OECD APPROVAL No. 2/1759
Code 2
Date of Approval: 19 May 1998

NEBRASKA TRACTOR TEST LABORATORY
DEPARTMENT OF BIOLOGICAL SYSTEMS ENGINEERING
INSTITUTE OF AGRICULTURE AND NATURAL RESOURCES
UNIVERSITY OF NEBRASKA - EAST CAMPUS
LINCOLN, NEBRASKA 68583-0832, USA

REPORT ON TEST IN ACCORDANCE WITH OECD STANDARD CODE 2 FOR THE OFFICIAL TESTING OF AGRICULTURAL TRACTORS





CASE IH 8930 - MFWD (4WD)
CASE IH 7230 PRO - MFWD (4WD)
STEYR 9220 - MFWD (4WD)
30 km/h version - 18-Speed Transmission

MANUFACTURED BY	Case Corporation, 700 State Street Racine, Wisconsin 53404 USA
NEBRASKA TEST NO.	1735
TEST DATE	September 8-25, 1997

This test report provides the results of the tests conducted in accordance with the OECD Standard Test Code for the Official Testing of Agricultural Tractor Performance - C(87)53 Final, Code 2.

This report has been approved by the OECD Coordinating Centre in Paris on 19 May 1998 for the Case IH 8930 MFWD (4WD) and Case IH 7230 Pro MFWD (4WD) and Steyr 9220, 30 km/h version, 18-speed transmission with OECD No. 2/1759

(The above models are identical except for commercial designation.)

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GENERAL SPECIFICATIONS.

Manufacturers name/address	Case Corporation, 700 State Street Racine, Wisconsin 53404, USA
Location of tractor assembly	Case Corporation 24th and Mead Streets Racine, Wisconsin 53404, USA
Submitted for test by	The manufacturer
Selected for test by	The manufacturer in agreement with the test station.
Place of running in	Case Corporation Racine Tractor Engineering, Racine, Wisconsin
Duration of running in	105 hours
Location of Test	Nebraska Tractor Test Lab. Lincoln, Nebraska, U.S.A.

TRACTORS

CASE INTERNATIONAL 8930 - MFWD 4 WD 30 km/h Version with 18 Speed Transmission	CASE INTERNATIONAL 7230 PRO - MFWD 4 WD 30 km/h Version with 18 Speed Transmission	STEYR 9220 - MFWD 4 WD 30 km/h Version with 18 Speed Transmission

SPECIFICATIONS OF TRACTOR

Make/Model/Type	Case IH 8930-MFWD/4WD Unit construction; 30 km/h version; 18-speed
Number of driving wheels	2 or 4
Serial number	*JJA0075180*
1st Serial number	*JJA0072000*

ENGINE

Make	Consolidated Diesel Co
Model	6TA-830
Type	Diesel, direct injection, turbocharged, intercooled
Serial Number	*45477574*
Cylinders	
Number/disposition	6, in-line, vertical
Bore x stroke	114.0 mm x 135.0 mm
Capacity	8268 cm^3
Compression Ratio	16.5:1
Arrangement of valves	Overhead
Cylinder liners	Wet, replaceable

Turbo-charging	
Make/Model/Type	Holset/HX40W/exhaust gas driven with wastegate control
Pressure	152 ± 20 kPa-rated speed and load
Fuel System	
Feed system	Engine driven transfer pump
Make/Type/Model of filters	Fleetguard/FF5038, FF5052/spin-on cartridges
Number of filters	Two
Fuel tank capacity	359 l
Make/Model/Type Injection Pump	Robert Bosch/MW/in line
Pump Serial number	67211 02229 54410
Production setting of pump	
Flow Rate (Rated Eng.Spd and full load)	36.40 ± 1.92 kg/h
Fuel density	0.845 kg/l
Make/Model/Type of injectors	Robert Bosch/J928228/17 mm
Injection timing	$17^0 \pm 2^0$ BTDC; Lock timed at TDC ± 2^0
Injection pressure	26.0-27.0 MPa
Governor	
Make/Model/Type	Robert Bosch/J928228/Variable speed/Mechanical
Governed engine speed range	From 925 to 2457 rev/min
Rated engine speed	2200 rev/min
High-idle speed range	2450 ± 80 rpm
Air Cleaner	
Pre-cleaner	(Integral with air cleaner)
Make/Model/Type	Nelson/71198A/Exhaust aspirated
Air intake location	Underhood; ahead of radiator
Main Cleaner	
Make/Model/Type	Donaldson/EGB11-0077/or Nelson/71198A; both dry, dual element pleated paper
Location of main cleaner	Underhood
Maintenance indicator	Service indicator on digital instrument cluster
Lubrication System	
Type of feed pump	Full pressure, positive displacement.
Type of filters	Full flow/spin-on/dual filter
Number	One
Oil cooler	Water to oil intercooler

Cooling System	
Type of coolant	Liquid
Type of pump	Centrifugal, belt driven
Fan specification	Viscous drive fan
Number of fan blades	8
Fan diameter	600 mm
Coolant system capacity	29.0 l.
Type of temperature control	Two thermostats
Superpressure	69 kPa
Starting System	
Make/Model/Type	Nippondenso/R4.0 or FII4.0/Solenoid engaged
Power Rating	4.0 kW
Cold starting aid	Ether spray in intake manifold
Safety device	Electrical lockout on transmission
Electrical System	
Voltage	12 Volt
Alternator	
Make/Model/Type	Bosch/N1/Alternator; belt drive
Power rating	110 Amp./14.2 V
Batteries	
Number & connection	2-12 V batteries in parallel
Rating	180 amp-hours per battery at 20 hour rating 950 Cold crank amps per battery 185 min. reserve cap/battery (SAE J537)
Exhaust System	
Make/Model/Type	Nelson(muffler)/26413A/Vertical
Location	External muffler integral with vertical exhaust stack; right front corner of cab

TRANSMISSION

Clutch.(Travel)	
Make/Model/Type	Case IH/multi-plate/oil cooled
Number of plates	9 friction plates
Plate diameter	228.5 mm
Method of operation	Hydraulic, pedal actuated.
Gear Box.	
Make/Type	Case IH/18 speed/full powershift; mechanical
Arrangement	Countershaft type with one 2-speed and two 3-speed constant mesh powershift modules
Number of gears	18 forward, 4 reverse controlled by single lever
Available options	Creeper gear with 6 forward and 2 reverse speeds
Oil cooler	Air to oil in front of radiator

Rear Axle and Final Drives

Make/model/Type	Case IH; Crown wheel & pinion; differential and planetary reduction
Differential Lock	
Type	Hydraulic
Method of engagement	Electrical; switch on console
Method of disengagement	Electrical; switch on console or activation of brakes

Front Axle and Final Drives

Make/Model/Type	Dana/070BP197/Crown wheel & pinion, differential & planetary reduction
Differential lock	
Type	Limited slip
Method of engagement	Self locking
Method of disengagement	Self unlocking

TOTAL TRANSMISSION RATIOS AND TRAVEL SPEEDS

(18 speed transmission - tested version)

Gear Number	Number of engine revolutions for one revolution of the driving wheels	Nominal traveling speed at rated engine speed of 2200 rev/min [km/h]
Forward		
1st	243.260	2.92
2nd	212.073	3.34
3rd	183.909	3.86
4th	160.331	4.42
5th	139.776	5.07
6th	121.856	5.82
7th	104.463	6.79
8th	91.070	7.79
9th	78.976	8.98
10th	68.851	10.30
11th	60.024	11.91
12th	52.328	13.51
13th	45.741	15.50
14th	39.877	17.78
15th	34.581	20.51
16th	30.148	23.52
17th	26.283	26.98
18th	22.913	30.95
Reverse		
R1	168.997	4.20
R2	147.331	4.81
R3	72.572	9.78
R4	63.268	11.22

Calculated with a tire dynamic radius index of 855 mm - (ISO4251/1 - 1992)
Number of revolutions of front wheels for one revolution of rear wheels 1.3228

TOTAL TRANSMISSION RATIOS AND TRAVEL SPEEDS

(18 speed transmission plus optional 6 forward/2 reverse Creeper gears)

Gear Number	Number of engine revolutions for one revolution of the driving wheels	Nominal traveling speed at rated engine speed of 2200 rev/min [km/h]
Forward		
1st Creeper	835.817	0.85
2nd Creeper	631.893	1.12
3rd Creeper	480.256	1.48
4th Creeper	358.923	1.98
5th Creeper	271.354	2.61
6th Standard	243.260	2.92
7th Standard	212.073	3.34
8th Creeper	206.234	3.44
9th Standard	183.909	3.86
10th "	160.331	4.42
11th "	139.776	5.07
12th "	121.856	5.82
13th "	104.463	6.79
14th "	91.070	7.79
15th "	76.976	8.98
16th "	68.851	10.30
17th "	60.024	11.81
18th "	52.328	13.55
19th "	45.741	15.50
20th "	39.877	17.78
21th "	34.581	20.51
22th "	30.148	23.52
23th "	26.283	26.98
24th "	22.913	30.95
Reverse		
R1 Creeper	580.657	1.22
R2 Creeper	249.351	2.84
R3 Standard	168.997	4.20
R4 "	147.331	4.81
R5 "	72.572	9.78
R6 "	63.268	11.21

Calculated with a tire dynamic radius index of 855 mm - (ISO 4251/1-1992).

. Number of revolutions of front wheels for one revolution of rear wheels 1.3228

POWER - TAKE - OFF

Main Power-Take-Off

Type	Independent
Method of engagement	Hydraulically actuated multi-plate wet clutch operated by hand lever, independent of main drive clutch.
Number of shafts	One

Standard Power-Take-Off Proportional to Engine Speed-1000 rev/min

Location	Rear of tractor, vertical center plane.
Diameter of shaft (Standard)	45 mm (ISO 500/1991)
Number of splines	20; (ISO 500/1991)
Height above ground	765 mm
Distance from median plane of tractor	0 mm
Distance behind rear axle	796 mm
PTO Speed at rated engine speed	1003 rev/min
Engine speed at Std. PTO speed	2193 rev/min
Ratio of Engine rpm to PTO rpm	2.193:1
Power Restriction	None
Direction of rotation (viewed facing driving end)	Clockwise

Optional Two Speed, Power-Take-Off System

A. Proportional to Engine Speed - 540 rev/min

Location	Rear of tractor, vertical center plane
Diameter of shaft	35 mm (ISO 500/1991)
Number of splines	6 (ISO 500/1991)
Height above ground	642 mm
Distance from median plane of tractor	0 mm
Distance behind rear axle	796 mm
PTO speed at rated engine speed	547 rev/min
Engine speed at standard PTO speed	2171 rev/min
Ratio of engine rpm to PTO rpm	4.020:1
Power Restriction	63 kW
Direction of rotation (viewed facing driving end)	Clockwise

B. Proportional to Engine Speed - 1000 rev/min

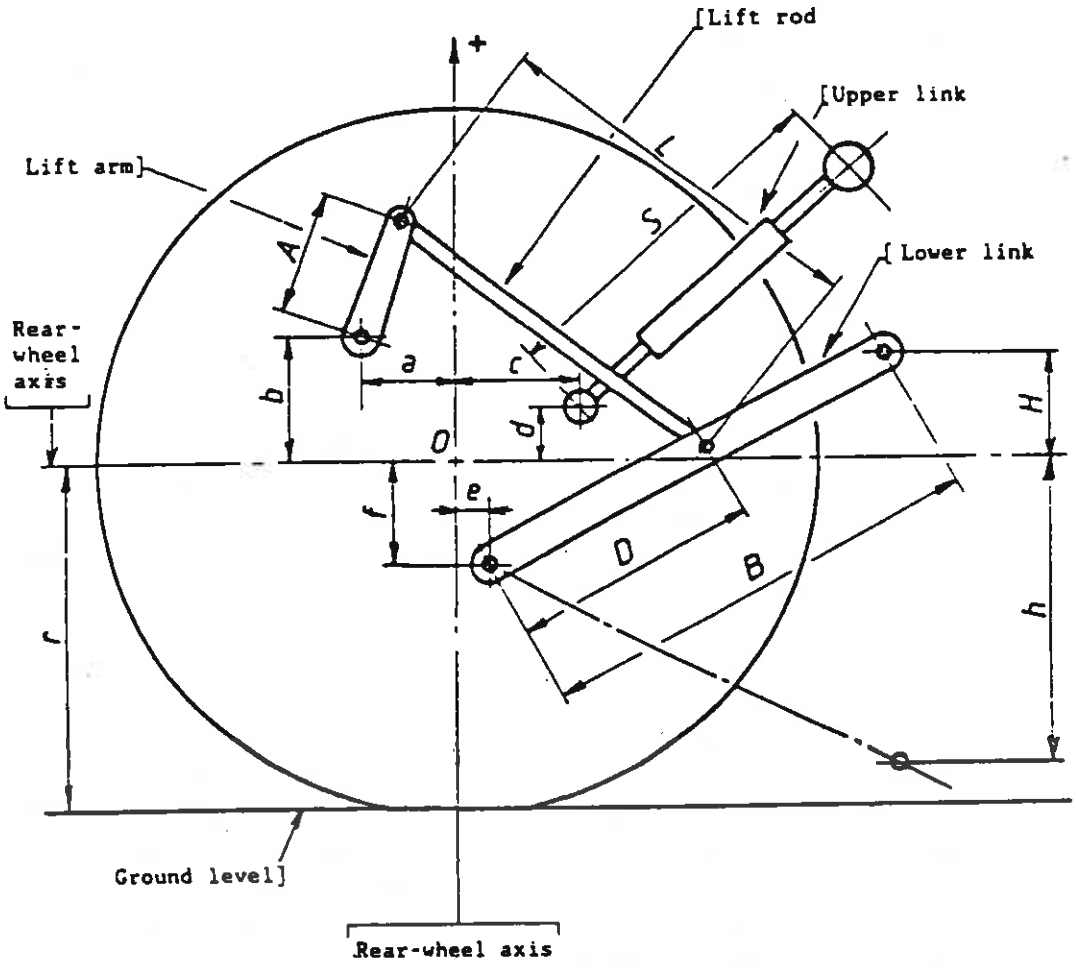
Location	Rear of tractor, vertical center plane
Diameter of shaft (standard)	35 mm (ISO 500/1991)
Number of splines	21 (ISO 500/1991)
Height above ground	765 mm
Distance from median plane of tractor	0 mm
Distance behind rear axle	745 mm
PTO speed at rated engine speed	1003 rev/min
Engine speed at standard PTO speed	2193 rev/min
Ratio of engine rpm to PTO rpm	2.193:1
Power Restriction	None
Direction of rotation (viewed facing driving end)	Clockwise

POWER LIFT

Make/Type	Case IH/3-point
Type of hydraulic system	Closed center, load sensing
Number/Type of cylinders	One internal, 120.7 mm x 171.5 mm; two external, 38.1 mm x 205 mm; all single acting
Type of linkage lock for transport	Hydraulic, with locking notch on hand lever on console
Relief valve setting (High pressure standby)	19.13 ± 0.17 MPa
Opening pressure of cylinder safety valve	19.65-20.34 MPa
Lift pump type	Axial piston, pressure and flow compensated
Power transmission to pump	Direct drive from transmission
Type/Number of filters	Two Spin-on cartridges; Cleanable suction screen inside reservoir
Location of oil reservoir	Transmission housing
Number/Type/Location of tapping points	3 pairs of ISO standard couplings at rear of tractor
Max. oil volume available for external cylinders	8.5 l.

THREE POINT LINKAGE.

- Category 3 in conformity with ISO 730/1-1990
- Category adaptor - None



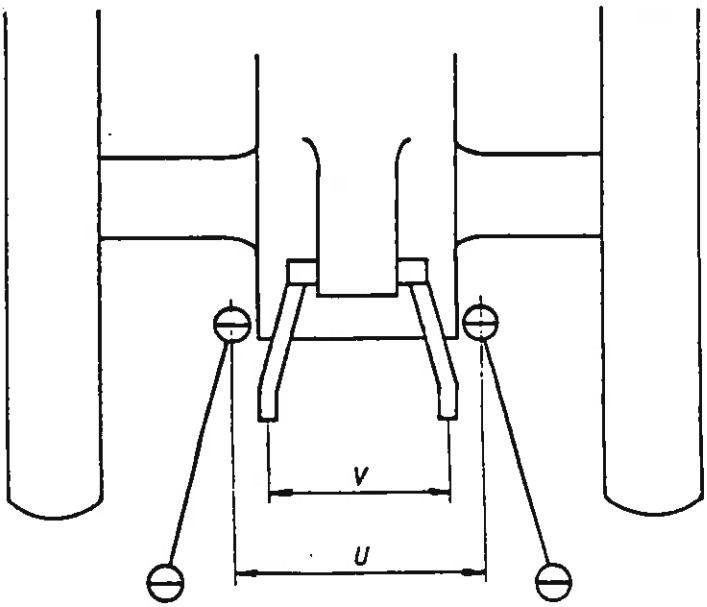


TABLE 1.1 - LINKAGE GEOMETRY DIMENSIONS

			Dimension or range [mm]	Settings used on test [mm]
Lift category			III	same
Rear Tire - Radius Index	(r)		855	855
Front Tire - Radius Index	(r')		665	645
Length of lift arms	(A)		381	same
Length of lower links	(B)		861	same
Distance of lift				
arm pivot from: horizontal	(a)		364	same
rear wheel axis: vertical	(b)		422	same
Horizontal distance between the				
2 lower link points	(u)		604	same
Horizontal distance between the				
2 lift arm end points	(v)		737	same
Length of upper link	(S)	from	634	
		to	853	657
Distance of upper				
link pivot from: horizontal	(c)		627	same
rear wheel axis: vertical	(d)		169	
		and	250	169
Distance of lower				
link pivot from: horizontal	(e)		445	same
rear wheel axis: vertical	(f)		332	same
Distance of lower link pivot				
points to lift rod pivot points				
on lower links	(D)		540	same
Length of lift rods	(L)	from	660	
		to	866	794
Height of lower hitch points				
relative to rear wheel axis				
In low position	(h)	from	378	
		to	699	629
In high position	(H)	from	3	
		to	269	59
Height above ground of lower				
hitch points when locked in				
transport position.		from	808	
		to	1074	914

*Assuming (r) with a dynamic tire index of 855 mm (ISO 4251/1-1992)

SWINGING DRAWBAR

Type	Swinging
Height above ground - Maximum	594 mm (strap on top)
Minimum	470 mm (strap on bottom)
Adjustments	Laterally adjustable with 3 fore-aft positions
Distance of hitch point from rear wheel axis, horizontal	
Position 1	1202 mm
Position 2	1304 mm
Position 3	1406 mm
Distance of hitch point from PTO shaft end of 1000 rpm PTO	
Vertically	222 mm (strap on top) 336 mm (strap on bottom)
Horizontally	
Position 1	406 mm
Position 2	508 mm
Position 3	610 mm
Lateral adjustment (center of clevis) Right side & Left side	
Position 1	210 mm
Position 2	228 mm
Position 3	246 mm
Distance of pivot point from rear wheel axle; horizontally	50 mm forward
Diameter of drawbar pin hole	42 mm
Maximum vertical permissible load (static)	
Positions 1 & 2	20.9 kN
Position 3	16.5 kN

STEERING

Make/Model/Type	Eaton/266-4070-002/hydrostatic steering control unit
Method of operation	
Pump(s)	Cessna main axial piston pump through steering priority valve
Ram(s)	2 double-acting cylinders
Working pressure	16.203-16.892 MPa

BRAKES

Service Brake

Make/Model/Type	Case IH/Oil immersed disc type
Method of operation	Hydraulic, operated by two pedals, separate or coupled.
Trailer brake	none

Parking Brake

Type	Transmission lock
Method of operation	Mechanical; Gear selector lever

WHEELS

Number	
Front	Two; Driving and steering
Rear	Two or Four; Driving
Wheel base	3006 mm

TRACK WIDTH ADJUSTMENT

	Minimum [mm]	Maximum [mm]	Adjustment method
Front	1527	2235	Reversing wheel rims and offset lug rims
Rear	1626	3353	Adjustable clamping edges on bar axle and offset lug rims

PROTECTIVE STRUCTURE

Make/Model/Type	Case IH/CX-96/Cab
Manufacturer's name/address	Case Corporation, 700 State Street, Racine, Wisconsin 53404, USA
Protective device	Cab, 4-post with charpy v-notch certified material
Tiltable	No
OECD Approval Number	CASE INTERNATIONAL 7230 PRO (4WD) CSS 096/109 30 km/h Version
Date of Approval	26 May 1994
OECD Approval Number	STEYR 9220 (MFWD) CSS 096/171 30 km/h Version
Date of Approval	18 June 1997

Modification Certificate:

Certificate for minor modifications numbered:

CSS 096/1 to 8/MOD 1/USA dated 13th June 1990.

established by and under the responsibility of the National Authority:

University of Nebraska
Nebraska Tractor Test Laboratory
Lincoln, Nebraska 68583-0832 United States of America

Certificate for minor modifications numbered:

CSS 096/1 to 8/MOD 2/USA dated 18th October 1990.

established by and under the responsibility of the National Authority:

University of Nebraska
Nebraska Tractor Test Laboratory
Lincoln, Nebraska 68583-0832 United States of America

DRIVER'S SEAT

Make/Model/Type	Sears/SA12105/Air suspension or Sears/SA11035/Air suspension
Type of suspension	Air ride; fore-aft isolator; adjustable for weight. SA11035 has also a lateral isolator
Type of damping	Air damping
Range of adjustment	
Longitudinal	152.4 mm
Vertical	76.2 mm
Safety belt	No

LIGHTING.

	Height above ground of center [mm]	Size [mm x mm]	Distance from outside edge of lights to median plane of tractor. [mm]
Headlights	1617	260.5 x 130.8	390
Rear lights	2054	100.0 x 45.2	654
Reflectors-rear	2054	50.0 x 45.2	554 and 704

TEST CONDITIONS.

Overall dimensions (unballasted).

Length [mm]	Width minimum [mm]	maximum [mm]	Height at top of protective structure [mm]	exhaust stack [mm]
5083	3048	3890	3027	2989
(ballasted)				
5550	3048	3890	3027	2989

Ground clearance (unballasted) 439 mm
Clearance-limiting part Drawbar anchor point

Tractor Mass (with Cab, full fuel tank)

		Without driver [kg]	With driver [kg]
Unballasted	**Front**	2547	2557
	Rear	5556	5621
	Total	8103	8178
Ballasted	**Front**	3601	3611
	Rear	6369	6434
	Total	9970	10045

Ballast

	Number of Weights	Mass (Total) [kg]	Water [kg]
Front - weights	14	635	-----
- bracket	1	164	-----
Rear - weights	4	335	-----
- duals		733	-----

Tire and track width specifications.

	Front	Rear
Make	Goodyear	Goodyear
Dimensions	14.9R30	20.8R38
Ply rating	3 star-134A8	2 star-153A8
Type	Radial	Radial
Max. load (tire manufacturer)	2270 kg/tire	3905 kg/tire
Max. load(tractor manufacturer)	2270 kg/tire	3905 kg/tire
Inflation pressure(tire mfr)	210 kPa	160 kPa
Dynamic Radius Index	665 mm	855 mm
Chosen track width - inner	1945 mm	1945 mm
- outer		3325 mm

OILS AND LUBRICATION

Capacity and change interval

	Capacity	Oil change	Filter change
	liter	hours	hours
Engine (without filter)	19	250	250
Gear Box	191	1000	1000
Front axle	11.4	1000	------
Rear axle	Common with Gear box		
Hydraulic system	Common with Gear box		
Final drive-front (each side)	0.9	1000	------
Final drive-rear	Common with Gear box		

Lubricant Specifications

	Recommended	Used during test
Engine oil		
Type	Case IH N0. 1 SAE 15W-40	same
Viscosity	14.9 cSt at 100°C	
Classification	API CG-4, CF, CF-4	
Transmission oil		
Type	Case IH Hy-tran Plus	same
Viscosity	6.3 cSt at 100°C	
Classification	NA	
Hydraulic fluid		
Type	Case IH Hytran Plus	same
Viscosity	6.3 cSt at 100°C	
Classification	NA	
Front differential and final drive		
Type	Case IH 135H EP Gear Lube; SAE 85W-140	same
Viscosity	27 cSt at 100°C	
Classification	API GL-5 or MIL-L-2105D	
Grease		
Type	Case IH Hi-Temp EP	same
Number of lube points	26	

FUEL

Type	Premier; Grade 2-D, in conformity with the national standard
Density (Pto test)	0.845 kg/l at 15°C
(Drawbar test)	Same as PTO test

COMPULSORY TESTS

1. MAIN POWER TAKE OFF

Date: 9-Sep-97 Location: UNL Tractor Test Lab, Lincoln, NE, USA

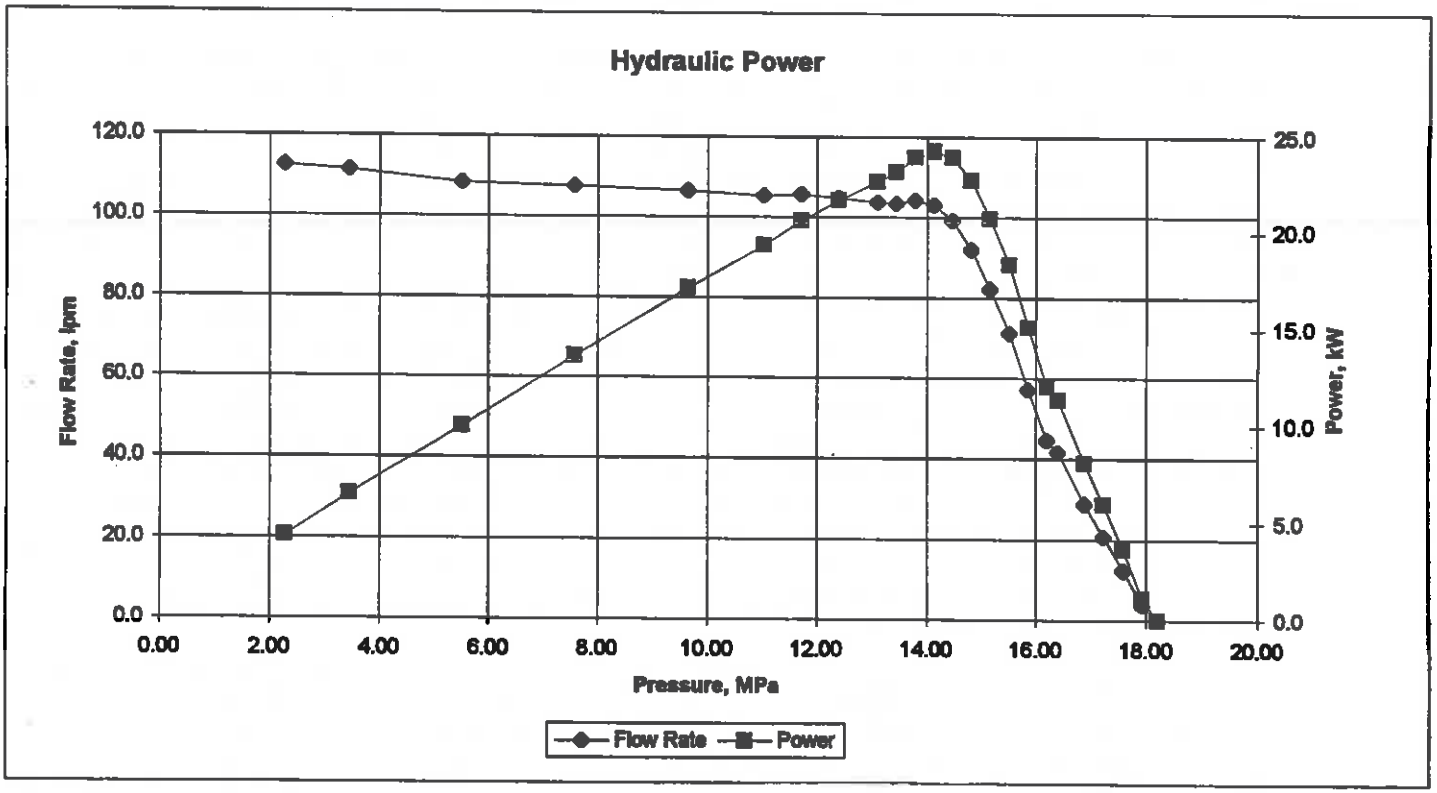
Type of dynamometer: Eddy current, Eaton

Fuel Density 0.845 kg/l

Power kW *hp*	Engine rev/min	PTO rev/min	l/h *gal/h*	kg/h *lb/hr*	kg/kW-h *lb/hp-h*	kW-h/l *hp-h/gal*
1.1 Maximum Power - 2 Hours						
147.91	1950	889	42.44	35.84	0.242	3.49
198.35			*11.21*	*79.02*	*0.398*	*17.69*
1.2 Power at Rated Engine Speed - 1 hour						
135.78	2200	1003	42.64	36.01	0.265	3.18
182.08			*11.26*	*79.39*	*0.436*	*16.16*
1.3 Power at Standard Power Take Off Speed - 1 hour						
135.78	2200	1003	42.64	36.01	0.265	3.18
182.08			*11.26*	*79.39*	*0.436*	*16.16*
1.4 Part Loads						
1.4.1 Torque at maximum power at rated engine speed						
135.78	2200	1003	42.64	36.01	0.265	3.18
182.08			*11.26*	*79.39*	*0.436*	*16.16*
1.4.2 85% of torque obtained in 1.4.1						
120.52	2298	1048	39.96	33.75	0.280	3.02
161.63			*10.56*	*74.40*	*0.460*	*15.31*
1.4.3 75% of torque defined in 1.4.2						
91.43	2323	1060	33.03	27.90	0.305	2.77
122.61			*8.73*	*61.50*	*0.502*	*14.05*
1.4.4 50% of torque defined in 1.4.2						
61.76	2358	1076	26.10	22.04	0.357	2.37
82.82			*6.90*	*48.60*	*0.587*	*12.01*
1.4.5 25% of torque defined in 1.4.2						
31.46	2398	1093	19.34	16.33	0.519	1.63
42.19			*5.11*	*36.00*	*0.853*	*8.26*
1.4.6 unloaded						
0.79	2436	1111	12.89	10.89	13.803	0.06
1.06			*3.41*	*24.00*	*22.691*	*0.31*
1.5 Part Loads at Standard Power Take Off Speed						
1.5.1 Torque at maximum power						
135.78	2200	1003	42.64	36.01	0.265	3.18
182.08			*11.26*	*79.39*	*0.436*	*16.16*
1.5.2 85% of torque obtained in 1.5.1						
120.52	2298	1048	39.96	33.75	0.280	3.02
161.63			*10.56*	*74.40*	*0.460*	*15.31*
1.5.3 75% of torque defined in 1.5.2						
91.43	2323	1060	33.03	27.90	0.305	2.77
122.61			*8.73*	*61.50*	*0.502*	*14.05*
1.5.4 50% of torque defined in 1.5.2						
61.76	2358	1076	26.10	22.04	0.357	2.37
82.82			*6.90*	*48.60*	*0.587*	*12.01*
1.5.5 25% of torque defined in 1.5.2						
31.46	2398	1093	19.34	16.33	0.519	1.63
42.19			*5.11*	*36.00*	*0.853*	*8.26*
1.5.6 unloaded						
0.79	2436	1111	12.89	10.89	13.803	0.06
1.06			*3.41*	*24.00*	*22.691*	*0.31*

No load maximum engine speed:	2436	rev/min		
Equivalent torque at rated speed:	589	N.m	*435*	*lb-ft*
Equivalent torque at maximum power:	724	N.m	*534*	*lb-ft*
(engine speed:	1950	rev/min)		
Maximum equivalent crankshaft torque:	833	N.m	*614*	*lb-ft*
(engine speed:	1399	rev/min)		
Mean Dry bulb:	25	deg C	*78*	*deg F*
Wet bulb:	17	deg C	*63*	*deg F*
Relative Humidity	44	%		
Pressure:	98.2	kPa	*28.99*	*in Hg*
Maximum Coolant:	92	deg C	*197*	*deg F*
Engine Oil:	111	deg C	*232*	*deg F*
Fuel:	52	deg C	*126*	*deg F*
Air Intake:	30	deg C	*86*	*deg F*
Transmission/hydraulic oil:	56	deg C	*132*	*deg F*
Intake manifold pressure at rated speed:	151	kPa	*21.9*	*psig*
Intake manifold pressure at maximum power:	153	kPa	*22.2*	*psig*

Date of Test: 10-Sep-97			
Location of Test-City-State:	Tractor Test Lab, Lincoln, NE, USA		
Tapping point used for test:	Remote hydraulic outlets		
I. Sustained pressure with pump stalled:			
18.20 MPa			
2640 psig			
II. Pump delivery rate at minumum pressure and rated engine speed:			
112.4 l/min			
29.7 gpm			
III. Flow rate, pressure, power:			
90% of relief valve setting			
41.6 l/min	16.41 MPa	11.4 kW	
11.0 gpm	*2380 psig*	*15.3 hp*	
Maximum hydraulic power:			
103.0 l/min	14.13 MPa	24.3 kW	
27.2 gpm	*2050 psig*	*32.5 hp*	
IV. Hydraulic fluid temperature at flow meter:			
69.1 °C			
156 °F			
This hydraulic system does not use an accumulator. Opening and closing pressures of the unloading valve could not be measured.			



2.2 POWER LIFT TEST. Cat III,
Upper link in bottom hole on tractor
Date of test: 20 July 1988
Data taken from OECD test 1197 on the Case International 7130 which has the mechanically identical hitch system.

		Hitch points	Frame
Lower hitch points above ground - down position:	[mm/in]	226/8.9	218/8.6
Vertical movement: without load:	[mm/in]	688/27.1	791/31.1
Vertical movement: with load:	[mm/in]	650/25.6	737/29.0
Maximum corrected force through full range:	[kN/lb]	45.5/10233	42.3/9504
Corresponding pressure:	[kPa/psi]	17100/2475	
Moment about rear axle:	[kN.m/lb.ft]	59.4/43831	81.0/59717
Maximum mast tilt angle:	[deg]	--	7.7

Lifting height relative to horizontal position of lower links.

[mm]	-277	-269	-198	-99	0
[in]	-10.9	-10.6	-7.8	-3.9	0
Corrected lift forces					
Hitch point. [kN]	--	45.5	47.0	51.3	54.0
Hitch point. [lb]	--	10233	10557	11538	12146
at frame [kN]	43.4	--	45.7	47.0	47.7
at frame [lb]	9761	--	10274	10571	10728

Lifting height relative to horizontal position of lower links.

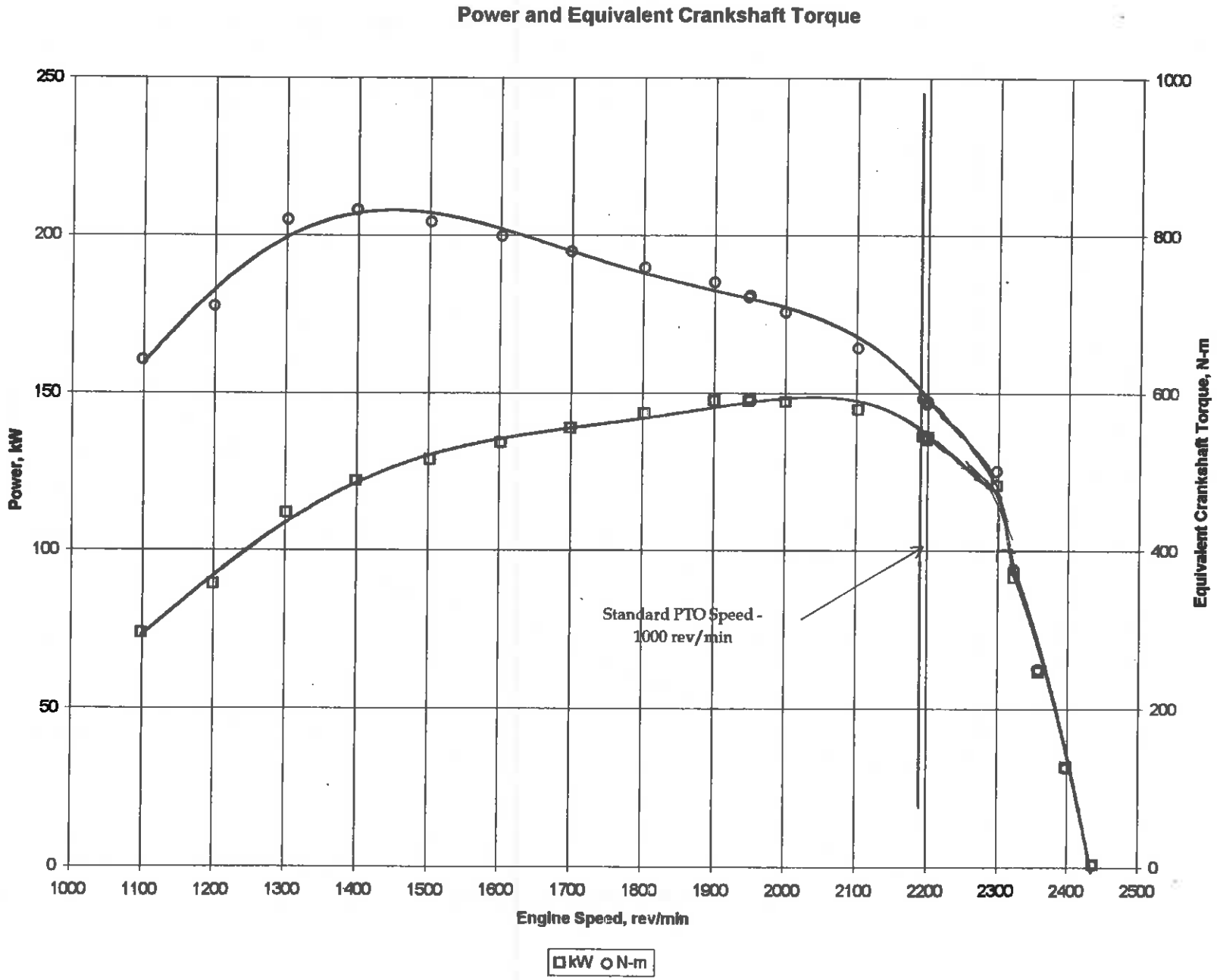
[mm]	99	201	300	381	460
[in]	3.9	7.9	11.8	15.0	18.1
Corrected lift forces					
Hitch point [kN]	55.6	57.2	57.7	58.6	--
Hitch point [lb]	12501	12870	12978	13181	--
at frame [kN]	48.0	46.7	--	43.7	42.3
at frame [lb]	10791	10508	--	9828	9504

OECD Drawbar Data (SI)

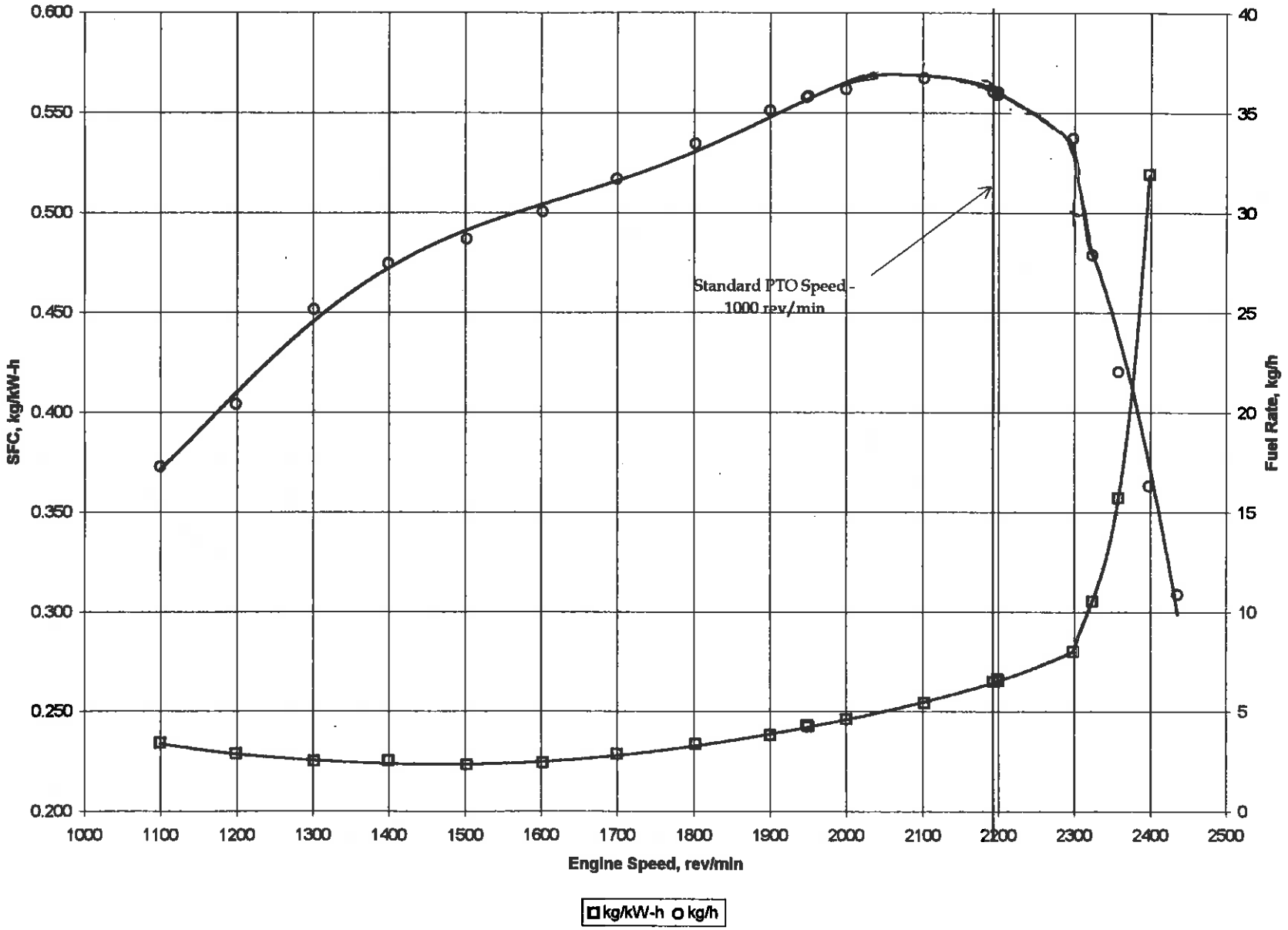
Date of test 19-Sep-97				Fuel density	0.845 kg/l									
Type of tra Concrete				Test number	1735									
Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg C					Rel humidity	Baro. Pres
	kW	kN	km/h	rev/min		kg/kW.h	kW.h/l	Fuel	Coolant	Oil	Dry	Wet		kPa
I. Maximum Power (unballasted, 4wd at 1950 rev/min)						Tire pressure:		110 kPa, rear		97 kPa, front		Drawbar height:		356 mm
4	86.04	76.82	4.03	2302	15%	0.378	2.23	48	86	111	21	18	77%	97.46
5	99.01	77.99	4.57	2259	14%	0.358	2.36	48	88	112	21	18	77%	97.43
6	108.93	73.77	5.32	2167	9%	0.331	2.55	48	89	114	21	17	73%	97.53
7	121.12	72.73	6.00	2071	8%	0.303	2.78	48	90	114	21	17	65%	97.60
8	124.29	67.36	6.64	1956	6%	0.288	2.93	48	91	114	22	17	61%	97.60
9	127.32	58.50	7.84	1955	4%	0.281	3.00	48	90	114	21	18	77%	97.36
10	126.86	50.51	9.04	1951	3%	0.282	2.99	48	90	114	21	18	77%	97.32
11	126.19	43.63	10.41	1953	3%	0.285	2.96	47	90	113	22	17	62%	97.63
12	124.44	37.29	12.01	1955	2%	0.287	2.94	48	93	116	23	17	59%	97.63
13	122.91	32.07	13.80	1955	2%	0.292	2.89	47	91	114	24	17	52%	97.63
II. Part loads (unballasted, 4wd)														
II.1 in selected gear at maximum power at rated engine speed.														
9	116.24	47.02	8.90	2197	3%	0.310	2.72	47	89	113	21	18	77%	97.29
II.1.1 75% of pull at maximum power at rated engine speed														
9	91.80	35.23	9.38	2301	2%	0.336	2.51	47	89	113	24	18	53%	97.66
II.1.2 50% of pull at maximum power at rated engine speed														
9	62.66	23.46	9.61	2342	2%	0.393	2.15	47	86	111	26	18	47%	97.66
II.1.3 higher gear at reduced engine speed, same pull and travel speed as II.1.1														
10	91.81	35.24	9.38	2007	2%	0.303	2.79	47	86	111	25	18	50%	97.66
II.1.4 higher gear at reduced engine speed, same pull and travel speed as II.1.2														
10	62.65	23.51	9.59	2044	2%	0.342	2.47	46	84	108	26	18	47%	97.70
II.1.5 higher gear at reduced engine speed, same pull and travel speed as II.1.3														
11	91.68	35.30	9.35	1743	2%	0.281	3.01	46	86	109	25	18	50%	97.66
II.1.6 higher gear at reduced engine speed, same pull and travel speed as II.1.4														
11	62.74	23.49	9.61	1779	2%	0.315	2.68	45	84	107	26	18	47%	97.70
II.2 in selected gear nearest to 7.5 km/h at rated engine speed.														
8	116.56	54.68	7.67	2201	4%	0.309	2.74	48	88	113	21	18	77%	97.39
II.2.1 75% of pull at maximum power at rated engine speed														
8	92.66	40.98	8.14	2311	3%	0.335	2.52	47	89	112	26	18	47%	97.70
II.2.2 50% of pull at maximum power at rated engine speed														
8	63.07	27.29	8.32	2342	2%	0.389	2.17	47	86	110	26	18	45%	97.73
II.2.3 higher gear at reduced engine speed, same pull and travel speed as II.2.1														
9	92.63	40.88	8.16	2011	3%	0.299	2.83	47	86	111	26	18	47%	97.70
II.2.4 higher gear at reduced engine speed, same pull and travel speed as II.2.2														
9	63.24	27.29	8.34	2037	2%	0.334	2.53	46	84	108	26	18	45%	97.73
II.2.5 higher gear at reduced engine speed, same pull and travel speed as II.2.3														
10	92.56	40.97	8.13	1748	3%	0.279	3.03	47	84	109	26	18	47%	97.73
II.2.6 higher gear at reduced engine speed, same pull and travel speed as II.2.4														
10	62.96	27.28	8.31	1768	2%	0.306	2.76	45	83	107	26	18	45%	97.73

OECD Drawbar Data (US)

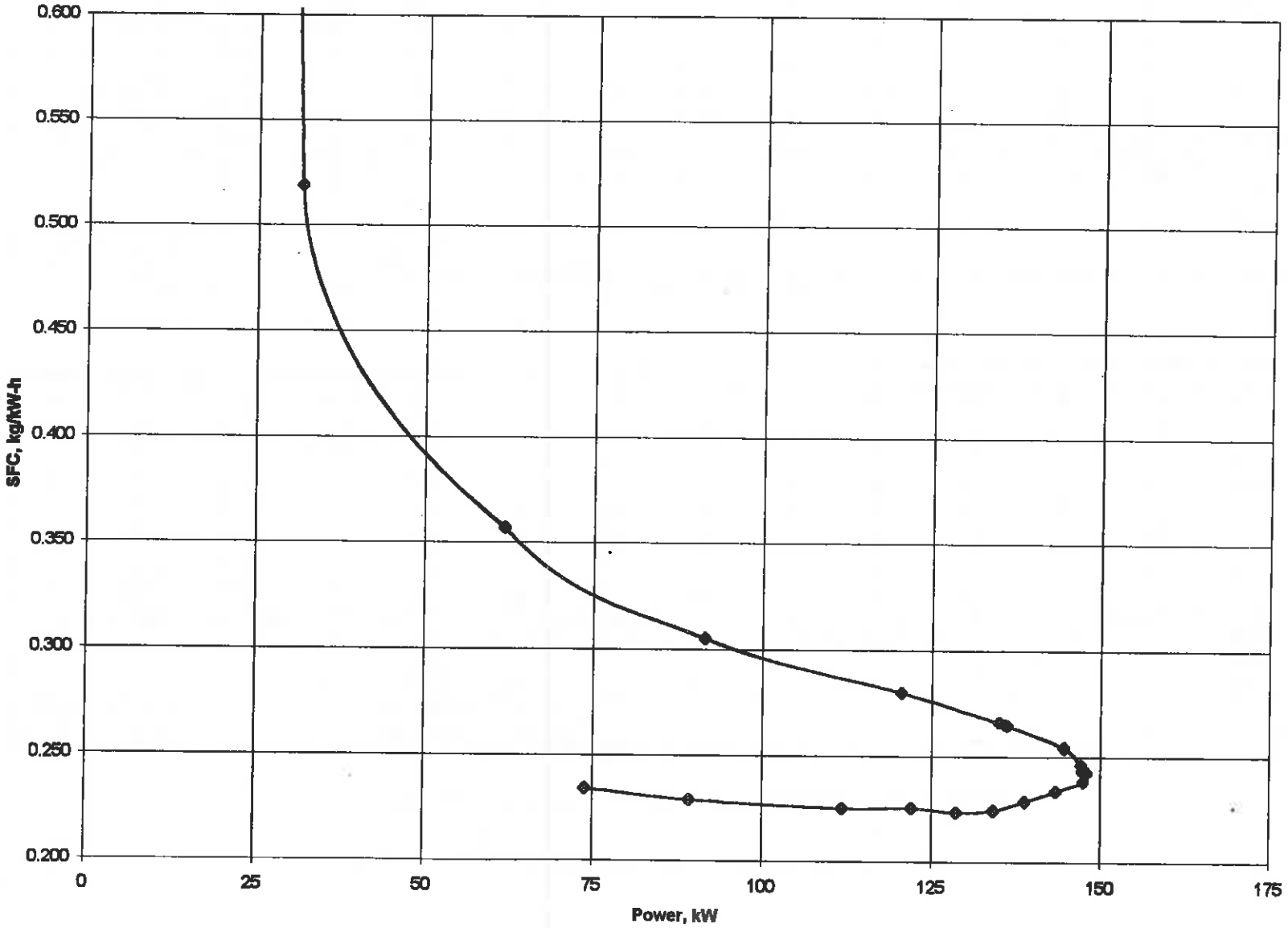
Date of test 19-Sep-97				Fuel density	7.048 lb/gal									
Type of tra Concrete				Test number	1735									
Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg F					Rel humidity	Baro. Pres
	hp	lb	mph	rev/min		lb/hp.h	hp.h/gal	Fuel	Coolant	Oil	Dry	Wet		in Hg
I. Maximum Power (unballasted, 4wd at 1950 rev/min)						Tire pressure:		16 psig, rear		14 psig, front		Drawbar height:	14.0 in	
4	115.38	17269	2.51	2302	15%	0.621	11.34	118	187	232	69	64	77%	28.78
5	132.78	17533	2.84	2259	14%	0.588	11.98	118	191	234	69	64	77%	28.77
6	146.08	16585	3.30	2167	9%	0.544	12.95	119	192	237	69	63	73%	28.80
7	162.42	16350	3.73	2071	8%	0.499	14.13	119	194	238	70	62	65%	28.82
8	166.67	15143	4.13	1956	6%	0.473	14.89	118	196	237	71	62	61%	28.82
9	170.73	13151	4.87	1955	4%	0.462	15.25	119	195	238	69	64	77%	28.75
10	170.12	11356	5.62	1951	3%	0.464	15.20	118	195	238	69	64	77%	28.74
11	169.22	9810	6.47	1953	3%	0.468	15.05	116	194	235	72	63	62%	28.83
12	166.87	8384	7.46	1955	2%	0.472	14.92	118	199	241	73	63	59%	28.83
13	164.82	7210	8.57	1955	2%	0.481	14.66	117	195	237	75	63	52%	28.83
II. Part loads (unballasted, 4wd)														
II.1 in selected gear at maximum power at rated engine speed.														
9	155.88	10570	5.53	2197	3%	0.510	13.83	117	192	236	69	64	77%	28.73
II.1.1 75% of pull at maximum power at rated engine speed														
9	123.11	7920	5.83	2301	2%	0.552	12.76	117	192	235	76	64	53%	28.84
II.1.2 50% of pull at maximum power at rated engine speed														
9	84.03	5275	5.97	2342	2%	0.646	10.92	116	186	231	78	64	47%	28.84
II.1.3higher gear at reduced engine speed, same pull and travel speed as II.1.1														
10	123.12	7923	5.83	2007	2%	0.497	14.17	117	187	231	77	64	50%	28.84
II.1.4 higher gear at reduced engine speed, same pull and travel speed as II.1.2														
10	84.01	5286	5.96	2044	2%	0.562	12.54	115	184	227	78	64	47%	28.85
II.1.5 higher gear at reduced engine speed, same pull and travel speed as II.1.3														
11	122.94	7937	5.81	1743	2%	0.462	15.27	115	186	229	77	64	50%	28.84
II.1.6 higher gear at reduced engine speed, same pull and travel speed as II.1.4														
11	84.13	5282	5.97	1779	2%	0.517	13.62	114	183	225	78	64	47%	28.85
II.2 in selected gear nearest to 4.6 mph at rated engine speed.														
8	156.31	12292	4.77	2201	4%	0.507	13.89	119	191	236	69	64	77%	28.76
II.2.1 75% of pull at maximum power at rated engine speed														
8	124.26	9213	5.06	2311	3%	0.550	12.81	117	192	233	78	64	47%	28.85
II.2.2 50% of pull at maximum power at rated engine speed														
8	84.57	6136	5.17	2342	2%	0.639	11.03	117	187	231	79	64	45%	28.86
II.2.3 higher gear at reduced engine speed, same pull and travel speed as II.2.1														
9	124.22	9191	5.07	2011	3%	0.491	14.35	117	187	232	78	64	47%	28.85
II.2.4 higher gear at reduced engine speed, same pull and travel speed as II.2.2														
9	84.81	6135	5.18	2037	2%	0.549	12.85	115	184	227	79	64	45%	28.86
II.2.5 higher gear at reduced engine speed, same pull and travel speed as II.2.3														
10	124.13	9210	5.05	1748	3%	0.458	15.39	116	184	229	78	64	47%	28.86
II.2.6 higher gear at reduced engine speed, same pull and travel speed as II.2.4														
10	84.43	6133	5.16	1768	2%	0.504	13.99	113	182	225	79	64	45%	28.86


Power and Equivalent Crankshaft Torque
Power, kW
Equivalent Crankshaft Torque, N-m
Engine Speed, rev/min
Standard PTO Speed - 1000 rev/min
kW
N-m
250
200
150
100
50
0
1000
800
600
400
200
0
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400
2500

Specific Fuel Consumption and Fuel Rate



Power and Specific Fuel Consumption



Optional Tests - Ballasted, Front Drive Engaged

Tests conducted under the responsibility of the Nebraska Tractor Testing Laboratory.

OECD Drawbar Data (SI)

Date of test 11-Sep-97 | Fuel density 0.845 kg/l
Type of trac Concrete | Test number 1735

Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg C					Rel hum-	Baro. Pres
	kW	kN	km/h	rev/min		kg/kW.h	kW.h/l	Fuel	Coolant	Oil	Dry	Wet	idity	kPa
I. Maximum Power (ballasted, 4wd at 1950 rev/min)						Tire pressure:		83 kPa, rear		152 kPa, front		Drawbar height:	495 mm	
* 4	112.41	99.30	4.08	2178	9%	0.319	2.65	54	87	111	16	13	70%	98.04
5	119.00	89.89	4.77	2136	6%	0.305	2.77	53	88	112	17	13	66%	97.97
6	123.77	89.34	4.99	1948	6%	0.288	2.93	51	90	113	19	14	59%	97.93
7	126.79	77.19	5.91	1951	4%	0.282	3.00	51	92	115	22	15	50%	98.04
8	128.26	67.62	6.83	1949	4%	0.279	3.03	50	92	114	22	16	51%	98.04
9	128.04	58.28	7.91	1948	3%	0.279	3.03	50	91	114	23	16	48%	98.00
10	126.78	49.95	9.14	1952	3%	0.282	2.99	51	95	117	24	16	46%	97.97
11	125.15	42.89	10.50	1950	2%	0.285	2.97	50	91	113	24	16	46%	97.97
12	123.29	36.63	12.12	1955	2%	0.290	2.92	50	92	114	24	17	46%	97.97
13	121.64	31.57	13.87	1950	2%	0.292	2.89	50	91	113	24	17	46%	97.97

* Note: Slip limited to avoid excessive tractor bouncing

OECD Drawbar Data (US)

Date of test 11-Sep-97 | Fuel density 7.048 lb/gal
Type of trac Concrete | Test number 1735

Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg F					Rel hum-	Baro. Pres
	hp	lb	mph	rev/min		lb/hp.h	hp.h/gal	Fuel	Coolant	Oil	Dry	Wet	idity	in Hg
I. Maximum Power (ballasted, 4wd at 1950 rev/min)						Tire pressure:		12 psig, rear		22 psig, front		Drawbar height:	19.5 in	
* 4	150.74	22323	2.53	2178	9%	0.524	13.44	129	189	232	61	55	70%	28.95
5	159.58	20208	2.96	2136	6%	0.501	14.08	127	190	233	63	56	66%	28.93
6	165.97	20084	3.10	1948	6%	0.474	14.86	125	195	236	66	57	59%	28.92
7	170.03	17354	3.67	1951	4%	0.463	15.21	124	197	239	71	59	50%	28.95
8	172.00	15201	4.24	1949	4%	0.459	15.37	122	198	237	72	60	51%	28.95
9	171.71	13102	4.91	1948	3%	0.458	15.39	122	196	237	73	60	48%	28.94
10	170.01	11229	5.68	1952	3%	0.464	15.20	124	203	242	75	61	46%	28.93
11	167.82	9642	6.53	1950	2%	0.468	15.05	122	197	235	75	61	46%	28.93
12	165.33	8234	7.53	1955	2%	0.476	14.80	123	198	238	76	62	46%	28.93
13	163.12	7098	8.62	1950	2%	0.480	14.69	122	195	235	76	62	46%	28.93

* Note: Slip limited to avoid excessive tractor bouncing

Table 1.2 - *Linkage geometry dimensions.

			Dimension or range [mm]	Settings used on test [mm]
Lift category			III	III
Rear Tire - Radius Index	(r)		855	same
Front Tire - Radius Index	(r')		665	645
Length of lift arms	(A)		381	same
Length of lower links	(B)		861	same
Distance of lift				
arm pivot from: horizontal	(a)		364	same
rear wheel axis: vertical	(b)		422	same
Horizontal distance between the				
2 lower link points	(u)		604	same
Horizontal distance between the				
2 lift arm end points	(v)		737	same
Length of upper link	(S)		634	657
		to	853	
Distance of upper				
link pivot from horizontal	(c)		627	same
rear wheel axis: vertical	(d)		169	250
		and	250	
Distance of lower				
link pivot from: horizontal	(e)		445	same
rear wheel axis: vertical	(f)		332	same
Distance of lower link pivot				
points to lift rod pivot pts				
on lower links.	(D)		540	same
Length of lift rods	(L)		660	794
		to	866	
Height of lower hitch points				
relative to rear wheel axis				
In low position	(h)		378	629
		to	699	
In high position	(H)		3	59
		to	269	
Height above ground of lower				
hitch points when locked in				
transport position.		from	808	914
		to	1074	

*Assuming (r) with a dynamic tire index of 855 mm (ISO 4251/1-1992)

2.2 POWER LIFT TEST. Cat III, (for dimensions see p 25.)
Upper link in top hole on tractor
Date of test: 21 July 1988
Data taken from OECD test 1197 on the Case International 7130 which has the mechanically identical hitch system.

		Hitch points	Frame
Lower hitch points above ground - down position:	[mm/in]	226/8.9	254/10.0
Vertical movement: without load:	[mm/in]	688/27.1	679/26.8
Vertical movement: with load:	[mm/in]	650/25.6	642/25.3
Maximum corrected force through full range:	[kN/lb]	45.5/10233	49.8/11196
Corresponding pressure:	[kPa/psi]	17100/2475	
Moment about rear axle:	[kN.m/lb.ft]	59.4/43831	95.4/70348
Maximum mast tilt angle:	[deg]	--	2.6

Lifting height relative to horizontal position of lower links.

[mm]	-269	-241	-198	-99	0
[in]	-10.6	-9.5	-7.8	-3.9	0

Corrected lift forces

Hitch point. [kN]	45.5	--	47.0	51.3	54.0
Hitch point. [lb]	10233	--	10557	11538	12146
at frame [kN]	--	55.0	52.8	54.6	55.2
at frame [lb]	--	12357	11876	12267	12420

Lifting height relative to horizontal position of lower links.

[mm]	99	201	300	381	401
[in]	3.9	7.9	11.8	15.0	15.8

Corrected lift forces

Hitch point [kN]	55.6	57.2	57.7	58.6	--
Hitch point [lb]	12501	12870	12978	13181	--
at frame [kN]	54.3	54.0	50.9	50.5	49.8
at frame [lb]	12204	12150	11444	11349	11196

MEASUREMENT OF EXTERNAL NOISE LEVEL

Date of test	September 25, 1997
Location of test	Nebraska Tractor Test Laboratory, Lincoln, NE, USA
Sound Level meter	Bruel and Kjaer 2236
Type of track	Concrete oval
Gear Number	18th
Speed prior to acceleration	25.5 km/h
Noise Level	87.5 dB(A)

Repairs: None
Remarks: None