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## Test 1610: Case International 7120 Diesel 18-Speed

Nebraska Tractor Test Lab

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# NEBRASKA OECD TRACTOR TEST 1610—SUMMARY 050

## CASE INTERNATIONAL 7120 DIESEL

### 18 SPEED

#### POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Fuel Consumption			Mean Atmospheric Conditions
		Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	

#### MAXIMUM POWER AND FUEL CONSUMPTION

Rated Engine Speed—(PTO speed—1004 rpm)				
151.62 (113.06)	2200	8.96 (33.91)	0.408 (0.248)	16.92 (3.33)

#### Maximum Power (Two hours)

155.38 (115.86)	1850	8.47 (32.05)	0.376 (0.229)	18.35 (3.61)
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Air temperature

80°F (27°C)

Relative humidity

47%

Barometer

28.76" Hg (97.40 kPa)

#### VARYING POWER AND FUEL CONSUMPTION

151.62 (113.06)	2200	8.96 (33.91)	0.408 (0.248)	16.92 (3.33)
131.15 (97.80)	2237	8.04 (30.43)	0.423 (0.257)	16.32 (3.21)
100.15 (74.68)	2276	6.60 (25.00)	0.455 (0.277)	15.17 (2.99)
67.79 (50.55)	2313	5.21 (19.74)	0.531 (0.323)	13.00 (2.56)
34.41 (25.66)	2346	3.91 (14.80)	0.785 (0.477)	8.80 (1.73)
1.03 (0.77)	2374	2.61 (9.87)	17.442 (10.610)	0.40 (0.08)

Maximum Torque 493.1 lb. ft (668.6 Nm) @ 1400 RPM

Maximum Torque Rise 36.2%

#### DRAWBAR PERFORMANCE

##### (Front Wheel Drive Engaged)

Power Hp (kW)	Drawbar pull (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)
75% of Pull at Maximum Power—Five Hours 7th Gear									
125.45 (93.55)	11205 (49.84)	4.20 (6.76)	2219	2.52	0.468 (0.285)	14.74 (2.90)	188 (86)	77 (25)	28.77 (97.44)

#### MAXIMUM POWER IN SELECTED GEARS

5th Gear									
129.62 (96.66)	19538 (86.91)	2.49 (4.00)	1850	7.32	0.454 (0.276)	15.21 (3.00)	188 (86)	71 (22)	28.98 (98.14)
6th Gear									
132.92 (99.12)	16924 (75.28)	2.95 (4.74)	1850	4.38	0.442 (0.269)	15.61 (3.08)	187 (86)	67 (19)	28.99 (98.17)
7th Gear									
137.99 (102.90)	14940 (66.45)	3.46 (5.57)	1848	3.39	0.427 (0.260)	16.18 (3.19)	187 (86)	66 (19)	28.99 (98.17)
8th Gear									
136.74 (101.97)	12856 (57.18)	3.99 (6.42)	1849	3.05	0.430 (0.261)	16.07 (3.17)	190 (88)	77 (25)	28.96 (98.07)
9th Gear									
135.55 (101.08)	10980 (48.84)	4.63 (7.45)	1850	2.46	0.433 (0.263)	15.95 (3.14)	191 (88)	79 (26)	28.95 (98.04)
10th Gear									
135.26 (100.86)	9515 (42.32)	5.33 (8.58)	1850	2.03	0.433 (0.263)	15.95 (3.14)	190 (88)	79 (26)	28.95 (98.04)
11th Gear									
134.40 (100.23)	8209 (36.51)	6.14 (9.88)	1852	1.77	0.439 (0.267)	15.71 (3.10)	190 (88)	80 (27)	28.94 (98.00)
12th Gear									
131.87 (98.33)	7004 (31.15)	7.06 (11.36)	1851	1.60	0.444 (0.270)	15.56 (3.06)	190 (88)	81 (27)	28.93 (97.97)
13th Gear									
130.34 (97.20)	6031 (26.83)	8.11 (13.04)	1853	1.34	0.447 (0.272)	15.46 (3.05)	190 (88)	82 (28)	28.93 (97.97)

**Location of Test:** Center for Agricultural Equipment, Lincoln Nebraska 68583-0832, U.S.A.

**Dates of Test:** May - July, 1988

**Manufacturer:** J.I. Case Company, 700 State Street, Racine, Wisconsin 53404 U.S.A.

**FUEL AND OIL:** Fuel No. 2 Diesel Cetane No. 51.2 Specific gravity converted to 60°/60°F (15°/15°C) 0.8293 Fuel weight 6.905 lbs/gal (0.828 kg/l) Oil SAE 15W-40 Oil Consumption for 10 hours 1.02 lb (463 gm) Transmission and hydraulic lubricant Case IH Hytran Plus Fluid Front axle lubricant Case IH 135 HEP Gear Lube

**ENGINE:** Make Consolidated Diesel Corporation-Case Diesel Type six cylinder vertical with turbocharger Serial No. \*44224988\* Crankshaft lengthwise Rated engine speed 2200 Bore and stroke 4.488" × 5.315" (114 mm × 135 mm) Compression ratio 17.3 to 1 Displacement 504.5 cu in (8268 ml) Starting system 12 volt Lubrication pressure Air cleaner two paper elements and aspirator Oil filter one full flow cartridge Oil cooler engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil Fuel filter two paper cartridges Muffler underhood Exhaust vertical Cooling medium temperature control two thermostats and variable speed fan.

**ENGINE OPERATING PARAMETERS:** Fuel rate 58.7-64.9 lb/hr (26.6-29.4 kg/hr) High idle 2315-2395 rpm Turbo boost nominal 8.3-10.9 psi (57-75 kPa) as measured 10.5 psi (72 kPa)

**CHASSIS:** Type front wheel assist with duals Serial No. \*JJA0001762\* Tread width rear 64" (1626 mm) to 128" (3251 mm) front 62.1" (1577 mm) to 92.8" (2357) Wheel base 118.3" (3006 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio with full range operator controlled powershift Nominal travel speeds mph (km/h) first 1.80 (2.90) second 2.07 (3.32) third 2.38 (3.83) fourth 2.73 (4.40) fifth 3.13 (5.04) sixth 3.60 (5.79) seventh 4.19 (6.75) eighth 4.81 (7.74) ninth 5.55 (8.93) tenth 6.36 (10.23) eleventh 7.30 (11.75) twelfth 8.36 (13.46) thirteenth 9.58 (15.41) fourteenth 10.99 (17.68) fifteenth 12.67 (20.39) sixteenth 14.53 (23.39) seventeenth 16.67 (26.83) eighteenth 19.12 (30.77) reverse 2.59 (4.17), 2.97 (4.79) Clutch multiple wet disc hydraulically power actuated by foot pedal Brakes multiple wet disc hydraulically power actuated and operated by two foot pedals which can be locked together Steering hydrostatic Power take-off 1004 rpm at 2200 engine rpm Unladen tractor mass 16605 lb (7532 kg).

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

TRACTOR SOUND LEVEL WITH CAB (OECD Test)		dB(A)
Maximum sound level		74.0
Bystander in 18th gear		85.0

#### CENTER OF GRAVITY

Horizontal distance forward from centerline of rear wheels	38.5" in (978 mm)
Vertical distance above roadway	41.9" in (1064 mm)
Horizontal distance from center of rear wheel tread 0.6" (16 mm) to the left	

#### TURNING ON A CONCRETE SURFACE

Turning radius—with brake applied right 176" (4.47 m) left 175" (4.45 m)	
*—without brake right 238" (6.05 m) left 237" (6.02 m)	
Turning space radius—with brake applied right 185" (4.70 m) left 184" (4.67 m)	
—without brake right 247" (6.27 m) left 246" (6.25 m)	

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Four 20.8R38; *, inner 16 (110) outer 12 (85)	Two 20.8R38; *, 16 (110)
Ballast		1740 lb (789 kg)	None
	—Duals (total)		None
Front Tires	—No., size, ply & psi (kPa)	Two 16.9R26; **, 16 (110)	Two 16.9R26; **, 16 (110)
Ballast	—Cast iron (total)	740 lb (336 kg)	None
	—Test equip. (total)	480 lb (218 kg)	None
Height of Drawbar		17 in (430 mm)	15.5 in (395 mm)
Static Weight	—Rear	13010 lb (5901 kg)	11210 lb (5085 kg)
	—Front	6555 lb (2973 kg)	5395 lb (2447 kg)
	—Total	19565 lb (8874 kg)	16605 lb (7532 kg)

#### THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: III

Quick Attach: None

Maximum Force Exerted Through Whole Range: 7673 lbs (34.1 kN)

- i) Opening pressure of relief valve: NA
- Sustained pressure at the compensator cutoff: 2625 psi (181 Bar)
- ii) Pump delivery rate at minimum pressure and rated engine speed: 28.5 GPM (108.0 l/min)
- iii) Pump delivery rate at maximum hydraulic power: 26.6 GPM (100.6 l/min)
- Delivery pressure: 2199 psi (152 Bar)
- Power: 34.1 Hp (25.4 kW)

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump was maintained at 157° F (69.4° C). Manufacturers specifications for engine bore, stroke, displacement and compression ratio were not verified. This tractor is equipped with a variable speed cooling fan. Since engine power is influenced by fan speed, all power tests were conducted at approximately the same ambient air temperatures.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. 1610, Nebraska Summary 050, January 31, 1989.

LOUIS I. LEVITICUS

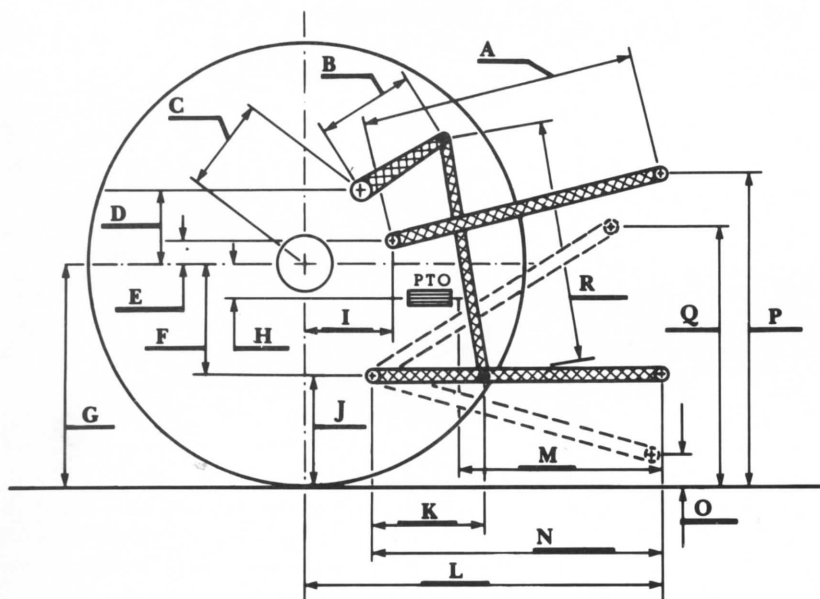
Engineer-in-Charge

K. VON BARGEN

R. D. GRISSO

T. L. THOMPSON

Board of Tractor Test Engineers



HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	25.9	657
B	15.0	381
C	21.9	557
D	16.6	422
E	6.7	169
F	13.1	332
G	33.7	855
H	3.5	90
I	24.7	627
J	20.6	523
K	22.8	579
L	51.4	1306
M	22.1	561
N	33.9	861
O	9.9	251
P	42.6	1083
Q	37.8	959
R	31.3	794

**DRAWBAR PERFORMANCE**  
**MAXIMUM POWER IN SELECTED GEARS**  
**(Front Wheel Drive Disengaged)**

Power Hp (kW)	Drawbar pull (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)
6th Gear									
122.05 (91.02)	16073 (71.49)	2.85 (4.58)	1949	12.24	0.492 (0.299)	14.05 (2.77)	187 (86)	69 (21)	28.98 (98.14)
7th Gear									
134.99 (100.66)	14867 (66.13)	3.40 (5.48)	1850	5.32	0.434 (0.264)	15.90 (3.13)	187 (86)	65 (18)	28.99 (98.17)
8th Gear									
133.31 (99.41)	12765 (56.78)	3.92 (6.30)	1849	4.92	0.439 (0.267)	15.73 (3.10)	190 (88)	78 (26)	28.96 (98.07)
9th Gear									
133.96 (99.89)	10963 (48.76)	4.58 (7.37)	1852	3.69	0.437 (0.266)	15.80 (3.11)	190 (88)	78 (26)	28.96 (98.07)
10th Gear									
133.82 (99.79)	9504 (42.28)	5.28 (8.50)	1847	3.02	0.438 (0.266)	15.78 (3.11)	190 (88)	79 (26)	28.95 (98.04)
11th Gear									
132.84 (99.06)	8169 (36.34)	6.10 (9.81)	1850	2.51	0.441 (0.268)	15.65 (3.08)	191 (88)	80 (27)	28.94 (98.00)
12th Gear									
131.54 (98.09)	7022 (31.24)	7.02 (11.31)	1851	2.08	0.446 (0.271)	15.50 (3.05)	190 (88)	81 (27)	28.94 (98.00)
13th Gear									
130.36 (97.21)	6070 (27.00)	8.05 (12.96)	1850	1.82	0.447 (0.272)	15.45 (3.04)	190 (88)	82 (28)	28.93 (97.97)

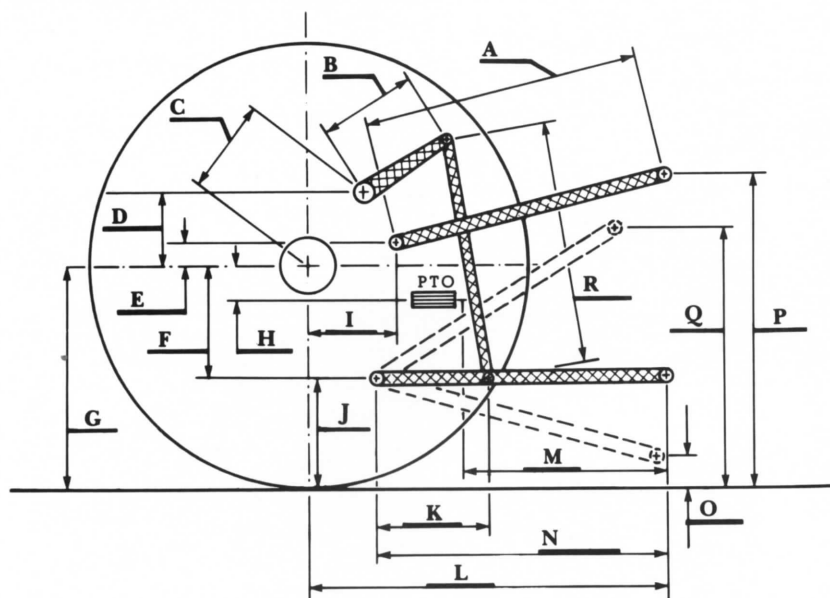
TRACTOR SOUND LEVEL WITH CAB (SAE Test)	Front Wheel Drive	
	Disengaged dB(A)	Engaged dB(A)
Maximum Available Power—7th Gear	73.5	73.5
75% of Pull at Maximum Power—7th Gear		72.0
50% of Pull at Maximum Power—7th Gear		72.5
50% of Pull at Reduced Engine Speed—9th Gear		71.0
Bystander in 18th gear	84.5	

**THREE POINT HITCH PERFORMANCE**  
**(SAE Dynamic Test)**

Observed Maximum Pressure psi (kPa)	2700 (18620)	
Location	Hydraulic pump	
Hydraulic oil temperature °F (°C)	140 (60)	
Location	Transmission sump	
	<b>Maximum Lift Capacity</b>	<b>Lift Capacity for Transport</b>
QUICK ATTACH	Yes	
CATEGORY:	III	*not measured
LOAD lbs (kg)	10040 (4554)	
TIME sec	3.17	
HITCH MOVEMENT in (mm)		
Lowest position	15.4 (391)	
Top of timed range	** 40.4 (1026)	
Highest position	40.6 (1031)	
LOAD CG MOVEMENT in (mm)		
Lowest position	15.6 (396)	
Top of timed range	42.1 (1069)	
Highest position	42.5 (1080)	

\*Implement load capacity for transport purposes not specified by manufacturer.

\*\*The observed power range 25.0 in (635 mm) is less than the minimum power range for Cat III, 26 in (660 mm) specified by ASAE Standard S217.10.



	inch	mm
A	25.9	657
B	15.0	381
C	21.9	557
D	16.6	422
E	9.8	250
F	13.1	332
G	32.7	831
H	3.5	90
I	24.7	627
J	19.6	499
K	22.8	579
L	51.4	1306
L'	55.4	1407
M	22.1	561
N	33.9	861
O	8.0	203
P	41.6	1058
Q	35.8	908
R	32.1	816

L' to end of Quick Attach

**HITCH DIMENSIONS AS TESTED—NO LOAD**



**Case International 7120 Diesel**

Agricultural Research Division  
Institute of Agriculture and Natural Resources  
University of Nebraska—Lincoln  
Darrell Nelson, Dean and Director