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Test 1359: John Deere 4040 Syncro Range Diesel 8-Speed

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1359 — JOHN DEERE 4040 SYNCRO RANGE DIESEL 8 SPEED

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—1002 rpm)								
90.31 (67.34)	2200	6.512 (24.652)	0.503 (0.306)	13.87 (2.732)	193 (89.6)	70 (21.0)	75 (23.8)	28.937 (97.715)
* VARYING POWER AND FUEL CONSUMPTION—Two Hours								
79.12 (59.00)	2266	5.814 (22.006)	0.513 (0.312)	13.61 (2.681)	190 (87.8)	69 (20.6)	75 (23.9)	..... .....
0.00 (0.00)	2356	2.419 (9.157)	..... .....	..... .....	181 (82.8)	69 (20.3)	74 (23.1)	..... .....
40.56 (30.25)	2323	4.000 (15.142)	0.689 (0.419)	10.14 (1.998)	187 (85.8)	69 (20.6)	74 (23.3)	..... .....
90.66 (67.61)	2200	6.527 (24.706)	0.503 (0.306)	13.89 (2.736)	194 (90.0)	69 (20.6)	75 (23.9)	..... .....
20.32 (15.15)	2342	3.201 (12.117)	1.100 (0.669)	6.35 (1.250)	182 (83.3)	70 (20.8)	76 (24.2)	..... .....
59.96 (44.71)	2294	4.825 (18.265)	0.562 (0.342)	12.43 (2.448)	189 (87.2)	70 (21.1)	75 (23.9)	..... .....
Av Av	48.44 (36.12)	4.464 (16.899)	0.644 (0.391)	10.85 (2.137)	187 (86.2)	69 (20.7)	75 (23.7)	28.947 (97.749)

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 4th Gear											
73.83 (55.05)	5716 (25.43)	4.84 (7.80)	2199	7.31	6.320 (23.923)	0.598 (0.364)	11.68 (2.301)	200 (93.3)	73 (22.8)	87 (30.3)	29.025 (98.013)
75% of Pull at Maximum Power—Ten Hours 4th Gear											
60.45 (45.08)	4437 (19.74)	5.11 (8.22)	2266	5.16	5.357 (20.277)	0.619 (0.376)	11.29 (2.223)	193 (89.6)	74 (23.5)	89 (31.4)	28.934 (97.706)
50% of Pull at Maximum Power—Two Hours 4th Gear											
42.02 (31.34)	2974 (13.23)	5.30 (8.53)	2307	3.38	4.333 (16.401)	0.720 (0.438)	9.70 (1.911)	191 (88.3)	75 (23.9)	95 (35.0)	29.000 (97.929)
50% of Pull at Reduced Engine Speed—Two Hours 6th Gear											
41.87 (31.23)	2962 (13.18)	5.30 (8.53)	1418	3.20	3.187 (12.063)	0.531 (0.323)	13.14 (2.589)	195 (90.3)	74 (23.3)	97 (36.1)	28.965 (97.810)
MAXIMUM POWER IN SELECTED GEARS											
64.76 (48.29)	9035 (40.19)	2.69 (4.33)	2262	14.80	2nd Gear			190 (87.5)	67 (19.4)	71 (21.7)	28.990 (97.895)
74.02 (55.20)	7616 (33.88)	3.64 (5.87)	2199	10.46	3rd Gear			195 (90.3)	70 (21.1)	78 (25.6)	29.010 (97.962)
76.42 (56.99)	5916 (26.32)	4.84 (7.80)	2200	7.38	4th Gear			193 (89.2)	68 (20.0)	75 (23.9)	29.010 (97.962)
76.85 (57.30)	4691 (20.87)	6.14 (9.89)	2200	5.79	5th Gear			194 (90.0)	71 (21.7)	80 (26.7)	29.020 (97.996)
77.04 (57.45)	3548 (15.78)	8.14 (13.11)	2200	4.23	6th Gear			194 (90.0)	72 (22.2)	82 (27.8)	29.030 (98.030)

LUGGING ABILITY IN 4th GEAR

Crankshaft Speed rpm	2200	1983	1756	1537	1316	1093
Pull—lbs (kN)	5916 (26.32)	6391 (28.43)	6558 (29.17)	6783 (30.17)	6864 (30.53)	6697 (29.79)
Increase in Pull %	0	8	11	15	16	13
Power—Hp (kW)	76.42 (56.99)	73.86 (55.08)	66.94 (49.92)	60.35 (45.00)	52.18 (38.91)	42.40 (31.61)
Speed—Mph (km/h)	4.84 (7.80)	4.33 (6.97)	3.83 (6.16)	3.34 (5.37)	2.85 (4.59)	2.37 (3.82)
Slip %	7.38	8.12	8.38	8.78	8.91	8.78

Department of Agricultural Engineering

Dates of Test: August 20 to September 9, 1980

Manufacturer: JOHN DEERE WATERLOO
TRACTOR WORKS, P.O. Box 270, Waterloo,
Iowa 50704

FUEL, OIL AND TIME: Fuel No. 2 Diesel
Cetane No. 47.9 (rating taken from oil company's
inspection data) **Specific gravity converted to 60°/**
60° (15°/15°) 0.8386 **Fuel weight** 6.982 lbs/gal
(0.837 kg/l) **Oil SAE 30 API service classification**
CD, CC and SD **To motor** 3.862 gal (14.618 l)
Drained from motor 3.694 gal (13.982 l) **Trans-**
mission and final drive lubricant John Deere Hy-
Gard **Total time engine was operated** 31.5 hours

ENGINE: Make John Deere Diesel **Type** six
cylinder vertical **Serial No.** 6404DR-25
582939RG **Crankshaft** lengthwise **Rated rpm**
2200 **Bore and stroke** 4.25" × 4.75" (108 mm ×
120.6 mm) **Compression ratio** 16.6 to 1 **Displace-**
ment 404 cu in (6620 ml) **Starting system** 12 volt
Lubrication pressure **Air cleaner** two paper ele-
ments with dust evacuator **Oil filter** one full flow
cartridge **Oil cooler** engine coolant heat ex-
changer for crankcase oil, radiator for transmis-
sion and hydraulic oil **Fuel filter** one paper ele-
ment **Muffler** vertical **Cooling medium temper-**
ature control two thermostats.

CHASSIS: **Type** standard **Serial No.** 4040W-
008515R **Tread width** rear 60" (1524 mm) to 90"
(2286 mm) front 56" (1422 mm) to 82" (2083 mm)
Wheel base 104" (2641 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 31.3" (795 mm) Vertical distance
above roadway 38.2" (971 mm) Horizontal distance
from center of rear wheel tread 0.1" (2.0 mm) to
the left **Hydraulic control system** direct engine
drive **Transmission** selective gear fixed ratio **Ad-**
vertised speeds mph (km/h) first 1.9 (3.1) second
3.0 (4.8) third 4.0 (6.4) fourth 5.1 (8.2) fifth 6.3
(10.2) sixth 8.3 (13.4) seventh 10.7 (17.3) eighth
17.5 (28.2) reverse 3.8 (6.3), 6.2 (10.0) **Clutch** wet
multiple disc hydraulically power actuated and
operated by foot pedal **Brakes** wet disc hydraulically
power actuated and operated by two foot
pedals which can be locked together **Steering**
hydrostatic **Turning radius** (on concrete surface
with brake applied) right 143" (3.63 m) left 143"
(3.63 m) (on concrete surface without brake) right
158.5" (4.03 m) left 158.5" (4.03 m) **Turning space**
diameter (on concrete surface with brake applied)
right 295.8" (7.51 m) left 295.8" (7.51 m) (on con-
crete surface without brake) right 326.9" (8.30 m)
left 326.9" (8.30 m) **Power take-off** 1002 rpm at
2200 engine rpm and 540 rpm at 2200 engine
rpm.

REPAIRS and ADJUSTMENTS: No repairs or
adjustments.

TRACTOR SOUND LEVEL WITHOUT CAB	dB(A)
Maximum Available Power—Two Hours	95.5
75% of Pull at Maximum Power—Ten Hours	96.5
50% of Pull at Maximum Power—Two Hours	94.0
50% of Pull at Reduced Engine Speed—Two Hours	90.0
Bystander in 8th gear	89.0

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 18.4-34; 8; 20 (140)	Two 18.4-34; 8; 20 (140)
Ballast	—Liquid (each)	770 lb (349 kg)	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi (kPa)	Two 10.00-16; 6; 32 (220)	Two 10.00-16; 6; 32 (220)
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	30 lb (14 kg)	None
Height of Drawbar		18.5 in (470 mm)	18.5 in (470 mm)
Static Weight with Operator —Rear		8930 lb (4051 kg)	7390 lb (3352 kg)
Front		3160 lb (1433 kg)	3100 lb (1406 kg)
Total		12090 lb (5484 kg)	10490 lb (4758 kg)

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 return was 152°F (66.7°C). Five gears were chosen between 15% slip and 10 mph (16.1 km/h).

We, the undersigned, certify that this is a true and correct report of official Tractor Test **1359**.

LOUIS I. LEVITICUS
Engineer-in Charge

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



John Deere 4040 Syncro Range Diesel