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CENTER FOR AGRICULTURAL EQUIPMENT
DEPARTMENT OF AGRICULTURAL 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 FOR THE OFFICIAL TESTING OF AGRICULTURAL TRACTOR PERFORMANCE

CASE INTERNATIONAL 7130 TRACTOR WITH MECHANICAL FRONT WHEEL DRIVE (4 WD).





MANUFACTURED BY: J.I.Case Company
700 State Street
Racine, Wisconsin 53404, USA

NEBRASKA TEST NO.1611

Test date: June-July 1988

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 I.

This report has been approved by the OECD Coordinating Centre in Paris (CEMAGREF) on May 24,1989

Case International 7130 Diesel 4 WD OECD # 1197

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SPECIFICATION OF TRACTOR.

Manufacturer's name/address	:	J.I.Case Company 700 State Street 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	:	J.I.Case, Hinsdale, Illinois.
Duration of running in	:	222 hours
Location of test	:	Center for Agricultural Equipment, Lincoln, Nebraska, USA

TRACTOR.

Make	Case International
Model	7130
Type	Unit construction, mechanical front wheel drive (4 WD)
Number of driving wheels	4
Serial Number	*JJA0002390*
1st Serial number	9949062, Sequence changed January 1988: JJA 0001501

ENGINE.

Make	Consolidated Diesel Company
Model	6T-830
Type	Diesel, turbocharged
Serial Number	*44239697*
Cylinders	
Number & Disposition	6, in-line, vertical
Bore & Stroke	114 x 135 mm (4.488 x 5.315 in)
Cubic capacity	8268 cu.cm (504.5 cu.in)
Compression Ratio	17.3 - 1
Arrangement of valves	Overhead
Cylinder liners	Wet, replacable
Super charging	
Make/Model/Type	Holset/H1E/exhaust gas driven
Pressure	67-89 kPa (9.7-12.9 psi) at rated speed and load
Fuel System	
Feed system	Engine driven transfer pump
Make/Type/Model of filters	Two spin-on cartridges. Fleetguard/FF5038 and FF5052
Fuel Tank capacity	359 liter (95 US gallons)

Make/Model/Type Injection Pump	Robert Bosch/A/in-line
Pump Serial number	75229868
Production setting of pump Flow Rate (Rated Eng.Spd & Full Load)	31.8 +/- 1.6 kg/hr 70.2 +/- 3.5 lb/hr
Make/Model/Type of injectors	Robert Bosch/Pt.# J908507/17 mm
Injection pressure	20.5-21.3 MPa (2970-3090 psi)
Timing	22 degrees before TDC

Governor

Make/Model/Type	Robert Bosch/RSV/Variable speed mechanical.
Governed engine speed range	From 825 to 2395 rev/min
Rated engine speed	2200 rev/min
high-idle speed range	2355 +/- 40 rev/min

Air Cleaner.

Pre-cleaner	
Make/Model/Type	Donaldson/6066A1605/aspirated
Air intake location	under hood, ahead of radiator
Main Cleaner	
Make/Model/Type	Donaldson/EGB11-0077/dual element; pleated paper. Or Nelson 71181A pleated paper
Maintenance indicator	Service light on instrument panel.

Lubrication system.

Type of feed pump	Full pressure, positive displacement.
Type of filters	Full flow, spin on.
Number	One
Oil cooler	Heat exchanger with engine coolant

Cooling System.

Type of coolant	Liquid
Type of pump & drive	Centrifugal, belt driven
Fan specification	Variable speed;viscous drive.
Number of fan blades	6
Fan diameter	600 mm (23.6 in.)
Coolant system capacity	28.6 liter (30 qt)
Type of temperature control	2 thermostats
Superpressure system	103 kPa (15 psi)

Starting system.

Make/Model/Type of starter	Nippondenso/4 kW/Electric
Power Rating	4.0 kW
Cold starting aid	Ether spray in intake manifold.
Safety device	Electrical lockout on transmission and PTO controls.

Electrical System.	
Voltage & grounding.	12 Volt DC; negative ground
Generator	
Make/Model/Type	Bosch/N1/Belt driven alternator
Power rating	110 Ampere at 2200 engine rev/min.
Batteries	
Number & connection	2-12 V batteries in parallel
Rating	180 amp-hours per battery at 20 hour rate.
Exhaust system.	
Make/Model/Type	Nelson(muffler)/21326A horizontal
Location	Underhood muffler; vertical exhaust pipe, rear of engine, right front corner of cab.

TRANSMISSION.

Clutch. (travel)	
Make/Type	Case International; wet multiplate, oil cooled.
Number of plates	9
Plate diameter	228.5 mm (9 inch)
Method of operation	Hydraulic, foot pedal.
Gear Box.	
Make/Type	Case International/full powershift
Arrangement	Countershaft type, with 6 forward and 2 reverse gears in speed transmission and 3 gears in range transmission section (only lowest gear of range section used for reverse).
Number of gears	18 forward,2 reverse controlled by a single hand lever
Oil cooler	Heat exchanger with air
Available options	Creeper option with 6 forward and 1 reverse additional speeds
Rear axle and final drives.	
Make/Type	Case International/crown wheel and pinion; differential; inboard planetary reduction.
Differential Lock	
Type	Hydraulic
Method of engagement	Electrical switch on console
Method of disengagement	Electrical switch on console or actuation of either brake pedal

Front Axle and final drives.

Make/Model/Type	Dana/070BP123/crown wheel and pinion; differential and outboard planetary reduction.

Differential lock

Type	limited slip
Method of engagement	self-locking
Method of disengagement	self-unlocking

Gear ratios and travel speeds.
(Tire dynamic radius of 855 mm(33.7 in)
ISO 4251/1-1984)

Gear Number	Number of Engine revolutions for one revolution of the driving wheels	Nominal travel speed at rated engine speed of 2200 rev/min [km/h]	[mph]
1 fwd	243.260	2.92	1.81
2 fwd	212.073	3.34	2.08
3 fwd	183.909	3.86	2.40
4 fwd	160.331	4.42	2.75
5 fwd	139.776	5.07	3.15
6 fwd	121.856	5.82	3.62
7 fwd	104.463	6.79	4.22
8 fwd	91.070	7.79	4.84
9 fwd	78.976	8.98	5.58
10 fwd	68.851	10.30	6.40
11 fwd	60.024	11.81	7.34
12 fwd	52.328	13.55	8.42
13 fwd	45.741	15.50	9.63
14 fwd	39.877	17.78	11.05
15 fwd	34.581	20.51	12.74
16 fwd	30.148	23.52	14.62
17 fwd	26.283	26.98	16.76
18 fwd	22.913	30.95	19.23
1 rev	168.997	4.20	2.61
2 rev	147.331	4.81	2.99
Creeper Gears (not fitted on tested tractor)			
1 fwd	835.817	0.85	0.53
2 fwd	631.893	1.12	0.70
3 fwd	480.256	1.48	0.92
4 fwd	358.923	1.98	1.23
5 fwd	271.354	2.61	1.62
6 fwd	206.234	3.44	2.14
1 rev	580.657	1.22	0.76

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

POWER - TAKE - OFF.

Main Power-Take-Off

Type	Independent
Method of engagement	Hydraulic clutch operated by hand lever, independent of main drive clutch, wet multiplate
Number of shafts	One

Standard PTO

Location	Rear of tractor in vertical center plane.
Diameter of PTO shaft end	45 mm (1.75 inch)
Number of splines	20; conforms to ISO 500/1979.
Height above ground	765 mm (30.1 in)
Distance from median plane of tractor	0 mm
Distance behind rear axle	796 mm (31.3 in.)
PTO Speed @ rated engine speed	1003 rev/min
Engine speed @ std.PTO speed	2193
Ratio of Engine rpm to PTO rpm	2.193
Direction of Rotation (viewed facing driving end)	Clockwise.

POWER LIFT.

Make	Case International
Type of hydraulic system	Closed center; load sensing
Number/Type of cylinders	1 internal, 2 external; all single acting.
Type of linkage lock for transport	Hydraulic with locking notch for hand lever on console.
Relief valve setting	18.27 +/- 0.35 MPa (2650 +/- 50 psi)
Opening pressure of cylinder safety valve	19.65-20.34 MPa (2850-2950 psi)
Lift pump type	Axial piston, pressure and flow compensated.
Power transmission to pump	Gear drive from transmission.
Type/Number of filters	1 spin-on replacable cartridge; 1 cleanable suction screen in the reservoir.
Location of oil reservoir	Transmission housing
Number/Type/Location of tapping points.	3 pairs of ISO standard coup - lings at rear of tractor.
Max. oil volume available for external cylinders.	8.5 l (9 qt)

THREE POINT LINKAGE

Category 3 in conformity with ISO 730/1-1977
Category adaptor-none

THREE POINT LINKAGE.

Figure 1.1

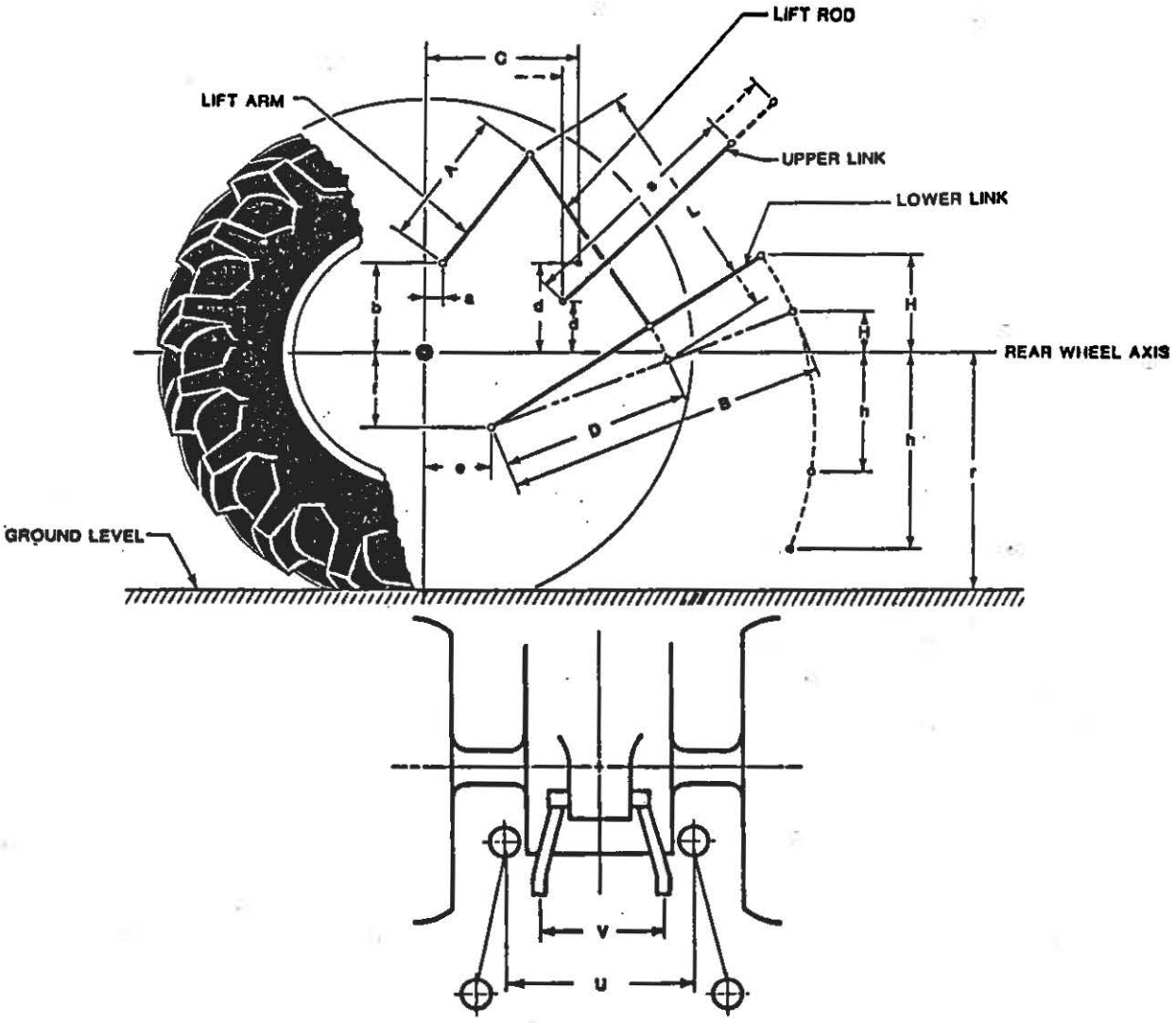


Figure 1.2

Table 1.1 - Linkage geometry dimensions.

		Dimension or range		Settings used on test	
		[mm]	[in]	[mm]	[in]
Lift Category		III			
Rear tire Radius Index	(r)	855	33.7		
Front tire Radius Index	(r')	645	25.4		
Length of lift arms	(A)	381	15.0	same	
Length of lower links	(B)	861	33.9	same	
Distance of lift arm pivot from rear wheel axis: horizontal	(a)	364	14.3	to rear same	
Distance of lift arm pivot from rear wheel axis: vertical	(b)	422	16.6	same	
Horizontal distance between the 2 lower link points	(u)	604	23.8	same	
Horizontal distance between the 2 lift arm end points	(v)	737	29.0	same	
Length of upper link	(S)	600 to 831	23.6 to 32.7	654	25.7
Distance of upper link pivot from rear wheel axis: horizontal	(c)	627	24.7	same	
Distance of upper link pivot from rear wheel axis: vertical-upper	(d)	250	9.8	169	6.7
Distance of upper link pivot from rear wheel axis: vertical-lower		169	6.7		
Distance of lower link pivot from rear wheel axis: horizontal	(e)	445	17.5	same	
Distance of lower link pivot from rear wheel axis: vertical	(f)	332	13.1	same	
Distance of lower link pivot points to lift rod pivot pts on lower links.	(D)	579	22.8	same	
Length of lift rods	(L)	660 to 866	26.0 to 34.1	794	31.3
Height of lower hitch points relative to rear wheel axis: In low position	(h)	378 to 699	14.9 to 27.5	599	23.6
Height of lower hitch points relative to rear wheel axis: In high position	(H)	3 to 269	0.1 to 10.6	87	3.4
Height above ground of lower hitch points when locked in transport position.		858 to 1124	33.8 to 44.3	942	37.1

SWINGING DRAWBAR.

Type	Oscillating
Height above ground	Max: 544 mm (21.4 in) Min: 429 mm (16.9 in)
Adjustments	Laterally adjustable plus 3 longitudinal positions.
Distance of hitch point from rear wheel axis,horizontal	1202/1304/1406 mm (47.3/51.3/55.3 in)
Distance of hitch point from PTO shaft end. Vertical	222/336 mm (8.7/13.2 in)
Horizontal	406/508/610 mm (16/20/24 in)
Lateral adjustment: Right side	210/228/246 mm (8.3/9.0/9.7 in)
Left side	210/228/246 mm (8.3/9.0/9.7 in)
Distance of pivot point from rear wheel axis; horizontal	50 mm (2.0 in) forward
Diamater of drawbar pin hole	42 mm (1.65 in)
Maximum vertical static permissible load	Two forward positions 20.9 kN (4700 lb)
	Rearmost position 16.5 kN (3700 lb)

STEERING.

Make/Model/Type	TRW/HGE 20/hydrostatic steering control unit
Method of operation	
Pump(s)	Main-axial piston pump through steering priority valve.
Ram(s)	Two double acting cylinders
Working pressure	16.2 to 16.9 MPa, (2350 to 2450 psi)

BRAKE SYSTEM.

Service brake.	
Make/Model/Type	Case International/oil immersed disc
Method of operation	Hydraulically actuated from main system; operated by two pedals which can be locked together.
Parking brake.	
Type	Transmission lock
Method of operation	Gear selector lever.

WHEELS.

Number.	
Front	Two; Driving and steering
Rear	Two or four; Driving
Wheelbase	3006 mm (118.3 inch)

Track width adjustment

	Minimum [mm]	Minimum [in]	Maximum [mm]	Maximum [in]	Adjustment method
Front	1577	(62.1)	2356	(92.8)	Reverseing wheels,off-set lug rims.
Rear	1626	(64.0)	2565	(101.0)	Adjustable clamping wedges on bar axle,offset lug rims

PROTECTIVE STRUCTURE.

Make/Model/Type	Case International/CX-96/Cab
Manufacturer's name/address	J.I.Case Company 700 State street Racine, Wisconsin 53404,USA
Protective device	Cab, not tiltable.
OECD approval number	4 WD version CSS 96/5

DRIVER'S SEAT.

Make/Model/Type	Sears/SA7633-000ED/air-oil suspension.
Type of suspension	Air ride;fore-aft isolator; weight adjustment
Type of damping	Hydraulic
Range of adjustment	
Longitudinal	152.4 mm (6.0 in.)
Vertical	76.2 mm (3.0 in.)

LIGHTING.

	Height above ground of center [mm]	Height above ground of center [in]	Size [mm]	Distance from out - side edge to median plane of tractor [mm]	Distance from out - side edge to median plane of tractor [in]
Headlights	1611	63.4	260.5x130.8	390	15.4
Rearlights	2054	80.9	100 x 45.2	654	25.7
Reflectors	2054	80.9	50 x 45.2	554	21.8
			and	704	27.7

TEST CONDITIONS.

Overall dimensions.

Length		5056 mm (199.1 in)
Width-	Minimum	2896 mm (114.0 in)
	Maximum	3175 mm (125.0 in)
Height -	Top of cab	3017 mm (118.8 in)
-	Top of exhaust	3015 mm (118.7 in)
Ground clearance (unballasted)		439 mm (17.3 in)
Clearance limiting part		Drawbar anchor point

Tractor Mass (with Cab, with full tanks)

		Without driver [kg]	Without driver [lb]	With driver [kg]	With driver [lb]
Unballasted (Single tires)	Front	2479	5465	2479	5465
	Rear	5273	11625	5348	11790
	Total	7752	17090	7827	17255
Ballasted (Dual tires)	Front	3200	7055	3200	7055
	Rear	6635	14625	6710	14790
	Total	9835	21680	9910	21845

Ballast.

	Number of weights	Mass(total) [kg]	Mass(total) [lb]	Water [kg]	Water [lb]
Front	none			none	
Rear	none			576	1270
Duals(rear)		785	1730		
Additional					
Front frame		64	140		
+ weights	9	408	900		
Test equipment		250	550		

Tire Specifications.

	Front wheels	Rear wheels
Make	Goodyear	Goodyear
Dimensions	16.9R26	20.8R38
Ply rating	Two star (10 ply)	One star (8 ply)
Type	Radial	Radial
Max.load (tire manufacturer)	2241 kg/tire (4940 lb/tire)	3302 kg/tire (7280 lb/tire)
Max.load(tractor manufacturer)	same	3243 kg/tire (7150 lb/tire)
Inflation press.(tire mfgr.)	165 kPa (24 psi)	124 kPa (18 psi)
Dynamic Radius Index	645 mm (25.4 in)	855 mm (33.7 in)
Chosen track width - singles	1925 mm(75.8 in)	1626 mm (64.0 in)
- duals		3010 mm(118.5 in)

Oils and Lubrication.

Capacity and change interval:

	Capacity liter	Capacity quart	Oil change hrs	Filter change hrs
Engine (w/o filter)	19	20	250	250
Gear Box + Rear axle + rear final drive + hydraulic system	191	202	1000	1000
Front axle	11.4	12	1000	--
Final drive-front	0.9	1	1000 (each side)	--

Oil and Lubricant specifications:

	Recommended	Used during test
Engine oil		
Type	Case IH No. 1 SAE 15W40	same
Viscosity	14.9 cSt @ 100 'C	
Classification	API SF/CD/CE	
Transmission		
Type	Case IH Hy-Tran Plus	same
Viscosity	6.3 cSt @ 100 'C	
Classification	None	
Hydraulic fluid	Same as transmission	same
Front axle diff. + final drive		
Type	Case IH 135 HEP Gear Lube	same
Viscosity	27 cSt @ 100 'C	
Classification	API GL-5 or MiL-L-2105D	
Grease		
Number of lubrication points	26	

Fuel

Type/grade	Diesel Fuel "Premier";grade 2-D
Density (Pto test)	0.827 g/cu.cm.(6.905 lbs/gallon) at 15 'C (59 'F)
(Drawbar test)	Same as Pto test.
Cetane number	51.2
Viscosity	2.33 cSt at 37.8 'C (100 'F)

REMARKS: 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.

COMPULSORY TESTS.

(1) MAIN POWER TAKE-OFF PERFORMANCE (1000 rev/min).

Date of tests : June 9, 1988
Location of tests : Center for Agricultural Equipment, University of Nebraska, Lincoln, Nebraska
Type of Dynamometer: Eaton Dynamatic 2025 D.G.

Power kW (hp)	Speeds engine rev/min	Speeds PTO rev/min	Fuel Consumption hourly l/h (gal/h)	Fuel Consumption hourly kg/h (lb/h)	Fuel Consumption specific kg/kW.h (lb/hp.h)	Specific energy kW.h/l (hp.h/gal)
1.1 Maximum power - 2 hour test						
133.55 (179.10)	1850	844	35.86 (9.47)	29.67 (65.41)	0.222 (0.365)	3.72 (18.91)
1.2 Power at rated engine speed (1 Hour)						
128.69 (172.57)	2200	1004	36.89 (9.75)	30.53 (67.30)	0.237 (0.390)	3.49 (17.71)
1.3 Maximum power at standard PTO speed (1000 rev/min)						
128.69 (172.57)	2200	1004	36.89 (9.75)	30.53 (67.30)	0.237 (0.390)	3.49 (17.71)

1.4 Part Loads - governor hand lever set for maximum power at rated engine speed

Power kW (hp)	Speeds engine rev/min	Speeds PTO rev/min	Fuel Consumption hourly l/h (gal/h)	Fuel Consumption hourly kg/h (lb/h)	Fuel Consumption specific kg/kW.h (lb/hp.h)	Specific energy kW.h/l (hp.h/gal)
(i) Torque obtained at maximum power at rated engine speed.						
128.69 (172.57)	2200	1004	36.89 (9.75)	30.53 (67.30)	0.237 (0.390)	3.49 (17.71)
(ii) 85% of the torque obtained in (i).						
111.95 (150.13)	2249	1026	33.72 (8.91)	27.90 (61.50)	0.249 (0.410)	3.32 (16.86)
(iii) 75% of the torque defined in (ii).						
84.76 (113.67)	2275	1038	26.97 (7.13)	22.32 (49.20)	0.263 (0.433)	3.14 (15.95)
(iv) 50% of the torque defined in (ii).						
57.48 (77.08)	2312	1055	20.89 (5.52)	17.28 (38.10)	0.301 (0.494)	2.75 (13.97)
(v) 25% of the torque defined in (ii).						
28.81 (38.63)	2355	1075	15.46 (4.08)	12.79 (28.20)	0.444 (0.730)	1.86 (9.46)
(vi) Unloaded.						
0.58 (0.78)	2381	1087	9.87 (2.61)	8.16 (18.00)	14.107 (23.192)	0.30 (0.06)

1.5 Part Loads - governor hand lever set for maximum power at standard PTO speed.

Power kW (hp)	Speeds engine rev/min	Speeds PTO rev/min	Fuel Consumption hourly l/h (gal/h)	Fuel Consumption hourly kg/h (lb/h)	Fuel Consumption specific kg/kW.h (lb/hp.h)	Specific energy kW.h/l (hp.h/gal)
(i) Torque obtained at standard pto speed.						
128.69 (172.57)	2200	1004	36.89 (9.75)	30.53 (67.30)	0.237 (0.390)	3.49 (17.71)
(ii) 85% of the torque obtained in (i).						
111.95 (150.13)	2249	1026	33.72 (8.91)	27.90 (61.50)	0.249 (0.410)	3.32 (16.86)
(iii) 75% of the torque defined in (ii).						
84.76 (113.67)	2275	1038	26.97 (7.13)	22.32 (49.20	0.263 (0.433)	3.14 (15.95)
(iv) 50% of the torque defined in (ii).						
57.48 (77.08)	2312	1055	20.89 (5.52)	17.28 (38.10)	0.301 (0.494)	2.75 (13.97)
(v) 25% of the torque defined in (ii).						
28.81 (38.63)	2355	1075	15.46 (4.08)	12.79 (28.20)	0.444 (0.730)	1.86 (9.46)
(vi) Unloaded.						
0.58 (0.78)	2381	1087	9.87 (2.61)	8.16 (18.00)	14.107 (23.192)	0.30 (0.06)

No load maximum engine speed 2381 rev/min

Equivalent engine torque

at rated engine speed	558.6 Nm (2200 rev/min)
at maximum power	689.4 Nm (1850 rev/min)
at maximum torque	733.1 Nm (1600 rev/min)

Mean atmospheric conditions:

Temperature-dry bulb	26 'C (78 'F)
Relative humidity	34%
Barometer	98.55 kPa (29.10 in.Hg)

Maximum temperatures:		
	Thermostat housing	90 °C (194 °F)
	Engine oil pan	113 °C (236 °F)
	Fuel at injection pump	70 °C (158 °F)
	Engine air intake	31 °C (87 °F)
	Trans./Hydr.Oil	59 °C (139 °F)
Turbocharger boost pressure		
	at rated engine speed	81 kPa (11.8 psi)
	at maximum power	79 kPa (11.5 psi)

2. POWER LIFT AND HYDRAULIC PUMP PERFORMANCE TEST.

Date of test: June 29 and July 20 & 21,1988
Location : CAE/UNL, Lincoln, Nebr.

2.1 HYDRAULIC POWER TEST- Hydraulic pump performance.

i. Sustained pressure at compensator cutoff: 18.3 MPa (2650 psi)

ii. Pump delivery rate at minimum pressure & rated engine speed: 108.1 l/min (28.6 gpm)

iii.

	Flow rate l/min (gal/min)	Pressure MPa (psi)	Power kW (hp)
At 90% of relief valve setting	84.4 (22.3)	16.2 (2348)	22.8 (30.6)
At maximum hydraulic power	98.5 (26.0)	15.5 (2249)	25.5 (34.1)

Tapping point	Two hydraulic outlets combined
Hydraulic fluid temperature:	
in oil reservoir	63 °C (146 °F)
at flow meter	66 °C (150 °F)

2.2 POWER LIFT TEST. (Upper link in bottom hole on tractor)

	Hitch point	Frame
Lower hitch points above ground - down position [mm/inch]	257/10.0	247/9.7
Vertical movement [mm/inch]	660/26.0	757/29.8
Maximum corrected force through full range [kN/lbf]	41.4/9299	38.4/8636
Corresponding pressure [kPa/psi]	15506/2249	
Moment about rear axle [kN.m/lb-ft]	54.0/39829	73.6/54264
Maximum mast tilt angle [degrees]	--	8.4

Lifting height relative to horizontal position of lower links.

[mm]	-277	-269	-198	-99	0	99
[in]	-10.9	-10.6	-7.8	-3.9	0	3.9
Corrected lift forces						
Hitch [kN]	--	41.4	42.7	46.6	49.1	50.5
Point [lb]	--	9299	9593	10484	11036	11359
At [kN]	39.5	--	41.5	42.7	43.4	43.6
Frame [lb]	8869	--	9335	9605	9748	9806

Lifting height relative to horizontal position of lower links.

[mm]	201	300	391	460	480
[in]	7.9	11.8	15.4	18.1	18.4
Corrected lift forces					
Hitch [kN]	52.0	52.5	54.2	--	--
Point [lb]	11695	11793	12175	--	--
At [kN]	42.5	--	39.7	38.4	38.5
Frame [lb]	9548	--	8931	8636	8649

3. DRAWBAR PERFORMANCE.

Date of Tests: June 10 to 17, 1988
Location: CAE/UNL,Lincoln,Ne
Type of track: Concrete oval.

Date of tests: 10-Jun-88 17-Jun-88 Fuel density: 0.827 kg/l
Type of track: Concrete Test # 1611 Case IH 7130 MFWD

Gear	Speed	Power	Pull	Engine Speed	Slip	SFC		Temperature, deg C					Rel hum	Pressure
	km/h	kW	kN	rev/min	%	kg/kW.h	kW.h/l	Fuel	Coolant	Oil	Dry	Wet	%	kPa
I. Maximum Power (unballasted, single wheels, fwa) Drawbar height: 419 mm								Tire pressure: 110 kPa, rear 110 kPa, front						
5th	4.49	86.04	69.01	2250	14.44%	0.324	2.56	70	85	99	25	14	28	98.85
6th	4.98	97.02	70.08	2182	14.64%	0.316	2.61	70	85	99	25	14	28	98.88
7th	5.96	109.36	66.02	2100	9.04%	0.281	2.95	68	86	100	26	14	24	98.85
8th	6.22	112.33	64.99	1897	8.38%	0.270	3.06	68	87	100	26	15	29	98.82
9th	7.24	114.94	57.16	1848	5.29%	0.261	3.18	68	87	101	26	15	29	98.82
10th	8.44	114.94	49.01	1849	3.75%	0.260	3.18	69	88	101	26	15	29	98.78
11th	9.77	115.31	42.50	1850	2.75%	0.260	3.19	68	88	100	27	16	31	98.78
12th	11.27	112.67	35.98	1849	2.16%	0.264	3.14	68	88	101	27	16	31	98.75
13th	12.95	113.59	31.58	1851	1.81%	0.265	3.13	68	88	101	27	16	31	98.75
II. Maximum Power (ballasted, dual wheels, fwa) Drawbar height: 445 mm								Tire pressure: 110 kPa, rear (inner) 83 kPa, rear (outer) 110 kPa, front						
1st*	2.75	66.14	86.65	2281	10.12%	0.342	2.42	69	86	99	30	20	39	98.27
2nd*	3.14	76.87	88.02	2267	9.83%	0.326	2.54	68	86	99	29	19	38	98.27
3rd*	3.62	88.87	88.28	2247	8.96%	0.314	2.63	70	86	100	29	19	38	98.27
4th*	4.06	101.34	89.91	2186	8.74%	0.303	2.73	69	87	100	28	19	42	98.27
5th	4.16	107.61	93.08	1925	7.38%	0.281	2.95	68	86	99	24	18	56	98.27
6th	4.70	110.75	84.84	1848	4.95%	0.270	3.07	68	86	99	21	16	60	98.82
7th	5.55	114.19	74.05	1851	3.89%	0.263	3.14	68	86	99	22	16	54	98.85
8th	6.43	114.95	64.37	1855	3.23%	0.261	3.18	69	87	100	23	16	48	98.85
9th	7.44	115.84	56.03	1852	2.48%	0.257	3.22	67	86	100	23	17	55	98.88
10th	8.59	115.79	48.55	1855	2.31%	0.258	3.20	67	87	100	24	17	49	98.88
11th	9.86	113.61	41.50	1850	1.79%	0.262	3.16	68	88	101	24	17	49	98.92
12th	11.34	111.09	35.27	1850	1.71%	0.267	3.10	68	87	101	25	17	44	98.92
13th	12.99	110.74	30.69	1848	1.45%	0.269	3.08	68	88	100	26	17	40	98.92
III. Five Hour Test at 75% of Pull at Maximum Power														
9th	9.07	105.89	42.03	2238	1.87%	0.280	2.96	69	86	100	25	17	44	98.61
IV. Five Hour Test at Pull Corresponding to 15% Slip in Test II.														
3rd	3.78	97.65	93.08	2235	NA	0.301	2.75	70	88	109	29	21	49	97.79

Oil consumption during ten hours of tests III and IV - 0.103 kg/h. * Pull limited to prevent tractor bounce.

Date of tests: 10-Jun-88 17-Jun-88 Fuel density: 6.905 lb/gal
Type of track: Concrete Test # 1611 Case IH 7130 MFWD

Gear	Speed	Power	Pull	Engine Speed	Slip	SFC		Temperature, deg F					Rel hum	Pressure
	mph	hp	lb	rpm	%	lb/hp-hr	hp-hr/gal	Fuel	Coolant	Oil	Dry	Wet	%	in Hg
5th	2.79	115.38	15513	2250	14.44%	0.532	12.97	157	186	211	77	58	28	29.19
6th	3.10	130.10	15755	2182	14.64%	0.520	13.27	157	186	211	77	58	28	29.20
7th	3.71	146.66	14843	2100	9.04%	0.462	14.96	155	187	212	78	58	24	29.19
8th	3.87	150.64	14611	1897	8.38%	0.444	15.53	155	188	212	78	59	29	29.18
9th	4.50	154.14	12851	1848	5.29%	0.428	16.12	155	189	213	79	59	29	29.18
10th	5.25	154.14	11019	1849	3.75%	0.428	16.15	156	190	214	79	59	29	29.17
11th	6.07	154.63	9556	1850	2.75%	0.427	16.18	155	190	213	80	60	31	29.17
12th	7.01	151.09	8088	1849	2.16%	0.433	15.94	155	191	214	80	60	31	29.16
13th	8.05	152.33	7099	1851	1.81%	0.435	15.87	155	191	214	81	60	31	29.16
II. Maximum Power (ballasted, dual wheels, fwa) Drawbar height: 17.5 in								Tire pressure: 16 psi, rear (inner) 12 psi, rear (outer) 16 psi, front						
1st*	1.71	88.69	19480	2281	10.12%	0.562	12.28	156	186	210	86	68	39	29.02
2nd*	1.95	103.08	19788	2267	9.83%	0.536	12.87	155	187	210	85	67	38	29.02
3rd*	2.25	119.18	19847	2247	8.96%	0.517	13.36	157	187	212	84	66	38	29.02
4th*	2.52	135.89	20214	2186	8.74%	0.499	13.85	157	188	212	83	66	42	29.02
5th	2.59	144.31	20926	1925	7.38%	0.462	14.95	155	187	211	76	64	56	29.02
6th	2.92	148.51	19074	1848	4.95%	0.443	15.58	155	187	211	69	60	60	29.18
7th	3.45	153.13	16646	1851	3.89%	0.433	15.95	155	188	211	71	61	54	29.19
8th	3.99	154.15	14470	1855	3.23%	0.428	16.12	156	188	212	73	61	48	29.19
9th	4.62	155.35	12597	1852	2.48%	0.423	16.33	153	188	212	74	62	55	29.20
10th	5.34	155.27	10914	1855	2.31%	0.425	16.26	153	189	212	75	62	49	29.20
11th	6.12	152.35	9329	1850	1.79%	0.431	16.03	154	190	213	76	63	49	29.21
12th	7.04	148.97	7930	1850	1.71%	0.439	15.71	154	189	213	77	63	44	29.21
13th	8.07	148.51	6900	1848	1.45%	0.442	15.62	154	190	212	78	63	40	29.21
III. Five Hour Test at 75% of Pull at Maximum Power														
9th	5.64	142.00	9448	2238	1.87%	0.460	15.00	155	187	213	78	63	44	29.12
IV. Five Hour Test at Pull Corresponding to 15% Slip in Test II.														
3rd	2.35	130.95	20926	2235	NA	0.495	13.94	159	190	229	84	70	49	28.88

Oil consumption during ten hours of tests III and IV - 0.23 lb/hr. * Pull limited to prevent tractor bounce.

4. TURNING AREA AND TURNING CIRCLE.

4.1 Front wheel drive disengaged. Single rear wheels.

	With Brakes		Without Brakes	
	Right turn	Left turn	Right turn	Left turn
Turning area radius	4.98 m 196 in	4.93 m 194 in	5.59 m 220 in	5.46 m 215 in
Turning circle radius	4.75 m 187 in	4.70 m 185 in	5.36 m 211 in	5.23 m 206 in

4.2 Front wheel drive engaged. Single rear wheels.

	With Brakes		Without Brakes	
	Right turn	Left turn	Right turn	Left turn
Turning area radius	4.67 m 184 in	4.78 m 188 in	6.38 m 251 in	6.22 m 245 in
Turning circle radius	4.45 m 175 in	4.55 m 179 in	6.15 m 242 in	5.99 m 236 in

4.3 Front wheel drive disengaged. Dual rear wheels.

	With Brakes		Without Brakes	
	Right turn	Left turn	Right turn	Left turn
Turning area radius	4.95 m 195 in	4.93 m 194 in	5.99 m 236 in	5.79 m 228 in
Turning circle radius	4.72 m 186 in	4.70 m 185 in	5.77 m 227 in	5.56 m 219 in

4.4 Front wheel drive engaged. Dual rear wheels.

	With Brakes		Without Brakes	
	Right turn	Left turn	Right turn	Left turn
Turning area radius	4.70 m 185 in	4.65 m 183 in	6.91 m 272 in	6.81 m 268 in
Turning circle radius	4.47 m 176 in	4.42 m 174 in	6.68 m 263 in	6.58 m 259 in

5. LOCATION OF CENTER OF GRAVITY.

Height above ground	1074 mm	(42.3 inch)	
Distance forward of rear axle	961 mm	(37.8 inch)	
Distance from median plane of tractor	5 mm	(0.2 inch)	to left

6. BRAKING TESTS.

Date of tests: July 27,28 1988
Location: CAE/UNL,Lincoln, Nebr.

Tractor mass with operators

	Without ballast (Single tires) [kg]	[lb]	With ballast (Dual tires) [kg]	[lb]
Front	2508	5530	4536	10000
Rear	5557	12250	7031	15500
Total	8065	17780	11567	25500

Speed before application of brakes: 33.0 km/h (20.5 mph)

6.1 COLD SERVICE BRAKING DEVICE TEST. (Type 0 test)

Unballasted:

Braking device [N]		98	147	178	222	258
control force [lb]		22	33	40	50	58
Mean deceleration	[m/s.s]	1.83	2.32	2.64	2.99	3.16
	[ft/s.s]	6.00	7.61	8.66	9.81	10.37

Ballasted:

Braking device [N]		107	169	258	302	365
control force [lb]		24	38	58	68	82
Mean deceleration	[m/s.s]	1.52	1.96	2.47	2.76	3.05
	[ft/s.s]	4.99	6.43	8.10	9.06	10.01

6.2 FADE TEST. (Type 1 test)

Braking device [N]		98	142	196	258	311
control force [lb]		22	32	44	58	70
Mean deceleration	[m/s.s]	1.27	1.64	2.10	2.62	2.93
	[ft/s.s]	4.17	5.38	6.89	8.60	9.61

Maximum deviation of tractor from its original course : Not significant
Abnormal vibration : None
Brake heating method : Driven with brakes applied for 1 km (0.62 mi) at 80% of maximum speed with a pedal force corresponding to a deceleration rate of 1 m/s.s. (3.3 ft/s.s.).

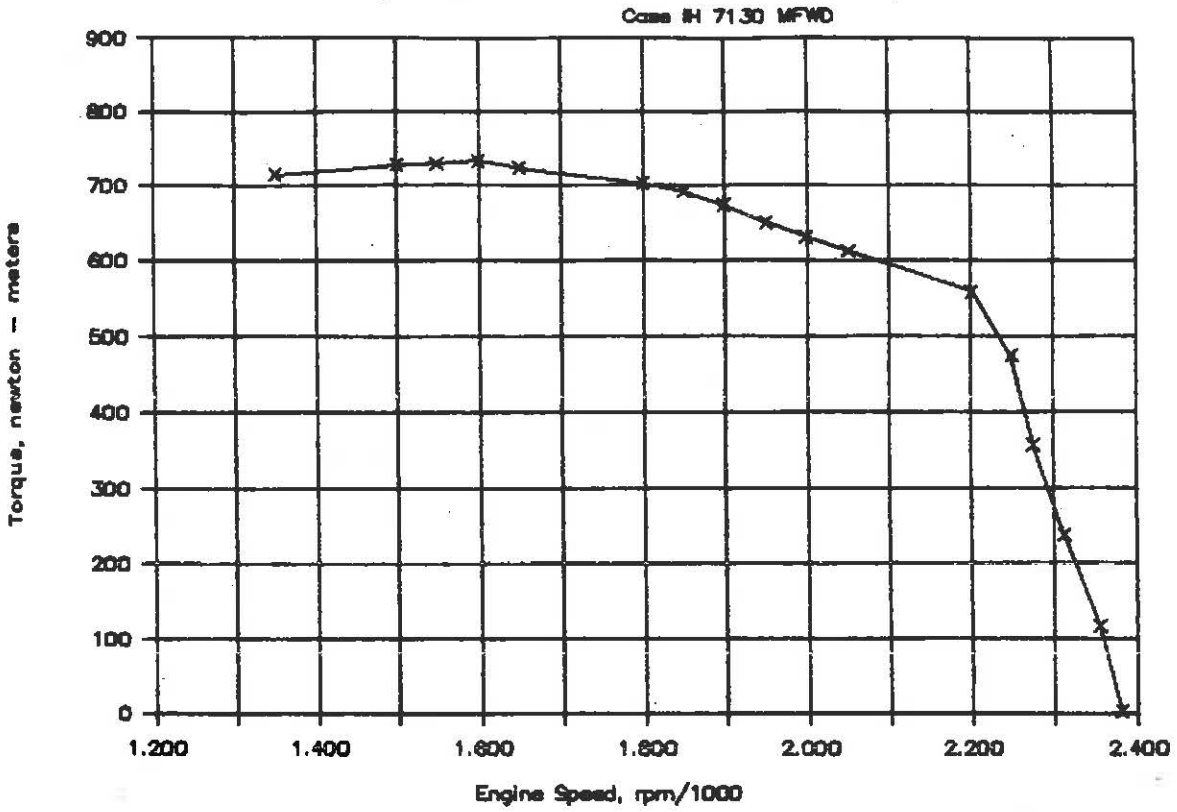
6.3 PARKING BRAKE DEVICE TEST.

Transmission lock engaged by gear selector lever.

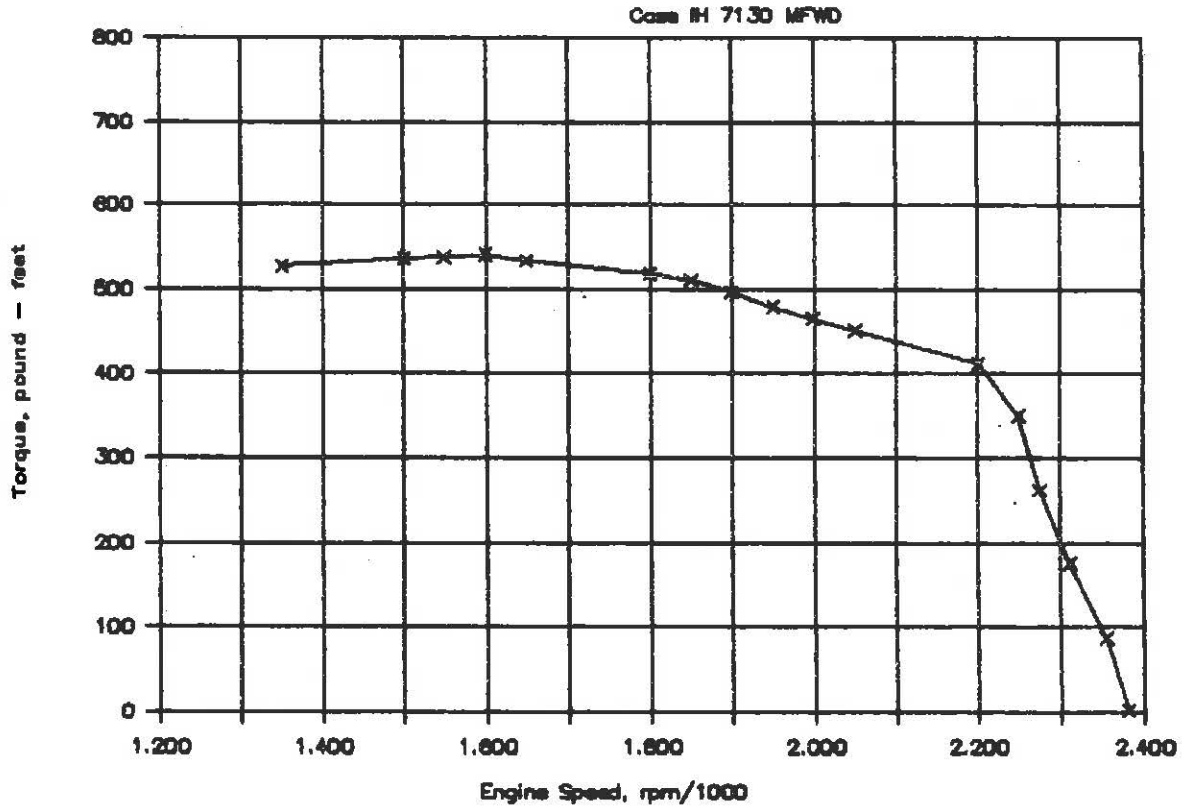
7. MEASUREMENT OF EXTERNAL NOISE LEVEL.

Date of test	:	July 22, 1988
Location of test	:	CAE/UNL, Lincoln, Nebr.
Sound level meter	:	B & K 2203
Type of track	:	Concrete oval
Gear number	:	18
Speed before acceleration	:	26.9 km/h (16.7 mph)
Sound level	:	84.5 dB(A)

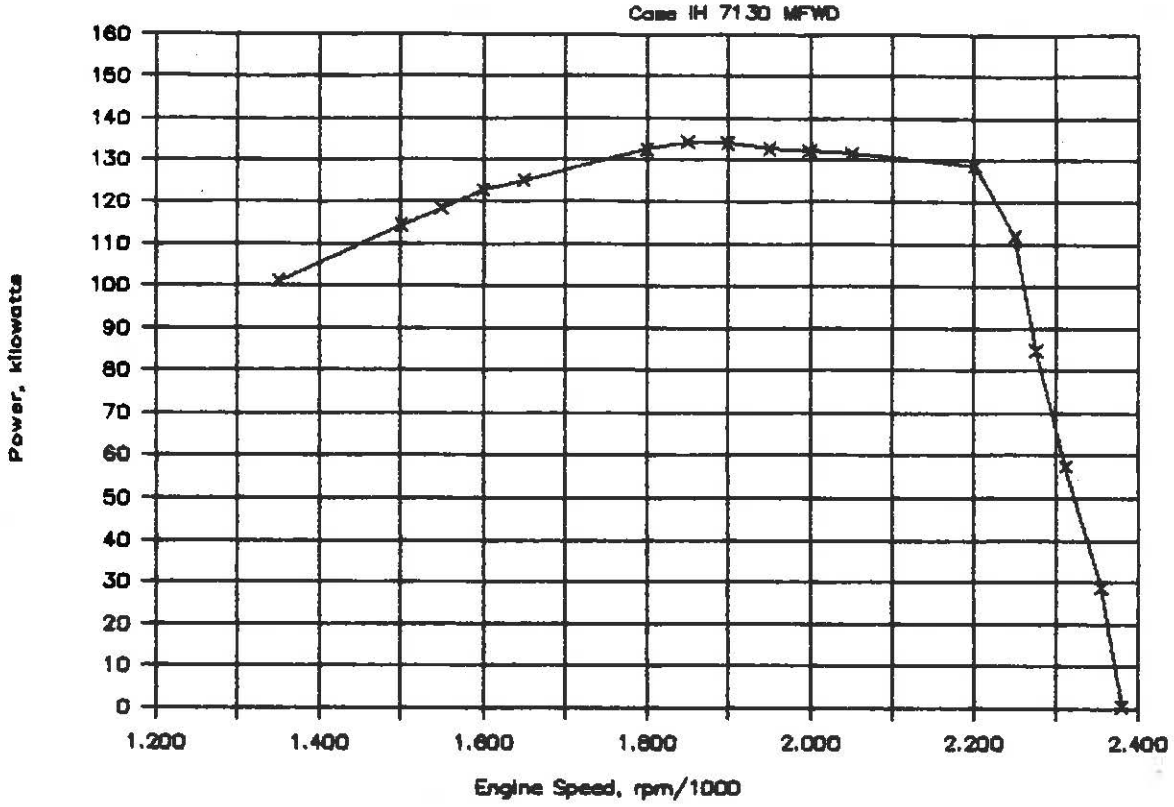
S.I. Equivalent Crankshaft Torque



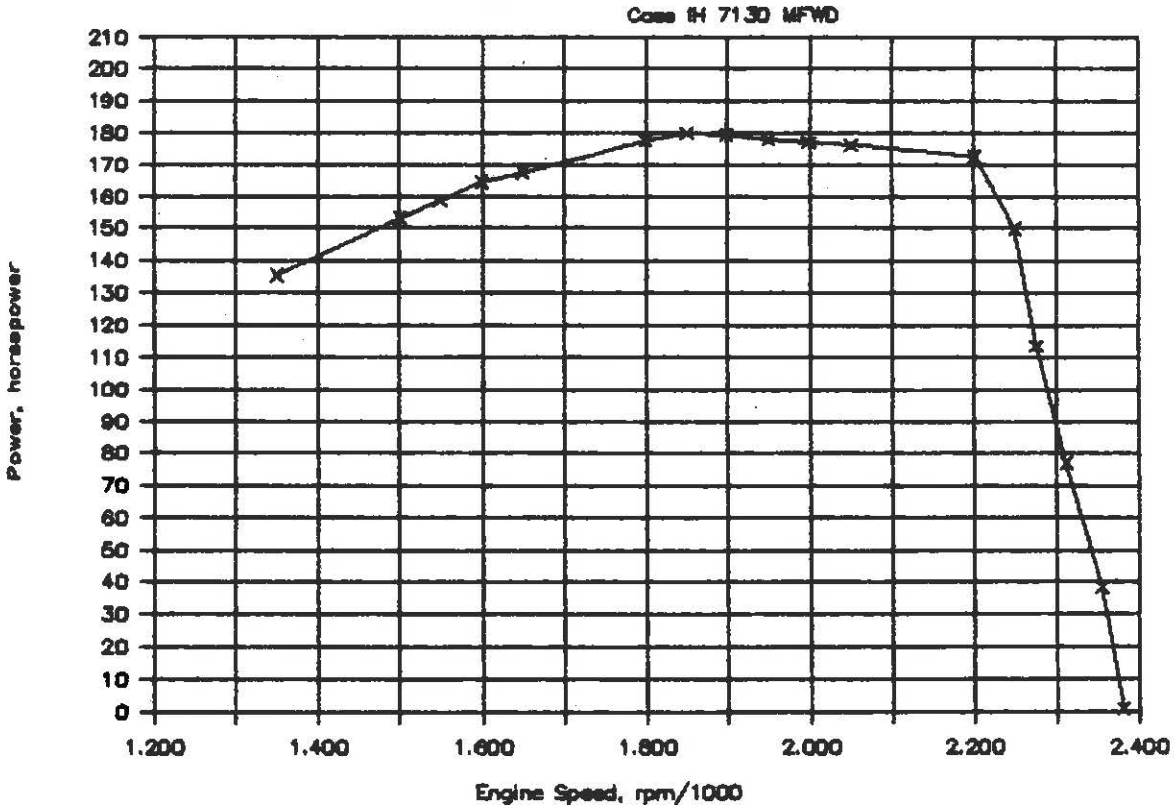
U.S. Equivalent Crankshaft Torque



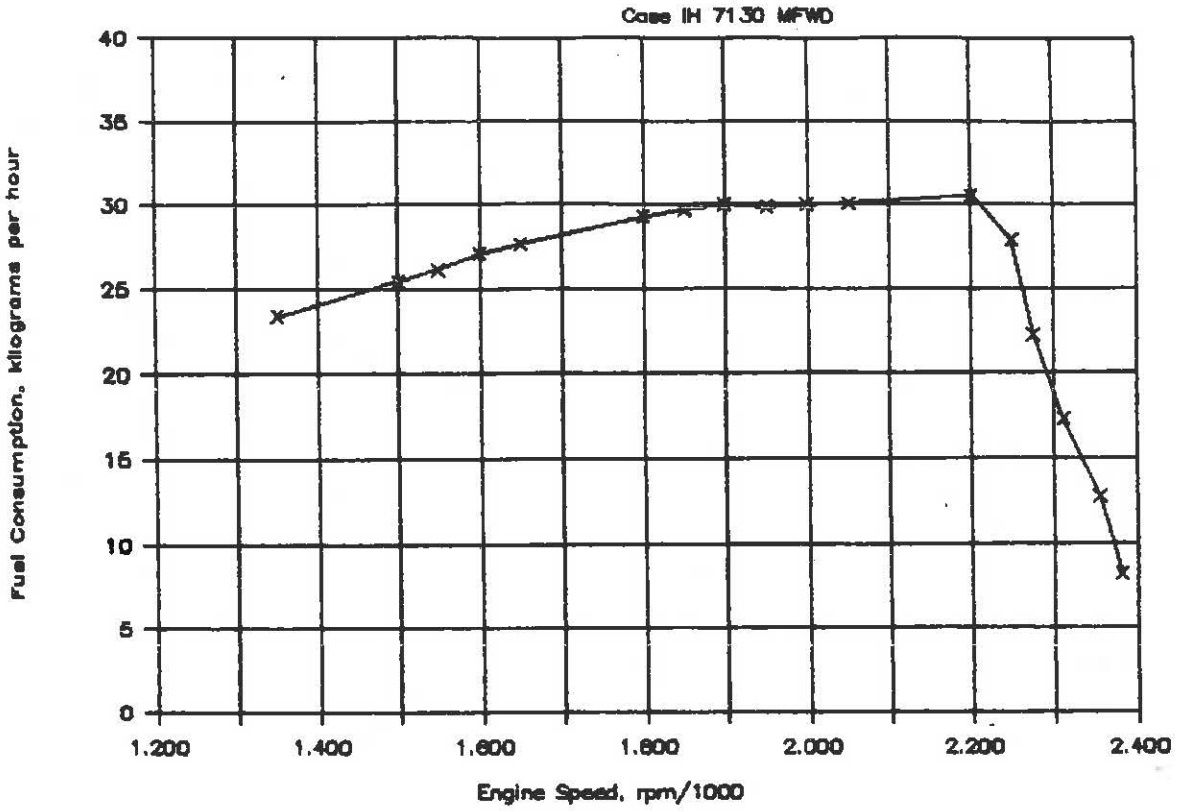
S.I. PTO Power



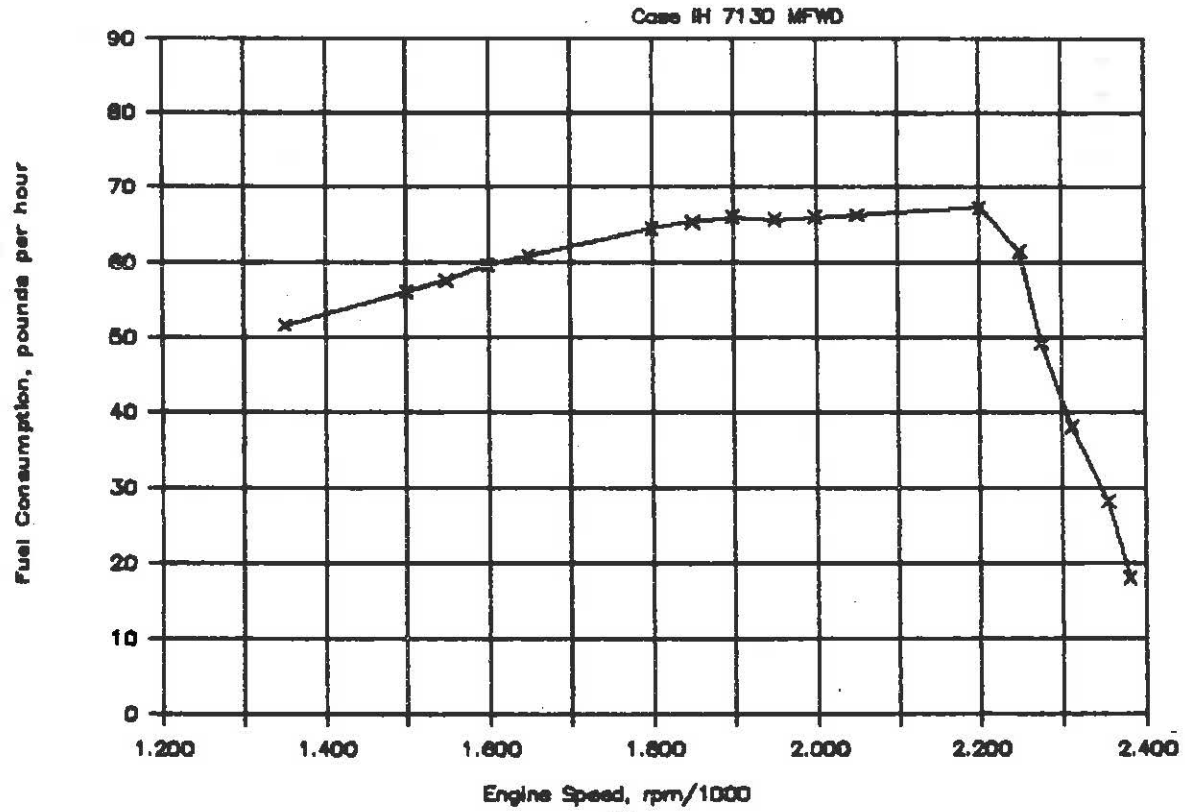
U.S. PTO Power



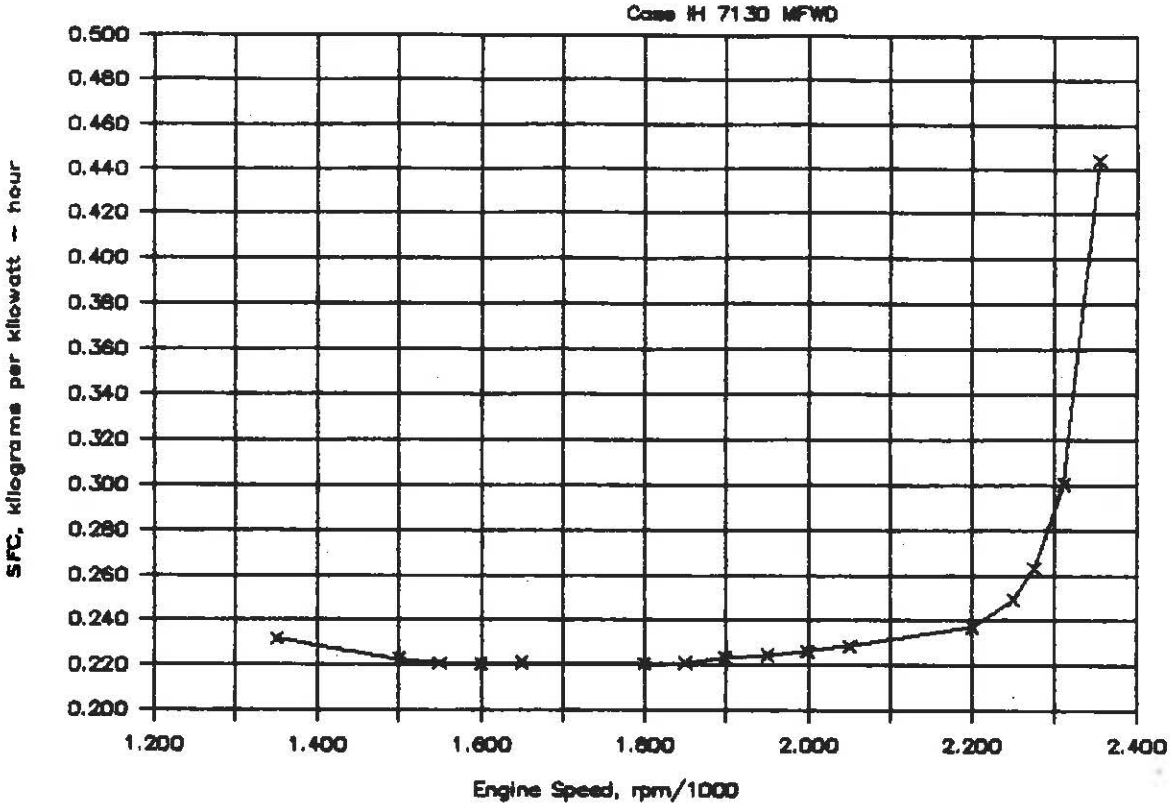
S.I. Fuel Consumption



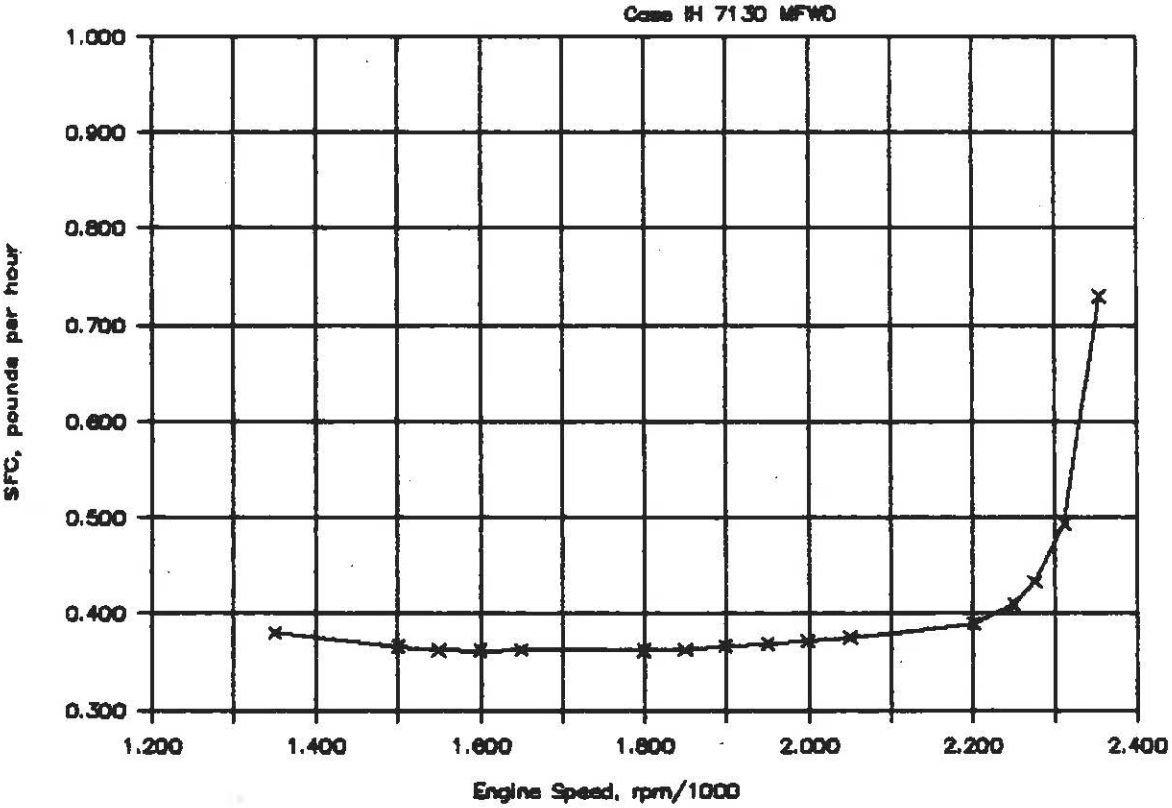
U.S. Fuel Consumption

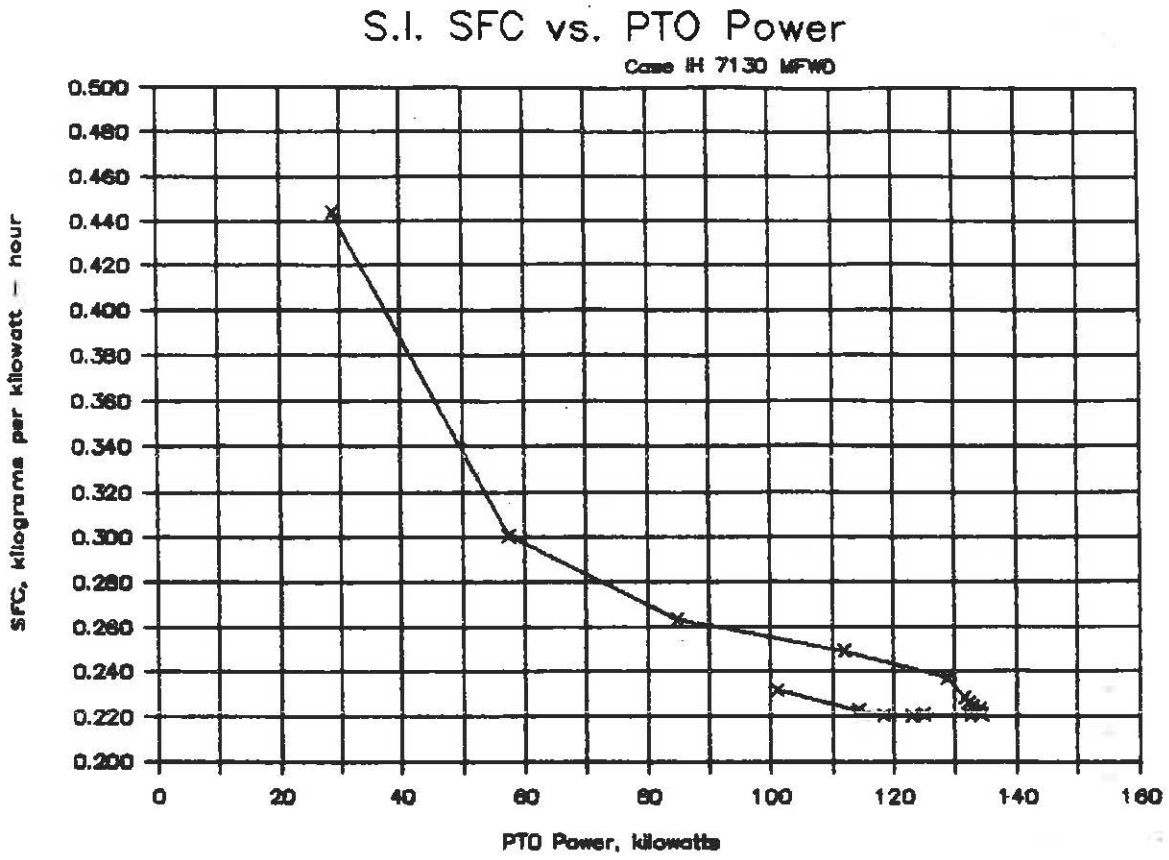


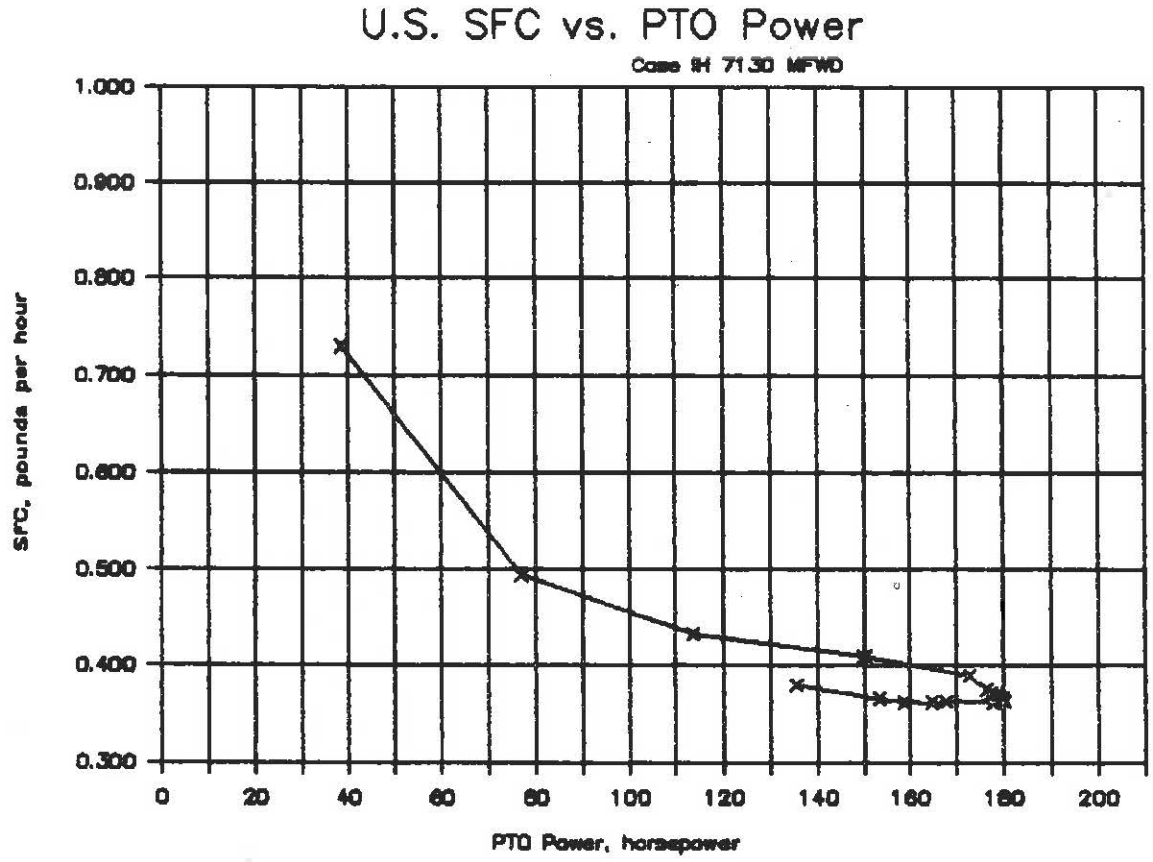
S.I. Specific Fuel Consumption



U.S. Specific Fuel Consumption




S.I. SFC vs. PTO Power
Case IH 7130 MFWD
SFC, kilograms per kilowatt - hour
0.500
0.480
0.460
0.440
0.420
0.400
0.380
0.360
0.340
0.320
0.300
0.280
0.260
0.240
0.220
0.200
0
20
40
60
80
100
120
140
160
PTO Power, kilowatts


U.S. SFC vs. PTO Power
Case IH 7130 MFWD
SFC, pounds per hour
1.000
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0
20
40
60
80
100
120
140
160
180
200
PTO Power, horsepower

8. OPTIONAL TEST RESULTS.

8.1 DRAWBAR PERFORMANCE.

Condition of test: Dual rear wheels, ballasted
Front wheel drive disengaged.

Date of tests: 17-Jun-88 Fuel density: 0.827 kg/l
Type of track: Concrete Test # 1611 Case IH 7130 MFWD

Gear	Speed	Power	Pull	Engine Speed	Slip	SFC		Temperature, deg C					Rel hum	Pressure
	km/h	kW	kN	rev/min	%	kg/kW.h	kW.h/l	Fuel	Coolant	Oil	Dry	Wet	%	kPa
IIa. Maximum Power (ballasted, dual wheels, 2wd) Drawbar height: 445 mm								Tire pressure: 110 kPa, rear (inner) 83 kPa, rear (outer) 110 kPa, front						
5th	4.53	101.96	80.98	2182	10.97%	0.302	2.74	68	85	98	20	16	66	98.82
6th	5.13	106.40	74.66	2056	6.75%	0.288	2.88	69	86	99	21	16	60	98.82
7th	5.83	110.59	68.28	1978	5.65%	0.274	3.02	70	86	100	22	16	54	98.85
8th	6.32	112.72	64.23	1852	4.77%	0.264	3.14	69	87	100	23	16	48	98.85
9th	7.37	114.09	55.76	1850	3.71%	0.261	3.17	69	87	100	23	17	55	98.88
10th	8.51	114.48	48.40	1851	2.96%	0.261	3.17	67	88	101	24	17	49	98.88
11th	9.80	112.81	41.42	1850	2.54%	0.263	3.15	68	88	101	24	17	49	98.88
12th	11.30	110.41	35.18	1851	2.20%	0.267	3.10	68	88	101	25	17	44	98.92
13th	12.95	110.30	30.66	1849	1.77%	0.269	3.07	68	88	101	26	17	40	98.92

Date of tests: 17-Jun-88 Fuel density: 6.905 lb/gal
Type of track: Concrete Test # 1611 Case IH 7130 MFWD

Gear	Speed	Power	Pull	Engine Speed	Slip	SFC		Temperature, deg F					Rel hum	Pressure
	mph	hp	lb	rpm	%	lb/hp-hr	hp-hr/gal	Fuel	Coolant	Oil	Dry	Wet	%	in Hg
IIa. Maximum Power (ballasted, dual wheels, 2wd) Drawbar height: 17.5 in								Tire pressure: 16 psi, rear (inner) 12 psi, rear (outer) 16 psi, front						
5th	2.82	136.73	18204	2182	10.97%	0.497	13.89	155	185	209	68	60	66	29.18
6th	3.19	142.68	16784	2056	6.75%	0.473	14.60	156	187	211	70	61	60	29.18
7th	3.62	148.31	15351	1978	5.65%	0.450	15.34	157	187	212	72	61	54	29.19
8th	3.93	151.16	14439	1852	4.77%	0.433	15.93	156	188	212	73	61	48	29.19
9th	4.58	152.99	12536	1850	3.71%	0.430	16.07	157	189	213	74	62	55	29.20
10th	5.29	153.51	10882	1851	2.96%	0.429	16.08	153	190	213	75	62	49	29.20
11th	6.09	151.28	9312	1850	2.54%	0.432	16.00	155	190	214	76	63	49	29.20
12th	7.02	148.06	7908	1851	2.20%	0.438	15.76	155	190	213	77	63	44	29.21
13th	8.05	147.92	6893	1849	1.77%	0.442	15.61	154	190	213	78	63	40	29.21

8.2 POWER LIFT TEST. (Upper link in top hole on tractor)

Linkage geometry dimensions.

		Dimension or range [mm]	Dimension or range [in]	settings used on test [mm]	settings used on test [in]
Lift Cetegory		III			
Rear tire - Radius Index	(r)	855	33.7		
Front tire - Radius Index	(r')	645	25.4		
Length of lift arms	(A)	381	15.0	same	
Length of lower links	(B)	861	33.9	same	
Distance of lift arm pivot from: horizontal	(a)	364	14.3	to rear same	
rear wheel axis: vertical	(b)	422	16.6	same	
Horizontal distance between the 2 lower link points	(u)	604	23.8	same	
Horizontal distance between the 2 lift arm end points	(v)	737	29.0	same	
Length of upper link	(S)	600 to 831	23.6 to 32.7	654	25.7
Distance of upper link pivot from:horizontal	(c)	627	24.7	same	
rear wheel axis:vertical-Upper	(d)	250	9.8	250	9.8
Lower		169	6.7		
Distance of lower link pivot from: horizontal	(e)	445	17.5	same	
rear wheel axis: vertical	(f)	332	13.1	same	
Distance of lower link pivot points to lift rod pivot pts on lower links.	(D)	579	22.8	same	
Length of lift rods	(L)	660 to 866	26.0 to 34.1	794	31.3
Height of lower hitch points relative to rear wheel axis In low position	(h)	378 to 699	14.9 to 27.5	599	23.6
In high position	(H)	3 to 269	0.1 to 10.6	87	3.4
Height above ground of lower hitch points when locked in transport position.		858 to 1124	33.8 to 44.3	942	37.1

TEST RESULTS.

	Hitch point	Frame
Lower hitch points above ground - down position [mm/inch]	257/10.1	282/11.1
Vertical movement [mm/inch]	660/26.0	655/25.8
Maximum corrected force through full range [kN/lbf]	41.4/9299	45.5/10239
Corresponding pressure [kPa/psi]	15506/2249	
Moment about rear axle [kN.m/lb.ft]	54.0/39829	87.2/64336
Maximum mast tilt angle [degrees]	--	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 [kN]	41.4	--	42.7	46.6	49.1	
Point [lb]	9229	--	9593	10484	11036	
At [kN]	--	49.9	48.0	49.6	50.2	
Frame [lb]	--	11229	10791	11147	11286	

Lifting height relative to horizontal position of lower links.

[mm]	99	201	300	371	391	414
[in]	3.9	7.9	11.8	14.6	15.4	16.3
Corrected lift forces						
Hitch [mm]	50.5	52.0	52.5	--	54.2	--
Point [lb]	11359	11695	11793	--	12175	--
At [kN]	49.3	49.1	46.3	45.5	--	45.6
Frame [lb]	11090	11041	10399	10239	--	10248