O.E.C.D. Approval 537
**Report 643**
**August 1976**

REPORT ON TEST IN ACCORDANCE WITH O.E.C.D. TEST CODE FOR AGRICULTURAL TRACTORS

# FORD 3600 TRACTOR




*Test No.:* R76/7920/O.E.C.D.

*Manufacturer:* Ford Motor Company Limited,
Basildon,
Essex.

**NATIONAL INSTITUTE OF AGRICULTURAL ENGINEERING**
Wrest Park . Silsoe . Bedford

This Bulletin is based on engineering tests in accordance with the O.E.C.D. Tractor Code. It does not contain an evaluation of the performance of the tractor on practical farm work.

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## SPECIFICATION OF TRACTOR

| | |
|---|---|
| Manufacturer: | Ford Motor Company Limited, 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: | 120 hours |

### Tractor

| | |
|---|---|
| Make: | Ford |
| Model: | 3600 |
| Type: | Four wheel, rear wheel driven, unit construction |
| Serial No.: | B272307 |

### Engine

| | |
|---|---|
| Make: | Ford |
| Model: | 3600 |
| Type: | 4-stroke, direct injection diesel |
| Serial No.: | C219675L13 |
| Cylinders: | 3 cylinders, vertical, in-line, 106·7 mm (4·2 in) dia bore × 106·7 mm (4.2 in) stroke, capacity 2862 $cm^3$ (174 $in^3$), compression ratio 16·3:1 (nominal), monobloc construction, overhead valves |
| Fuel system: | Gravity feed, C.A.V. twin paper element fuel filters with sediment bowls and water trap between tank and injection pump; fuel tank capacity 49·1 l (10·8 UK gal); C.A.V. distributor type injection pump Serial No. R09882NT, manufacturer's production setting for injection pump: 11·3—12·1 $cm^3$ for 200 injections at 900 rev/min pump speed (test bench figures); C.A.V. type BDLL 150S6665 injector nozzles, injection pressure 19·4-20·0 MPa (191-197 atm) |
| Governor: | C.A.V., mechanical, incorporated in fuel injection pump, governed range of speed 600-2275 rev/min, rated engine speed 2000 rev/min |
| Air cleaner: | Burgess, oil bath, oil capacity 1·14 l (2·0 pt), under bonnet forward of radiator, centrifugal pre-cleaner above bonnet |
| Lubrication system: | Forced feed from eccentric rotor pump with metal strainer in sump; full flow replaceable element filter; total oil capacity 6·6 l (11·7 pt), recommended oil Series 3 quality, change period 300 hours |
| Cooling system: | Water cooled, pressurised at 50 kPa (7 $lb/in^2$), impeller assisted with 406 mm (16·0 in) dia. belt driven 4 blade fan, thermostat for temperature control, coolant capacity 10·4 l (18·3 pt) |
| Starting system: | Electrical, 12V Lucas M45G solenoid-engaged started motor, operable only when high-low gear selector lever is in neutral position; C.A.V. Thermostart flame inlet manifold cold starting aid |

**Electrical system**

Voltage: 12, negative earth
Generator: Lucas type 15 ACR alternator
Battery: Ford type C5NN 10655G lead acid capacity 80 Ah at 20 hour rating

**Transmission**

Clutch: Borg and Beck dual dry clutch, pedal-operated, 279 mm (11·0 in) dia. plate for gearbox and 216 mm (8·5 in) dia plate for p.t.o. drive

Gearbox: Ford, constant mesh type, 8 forward and 2 reverse speeds, comprising 4 forward and 1 reverse speed gearbox with high-low range selector

Rear axle and final drive: Ford, crown wheel and pinion with differential on rear axle shaft, pedal-operated differential lock; oil cooler situated in front of radiator

Oil capacities: Gearbox 13·0 l (22·9 pt), final drive 23·3 l (41·0 pt); recommended oil Mild E.P. S.A.E. 80, change period 1200 hours

| *Gear* | *Number of engine revolutions for one revolution of driving wheel* | **Nominal travelling speed for 2000 rev/min rated speed of engine, km/h* | *(mile/h)* |
|---|---|---|---|
| Forward | | | |
| Low 1 | 165·94 | 2·72 | (1·69) |
| 2 | 132·96 | 3·40 | (2·11) |
| 3 | 75·75 | 5·96 | (3·70) |
| 4 | 55·66 | 8·11 | (5·04) |
| High 1 | 46·44 | 9·73 | (6·05) |
| 2 | 37·21 | 12·14 | (7·54) |
| 3 | 21·20 | 21·30 | (13·24) |
| 4 | 15·58 | 28·99 | (18·01) |
| Reverse | | | |
| 1 | 115·44 | 3·91 | (2·43) |
| 2 | 32·31 | 13·98 | (8·69) |

*Calculated with tyre rolling radius of 599 mm (23·6 in)

**Power take-off**

At rear of tractor in vertical centre plane, 6-spline, 34·9 mm (1⅜ in) dia, to I.S.O. Standard, manually engaged by hand lever, independent of main clutch, height above ground 505 mm (19·9 in). Proportional engine speed giving 596 rev/min at 2000 rev/min rated engine speed, 540 rev/min (standard p.t.o. speed) at 1811 rev/min engine speed, direction of rotation clockwise viewed facing driving end

**Power lift**

Ford, hydraulic, gear pump driven from power take-off shaft, independent of main clutch, oil supplied from rear axle housing to ram cylinder and external tapping; Category 1 implement linkage with top link sensing, draught or position control with auxiliary service control and flow control device

**Drawbar**

Swinging drawbar, vertical height to centre of clevis 349 mm (13·7 in) and 368 mm (14·5 in), changed by inverting drawbar, distance from rear axle centre 510 mm (20 in) and 660 mm (26 in) to rear, position relative to p.t.o. 200 mm (8 in) and 360 mm (14 in) to rear, lateral adjustment 362 mm (14·3 in) and 445 mm (17·5 in), pivot position relative to rear wheel centre 50 mm (2 in) to rear, drawbar pin hole 26 mm (1·1 in) dia

**Steering** Cam Gears recirculating ball type with double drop arms and drag links

**Brakes** Girling internal expanding shoe with drum mounted on differential half shafts, independent or combined pedal-operated, hand lever with ratchet operating both brakes for parking

**Wheels**

Steering wheels: Two at front; Goodyear Super Rib Tractor 6·00-16 tyres, 6-ply rating, maximum permissible mass on each tyre 620 kg (1370 lb) at 290 kPa (42 lb/in²), track width 1232 mm (48·5 in) by 101·6 mm (4·0 in) steps to 2045 mm (80·5 in), changed by extending axle and reversing wheels

Driving wheels: Two at rear, Goodyear Traction Sure Grip 13·6/12-28 tyres, 6-ply rating, maximum permissible mass on each tyre 1360 kg (3000 lb) at 140 kPa (20 lb/in²), track width 1334 mm (52·5 in) by 101·6 mm (4·0 in) steps to 1944 mm (76·5 in), changed by reversing wheels and off-set lug type rims

Wheelbase: 1927 mm (75·9 in)

**Lighting**

| | *Height above ground of centre,* | | *Size,* | | *Distance from outside edge of tractor at* 1334 *mm* (52·5 *in*) *wheel track, to centre,* | |
|---|---|---|---|---|---|---|
| | *mm* | (*in*) | *mm* | (*in*) | *mm* | (*in*) |
| Headlights | 1149 | (45·2) | 127 | (5·0)dia | 467 | (18.4) |
| Side lights | 1311 | (51·6) | 70<br>70 | (2·8) ×<br>(2·8) | 213 | (8·4) |
| Rear lights | 1289 | (50·7) | 70<br>70 | (2·8) ×<br>(2·8) | 168 | (6·6) |
| Reflectors | 1289 | (50·7) | 70<br>57 | (2·8) ×<br>(2·2) | 241 | (9·5) |

**Number of grease points**

Whole tractor: 14

## CONDITIONS DURING TEST

**Masses**

Tractor (without driver but with tanks full)

| | *Front,* | | *Rear,* | | *Total,* | |
|---|---|---|---|---|---|---|
| | *kg* | (*lb*) | *kg* | (*lb*) | *kg* | (*lb*) |
| Without ballast | 745 | (1642) | 1065 | (2348) | 1810 | (3990) |
| With ballast | 745 | (1642) | 2266 | (4996) | 3011 | (6638) |

**Ballast**

| | *Number of weights* | *Total mass,* | | *Water,* | |
|---|---|---|---|---|---|
| | | *kg* | (*lb*) | *kg* | (*lb*) |
| Front wheels | Nil | Nil | | Nil | |
| Rear wheels | 24 | 782 | (1724) | 419 | (924) |
| Additional | Nil | Nil | | Nil | |

**Track setting during tests**

Front: 1334 mm (52·5 in)
Rear: 1334 mm (52·5 in)

**Overall dimensions**

| | *Length* | *Width* | *Height* |
|---|---|---|---|
| With ballast | 3·232 m (127·2 in) | 2·565 m (101·0 in) | 2·273 m (89·5 in) |
| Without ballast | 3·232 in (127.2 in) | 1·695 m (66·7 in) | 2·270 m (89·4 in) |

Overall height measured to top of exhaust pipe

**Seat** Grammer, upholstered cushion and back rest, coil spring suspension with pneumatic damping adjustable for driver's weight, range of adjustment 56 mm (2·2 in) forwards and backwards

## FUEL AND LUBRICANTS USED IN TESTS

Fuel: Diesel oil to Class A2 British Standard 2869:1970, specific gravity 0·843 at 15·6°C (60°F), viscosity 2·36 cSt at 50°C (122°F), Cetane No. 54

Engine oil: Series 3 quality, viscosity 65 cSt at 50°C (122°F)

Transmission oil: Mild E.P. S.A.E. 80 viscosity 54 cSt at 50°C (122°F)

## COMPULSORY TESTS

### 1. Main power take-off performance

Date and location of tests: 10th February 1976, N.I.A.E. Silsoe, Bedford, U.K.

Type of dynamometer: Water brake, Heenan and Froude

| *Power,* | *Speed, rev/min* | | *Fuel consumption,* | | | |
|---|---|---|---|---|---|---|
| *kW (hp)* | *Engine* | *P.t.o.* | *l/h (UKgal/h)* | *kg/h (lb/h)* | *g/kWh (lb/hp h)* | *kWh/l (hp h/UKgal)* |
| Maximum power—2 hour test | | | | | | |
| 30·7 (41·2) | 2100 | 626 | 10·27 (2·26) | 8·64 (19·05) | 281 (0·462) | 2·99 (18·2) |
| Standard p.t.o. speed (540 rev/min) | | | | | | |
| 29·0 (38·9) | 1811 | 540 | 9·11 (2·00) | 7·66 (16·89) | 264 (0·434) | 3·18 (19·4) |
| The speed recommended by the manufacturer for drawbar work | | | | | | |
| 30·5 (40·9) | 2000 | 596 | 9·84 (2·16) | 8·28 (18·25) | 271 (0·446) | 3·10 (18·9) |
| Part loads | | | | | | |
| (1) 85% of the torque obtained at maximum power | | | | | | |
| 26·7 (35·8) | 2155 | 643 | 9·13 (2·01) | 7·68 (16·93) | 288 (0·473) | 2·92 (17·8) |
| (2) Unloaded | | | | | | |
| 0 | 2263 | 675 | 3·36 (0·74) | 2·83 (6·24) | — | — |
| (3) 50% of the load defined in (1) | | | | | | |
| 13·7 (18·4) | 2206 | 658 | (5·96) (1·31) | 5·01 (11·05) | 366 (0·602) | 2·30 (14·0) |
| (4) Maximum power | | | | | | |
| 30·7 (41·2) | 2100 | 626 | 10·27 (2·26) | 8·64 (19·05) | 281 (0·462) | 2·99 (18·2) |
| (5) 25% of the load defined in (1) | | | | | | |
| 6·9 (9·3) | 2225 | 663 | 4·59 (1·01) | 3·86 (8·51) | 559 (0·919) | 1·50 (9·1) |
| (6) 75% of the load defined in (1) | | | | | | |
| 20·3 (27·2) | 2182 | 651 | 7·55 (1·66) | 6·35 (14·00) | 313 (0·515) | 2·69 (16·4) |

No load, maximum engine speed 2263 rev/min

Equivalent crankshaft torque at maximum power: 139·4 Nm (102·8 lb ft)

Maximum equivalent crankshaft torque: 170·9 Nm (126·0 lb ft) at 1140 rev/min engine speed

| | | |
|---|---|---|
| Mean atmospheric conditions: | temperature | 17°C (63°F) |
| | pressure | 1016 m bar (30·00 in Hg) |
| | relative humidity | 42% |
| Maximum temperature: | coolant | 89°C (192°F) |
| | engine oil | 102°C (216°F) |
| | fuel | 27°C (81°F) |
| | air intake | 27°C (81°F) |

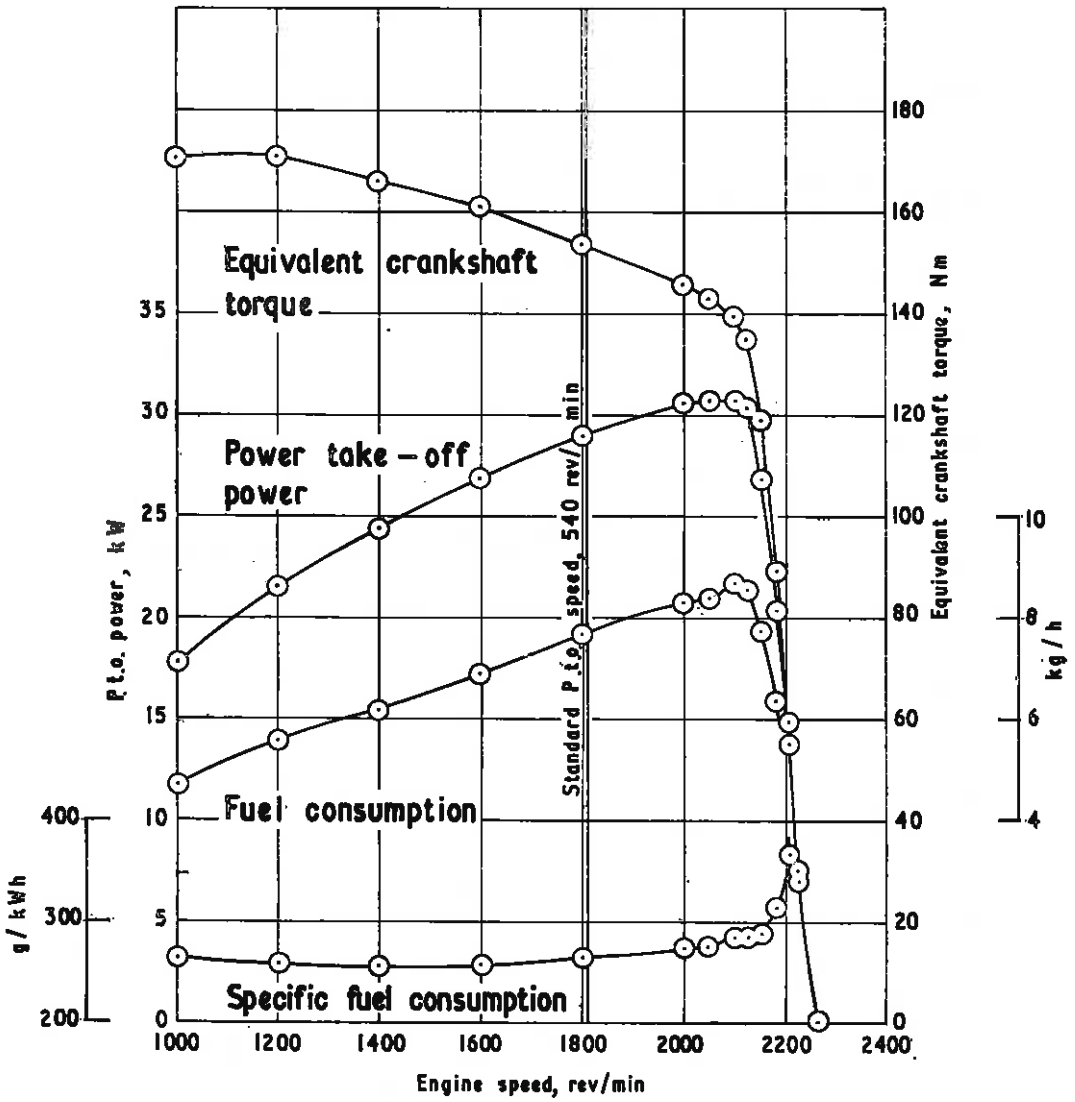



Fig. 1. Power take – off test

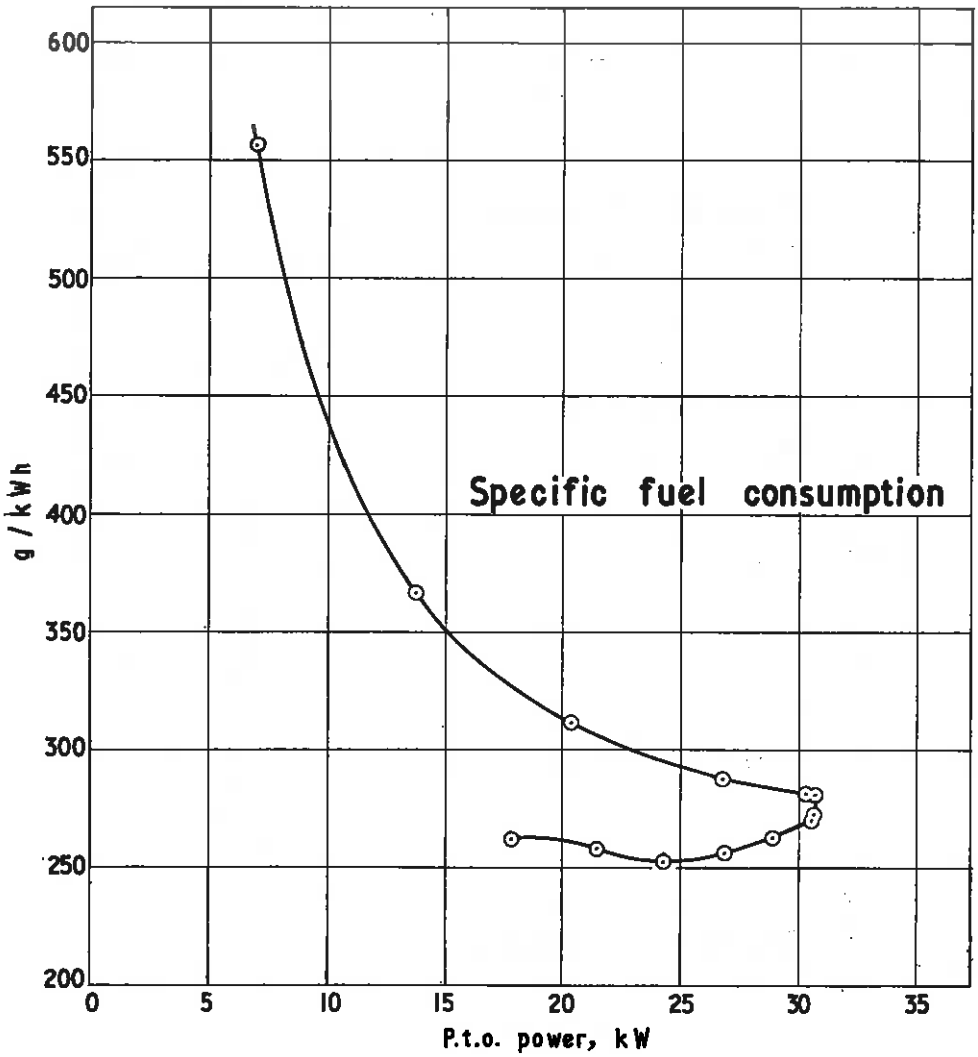



Fig. 2. Power take – off test

## 2. Drawbar performance

Date of tests: 3rd March—9th April 1976 Type of track: Concrete Height of drawbar above ground: 318 mm (12·5 in)

| Gear | Power, kW (hp) | Drawbar pull, kN (lb) | Speed, km/h (mile/h) | Engine speed, rev/min | Wheel-slip, % | Specific fuel consumption, g/kWh (lb/hph) | kWh/l (hph/UKgal) | Temperature, °C(°F) Coolant | Fuel | Engine oil | Atmospheric conditions Temperature, °C (°F) | Relative humidity, % | Pressure, millibar (in Hg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (i) Maximum power (ballasted) | | | | | | | | | | | | | |
| L1 | 16·3* (21·9) | 23·1 (5190) | 2·54 (1·58) | 2181 | 15·0 | 409 (0·672) | 2·06 (12·6) | 74 (165) | 27 (81) | 89 (192) | 11 (52) | 75 | 1025 (30·27) |
| L2 | 20·2* (27·1) | 23·1 (5190) | 3·15 (1·96) | 2160 | 15·0 | 375 (0·616) | 2·24 (13·7) | 76 (169) | 27 (81) | 89 (192) | 11 (52) | 75 | 1025 (30·27) |
| L3 | 26·3 (35·3) | 16·5 (3710) | 5·73 (3·56) | 2084 | 8·9 | 333 (0·547) | 2·53 (15·4) | 77 (171) | 27 (81) | 93 (199) | 11 (52) | 75 | 1025 (30·27) |
| L4 | 26·9 (36·1) | 12·0 (2700) | 8·06 (5·01) | 2090 | 6·0 | 325 (0·534) | 2·59 (15·8) | 79 (174) | 30 (86) | 93 (199) | 11 (52) | 63 | 1025 (30·27) |
| H1 | 27·2 (36·5) | 10·0 (2250) | 9·78 (6·08) | 2090 | 5·0 | 323 (0·531) | 2·60 (15·9) | 73 (163) | 29 (84) | 91 (196) | 11 (52) | 62 | 1025 (30·27) |
| H2 | 26·7 (35·8) | 8·0 (1800) | 12·00 (7·45) | 2033 | 4·0 | 324 (0·533) | 2·59 (15·8) | 76 (169) | 21 (69) | 88 (190) | 8 (46) | 93 | 1025 (30·27) |
| (ii) Five hour test at 75% of pull at maximum power | | | | | | | | | | | | | |
| L4 | 21·2 (28·4) | 9·0 (2020) | 8·47 (5·27) | 2167 | 4·3 | 348 (0·572) | 2·42 (14·8) | 76 (169) | 29 (84) | 90 (194) | 12 (54) | 82 | 1010 (29·83) |
| (iii) †Five hour test at pull corresponding to 15% wheelslip in test (i) | | | | | | | | | | | | | |
| L2 | — | 23·1 (5190) | 3·29 (2·04) | — | — | — | — | 76 (169) | 31 (88) | 94 (201) | 13 (55) | 65 | 1017 (30·03) |
| (2) Maximum power (unballasted) | | | | | | | | | | | | | |
| L2 | 13·0* (17·4) | 14·2 (3190) | 3·30 (2·05) | 2205 | 15·0 | — | — | 74 (165) | 27 (81) | 91 (196) | 13 (55) | 82 | 1024 (30·24) |
| L3 | 21·8* (29·2) | 14·2 (3190) | 5·53 (3·44) | 2154 | 15·0 | — | — | 76 (169) | 28 (82) | 94 (201) | 13 (55) | 82 | 1024 (30·24) |
| L4 | 26·5 (35·5) | 12·0 (2700) | 7·94 (4·93) | 2112 | 10·0 | — | — | 77 (171) | 28 (82) | 88 (190) | 13 (55) | 82 | 1024 (30·24) |
| H1 | 27·2 (36·5) | 10·0 (2250) | 9·78 (6·08) | 2107 | 7·7 | — | — | 78 (172) | 24 (75) | 90 (194) | 13 (55) | 76 | 1024 (30·24) |
| H2 | 27·3 (36·6) | 8·0 (1800) | 12·27 (7·62) | 2094 | 5·6 | — | — | 76 (169) | 24 (75) | 89 (192) | 12 (54) | 76 | 1024 (30·24) |

Total oil consumption during ten hours duration of tests (ii) and (iii) 2·6 g/h (0·0057 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—1334 mm (52·5 in)
rear—1334 mm (52·5 in)

| | *With brakes* | | *Without brakes* | |
|---|---|---|---|---|
| | *Right-hand* | *Left-hand* | *Right-hand* | *Left-hand* |
| Radius of turning space | 3·01 m (119 in) | 3·10 m (122 in) | 3·24 m (128 in) | 3·34 m (131 in) |
| Radius of turning circle | 2·88 m (113 in) | 2·97 m (117 in) | 3·11 m (122 in) | 3·21 m (126 in) |

## 4. Location of centre of gravity

| | |
|---|---|
| Height above ground | 777 mm (30·6 in) |
| Distance forward from the vertical plane containing the axis of the rear wheels | 775 mm (30·5 in) |
| Distance from the median plane of the tractor | 0 |

## 5. Braking

Date of tests: 2nd-8th April, 1976
Type of track: Concrete
Type of decelerometer: Moto Meter, recording type
Weight of ballasted tractor: 3011 kg (6638 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/s² (ft/s²) | 4·9 | (16·1) | 5·6 | (18·4) |
| Stopping distance, m (ft) | 5·8 | (19·0) | 5·2 | (17·1) |
| Force on brake pedal, N (lb) | 310 | (70) | 360 | (81) |
| Force exerted on the brake pedal to achieve a deceleration of 2·5 m/s² (8·2 ft/s²), N (lb) | 150 | (34) | 160 | (36) |

*Brake fade characteristics (hot tests, ballasted tractor)*

Maximum deceleration hot/maximum deceleration cold × 100: 100%
Stopping distance cold/stopping distance hot × 100: 100%
Force on pedal cold/force on pedal hot × 100: 100%
Efficacy of handbrake: Satisfactory facing up and down slope
Pull on handbrake: 390 N (88 lb)

**6. Measurement of ambient noise emitted by the tractor**

| | |
|---|---|
| Date of tests: | 12th April 1976 |
| Type of sound level meter: | Bruel and Kjaer 2204 |
| Type of track: | Concrete |
| Results of tests: | |
| Gear: | H4 |
| Travelling speed before acceleration: | 24·8 km/h (15·4 mile/h) |
| Sound level: | 86 dBA |

**7. Noise measurement at the driver's ear level**

| | |
|---|---|
| Date of tests: | 7th and 12th May 1976 |
| Type of sound level meter: | Bruel and Kjaer 2204 |
| Type of track: | Concrete |

| *Gear* | *Travelling speed, km/h (mile/h)* | *dBA* |
|---|---|---|
| L4 | 7·6 (4·7) | 94 |

**8. Power lift and hydraulic pump performance**

Date of tests: 7th and 10th May 1976

Hydraulic fluid

| | |
|---|---|
| Make and type: | Ford S.A.E. 80 Mild E.P. |
| 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): | 18·96-19·65 MPa (2750-2850 lb/in²) |

Pump characteristics

| | | |
|---|---|---|
| (i) | Opening pressure of relief valve: | 15·8 MPa (2290 lb/in²) |
| | Sustained pressure of the open relief valve: | 17·9 MPa (2600 lb/in²) |
| (ii) | Pump delivery rate at minimum pressure and rated engine speed: | 29·8 l/min (6·6 gal/min) |
| (iii) | Pump delivery rate at maximum hydraulic power: | 29·6 l/min (6·5 gal/min) |
| | Delivery pressure: | 15·8 MPa (2290 lb/in²) |
| | Power: | 7·8 kW (10·5 hp) |

## Linkage geometry when connected to the standard frame

Dimensions in mm (in)

| | *Maximum mechanical advantage* | | *Minimum mechanical advantage* | |
|---|---|---|---|---|
| Projected length in side view | | | | |
| lower links | 800 | (31·5) | 800 | (31·5) |
| lift arms | 229 | (9·0) | 229 | (9·0) |
| lift rods | 566 | (22·3) | 566 | (22·3) |
| top link | 629 | (24·8) | 634 | (25·0) |
| Distance of lift rod connection point from pivot point of lower link | 436 | (17·2) | 436 | (17·2) |
| The following dimensions are given relative to the rear wheel centre line, situated 599 mm (23·6 in) above the ground level | | | | |
| lower link pivot point | 19 (0·7) forward, | 106 (4·2) below | 19 (0·7) forward, | 106 (4·2) below |
| top link pivot point | 153 (6·0) behind, | 314 (12·4) above | 153 (6·0) behind, | 270 (10·6) above |
| lift arm pivot point | 203 (8·0) forward, | 228 (9·0) above | 203 (8·0) forward, | 228 (9·0) above |
| maximum and minimum height of lower link hitch points | 263 (10·4) above, | 346 (13·6) below | 263 (10·4) above, | 346 (13·6) 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 heights in relation to a horizontal line through the lower link pivoting point | mm (in) | −254 (−10·0) | −229 (−9·0) | −200 (−7·9) | −100 (−3·9) | 0 | +100 (+3·9) | +200 (+7·9) | +300 (+11·8) | +356 (+14·0) | +400 (+15·7) | +406 (+16·0) | +457 (+18·0) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lifting force at the hitch points, kN (lb) (Values for the pressure at maximum hydraulic horsepower, calculated from measurements made at maximum pressure) | max. mech. advantage | *8·79 (1976) | | 9·69 (2178) | 10·80 (2428) | 11·67 (2624) | 12·41 (2790) | 12·97 (2916) | 13·16 (2958) | 13·20 (2967) | | | |
| | Force at which front of tractor is calculated to lift with maximum allowable front ballast is in excess of the measured values | | | | | | | | | | | | |
| | Pressure 15·8 MPa (2290 lb/in²) | | | | | | | | | | | | |
| Lifting force at the frame, kN (lb) (Values for the pressure at maximum hydraulic horsepower, calculated from measurements made at maximum pressure) | max. mech. advantage | | *9·27 (2084) | 9·65 (2169) | 10·61 (2385) | 11·11 (2498) | 11·07 (2489) | 10·90 (2450) | | | | 9·87 (2219) | |
| | min. mech. advantage | *8·54 (1920) | | 9·10 (2046) | 9·81 (2205) | 10·30 (2316) | 10·40 (2338) | 10·25 (2304) | 9·91 (2228) | | 9·51 (2138) | | 9·17 (2061) |
| | Force at which front of tractor is calculated to lift with maximum allowable front ballast is in excess of the measured values | | | | | | | | | | | | |
| | Pressure 15·8 MPa (2290 lb/in²) | | | | | | | | | | | | |

*Maximum force exerted throughout whole range

| | |
|---|---|
| **Repairs and adjustments during tests** | None |
| **Remarks** | None |

*Officer in charge:* D. W. Smith

*Head of Tractor and Cultivation Division:* J. Matthews

*Date:* 6th August 1976

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*Henry Burt & Son Ltd, College Street, Kempston, Bedford*