Ordner vollständig V

OECD Approval No. 830

Test in accordance with the OECD standard code for the official testing of agricultural tractors

Report on test of David Brown 1190 Two Wheel Drive Tractor



Manufactured by David Brown Tractors Ltd.,
Meltham,
Huddersfield. HD7 3AR.

Test No. R82/2/7743/OECD

Report No. 679

Date January 1982

THE BRITISH SOCIETY FOR RESEARCH IN AGRICULTURAL ENGINEERING

National Institute of Agricultural Engineering
Wrest Park Silsoe Bedford MK45 4HS

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SPECIFICATION OF TRACTOR

Manufacturer's name and address:	David Brown Tractors Ltd., Meltham, Huddersfield. HD7 3AR.
Submitted for test by:	The manufacturer
Selected for test by:	The manufacturer, with the agreement of the testing station
Place of running-in:	Meltham
Duration of running-in:	50 hours

Tractor

Make:	David Brown
Model:	1190
Type:	Four-wheel, rear wheel driven, front wheel steering, unit construction
Serial No.:	11031098

Engine

Make:	David Brown
Model:	165004
Type:	4 stroke, direct injection diesel
Serial No.:	165004/11311017
Cylinders:	
Number and disposition:	3 vertical, in-line
Bore:	100.1 mm (3.9 in)
Stroke:	114.3 mm (4.5 in)
Capacity:	2696 cm^3 (165 in^3)
Compression ratio:	17:1 nominal
Arrangement of valves:	Vertical, in-line, overhead
Liners:	None used
Fuel system:	
Feed system:	A.C. Delco mechanical pump, with hand primer
Make, type and model of filter(s):	C.A.V., dual, paper element
Tank capacity:	94.0 l (20.7 UK gal)
Make, type and model of injection pump:	C.A.V., distributor, DPA 3233F850
Injection pump Serial No.:	RO2579VW
Manufacturer's production setting of injection pump:	7.8 l/h (1.7 UK gal/h) to 8.1 l/h (1.8 UK gal/h) at 1600 rev/min engine speed on full load and 15.6°C (60°F) temperature, using fuel of 0.843 specific gravity at 15.6°C (60°F)

Fuel system (Cont'd):	
Make, type and model of injectors:	C.A.V., BKBL 9755153, BDLL-140S 6592, 4 hole nozzles
Injection pressure:	17.7 MPa (175 atm),
Injection pump delivery starts:	16° before T.D.C.
Governor:	
Make and type:	C.A.V., mechanical
Governed range of engine speed:	700 rev/min to 2350 rev/min
Rated engine speed:	2200 rev/min
Air cleaner:	
Make and type:	Burgess, 3 stage paper element
Position:	Under bonnet, forward of radiator
Pre-cleaner:	
Make and type:	Burgess, stack cap with wide mesh screen
Position:	Above the bonnet, on left-hand side
Turbo-charger:	
Make and type:	None
Lubrication system:	
Type of feed and pump:	Force feed, gear pump
Type of filter:	Metal strainer in sump, purolator full flow replaceable paper element
Total oil capacity including filter:	6.3 l (11.1 pt)
Recommended oil:	S.A.E. 20W/30, viscosity 54 cSt at 50°C (122°F)
M.I.L. standard	MIL-L-2104B
Oil change period:	100/125 hours
Filter change period:	200/250 hours
Cooling system:	
Coolant:	Water
Type of pump:	Impeller
Fan diameter:	356 mm (14.0 in)
Number of fan blades:	7
Type of temperature control:	Thermostat
Coolant capacity:	8.5 l (15.0 pt)
System pressure:	69 kPa (10 lb/in^2)
Starting system:	
Make, type and model:	Lucas, electrical, M45 solenoid engaged
Starter motor power rating:	1.9 kW (2.5 hp)
Safety features:	Gear lever must be in neutral position
Cold starting aid:	Thermostart controlled by starter isolation switch

Exhaust system

Make and construction:	Burgess, oval, baffle type
Dimensions of expansion chamber:	165 mm (6.5 in) x 90 mm (3.5 in) x 410 mm (16.1 in) long
Position:	Vertical above bonnet on left-hand side

Electrical system

Voltage:	12
Earth polarity:	Negative
Make and type of generator:	Lucas 15 ACR alternator
Output:	26 A at 4600 rev/min
Make and type of battery:	Chloride type 243/6TW15L lead acid
Rating:	96 Ah at 20 hour

Transmission

Clutch:

Make and type:	Laycock, dual, dry
Diameter of plates:	Main 305 mm (12.0 in), Pto 305 mm (12.0 in)
Method of operation:	Gearbox drive - foot pedal, hydraulic Pto drive - hand lever

Gearbox:

Make and type:	Own make, sliding gear and constant mesh
Number of speeds:	12 forward, 4 reverse
Arrangement:	3 forward and 1 reverse gearbox and a 4-speed range section, synchromesh between 2nd and 3rd in main gearbox

Rear axle and final drive(s):

Make and type:	Own make, crown wheel and pinion and differential with outboard spur gear final drives
Type of differential lock and method of engagement:	Mechanical, pedal operated, self-disengaging

Transmission oils

	Gearbox and rear axle	Final drives
Recommended oil:	S.A.E. 20W/30	S.A.E. 140
Capacity:	27.0 l (47.5 pt)	1.1 l (1.9 pt) each
Viscosity at 50°C (122°F)	54 cSt	300 cSt
M.I.L. standard	MIL-L-2104B	MIL-L-2105B
Oil change period	1000 hours	1000 hours
Filter change period	500 hours	-

Gear	Number of engine revolutions for one revolution of driving wheel	Nominal travelling speed for 2200 rev/min rated engine speed,* km/h	(mile/h)
Forward			
LS1	285.7	1.86	(1.16)
LS2	172.2	3.08	(1.91)
HS1	143.2	3.71	(2.31)
L1	112.5	4.72	(2.93)
LS3	99.8	5.32	(3.31)
HS2	86.3	6.15	(3.82)
L2	67.8	7.83	(4.87)
H1	56.4	9.41	(5.85)
HS3	50.0	10.62	(6.60)
L3	39.3	13.51	(8.40)
H2	34.0	15.61	(9.70)
H3	19.7	26.94	(16.74)
Reverse			
LS	173.5	3.06	(1.90)
HS	87.0	6.10	(3.79)
L	68.3	7.77	(4.83)
H	34.2	15.52	(9.65)

*Calculated with a tyre radius index of 640 mm (25.2 in)

Power take-off

Position: At rear of tractor in vertical centre plane

Height above ground 540 rev/min: 650 mm (25.6 in), 1000 rev/min: 650 mm (25.6 in)

Distance behind rear axle 540 rev/min: 372 mm(14.6 in), 1000 rev/min: 372 mm(14.6 in)

Diameter: 34.9 mm (1.375 in)

Number of splines 540 rev/min: 6 to I.S.O. standard

1000 rev/min: 6

Proportional engine speed pto:

Method of engagement: Sliding gear and hand lever operated pto clutch

Speed at rated engine speed 540 rev/min: 650 rev/min, 1000 rev/min: 1100 rev/min

Engine speed at standard pto speed: 540 rev/min: 1828 rev/min
1000 rev/min: 2000 rev/min

Direction of rotation (viewed facing driving end): Clockwise

Proportional ground speed pto: None fitted

Belt pulley None fitted

Power lift

Make and type of pump:	David Brown, live, hydraulically balanced gear pump
Nominal working pressure:	13.8 MPa (2000 lb/in^2)
Pump drive:	Gear driven from pto clutch shaft
Oil supplied from:	Gearbox housing
Oil capacity:	27.0 l (5.9 gal)
Oil capacity available for external use:	11.4 l (2.5 gal)
Number of rams:	One internal
Type, number and position of external tapping(s):	A.S.A.E. standard female couplers, two at rear of tractor
Linkage category:	1 and 2, to I.S.O. standard
Controls:	Single lever for draught and position, top link sensing, selective response on drop

Drawbar

Type:	Swinging
Vertical height to centre of clevis:	max. 440 mm (17.3 in), min. 330 mm (13.0 in)
Changed by:	Inverting drawbar
Distance behind rear wheel centre:	550 mm (21.7 in) and 730 mm (28.7 in)
Distance behind pto:	178 mm (7.0 in) and 358 mm (14.1 in)
Lateral adjustment:	270 mm (10.6 in) and 355 mm (14.0 in)
Pivot position relative to rear wheel:	33 mm (1.3 in forward
Drawbar pin hole diameter:	26 mm (1.0 in)
Type:	Linkage
Vertical height to centre of hake bar:	max. 803 mm (31.6 in), min. 223 mm (8.8 in)
Changed by:	Position of hydraulic lift lever
Distance behind rear wheel centre:	859 mm (33.8 in)
Distance behind pto:	487 mm (19.2 in)
Lateral adjustment:	9 holes at 51 mm (2.0 in) centres
Pivot position relative to rear wheel:	84 mm (3.3 in) rearward
Drawbar pin hole diameter:	20 mm (0.8 in)

Hitch

Automatic pick-up hitch available, not fitted for test

Steering

Make and type:	Orbitrol, side mounted ram
Make and type of pump:	Hobourn-Eaton roller
Oil supplied from:	Own reservoir
Recommended oil:	Tellus 37, viscosity 24.5 cSt at 50°C (122°F)
Oil change period:	1000 hours
Filter change period:	500 hours

Brakes

Make and type:	David Brown, internal expanding drum
Position:	On spur pinion shafts
Method of operation:	Pedal, independently or combined, hydraulic
Type of parking brake:	Operates both service brakes
Method of operation:	Hand lever and cables

Wheels

Steering wheels

Make and size:	Goodyear Super Rib, 6.00-16
Type:	Cross-ply, 6 ply rating
Maximum mass on each tyre and pressure:	560 kg (1235 lb) at 330 kPa (48 lb/in^2)
Track width:	1218 mm (48 in) by 102 mm (4 in) steps to 1830 mm (72 in)
Changed by:	Extending front axle

Driving wheels:

Make and size:	Goodyear Traction Sure Grip, 12.4/11-32
Type:	Cross-ply, 6 ply rating, rim size W10 x 32
Maximum mass on each tyre and pressure:	1355 kg (2985 lb) at 170 kPa (25 lb/in^2)
Track width:	1320 mm (52 in) by 102 mm (4 in) steps to 1932 mm (76 in)
Changed by:	Reversing centres and offset lug rims

Wheelbase 1968 mm (77.5 in)

Seat

Make and type:	Grammer, upholstered pan
Suspension:	Helical spring
Damping:	Hydraulic, adjustable for driver's weight
Range of adjustment:	Longitudinal 135 mm (5.3 in)

Safety Cab

OECD Approval No.:	CSD 0217/1-h(C)
Description:	Sekura, Type S80, welded and bolted hollow section and sheet steel, anti-vibration mounts, door and mounting steps on each side, roof hatch, heating, ventilating and demisting system

Lighting

Unrestricted beam angle of headlight in plan view 80°.

	Height above ground of centre, mm	(in)	Size, mm	(in)	Distance from outside edge of tractor at 1422 mm (56 in) wheel track, to centre, mm	(in)
Headlights	790	(31.1)	155 95	(6.1)x (3.7)	815	(32.1)
Side lights	1390	(54.7)	70 20	(2.8)x (0.8)	290	(11.4)
Rear lights	1350	(53.1)	75 70	(3.0)x (2.8)	185	(7.3)
Reflectors	1350	(53.1)	65 40	(2.6)x (1.6)	120	(4.7)

Number of grease points

Whole tractor: 20

Overall dimensions

	Length, m	(in)	Width, max. m	(in)	Width, min. m	(in)	Maximum height to top of cab, m	(in)
Without ballast	3.32	(131)	2.28	(90)	1.91	(75)	2.39	(94)
With ballast	3.71	(146)	2.28	(90)	1.91	(75)	2.38	(94)

Minimum ground clearance 340 mm (13.4 in) to underside of drawbar frame

CONDITIONS DURING TEST

Masses

Tractor (without driver but with tanks full)

	Front, kg (lb)	Rear, kg (lb)	Total, kg (lb)
Without ballast	882 (1944)	1543 (3402)	2425 (5346)
With ballast	1117 (2463)	1823 (4019)	2940 (6482)

Ballast

	Number of weights	Total mass, kg (lb)	Water, kg (lb)
Front wheels	Nil	Nil	Nil
Rear wheels	8	308 (679)	Nil
Additional	6	207 (456)	Front frame and weights

Track setting during tests

Front - 1320 mm (52 in)

Rear - 1422 mm (56 in)

FUEL AND LUBRICANTS USED IN TESTS

Fuel — Diesel oil to Class D British Standard 2869:1970, specific gravity 0.8495 at 15°C (59°F), viscosity 2.64 cSt at 50°C (122°F), Cetane No. 53

Oil

Engine, transmission and power lift: Agricastrol M.P. S.A.E. 20W/30, viscosity 54 cSt at 50°C (122°F)

Final drives: S.A.E. 140, viscosity 300 cSt at 50°C (122°F)

COMPULSORY TESTS

1. MAIN POWER TAKE-OFF PERFORMANCE

Date and location of tests: 20th April 1981, NIAE, Silsoe, Bedford, UK.

Type of dynamometer: Water brake, Heenan and Froude

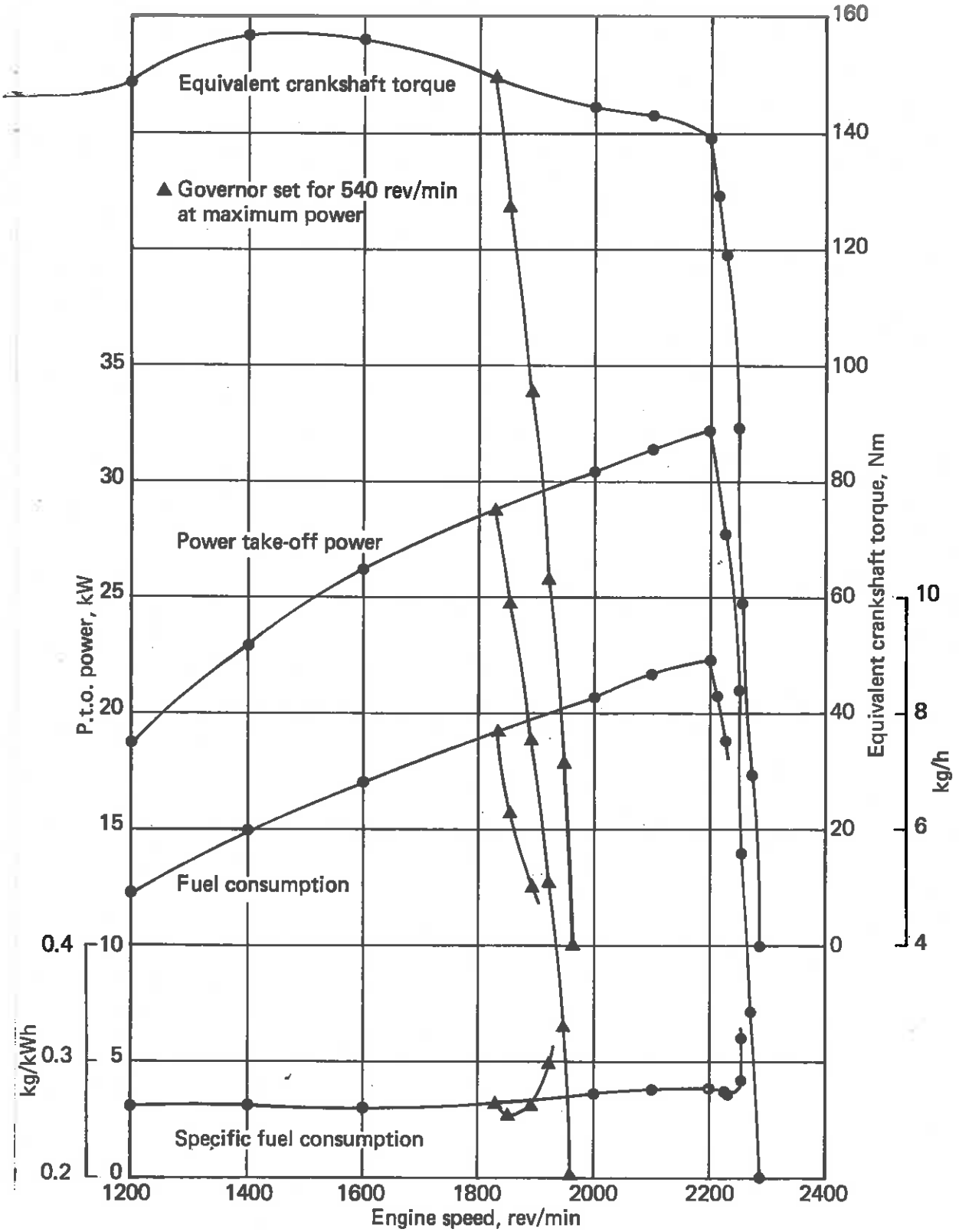
Power, kW (hp)	Speed, rev/min		Fuel consumption,			
	Engine	P.t.o.	l/h (UKgal/h)	kg/h (lb/h)	kg/kWh (lb/hph)	kWh/l (hph/UKgal)
Maximum power - 2 hour test						
32.1 (43.1)	2200	650	10.50 (2.31)	8.92 (19.67)	0.278 (0.456)	3.06 (18.7)
The speed recommended by the manufacturer for drawbar work						
32.1 (43.1)	2200	650	10.50 (2.31)	8.92 (19.67)	0.278 (0.456)	3.06 (18.7)
Part loads						
(1) 85% of the torque obtained at maximum power						
27.6 (37.1)	2226	658	8.89 (1.96)	7.55 (16.64)	0.273 (0.449)	3.11 (19.0)
(2) Unloaded						
-	2285	675	2.51 (0.55)	2.13 (4.70)	-	-
(3) 50% of the torque defined in (1)						
14.0 (18.8)	2253	666	5.27 (1.16)	4.47 (9.86)	0.320 (0.526)	2.66 (16.2)
(4) Maximum power						
32.1 (43.1)	2200	650	10.50 (2.31)	8.92 (19.67)	0.278 (0.456)	3.06 (18.7)
(5) 25% of the torque defined in (1)						
7.0 (9.4)	2267	670	3.78 (0.83)	3.21 (7.08)	0.456 (0.750)	1.86 (11.4)
(6) 75% of the torque defined in (1)						
21.0 (28.2)	2254	666	6.99 (1.54)	5.94 (13.09)	0.283 (0.465)	3.00 (18.3)

Power, kW (hp)	Speed, rev/min		Fuel consumption,			
	Engine	P.t.o.	l/h (UKgal/h)	kg/h (lb/h)	kg/kWh (lb/hph)	kWh/l (hph/UKgal)
Part loads, the governor hand lever in the position corresponding to the standard p.t.o. speed at full load (540 rev/min)						
(1) 85% of the torque obtained at maximum power						
24.7 (33.1)	1854	548	7.39 (1.63)	6.28 (13.84)	0.254 (0.418)	3.34 (20.4)
(2) Unloaded						
-	1960	579	1.94 (0.43)	1.65 (3.63)	-	-
(3) 50% of the torque defined in (1)						
12.8 (17.2)	1920	567	4.47 (0.98)	3.80 (8.38)	0.297 (0.488)	2.86 (17.4)
(4) Maximum power						
28.7 (38.4)	1828	540	8.99 (1.98)	7.64 (16.84)	0.266 (0.438)	3.19 (19.4)
(5) 25% of the torque defined in (1)						
6.5 (8.7)	1945	575	3.15 (0.69)	2.67 (5.89)	0.413 (0.678)	2.06 (12.6)
(6) 75% of the torque defined in (1)						
18.9 (25.4)	1892	559	5.86 (1.29)	4.98 (10.98)	0.263 (0.433)	3.23 (19.7)

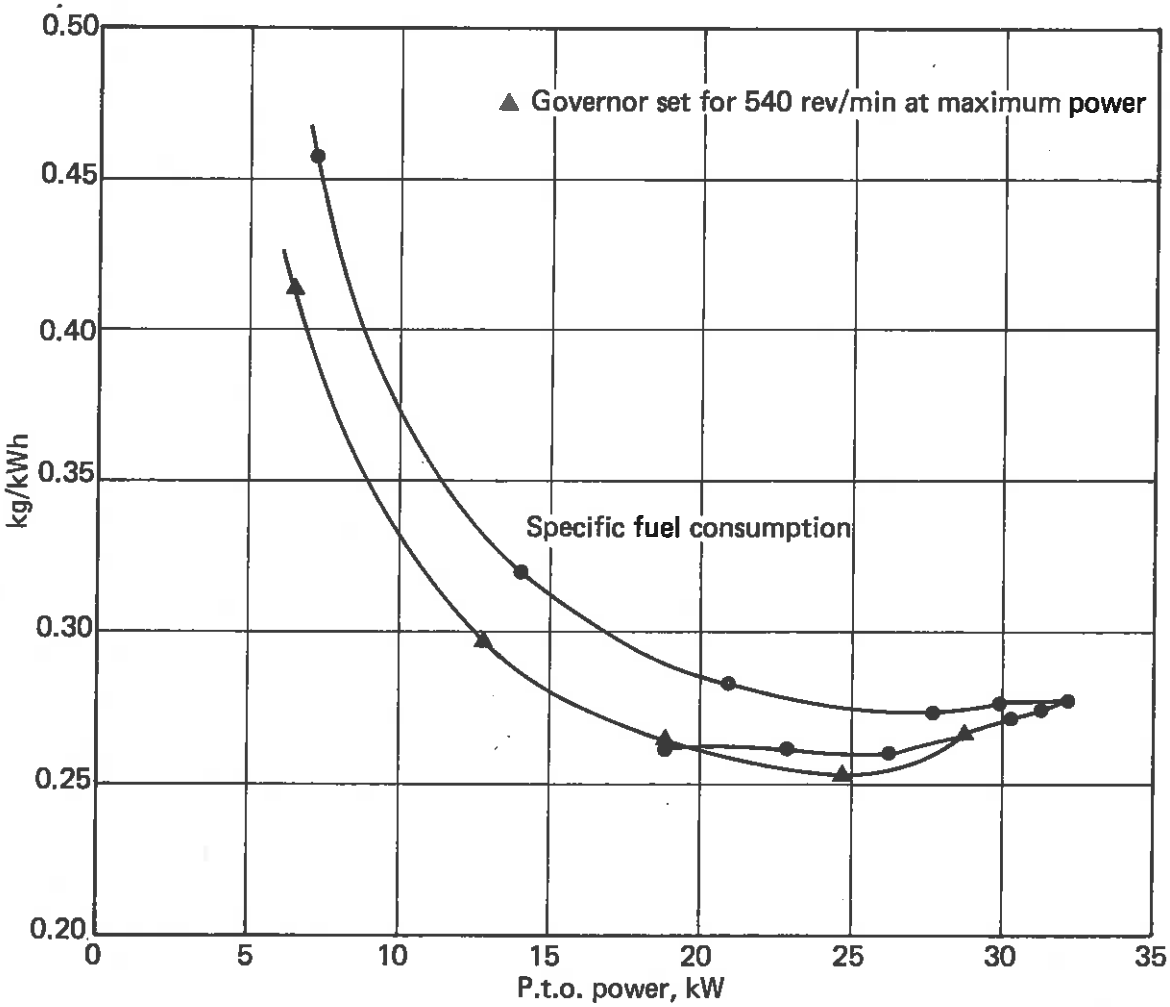
Standard specific fuel consumption, kg/kWh (lb/hph)

(a) 0.273 (0.449) (b) 0.320 (0.526) (c) 0.254 (0.418) (d) 0.297 (0.488)

No load, maximum engine speed		2285 rev/min
Equivalent crankshaft torque at maximum power		139.5 Nm (102.9 lb ft)
Maximum equivalent crankshaft torque		157.2 Nm (115.9 lb ft) at 1480 rev/min engine speed
Mean atmospheric conditions	temperature	21°C (70°F)
	pressure	1010 m bar (29.83 in Hg)
	relative humidity	66%
Maximum temperature	coolant	95°C (203°F)
	engine oil	94°C (201°F)
	fuel	28°C (82°F)
	air intake	31°C (88°F)



Power take-off test



Power take-off test

2 DRAWBAR PERFORMANCE

Date of tests: 19th August 1981 Height of drawbar above ground: Unballasted: 660 mm (26.0 in)
Type of track: Concrete Ballasted: 570 mm (22.4 in)

Gear	Speed, km/h (mile/h)	Power, kW (hp)	Drawbar pull, kN (lb)	Engine speed, rev/min	Wheel-slip, %	Specific fuel consumption, kg/kWh (lb/hph)	Specific fuel consumption, kWh/l (hph/UKgal)	Temperature, °C (°F) Fuel	Coolant	Engine oil	Atmospheric conditions Temperature, °C (°F)	Relative humidity, %	Pressure, m bar (in Hg)
(i) MAXIMUM POWER (unballasted) Tyre inflation pressure: front 228 kPa (33 lb/in^2), rear 83 kPa (12 lb/in^2)													
L1	4.02 (2.50)	*22.0 (29.5)	19.7 (4430)	2205	15.0	-	-	23 (73)	80 (176)	63 (145)	18 (64)	64	1015 (29.97)
LS3	4.39 (2.73)	*24.0 (32.2)	19.7 (4430)	2200	15.0	-	-	27 (81)	85 (185)	65 (149)	18 (64)	64	1014 (29.94)
HS2	5.28 (3.28)	25.1 (33.7)	17.1 (3840)	2200	12.5	-	-	26 (79)	82 (180)	66 (151)	18 (64)	64	1014 (29.94)
L2	7.01 (4.36)	26.1 (35.0)	13.4 (3010)	2199	9.5	-	-	27 (81)	83 (181)	69 (156)	18 (64)	64	1014 (29.94)
H1	8.57 (5.33)	26.2 (35.1)	11.0 (2470)	2185	7.6	-	-	29 (84)	87 (189)	70 (158)	18 (64)	64	1014 (29.94)
HS3	9.80 (6.09)	25.6 (34.3)	9.4 (2110)	2192	6.4	-	-	30 (86)	87 (189)	71 (160)	18 (64)	64	1013 (29.91)
(ii) MAXIMUM POWER (ballasted) Tyre inflation pressure: front 324 kPa (47 lb/in^2), rear 83 kPa (12 lb/in^2)													
LS1	1.55 (0.97)	*10.1 (13.5)	23.4 (5260)	2252	15.0	0.424 (0.692)	2.00 (12.2)	26 (79)	66 (151)	66 (151)	19 (66)	74	1028 (30.36)
LS2	2.58 (1.61)	*16.8 (22.5)	23.4 (5260)	2229	15.0	0.363 (0.597)	2.34 (14.3)	24 (75)	78 (172)	62 (144)	18 (64)	73	1028 (30.36)
HS1	3.08 (1.91)	*20.0 (26.8)	23.4 (5260)	2215	15.0	0.372 (0.612)	2.28 (13.9)	21 (70)	70 (158)	62 (144)	18 (64)	73	1028 (30.36)
L1	3.91 (2.43)	25.2 (33.8)	23.2 (5220)	2197	14.8	0.357 (0.587)	2.38 (14.5)	26 (79)	78 (172)	68 (154)	20 (68)	67	1028 (30.36)
LS3	4.55 (2.83)	25.4 (34.1)	20.1 (4520)	2198	11.9	0.357 (0.587)	2.38 (14.5)	27 (81)	77 (171)	71 (160)	21 (70)	67	1028 (30.36)
HS2	5.38 (3.34)	25.7 (34.5)	17.2 (3870)	2198	9.7	0.343 (0.564)	2.48 (15.1)	28 (82)	78 (172)	73 (163)	22 (72)	60	1028 (30.36)
L2	6.99 (4.34)	26.4 (35.4)	13.6 (3060)	2193	7.7	0.343 (0.564)	2.48 (15.1)	22 (72)	80 (176)	66 (151)	22 (72)	60	1021 (30.15)
H1	8.56 (5.32)	26.4 (35.4)	11.1 (2500)	2216	6.4	0.344 (0.566)	2.47 (15.1)	24 (75)	81 (178)	68 (154)	22 (72)	60	1021 (30.15)
HS3	9.75 (6.06)	26.0 (34.9)	9.6 (2160)	2199	5.5	0.340 (0.559)	2.50 (15.2)	24 (75)	84 (183)	65 (149)	22 (72)	60	1021 (30.15)
(iii) FIVE HOUR TEST AT 75% OF PULL AT MAXIMUM POWER													
H1	8.93 (5.55)	20.6 (27.6)	8.3 (1870)	2233	4.8	0.318 (0.523)	2.67 (16.3)	30 (86)	81 (178)	71 (160)	20 (68)	67	1022 (30.18)
⁄(iv) FIVE HOUR TEST AT PULL CORRESPONDING TO 15% WHEELSLIP IN TEST (ii)													
HS1	3.10 (1.93)	-	23.4 (5260)	2221	-	-	-	35 (95)	85 (185)	80 (176)	22 (72)	68	1025 (30.27)

Total oil consumption during ten hours duration of tests (iii) and (iv) 21.5 g/h (0.047 lb/h)

*Maximum power available at 15% wheelslip

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

3. TURNING SPACE AND TURNING CIRCLE

Details of wheel equipment: As in specification, without ballast

Track of wheels: front - 1320 mm (52 in)
rear - 1422 mm (56 in)

	With brakes		Without brakes	
	Left-hand	Right-hand	Left-hand	Right-hand
Radius of turning space, m (in)	2.87 (113)	2.87 (113)	3.19 (126)	3.26 (128)
Radius of turning circle, m (in)	2.78 (109)	2.78 (109)	3.10 (122)	3.17 (125)

4. LOCATION OF CENTRE OF GRAVITY

Height above ground, mm (in)	916 (36.1)
Distance forward from the vertical plane containing the axis of the rear wheels, mm (in)	701 (27.6)
Distance from the median plane of the tractor, mm (in)	0

5. BRAKING

Date of tests: 8th and 9th September 1981

Type of track: Concrete

Masses during brake tests

	Front, kg (lb)	Rear, kg (lb)	Total, kg (lb)
Ballasted	1489 (3283)	1691 (3728)	3180 (7011)
Unballasted	882 (1944)	1543 (3402)	2425 (5346)

Type 0 Service brakes (cold)

Travelling speed before application of brakes, 27.2 km/h (16.9 mile/h)

Ballasted	Force on brake pedal	N (lb)	100 (22)	130 (29)	160 (36)	190 (43)	220 (49)	238 (54)
	Mean deceleration	m/s^2 (ft/s^2)	1.6 (5.2)	1.9 (6.2)	2.2 (7.2)	2.4 (7.9)	2.7 (8.9)	2.9 (9.5)
Unballasted	Force on brake pedal	N (lb)	100 (22)	130 (29)	160 (36)	190 (43)	228 (51)	
	Mean deceleration	m/s^2 (ft/s^2)	1.4 (4.6)	1.9 (6.2)	2.3 (7.5)	2.8 (9.2)	3.4 (11.2)	

Type 1 Service brakes (hot)

Ballasted	Force on brake pedal	N (lb)	100 (22)	130 (29)	160 (36)	190 (43)	225 (51)	
	Mean deceleration	m/s^2 (ft/s^2)	1.7 (5.6)	2.0 (6.6)	2.2 (7.2)	2.5 (8.2)	2.7 (8.9)	

Brakes were heated by: The cycle of 20 brake applications

Comments on deviation and vibration: None

Parking brake

	Force applied on slope of 18%		Force applied on slope of 12% with trailer of 2.43 tonnes (5346 lb)	
	Up	Down	Up	Down
Pull on handbrake N (lb)	373 (84)	373 (84)	373 (84)	373 (84)

6. MEASUREMENT OF EXTERNAL NOISE LEVEL

Date of tests: 21st July 1981
Type of sound level meter: Bruel and Kjaer 2209
Type of track: Concrete
Results of tests:
Gear: H3
Travelling speed before acceleration: 21.1 km/h (13.1 mile/h)
Sound level: 86 dBA

7. NOISE MEASUREMENT AT THE DRIVER'S EAR

Date of tests: 3rd June 1981
Type of sound level meter: Bruel and Kjaer 2209
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
All openings closed with cab fitted			
*L2	12.0 (2700)	7.1 (4.4)	85
*L2	Light load	8.1 (5.0)	82
HS1	17.5 (3930)	3.3 (2.1)	86
L1	15.0 (3370)	4.2 (2.6)	86
LS3	15.0 (3370)	4.7 (2.9)	86
HS2	15.0 (3370)	5.4 (3.4)	86
HS3	8.5 (1910)	10.1 (6.3)	88
H3	Light load	28.1 (17.5)	83

*The L2 gear corresponds to the nominal travelling speed nearest to 7.5 km/h (4.7 mile/h).

8. POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

Date and location of tests: 21st and 22nd September 1981

Hydraulic fluid:

Make and type: Agricastrol M.P. S.A.E. 20W/30
Viscosity: 54 cSt at 50°C (122°F)

Type of linkage lock for transport: Mechanical

Power lift

	Height of lower hitch point above ground in down position, mm (in)	Vertical movement, mm (in)	Maximum force exerted through full range, kN (lb)	Corresponding pressure of hydraulic fluid, kPa (lb/in^2)	Moment about rear axle, kNm (lb ft)	Maximum tilt angle of mast over range of lift, degrees
At the hitch points	222 (8.7)	580 (22.8)	14.0 (3150)	15.8 (2290)	12.0 (8851)	-
On the frame	222 (8.7)	694 (27.3)	9.7 (2180)	15.8 (2290)	14.2 (10473)	11

Hydraulic pump performance

Opening pressure of the relief valve:	12.7 MPa (1840 lb/in^2)
Sustained pressure with relief valve open:	17.6 MPa (2550 lb/in^2)
Opening pressure of the unloading valve:	Not applicable
Closing pressure of the unloading valve:	Not applicable
Pump delivery rate at minimum pressure, the governor control lever set for maximum power:	29.4 l/min (6.5 gal/min)
Pressure specified by the manufacturer for an external hydraulic motor:	14.0 MPa (2030 lb/in^2)
Hydraulic power at 14.0 MPa (2030 lb/in^2):	6.2 kW (8.3 hp)
Pump delivery rate at stated power:	26.5 l/min (5.8 gal/min)
Tapping point:	From 3-way valve
Temperature of hydraulic fluid:	61°C (142°F)

Linkage geometry when connected to the standard frame, mm (in)

Projected length in side view		
Lower links	775 (30.5)	
Lift arms	210 (8.3)	
Lift rods	493 (19.4)	
Top link	529 (20.8)	
Distance of lift rod connection point from pivot point of lower link	387 (15.2)	
The following dimensions are given relative to the rear wheel centreline, situated 640 mm (25.2 in) above the ground level		
Lower link pivot point	84 (3.3) behind,	111 (4.4) below
Top link pivot point	334 (13.1) behind,	283 (11.1) above
Lift arm pivot point	24 (0.9) behind,	210 (8.3) above
Maximum and minimum height of lower link hitch points	179 (7.0) above,	401 (15.8) below
Height of lower link hitch points when locked in transport position	160 (6.3) above	

REPAIRS AND ADJUSTMENTS DURING TESTS:

A broken O ring in the hydraulic pump outlet was replaced during the performance test.

REMARKS:

None

Test carried out by: F. Thistlethwaite, P.C. Seward, J.P. Evans

Officer in charge: D.W. Smith

Signed: Head of Tractor Department

for the Director

Date: 5/2/82