PAMI

OECD No. 1127
Date of Approval: January 29, 1988

REPORT OF TEST IN ACCORDANCE WITH OECD STANDARD CODE

CASE INTERNATIONAL 9150
and
STEIGER COUGAR 1000
4WD Articulated Tractors





Manufactured by: J. I. CASE COMPANY
700 State Street
Racine, Wisconsin 53404 USA

Date of test: April and June of 1987

Prairie Agricultural Machinery Institute

Test Station: P.O. Box 1060
Portage la Prairie, Manitoba
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* **********
* The Case International 9150 is identical to the Steiger Cougar*
* 1000 (Cummins powered) except with regard to color and model *
* designation. *
****

Manufacturer's name and address:	J.I. Case Company 3101 1st Avenue North Fargo, North Dakota 58102 USA
Submitted for test by:	The manufacturer
Selected for test by:	The manufacturer with agreement of the test station
Place of running-in:	J.I. Case; Fargo, North Dakota
Duration of running-in:	94 hours

SPECIFICATION OF TRACTOR

Tractor

Make:	Case International
Model:	9150
Type:	4 wheel drive, articulated
Serial No.:	17900705
First Serial No.:	Case IH 9150; 17900153 Steiger Cougar 1000; C1605413

Engine:

Make:	Cummins
Model:	LTA-10-A
Type:	Diesel, turbo charged, after cooled
Serial No.:	34548132
Cylinders:	
Number and disposition:	6, in-line, vertical
Bore:	125 mm (4.92 in)
Stroke:	136 mm (5.35 in)
Capacity:	10 000 cm^3 (611 in^3)
Compression ratio:	16.0 - 1
Arrangement of valves:	Overhead
Liners:	Wet, replaceable

Engine (cont'd):

Fuel System:

Feed system:	Engine Driven Transfer Pump
Make, type and model of filters:	Case IH, spin-on, 28-035
Tank capacity:	643 L (170 gal)
Make, type and model of injection pump:	Cummins Type G, Model PT, Non AFC, variable speed governor, gear pump supplies pressure for PT system
Injection pump Serial No.:	0932637
Manufacturer's production setting of injection pump:	41.7-43.5 kg/h (92.0-96.0 lb/h) at 2100 rev/min engine speed and full load, 25°C (77°F) temperature, using fuel of 0.85 specific gravity at 15.6°C (60°F)
Make/type/model of injectors:	Cummins PTD, Top Stop, P/N 3045102
Injection pressure:	110.3 MPa (1088.4 atm)
Rail Pressure:	1165-1289 kPa (169-187 lb/in^2)
Injection pump delivery starts:	19° before T.D.C.

Governor:

Make and type:	Centrifugal flyweight, integral to fuel pump
Governed range of engine speed:	850 to 2300 rev/min
Rated engine speed:	2100 rev/min

Air Cleaner:

Make and type:	Nelson, dry with safety element
Model:	71422-N
Position:	Mounted in front of radiator
Maintenance indicator type/model:	Sight glass at engine compartment, Donaldson RBX00-2252

Pre-Cleaner:

Make and type:	Nelson, aspirating,
Position:	Integral with air cleaner

Turbo-charger:

Make and type:	Holset, H2C, 25 cm^2, exhaust gas driven
Intake manifold pressure:	142 ±13.5 kPa (20.6 ±2 psi) at rated engine speed

Lubrication system:

Type of feed and pump:	Full pressure positive displacement
Type of filter:	Full Flow and bypass, spin on
Total oil capacity including filters:	34.6 L (73.1 pt)
Recommended oil:	SAE 15W40, temperatures greater than -10°C (14°F)* API Classification CC/CD viscosity 10 cSt at 100° (210°F)
MIL standard:	L-2104C
Oil and filter change period:	250 hours

Cooling System:

Coolant:	Liquid
Type of pump:	Centrifugal
Fan diameter:	711 mm (28 in)
Number of fan blades:	8
Type of temperature control:	Thermostat
Coolant capacity:	62.5 L (132 pt)
System pressure:	48.3 kPa (7 lb/in^2)

Starting System:

Make, type and model:	Delco 42 MT 400, Electric motor
Starter motor power rating:	7.46 kW (10 hp)
Safety features:	Electrical lock-out on gear shift and PTO controls
Cold starting aids:	In-block coolant heater and optional ether spray in intake manifold.

* 10W30 can be used for ambient temperature -25° to 35° C (-13° to 95°F)

Exhaust sytem:

Make and construction:	Donaldson
Dimensions of expansion chamber:	229 mm dia x 1372 mm long (9 in dia x 54 in long)
Position:	Mounted vertically on right, front fender with outlet directed to right front

Electrical system:

Voltage:	12
Earth polarity:	Negative
Make and type of generator:	Niehoff
Output:	100 A at 2100 engine rev/min
Make and type of battery:	GNB low maintenance (3 per tractor)
Rating:	90 Ah at 20 hours/battery 625 cold crank amp/battery 160 min. reserve capacity/battery (per SAE J537)

Transmission:

Clutch:

Make and type:	FTK, multi-plate, oil cooled
Diameter of plates:	Main 228.6 mm (9 in) PTO 177.8 mm (7 in)
Method of Operation:	Hydraulic Pressure, foot pedal

Gearbox:

Make and type:	FTK, Full Power Shift
Number of speeds:	12 forward and 2 reverse
Arrangement:	Counter shaft

Rear and Front Axle and Final Drives:

Make and type:	Raba 592, in-board planetary, bar type
Type of different lock and method of engagement:	Multiple disc clutch, limited slip, electrically engaged
Driven From:	Transmission

Transmission oils

	Gearbox	Front & rear axles/final drives
Recommended oil:	Case IH Hytran Plus	SAE 80W-90
Capacity:	34 L (71.8 pt)	30.2 L (64 pt)
Viscosity at 100°C (210°F)	6.2 cSt	15.2 cSt
MIL standard	NA	L-2105C
Oil change period	1000 hours	500 hours
Filter change period	500 hours	--

Gear	Number of engine revolutions for one revolution of driving wheel	Nominal travelling speed for 2100 rev/min rated engine speed* km/h	(mile/h)
Forward			
1	194.28	3.6	2.3
2	161.96	4.3	2.7
3	131.60	5.3	3.3
4	107.45	6.5	4.1
5	89.57	7.9	4.9
6	72.77	9.7	6.0
7	61.11	11.5	7.2
8	50.94	13.8	8.6
9	41.38	17.0	10.6
10	33.79	20.8	12.9
11	28.15	25.0	15.5
12	22.89	30.7	19.1
Reverse			
1	148.58	4.7	2.9
2	82.15	8.5	5.3

* Calculated with a tire radius of 889 mm (35.0 in)

Power take-off

Number of shafts/speeds and position:	One, at rear of tractor in vertical centre plane
Height above ground:	832 mm (32.8 in)
Distance behind rear axle:	704 mm (27.7 in)
Diameter:	44.4 mm (1.75 in)
Number of splines:	20 (ISO 500)
Method of engagement:	Hydraulic clutch operated by hand lever, independent of main clutch
Speed at rated engine speed:	1000.5 rev/min
Engine speed at standard pto speed of 1000 rev/min:	2099 rev/min
Engine/PTO speed ratio	2.09797:1

Direction of rotation (viewed facing driving end): Clockwise

Power lift

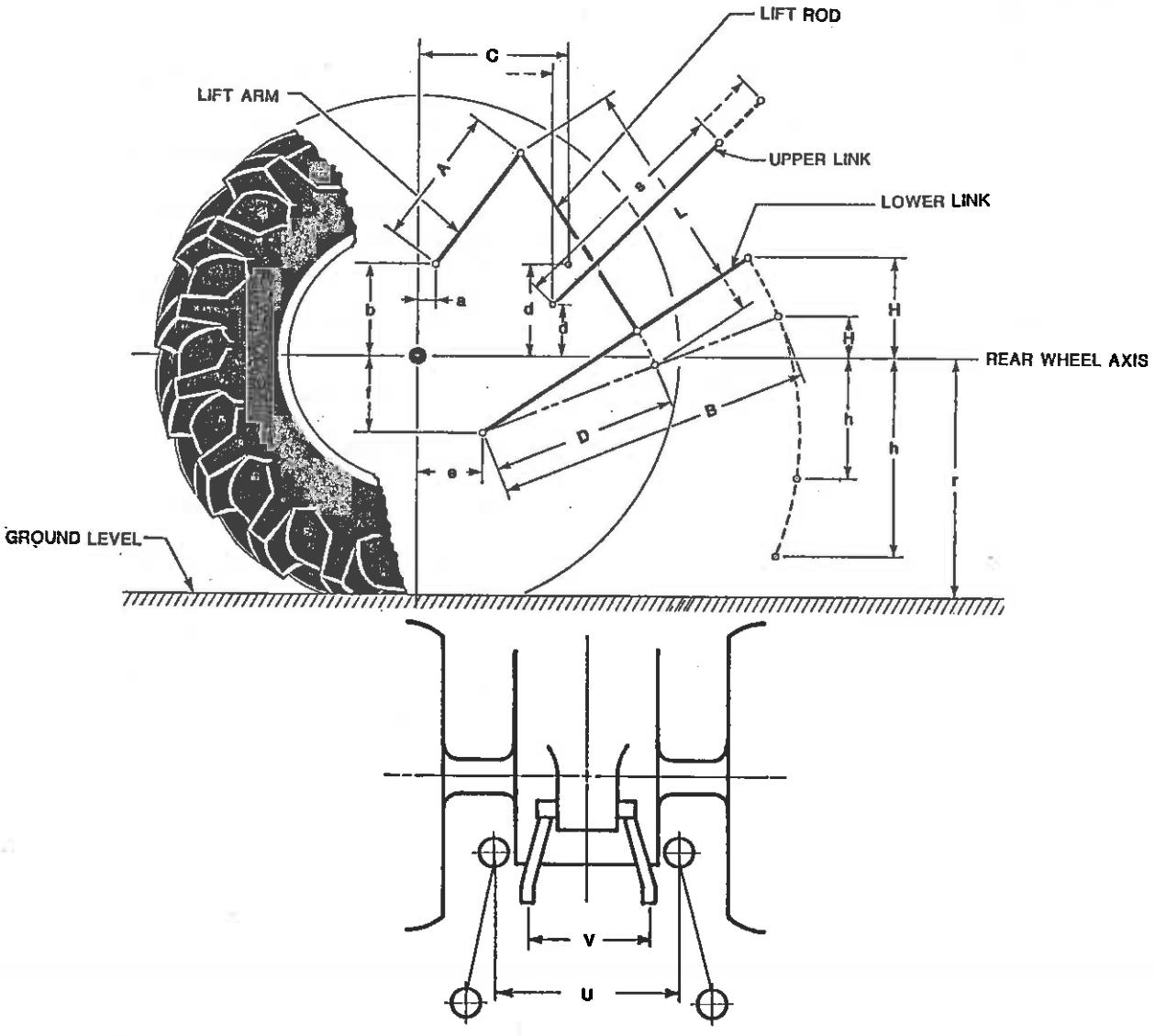
Type of hydraulic system	Closed centre, load sensing
Make and type of pump:	Cessna, axial piston, pressure & flow compensated.
Filters:	Cannister type oil filter with one replaceable element, cleanable suction screen inside resevoir
Nominal working pressure:	17.237 MPa (2500 lb/in^2)
Number and type of cylinders:	Two, single acting
Pump drive:	Direct drive on transmission
Oil supplied from:	Hydraulic reservoir via charge pump
Type, number and position of external tappings:	ISO standard lever type couplers 4 pairs at rear of tractor
Reservoir oil capacity:	68.1 L (18 US gal) 22.7 L (6 US gal) available to external cylinders
Linkage category:	SAE III; ISO 3 except for horizontal distance PTO to hitch points of horizontal lower links 635 mm (25.0 in)
Controls:	Position control, electrical/ hydraulic, adjustable lower rate

Cylinder safety valve opening pressure: 20.7 MPa (3000 psi)

Drawbar

Type:	Swinging
Vertical height above ground to centre of clevis:	Max. 627 mm (24.7 in) Min. 470 mm (18.5 in)
Changed by:	Inverting drawbar
Distance behind rear axle centre:	1211 mm (47.7 in)
Horizontal distance behind PTO:	509 mm (20 in)
Vertical distance below PTO:	203 and 356 mm (8.0 and 14.0 in)
Lateral movement:	165 mm (6.5 in)
Pivot position relative to rear axle:	1651 mm (65 in) forward
Drawbar pin hole diameter:	45.9 mm (1.81 in)

Implement linkage:



Dimensions of rear implement linkage (projected lengths in mm (in), underlined dimensions are valid for power lift measurements (page 17)

Rear tires	radius index	(r)	889	(35.0)
Front tires	radius index	(r')	889	(35.0)
Length of lift arms		(A)	533	(21.0)
Length of lower links		(B)	1067	(42.0)
Distance of lift arm pivot points from rear wheel centre	horizontal	(a)	143	(5.6)
	vertical	(b)	638	(25.1)
Horizontal distance between lower link pivot points		(u)	627	(24.7)
Horizontal distance between lift arm end points		(v)	719	(28.3)
Length of upper link		(s)	747 (29.4) to 847 (33.3), 762 (30)	
Distance of upper link pivot point from rearwheel centre	horizontal	(c)	591(23.3), 566 (22.3)	
	vertical	(d)	289(11.4), 187 (7.4)	
Distance of lower link pivot point from rearwheel centre	horizontal	(e)	271 (10.7)	
	vertical	(f)	251 (9.9)	
Distance of lower link pivot points from lift rod pivot points on lower links		(D)	584 (23.0)	
Length of lift rods		(L)	864 (34.0) to 941 (37.0) 902 (35.5)	

Height of lower link hitch points relative to rearwheel center line (situated 889 mm (35.0 in) above ground), these data are valid for unloaded power lift:

		* Lift Test*		
Length of lift rods	(L)	902 (35.5)	864 (34.0)	941 (37.0)
Lowest position	(h)	604 (23.8)	533 (21.0)	704 (27.7)
Highest and transport position	(H)	213 (8.4)	261 (10.3)	39 (1.5)

Type of transport lock: Hydraulic

Steering

Make and type:	Eaton hydrostatic steering control unit, operated by hand wheel
Make and type of pump:	Cessna axial piston pressure and flow compensated
Oil supplied from:	Hydraulic reservoir
Working pressure:	15.9 MPa (2300 psi), maximum
Recommended oil:	CASE IH Hytran Plus viscosity 6.2 cSt min at 100°C (210°F)
MIL standard:	NA
Oil change period:	1000 hours
Filter change period:	500 hours

Brakes

Make and type:	Kelsey Hayes, caliper, dry disc
Position:	On front axle drive shaft at differential
Method of operation:	Manual/hydraulic, operated with foot pedal
Type of parking brake:	caliper/dry disc, mechanically operated with hand lever
Trailer braking take-off:	None

Wheels

Make and size:	Goodyear, Dyna Torque, 20.8 x 42
Type:	Bias-ply, 10 ply rating
Rated maximum load at rated pressure of each tire:	3480 kg (7650 lb) at 138 kPa (20 lb/in^2)
Track width:	1524 mm (60 in) to 3302 mm (130 in)
Changed by:	Adjustable clamping wedges on bar axle

Wheelbase:

3302 mm (130.0 in)

Seat

Make and type:	Grammer air ride with swivel
Suspension:	Air ride, lateral isolator, weight adjustment
Damping:	Hydraulic
Range of adjustment:	Longitudinal 150 mm (5.9 in) Vertical 60 mm (2.36 in)

Safety Cab

Make/model:	Case IH, 4CSF-2
CSS No.:	076/5, Case IH 9150 076/6, Steiger Cougar 1000
Description:	4 post ROPS with Charpy V-notch certified material

Lighting

Unrestricted beam angle of headlight in plan view 100°

	Height above ground of centre		Size		Distance from outside edge of tractor at 2877 mm (113.2 in) outer wheel track, to centre	
	mm	(in)	mm	(in)	mm	(in)
Headlights	1816	(71.50)	102x152 (4.00x6.00)		1372	(54.0)
Stop and tail lights	1930	(76.00)	57x165 (2.2x6.50)		661	(33.9)
Reflectors:						
front	1473	(58.00)	48x111 (1.88x4.38)		1219	(48.0)
rear	1930	(76.00)	48x111 (1.88x4.38)		699	(27.5)

Number of grease points

Whole tractor: 36 (includes 17 for PTO and three point hitch)

Overall dimensions

	Length,		Width				Maximum height, to top of exhaust	
			max		min			
	m	(in)	m	(in)	m	(in)	m	(in)
Single wheels	7.03	(277)	3.84	(151)	3.04	(119.5)	3.70	(146.0)
Dual wheels	7.03	(277)	3.84	(151)	3.40	(134)	3.70	(146.6)

Minimum ground clearance 450 mm (17.7 in) to underside of linkage restraints

CONDITIONS DURING TEST

Masses

Tractor (without driver but with tanks full)

	Front, kg (lb)	Rear, kg (lb)	Total kg (lb)
Single wheels, unballasted	6680 (14730)	5110 (11270)	11790 (26000)
Dual wheels, ballasted	8240 (18170)	6040 (13320)	14280 (31490)

Track setting during tests

	Inner	Outer
Front:	1524 mm (60.0 in)	2877 mm (113.2 in)
Rear:	1524 mm (60.0 in)	2877 mm (113.2 in)

FUEL AND LUBRICANTS USED IN TESTS

Fuel

Diesel oil to SAE J313, Grade 2-D, specific gravity for pto tests 0.859 at 15°C (59°F), for drawbar tests 0.869 at 15°C (59°F), viscosity 2.0 - 4.27 cSt at 38°C (100°F)
Cetane No. 40 min.

Oil

Engine: Texaco URSA SP, SAE 15W-40, viscosity: 10 cSt at 100°C (210°F) API Class CD

Transmission: Case IH Transmission Oil 02-7408T1
Viscosity 7 cSt at 100°C (210°F)
MIL and API not available

Hydraulic power lift and steering: Texaco Rando HD46 SAE 10W
Viscosity 6.6 cSt at 100°C (210°F)

COMPULSORY TESTS

1. MAIN POWER TAKE-OFF PERFORMANCE

Date and location of tests: 01st APRIL 1987, Fargo, North Dakota,USA

Type of dynamometer: Eaton, Eddy Current

Power	Speed, rev/min		Fuel Consumption			
kW (hp)	Engine	PTO	l/h (USgal/h)	kg/h (lb/h)	kg/kWh (lb/hph)	KWh/l (hph/USgal)
MAXIMUM POWER 2 hour test						
192.7 (258.3)	1900	906	49.5 (13.1)	42.6 (93.9)	0.221 (0.364)	3.89 (19.75)
PART LOADS						
(1) Manufacturer's rated engine speed						
183.6 (246.1)	2101	1001	49.6 (13.1)	42.7 (94.1)	0.233 (0.383)	3.70 (18.77)
(2) 85% of the torque obtained at rated speed						
161.3 (216.3)	2173	1036	46.1 (12.2)	39.7 (87.5)	0.246 (0.405)	3.50 (17.74)
(3) 75% of the torque defined in (2)						
123.5 (165.5)	2217	1057	39.1 (10.3)	33.7 (74.2)	0.273 (0.448)	3.16 (16.01)
(4) 50% of the torque defined in (2)						
83.7 (112.2)	2255	1075	31.2 (8.2)	26.8 (59.1)	0.320 (0.527)	2.68 (13.62)
(5) 25% of the torque defined in (2)						
42.6 (57.1)	2293	1093	22.8 (6.0)	19.6 (43.2)	0.460 (0.757)	1.87 (9.49)
(6) Unloaded						
1.3 (1.7)	2344	1117	15.7 (4.1)	13.5 (29.7)	- -	0.08 (0.41)

Power	Speed, rev/min		Fuel Consumption			
kW (hp)	Engine	PTO	l/h (USgal/h)	kg/h (lb/h)	kg/kWh (lb/hph)	KWh/l (hph/Usgal)
Part loads, the governor lever in the position corresponding to the standard pto speed at full load (1000 rev/min).						
(1) Maximum Power, rated engine speed						
183.6 (246.1)	2101	1001	49.6 (13.1)	42.7 (94.1)	0.233 (0.383)	3.70 (18.77)
(2) 85% of the torque obtained at rated speed						
161.3 (216.3)	2173	1036	46.1 (12.2)	39.7 (87.5)	0.246 (0.405)	3.50 (17.74)
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42.6 (57.1)	2293	1093	22.8 (6.0)	19.6 (43.2)	0.460 (0.757)	1.87 (9.49)
(6) Unloaded						
1.3 (1.7)	2344	1117	15.7 (4.1)	13.5 (29.7)	- -	0.08 (0.41)

Standard specific fuel consumption, kg/kWh (lb/hph)

0.246 (0.405) / 0.320 (0.527) / 0.246 (0.405) / 0.320 (0.527)

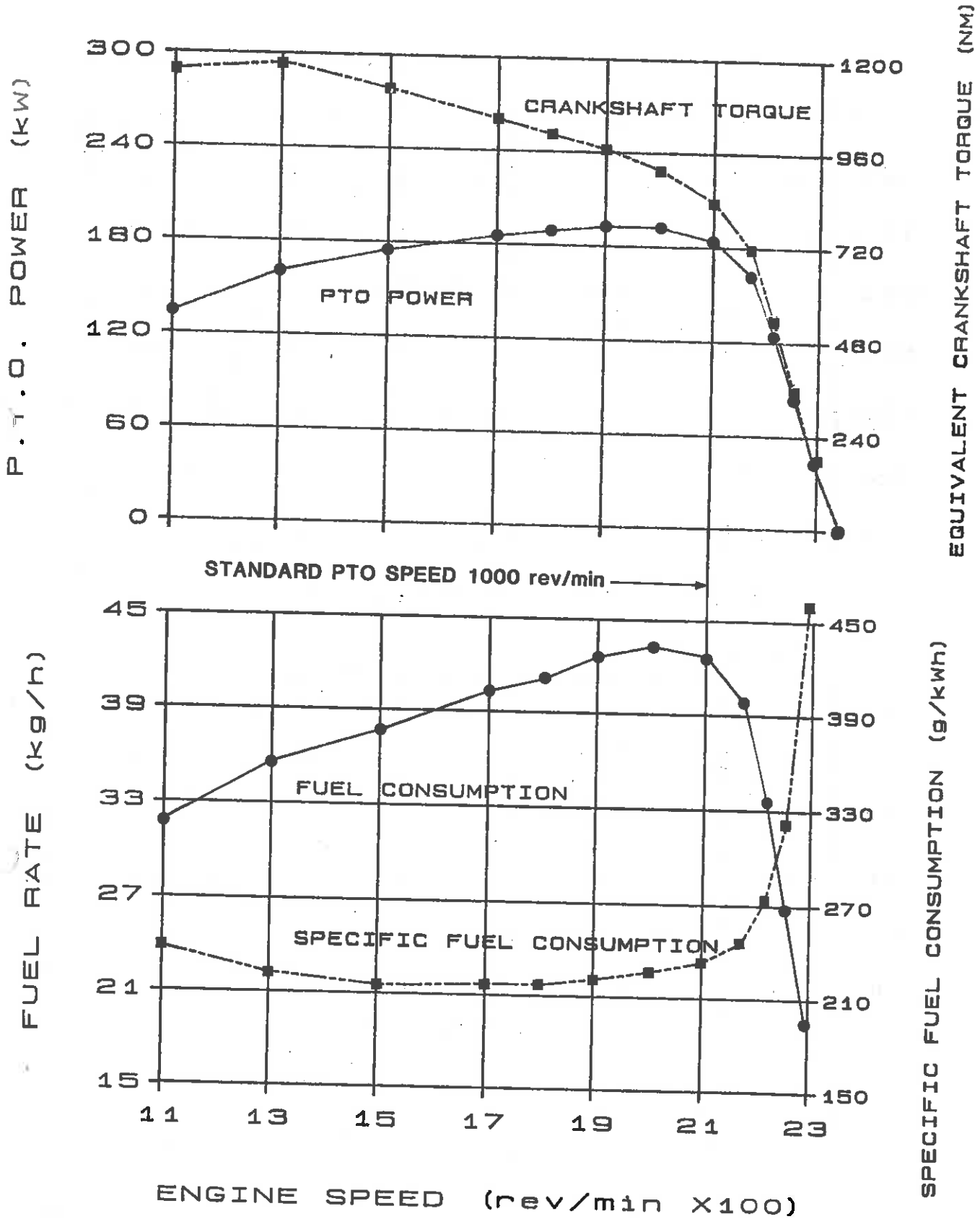
No load, maximum engine speed 2344 rev/min

Equivalent crankshaft torque at maximum power 967.2 Nm (713.4 lb ft)
at rated engine speed: 833.1 Nm (614.5 lb ft)

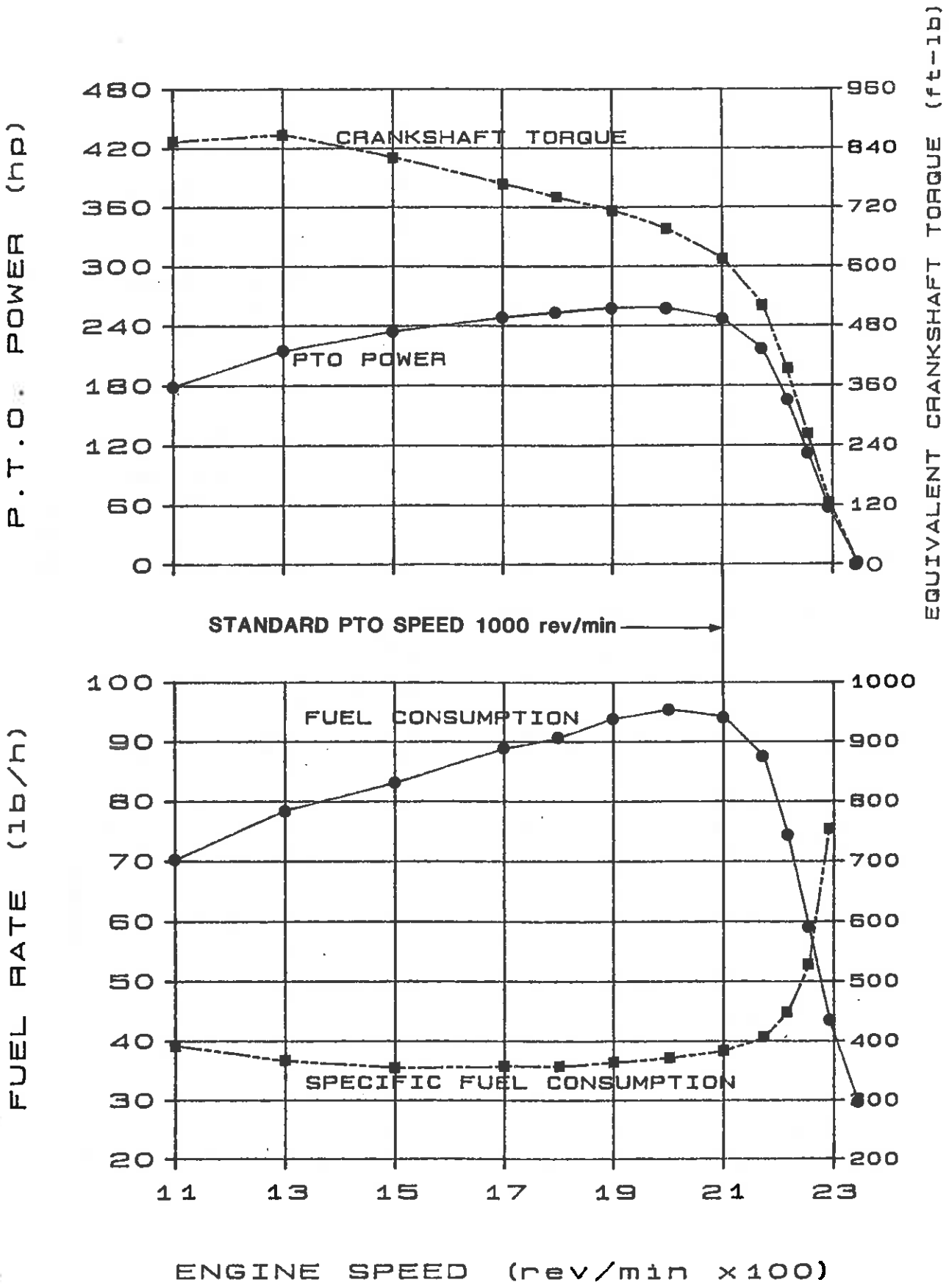
Maximum equivalent crankshaft torque 1177 Nm (868.1 lb ft) at 1300 rev/min engine speed

Mean atmospheric conditions temperature 27°C (81°F)
pressure 1012 m bar (29.87 in Hg)
relative humidity 18%

Maximum temperature coolant 85°C (185°F)
engine oil 119°C (246°F)
fuel 44°C (111°F)
air intake 29°C (84°F)

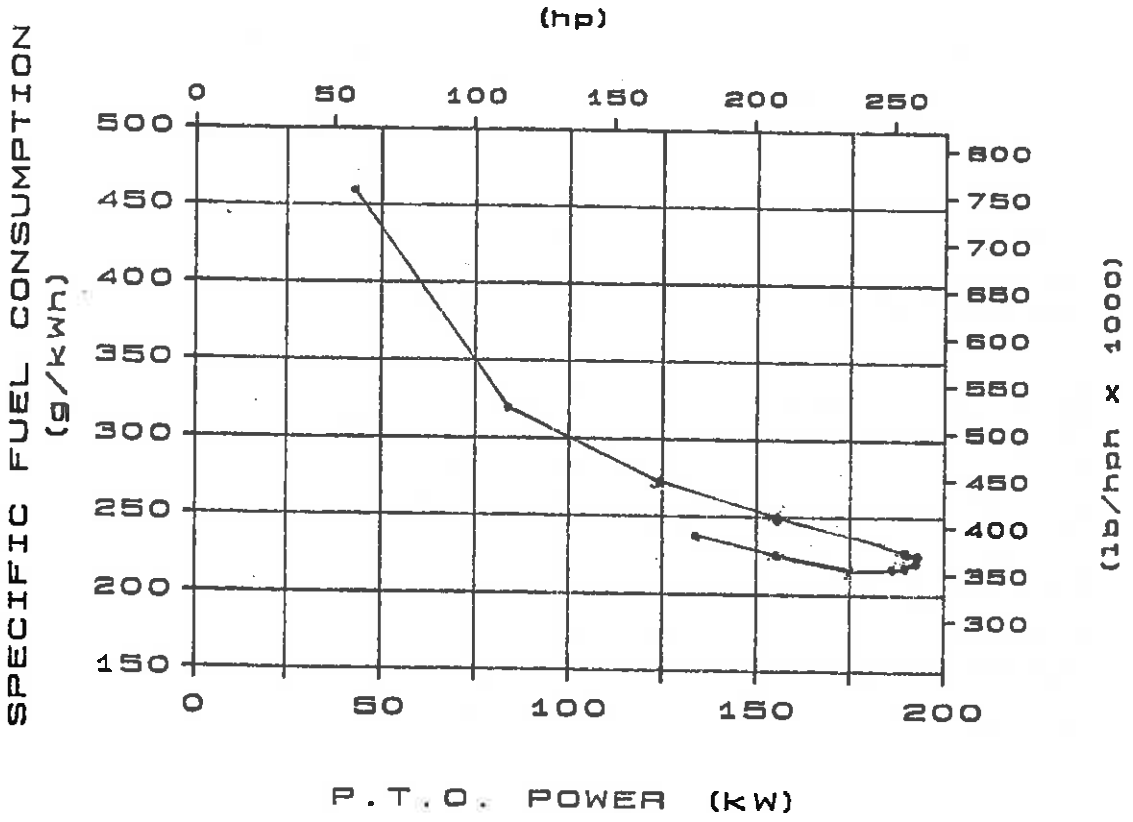


POWER TAKE-OFF TEST
(Metric units)



POWER TAKE-OFF TEST
(English units)

POWER TAKE-OFF PERFORMANCE 9150



2. POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

Date and location of tests: July 1987; Fargo, North Dakota,USA

Hydraulic pump performance

i) Maximum pressure at rated flow: 13.9 MPa (2012 lb/in^2)
Sustained pressure at compensator cutoff: 17.5 MPa (2538 lb/in^2)

ii) Pump delivery rate at minimum pressure and rated engine speed: 112.8 l/min (29.8 gal/min)

iii)

Pump delivery rate	at maximum power	at 90% of compensator cut off pressure
	102.2 L/min (27.0 gal/min US)	68.1 L/min (18.0 gal/min US)
Delivery Pressure:	13.9 MPa (2012 lb/in^2)	15.8 MPa (2284 lb/in^2)
Power:	23.7 kW (31.7 hp)	17.9 kW (24.0 hp)

POWER LIFT

Power Lift, Metric Units

	Height of lower hitch point above ground in down position mm	Vertical Movement mm	Maximum force exerted through full range kN	Corresponding pressure of hydraulic fluid MPa	Moment about rear axle kNm	Max. tilt angle of mast over range of lift degrees
At hitch points	285	817	45.5	13.9	58.2	-
On the frame	290	918	49.6		92.5	9.5 *

Temperature of hydraulic fluid at start of test 65°C
***Tilt angle of mast from vertical position to uppermost position 10°**

Lifting heights relative to horizontal lower links											
mm	-350	-300	-200	-100	0	100	200	300	400	450	480
Lifting forces corresponding to 90% of maximum pressure; 15.8 MPa											
- at hitch points											
kN	51.5	54.3	59.8	63.7	66.9	69.5	71.8	73.3	76.5	77.0	
- at test frame											
kN	57.2	62.3	60.0	61.4	61.7	61.4	59.8	62.2	56.9		56.2
Lifting forces corresponding to pressure at maximum hydraulic power; 13.9 MPa											
- at hitch points											
kN	45.5	48.0	52.8	56.3	59.0	61.3	63.3	64.7	67.5	67.8	
- at test frame											
kN	50.5	55.4	52.8	54.1	54.5	54.1	52.7	54.9	50.2		49.6

Power Lift, English Units

	Height of lower hitch point above ground in down position in	Vertical Movement in	Maximum force exerted through full range lb	Corresponding pressure of hydraulic fluid lb/in^2	Moment about rear axle lbft	Max. tilt angle of mast over range of lift degrees
At hitch points	11.2	32.2	10210	2012	42840	-
On the frame	11.4	36.1	11130		68100	9:5 *

Temperature of hydraulic fluid at start of test 65°C (149°F)
***Tilt angle of mast from vertical position to uppermost position 10°**

Lifting heights relative to horizontal lower links											
in	-13.8	-11.8	-7.9	-3.9	0	3.9	7.9	11.8	15.7	17.7	18.9
Lifting forces corresponding to 90% of maximum pressure; 2284 lb/in^2											
- at hitch points											
lb	11590	12200	13450	14330	15050	15620	16140	16490	17190	17320	
- at test frame											
lb	12870	14000	13500	13800	13870	13800	13440	13990	12790		12640
Lifting forces corresponding to pressure at maximum hydraulic power; 2012 lb/in^2											
- at hitch points											
lb	10210	10750	11850	12630	13260	13760	14220	14530	15150	15250	
- at test frame											
lb	11340	12340	11890	12150	12220	12150	11830	12320	11130		11130

2. DRAWBAR PERFORMANCE, Metric Units

Date of Tests: June 1987
Type of Track: Concrete

Gear	Speed km/h	Power kW	Drawbar Pull kN	Engine Speed rev/min	Wheel Slip %	Specific Fuel Consumption kg/kWh	Specific Fuel Consumption kWh/L	Temparature, °C Fuel	Coolant	Oil	Atmospheric Conditions Temperature °C	Relative Humidity %	Pressure mbar
(i) MAXIMUM POWER (unballasted, single wheels) Tire inflation pressure: 138 kPa Height of drawbar above ground: 437													
1	3.35	87.87	94.52	2220	14.68	0.405	2.15	40	83	110	26	73	1019
2	4.00	101.08	91.00	2215	14.81	0.368	2.36	40	83	111	27	73	1019
3	4.82	126.51	94.59	2173	15.03	0.326	2.67	40	84	115	28	73	1019
4	5.74	146.27	91.76	2112	14.97	0.301	2.89	41	85	117	28	73	1019
5	7.00	158.60	81.59	2050	10.92	0.272	3.19	42	86	116	27	60	1019
6	8.46	164.05	69.80	1959	8.42	0.258	3.37	42	86	118	28	60	1019
7	10.53	167.66	57.33	1996	6.06	0.250	3.48	42	86	116	28	60	1019
8	12.88	168.37	47.07	2004	4.62	0.251	3.46	43	87	119	27	60	1019
9	16.13	168.09	37.52	2013	3.39	0.251	3.46	42	86	117	27	60	1019
(ii) MAXIMUM POWER (ballasted, dual wheels) Tire inflation pressure: inner 96 kPa, outer 82 kPa Height of drawbar above ground: 452 mm													
1	3.31	121.96	132.48	2183	14.54	0.322	2.70	41	84	111	23	84	1011
2	3.85	145.32	135.82	2125	14.93	0.297	2.93	41	85	116	24	84	1011
3	4.84	162.09	120.66	2051	10.05	0.264	3.29	41	87	119	24	84	1011
4	5.97	166.97	100.61	2005	7.22	0.245	3.55	40	86	118	26	57	1013
5	7.27	169.36	83.81	2000	5.61	0.254	3.42	42	86	119	26	57	1013
6	9.10	170.58	67.47	2001	4.06	0.250	3.48	42	87	120	27	48	1014
7	10.92	171.45	56.51	2000	3.27	0.248	3.50	42	86	120	27	48	1014
8	13.22	170.35	46.39	2001	2.47	0.247	3.52	42	86	119	27	48	1014
(iii) FIVE HOUR TEST AT 75% of PULL OF MAXIMUM POWER													
7	12.04	141.77	42.38	2176	1.98	0.265	3.28	39	84	116	24	55	1017
(iv) FIVE HOUR TEST AT PULL CORRESPONDING TO 15% WHEELSLIP IN TEST (ii)													
2	4.10	—	135.83	2127	—	—	—	38	85	118	22	46	1015

Total oil consumption during ten hours duration of tests (iii) and (iv) 102 g/h

Test (iv) was carried out with additional ballast and the results for power, slip and fuel consumption have no practical significance.

3. DRAWBAR PERFORMANCE, English Units

Date of tests: June 1987
Type of track: Concrete

Gear	Speed mile/h	Power hp	Drawbar Pull lb	Engine Speed rev/min	Wheel Slip %	Specific Fuel Consumption lb/hph	Specific Fuel Consumption hph/USgal	Temparature °F Fuel	Temparature °F Coolant	Temparature °F Oil	Atmospheric Conditions Temperature °F	Atmospheric Conditions Relative Humidity %	Atmospheric Conditions Pressure in Hg
(i) MAXIMUM POWER (unballasted; single wheels) Tire inflation pressure: 20 psi Height of drawbar above ground: 17.2 in													
1	2.08	117.79	21250	2220	14.68	0.666	10.89	104	181	230	79	73	30.10
2	2.49	135.49	20460	2215	14.81	0.606	11.99	104	181	232	81	73	30.10
3	2.99	169.58	21270	2173	15.03	0.536	13.53	104	183	239	82	73	30.10
4	3.57	196.07	20630	2112	14.97	0.494	14.66	106	185	243	82	73	30.10
5	4.35	212.60	18340	2050	10.92	0.447	16.22	108	187	241	81	60	30.10
6	5.26	219.90	15690	1959	8.42	0.424	17.10	108	187	244	82	60	30.10
7	6.54	224.74	12890	1996	6.06	0.412	17.65	108	187	241	82	60	30.10
8	8.00	225.70	10580	2004	4.62	0.412	17.57	109	189	246	81	60	30.10
9	10.02	225.32	8440	2013	3.39	0.413	17.57	108	187	243	81	60	30.10
(ii) MAXIMUM POWER (ballasted, dual wheels) Tire inflation pressure: inner 14 psi, outer 12 psi Height of drawbar above ground: 17.8													
1	2.06	163.48	29790	2183	14.54	0.530	13.70	106	183	232	73	84	29.87
2	2.39	194.80	30540	2125	14.93	0.488	14.85	106	185	241	75	57	29.87
3	3.01	217.28	27130	2051	10.05	0.435	16.71	106	187	246	75	57	29.91
4	3.71	223.82	22620	2005	7.22	0.403	18.01	104	187	244	79	57	29.91
5	4.52	227.03	18840	2000	5.61	0.417	17.36	108	187	246	79	57	29.91
6	5.66	228.66	15170	2001	4.06	0.411	16.64	108	189	248	81	48	29.94
7	6.79	229.83	12700	2000	3.27	0.408	17.78	108	187	248	81	48	29.94
8	8.21	228.35	10430	2001	2.47	0.406	17.86	108	187	246	81	48	29.94
(iii) FIVE HOUR TEST AT 75% OF PULL AT MAXIMUM POWER													
7	7.48	190.04	9530	2176	1.98	0.435	16.65	102	183	241	75	55	30.03
(iv) FIVE HOUR TEST A PULL CORRESPONDENCE TO 15% WHEELSLIP IN TEST (ii)													
2	2.55	—	30540	2127	—	—	—	100	185	244	72	46	29.98

Total oil consumption during ten hours during tests (iii) and (iv) 0.23 lb/h

Test (iv) was carried out with additional ballast and the results for power, slip and fuel consumption have no practical significance.

4. TURNING SPACE AND TURNING CIRCLE

Details of wheel equipment: As in specification, without ballast

		Inner	Outer
Track of wheels:	Front	1524 mm (60.0 in)	2877 mm (113.2)
	Rear	1524 mm (60.0 in)	2877 mm (113.2)

	Single Wheels		Dual Wheels	
	Left-hand	Right-hand	Left-hand	Right-hand
Radius of turning space, m (in)	6.38 (251)	6.28 (247)	6.76 (266)	6.66 (262)
Radius of turning circle, m (in)	5.62 (221)	5.52 (217)	6.44 (254)	6.34 (250)

5. LOCATION OF CENTRE OF GRAVITY

Height above ground, mm (in)	1334 mm (52.5 in)
Distance forward from the vertical plane containing the axis of the rear wheels, mm (in)	1835 mm (72.2 in)
Distance from the median plane of the tractor, mm (in)	0

6. BRAKING

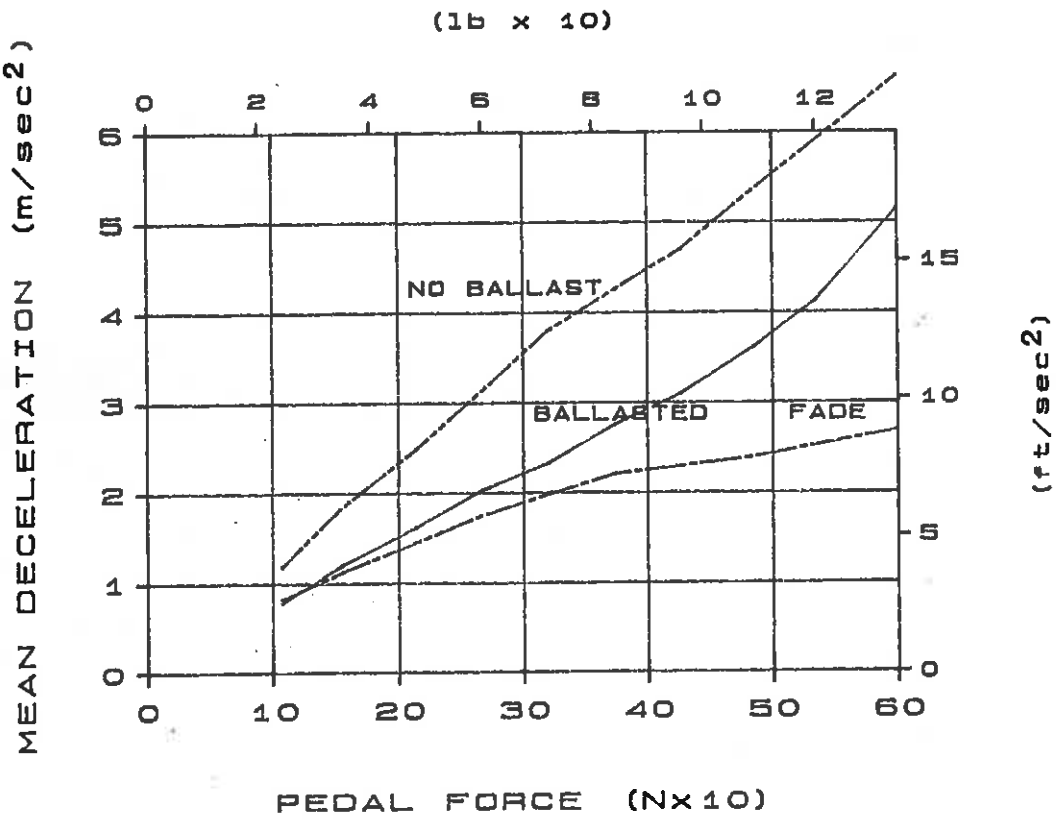
Date of tests: 15th and 22nd of JUNE 1987

Type of track: Concrete

Masses during brake tests

	Front kg (lb)	Rear kg (lb)	Total kg (lb)
Ballasted	8520 (18790)	6040 (13320)	14560 (32110)
Unballasted	6680 (14730)	5110 (11270)	11790 (26000)

A) Service brakes



Travelling speed before application of brakes, 34.3 km/h (21.3 mile/h)

Brakes-heating: Actuating of brakes for 1 km (0.62 mi) at 80% of maximum speed with pedal force corresponding to 1 m/s^2 (3.3 ft/s^2)

Comments on deviation and vibration: None

B) Parking brake

	Ballasted tractor on slope of 18%		Unballasted tractor on 12% slope with trailer of 9900 kg (22000 lb)	
	Up	Down	Up	Down
Pull on handbrake N (lb)	49 (11)	53 (12)	49 (11)	53 (12)

7. MEASUREMENT OF EXTERNAL NOISE LEVEL

Date of tests:	11th JUNE 1987
Type of sound level meter:	Bruel and Kjaer 2218
Type of track:	Concrete

Results of tests:

Gear:	12
Travelling speed before acceleration:	25.8 km/h (16.0 mile/h)
Sound level:	94 dBA

OPTIONAL TESTS

8. NOISE MEASUREMENT AT THE DRIVER'S EAR

Date of tests:	JUNE 1987
Type of sound level meter:	Bruel and Kjaer 2218
Type of track:	Concrete
Cab fitted:	Yes

Results of tests:

Gear	Drawbar pull at which the tractor develops maximum sound level, kN	(lb)	Measured travelling speed, km/h	(mile/h)	Sound level, dBA
5*	29.4	(6620)	8.41	(5.22)	80.5
5*	4.2	(950)	8.69	(5.40)	79.5
8	22.9	(5150)	14.73	(9.15)	81.5
9	18.7	(4210)	18.18	(11.30)	81.5
12	No Load		34.3	(21.3)	78.5

*The 5th gear corresponds to the nominal travelling speed nearest to 7.5 km/h (4.7 mile/h).

Details of materials used for sound proofing the protective structures

Interior padding:

. Roof	vinyl covered polyester safety foam, 50 mm (2.0 in) above operator 13 mm (0.50 in) ahead of operator; plastic outer cab top lined with urethane foam, 25 mm (1.0 in)
. Door	glass, as below
. Floor	polyethylene foam, 10.4 mm (0.40 in) ribbed, rubber floor mat , 7.4 mm (0.30)
. Front panel	glass, as below
. Rear and lower right panel	vinyl covered polyester urethane safety foam with accoustical barrier, 25 mm (1.0 in)
. Instrument panel and steering column	ABS plastic shroud 4 mm (0.16 in) thick polyethylene foam with acoustical barrier 12 mm (0.5 in)
Draught proofing:	rubber moulding
Glass:	tinted, tempered, safety glass, 5.6 mm (0.22 in)
Windscreen wipers:	United Technologies Electro Systems Model 1927328 MO 12WC
Direction indicators:	lever on steering column operating blinking lights
Heaters and air conditioner:	located on front console, constant flow cab pressurization, aspirated cab air intake filtration system.

REPAIRS AND ADJUSTMENTS DURING TESTS: None

REMARKS: None

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Test carried out by: R.R. Hochstein, Senior Development Engineer
K.A. Carmichael, C.E.T.

Signed: Head of Test Station

for the Director

Date: 02 October 1987