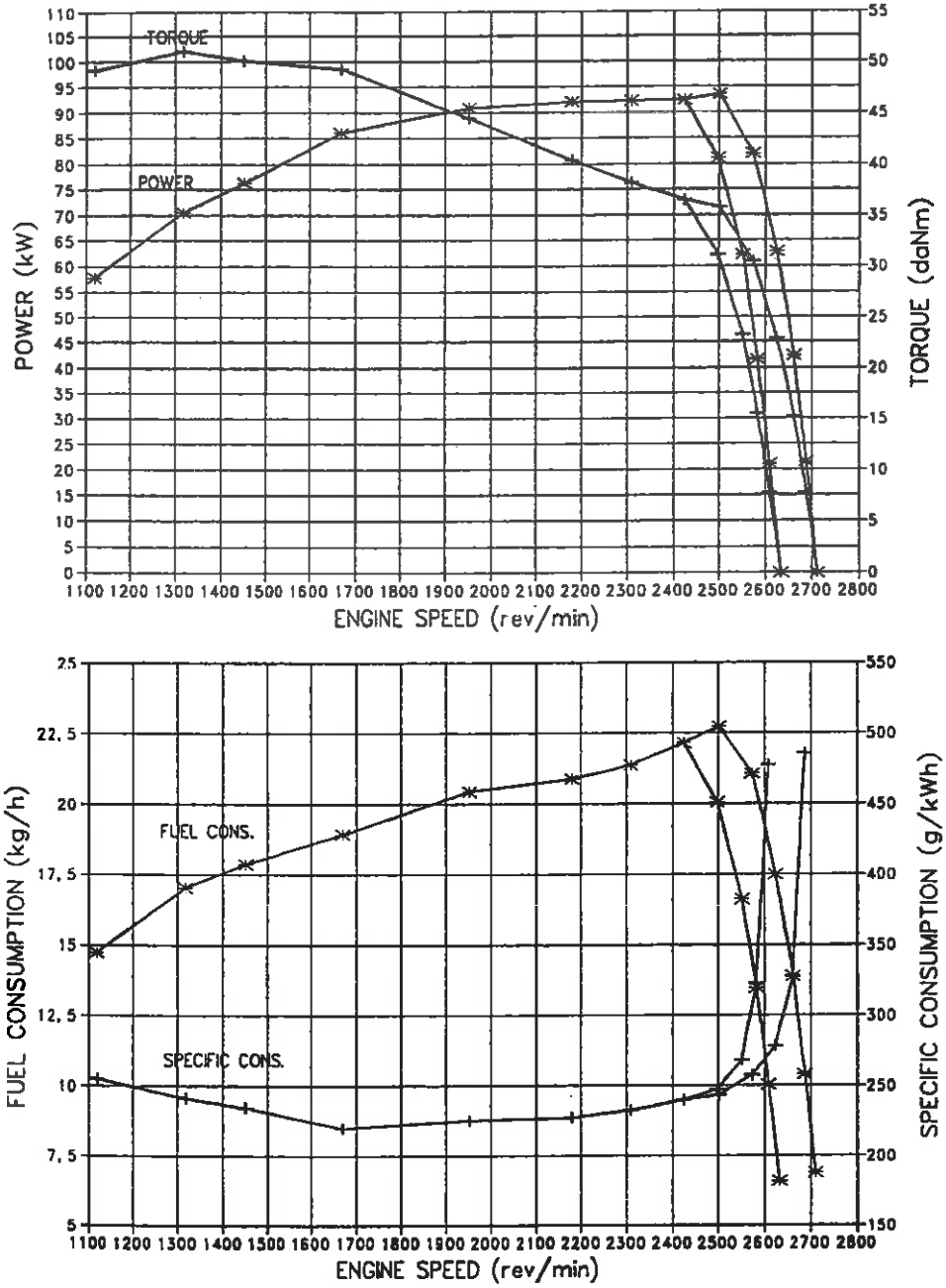



Fig. 2 - POWER TAKE-OFF TEST