OECD Approval No. 675

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

Report on test of Leyland 262SQM Tractor



Manufactured by	Leyland Vehicles Limited, Medium and Light Vehicle Division, Bathgate, West Lothian, Scotland.
Test No.	R79/2/7245/O.E.C.D.
Report No.	667
Date	November 1979.

THE BRITISH SOCIETY FOR RESEARCH IN AGRICULTURAL ENGINEERING

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SPECIFICATION OF TRACTOR

Manufacturer:	Leyland Vehicles Limited, Medium and Light Vehicle Division, Bathgate, West Lothian, Scotland
Submitted for test by:	The manufacturer
Selected for test by:	The manufacturer with the agreement of the testing station
Place of running-in:	Leyland Vehicles Factory, Bathgate
Duration of running-in:	50 hours

Tractor

Make:	Leyland
Model:	262SQM
Type:	Four wheel, rear wheel driven, unit construction
Serial No.:	262SQM/308250/Z 216719

Engine

Make:	Leyland
Model:	498 DT
Type:	4-stroke, direct injection diesel
Serial No.:	4 98DT 1679 8620
Cylinders:	4 cylinders, vertical, in-line, 98 mm (3.9 in) dia bore x 125 mm (4.9 in) stroke, capacity 3771 cm^3 (230 in^3), compression ratio 17.8:1 (nominal), replaceable wet cylinder liners, overhead valves
Fuel System:	A.C.Delco mechanical fuel feed pump with hand primer, C.A.V. paper element filter with sediment bowl on pressure side of feed pump; fuel tank capacity 68.2 l (15.0 UK gal); C.A.V. distributor type DPA 3342F300 injection pump, Serial No. R11890XT, manufacturer's production setting 13.5-14.3 l/h (23.8-25.2 pt/h) with fuel temperature of 15°C-20°C (59°F-68°F) at 2200 rev/min engine speed using fuel of 0.844 specific gravity at 15°C (59°F); C.A.V. type BDLL 150S 6582 injector nozzles, injection pressure 17.73 MPa (175 atm), pump delivery starts 12° before T.D.C.

Governor:	C.A.V. mechanical, incorporated in fuel injection pump, governed range of engine speed 600 to 2330 rev/min, rated engine speed 2200 rev/min
Air cleaner:	Burgess, 2-stage dry paper element filter, situated under bonnet forward of radiator, centrifugal pre-cleaner in cleaner body
Lubrication system:	Forced feed from eccentric rotor type pump with metal strainer in sump, Purolator replaceable paper element full flow filter, total oil capacity 9.7 l (17.1 pt), recommended oil S.A.E.20W/30, viscosity 54 cSt at 50 °C (122 °F), oil change period 200 hours, filter change period 400 hours
Cooling System:	Water cooled, pressurised at 28 kPa (4 lb/in^2), impeller assisted, 413 mm (16.3 in) dia 4-blade belt driven fan, thermostat for temperature control, cooling water capacity 13.6 l (24.0 pt)
Starting system:	Electrical, Lucas M50 G solenoid operated starter motor rating 5.6 kW at 2200 rev/min, operable only with gear selector lever in neutral position, manually operated retarding device on fuel injection pump for cold starting
Exhaust:	Chilcott, single chamber silencer 95 mm (3.7 in) dia x 1216 mm (47.9 in) long, vertical on left-hand side.

Electrical system

Voltage:	12, negative earth
Generator:	Lucas 17 ACR alternator, 36 A max output at 6000 rev/min.
Battery:	Lucas ATV 17T, lead-acid, 110 Ah at 20 hour rating

Transmission

Clutch:	Borg and Beck, dual, dry, 280 mm (11.0 in) dia plates, one hydraulically actuated by a pedal for gearbox drive, the other mechanically actuated by hand-lever for p.t.o. drive.

Gearbox: Own make, constant mesh, 9 forward and 3 reverse speeds, comprising 3 forward and 1 reverse speed gearbox with high, medium and low range selector, synchromesh operating in all gears.

Rear axle and final drives: Own make, crown wheel and pinion and differential and spur gear final drives, pedal operated self-disengaging differential lock

Oil capacities: Gearbox and transmission housing 59.3 l (104.4 pt), recommended oil S.A.E. 20W/30, viscosity 54 cSt at 50 °C (122 °F), oil change period 1200 hours, filter change period 400 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			
L1	176.58	3.26	(2.03)
L2	139.23	4.14	(2.57)
L3	102.69	5.61	(3.49)
M1	77.44	7.44	(4.62)
M2	61.06	9.44	(5.87)
M3	45.04	12.80	(7.96)
H1	32.52	17.73	(11.02)
H2	25.64	22.48	(13.97)
H3	18.91	30.48	(18.94)
Reverse			
L1	120.67	4.78	(2.97)
M1	52.92	10.89	(6.77)
H1	22.22	25.94	(16.12)

*Calculated with a tyre rolling radius of 695 mm (27.4 in)

Power take-off: At rear of tractor in vertical centre plane, height above ground 747 mm (29.4 in), distance behind rear axle centre 548 mm (21.6 in), 6-spline, 34.9 mm (1 3/8 in) dia to I.S.O. Standard, independent of main clutch, engaged by hand-lever operating second

plate of clutch, proportional engine speed giving 655 rev/min at 2200 rev/min rated engine speed, 540 rev/min (standard p.t.o. speed) at 1813 rev/min engine speed, direction of rotation clockwise viewed facing driving end

Power lift

Own make, hydraulic, Plessey double chamber gear pump, driven from rearward end of p.t.o. shaft, independent of main clutch, operated with or independent from the p.t.o. by selector lever; oil supplied from transmission housing to ram cylinder and external tapping. Category 2 implement linkage with top link sensing, draught and position control

Drawbar

Swinging drawbar, vertical height to centre of clevis 315 mm (12.4 in) and 496 mm (19.5 in), changed by inverting drawbar, distance behind rear axle centre 627 mm (24.7 in), distance behind p.t.o. 79 mm (3.1 in), lateral adjustment 363 mm (14.3 in), pivot position 212 mm (8.3 in) to rear of rear wheel centre, drawbar pin hole 23 mm (0.9 in) dia

Steering

Danfoss hydrostatic, incorporating manual control for emergency, oil supplied from Plessey type C10 gear pump with integral reservoir

Brakes

Girling, multi-disc, dry, on high speed final drive pinion shafts, operated hydraulically by pedals either independently or combined, both brakes operated mechanically by a hand-lever with ratchet for parking

Wheels

Steering wheels:

Two at front, Dunlop T81 7.50-16 cross-ply tyres, 8-ply rating, maximum permissible mass on each tyre 870 kg (1918 lb) at 370 kPa (54 lb/in^2), track width 1320 mm (52.0 in) by 51 mm (2.0 in) steps to 1932 mm (76.0 in), changed by extending axle and reversing wheels

Driving wheels:

Two at rear, Kleber Super 50 16.9/14-30 radial-ply tyres, 6-ply rating, maximum permissible mass on each tyre 1900 kg (4189 lb) at 131 kPa (19 lb/in^2), track width 1575 mm (62.0 in) and 1778 mm (70.0 in), changed by reversing wheels

Wheelbase: 2032 mm (80.0 in)

Seat — Bostrom Angus with R.S. suspension, upholstered pan, adjustable torsion spring suspension with hydraulic damping, range of adjustment 143 mm (5.6 in) forwards and backwards, 110 mm (4.3 in) vertical

Safety Cab (CS 1384 c, d) — Leyland, welded and bolted hollow section and sheet steel, anti-vibration mounts, door and mounting step on each side, heating, ventilating and demisting system

Lighting

Unrestricted beam angle of headlight in plan view 160 °

	Height above ground of centre mm	(in)	Size, mm	(in)	Distance from outside edge of tractor at 1575 mm (62.0 in) wheel track to centre, mm	(in)
Headlights	1090	(42.9)	127	(5.0)dia	838	(33.0)
Side lights	1545	(60.8)	90 x 70	(3.5) x (2.8)	368	(14.5)
Rear lights	1445	(56.9)	65 x 70	(2.6) x (2.8)	365	(14.4)
Reflectors	1445	(56.9)	55 x 70	(2.2) x (2.8)	305	(12.0)

Number of grease points

Whole tractor: 11

CONDITIONS DURING TEST

Masses

Tractor (without driver but with tanks full)

	Front, kg (lb)	Rear, kg (lb)	Total, kg (lb)
Without ballast	1095 (2414)	1955 (4310)	3050 (6724)
With ballast	1413 (3115)	3651 (8049)	5064 (11164)

Ballast

	Number of weights	Total mass, kg (lb)	Water, kg (lb)
Front wheels	Nil	Nil	Nil
Rear wheels	24	1104 (2434)	661 (1457)
Additional	8	249 (549)	Front frame weights

Track setting during tests

Front - 1320 mm (52.0 in)

Rear - 1575 mm (62.0 in)

Overall dimensions

	Length, m (in)	Width, m (in)	Height, To top of exhaust pipe, m (in)	Height, To top of cab, m (in)
With ballast	3.88 (152.8)	2.64 (103.9)	2.54 (100.0)	2.48 (97.6)
Without ballast	3.73 (146.9)	2.00 (78.7)	2.54 (100.0)	2.48 (97.6)

Minimum ground clearance 377 mm (14.8 in) to underside of drawbar frame

FUEL AND LUBRICANTS USED IN TESTS

Fuel	Diesel oil to Class A2 British Standard 2869:1970, specific gravity 0.849 at 15.6 °C (60 °F), viscosity 2.90 cSt at 50 °C (122 °F), Cetane No. 55.0
Oil	
Engine:	Agricastrol M.P. S.A.E. 20W/30, viscosity 54 cSt at 50 °C (122 °F)
Transmission:	Agricastrol M.P. S.A.E. 20W/30, viscosity 54 cSt at 50 °C (122 °F)

COMPULSORY TESTS

1. MAIN POWER TAKE-OFF PERFORMANCE

Date and location of tests: 24th January 1979, N.I.A.E., Silsoe, Bedford, U.K.

Type of dynamometer: Water brake, Heenan and Froude

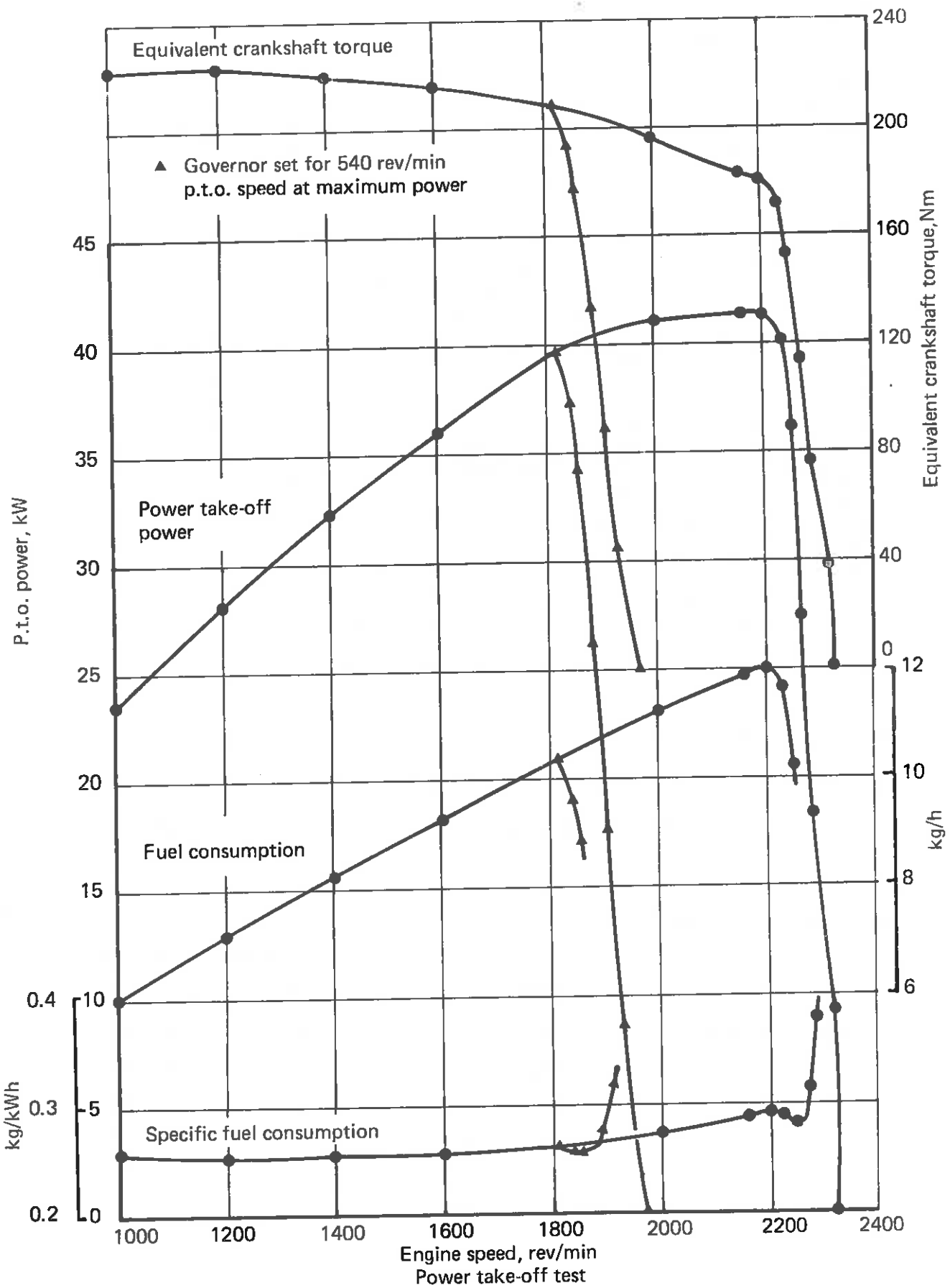
Power, kW (hp)	Speed, rev/min		Fuel consumption,			
	Engine	P.t.o.	l/h (UKgal/h)	kg/h (lb/h)	kg/kWh (lb/hph)	kWh/l (hph/UKgal)
Maximum power - 2 hour test						
41.5 (55.7)	2200	655	14.28 (3.14)	12.12 (26.72)	0.292 (0.480)	2.91 (17.7)
The speed recommended by the manufacturer for drawbar work						
41.5 (55.7)	2200	655	14.28 (3.14)	12.12 (26.72)	0.292 (0.480)	2.91 (17.7)
Part loads						
(1) 85% of the torque obtained at maximum power						
36.0 (48.3)	2249	670	12.04 (2.65)	10.22 (22.53)	0.284 (0.467)	2.99 (18.2)
(2) Unloaded						
0	2326	693	4.51 (0.99)	3.83 (8.44)	-	-
(3) 50% of the torque defined in (1)						
18.3 (24.5)	2286	681	8.17 (1.80)	6.94 (15.30)	0.379 (0.623)	2.24 (13.7)
(4) Maximum power						
41.5 (55.7)	2200	655	14.28 (3.14)	12.12 (26.72)	0.292 (0.480)	2.91 (17.7)
(5) 25% of the torque defined in (1)						
9.3 (12.5)	2320	691	6.34 (1.39)	5.38 (11.86)	0.578 (0.950)	1.47 (9.0)
(6) 75% of the torque defined in (1)						
27.2 (36.5)	2266	675	10.01 (2.20)	8.50 (18.74)	0.313 (0.515)	2.72 (16.6)

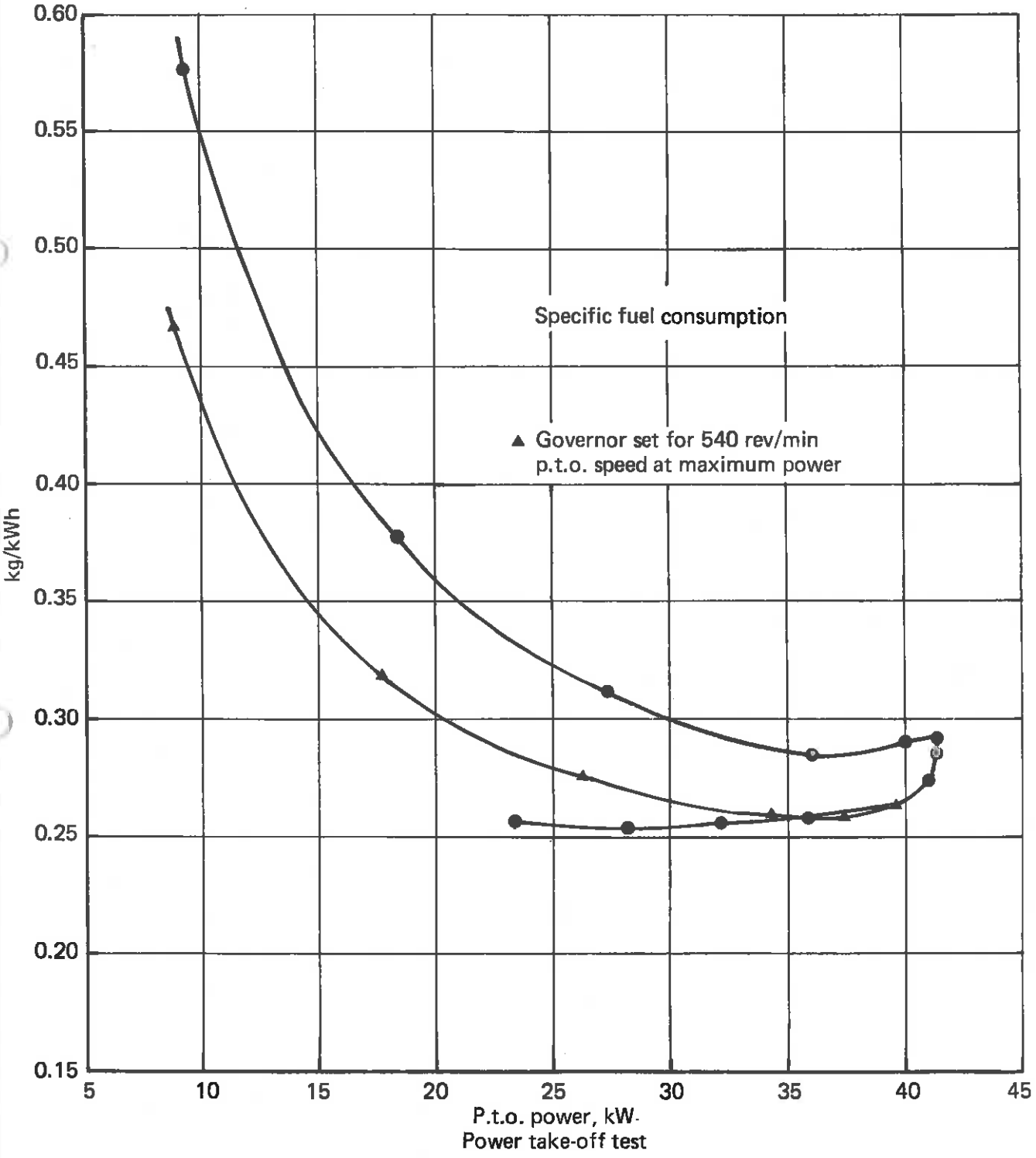
Power, kW (hp)	Speed, rev/min		Fuel consumption,			
	Engine	P.t.o.	l/h (UKgal/h)	kg/h (lb/h)	kg/kWh (lb/hph)	kWh/l (hph/UKgal)
Part loads, the governor hand lever in the position corresponding to the standard p.t.o. speed at full load (540 rev/min)						
(1) 85% of the torque obtained at maximum power						
34.4 (46.1)	1854	552	10.46 (2.30)	8.88 (19.58)	0.258 (0.424)	3.29 (20.1)
(2) Unloaded						
0	1974	588	3.30 (0.73)	2.80 (6.17)	-	-
(3) 50% of the torque defined in (1)						
17.7 (23.7)	1906	568	6.63 (1.46)	5.63 (12.41)	0.318 (0.523)	2.67 (16.3)
(4) Maximum power						
39.5 (53.0)	1813	540	12.19 (2.68)	10.35 (22.82)	0.262 (0.431)	3.24 (19.8)
(5) 25% of the torque defined in (1)						
8.9 (11.9)	1931	575	4.91 (1.08)	4.17 (9.19)	0.469 (0.771)	1.81 (11.0)
(6) 75% of the torque defined in (1)						
26.2 (35.1)	1882	561	8.49 (1.87)	7.21 (15.90)	0.275 (0.452)	3.09 (18.8)

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

(a) 0.284 (0.467) (b) 0.379 (0.623) (c) 0.258 (0.424) (d) 0.318 (0.523)

No load, maximum engine speed		2326 rev/min
Equivalent crankshaft torque at maximum power		180.0 Nm (132.8 lb ft)
Maximum equivalent crankshaft torque		223.7 Nm (165.0 lb ft) at 1180 rev/min engine speed
Mean atmospheric conditions	temperature	18 °C (64 °F)
	pressure	1006 m bar (29.71 in Hg)
	relative humidity	55 %
Maximum temperature	coolant	88 °C (190 °F)
	engine oil	93 °C (199 °F)
	fuel	30 °C (86 °F)
	air intake	24 °C (75 °F)


Equivalent crankshaft torque
▲ Governor set for 540 rev/min
p.t.o. speed at maximum power
Power take-off
power
Fuel consumption
Specific fuel consumption
P.t.o. power, kW
Equivalent crankshaft torque, Nm
kg/h
kg/kWh
Engine speed, rev/min
Power take-off test
45
40
35
30
25
20
15
10
5
0
240
200
160
120
80
40
0
12
10
8
6
0.4
0.3
0.2
1000
1200
1400
1600
1800
2000
2200
2400


0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
kg/kWh
Specific fuel consumption
▲ Governor set for 540 rev/min
p.t.o. speed at maximum power
5
10
15
20
25
30
35
40
45
P.t.o. power, kW
Power take-off test

2 DRAWBAR PERFORMANCE Date of Tests: July-August 1979 Type of track: Concrete Height of drawbar above ground: Ballasted: 456 mm (18.0 in) Unballasted: 466 mm (18.3 in)

Gear	Power, kW (hp)	Drawbar pull, kN (lb)	Speed, km/h (mile/h)	Engine speed, rev/min	Wheel-slip, %	Specific fuel consumption, kg/kWh (lb/hph)	Specific fuel consumption, kWh/l (hph/UKgal)	Temperature, °C (°F) Coolant	Temperature, °C (°F) Fuel	Temperature, °C (°F) Engine oil	Atmospheric conditions: Temperature, °C (°F)	Atmospheric conditions: Relative humidity, %	Atmospheric conditions: Pressure, m bar (in Hg)
(i) MAXIMUM POWER (ballasted)													
L1	*30.5 (40.9)	39.5 (8880)	2.78 (1.73)	2214	15.0	0.361 (0.593)	2.35 (14.3)	81 (178)	38 (100)	97 (207)	24 (75)	69	1003 (29.62)
L2	33.3 (44.7)	32.6 (7330)	3.68 (2.29)	2188	9.1	0.346 (0.569)	2.45 (14.9)	79 (174)	27 (81)	100 (212)	22 (72)	75	1003 (29.62)
L3	34.4 (46.1)	24.6 (5530)	5.03 (3.13)	2146	6.4	0.345 (0.567)	2.46 (15.0)	82 (180)	26 (79)	100 (212)	20 (68)	82	1003 (29.62)
M1	35.5 (47.6)	18.6 (4180)	6.87 (4.27)	2160	4.7	0.334 (0.549)	2.54 (15.5)	83 (181)	26 (79)	101 (214)	20 (68)	82	1003 (29.62)
M2	34.7 (46.5)	14.4 (3240)	8.68 (5.39)	2135	3.6	0.338 (0.556)	2.51 (15.3)	82 (180)	31 (88)	88 (190)	21 (70)	82	1003 (29.62)
(ii) FIVE HOUR TEST AT 75% OF PULL AT MAXIMUM POWER													
M1	28.1 (37.7)	14.0 (3150)	7.23 (4.49)	2239	3.5	0.332 (0.546)	2.56 (15.6)	76 (169)	33 (91)	102 (216)	19 (66)	74	1008 (29.77)
+(iii) FIVE HOUR TEST AT PULL CORRESPONDING TO 15% WHEELSLIP IN TEST (i)													
L1	-	39.5 (8880)	2.93 (1.82)	-	-	-	-	82 (180)	37 (99)	108 (226)	21 (70)	66	1012 (29.88)
(iv) MAXIMUM POWER (unballasted)													
L1	*20.8 (27.9)	26.7 (6000)	2.80 (1.74)	2239	15.0	-	-	78 (172)	36 (97)	99 (210)	24 (75)	62	1015 (29.97)
L2	*25.9 (34.7)	26.7 (6000)	3.49 (2.17)	2208	15.0	-	-	74 (165)	37 (99)	100 (212)	25 (77)	63	1015 (29.97)
L3	32.6 (43.7)	24.0 (5400)	4.89 (3.04)	2200	11.3	-	-	80 (176)	32 (90)	95 (203)	24 (75)	62	1018 (30.06)
M1	34.6 (46.4)	18.4 (4140)	6.77 (4.21)	2200	7.6	-	-	81 (178)	33 (91)	102 (216)	26 (79)	64	1018 (30.06)
M2	34.5 (46.3)	14.4 (3240)	8.63 (5.36)	2160	6.0	-	-	82 (180)	33 (91)	104 (219)	26 (79)	64	1018 (30.06)

Total oil consumption during ten hours duration of tests (ii) and (iii) 52.6 g/h (0.116 lb/h)

*Maximum power available at 15% wheelslip

+Test (iii) 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 (52.0 in)
rear - 1575 mm (62.0 in)

	With brakes		Without brakes	
	Right-hand	Left-hand	Right-hand	Left-hand
Radius of turning space, m (in)	3.19 (126)	3.24 (128)	3.65 (144)	3.68 (145)
Radius of turning circle, m (in)	3.09 (122)	3.14 (124)	3.55 (140)	3.58 (141)

4. LOCATION OF CENTRE OF GRAVITY

Height above ground, mm (in)	876 (34.5)
Distance forward from the vertical plane containing the axis of the rear wheels, mm (in)	713 (28.1)
Distance from the median plane of the tractor, mm (in)	0

5. BRAKING

Date of tests: 28th September and 11th October 1979
Type of track: Concrete
Type of decelerometer: Moto Meter
Mass of ballasted tractor: 5064 kg (11164 lb)

Cold brakes

	Tractor without ballast	Tractor ballasted
Travelling speed of tractor, km/h (mile/h)	25.0 (15.5)	25.0 (15.5)
Maximum deceleration, m/s^2 (ft/s^2)	4.3 (14.1)	4.4 (14.4)
Stopping distance, m (ft)	5.9 (19.4)	6.1 (20.0)
Force on brake pedal, N (lb)	214 (48)	489 (110)
Force exerted on the brake pedal to achieve a deceleration of 2.5 m/s^2 (8.2 ft/s^2), N (lb)	129 (29)	258 (58)

Brake fade characteristics (hot tests)

	Tractor without ballast	Tractor ballasted
Maximum deceleration hot/cold, %	100	97
Stopping distance cold/hot, %	103	98
Force on pedal cold/hot, %	100	96

Parking brake

Efficacy of handbrake: Satisfactory facing up and down slope of 16%

Pull on handbrake: 311 N (70 lb)

6. MEASUREMENT OF AMBIENT NOISE EMITTED BY THE TRACTOR

Date of tests: 12th October 1979

Type of sound level meter: Bruel and Kjaer 2209

Type of track: Concrete

Results of Tests:

Gear: H3

Travelling speed before acceleration: 23.9 km/h (14.9 mile/h)

Sound level: 88 dBA

7. NOISE MEASUREMENT AT THE DRIVER's EAR LEVEL

Date of tests: 12th October 1979

Type of sound level meter: Bruel and Kjaer 2209

Type of track: Concrete

Gear	Travelling speed, km/h (mile/h)	dBA
M1	7.2 (4.5)	87

8. POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

Date of tests:	24th October and 16th November 1979
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:	Hydraulic
Opening pressure of the cylinder over pressure relief valve (manufacturer's figures):	Not applicable

Pump characteristics

i)	Opening pressure of relief valve:	14.0 MPa (2030 lb/in^2)
	Sustained pressure of the open relief valve:	16.4 MPa (2380 lb/in^2)
ii)	Pump delivery rate at minimum pressure and rated engine speed:	30.5 l/min (6.7 gal/min)
iii)	Pump delivery rate at maximum hydraulic power:	31.3 l/min (6.9 gal/min)
	Delivery pressure:	14.0 MPa (2030 lb/in^2)
	Power:	7.3 kW (9.8 hp)

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

	Maximum mechanical advantage	Minimum mechanical advantage
Projected length in side view		
Lower links	838 (33.0)	838 (33.0)
Lift arms	229 (9.0)	229 (9.0)
Lift rods	780 (30.7)	641 (25.2)
Top link	584 (23.0)	591 (23.3)
Distance of lift rod connection point from pivot point of lower link	467 (18.4)	467 (18.4)
The following dimensions are given relative to the rear wheel centre line, situated 695 mm (27.4 in) above the ground level		
Lower link pivot point	210 (8.3) behind, 165 (6.5) below	210 (8.3) behind, 165 (6.5) below
Top link pivot point	470 (18.5) behind, 211 (8.3) above	470 (18.5) behind, 173 (6.8) above
Lift arm pivot point	330 (13.0) behind, 478 (18.8) above	330 (13.0) behind, 478 (18.8) above
Maximum and minimum height of lower link hitch points	17 (0.7) below, 606 (23.9) below	223 (8.7) above, 339 (13.4) below
Height of lower link hitch points when locked in transport position	Any height within lift range	Any height within lift range

Power lift performance

Lifting height in relation to a horizontal line through the lower link pivoting point		mm (in)	-418 (16.5)	-360 (14.2)	-320 (12.6)	-200 (7.9)	-145 (5.7)	-80 (3.1)	0	+80 (3.1)	+140 (5.5)	+160 (6.3)	+240 (9.4)	+320 (12.6)	+365 (14.4)	+440 (17.3)	+520 (20.5)
Lifting force with the pressure at maximum hydraulic power [14.0 MPa (2030 lb/in²)] calculated from measurements made at maximum pressure [16.4 MPa (2380 lb/in²)], kN (lb)	At the hitch points	max.mech advant.	*16.5 (3710)	17.4 (3910)	17.8 (4000)	18.3 (4110)	18.4 (4140)	18.4 (4140)	18.4 (4140)	18.6 (4180)	19.2 (4320)						
		min.mech advant.					*16.8 (3780)	17.6 (3960)	18.5 (4160)	19.1 (4290)	19.2 (4320)	19.2 (4320)	19.4 (4360)	20.3 (4560)	21.1 (4740)		
	On the frame	max.mech advant.		21.5 (4830)	20.5 (4610)	18.3 (4110)	17.5 (3930)	16.7 (3750)	16.0 (3600)	15.4 (3460)	15.1 (3390)	*15.0 (3370)					
		min.mech advant.				14.6 (3280)	15.0 (3370)	15.1 (3390)	14.8 (3330)	14.4 (3240)	14.0 (3150)	13.9 (3120)	13.3 (2990)	12.8 (2880)	12.4 (2790)	12.1 (2720)	*11.9 (2680)

* Maximum force exerted throughout whole range

Force on the frame at which front of tractor is calculated to lift with maximum allowable front ballast is 20.9 kN (4700 lb)

REPAIRS AND ADJUSTMENTS DURING TESTS: Faulty disc brake assemblies were replaced. A broken exhaust pipe and an 'O' ring on the power steering pump were renewed.

REMARKS: None

Test carried out by: N. R. Baker, P. C. Seward, J. P. Evans

Officer in charge: D. W. Smith

Signed: Head of Tractor Department

for the Director

Date: 10/12/79