

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F.
Larsen

2004

Nebraska Summary: S459 Case-IH JX55

Nebraska Tractor Test Laboratory

University of Nebraska-Lincoln, tractortestlab@unl.edu

Follow this and additional works at: <https://digitalcommons.unl.edu/tractormuseumlit>



Part of the [Energy Systems Commons](#), [History of Science, Technology, and Medicine Commons](#), [Other Mechanical Engineering Commons](#), [Physical Sciences and Mathematics Commons](#), [Science and Mathematics Education Commons](#), and the [United States History Commons](#)

Laboratory, Nebraska Tractor Test, "Nebraska Summary: S459 Case-IH JX55" (2004). *Nebraska Tractor Tests*. 2881.

<https://digitalcommons.unl.edu/tractormuseumlit/2881>

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

SUMMARY OF OECD TESTS 2179 & 2180—NEBRASKA SUMMARY 459

CASE IH JX 55 DIESEL

12 SPEED

Chassis Serial numbers HFJ013287 and higher

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-614 rpm)					
47.5 (35.4)	2500	2.95 (11.17)	0.429 (0.261)	16.09 (3.17)	
Standard Power Take-off Speed (540 rpm)					
45.2 (33.7)	2200	2.81 (10.65)	0.429 (0.261)	16.09 (3.17)	

VARYING POWER AND FUEL CONSUMPTION

47.5 (35.4)	2500	2.95 (11.17)	0.429 (0.261)	16.09 (3.17)	Air temperature
43.9 (32.7)	2717	2.73 (10.32)	0.429 (0.261)	16.09 (3.17)	84°F (29°C)
33.3 (24.8)	2743	2.39 (9.05)	0.496 (0.302)	13.91 (2.74)	Relative humidity
22.3 (16.6)	2764	1.81 (6.86)	0.561 (0.341)	12.30 (2.42)	40%
11.1 (8.3)	2778	1.36 (5.14)	0.839 (0.510)	8.22 (1.62)	Barometer
--	2803	0.91 (3.45)	--	--	26.8" Hg (90.9 kPa)

Maximum Torque - 133.7 lb.-ft. (181.2 Nm) at 1350 rpm
 Maximum Torque Rise - 34.0%
 Torque rise at 2000 engine rpm - 12%

DRAWBAR PERFORMANCE (Unballasted—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)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—8th (III-1) Gear									
39.6 (29.5)	2590 (11.51)	5.73 (9.22)	2500	4.1	0.534 (0.325)	12.93 (2.55)	160 (71)	80 (27)	27.0 (91.5)
75% of Pull at Maximum Power—8th (III-1) Gear									
32.9 (24.5)	1940 (8.63)	6.35 (10.22)	2725	2.5	0.593 (0.361)	11.62 (2.29)	160 (71)	80 (27)	27.0 (91.5)
50% of Pull at Maximum Power—8th (III-1) Gear									
22.5 (16.8)	1295 (5.76)	6.51 (10.47)	2758	1.3	0.719 (0.437)	9.60 (1.89)	160 (71)	80 (27)	27.0 (91.5)
75% of Pull at Reduced Engine Speed—9th (II-4) Gear									
32.8 (24.5)	1940 (8.63)	6.34 (10.20)	2132	2.5	0.527 (0.321)	13.10 (2.58)	162 (72)	80 (27)	27.0 (91.5)
50% of Pull at Reduced Engine Speed—9th (II-4) Gear									
22.6 (16.8)	1295 (5.76)	6.54 (10.52)	2172	1.3	0.612 (0.373)	11.27 (2.22)	162 (72)	80 (27)	27.0 (91.5)

Locations of tests: DAEMTC (The Directorate of Agricultural Equipment and Machinery Testing Centre) Ankara, Turkey and CNH America LLC Burr Ridge, IL, USA

Dates of Test: August - September, 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)** 0.829
Fuel weight 6.90 lbs/gal (0.827 kg/l) **Oil SAE 20W-50 API service classification** DM/12
Transmission and hydraulic lubricant BP Terrac Tractan 8 fluid **Front axle lubricant** BP Terrac Tractan 8 fluid

ENGINE: Make Iveco Diesel **Type** three cylinder vertical **Serial No.** *639-907861* **Crankshaft** lengthwise **Rated engine speed** 2500 **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** paper element **Oil filter** two cartridges **Fuel filter** one paper element **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat

CHASSIS: Type 2WD & front wheel assist **Serial No.** 2WD-J6R2AA, FWA-J6S7AA **Tread width** rear 56.1" (1424 mm) to 75.7" (1924 mm) front 2WD-56.0" (1422 mm) to 71.7" (1822 mm) FWA-56.9" (1445 mm) to 73.8" (1875 mm) **Wheel base** 2WD-85.6" (2175 mm), FWA-83.4" (2140 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Nominal travel speeds mph (km/h)** first 1.06 (1.71) second 1.63 (2.63) third 2.22 (3.58) fourth 2.48 (3.99) fifth 3.19 (5.13) sixth 3.82 (6.15) seventh 5.20 (8.37) eighth 5.84 (9.40) ninth 7.44 (11.98) tenth 9.00 (14.48) eleventh 12.24 (19.69) twelfth 17.53 (28.21) reverse 1.06 (1.71), 1.64 (2.64), 2.23 (3.59), 2.49 (4.00), 3.20 (5.15), 3.83 (6.17), 5.21 (8.39), 5.86 (9.43), 7.47 (12.02), 9.02 (14.52), 12.27 (19.75), 17.59 (28.30) **Clutch** dual dry disc operated by foot pedal **Brakes** wet disc operated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2200 engine rpm and 1000 rpm at 2381 engine rpm **Unladen tractor mass** 2WD - 5655 lb (2566 kg), FWA - 6075 lb (2756 kg)

**DRAWBAR PERFORMANCE
(Unballasted – Front Drive Engaged)
MAXIMUM POWER IN SELECTED GEARS**

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel lb/hp.hr (kg/kW.h)	Consumption Hp.hr/gal (kW.h/l)	Temp. °F cool- ing med	Temp. °C Air dry bulb	Barom. inch Hg (kPa)
4th (II-1) Gear									
32.5 (24.2)	5180 (23.05)	2.35 (3.78)	2719	15.0	0.632 (0.384)	10.92 (2.15)	156 (69)	73 (23)	27.0 (91.6)
5th (I-4) Gear									
36.3 (27.1)	4715 (20.96)	2.89 (4.65)	2504	11.5	0.586 (0.356)	11.78 (2.32)	162 (72)	73 (23)	27.0 (91.6)
6th (II-2) Gear									
37.7 (28.1)	3950 (17.57)	3.58 (5.75)	2498	8.6	0.566 (0.345)	12.18 (2.40)	162 (72)	73 (23)	27.0 (91.6)
7th (II-3) Gear									
38.0 (28.3)	2815 (12.53)	5.06 (8.14)	2498	4.8	0.552 (0.336)	12.49 (2.46)	162 (72)	73 (23)	27.0 (91.6)
8th (III-1) Gear									
39.6 (29.5)	2590 (11.51)	5.73 (9.22)	2500	4.1	0.534 (0.325)	12.93 (2.55)	163 (73)	73 (23)	27.0 (91.6)
9th (II-4) Gear									
38.1 (28.4)	1945 (8.65)	7.35 (11.83)	2501	3.6	0.551 (0.335)	12.54 (2.47)	163 (73)	73 (23)	27.0 (91.6)
10th (III-2) Gear									
37.7 (28.1)	1580 (7.04)	8.94 (14.38)	2499	2.9	0.555 (0.338)	12.44 (2.45)	163 (73)	73 (23)	27.0 (91.6)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE 1: The PTO and drawbar results shown on this report are from tests conducted on the New Holland TD60D.

NOTE 2: The performance data on this summary applies to tractor chassis serial numbers HFJ013287 and higher.

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 13.6 GPM (51.7 lpm) hydraulic flow. The performance results on this summary were taken from OECD tests conducted under the Code II Test Code procedure.

We, the undersigned, certify that this is a true summary of data from OECD Reports No. **2179** & **2180**, Nebraska Summary 459, April 1, 2005.

Leonard L. Bashford
Director

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

TRACTOR SOUND LEVEL WITHOUT CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 7th(II-3) Gear	86.4	86.2
Bystander	-	-

Tested Without Ballast

TIRES AND WEIGHT

Rear tires - No., size, ply & psi (kPa)
Front tires - No., size, ply & psi (kPa)
Height of Drawbar
Static Weight with operator-Rear
 - Front
 - Total

Front Wheel Assist

Two 14.9-30; 6; 20(140)
 Two 9.5-24; 6; 30(210)
 12.8 in (325 mm)
 3880 lb (1760 kg)
 2360 lb (1071 kg)
 6240 lb (2831 kg)

2WD

Two 14.9R30; **; 20(140)
 Two 7.50-16; 6; 39(270)
 12.8 in (325 mm)
 3960 lb (1796 kg)
 1865 lb (845 kg)
 5825 lb (2641 kg)

DRAWBAR PERFORMANCE

(Unballasted - 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)	Temp. °F cool- ing med	Air dry bulb (°C)	Barom. inch Hg (kPa)	
Maximum Power—8th(III-1) Gear									
35.2 (26.3)	2435 (10.83)	5.42 (8.73)	2501	7.8	0.592 (0.361)	11.67 (2.30)	153 (67)	72 (22)	27.2 (92.0)
75% of Pull at Maximum Power—8th(III-1) Gear									
28.8 (21.5)	1825 (8.12)	5.91 (9.51)	2674	6.0	0.650 (0.396)	10.61 (2.09)	153 (67)	72 (22)	27.2 (92.0)
50% of Pull at Maximum Power—8th(III-1) Gear									
20.0 (14.9)	1220 (5.42)	6.14 (9.88)	2723	4.1	0.768 (0.467)	8.98 (1.77)	153 (67)	72 (22)	27.2 (92.0)
75% of Pull at Reduced Engine Speed—9th(II-4) Gear									
28.8 (21.5)	1835 (8.17)	5.88 (9.46)	2085	6.0	0.547 (0.333)	12.63 (2.49)	153 (67)	72 (22)	27.2 (92.0)
50% of Pull at Reduced Engine Speed—9th(II-4) Gear									
20.0 (14.9)	1225 (5.44)	6.13 (9.86)	2130	4.1	0.618 (0.376)	11.17 (2.20)	153 (67)	72 (22)	27.2 (92.0)
MAXIMUM POWER IN SELECTED GEARS									
5th(I-4) Gear									
29.1 (21.7)	3790 (16.86)	2.88 (4.63)	2634	15.0	0.690 (0.420)	10.00 (1.97)	153 (67)	72 (22)	27.1 (91.9)
6th(II-2) Gear									
32.2 (24.0)	3625 (16.13)	3.33 (5.35)	2500	13.6	0.648 (0.394)	10.66 (2.10)	153 (67)	72 (22)	27.1 (91.9)
7th(II-3) Gear									
33.6 (25.1)	2665 (11.86)	4.73 (7.61)	2500	9.6	0.619 (0.377)	11.15 (2.20)	153 (67)	72 (22)	27.1 (91.9)
8th(III-1) Gear									
35.2 (26.3)	2435 (10.83)	5.42 (8.73)	2501	7.8	0.593 (0.361)	11.67 (2.30)	153 (67)	72 (22)	27.1 (91.9)
9th(II-4) Gear									
34.5 (25.7)	1840 (8.19)	7.03 (11.31)	2501	6.3	0.604 (0.368)	11.42 (2.25)	153 (67)	72 (22)	27.1 (91.9)
10th(III-2) Gear									
33.8 (25.2)	1470 (6.54)	8.61 (13.86)	2504	5.1	0.614 (0.374)	11.23 (2.21)	153 (67)	72 (22)	27.1 (91.9)

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: II

Quick Attach: none

Maximum Force Exerted Through Whole Range: 4000 lbs (17.8 kN)

i) Opening pressure of relief valve:	NA
Sustained pressure of the open relief valve:	2680 psi (185 bar)
ii) Pump delivery rate at minimum pressure and rated engine speed:	11.9 GPM (44.9 l/min)
iii) Pump delivery rate at maximum hydraulic power:	11.4 GPM (43.0 l/min)
Delivery pressure:	2465 psi (170 bar)
Power:	16.4 HP (12.2 kW)

THREE POINT HITCH PERFORMANCE (SAE test)

Observed Maximum Pressure psi. (bar)	2780 (192)
Location:	hydraulic manifold
Hydraulic oil temperature: °F (°C)	149 (65)
Location:	hydraulic sump
Category:	II
Quick attach:	none

SAE Static Test—System pressure 2470 psi (170 Bar)

Hitch point distance to ground level in. (mm)	8.0 (203)	15.0 (380)	22.0 (558)	29.0 (737)	36.0 (914)
Lift force on frame lb	5769	6055	5793	6060	5147
" " " " " " (kN)	(25.7)	(26.9)	(25.8)	(27.0)	(22.9)

HITCH DIMENSIONS AS TESTED—NO LOAD

	OECD test		SAE test	
	inch	mm	inch	mm
A	30.7	780	30.1	765
B	10.0	255	10.0	255
C	11.8	300	11.8	300
D	11.8	300	11.8	300
E	7.5	190	9.4	240
F	8.2	208	8.2	208
G	26.2	665	24.6	625
H	0.8	21	0.8	21
I	7.6	193	8.1	206
J	18.0	457	16.4	417
K	17.1	435	22.8	580
L	38.7	983	38.7	983
M	25.5	648	25.5	648
N	36.0	915	36.0	915
O	7.1	180	8.0	203
P	42.0	1067	35.4	927
Q	35.6	905	32.0	813
R	22.8	580	24.4	619

