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Nebraska Summary: S456 New Holland TN70DA

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SUMMARY OF OECD TESTS 2166 and 2167—NEBRASKA SUMMARY 456 NEW HOLLAND TN70DA DIESEL 16 SPEED

POWER TAKE-OFF PERFORMANCE

| Power HP (kW) | Crank shaft speed rpm | Gal/hr (l/h) | lb/hp.hr (kg/kW.h) | Hp.hr/gal (kW.h/l) | Mean Atmospheric Conditions |
|---|--------------------------------|-----------------|-----------------------|-----------------------|--------------------------------|
| MAXIMUM POWER AND FUEL CONSUMPTION | | | | | |
| Rated Engine Speed (PTO speed—566 rpm) | | | | | |
| 59.7 (44.5) | 2302 | 3.88 (14.70) | 0.455 (0.277) | 15.37 (3.03) | |
| Maximum Power (2 hours) | | | | | |
| 60.5 (45.1) | 2245 | 3.85 (14.58) | 0.446 (0.271) | 15.70 (3.09) | |
| Standard Power Take-off speed (539 rpm) | | | | | |
| 60.2 (44.9) | 2196 | 3.80 (14.38) | 0.442 (0.269) | 15.84 (3.12) | |
| VARYING POWER AND FUEL CONSUMPTION | | | | | |
| 59.7 (44.5) | 2302 | 3.88 (14.70) | 0.455 (0.277) | 15.37 (3.03) | Air temperature |
| 52.5 (39.1) | 2378 | 3.51 (13.28) | 0.468 (0.285) | 14.95 (2.95) | 70°F (21°C) |
| 40.0 (29.8) | 2410 | 2.87 (10.88) | 0.503 (0.306) | 13.91 (2.74) | Relative humidity |
| 27.0 (20.1) | 2444 | 2.29 (8.66) | 0.593 (0.361) | 11.78 (2.32) | 55% |
| 13.7 (10.2) | 2475 | 1.57 (5.94) | 0.799 (0.486) | 8.76 (1.72) | Barometer |
| -- | 2484 | 1.02 (3.87) | -- | -- | 30.1" Hg (101.8 kPa) |
| Maximum Torque -190.6 lb.-ft. (258.4 Nm) at 1442 rpm Maximum Torque Rise -39.8% Torque rise at 1800 engine rpm -19% | | | | | |

Location of tests: Alma Mater Studiorum, University Di Bologna, Via Gandolfi, 19-40057, Cadriano, Bologna, Italy

Dates of tests: February - May, 2004

Manufacturer: CNH America LLC, 700 State St. Racine, WI. 53404 USA

FUEL and OIL: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C)** 0.840 **Fuel weight** 6.99 lbs/gal (0.838 kg/l) **Oil** SAE 15W40 **API service classification** CF-4/SG **Oil consumption for 10 hours** 0.03 lb (15 gm) **Transmission and hydraulic lubricant** Ambra Multi G 15W40 **Front axle lubricant** Ambra Multi G

ENGINE: Make Iveco Diesel **Type** three cylinder vertical with turbocharger **Serial No.** 859194 **Crankshaft** lengthwise **Rated engine speed** 2300 **Bore and stroke** 4.094" x 4.528" (104.0 mm x 115.0 mm) **Compression ratio** 18.0 to 1 **Displacement** 179 cu in (2930 ml) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil **Fuel filter** one paper element **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat and variable speed fan

CHASSIS: **Type** 2WD and front wheel assist **Serial No.** HJE296852 **Tread width** rear 48.5" (1232 mm) to 76.7" (1949 mm) front: 2WD - 56.7" (1439 mm) to 63.3" (1607 mm), FWA - 48.7" (1236 mm) to 76.6" (1945 mm) **Wheel base** 2WD - 81.5" (2130 mm) FWA - 81.3" (2065 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Nominal travel speeds (30 km/h transmission) mph (km/h)** first 0.39 (0.63) second 0.58 (0.93) third 0.85 (1.37) fourth 1.26 (2.03) fifth 1.63 (2.63) sixth 2.00 (3.22) seventh 2.43 (3.91) eighth 2.98 (4.79) ninth 3.57 (5.75) tenth 4.37 (7.04) eleventh 5.30 (8.53) twelfth 5.77 (9.28) thirteenth 6.49 (10.44) fourteenth 8.60 (13.84) fifteenth 12.64 (20.34) sixteenth 18.72 (30.13) reverse 0.38 (0.61), 0.56 (0.90), 0.83 (1.33), 1.22 (1.97), 1.58 (2.54), 1.93 (3.11), 2.36 (3.79), 2.88 (4.64), 3.46 (5.57), 4.24 (6.82), 5.13 (8.26), 5.59 (8.99), 6.28 (10.11), 8.33 (13.40), 12.24 (19.70), 18.14 (29.19) **Clutch** dual dry disc operated by foot pedal **Brakes** wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2196 engine rpm or 1000 rpm at 2260 engine rpm **Unladen tractor mass** 2WD - 5895 lb (2675 kg), FWA - 6435 lb (2920 kg)

DRAWBAR PERFORMANCE(40 km/h trans.)

BALLASTED - FRONT DRIVE ENGAGED FUEL CONSUMPTION CHARACTERISTICS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank- shaft speed rpm | Slip % | Fuel Consumption lb/hp.hr (kg/kW.h) | Temp.°F (°C) cool- ing med | Barom. inch Hg (kPa) | | |
|---|--------------------------------|------------------------|---------------------------------|-----------|---|-------------------------------------|-------------------------------|------------|-----------------|
| 75% of Pull at Maximum Power—Five Hours 10th (3MHi) Gear | | | | | | | | | |
| 40.0 (29.8) | 2720 (12.11) | 5.51 (8.86) | 2382 | 4.2 | 0.542 (0.330) | 12.89 (2.54) | 201 (94) | 66 (19) | 30.0 (101.7) |
| MAXIMUM POWER IN SELECTED GEARS | | | | | | | | | |
| 6th (1M Hi) Gear | | | | | | | | | |
| 40.1 (29.9) | 6680 (29.71) | 2.25 (3.62) | 2390 | 15.1 | 0.528 (0.321) | 13.25 (2.61) | 187 (86) | 70 (21) | 30.1 (102.0) |
| 7th (2M Lo) Gear | | | | | | | | | |
| 47.2 (35.2) | 6615 (29.43) | 2.68 (4.31) | 2301 | 14.7 | 0.540 (0.329) | 12.94 (2.55) | 190 (88) | 68 (20) | 30.1 (102.0) |
| 8th (2M Hi) Gear | | | | | | | | | |
| 50.6 (37.7) | 5575 (24.80) | 3.40 (5.47) | 2272 | 10.3 | 0.514 (0.313) | 13.60 (2.68) | 192 (89) | 68 (20) | 30.1 (102.0) |
| 9th (3M Lo) Gear | | | | | | | | | |
| 50.5 (37.7) | 4495 (20.00) | 4.21 (6.78) | 2268 | 6.5 | 0.516 (0.314) | 13.55 (2.67) | 194 (90) | 70 (21) | 30.1 (102.0) |
| 10th (3M Hi) Gear | | | | | | | | | |
| 51.0 (38.0) | 3620 (16.11) | 5.28 (8.49) | 2282 | 5.2 | 0.513 (0.312) | 13.64 (2.69) | 192 (89) | 66 (19) | 30.1 (102.0) |
| 11th (4M Lo) Gear | | | | | | | | | |
| 50.4 (37.5) | 2920 (12.99) | 6.47 (10.41) | 2286 | 4.5 | 0.522 (0.317) | 13.40 (2.64) | 190 (88) | 68 (20) | 30.1 (102.0) |
| 12th (1 Hi) Gear | | | | | | | | | |
| 50.8 (37.9) | 2715 (12.08) | 7.02 (11.29) | 2284 | 4.1 | 0.520 (0.316) | 13.45 (2.65) | 190 (88) | 68 (20) | 30.1 (102.0) |
| 13th (4M Hi) Gear | | | | | | | | | |
| 48.7 (36.3) | 2285 (10.17) | 7.99 (12.85) | 2303 | 3.8 | 0.540 (0.328) | 12.95 (2.55) | 190 (88) | 66 (19) | 30.1 (102.0) |
| 14th (2 Hi) Gear | | | | | | | | | |
| 48.1 (35.9) | 1730 (7.70) | 10.43 (16.79) | 2241 | 2.8 | 0.548 (0.333) | 12.72 (2.51) | 187 (86) | 68 (20) | 30.1 (102.0) |

REPAIRS AND ADJUSTMENTS: No repairs or adjustments

REMARKS: All test results were determined from observed data obtained in accordance with official OECD test procedures. This tractor did not meet the manufacturer's claim of 5258 lbs (2385 kg) 3 point lift capacity. The performance results on this summary were taken from OECD tests conducted under the Code I Test procedure.

We, the undersigned, certify that this is a true summary of data from OECD Reports No. **2166** and **2167**, Nebraska Summary 456, August 29, 2005.

Leonard L. Bashford
Director

M.F. Kocher
V.I. Adamchuk
W.P. Campbell
Board of Tractor Test Engineers

TN70DA-FWA(40 km/h transmission)

| TIRES, BALLAST AND WEIGHT | | With Ballast | Without Ballast |
|------------------------------------|-----------------------------|--------------------------|--------------------------|
| Rear Tires | -No., size, ply & psi (kPa) | Two 16.9R30; **,20 (135) | Two 16.9R30; **,20 (135) |
| Ballast | -Liquid (total) | None | None |
| | -Cast Iron (total) | 440 lb (200 kg) | None |
| Front Tires | -No., size, ply & psi (kPa) | Two 11.2R24; **,18 (125) | Two 11.2R24; **,18 (125) |
| Ballast | -Liquid (total) | None | None |
| | -Cast Iron (total) | 640 lb (290 kg) | None |
| Height of Drawbar | | 19.3 in (490 mm) | 19.3 in (490 mm) |
| Static Weight with Operator | - Rear | 4585 lb (2080 kg) | 4300 lb (1950 kg) |
| | - Front | 3090 lb (1405 kg) | 2305 lb (1045 kg) |
| | - Total | 7685 lb (3485 kg) | 6605 lb (2995 kg) |

DRAWBAR PERFORMANCE(30 km/h trans.)

BALLASTED - 2WD

FUEL CONSUMPTION CHARACTERISTICS

| Power Hp (kW) | Drawbar pull lbs (kN) | Speed mph (km/h) | Crank- shaft speed rpm | Slip % | Fuel Consumption lb/hp.hr (kg/kW.h) | Fuel Consumption Hp.hr/gal (kW.h/l) | Temp.°F (°C) cool- ing med | Air dry bulb | Barom. inch Hg (kPa) |
|--|--------------------------------|------------------------|---------------------------------|-----------|---|---|-------------------------------------|--------------------|-------------------------------|
| 75% of Pull at Maximum Power—Five Hours 10th (3 MHi) Gear | | | | | | | | | |
| 38.2 (28.5) | 3375 (15.01) | 4.24 (6.83) | 2384 | 7.1 | 0.545 (0.331) | 12.84 (2.53) | 187 (86) | 68 (20) | 30.1 (102.0) |

MAXIMUM POWER IN SELECTED GEARS

| | | | | | | | | | |
|-------------------|-----------------|-----------------|------|------|------------------|-----------------|-------------|-----------|-----------------|
| 9th (3M Lo) Gear | | | | | | | | | |
| 43.4 (32.4) | 5095 (22.67) | 3.20 (5.15) | 2374 | 15.0 | 0.524 (0.319) | 13.35 (2.63) | 185 (85) | 46 (8) | 30.2 (102.4) |
| 10th (3M Hi) Gear | | | | | | | | | |
| 45.6 (34.0) | 4490 (19.97) | 3.81 (6.13) | 2231 | 12.0 | 0.536 (0.326) | 13.05 (2.57) | 183 (84) | 48 (9) | 30.2 (102.4) |
| 11th (4 MLo) Gear | | | | | | | | | |
| 48.1 (35.8) | 3720 (16.55) | 4.85 (7.80) | 2261 | 8.5 | 0.539 (0.328) | 12.98 (2.56) | 183 (84) | 46 (8) | 30.2 (102.4) |
| 12th (1 Hi) Gear | | | | | | | | | |
| 49.7 (37.1) | 3490 (15.53) | 5.34 (8.59) | 2266 | 7.7 | 0.522 (0.318) | 13.39 (2.64) | 185 (85) | 48 (9) | 30.2 (102.4) |
| 13th(4M Hi) Gear | | | | | | | | | |
| 48.5 (36.2) | 2990 (13.29) | 6.09 (9.80) | 2281 | 6.0 | 0.534 (0.325) | 13.10 (2.58) | 183 (84) | 48 (9) | 30.2 (102.4) |
| 14th(2 Hi) Gear | | | | | | | | | |
| 46.8 (34.9) | 2155 (9.59) | 8.14 (13.09) | 2247 | 4.2 | 0.553 (0.337) | 12.64 (2.49) | 183 (84) | 48 (9) | 30.2 (102.4) |

TN70DA-2WD (30km/h transmission)

| TIRES, BALLAST AND WEIGHT | | With Ballast | Without Ballast |
|------------------------------------|-----------------------------|--------------------------|--------------------------|
| Rear Tires | -No., size, ply & psi (kPa) | Two 16.9R30;**,18 (125) | Two 16.9R30;**,19 (130) |
| Ballast | -Liquid (total) | None | None |
| | -Cast Iron (total) | 440 lb (200 kg) | None |
| Front Tires | -No., size, ply & psi (kPa) | Two 7.50-16; 8; 36 (250) | Two 7.50-16; 8; 36 (250) |
| Ballast | -Liquid (total) | None | None |
| | -Cast Iron (total) | 640 lb (290 kg) | None |
| Height of Drawbar | | 26.4 in (670 mm) | 26.4 in (670 mm) |
| Static Weight with Operator | - Rear | 4345 lb (1970 kg) | 4080 lb (1850 kg) |
| | - Front | 2800 lb (1270 kg) | 1985 lb (900 kg) |
| | - Total | 7145 lb (3240 kg) | 6065 lb (2750 kg) |

| TRACTOR SOUND LEVEL WITH CAB | FWA dB(A) | 2WD dB(A) |
|--------------------------------|--------------|--------------|
| At no load in 9th (3M Lo) gear | 79.0 | 79.1 |
| Bystander in 16th (4 Hi) gear | 82.6 | 81.6 |

CENTER OF GRAVITY - 2WD

| | |
|--|-------------------------|
| Horizontal distance forward from centerline of rear wheels | 27.4" (697 mm) |
| Vertical distance above roadway | 31.9" (810 mm) |
| Horizontal distance from center of rear wheel tread | 0.4" (9 mm) to the left |

CENTER OF GRAVITY - FWA

| | |
|--|-------------------------|
| Horizontal distance forward from centerline of rear wheels | 28.3" (720 mm) |
| Vertical distance above roadway | 31.7" (805 mm) |
| Horizontal distance from center of rear wheel tread | 0.3" (9 mm) to the left |

TURNING ON A CONCRETE SURFACE (2WD)

| |
|---|
| Turning radius—without brake right 141" (3.58 m) left 139" (3.53 m) |
| Turning space radius—without brake right 145" (3.68 m) left 143" (3.63 m) |

TURNING ON A CONCRETE SURFACE (FWA)

| |
|---|
| Turning radius—without brake right 141" (3.58 m) left 141" (3.58 m) |
| Turning space radius—without brake right 146" (3.72 m) left 146" (3.72 m) |

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II

Quick Attach: None

| | | |
|---|-----------------------|-------------------------|
| Maximum force exerted through whole range: | 3905 lbs (17.4 kN) | |
| i) Opening pressure of relief valve: | NA | |
| | | <u>High flow option</u> |
| Sustained pressure with relief valve open: | 3010 psi (208 bar) | 2975 psi (205 bar) |
| ii) Pump delivery rate at minimum pressure: | 13.9 GPM (52.4 l/min) | 17.1 GPM (64.9 l/min) |
| iii) Pump delivery rate at maximum | | |
| hydraulic power: | 10.7 GPM (40.4 l/min) | 15.5 GPM (58.9 l/min) |
| Delivery pressure: | 2805 psi (193 bar) | 2380 psi (164 bar) |
| Power: | 17.5 HP (13.0 kW) | 21.6 HP (16.1 kW) |

THREE POINT HITCH PERFORMANCE (SAE Static Test)

| | |
|-------------------------------------|----------------|
| Observed maximum pressure psi.(bar) | 3010 (208) |
| Location: | hydraulic pump |
| Hydraulic oil temperature: °F(°C) | 114 (45) |
| Location: | hydraulic sump |
| Category: | II |
| Quick attach: | none |

System pressure 2710 psi (187 Bar)

| | | | | | | |
|--|------------|------------|------------|------------|------------|------------|
| Hitch point distance to ground level in.(mm) | 14.6 (370) | 19.3 (490) | 24.1 (612) | 28.9 (734) | 33.7 (856) | 38.6 (980) |
| Lift force on frame lb | 4845 | 5245 | 5215 | 4975 | 4665 | 4320 |
| " " " " " " (kN) | (21.6) | (23.3) | (23.2) | (22.1) | (20.8) | (19.2) |

HITCH DIMENSIONS AS TESTED—NO LOAD

| | SAE TEST | | OECD TEST | |
|---|----------|------|-----------|------|
| | inch | mm | inch | mm |
| A | 27.2 | 690 | 27.3 | 694 |
| B | 10.0 | 255 | 10.0 | 255 |
| C | 12.3 | 312 | 12.3 | 312 |
| D | 10.9 | 276 | 10.9 | 276 |
| E | 14.2 | 361 | 12.1 | 308 |
| F | 7.5 | 189 | 7.5 | 189 |
| G | 27.2 | 690 | 27.4 | 695 |
| H | 1.2 | 30 | 1.2 | 30 |
| I | 13.4 | 340 | 13.6 | 345 |
| J | 19.7 | 501 | 19.9 | 506 |
| K | 20.6 | 523 | 20.6 | 523 |
| L | 40.7 | 1035 | 40.7 | 1035 |
| M | 21.7 | 550 | 21.7 | 550 |
| N | 34.6 | 880 | 34.6 | 880 |
| O | 14.6 | 370 | 14.6 | 371 |
| P | 38.7 | 984 | 43.9 | 1116 |
| Q | 39.8 | 1010 | 39.8 | 1011 |
| R | 22.4 | 570 | 22.6 | 573 |

