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(Restricted code)
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NEBRASKA TRACTOR TESTING LABORATORY
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REPORT ON TEST IN ACCORDANCE WITH OECD RESTRICTED CODE (CODE II)
FOR THE OFFICIAL TESTING OF AGRICULTURAL TRACTORS



FORD 7740-16x16 (FA 51) SLE MFWD
WITH MECHANICAL FRONT WHEEL DRIVE

MANUFACTURED BY : Ford New Holland Ltd
Basildon, Essex
England
NEBRASKA TEST NUMBER: 1705
TEST DATES : October 9 through 23, 1995

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 - Annex II, Restricted Code.

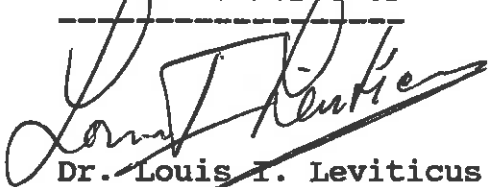
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Ford 7740 - 16x16 SLE with MFWD

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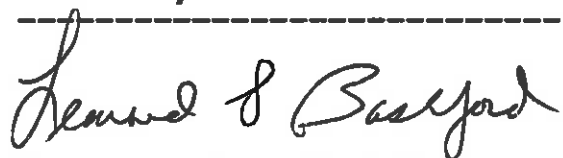
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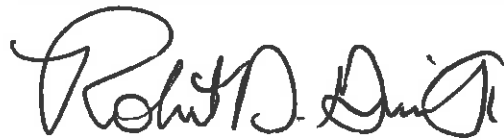
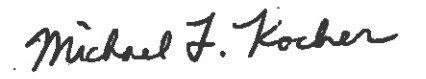
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Date: APRIL 17, 1996

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SPECIFICATIONS OF TRACTOR.

Manufacturers name/address	Ford New Holland Inc. Basildon, Essex, England
Submitted for test by	The manufacturer
Selected for test by	The manufacturer in agreement with the test station.
Place of running in	Ford New Holland New Holland PA, USA
Duration of running in	68.7 hours
Location of Test	Tractor Testing Laboratory Lincoln, Nebraska, USA.

TRACTOR SPECIFICATIONS.

Make	Ford New Holland
Model	7740 (FA51) SLE
Type	Unit construction, mechanical front wheel drive (MFWD)
Number of driving wheels	Two or Four
Serial Number	*BE04409*
1st Serial number	*BD00901*

ENGINE.

Make	Ford New Holland
Model	PA 304 CID TC
Type	Diesel, 4-stroke, direct injection, turbocharged
Serial Number	*PA540981*

Cylinders

Number/Disposition	Four/in-line, vertical
Bore/stroke	111.8 mm x 127.0 mm
Capacity	4987 cm ³
Compression Ratio	17.5:1
Arrangement of valves	Overhead
Cylinder liners	None

Super charging

Make/Model/Type	Garrett Airresearch /T250/ Turbocharger/exhaust gas driven
Pressure	94.8 kPa at rated speed and load

Fuel System

Feed system	Gravity
Make/Type/Model of filters	Plastic strainer in tank; CAV Paper element+sediment bowl+ water trap between tank & injection pump
Fuel tank capacity	103.4 liters

Make/Model/Type Injection Pump	Lucas CAV/DPA DSA 996/rotary 00724CNG
Pump Serial number	
Production setting of pump	
Flow Rate (Rated Eng.Spd & Full Load)	16.0 - 17.3 kg/hr
Fuel density	0.8435 kg/l
Make/Model/Type Injectors	CAV/multi-hole/JB6801135
Injection pressure	24.0 - 24.8 MPa
Timing	10 degrees before TDC
<u>Governor</u>	
Make/Model/Type	Lucas CAV/mechanical
Governed engine speed range	From 700 to 2245 rev/min
Rated engine speed	2100 rev/min
High-idle speed range	2195-2245 rev/min
<u>Air Cleaner.</u>	
Air intake location	Under hood; in front and above radiator
Main Cleaner	
Make/Model/Type	Locker Air Maze/three stage/dry element, exhaust aspirated
	Pleated Paper
Secondary cleaner	Warning lamp on instrument panel
Maintenance indicator	
<u>Lubrication system.</u>	
Type of feed pump	Eccentric rotor pump
Type of filters	Metal mesh strainer in sump and full flow spin-on
	One spin-on
Number	Heat exchanger with air
Oil cooler	
<u>Cooling system.</u>	
Type of coolant	Water and Ethylene Glycol
Type of pump	Centrifugal, belt driven
Fan specification	Belt driven, viscous drive
Number of fan blades	Five
Fan diameter	480 mm
Coolant system capacity	16.0 liter
Type of temperature control	Thermostat and viscous fan
Superpressure system	90 kPa
<u>Starting system.</u>	
Make/Model/Type starter	Bosch/JF/Solenoid engaged
Power Rating	3.1 kW
Cold starting aid	CAV Thermostart
Safety device	Transmission-neutral and PTO-off switches

Electrical system.

Voltage & grounding.

Generator

Make/Model/Type

Power rating

Batteries

Number & connection

Rating

12 Volt DC;negative ground

Magneti Marelli/A127 I/belt driven

100 Amp at 6000 rev/min.

One-12 V Lucas lead acid

107 Amp-hour at 20 hour rating

800 cold crank amps

Exhaust system.

Make/Model/Type

Location

Height of top above ground

Nelson Burgess/dual chamber

Horizontal; Silencer underhood;

Stack vertical above front of hood on the left side

2891 mm

TRANSMISSION.

Clutch. (travel)

Make/Model/Type

Number of plates

Plate diameter

Method of operation

Ford New Holland/Multiplate; wet; located in gear box

Seven

159 mm

Pedal operated; electro-hydraulic

Gear Box.

Make/Model/Type

Arrangement

Number of gears

Oil cooler

Available options

Ford New Holland (16x16 Pulse Command™)/ Electro-mechanical 16x16 Synchromesh

One four speed powershift-push-button controlled;

Two Hi-Lo speed range levers;

One forward-Reverse lever

16 forward and 16 reverse

controlled by three hand levers and one push-button

Heat exchanger with engine coolant

None

Rear axle and final drives.

Make/Model/Type

Differential Lock

Type

Method of engagement

Method of disengagement

Ford New Holland/crown wheel
and pinion, differential and
inboard planetary reduction

Electro-hydraulic jaw clutch
Control panel-switch operated
Control panel-switch operated

Front Axle and final drives.

Make/Model/Type

Differential lock

Type

Method of engagement

Method of disengagement

Ford New Holland/Class 2/Crown
wheel and pinion with
differential and planetary
reduction

Limited slip

Automatic - slip sensitive

Automatic - slip sensitive

Gear ratios and travel speeds.

Gear Number	Gear Designation (see note)	Number of engine revolutions for one revolution of the driving wheels	Nominal travel speed at a rated speed of 2100 rev/min [km/h]

Forward			
1	1L	287.21	2.26
2	2L	235.01	2.76
3	3L	192.18	3.38
4	4L	157.29	4.13
5	5L	121.64	5.34
6	6L	99.56	6.52
7	1H	92.61	7.01
8	7L	81.39	7.98
9	2H	75.80	8.56
10	8L	66.62	9.74
11	3H	61.97	10.48
12	4H	50.72	12.80
13	5H	39.22	15.55
14	6H	32.10	20.22
15	7H	26.24	24.74
16	8H	21.48	30.22
Reverse			
1	1L	289.92	2.24
2	2L	237.22	2.74
3	3L	193.92	3.35
4	4L	158.72	4.09
5	5L	122.75	5.29
6	6L	100.47	6.46
7	1H	93.45	6.95
8	7L	82.13	7.90
9	2H	76.49	8.49
10	8L	67.22	9.66
11	3H	62.53	10.38
12	4H	51.18	12.68
13	5H	39.58	15.40
14	6H	32.40	20.04
15	7H	26.48	24.51
16	8H	21.68	29.95

(Tire dynamic radius of 820 mm. ISO 4251/1-1992)

Number of front wheel revolutions per rear wheel revolution=1.3415

POWER - TAKE - OFF.

Main Power-Take-Off.

Type	Independent
Method of engagement	Electro-hydraulically actuated multiplate wet clutch operated by control panel mounted switch
Number of shafts	One 6-spline, one 21-spline
Method of changing speeds	Removing one shaft, inserting the second shaft
Options	Single 6-spline shaft

Standard PTO.1000 rev/min-tested version.

Location	Rear of tractor, vertical center plane.
Diameter of shaft	34.9 mm
Number of splines	21; conforms to ISO 500/1991.
Height above ground	773 mm
Distance from median plane of tractor	0 mm
Distance behind rear axle	457 mm
PTO Speed at rated engine spd	1025 rev/min
Engine speed at Std. PTO spd	2049 rev/min
Engine speed/PTO speed ratio	2.049:1
Direction of rotation when viewed from shaft end	Clockwise.

Standard PTO. 540 rev/min.

Location	Rear of tractor, vertical center plane.
Diameter of shaft	34.9 mm
Number of splines	6; conforms to ISO 500/1991.
Height above ground	773 mm
Distance from median plane of tractor	0 mm
Distance behind rear axle	457 mm
PTO Speed at rated engine spd	600 rev/min
Engine speed at Std. PTO Spd	1890 rev/min
Engine speed/PTO speed ratio	3.50:1
Direction of rotation when viewed from shaft end	Clockwise.

POWER LIFT.

Make	Sauer Sunstrand
Type of hydraulic system	Closed Center;electronic draft/positon control; lower link sensing
Number/Type of cylinders	One internal and one external 45ø mm cylinder; both single acting
Optional external cylinder(s)	One additional 45ø mm or two 50ømm cylinders.
Cylinder bore x stroke	45 mm x 315 mm
Type of linkage lock for transport	Hydraulic
Relief valve setting	18.0-18.7 MPa
Opening pressure of cylinder safety valve	19.7 MPa
Lift pump type	Piston pump
Power transmission to pump	PTO input-shaft driven
Type/Number of filters	Full flow/Three replaceable paper cartridges
Location of oil reservoir	Rear axle housing
Number/Type/Location of tapping points.	Two pairs of ISO standard couplings at rear of tractor. Two more optional
Max. oil volume available for external cylinders.	18.2 liters

THREE POINT LINKAGE.

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

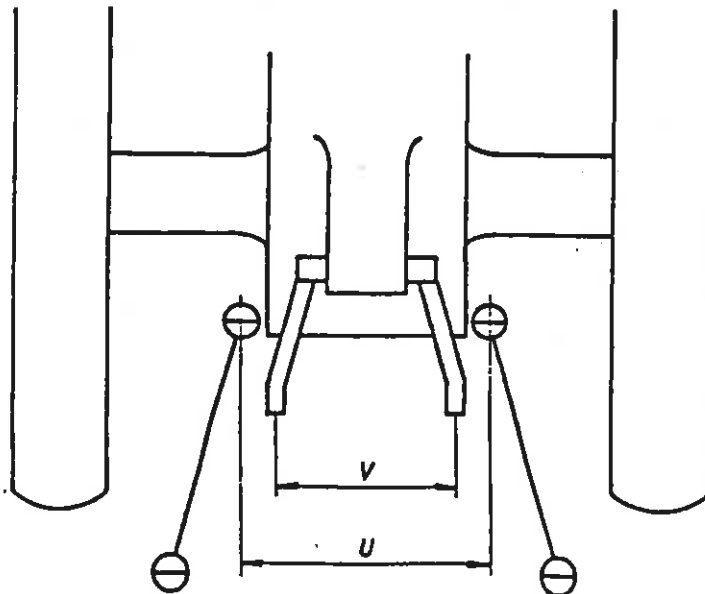
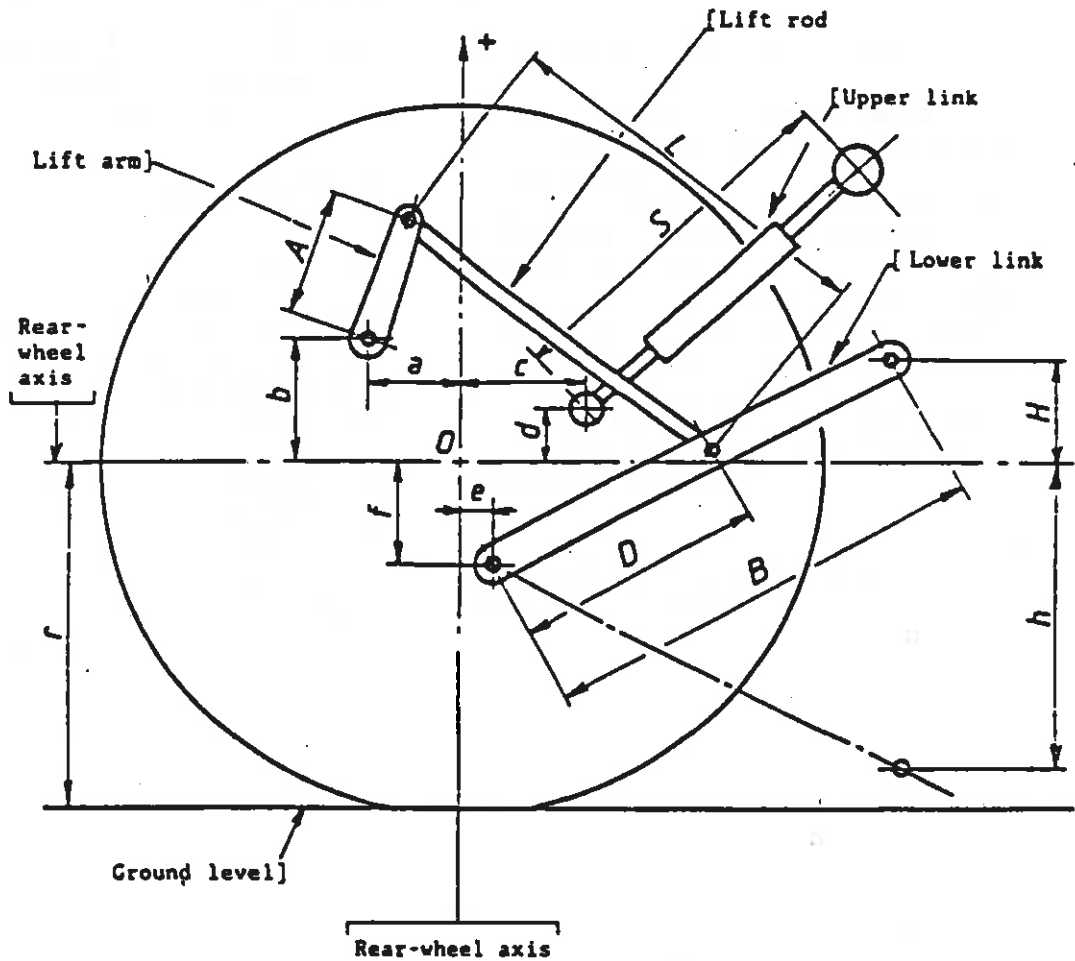


Table 1.1 -*Linkage geometry dimensions.

		Dimension or range	Settings used on test	
		[mm]	[mm]	
Lift category		II	II	
Rear Tire - Radius Index	(r)	820	same	
Front Tire - Radius Index	(r')	640	same	
Length of lift arms	(A)	254	same	
Length of lower links	(B)	915	same	
Distance of lift				
arm pivot from:	horizontal	(a)	102	same
rear wheel axis:	vertical	(b)	341	same
Horizontal distance between the 2 lower link points		(U)	527	same
Horizontal distance between the 2 lift arm end points		(V)	610	same
Length of upper link	(S)	610	686	
		to 830		
Distance of upper				
link pivot from:	horizontal	(c)	325	
rear wheel axis:	vertical	(d)	Hi 205	205
		Lo 149		
Distance of lower				
link pivot from:	horizontal	(e)	102	same
rear wheel axis:	vertical	(f)	229	same
Distance of lower link pivot points to lift rod pivot pts on lower links.				
	horizontal	(D)	412	
		or 520	520	
	vertical	(E)	on center	
		(L)	743	
Length of lift rods		to 879	864	
Height of lower hitch points relative to rear wheel axis				
In low position		(h)	308	
In high position		to 794	617	
		(H)	-77	
		to 224	23	
Height above ground of lower hitch points when locked in transport position.			824	
		to 1056	843	

*Assuming (r) with a tire dynamic index of 820 mm (32.3 in)
ISO 4251/1-1992

SWINGING DRAWBAR.

Type
Height above ground
Adjustments
Distance of hitch point from
rear wheel axis, horizontal

Distance of hitch point from
PTO shaft end
 Vertical-
 Horizontal-

Lateral adjustment; Right side
 Left side
Distance of pivot point from
rear wheel axis; horizontal
Diameter of drawbar pin hole
Clevis width
Maximum vertical static
 permissible load

Oscillating
515 mm
Longitudinal and lateral

Position 1 - 700 mm
Position 2 - 814 mm
Position 3 - 865 mm

228 mm
Position 1 - 243 mm
Position 2 - 357 mm
Position 3 - 408 mm
274 mm
274 mm

13 mm forward.
27 mm
66 mm

Position 1 - 16.02 kN
Position 2 - 10.45 kN
Position 3 - 8.90 kN

STEERING.

Make/Model/Type

Method of operation
Pump
Ram(s)
Working pressure

Danfoss/OSPC-150-OR/
Hydrostatic
Steering wheel
Sauer Sunstrand gear pump
Two Double acting cylinders
16.7-17.8 MPa

BRAKE SYSTEM

Service brake.

Make/Model/Type
Method of operation

Girling/Wet multiplate
Mechanical; operated by two
pedals which can be locked
together.

Parking brake.

Type

Method of operation

Mechanical linkage coupled to
service brake via cables
Hand lever with ratchet

Trailer Brake

Type

None
NA

WHEELS.

Number.	
Front	Two; Driving and steering
Rear	Two; Driving
Wheel base	2362 mm

Track width adjustment

	Minimum [mm]	Maximum [mm]	Adjustment method
Front	1389	2142	Reversing wheels and offset lug rims
Rear	1628	2028	Power adjust rims

PROTECTIVE STRUCTURE.

Make/Model/Type	Ford New Holland/582 Mk SK90/ Cab with safety frame
Manufacturer's name/address	Sicurcab SRL Turin (Torino), Italy
Protective device	Safety cab; non-tiltable
OECD approval number	CSD 1329/21

DRIVER'S SEAT.

Make/Model/Type	Grammer/LS951H/90A
Type of suspension	Mechanical
Type of damping	Hydraulic; double acting
Range of adjustment	
Longitudinal	150 mm
Vertical	40 mm

LIGHTING.

	Height above ground of center [mm]	Size [mm]	Distance from out- side edge to median plane of tractor. [mm]
Head lights	1219	150 x 100	227
Side lights	1755	115 x 30	769
Rear lights-left	1753	165 x 35	984
Rear reflectors			
Right side	825	120 x 40	591
Cab reflectors	1643	165 x 30	984

TEST CONDITIONS.

Overall dimensions.

Length		4100 mm
Width	Minimum	2095 mm
	Maximum	2581 mm
Height - Top of ROPS		2766 mm
- Top of exhaust		2891 mm
Ground clearance. (unballasted)		432 mm
Clearance-limiting part		Low position of drawbar clevis

Tractor Mass (with cab,full fuel tank).

		without driver [kg]	with driver [kg]

Unballasted	Front	1774	1784
	Rear	2729	2794
	Total	4503	4578

Ballasted	Front	1781	1791
	Rear	3250	3315
	Total	5031	5106
=====			

Ballast.

	Number of weights	Total Mass [kg]	Liquid [kg]

Front	none		
Rear	6	327	149
Dual tires	none		
Additional (front frame)	none		
Test equipment		52	
=====			

Tire Specifications.

	Front Wheels	Rear Wheels

Make	Goodyear	Goodyear
Dimensions	14.9-28	18.4R38
Ply rating	10 ply	2 star
Type	Bias	Radial
Max.load (tire manufacturer)	2118 kg/tire	3202 kg/tire
Max.load(tractor manufacturer)	2118 kg/tire	3202 kg/tire
Inflation pressure(tire mfr)	220 kPa	165 kPa
Dynamic Radius Index	640 mm	820 mm
Chosen track width	1718 mm	1648 mm

Oils and Lubrication.

Capacity and change interval:	Capacity liter	Oil change hours	Filter change hours
Engine (w/o filter)	11.4	300	300
Gear Box (includes rear axle, rear final drive & hydraulics)	56.8	1200	300
Front axle housing	6.2	1200	---
Final drive, front	3.0	1200	---
Hydraulic system	common with gear box		

Oil and Lubricant specifications:

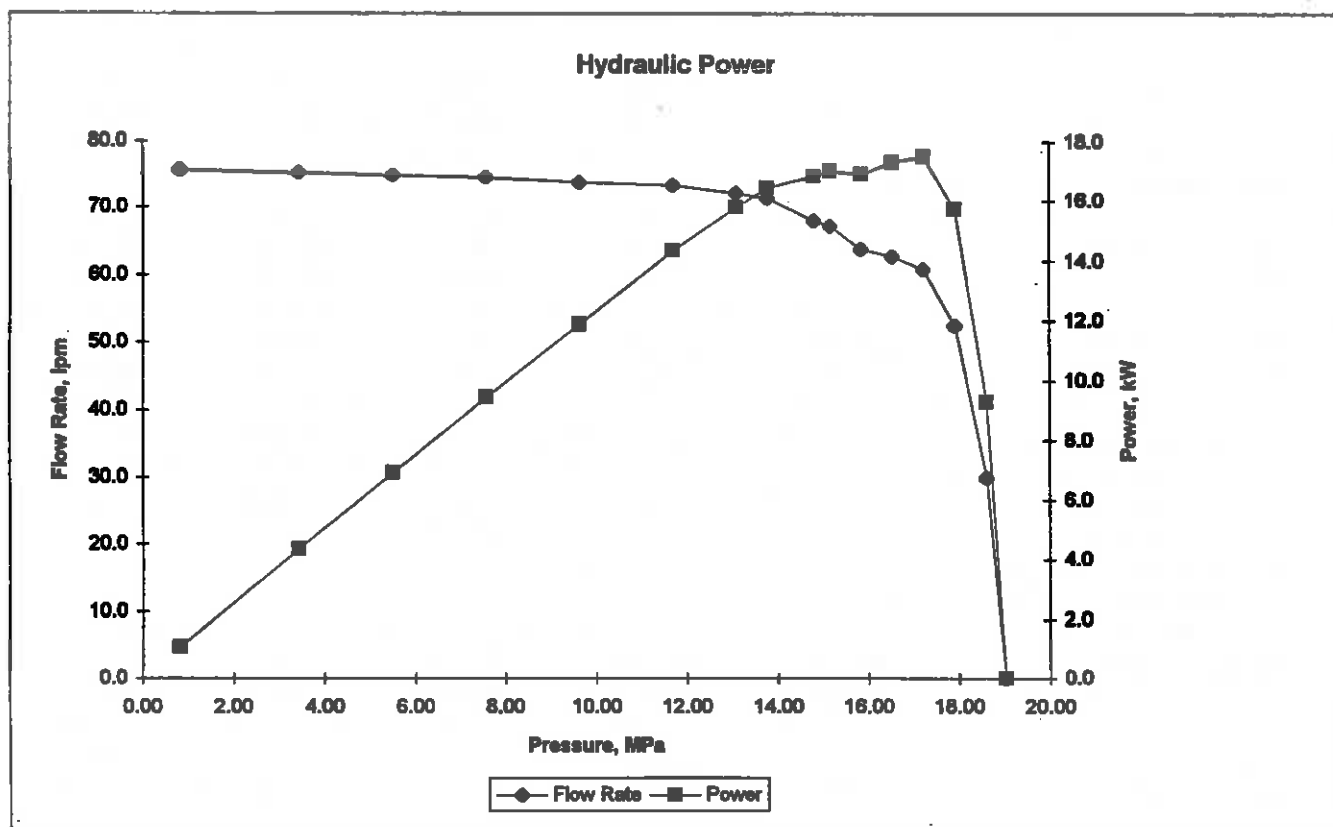
	Recommended	Used during test
Engine oil		Same
Type	SAE 15W-40	
Viscosity	11.5 cSt at 100°C	
Classification	Mil-L-2104C	
Transmission		Same
Type	Ford M2C134-D	
Viscosity	9.0 cSt at 100°C	
Classification	Mil-L-2105	
Rear Axle		
Type	Ford M2C134-D	
Viscosity	9.0 cSt at 100°C	
Classification		
Hydraulic fluid	same as transmission oil	
Steering oil	same as transmission oil	
Front axle and hubs	same as transmission oil	Same
Hydraulic Brakes		
Type	Ford ESN-M6C59-A	
Viscosity	6.0 cSt at 100°C	
Classification	No equivalent	
Grease	Lithium based	Same
Number of grease points	12	Same
<u>Fuel</u>		
Type/grade	Premier; Grade 2-D, in conformity with national standard	
Density (Pto test)	0.842 kg/l at 15°C	
(Drawbar test)	same as Pto test.	
Cetane number	50.6	
Viscosity	2.51 cSt at 38°C	

COMPULSORY TESTS

1. MAIN POWER TAKE OFF

Date:	10-Oct-95	Location:		UNL Tractor Test Lab, Lincoln, NE, USA		
Type of dynamometer:			Eddy current, Eaton	Fuel Density:		0.842 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						
64.84	2099	1024	20.50	17.25	0.266	3.16
86.96			5.42	38.03	0.437	16.06
1.2 Power at Rated Engine Speed - 1 hour						
64.84	2099	1024	20.50	17.25	0.266	3.16
86.96			5.42	38.03	0.437	16.06
1.3 Power at Standard Power Take Off Speed - 1 hour						
64.43	2050	1000	20.06	16.88	0.262	3.21
86.41			5.30	37.21	0.431	16.31
1.4 Part Loads						
1.4.1 Torque at maximum power at rated engine speed						
64.84	2099	1024	20.50	17.25	0.266	3.16
86.96			5.42	38.03	0.437	16.06
1.4.2 85% of torque obtained in 1.4.1						
56.64	2151	1050	18.92	15.92	0.281	2.99
75.95			5.00	35.10	0.462	15.20
1.4.3 75% of torque defined in 1.4.2						
42.33	2166	1057	15.68	13.20	0.312	2.70
56.77			4.14	29.10	0.513	13.70
1.4.4 50% of torque defined in 1.4.2						
28.60	2173	1060	12.61	10.61	0.371	2.27
38.36			3.33	23.40	0.610	11.51
1.4.5 25% of torque defined in 1.4.2						
14.34	2201	1074	9.54	8.03	0.560	1.50
19.22			2.52	17.70	0.921	7.63
1.4.6 unloaded						
0.31	2203	1075	6.31	5.31	17.382	0.05
0.41			1.67	11.70	28.575	0.25
1.5 Part Loads at Standard Power Take Off Speed						
1.5.1 Torque at maximum power						
64.43	2050	1000	20.06	16.88	0.262	3.21
86.41			5.30	37.21	0.431	16.31
1.5.2 85% of torque obtained in 1.5.1						
55.90	2090	1020	17.95	15.10	0.270	3.11
74.97			4.74	33.30	0.444	15.81
1.5.3 75% of torque defined in 1.5.2						
42.46	2113	1031	15.36	12.93	0.304	2.76
56.95			4.06	28.50	0.500	14.03
1.5.4 50% of torque defined in 1.5.2						
28.10	2112	1031	11.97	10.07	0.358	2.35
37.68			3.16	22.20	0.589	11.92
1.5.5 25% of torque defined in 1.5.2						
14.27	2146	1047	9.06	7.62	0.534	1.58
19.14			2.39	16.80	0.878	8.00
1.5.6 unloaded						
0.30	2156	1052	5.98	5.03	16.851	0.05
0.40			1.58	11.10	27.703	0.25
No load maximum engine speed:			2203 rev/min			
Equivalent torque at rated speed:			295 N.m		218 lb-ft	
Equivalent torque at maximum power:			295 N.m		218 lb-ft	
(engine speed:			2099 rev/min)			
Maximum equivalent crankshaft torque:			372 N.m		274 lb-ft	
(engine speed:			1401 rev/min)			
Mean Dry bulb:			26 deg C		78 deg F	
Wet bulb:			22 deg C		72 deg F	
Relative Humidity			71 %			
Pressure:			98.1 kPa		28.98 in Hg	
Maximum Coolant:			99 deg C		211 deg F	
Engine Oil:			118 deg C		245 deg F	
Fuel:			68 deg C		155 deg F	
Air intake:			66 deg C		151 deg F	
Transmission/hydraulic oil:			81 deg C		178 deg F	
Intake manifold pressure at rated speed:			101.6 kPa		14.7 psig	
Intake manifold pressure at maximum power:			101.6 kPa		14.7 psig	

Date of Test	18-Oct-95			
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:				
	19.03	MPa		
	2760	psig		
II. Pump delivery rate at minimum pressure and rated engine speed:				
	75.7	l/min		
	20.0	gpm		
III. Flow rate, pressure, power:				
90% of relief valve setting				
	60.9	l/min	17.24	MPa
	16.1	gpm	2500	psig
			17.5	kW
			23.5	hp
Maximum hydraulic power:				
	60.9	l/min	17.237	MPa
	16.1	gpm	2500	psig
			17.5	kW
			23.5	hp
IV. Hydraulic fluid temperature at flow meter				
	65	°C		
	149	°F		



NOTE: 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. (with 1(45) mm lift assist cylinder)

Date of test: 12 October 1995

		Hitch points	Frame
Lower hitch points above ground - down position:	[mm/in]	203/8.0	130/5.1
Vertical movement:			
without load:	[mm/in]	641/25.3	789/31.1
with load:	[mm/in]	610/24.0	747/29.4
Maximum corrected force through full range:	[kN/lb]	33.4/7502	24.3/5463
Corresponding pressure:	[kPa/psi]	16.8/2430	
Moment about rear axle:	[kN.m/lb.ft]	33.9/24989	39.5/29136
Maximum mast tilt angle:	[deg]	---	6.0

Lifting height relative to horizontal position of lower links.

[mm]	-459	-386	-300	-201	-99
[in]	-18.1	-15.2	-11.8	-7.9	-3.9

Corrected lift forces

Hitch [kN]	---	33.4	34.7	35.8	36.6
point.[lb]	---	7502	7803	8051	8222
at [kN]	28.5	29.1	---	29.4	29.2
frame [lb]	6408	6552	---	6615	6561

Lifting height relative to horizontal position of lower links.

[mm]	0	99	201	224	287
[in]	0	3.9	7.9	8.8	11.3

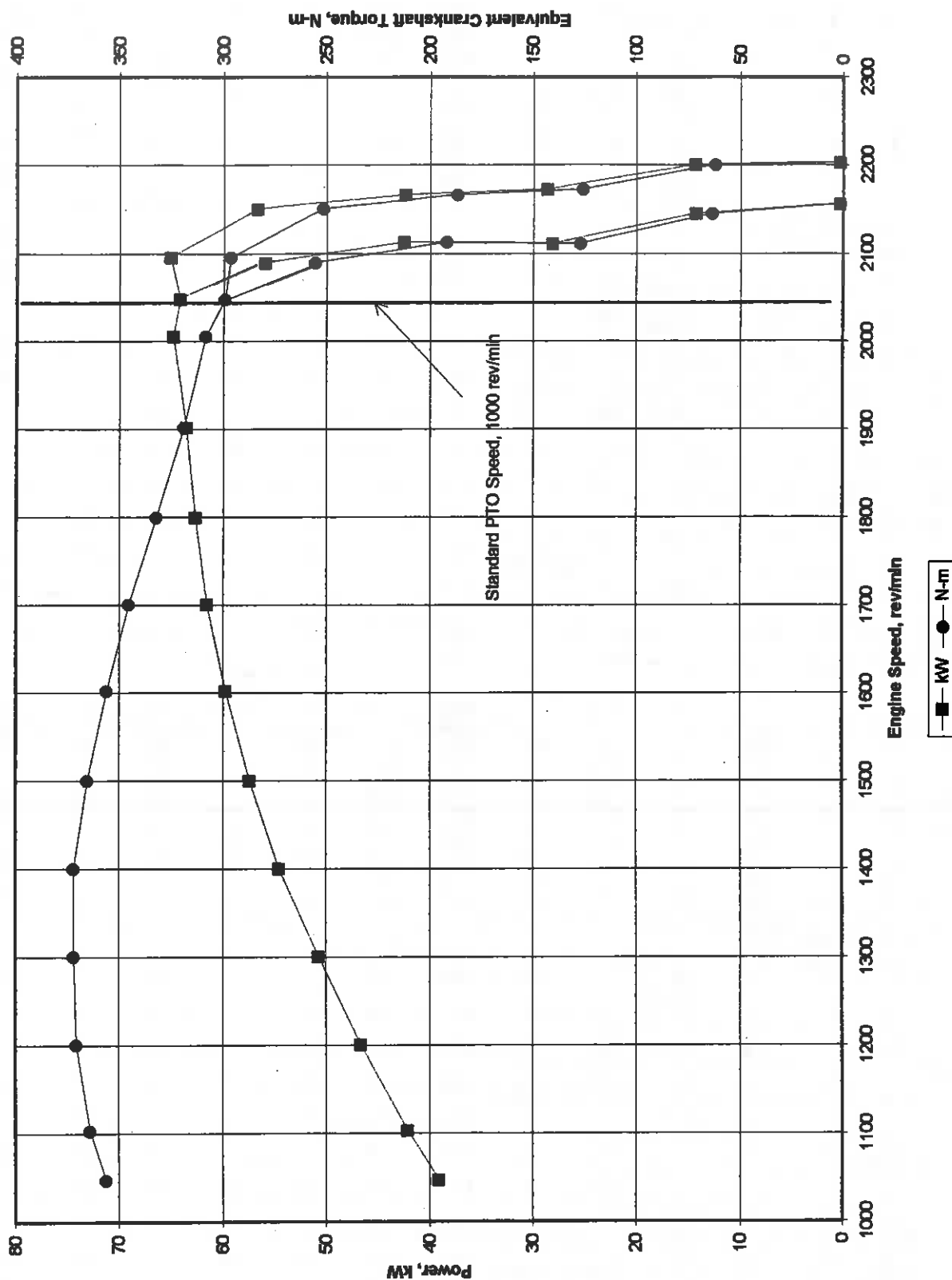
Corrected lift forces

Hitch [kN]	36.7	36.6	35.8	35.7	---
point [lb]	8258	8235	8055	8024	---
at [kN]	28.2	27.0	---	25.2	24.3
frame [lb]	6336	6066	---	5661	5463

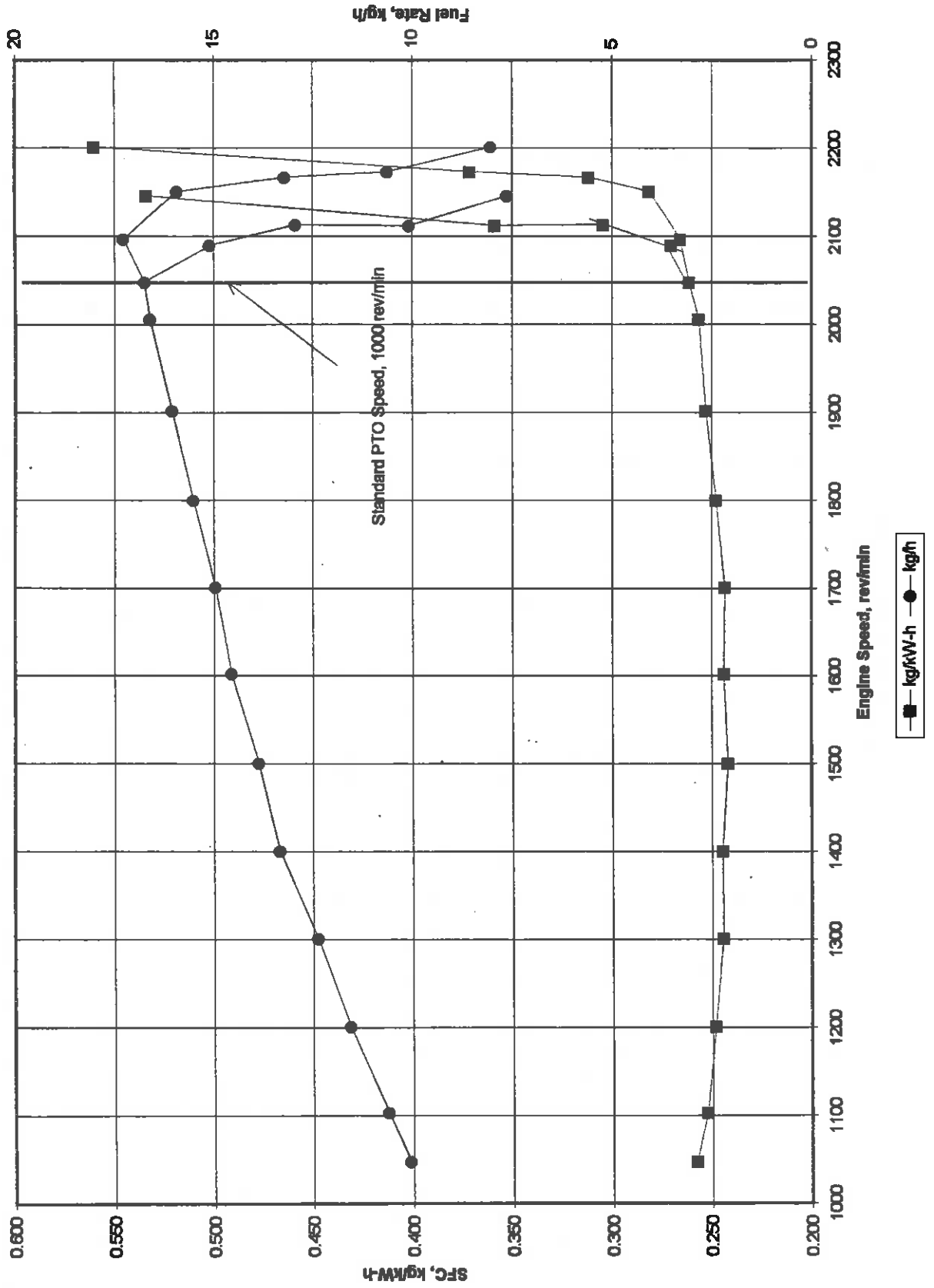
OECD Drawbar Data (SI)															
Date of tests:		17-Oct-95		Fuel density:		0.842		kg/l							
Type of track:		Concrete		Test number:		1705									
Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg C						Rel humidity	Baro. Pres
	kW	kN	km/h	rev/min		kg/kW.h	kW.h/l	Fuel	Coolant	Oil	Dry	Wet		kPa	
I. Maximum Power (unballasted, 4wd at 2100 rev/min)						Tire pressure:		83 kPa, rear		83 kPa, front		Drawbar height:		559 mm	
*3 3L	37.61	44.56	3.04	2135	14%	0.383	2.20	65	89	112	19	13	51%	97.63	
*4 4L	47.13	45.41	3.74	2132	14%	0.349	2.41	64	89	113	18	12	54%	97.60	
5 5L	54.01	37.90	5.13	2100	7%	0.317	2.66	67	92	113	21	14	49%	97.66	
6 6L	55.30	31.22	6.38	2102	5%	0.310	2.72	67	92	117	22	14	44%	97.70	
7 1H	54.75	28.48	6.92	2097	4%	0.313	2.69	67	93	118	23	15	42%	97.70	
8 7L	52.68	23.99	7.90	2103	4%	0.325	2.59	67	93	118	24	15	40%	97.70	
9 2H	54.51	22.95	8.55	2101	4%	0.315	2.67	67	93	117	24	16	37%	97.70	
10 8L	52.79	19.57	9.71	2100	3%	0.324	2.59	66	93	116	25	16	37%	97.66	
11 3H	52.79	18.03	10.54	2101	3%	0.325	2.59	67	92	116	26	16	35%	97.66	
12 4H	51.75	14.39	12.95	2100	2%	0.331	2.54	66	93	117	26	16	33%	97.66	
*Note: Slip within operating conditions of test station															
II. Part loads (unballasted, 4wd)															
II.1 in selected gear at maximum power at rated engine speed															
6 6L	55.30	31.22	6.38	2102	5%	0.310	2.72	67	92	117	22	14	44%	97.70	
II.1.1 75% of pull at maximum power at rated engine speed															
6 6L	42.98	23.35	6.63	2155	4%	0.338	2.49	66	91	114	26	16	33%	97.70	
II.1.2 50% of pull at maximum power at rated engine speed															
6 6L	29.19	15.56	6.75	2170	3%	0.404	2.08	64	89	111	26	16	33%	97.66	
II.1.3 higher gear at reduced engine speed, same pull and travel speed as II.1.1															
10 8L	42.99	23.35	6.63	1442	4%	0.290	2.90	67	94	113	26	16	33%	97.70	
II.1.4 higher gear at reduced engine speed, same pull and travel speed as II.1.2															
10 8L	29.23	15.57	6.76	1453	2%	0.309	2.72	63	88	107	26	15	30%	97.66	
II.2 in selected gear nearest to 7.5 km/h at rated engine speed															
7 1H	54.75	28.48	6.92	2097	4%	0.313	2.69	67	93	118	23	15	42%	97.70	
II.2.1 75% of pull at maximum power at rated engine speed															
7 1H	42.72	21.36	7.20	2156	3%	0.338	2.49	64	91	111	26	15	30%	97.66	
II.2.2 50% of pull at maximum power at rated engine speed															
7 1H	29.09	14.26	7.34	2175	2%	0.403	2.09	63	89	111	27	15	28%	97.66	
II.2.3 higher gear at reduced engine speed, same pull and travel speed as II.2.1															
11 3H	42.74	21.37	7.20	1443	3%	0.293	2.87	66	93	112	27	15	28%	97.66	
II.2.4 higher gear at reduced engine speed, same pull and travel speed as II.2.2															
11 3H	29.11	14.20	7.38	1462	2%	0.310	2.72	62	88	106	27	15	28%	97.66	

OECD Drawbar Data (US)															
Date of tests:	17-Oct-95		Fuel density:		7.023		lb/gal								
Type of track:	Concrete		Test number:		1705										
Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg F						Rel	Baro.
	hp	lb	mph	rev/min		lb/hp.h	hp.h/gal	Fuel	Coolant	Oil	Dry	Wet	humid-ity	Pres-in Hg	
I. Maximum Power (unballasted, 4wd at 2100 rev/min)						Tire pressure:		12 psig, rear		12 psig, front		Drawbar height:		22.0 in	
*3 3L	50.44	10019	1.89	2135	14%	0.630	11.15	149	193	234	66	55	51%	28.83	
*4 4L	63.21	10210	2.32	2132	14%	0.574	12.24	147	193	236	64	54	54%	28.82	
5 5L	72.43	8520	3.19	2100	7%	0.521	13.48	152	197	236	69	57	49%	28.84	
6 6L	74.15	7019	3.96	2102	5%	0.509	13.79	153	198	242	72	58	44%	28.85	
7 1H	73.43	6404	4.30	2097	4%	0.514	13.66	153	199	244	74	59	42%	28.85	
8 7L	70.65	5394	4.91	2103	4%	0.534	13.14	152	200	244	75	59	40%	28.85	
9 2H	73.10	5160	5.31	2101	4%	0.517	13.58	152	199	242	76	60	37%	28.85	
10 8L	70.79	4399	6.04	2100	3%	0.533	13.17	151	199	242	77	60	37%	28.84	
11 3H	70.80	4053	6.55	2101	3%	0.535	13.14	152	198	240	78	60	35%	28.84	
12 4H	69.39	3235	8.05	2100	2%	0.545	12.89	152	199	242	79	60	33%	28.84	
*Note: Slip within operating conditions of test station															
II. Part loads (unballasted, 4wd)															
II.1 in selected gear at maximum power at rated engine speed															
6 6L	74.15	7019	3.96	2102	5%	0.509	13.79	153	198	242	72	58	44%	28.85	
II.1.1 75% of pull at maximum power at rated engine speed															
6 6L	57.64	5250	4.12	2155	4%	0.556	12.62	151	197	238	79	60	33%	28.85	
II.1.2 50% of pull at maximum power at rated engine speed															
6 6L	39.15	3499	4.20	2170	3%	0.664	10.57	148	192	232	79	60	33%	28.84	
II.1.3 higher gear at reduced engine speed, same pull and travel speed as II.1.1															
10 8L	57.65	5250	4.12	1442	4%	0.477	14.72	153	201	236	79	60	33%	28.85	
II.1.4 higher gear at reduced engine speed, same pull and travel speed as II.1.2															
10 8L	39.20	3500	4.20	1453	2%	0.508	13.82	145	190	224	79	59	30%	28.84	
II.2 in selected gear nearest to 4.6 mph at rated engine speed															
7 1H	73.43	6404	4.30	2097	4%	0.514	13.66	153	199	244	74	59	42%	28.85	
II.2.1 75% of pull at maximum power at rated engine speed															
7 1H	57.29	4802	4.47	2156	3%	0.556	12.63	148	196	233	79	59	30%	28.84	
II.2.2 50% of pull at maximum power at rated engine speed															
7 1H	39.00	3206	4.56	2175	2%	0.663	10.60	146	193	231	80	59	28%	28.84	
II.2.3 higher gear at reduced engine speed, same pull and travel speed as II.2.1															
11 3H	57.31	4804	4.47	1443	3%	0.482	14.58	152	199	234	80	59	28%	28.84	
II.2.4 higher gear at reduced engine speed, same pull and travel speed as II.2.2															
11 3H	39.03	3193	4.58	1462	2%	0.509	13.79	144	190	223	80	59	28%	28.84	

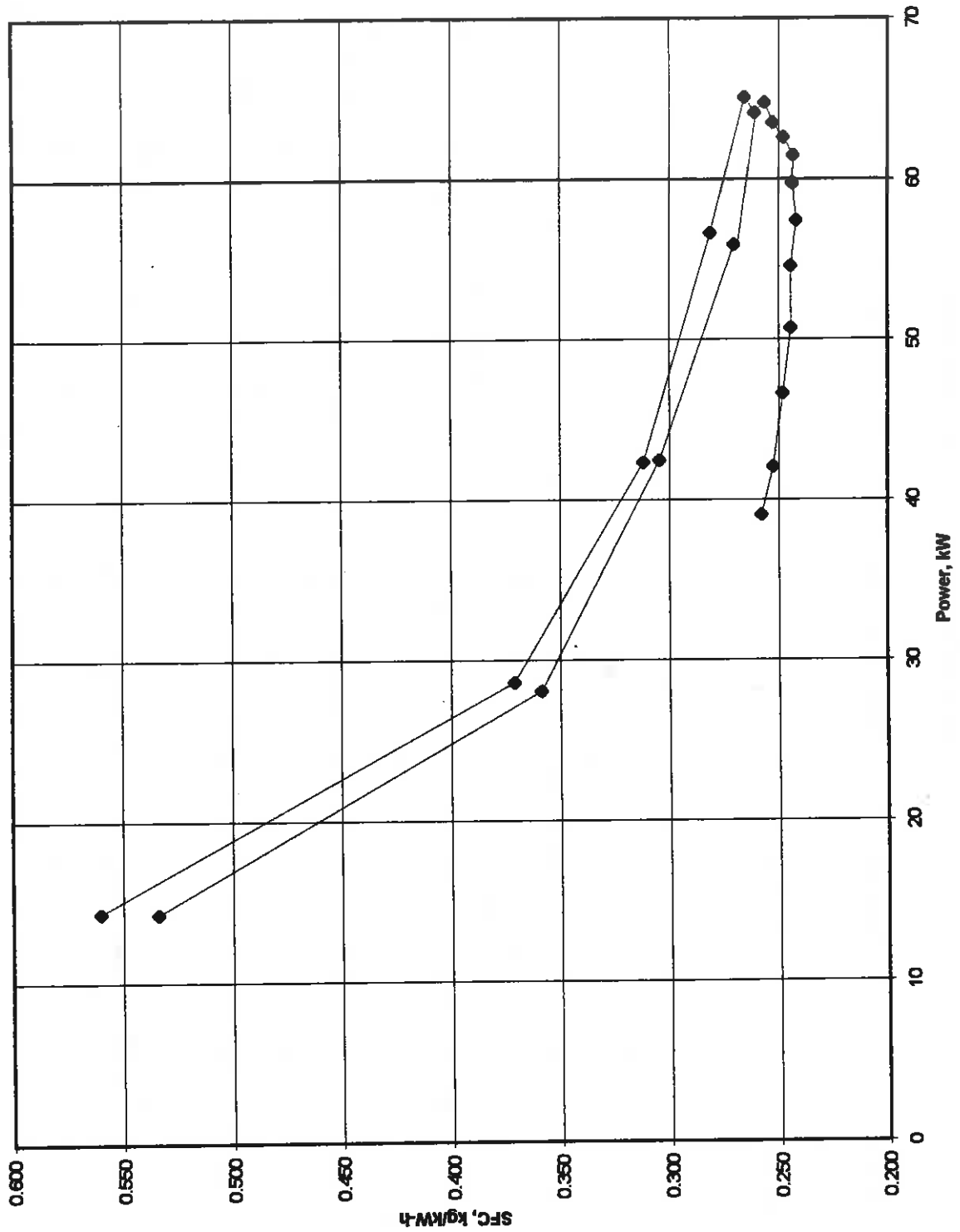
Power and Equivalent Crankshaft Torque



Specific Fuel Consumption and Fuel Rate



Power and Specific Fuel Consumption



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

OPTIONAL TESTS: Ballasted-Front Drive Disengaged

OECD Drawbar Data (SI)

Date of tests:		19-Oct-95		Fuel density:		0.842 kg/l								
Type of track:		Concrete		Test number:		1705								
Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg C				Rel humidity	Bare. Pres	
	kW	kN	km/h	rev/min		kg/kWh	kW.h/l	Fuel	Coolant	Oil	Dry	Wet		kPa
I. Maximum Power (ballasted, 2wd at 2100 rev/min)						Tire pressure:		83 kPa, rear	83 kPa, front	Drawbar height:		495 mm		
*4 4L	41.64	40.57	3.69	2149	14%	0.362	2.33	63	89	113	13	9	57%	97.93
5 5L	52.76	39.13	4.85	2100	10%	0.324	2.60	65	90	116	13	8	52%	98.10
6 6L	56.92	32.73	6.26	2099	5%	0.302	2.79	63	90	116	13	8	47%	98.17
7 1H	56.46	29.77	6.83	2098	5%	0.304	2.77	63	91	116	13	8	51%	98.21
8 7L	54.55	25.16	7.81	2104	4%	0.315	2.67	63	91	116	13	8	51%	98.21
9 2H	56.58	24.14	8.44	2102	3%	0.304	2.77	63	91	116	12	7	50%	98.24
10 8L	54.60	20.49	9.59	2103	3%	0.314	2.68	63	91	116	12	7	56%	98.21
11 3H	54.55	18.88	10.40	2103	3%	0.314	2.68	63	91	116	12	8	56%	98.24
12 4H	53.34	15.03	12.78	2103	2%	0.323	2.61	63	91	116	13	8	51%	98.24
* Note: Slip within operating conditions of test station														
II. Part loads (ballasted, 2wd)														
II.1 in selected gear at maximum power at rated engine speed														
6 6L	56.92	32.73	6.26	2099	5%	0.302	2.79	63	90	116	13	8	47%	98.17
II.1.1 75% of pull at maximum power at rated engine speed														
6 6L	44.64	24.53	6.55	2158	4%	0.324	2.59	62	90	113	13	8	47%	98.27
II.1.2 50% of pull at maximum power at rated engine speed														
6 6L	30.35	16.35	6.68	2179	2%	0.384	2.19	61	89	110	13	8	47%	98.27
II.1.3 higher gear at reduced engine speed, same pull and travel speed as II.1.1														
10 8L	44.62	24.52	6.55	1441	4%	0.282	2.98	61	90	111	13	8	47%	98.27
II.1.4 higher gear at reduced engine speed, same pull and travel speed as II.1.2														
10 8L	30.35	16.32	6.69	1460	2%	0.298	2.82	57	87	105	13	8	47%	98.27

OECD Drawbar Data (US)

Date of tests:		19-Oct-95		Fuel density:		7.023 lb/gal								
Type of track:		Concrete		Test number:		1705								
Gear	Power	Pull	Speed	Engine speed	Slip	SFC	SFE	Temperature, deg F						
	hp	lb	mph	rev/min		lb/hp-h	hp-h/gal	Fuel	Coolant	Oil	Dry	Wet	Rel humidity	Bare. Pres in Hg
I. Maximum Power (ballasted, 2wd at 2100 rev/min)						Tire pressure:		12 psig, rear	12 psig, front	Drawbar height:		19.5 in		
*4 4L	55.84	9122	2.30	2149	14%	0.595	11.81	145	193	235	56	48	57%	28.92
5 5L	70.75	8796	3.02	2100	10%	0.532	13.20	149	195	240	56	47	52%	28.97
6 6L	76.34	7358	3.89	2099	5%	0.496	14.15	146	195	241	56	46	47%	28.99
7 1H	75.72	6893	4.24	2098	5%	0.499	14.07	146	195	241	55	46	51%	29.00
8 7L	73.16	5656	4.85	2104	4%	0.519	13.54	146	195	241	55	46	51%	29.00
9 2H	75.88	5426	5.24	2102	3%	0.499	14.07	145	196	241	54	45	50%	29.01
10 8L	73.22	4607	5.96	2103	3%	0.516	13.62	146	195	241	54	45	56%	29.00
11 3H	73.15	4244	6.46	2103	3%	0.516	13.61	146	197	242	54	46	56%	29.01
12 4H	71.53	3379	7.94	2103	2%	0.530	13.24	145	195	241	55	46	51%	29.01
* Note: Slip within operating conditions of test station														
II. Part loads (ballasted, 2wd)														
II.1 in selected gear at maximum power at rated engine speed														
6 6L	76.34	7358	3.89	2099	5%	0.496	14.15	146	195	241	56	46	47%	28.99
II.1.1 75% of pull at maximum power at rated engine speed														
6 6L	59.86	5516	4.07	2158	4%	0.533	13.17	143	194	236	56	46	47%	29.02
II.1.2 50% of pull at maximum power at rated engine speed														
6 6L	40.70	3676	4.15	2179	2%	0.632	11.11	142	192	231	56	46	47%	29.02
II.1.3 higher gear at reduced engine speed, same pull and travel speed as II.1.1														
10 8L	59.83	5512	4.07	1441	4%	0.464	15.14	143	194	232	56	46	47%	29.02
II.1.4 higher gear at reduced engine speed, same pull and travel speed as II.1.2														
10 8L	40.70	3670	4.16	1460	2%	0.490	14.32	135	189	221	56	46	47%	29.02

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

OPTIONAL TESTS: Ballasted-Front Drive Engaged

OECD Drawbar Data (SI)														
Date of tests:		19-Oct-95		Fuel density:		0.842 kg/l								
Type of track:		Concrete		Test number:		1705								
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 (ballasted, 4wd at 2100 rev/min)						Tire pressure:		83 kPa, rear		83 kPa, front		Drawbar height:		495 mm
*3 3L	41.94	49.62	3.04	2146	14%	0.367	2.29	63	89	113	13	8	52%	98.04
4 4L	51.47	49.00	3.78	2108	11%	0.333	2.53	64	90	114	13	8	52%	98.00
5 5L	55.48	38.65	5.17	2097	5%	0.308	2.73	64	90	115	13	8	52%	98.07
6 6L	56.56	31.95	6.37	2093	4%	0.302	2.78	64	91	115	13	8	47%	98.14
7 1H	56.05	28.99	6.96	2104	4%	0.306	2.75	63	91	116	13	8	51%	98.21
8 7L	53.54	24.39	7.90	2101	3%	0.321	2.62	64	91	115	13	8	51%	98.21
9 2H	55.68	23.53	8.52	2094	3%	0.308	2.74	63	91	115	13	7	46%	98.21
10 8L	53.62	19.87	9.71	2103	3%	0.321	2.63	62	91	114	12	7	50%	98.24
11 3H	53.59	18.29	10.55	2106	2%	0.321	2.62	63	91	115	12	7	50%	98.24
12 4H	52.13	14.51	12.93	2104	2%	0.330	2.55	62	91	115	12	8	56%	98.24
* Note: Slip within operating conditions of test station														

* Note: Slip within operating conditions of test station

OECD Drawbar Data (US)														
Date of tests:	19-Oct-95			Fuel density:	7.023 lb/gal									
Type of track:	Concrete			Test number:	1705									
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	idity	in Hg
I. Maximum Power (ballasted, 4wd at 2100 rev/min)						Tire pressure:		12 psig, rear		12 psig, front		Drawbar height:		19.5 in
*3 3L	56.24	11155	1.89	2146	14%	0.604	11.63	145	193	236	56	47	52%	28.95
4 4L	69.02	11016	2.35	2108	11%	0.548	12.82	148	194	238	56	47	52%	28.94
5 5L	74.40	8689	3.21	2097	5%	0.506	13.88	148	195	239	56	47	52%	28.96
6 6L	75.85	7182	3.96	2093	4%	0.497	14.14	148	197	240	56	46	47%	28.98
7 1H	75.16	6518	4.32	2104	4%	0.504	13.94	146	196	240	55	46	51%	29.00
8 7L	71.79	5484	4.91	2101	3%	0.528	13.30	147	196	239	55	46	51%	29.00
9 2H	74.66	5290	5.29	2094	3%	0.506	13.89	145	197	239	55	45	46%	29.00
10 8L	71.91	4468	6.04	2103	3%	0.527	13.33	143	196	238	54	45	50%	29.01
11 3H	71.87	4113	6.55	2106	2%	0.527	13.32	145	196	239	54	45	50%	29.01
12 4H	69.90	3262	8.04	2104	2%	0.543	12.93	144	195	239	54	46	56%	29.01

* Note: Slip within operating conditions of test station

* Note: Slip within operating conditions of test station

2.2 POWER LIFT TEST. (with 2(45) mm lift assist cylinders)

Date of test: 12 October 1995

		Hitch points	Frame
Lower hitch points above ground - down position:	[mm/in]	203/8.0	130/5.1
Vertical movement:			
without load:	[mm/in]	641/25.3	789/31.1
with load:	[mm/in]	610/24.0	749/29.5
Maximum corrected force through full range:	[kN/lb]	44.7/10040	32.3/7263
Corresponding pressure:	[kPa/psi]	16.8/2430	
Moment about rear axle:	[kN.m/lb.ft]	45.3/33444	52.5/38736
Maximum mast tilt angle:	[deg]	--	6.2

Lifting height relative to horizontal position of lower links.

[mm]	-459	-386	-300	-201	-99
[in]	-18.1	-15.2	-11.8	-7.9	-3.9

Corrected lift forces

Hitch [kN]	--	44.7	46.1	47.2	48.1
point. [lb]	--	10040	10355	10620	10818
at [kN]	38.0	38.8	--	39.0	38.3
frame [lb]	8541	8717	--	8757	8609

Lifting height relative to horizontal position of lower links.

[mm]	0	99	201	224	290
[in]	0	3.9	7.9	8.8	11.4

Corrected lift forces

Hitch [kN]	48.3	48.3	47.0	47.4	--
point [lb]	10868	10850	10557	10647	--
at [kN]	37.0	35.5	--	33.3	32.3
frame [lb]	8312	7974	--	7484	7263

2.2 POWER LIFT TEST. (with 1(50) mm lift assist cylinder)

Date of test: 15 December 1995

	Hitch points	Frame
Lower hitch points above ground - down position: [mm/in]	203/8.0	127/5.0
Vertical movement:		
without load: [mm/in]	641/25.3	789/31.1
with load: [mm/in]	610/24.0	744/29.3
Maximum corrected force through full range: [kN/lb]	36.2/8127	26.4/5940
Corresponding pressure: [kPa/psi]	16.8/2430	
Moment about rear axle: [kN.m/lb.ft]	36.7/27090	43.0/31680
Maximum mast tilt angle: [deg]	--	5.5

Lifting height relative to horizontal position of lower links.

[mm]	-462	-386	-299	-200	-99
[in]	-18.2	-15.2	-11.8	-7.9	-3.9

Corrected lift forces

Hitch [kN]	--	33.4	34.7	35.8	36.6
point. [lb]	--	7502	7803	8051	8222
at [kN]	31.1	31.5	31.7	--	31.3
frame [lb]	6998	7074	7119	--	7047

Lifting height relative to horizontal position of lower links.

[mm]	0	99	201	224	282
[in]	0	3.9	7.9	8.8	11.1

Corrected lift forces

Hitch [kN]	38.0	37.4	36.7	36.6	--
point [lb]	8537	8406	8249	8235	--
at [kN]	30.4	29.0	--	26.7	26.4
frame [lb]	6836	6525	--	6012	5940

2.2 POWER LIFT TEST. (with 2(50) mm lift assist cylinders)

Date of test: 15 December 1995

		Hitch points	Frame
Lower hitch points above ground - down position:	[mm/in]	203/8.0	122/4.8
Vertical movement:			
without load:	[mm/in]	641/25.3	789/31.1
with load:	[mm/in]	610/24.0	757/29.8
Maximum corrected force through full range:	[kN/lb]	50.1/11255	36.4/8172
Corresponding pressure:	[kPa/psi]	16.8/2430	
Moment about rear axle:	[kN.m/lb.ft]	50.9/37515	59.1/43584
Maximum mast tilt angle:	[deg]	—	6.2

Lifting height relative to horizontal position of lower links.

[mm]	-467	-386	-299	-200	-99
[in]	-18.4	-15.2	-11.8	-7.9	-3.9

Corrected lift forces

Hitch [kN]	—	50.1	50.9	51.8	52.6
point. [lb]	—	11255	11435	11655	11826
at [kN]	44.0	43.6	44.1	—	43.1
frame [lb]	9891	9810	9918	—	9684

Lifting height relative to horizontal position of lower links.

[mm]	0	99	201	224	290
[in]	0	3.9	7.9	8.8	11.4

Corrected lift forces

Hitch [kN]	52.5	52.1	51.0	50.8	—
point [lb]	11808	11718	11475	11430	—
at [kN]	41.8	39.6	—	37.0	36.4
frame [lb]	9401	8906	—	8316	8172

Remarks: This tractor is equipped with a variable speed cooling fan. Since engine power is influenced by fan speed, all PTO power tests were conducted at approximately the same ambient air temperatures.

Repairs : None



