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Test 1604: Case International 685 Diesel (Chassis S/N B51023B018001-and Higher) Also Case International 695 and 4210 Diesel 8 and 16-Speeds

Nebraska Tractor Test Lab

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NEBRASKA TRACTOR TEST 1604—CASE INTERNATIONAL 685 DIESEL

CHASSIS SERIAL NUMBERS -B51023B018001- AND HIGHER

ALSO CASE INTERNATIONAL 695 DIESEL

ALSO CASE INTERNATIONAL 4210 DIESEL

16 SPEED ALSO 8 SPEED

POWER TAKE-OFF PERFORMANCE (540 RPM SHAFT)

Power HP (kW)	Crank shaft speed rpm	Fuel Consumption		Hp.hr/gal (kW/h/l)	Cooling medium	Temperature °F (°C)		Barometer inch Hg (kPa)
		gal/hr (l/h)	lb/hp.hr (kg/kW.h)			Air wet bulb	Air dry bulb	
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed — Two hours (PTO speed — 606 rpm)								
61.02 (45.51)	2400	4.180 (15.823)	0.478 (0.291)	14.60 (2.876)	185 (85.0)	58 (14.5)	75 (23.8)	29.29 (98.90)
Standard Power Take-off Speed (540 rpm) — One Hour								
58.80 (43.85)	2141	3.984 (15.080)	0.473 (0.287)	14.76 (2.908)	188 (86.6)	58 (14.5)	75 (24.0)	29.30 (98.94)
VARYING POWER AND FUEL CONSUMPTION								
53.83 (40.14)	2491	3.772 (14.277)	0.489 (0.297)	14.27 (2.812)	184 (84.4)	58 (14.4)	75 (23.6)	..... .....
0.00 (0.00)	2660	1.527 (5.779)	..... .....	..... .....	178 (81.1)	58 (14.4)	75 (23.9)	..... .....
28.05 (20.91)	2597	2.542 (9.621)	0.632 (0.385)	11.03 (2.174)	181 (82.8)	58 (14.4)	76 (24.2)	..... .....
61.09 (45.55)	2401	4.128 (15.628)	0.471 (0.287)	14.80 (2.915)	186 (85.3)	58 (14.4)	75 (23.9)	..... .....
14.17 (10.57)	2627	2.086 (7.895)	1.027 (0.625)	6.79 (1.338)	178 (81.1)	58 (14.4)	75 (23.9)	..... .....
41.36 (30.84)	2550	3.109 (11.770)	0.524 (0.319)	13.30 (2.620)	183 (83.9)	58 (14.4)	75 (23.9)	..... .....
Av 33.08 Av (24.67)	2554	2.861 (10.828)	0.603 (0.367)	11.56 (2.278)	182 (83.1)	58 (14.4)	75 (23.9)	29.29 (98.91)

DRAWBAR PERFORMANCE

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption			Temp. °F (°C)			
					gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l) med	cool- ing bulb	Air wet bulb	Air dry bulb (kPa)	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 10th (1HDD) Gear											
52.90 (39.45)	2992 (13.31)	6.63 (10.67)	2399	4.62	4.179 (15.818)	0.551 (0.335)	126.66 (2.494)	187 (86.1)	54 (11.9)	57 (13.9)	28.97 (97.83)
75% of Pull at Maximum Power—Ten Hours 10th (1HDD) Gear											
42.25 (31.51)	2281 (10.15)	6.95 (11.18)	2485	3.57	3.564 (13.490)	0.588 (0.358)	11.86 (2.336)	184 (84.3)	36 (2.4)	42 (5.6)	28.91 (97.62)
50% of Pull at Maximum Power—Two Hours 10th (1HDD) Gear											
29.24 (21.81)	1521 (6.77)	7.21 (11.60)	2551	2.47	2.939 (11.124)	0.701 (0.426)	9.95 (1.960)	184 (84.2)	54 (12.2)	57 (13.9)	28.91 (97.62)
50% of Pull at Reduced Engine Speed—Two Hours 12th (2HDD) Gear											
29.20 (21.77)	1519 (6.76)	7.21 (11.60)	1569	2.43	2.380 (9.008)	0.569 (0.346)	12.27 (2.417)	185 (84.7)	55 (12.8)	58 (14.4)	28.87 (97.49)

MAXIMUM POWER IN SELECTED GEARS

49.51 (36.92)	7207 (32.06)	2.58 (4.15)	2464	14.85	4th(2LDD) Gear		184 (84.2)	50 (10.0)	52 (11.1)	29.02 (98.00)
51.38 (38.32)	6660 (29.63)	2.89 (4.66)	2399	12.35	5th(3LTA) Gear		185 (84.7)	50 (10.0)	53 (11.7)	29.02 (98.00)
53.46 (39.87)	5551 (24.69)	3.61 (5.81)	2400	9.29	6th(3LDD) Gear		186 (85.3)	50 (10.0)	53 (11.7)	29.01 (97.96)
53.23 (39.69)	5123 (22.79)	3.90 (6.27)	2397	8.28	7th(4LTA) Gear		186 (85.3)	51 (10.6)	54 (12.2)	29.01 (97.96)
53.04 (39.55)	4153 (18.47)	4.79 (7.71)	2399	6.56	8th(4LDD) Gear		186 (85.3)	51 (10.6)	54 (12.2)	29.01 (97.96)
54.63 (40.74)	3777 (16.80)	5.42 (8.73)	2400	5.94	9th(1HTA) Gear		186 (85.6)	52 (11.1)	55 (12.8)	29.00 (97.93)
53.81 (40.13)	3041 (13.52)	6.64 (10.68)	2402	4.66	10th(1HDD) Gear		186 (85.6)	52 (11.1)	55 (12.8)	29.00 (97.93)
51.65 (38.52)	2142 (9.53)	9.04 (14.56)	2398	3.41	11th(2HTA) Gear		186 (85.6)	52 (11.1)	55 (12.8)	29.00 (97.93)

Department of Agricultural Engineering

Dates of Test: October 7 to 14, 1986

Manufacturer: J.I. CASE COMPANY, 700 State Street Racine, Wisconsin 53404

FUEL OIL and TIME: Fuel No. 2 Diesel Cetane No. 49.5 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60°F (15°/15°C)** 0.8378 **Fuel weight** 6.976 lbs./gal (0.836 kg/l) **Oil SAE 30 API service classification** SF-CD **To motor** 2.125 gal (8.044 l) **Drained from motor** 2.055 gal (7.778 l) **Transmission and final drive lubricant** Case IH Hytran fluid **Total time engine was operated** 40.0 hours.

ENGINE: Make Case International Diesel **Type** four cylinder vertical **Serial No.** 239DT2D482822* **Crankshaft** lengthwise **Rated rpm** 2400 **Bore and stroke** 3.875" × 5.06" (98.4 mm × 128.5 mm) **Compression ratio** 16 to 1 **Displacement** 239 cu in (3913 ml) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** radiator for hydraulic and transmission oil **Fuel filter** two paper cartridges **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type standard **Serial No.** - B510232B018063- **Tread width** rear 58" (1473 mm) to 100.3" (2540 mm) front 54" (1372 mm) to 79" (2007 mm) **Wheel base** 84.5" (2146 mm) **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from centerline of rear wheels 27.8" (706 mm) Vertical distance above roadway 30.3" (770 mm) Horizontal distance from center of rear wheel treaded 0" (0 mm) to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with partial (2) range operator controlled powershift **Advertised speeds mph (km/h)** first 1.5 (2.4) second 1.8 (2.8) third 2.4 (3.8) fourth 2.9 (4.6) fifth 3.2 (5.2) sixth 3.9 (6.2) seventh 4.1 (6.6) eighth 5.0 (8.0) ninth 5.6 (9.0) tenth 6.8 (10.9) eleventh 9.1 (14.6) twelfth 11.0 (17.7) thirteenth 12.3 (19.8) fourteenth 14.8 (23.9) fifteenth 15.8 (25.5) sixteenth 19.1 reverse 1.8 (2.8), 2.1 (3.4), 2.8 (4.6), 3.4 (5.5), 3.8 (6.2), 4.6 (7.5), 5.0 (8.0), 6.0 (9.6) **Clutch** single dry disc operated by foot pedal **Brakes** single wet disc hydraulically operated by two foot pedals which can be locked together **Steering** hydrostatic **Turning radius** (on concrete surface with brake applied) right 122" (3.10 m) left 122" (3.10 m) (on concrete surface without brake) right 135" (3.43 m) left 135" (3.43 m) **Turningspace diameter** (on concrete surface with brake applied) right 252" (6.40 m) left 252" (6.40 m) (on concrete surface without brake) right 280" (7.11 m) left 280" (7.11 m) **Power take-off** 540 rpm

LUGGING ABILITY IN 10th (1HDD) Gear

Crankshaft Speed rpm	2402	2170	1920	1686	1448	1214
Pull—lbs (kN)	3041 (13.52)	3293 (14.65)	3543 (15.76)	3667 (16.31)	3640 (16.19)	3576 (15.91)
Increase in Pull %	0	8	17	21	20	18
Power—Hp (kW)	53.81 (40.13)	52.41 (39.08)	49.81 (37.15)	44.97 (33.54)	38.44 (28.66)	31.67 (23.61)
Speed—Mph (km/h)	6.64 (10.68)	5.97 (9.60)	5.27 (8.49)	4.60 (7.40)	3.96 (6.37)	3.32 (5.34)
Slip %	4.66	5.04	5.30	5.81	5.56	5.56

TRACTOR SOUND LEVEL WITHOUT CAB

dB(A)

Maximum Available Power—Two Hours	97.0
75% of Pull at Maximum Power—Ten Hours	96.0
50% of Pull at Maximum Power—Two Hours	95.5
50% of Pull at Reduced Engine Speed—Two Hours	91.5
Bystander in 15th (4HTA) gear	89.5

SOUND LEVEL TEST ON CASE IH 4210 DIESEL (OECD CODE V)

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive Disengaged	Engaged
	dB(A)	dB(A)
Maximum sound level	87.0	87.0
Bystander in 16th (H4H) Gear	86.0	—

POWER TAKE-OFF PERFORMANCE (1000 RPM SHAFT)

Power HP (kW)	Crank shaft speed rpm	Fuel Consumption			Cooling medium	Temperature °F (°C)		Barometer inch Hg (kPa)
		gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)		Air wet bulb	Air dry bulb	
		MAXIMUM POWER AND FUEL CONSUMPTION						
Rated Engine Speed — Two hours (PTO speed — 1096 rpm)								
62.22 (46.40)	2401	4.189 (15.856)	0.470 (0.286)	14.85 (2.926)	186 (85.5)	62 (16.8)	75 (23.9)	28.95 (97.74)
Standard Power Take-off Speed (1000 rpm) — One Hour								
60.23 (44.92)	2192	4.002 (15.150)	0.464 (0.282)	15.05 (2.965)	187 (86.1)	62 (16.8)	75 (23.9)	28.94 (97.73)

TIRES, BALLAST AND WEIGHT

		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi (kPa)	Two 16.9/14-30; 6; 18 (125)	Two 16.9/14-30; 6; 18, (125)
Ballast	—Liquid (each)	705 lb (320 kg)	None
	—Cast Iron (each)	750 lb (340 kg)	None
Front Tires	—No., size, ply & psi (kPa)	Two 7.50-16; 6; 28 (195)	Two 7.50-16; 6; 28 (195)
Ballast	—Liquid (each)	None	None
	—Cast Iron (each)	50 lb (23 kg)	None
Height of Drawbar		18.5 in (470 mm)	18.5 in (470 mm)
Static Weight with Operator	—Rear	6870 lb (3116 kg)	3960 lb (1796 kg)
	—Front	1975 lb (896 kg)	1875 lb (851 kg)
	—Total	8845 lb (4012 kg)	5835 lb (2647 kg)

at 2141 engine rpm and 1000 rpm at 2192 engine rpm
Unladen tractor mass 5660 lb (2567 kg)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes and the technically equivalent ISO test codes or official Nebraska test procedure. This tractor did not meet manufacturers claim of 3665 lbs (1662 kg) 3 point lift capacity. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 139° F (59.7°C). Eight gears were chosen between 15% slip and 10 mph (16.1 km/h). The performance figures on this report apply to chassis serial numbers -B510232B018001- and higher.

NOTE: Report reissued, supplemental sales permit for Case International 695 Diesel, February, 1991

NOTE: Report reissued, supplemental sales permit for Case IH 4210 Diesel, September 1994.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1604**, October 31, 1986.

LOUIS I. LEVITICUS

Engineer-in-Charge

R.D. GRISSO

K. VON BARGEN

M. L. KOCHER

Board of Tractor Test Engineers

THREE POINT HITCH PERFORMANCE

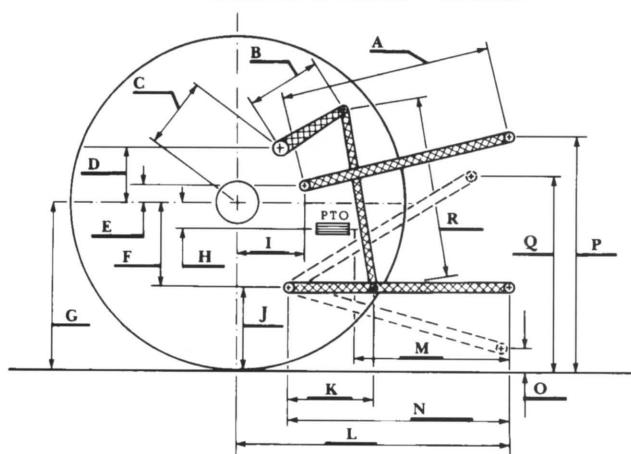
Observed Maximum Pressure psi. (kPa)	2525 (17410)	
Location	remote outlet	
Hydraulic oil temperature °F (°C)	149 (65)	
Location	final drive	
	Maximum Life Capacity	Lift Capacity for Transport
QUICK ATTACH	no	
CATEGORY	II	*not measured
LOAD lbs (kg)	3614 (1639)	
TIME sec	3.44	
HITCH POINT MOVEMENT IN (mm)		
Lowest position	11.2 (284)	
Top of timed range	34.2 (869)	
Highest position	34.3** (871)	
LOAD CG MOVEMENT in (mm)		
Lowest position	10.5 (267)	
Top of timed range	38.4 (975)	
Highest position	38.7 (983)	

•Implement load capacity for transport purposes not specified by manufacturer.

••The observed power range, 23.1 in. (587 mm) is less than the minimum power range for Cat II, 24 in. (610 mm) specified by ASAE Standard S217.10

••The observed highest position, 34.3 in. (871 mm) is less than the minimum height for highest position for Cat II, 36 in. (914 mm) specified by ASAE Standard S217.10

Hitch Dimensions as Tested — No Load



	inch	mm
A	24.8	629
B	11.8	298
C	11.6	295
D	11.3	288
E	9.0	229
F	7.5	191
G	26.3	667
H	0.3	6
I	11.0	279
J	18.8	476
K	21.8	554
L	35.9	911
M	19.9	505
N	32.1	815
O	8.0	203
P	37.8	959
Q	33.1	841
R	26.5	673



Case International 685 Diesel

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