OECD Approval No. 844

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

Report on test of Ford 3610 Tractor



Manufactured by Ford Motor Company Ltd.,
Basildon,
Essex.

Test No. R82/70005/OECD

Report No. 681

Date May 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:	Ford Motor Company Ltd., Basildon, Essex.
Submitted for test by:	The manufacturer
Selected for test by:	The manufacturer with the agreement of the testing station
Place of running-in:	Basildon
Duration of running-in:	160 hours

Tractor

Make:	Ford
Model:	3610
Type:	Four-wheel, rear wheel driven, unit construction
Serial No.:	B519519

Engine

Make:	Ford
Model:	3610
Type:	4-stroke, direct injection diesel
Serial No.:	C612097
Cylinders:	
Number and disposition:	3, vertical, in-line
Bore:	111.8 mm (4.4 in)
Stroke:	106.7 mm (4.2 in)
Capacity:	3142 cm^2 (192 in^3)
Compression ratio:	16.3:1 (nominal)
Arrangement of valves:	Overhead
Liners:	None, Monobloc construction
Fuel system:	
Feed system:	Gravity
Make, type and model of filter(s):	Plastic strainer in tank and C.A.V. paper element filter with sediment bowl and water trap between tank and injection pump
Tank capacity:	49.2 l (10.8 UK gal)
Make, type and model of injection pump:	Lucas C.A.V., DPA 3233 F880, 2 roller distributor
Injection pump Serial No.:	R22229XY
Manufacturer's production setting of injection pump:	Master pump $\pm$ 3%; delivery obtained from master pump during pre-test fuel checks, 11.90-12.64 cm^3 for 200 injections at 750 rev/min pump speed, using Shell calibration fluid C at 38-42°C (100-108°F), specific gravity 0.817 at 40°C (104°F), (test bench figures)

Fuel system (Cont'd)	
Make, type and model of injectors:	C.A.V., multihole, 5221917
Injection pressure:	19.4-19.9 MPa (191-196 atm)
Injection pump delivery starts:	16° before T.D.C.
Governor:	
Make and type:	C.A.V. mechanical incorporated in fuel injection pump
Governed range of engine speed:	600 rev/min to 2200 rev/min
Rated engine speed:	2000 rev/min
Air cleaner:	
Make and type:	Locker Air Maze, dry, paper element
Model:	3-stage
Oil capacity:	None
Position:	Under front hood, forward of radiator
Pre-cleaner:	
Make and type:	Ford, centrifugal
Position:	Above front hood
Turbocharger:	
Make and type:	None
Lubrication system:	
Type of feed and pump:	Force feed from eccentric rotor pump
Type of filter(s):	Metal strainer in sump, full flow replaceable paper element filter
Total oil capacity including filter:	6.6 l (11.7 pt)
Recommended oil:	S.A.E. 20W, viscosity 45 cSt at 50°C (122°F)
M.I.L. standard:	L-2104-C
Oil change period:	300 hours
Filter change period:	300 hours
Cooling system:	
Coolant:	Water and antifreeze, 50% solution
Type of pump:	Centrifugal impeller
Fan diameter:	406 mm (16.0 in)
Number of fan blades:	4
Type of temperature control:	Thermostat
Coolant capacity:	10.4 l (18.3 pt)
System pressure:	50 kPa (7 lb/in^2)
Starting system:	
Make, type and model:	Lucas electric motor M50G 12V, positive engagement, solenoid operated
Starter motor power rating:	1.8 kW (2.4 hp)

Starting system (Cont'd)

Safety features:	Only operable when gear lever is in neutral position
Cold starting aid:	C.A.V. Thermostart

Exhaust system

Make and construction:	Burgess, double chamber
Dimensions of expansion chamber:	115 mm (4.5 in) x 229 mm (9.0 in) 380 mm (15.0 in) long
Position:	Vertical above left-hand hood

Electrical system

Voltage:	12
Earth polarity:	Negative
Make and type of generator:	Lucas, 18 ACR, alternator
Output:	45 A at 6000 rev/min
Make and type of battery:	Ford, lead-acid
Rating:	120-128 Ah at 20 hour rating

Transmission

Clutch:	
Make and type:	Borg and Beck, dry, dual plate
Diameter of plates:	Main 279 mm (11.0 in), Pto 216 mm (8.5 in)
Method of operation:	2-stage pedal
Gearbox:	
Make and type:	Ford, constant mesh
Number of speeds:	8 forward and 4 reverse
Arrangement:	4 forward speeds, with synchromesh, high/low and reverse range selector
Rear axle and final drive(s):	
Make and type:	Ford, crown wheel and pinion with differential on rear axle
Type of differential lock and method of engagement:	Mechanical, pedal operated, self-disengaging
Front axle and final drive(s):	
Make and type:	Not driven

Transmission oils

	Gearbox	Rear axle*
Recommended oil: S.A.E.	80 EP	80 EP
Capacity:	9.4 l (16.5 pt)	23.3 l (41.0 pt)
Viscosity at 50°C (122°F)	54 cSt	54 cSt
M.I.L. standard	L-2105	L-2105
Oil change period	1200 hours	1200 hours
Filter change period	None	300 hours

*Includes oil supply for hydraulic lift

Gear		Number of engine revolutions for one revolution of driving wheel	Nominal travelling speed for 2000 rev/min rated engine speed* km/h	(mile/h)
Forward				
Low	1	166.51	2.90	(1.80)
	2	114.47	4.22	(2.62)
	3	78.26	6.17	(3.83)
	4	53.80	8.97	(5.57)
High	1	47.13	10.24	(6.36)
	2	32.40	14.89	(9.25)
	3	22.15	21.79	(13.54)
	4	15.23	31.68	(19.69)
Reverse				
	1	128.91	3.74	(2.32)
	2	88.62	5.45	(3.39)
	3	60.59	7.96	(4.95)
	4	41.65	11.59	(7.20)

*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:	534 mm (21.0 in)
Distance behind rear axle:	305 mm (12.0 in)
Diameter:	34.9 mm (1.375 in)
Number of splines:	6 to I.S.O. standard
Proportional engine speed pto:	
Method of engagement:	Through second plate of clutch selected by hand lever
Speed at rated engine speed:	600 rev/min
Engine speed at standard pto speed of 540 rev/min:	1800 rev/min
Direction of rotation (viewed facing driving end):	Clockwise

Belt pulley — None fitted

Power lift

Make and type of pump:	Sundstrand, live, gear
Nominal working pressure:	13.8 MPa (2000 lb/in^2)
Pump drive:	From engine camshaft
Oil supplied from:	Rear axle housing
Oil capacity:	23.3 l (41.0 pt)
Oil capacity available for external use:	6.8 l (12.0 pt) with tractor horizontal
Permissible additional fill for external use:	22.7 l (40.0 pt)
Number of rams:	1 internal
Type, number and position of external tapping(s):	One, from top of auxiliary service control valve
Linkage category:	1, to I.S.O. Standard
Controls:	Draught or position control with auxiliary service control and flow control device, with top link sensing

Drawbar

Type:	Swinging
Vertical height to centre of clevis:	max. 401 mm (15.6 in), min. 383 mm (15.1 in)
Changed by:	Inverting drawbar
Distance behind rear axle centre:	508 mm (20.0 in) and 660 mm (26.0 in)
Distance behind pto:	203 mm (8.0 in) and 355 mm (14.0 in)
Lateral adjustment:	356 mm (14.0 in) and 457 mm (18.0 in)
Pivot position relative to rear axle:	51 mm (2.0 in) forward
Drawbar pin hole diameter:	27 mm (1.1 in)
Type:	Linkage
Vertical height to centre of hake bar:	max. 924 mm (36.4 in), min. 309 mm (12.2 in)
Changed by:	Position of hydraulic lift linkage
Dimensions with lower links horizontal:	
Distance behind rear axle centre:	781 mm (30.7 in)
Distance behind pto:	476 mm (18.7 in)
Lateral adjustment:	510 mm (20.1 in)
Pivot position relative to rear axle:	19 mm (0.7 in) forward
Drawbar pin hole diameter and number:	20 mm (0.8 in); 9

Hitch

Type and position:	Rear, automatic pick-up hitch, adjustable height rear tow hook available, not fitted for test

Steering

Make and type:	Cam Gears, recirculating ball type with double drop arms and drag links
Make and type of pump:	None

Brakes

Make and type:	Girling internal expanding shoe and drum
Position:	On rear axle
Method of operation:	Independent or combined pedal, mechanical linkage
Type of parking brake:	Mechanical linkage coupled to both serivce brakes
Method of operation:	Hand-lever with ratchet

Wheels

Steering wheels:

Make and size:	Goodyear Super Rib Tractor, 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:	1230 mm (48 in) by 102 mm (4.0 in) steps to 2046 mm (80 in)
Changed by:	Extending axle and reversing wheels

Driving wheels:

Make and size:	Kleber Super 50, 12.4-32
Type:	Radial-ply, 6 ply rating, rim size W11
Maximum mass on each tyre and pressure:	1355 kg (2925 lb) at 170 kPa (25 lb/in^2)
Track width:	1236 mm (49 in) by 102 mm (4.0 in) steps to 1950 mm (77 in)
Changed by:	Reversing wheels and off-set lug rims

Wheelbase — 1925 mm (75.8 in)

Safety Cab — None

Lighting

Unrestricted beam angle of headlight in plan view 130°

	Height above ground of centre, mm (in)	Size, mm (in)	Distance from outside edge of tractor at 1338 mm (53 in) wheel track, to centre, mm (in)
Headlights	800 (31.5)	102 (4.0) dia	668 (26.3)
Side lights	1375 (54.1)	70 (2.8) x 70 (2.8)	270 (10.6)
Rear lights	1370 (53.9)	70 (2.8) x 70 (2.8)	245 (9.6)
Reflectors	1300 (51.2)	180 (7.1) x 40 (1.6)	202 (8.0)

Number of grease points

Whole tractor: 13

Overall dimensions

	Length, m (in)	Width, max. m (in)	Width, min. m (in)	Maximum height to top of exhaust, m (in)
Without ballast	3.25 (128)	2.25 (89)	1.64 (65)	2.29 (90)
With ballast	3.25 (128)	2.25 (89)	1.64 (65)	2.28 (90)

Minimum ground clearance: 315 mm (12.4 in) to underside of drawbar frame

Seat

Make and type: Sifra, upholstered pan

Suspension: Torsion coupling, adjustable for driver's weight

Damping: Rubber plug

Range of adjustment: Longitudinal 38 mm (1.5 in)

Vertical None

CONDITIONS DURING TEST

Details of wheel equipment - As in specification

Masses

Tractor (without driver but with tanks full)

	Front, kg (lb)	Rear, kg (lb)	Total, kg (lb)
Without ballast	749 (1651)	1098 (2421)	1847 (4072)
With ballast	749 (1651)	1460 (3219)	2209 (4870)

Ballast

	Number of weights	Total mass, kg (lb)	Water, kg (lb)
Front wheels	Nil	Nil	Nil
Rear wheels	Nil	Nil	362 (798)
Additional	-	-	-

Track setting during tests

Front - 1332 mm (52 in)

Rear - 1338 mm (53 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

Oils

Engine: Ford, M2C-121A, S.A.E. 20W, viscosity 45 cSt at 50°C (122°F)

Gearbox: Ford, M2C-85A, S.A.E. 80EP, viscosity 54 cSt at 50°C (122°F)

Rear axle and hydraulics: Ford, M2C-85A, S.A.E. 80EP, viscosity 54 cSt at 50°C (122°F)

COMPULSORY TESTS

1. MAIN POWER TAKE-OFF PERFORMANCE

Date and location of tests: 25th January, 1982, NIAE, Silsoe, Beford, UK

Type of dynamometer: Water brake, Heenan and Froude

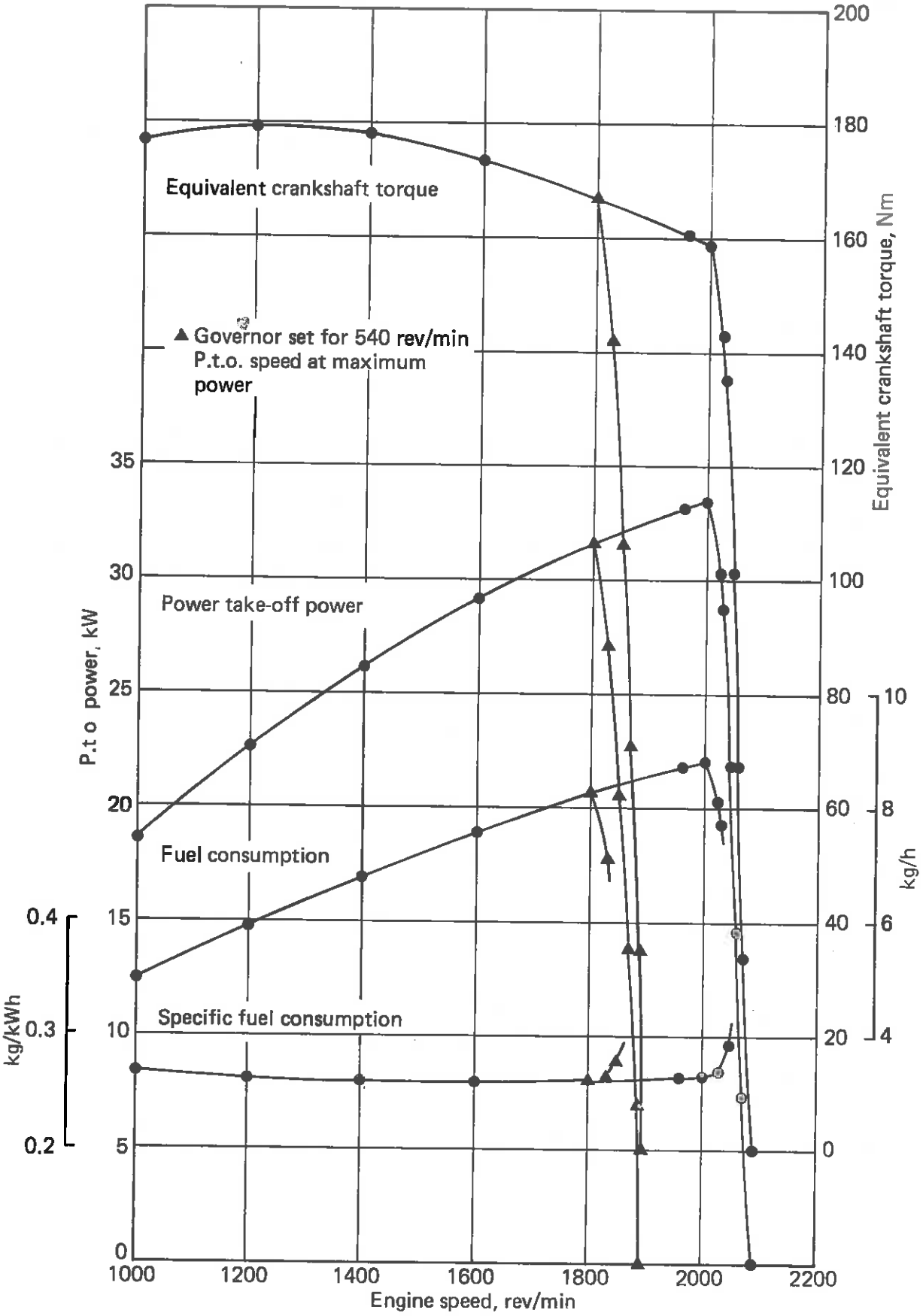
Power, kW (hp)	Speed, rev/min		Fuel consumption,			
	Engine	P.t.o.	l/h (UKgal/h)	kg/h (lb/h)	kg/kWh (lb/hph)	kWh/l (hph/UKgal)
Maximum power - 2 hour test						
33.4 (44.7)	2000	600	10.37 (2.28)	8.81 (19.41)	0.264 (0.434)	3.22 (19.6)
The speed recommended by the manufacturer for drawbar work						
33.4 (44.7)	2000	600	10.37 (2.28)	8.81 (19.41)	0.264 (0.434)	3.22 (19.6)
Part loads						
(1) 85% of the torque obtained at maximum power						
28.8 (38.6)	2031	609	9.11 (2.00)	7.73 (17.05)	0.269 (0.442)	3.16 (19.3)
(2) Unloaded						
-	2090	627	3.01 (0.66)	2.52 (5.56)	-	-
(3) 50% of the torque defined in (1)						
14.6 (19.6)	2059	618	5.58 (1.23)	4.74 (10.44)	0.325 (0.534)	2.62 (15.9)
(4) Maximum power						
33.4 (44.7)	2000	600	10.37 (2.28)	8.81 (19.41)	0.264 (0.434)	3.22 (19.6)
(5) 25% of the torque defined in (1)						
7.4 (9.9)	2073	622	3.67 (0.81)	3.12 (6.87)	0.424 (0.697)	2.00 (12.2)
(6) 75% of the torque defined in (1)						
21.8 (29.2)	2047	614	7.45 (1.64)	6.33 (13.96)	0.291 (0.478)	2.92 (17.8)

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						
27.2 (36.5)	1831	549	8.40 (1.85)	7.14 (15.74)	0.262 (0.431)	3.24 (19.8)
(2) Unloaded						
-	1893	568	2.21 (0.49)	1.85 (4.08)	-	-
(3) 50% of the torque defined in (1)						
13.9 (18.7)	1868	560	5.25 (1.15)	4.46 (9.83)	0.320 (0.527)	2.65 (16.2)
(4) Maximum power						
31.5 (42.3)	1800	540	9.74 (2.14)	8.27 (18.24)	0.262 (0.431)	3.24 (19.7)
(5) 25% of the torque defined in (1)						
7.0 (9.4)	1888	566	3.53 (0.78)	3.00 (6.61)	0.427 (0.702)	1.99 (12.1)
(6) 75% of the torque defined in (1)						
20.7 (27.7)	1849	555	6.75 (1.49)	5.74 (12.64)	0.278 (0.457)	3.06 (18.6)

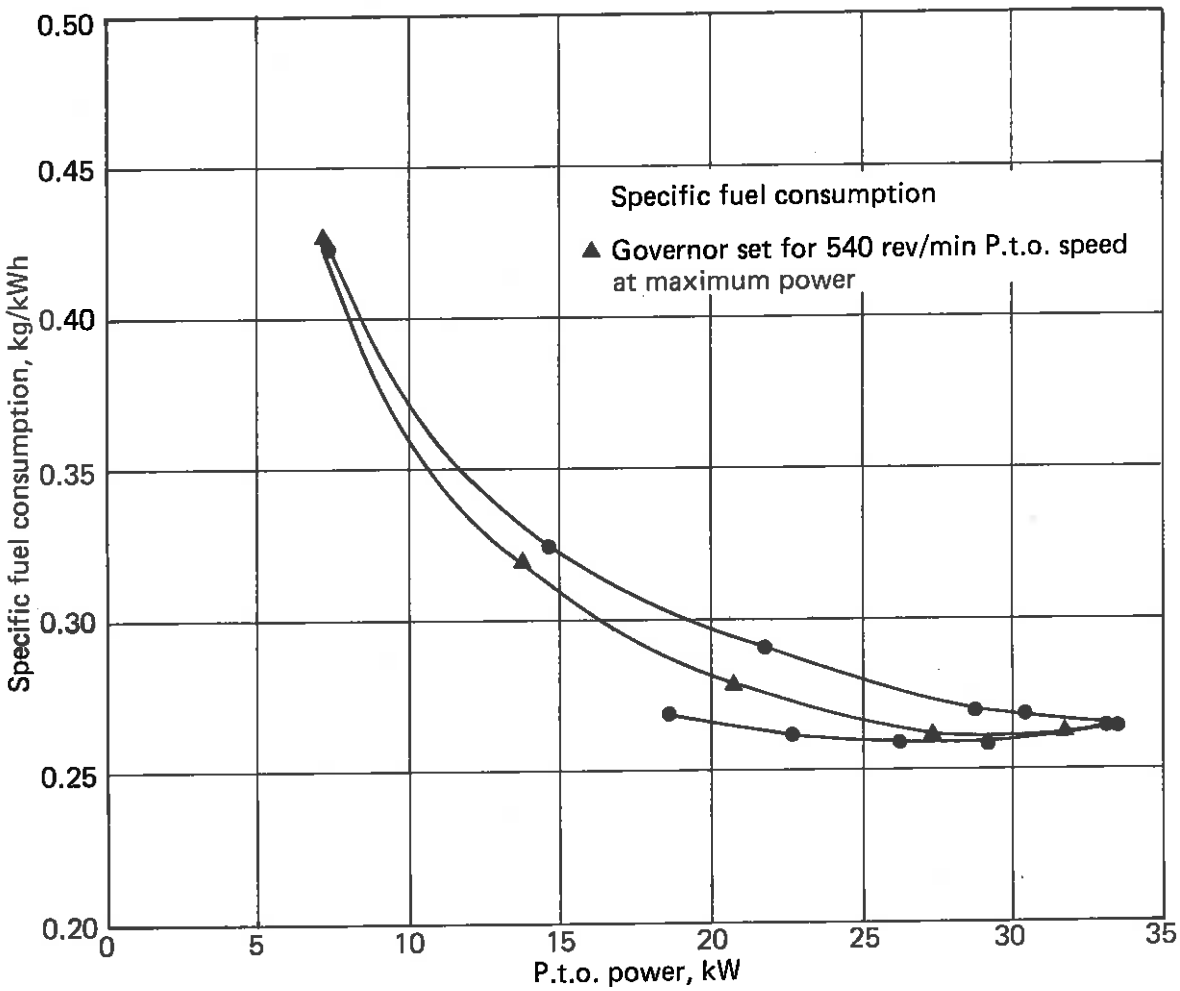
Standard specific fuel consumption, kg/kWh (lb/hph)

(a) 0.269 (0.442) (b) 0.325 (0.534) (c) 0.262 (0.431) (d) 0.320 (0.527)

No load, maximum engine speed		2090 rev/min
Equivalent crankshaft torque at maximum power		159.3 Nm (117.5 lb ft)
Maximum equivalent crankshaft torque		179.5 Nm (132.4 lb ft) at 1240 rev/min engine speed
Mean atmospheric conditions	temperature	21°C (70°F)
	pressure	1017 m bar (30.03 in Hg)
	relative humidity	52%
Maximum temperature	coolant	90°C (194°F)
	engine oil	101°C (214°F)
	fuel	49°C (120°F)
	air intake	25°C (77°F)



Power take-off test



Power take-off test

2 DRAWBAR PERFORMANCE

Date of tests: March 1982
Type of track: Concrete

Height of drawbar above ground: Unballasted: 580 mm (22.8 in)
Ballasted: 505 mm (19.9 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/lKgal)	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 180 kPa (26 lb/in^2), rear 80 kPa (12 lb/in^2)													
L2	3.65 (2.27)	*17.4 (23.3)	17.3 (3890)	2047	15.0	-	-	24 (76)	75 (167)	80 (176)	7 (45)	58	1011 (29.88)
L3	5.29 (3.29)	*25.4 (34.0)	17.3 (3890)	2025	15.0	-	-	28 (83)	74 (165)	82 (180)	8 (47)	58	1014 (29.95)
L4	8.24 (5.12)	28.8 (38.7)	12.6 (2830)	2003	7.4	-	-	29 (84)	75 (167)	85 (185)	7 (45)	52	1034 (30.55)
H1	9.55 (5.93)	28.8 (38.6)	10.9 (2440)	2009	6.1	-	-	26 (78)	73 (163)	81 (179)	7 (45)	60	1034 (30.55)
H2	14.13 (8.78)	29.4 (39.5)	7.5 (1680)	2007	4.4	-	-	32 (91)	76 (169)	88 (191)	9 (49)	42	1033 (30.53)
(ii) MAXIMUM POWER (ballasted) Tyre inflation pressure: front 180 kPa (26 lb/in^2), rear 80 kPa (12 lb/in^2)													
L1	2.48 (1.54)	*14.1 (19.0)	20.5 (4600)	2055	15.0	0.397 (0.653)	2.14 (13.1)	26 (78)	71 (161)	82 (180)	6 (43)	70	1009 (29.82)
L2	3.61 (2.25)	*20.5 (27.5)	20.5 (4600)	2041	15.0	0.350 (0.576)	2.43 (14.8)	25 (77)	73 (164)	83 (181)	6 (43)	70	1010 (29.83)
L3	5.51 (3.43)	27.8 (37.3)	18.1 (4070)	2005	9.8	0.324 (0.532)	2.63 (16.0)	28 (83)	75 (167)	85 (186)	6 (43)	67	1009 (29.82)
L4	8.37 (5.20)	28.8 (38.6)	12.4 (2780)	2000	5.4	0.305 (0.501)	2.79 (17.0)	31 (87)	76 (169)	89 (193)	7 (45)	69	1009 (29.82)
H1	9.65 (6.00)	28.9 (38.7)	10.8 (2420)	2003	4.5	0.308 (0.506)	2.76 (16.8)	29 (84)	76 (169)	81 (179)	8 (47)	61	1007 (29.76)
H2	14.25 (8.85)	29.0 (38.9)	7.3 (1640)	2006	3.3	0.309 (0.509)	2.75 (16.8)	29 (84)	75 (167)	86 (188)	8 (47)	62	1007 (29.76)
(iii) FIVE HOUR TEST AT 75% OF PULL AT MAXIMUM POWER													
H1	9.93 (6.17)	22.3 (29.9)	8.1 (1810)	2037	3.7	0.326 (0.537)	2.60 (15.9)	27 (81)	73 (164)	85 (185)	7 (45)	53	1008 (29.78)
+(iv) FIVE HOUR TEST AT PULL CORRESPONDING TO 15% WHEELSLIP IN TEST (ii)													
L2	3.87 (2.40)	-	20.5 (4600)	2035	-	-	-	28 (83)	73 (164)	87 (189)	6 (43)	68	1000 (29.54)

Total oil consumption during ten hours duration of tests (iii) and (iv) 24.5 g/h (0.054 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 - 1332 mm (52 in)
rear - 1338 mm (53 in)

	With brakes		Without brakes	
	Left-hand	Right-hand	Left-hand	Right-hand
Radius of turning space, m (in)	3.07 (121)	2.91 (115)	3.36 (132)	3.20 (126)
Radius of turning circle, m (in)	2.97 (117)	2.81 (111)	3.26 (128)	3.10 (122)

4. LOCATION OF CENTRE OF GRAVITY

Height above ground, mm (in)	715 (28.1)
Distance forward from the vertical plane containing the axis of the rear wheels, mm (in)	764 (30.1)
Distance from the median plane of the tractor, mm (in)	0

5. BRAKING

Date of tests: 21st and 24th May 1982

Type of track: Concrete

Conditions during brake tests

Masses:

	Front, kg	(lb)	Rear, kg	(lb)	Total, kg	(lb)
Ballasted	1484	(3272)	1650	(3637)	3134	(6909)
Unballasted	749	(1651)	1098	(2421)	1847	(4072)

Tyres:

Front: 7.50-16, 6 ply rating. Maximum permissible mass on each tyre 745 kg (1640 lb) at 276 kPa (40 lb/in^2)

Rear: 12.4-32, 6 ply rating. Maximum permissible mass on each tyre 1355 kg (2925 lb) at 170 kPa (25 lb/in^2)

Type 0 Service brakes (cold)

Travelling speed before application of brakes, 32.3 km/h (20.1 mile/h)

Ballasted	Force on brake pedal	N (lb)	80 (18)	120 (27)	160 (36)	200 (45)	240 (54)	280 (63)	310 (70)
	Mean deceleration	m/s^2 (ft/s^2)	0.6 (2.0)	1.2 (3.9)	1.7 (5.6)	2.3 (7.5)	2.8 (9.2)	3.4 (11.2)	3.8 (12.5)
Unballasted	Force on brake pedal	N (lb)	60 (13)	100 (22)	140 (31)	180 (40)	220 (49)	260 (58)	270 (61)
	Mean deceleration	m/s^2 (ft/s^2)	0.9 (3.0)	1.6 (5.2)	2.2 (7.2)	2.8 (9.2)	3.5 (11.5)	4.1 (13.5)	4.3 (14.1)

Type 1 Service brakes (hot)

Ballasted	Force on brake pedal	N (lb)	70 (16)	120 (27)	170 (38)	220 (49)	270 (61)	320 (72)	370 (83)
	Mean deceleration	m/s^2 (ft/s^2)	0.6 (2.0)	1.1 (3.6)	1.6 (5.2)	2.2 (7.2)	2.7 (8.9)	3.2 (10.5)	3.7 (12.1)

Brakes were heated by: Towing

Comments on deviation and vibration: None

Parking brake

		Force applied on slope of 18%		Force applied on slope of 12% with trailer of 1.85 tonnes (4072 lb)	
		Up	Down	Up Up	Down
Pull on handbrake	N (lb)	340 (76)	340 (76)	340 (76)	340 (76)

6. MEASUREMENT OF EXTERNAL NOISE LEVEL

Date of tests: 7th May 1982
Type of sound level meter: Bruel and Kjaer 2209
Type of track: Concrete
Results of tests:
Gear: H4
Travelling speed before acceleration: 24.2 km/h (15.0 mile/h)
Sound level: 86 dBA

7. NOISE MEASUREMENT AT THE DRIVER'S EAR

Date of tests: 4th March 1982
Type of sound level meter: Bruel and Kjaer 2209
Type of track: Concrete
Cab fitted: No

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			
*L3	18.0 (4050)	5.6 (3.5)	95
*L3	Light load	6.4 (4.0)	89
H4	Light load	32.3 (20.1)	94

*The L3 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 of tests: 5th May 1982

Hydraulic fluid:

Make and type: Ford, M2C 85A
Viscosity: 54 cSt at 50°C (122°F)

Type of linkage lock for transport: Hydraulic

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, MPa (lb/in^2)	Moment about rear axle, kNm (lb ft)	Maximum tilt angle of mast over range of lift, degrees
At the hitch points	309 (12.2)	615 (24.2)	8.5 (1910)	15.8 (2290)	6.6 (4868)	-
On the frame	309 (12.2)	740 (29.1)	7.5 (1690)	15.8 (2290)	10.4 (7671)	14

Hydraulic pump performance

Opening pressure of the relief valve:	15.0 MPa (2180 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:	27.4 l/min (6.0 gal/min)
Pressure specified by the manufacturer for an external hydraulic motor:	13.8 MPa (2000 lb/in^2)
Hydraulic power at 13.8 MPa (2000 lb/in^2)	6.0 kW (8.0 hp)
Pump delivery rate at stated power:	26.0 l/min (5.7 gal/min)
Tapping point:	Auxiliary service connection
Temperature of hydraulic fluid:	65°C(149°F)

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

Projected length in side view			
Lower links	800	(31.5)	
Lift arms	229	(9.0)	
Lift rods	564	(22.2)	
Top link	634	(25.0)	
Distance of lift rod connection point from pivot point of lower link	436	(17.2)	
The following dimensions are given relative to the rear wheel centre line, situated 640 mm (25.2 in) above the ground level			
Lower link pivot point	19 (0.7)	forward,	106 (4.2) below
Top link pivot point	153 (6.0)	behind,	270 (10.6) above
Lift arm pivot point	203 (8.0)	forward,	228 (9.0) above
Maximum and minimum height of lower link hitch points	284 (11.2)	above,	331 (13.0) below
Height of lower link hitch points when locked in transport position	Any height within the lift range		

REPAIRS AND ADJUSTMENTS DURING TESTS: None

REMARKS: None

Test carried out by: F. Thistlethwaite, J.P. Evans, P.A. Pope

Signed: D.W Smith Head of Tractor Test Section

for the Director

Date: 26th May 1982