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Test 1240: Allis-Chalmers 5050 Diesel

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1240 — ALLIS-CHALMERS 5050 DIESEL

POWER TAKE-OFF PERFORMANCE

| Power Hp (kW) | Crank shaft speed rpm | Fuel Consumption | | Temperature °F (°C) | | | | Barometer inch Hg (kPa) |
|---------------------|--------------------------------|------------------|-----------------------|-----------------------|-------------------|--------------------|--------------------|-------------------------------|
| | | gal/hr (l/h) | lb/hp.hr (kg/kW.h) | Hp.hr/gal (kW.h/l) | Cooling medium | Air wet bulb | Air dry bulb | |

MAXIMUM POWER AND FUEL CONSUMPTION

| Rated Engine Speed—Two Hours (PTO Speed—675 rpm) | | | | | | | | |
|--------------------------------------------------|------|-------------------|------------------|------------------|---------------|--------------|--------------|--------------------|
| 51.46 (38.37) | 2700 | 3.504 (13.264) | 0.470 (0.286) | 14.68 (2.893) | 185 (85.0) | 61 (16.3) | 75 (23.9) | 28.933 (97.704) |

| Standard Power Take-off Speed (540 rpm)—One Hour | | | | | | | | |
|--------------------------------------------------|------|-------------------|------------------|------------------|---------------|--------------|--------------|--------------------|
| 47.16 (35.17) | 2159 | 2.930 (11.090) | 0.429 (0.261) | 16.10 (3.171) | 183 (83.9) | 60 (15.7) | 75 (24.0) | 28.935 (97.709) |

VARYING POWER AND FUEL CONSUMPTION—Two Hours

| | | | | | | | | |
|--------------------------------------|-------------|--------------------------------|--------------------------------|--------------------------------|-----------------------------|----------------------------|----------------------------|----------------------------------|
| 44.52 (33.20) | 2748 | 2.915 (11.036) | 0.452 (0.275) | 15.27 (3.008) | 177 (80.6) | 60 (15.6) | 75 (23.9) | |
| 0.00 (0.00) | 2848 | 1.051 (3.980) | | | 165 (73.9) | 60 (15.3) | 75 (23.9) | |
| 22.65 (16.89) | 2794 | 1.881 (7.121) | 0.574 (0.349) | 12.04 (2.372) | 169 (76.1) | 59 (15.0) | 74 (23.6) | |
| 51.42 (38.35) | 2700 | 3.524 (13.338) | 0.473 (0.288) | 14.59 (2.875) | 185 (85.0) | 59 (15.0) | 76 (24.2) | |
| 11.42 (8.52) | 2820 | 1.412 (5.345) | 0.854 (0.519) | 8.09 (1.593) | 165 (73.9) | 59 (15.0) | 75 (23.9) | |
| 33.66 (25.10) | 2770 | 2.390 (9.046) | 0.490 (0.298) | 14.08 (2.775) | 175 (79.4) | 58 (14.7) | 74 (23.6) | |
| Av 27.28 Av (20.34) | 2780 | 2.196 (8.311) | 0.556 (0.338) | 12.42 (2.447) | 173 (78.1) | 59 (15.1) | 75 (23.8) | 28.930 (97.692) |

DRAWBAR PERFORMANCE

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank- shaft speed rpm | Slip % | Fuel Consumption | | Temp. °F (°C) | | | Barom. inch Hg (kPa) |
|---------------------|--------------------------------|------------------------|---------------------------------|-----------|------------------|-----------------------|-----------------------|---------------------|--------------------|----------------------------|
| | | | | | gal/hr (l/h) | lb/hp.hr (kg/kW.h) | Hp.hr/gal (kW.h/l) | Cool- ing med | Air wet bulb | Air dry bulb |

| Maximum Available Power—Two Hours 9th (1-H) Gear | | | | | | | | | | | |
|--------------------------------------------------|-----------------|----------------|------|------|-------------------|------------------|------------------|---------------|--------------|--------------|--------------------|
| 43.29 (32.28) | 2855 (12.70) | 5.69 (9.15) | 2701 | 5.06 | 3.440 (13.020) | 0.549 (0.334) | 12.58 (2.479) | 182 (83.3) | 66 (18.9) | 75 (23.9) | 28.940 (97.726) |

| 75% of Pull at Maximum Power—Ten Hours 9th (1-H) Gear | | | | | | | | | | | |
|-------------------------------------------------------|----------------|----------------|------|------|-------------------|------------------|------------------|---------------|--------------|--------------|--------------------|
| 35.27 (26.30) | 2236 (9.94) | 5.92 (9.52) | 2773 | 3.71 | 2.712 (10.265) | 0.531 (0.323) | 13.01 (2.562) | 177 (80.5) | 66 (19.1) | 72 (22.0) | 28.780 (97.186) |

| 50% of Pull at Maximum Power—Two Hours 9th (1-H) Gear | | | | | | | | | | | |
|-------------------------------------------------------|----------------|----------------|------|------|------------------|------------------|------------------|---------------|--------------|--------------|--------------------|
| 24.62 (18.36) | 1530 (6.81) | 6.03 (9.71) | 2797 | 2.66 | 2.190 (8.292) | 0.614 (0.374) | 11.24 (2.214) | 168 (75.6) | 68 (19.7) | 72 (22.2) | 28.885 (97.540) |

| 50% of Pull at Reduced Engine Speed—Two Hours 10th (2-H) Gear | | | | | | | | | | | |
|---------------------------------------------------------------|----------------|----------------|------|------|------------------|------------------|------------------|---------------|--------------|--------------|--------------------|
| 23.90 (17.82) | 1493 (6.64) | 6.00 (9.66) | 1854 | 2.86 | 1.756 (6.647) | 0.507 (0.309) | 13.61 (2.681) | 168 (75.6) | 63 (17.2) | 68 (20.0) | 28.485 (96.190) |

MAXIMUM POWER IN SELECTED GEARS

| | | | | | | | | | | | |
|------------------|-----------------|-----------------|------|-------|-----------------|--|--|---------------|--------------|--------------|--------------------|
| 35.40 (26.40) | 6075 (27.02) | 2.18 (3.52) | 2766 | 14.74 | 6th (2-L) Gear | | | 175 (79.4) | 61 (16.1) | 67 (19.4) | 28.520 (96.308) |
| 43.45 (32.40) | 4915 (21.86) | 3.32 (5.34) | 2699 | 9.44 | 7th (3-L) Gear | | | 183 (83.6) | 58 (14.4) | 68 (20.0) | 28.960 (97.794) |
| 43.34 (32.32) | 3676 (16.35) | 4.42 (7.12) | 2699 | 6.45 | 8th (4-L) Gear | | | 182 (83.3) | 61 (16.1) | 71 (21.7) | 28.950 (97.760) |
| 45.22 (33.72) | 2983 (13.27) | 5.68 (9.15) | 2701 | 5.09 | 9th (1-H) Gear | | | 181 (82.5) | 55 (12.8) | 65 (18.3) | 28.970 (97.827) |
| 44.32 (33.05) | 1910 (8.49) | 8.70 (14.01) | 2700 | 3.25 | 10th (2-H) Gear | | | 181 (82.8) | 63 (17.2) | 74 (23.3) | 28.950 (97.760) |

LUGGING ABILITY IN RATED GEAR 9th (1-H)

| | | | | | | | |
|----------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Crankshaft Speed rpm | 2701 | 2435 | 2157 | 1880 | 1617 | 1349 | 1073 |
| Pull—lbs (kN) | 2983 (13.27) | 3233 (14.38) | 3387 (15.07) | 3531 (15.71) | 3651 (16.24) | 3772 (16.78) | 3745 (16.66) |
| Increase in Pull % | 0 | 8 | 14 | 18 | 22 | 26 | 26 |
| Power—Hp (kW) | 45.22 (33.72) | 43.97 (32.79) | 40.62 (30.29) | 36.84 (27.47) | 32.69 (24.38) | 28.08 (20.94) | 22.20 (16.56) |
| Speed—Mph (km/h) | 5.68 (9.15) | 5.10 (8.21) | 4.50 (7.24) | 3.91 (6.30) | 3.36 (5.40) | 2.79 (4.49) | 2.22 (3.58) |
| Slip % | 5.09 | 5.47 | 6.08 | 6.20 | 6.33 | 6.57 | 6.45 |

Department of Agricultural Engineering

Dates of Test: April 26 to May 4, 1977

Manufacturer: Fiat Trattori S.P.A. Via Pico Della
Mirandola 72, 41100 Modena, Italy

FUEL, OIL AND TIME: Fuel No. 2 Diesel
Cetane No. 51.8 (rating taken from oil company's
typical inspection data) **Specific gravity converted**
to 60°/60° (15°/15°) 0.8293 **Fuel weight** 6.905 lbs/
gal (0.829 kg/l) **Oil SAE 30 API service classifi-**
cation SE-CD **To motor** 1.652 gal (6.254 l)
Drained from motor 1.442 gal (5.459 l) **Trans-**
mission and final drive lubricant 10W/30 or
20W/40 **Total time engine was operated** 43.0
hours

ENGINE Make Fiat Diesel **Type** 3 cylinder
vertical **Serial No.** 713706 **Crankshaft**
lengthwise **Rated rpm** 2700 **Bore and stroke**
4.055" × 4.330" (103.0 mm × 110.0 mm) **Compres-**
sion ratio 17 to 1 **Displacement** 168 cu in (2750
ml) **Cranking system** 12 volt **Lubrication** pres-
sure **Air cleaner** dry paper element **Oil filter** full
flow paper element **Fuel filter** primary and sec-
ondary paper cartridges **Muffler** vertical **Cool-**
ing medium temperature control two thermostats

CHASSIS: Type standard **Serial No.** 57213
Tread width rear 56.25" (1429 mm) to 79.0" (2007
mm) front 53.2" (1351 mm) to 77.0" (1956 mm)
Wheel base 76.9" (1953 mm) **Center of gravity**
(without operator or ballast, with minimum tread,
with fuel tank filled and tractor serviced for oper-
ation) Horizontal distance forward from center-
line of rear wheels 28.2" (718 mm) Vertical distance
above roadway 28.4" (723 mm) Horizontal distance
from center of rear wheel tread 0" (0 mm) to the
right/left **Hydraulic control system** direct engine
drive **Transmission** selective gear fixed ratio
Advertised speeds mph (km/h) first 0.5 (0.8) sec-
ond 0.8 (1.3) third 1.1 (1.8) fourth 1.5 (2.4) fifth
1.6 (2.6) sixth 2.4 (3.9) seventh 3.5 (5.7) eighth 4.5
(7.3) ninth 5.8 (9.3) tenth 8.7 (13.9) eleventh 12.7
(20.4) twelfth 16.4 (26.4) reverse 0.7 (1.2), 2.3
(3.7), 8.3 (13.3) **Clutch** dual dry plate operated by
foot pedal **Brakes** contracting band operated by
two foot pedals which can be locked together
Steering power assist **Turning radius** (on concrete
surface with brake applied) right 120.4" (3.06 m)
left 119" (3.02 m) (on concrete surface without
brake) right 135" (3.43 m) left 133.5" (3.39 m)
Turning space diameter (on concrete surface with
brake applied) right 248" (6.30 m) left 246" (6.25 m)
(on concrete surface without brake) right 278"
(7.06 m) left 275" (6.98 m) **Power take-off** 540 rpm
at 2159 engine rpm.

REPAIRS and ADJUSTMENTS: No repairs or
adjustments.

REMARKS: All test results were determined
from observed data obtained in accordance with
SAE and ASAE test code or official Nebraska test
procedure. Temperature at injection pump was
152°F (66.4°C). Five gears were chosen between
15% slip and 15 mph (24.1 km/h). Only one gear
permitted over 8 mph (12.9 km/h).

| TRACTOR SOUND LEVEL WITHOUT CAB | dB(A) |
|-----------------------------------------------|-------|
| Maximum Available Power—Two Hours | 99.5 |
| 75% of Pull at Maximum Power—Ten Hours | 98.0 |
| 50% of Pull at Maximum Power—Two Hours | 96.5 |
| 50% of Pull at Reduced Engine Speed—Two Hours | 93.5 |
| Bystander in 12th (4-H) gear | 89.5 |

| TIRES, BALLAST AND WEIGHT | | With Ballast | Without Ballast |
|----------------------------------|-----------------------------|----------------------------|----------------------------|
| Rear Tires | —No., size, ply & psi (kPa) | Two 16.9/9-28; 6; 16 (260) | Two 16.9/9-28; 6; 16 (260) |
| Ballast | —Liquid (each) | 750 lb (340 kg) | None |
| | —Cast Iron (each) | 750 lb (340 kg) | None |
| Front Tires | —No., size, ply & psi (kPa) | Two 7.50-16; 4; 32 (520) | Two 7.50-16; 4; 32 (520) |
| Ballast | —Liquid (each) | 90 lb (41 kg) | None |
| | —Cast Iron (front end) | 95 lb (43 kg) | None |
| Height of drawbar | | 17.5 in (440 mm) | 17.5 in (440 mm) |
| Static weight with operator—rear | | 5835 lb (2647 kg) | 2830 lb (1284 kg) |
| front | | 1855 lb (841 kg) | 1580 lb (717 kg) |
| total | | 7690 lb (3488 kg) | 4410 lb (2000 kg) |

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1240**.

LOUIS I. LEVITICUS
Engineer-in Charge

G. W. STEINBRUEGGE, Chairman
W. E. SPLINTER
K. VON BARGEN
Board of Tractor Test Engineers



Allis-Chalmers 5050 Diesel