# CAMTC

Report on test in accordance with the
**OECD STANDARD CODE 1** for the Official
Testing of Agricultural and Forestry Tractor Performance

OECD Approval No. 1/2 005

Date of approval : 8th OCT. 2002



## XIN HU HONGLI -800 (2WD) Tractor(35km/h)

*Manufactured by*: Shandong Hongli Group Co.,Ltd.
Shandong, Dezhou, 253019, China

*Date of test*: March 2000

*Test No.* 2000OS202

China Agricultural Machinery Testing Centre
40 Shilihe Dongsanhuan Nanlu, 100021, Beijing, China

This is a report on a tractor test in accordance with the OECD STANDARD CODE for the Official Testing of Agricultural Tractor Performance "Blue Codes" , March 2000, Code 1.

It does not contain an evaluation of the tractor on practical work.

No reproduction of this report or any part of it can be made without prior approval by the China Agricultural Machinery Testing Centre.

This report has been approved by the OECD Co-Ordinating Centre (CEMAGREF, France) as being in accordance with the OECD STANDARD CODE 1.

Date of approval: 08 OCT.2002

OECD No.: 1/2 005

In this report all performance characteristics are given corresponding to the International System of Units.
The reference to the former used Technical System of Units is given the following relations:

| | | | | | |
|---|---|---|---|---|---|
| Forces | 1 kN | = | 1000 N | = | 102 kgf |
| Powers | | | 1 kW | = | 1.36 PS |
| Pressures | 1 Mpa | = | 10 bar | = | 10.2 kgf/cm$^2$ |
| | 100 kPa | = | 1000 mbar | = | 750.10 mmHg |

All rights including the right of translation, reprint and photomechanical copying are reserved by China Agricultural Machincry Testing Centre.

Printed in China, Beijing OCT. 2002
China Agricultural Machinery Testing Centre

# TABLE OF CONTENTS


| | Page |
|---|---|
| 1 SPECIFICATIONS OF TRACTOR | 3 to 12 |
| 2 TEST CONDITIONS | 12 to 14 |
| 3 COMPULSORY TESTS RESULTS | 14 |
| 3.1 Main power take-off performance | 14 to 15 |
| 3.2 Hydraulic power and lifting force | 15 to 16 |
| 3.3 Drawbar power test | 16 to 17 |
| 3.4 Turning area and turning circle | 18 |
| 3.5 Location of centre of gravity | 18 |
| 3.6 Braking | 18 to 20 |
| 3.7 Measurement of external noise level | 20 |
| 4 REPAIRS AND ADJUSTMENTS DURING TESTS | 20 |
| 5 REMARKS | 20 |
| **ANNEX MAIN POWER TAKE-OFF TEST CURVES** | 21 to 23 |

**Note:** units shown below, which appear in ISO 1000:1992, shall be stated and followed by national units in parentheses, if necessary.

| | |
|---|---|
| - Tractor manufacturer's name and address: | Shandong Hongli Group Co., Ltd<br>Shandong,Dezhou, 253019, China |
| - Location of tractor assembly: | Shandong,Dezhou,253019,China |
| - Submitted for test by: | The manufacturer with the agreement of the testing station |
| - Selected for test by: | The manufacturer |
| - Place of running-in: | Shandong, Dezhou, 253019, China |
| - Duration of running-in: | 60 hours |
| - Location of test: | China Agricultural Machinery Testing Centre,<br>Beijing,100021,China |

## 1. SPECIFICATIONS OF TRACTOR

### 1.1 Identification

| | |
|---|---|
| 1.1.1 - Make of the tractor: | XIN HU |
| - Model: | HONGLI—800 |
| - Type: | 2WD |
| 1.1.2 - Numbers | |
| - 1st serial No: | 93090004 |
| - Serial No: | 93090004 |
| 1.1.3 -Other Specifications | |
| -Model(s) for other countries: | |
| -Transmission type or gears x ranges: | |
| -Speed version: | 35 km/h |
| -Manufacturer identification of Technical type number: | None |

### 1.2 Engine

| | |
|---|---|
| - Make: | Dong Fang hong |
| - Model: | LRC4105T51 |
| - Type: | 4-stroke diesel engine water cooled, direct injection |
| - Serial No : | 9914071 |

1.2.1 *Cylinders*

| | |
|---|---|
| - Number/disposition: | 4/vertical in line |
| - Bore/stroke: | 105mm/135mm |
| - Capacity: | 4670cm$^3$ |
| - Compression ratio: | 17:1 |
| - Arrangement of valves: | Overhead in line |
| - Cylinder liners: | Wet |

1.2.2 Supercharging

| | |
|---|---|
| -Make/Model/Type: | None |
| -Pressure: | |

1.2.3 *Fuel system*

| | |
|---|---|
| - Fuel feed system: | Forced feed by pump |
| - Make/Model/Type of fuel filter(s): | Yanjing /C07085/Two parallel |
| - Capacity of fuel tank: | 100dm$^3$ |
| - Make/Model/Type of injection pump: | Dong Fang hong/ZHBF49540Z-83A |
| Manufacturer's production setting of injection pump | |
| ·Flow rate (rated engine speed and full load): | 17.9 dm$^3$/h |
| ·Timing: | 20° ±1° before T.D.C. |
| - Make/Model/Type of injectors: | Dong Fang Hong/ZCK150J4300/single hole long neck |
| - Injection pressure: | 19.6-20.6 MPa |

1.2.4 *Governor*

| | |
|---|---|
| - Make/Model/Type: | Dong Fang Hong/TA/Centrifugal, variable speed |
| - Governed range of engine speed: | from 650 to 2640 rev/min |
| - Rated engine speed: | 2400 rev/min |

1.2.5 *Air cleaner*

| | |
|---|---|
| - Pre—cleaner | |
| ·Make/Model/Type: | Anhuei Beipu Cleaner Works/Integral with main cleaner/cyclone type |
| ·Location of air intake: | under bonnet |
| - Main cleaner | |
| ·Make/Model/Type: | Anhuei Beipu Cleaner Works/KY250E/oil bath |
| ·Location of air intake (in case of no pre-cleaner): | over bonnet |
| - Maintenance indicator: | None |

1.2.6*Lubrication system*

| | |
|---|---|
| - Type of feed pump: | Gear |
| - Type of filter(s): | Full flow with paper element, replaceable |
| - Number: | 1 |

1.2.7*Cooling system*

| | |
|---|---|
| - Type of coolant: | Water |
| - Type of pump: | Centrifugal |
| - Specification of fan or blower: | Axial flow type, belt driven |
| - Number of fan blades: | 4 |
| - Fan diameter: | 450 mm |
| - Coolant capacity: | 14 dm$^3$ |
| - Type of temperature control: | Thermostat |
| - Superpressure system: | 135.3kPa |

1.2.8 *Starting system*

- Make/Model/Type: Hubei Shendian Motor Works/QD154E/Series seal type D.C.
- Starter motor power rating: 3.7 kW
- Cold starting aid: Preheat
- Safety device: Automatic return

1.2.9 *Electrical system*

- Voltage: 12 V,Negative earth
- Generator
·Make/Model/Type: Hu Bei auto motor Works/JFZ15219A/Alternator, belt driven
·Power: 0.7 kW
- Battery (number of accumulators): 1
·Rating: 180 A at 20 hours

1.2.10 *Exhaust system*

- Make/Model/Type: Dong Fang Hong/4RTF240000/Expanded type
- Location: Right-hand side of engine

**1.3 Transmission**

1.3.1 *Clutch (travel and power take-off)*

- Make/Model/Type: Weifang Clutch Works-/ double function,dry
- Number of plates: 2
- Diameter of plates: 280 mm
- Method of operation: By foot pedal

1.3.2 *Gear box*

- Make/Model/Type: Own make/HL-650/Mechanical
- Description:

| | Forward | Reverse |
|---|---|---|
| Number of gears | 4 | 2 |
| Number of ranges/groups | 2 | 2 |
| Total of arrangements | 8 | 4 |

- Available option:
Creeper

| | Forward | Reverse |
|---|---|---|
| Number of gears | 4 | 2 |
| Number of ranges/groups | 2 | 2 |
| Total of arrangements | 8 | 4 |

1.3.3 *Rear axle and final drives*

- Make/Model/Type: Own make/HL-650/cone gear type differential planetary gear type final drives differential, spur gear final drives

- Differential lock:
  ·Type: Mechanical, dog-clutch
  ·Method of engagement: By pedal
  ·Method of disengagement: Self-disengaging

1.3.4 *Front axle and final drives*

- Make/Model/Type: Own make / balanced arm type

1.3.5 *Total ratios and travelling speeds*

| Gear No | Group or range | Number of engine revolutions for one revolution of the driving wheels | Nominal travelling speed (*)at rated engine speed of 2400..... rev/min ,km/h |
|---|---|---|---|
| 1 | L | 286.15 | 2.34 |
| 2 | L | 195.79 | 3.42 |
| 3 | L | 118.51 | 5.65 |
| 4 | L | 82.26 | 8.14 |
| 5 | H | 65.78 | 10.18 |
| 6 | H | 45.21 | 14.81 |
| 7 | H | 27.32 | 24.51 |
| 8 | H | 18.86 | 35.50 |
| R1 | L | 211.90 | 3.16 |
| R2 | L | 145.25 | 4.61 |
| R3 | H | 87.87 | 7.62 |
| R4 | H | 60.98 | 10.98 |
| (*) Calculated with a tyre dynamic radius index of 740 mm (ISO 4251-1:1992). | | | |

**1.4 Power take-off**

1.4.1 *Main power take-off*

- Type: independent
- Method of engagement: Mechanically operated by hand level,Driven by the main clutch
- Number of shafts: 1
- Method of changing power take-off

shaft ends and speeds: Changed gear by hand level

1.4.1.1 *Power take-off proportional to engine speed*

*Power take-off at 540 rev/min*

| | |
|---|---|
| - Location: | At rear of the tractor |
| - Diameter of power take—off shaft end: | 35 mm |
| - Number of splines: | 6, in conformity with ISO 500:1991 |
| - Height above ground: | 742 mm |
| - Distance from the median plane of the tractor: | 0 mm |
| - Distance behind rear wheel axis: | 478 mm |
| - PTO speed at rated engine speed (2400 rev/min): | 692 rev/min |
| - Engine speed at standard power take—off speed: | 1872 rev/min |
| - Ratio of rotation speeds (engine speed/p.t.o speed): | 3.467 |
| - Power restriction: | 55kW |
| - maximum torque transmissible: | 938 N·m |
| - Direction of rotation (viewed from behind tractor): | Clockwise |

*Power take-off at 1000 rev/min*

| | |
|---|---|
| - Location: | Ar rear of tractor |
| - Diameter of power take—off shaft end: | 35 mm |
| - Number of splines: | 6, not in conformity with ISO 500:1991 |
| - Height above ground: | 742 mm |
| - Distance from the median plane of the tractor: | 0 mm |
| - Distance behind rear wheel axis: | 478 mm |
| - PTO speed at rated engine speed (2400 rev/min): | 1254 rev/min |
| - Engine speed at standard power take-off speed: | 1913 rev/min |
| - Ratio of rotation speeds (engine speed/p.t.o speed): | 1.913 |
| - Power restriction: | 55 Kw |
| - Maximum torque transmissible: | 506 N·m |
| - Direction of rotation (viewed from behind tractor): | Clockwise |

1.4.1.2 *Power take—off proportional to ground speed*: Not fitted

**1.5 Hydraulic power lift**

| | |
|---|---|
| - Make : | Shan Dong Lai Zhou Machinery Works |
| - Model: | HL650 |
| - Type: | Hydaulic,3-point hitch, position or mix control |

- Type of hydraulic system: Open centre partial separated units,
- Type and number of cylinders: Single acting,1
- Type of linkage lock for transport: Hydraulic lock
- Relief valve pressure setting (tolerance): 16.0±0.5 MPa
- Opening pressure of cylinder safety valve : 18.0±0.5
- Lift pump type: Gear pump
- Transmission between pump and engine: Gear driven from gear box
- Type and number of filters: Metal screen, 1
- Site of oil reservoir: In the lift case
- Type, number and location of tapping points: Thread,M18×1.5,1,at front side of hydraulic power lift housing
- Maximum volume of oil available to external cylinders: 38.4 $dm^3$

**1.6 Three-point linkage**

- Category: 2, in conformity with ISO 730-1:1994+Cor.1:1995
- Category adapter: None

Table 1.1
Dimensions of linkage geometry
when connected to the standard frame

| | | Dimension or range, mm | Settings used on test, mm |
|---|---|---|---|
| Length of lift arms: | (A) | 230 | 230 |
| Length of lower links: | (B) | 970 | 970 |
| Distance of lift arm pivot from point from rear wheel axis: | | | |
| - horizontally | (a) | 130 | 130 |
| - vertically | (b) | 384 | 384 |
| Horizontal distance between the 2 lower link points | (u) | 450 | 450 |
| Horizontal distance between the 2 lift arm end points | (v) | 530 | 530 |
| Length of upper link | (S) | from 510 to 780 | 700 |
| Distance of upper link pivot point from rear wheel axis: | | | |
| - horizontally | (c) | 405 | 405 |
| - vertically | (d) | from 207 to 277 | 207 |
| Distance of lower link pivot point from rear wheel axis: | | | |
| - horizontally | (e) | 146 | 146 |
| - vertically | (f) | 221 | 221 |
| Distance of lower link pivot points to lift rod pivot points on lower links: | (D) | from 400 to 450 | 425 |
| Length of lift rods: | (L) | from 620 to 780 | 720 |
| Height of lower hitch points relative to the rear wheel axis: | | | |
| - in low position: | (h) | from 685 to 350 | 536 |
| - in high position: | (H) | from 9 to 339 | 153 |
| Height above ground of lower hitch points when locked in transport position (*) | | from 674 to 934 | 930 |
| (*) Assuming (r)=rear tyre dynamic radius index of 740 mm (ISO 4251/1-1992). | | | |

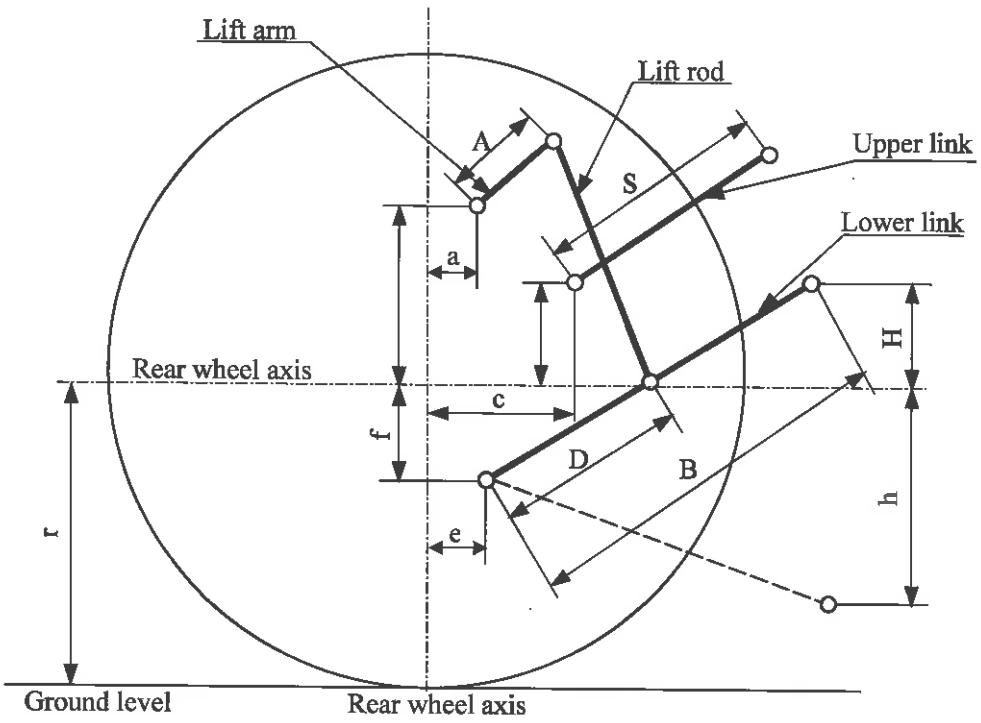



Figure 1.1
Lift test-Linkage geometry

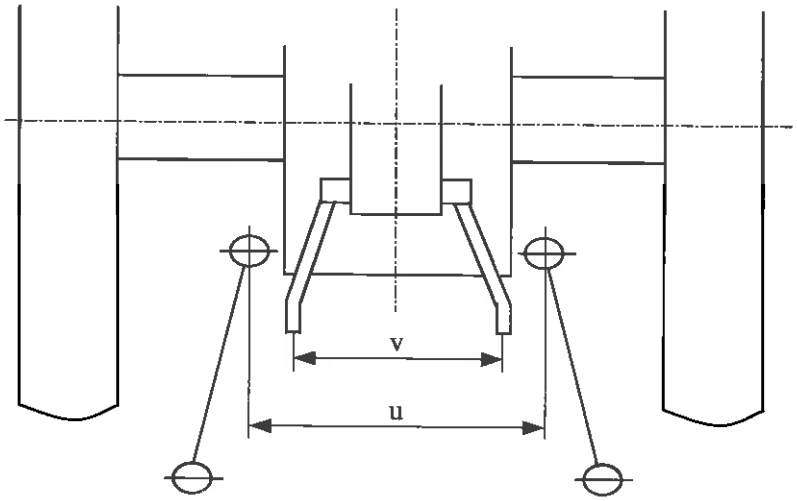



Figure 1.2
Lift test-Linkage geometry

**1.7 Swinging drawbar**

-Type: Swinging bar type

| | |
|---|---|
| -Height above ground | |
| . Maximum: | 1021 mm |
| . Minimum: | 142 mm |
| -Type of adjustment: | Inverting drawbar |
| -Distance of hitch point from power take-off shaft end | |
| . Vertically: | 419～568 mm |
| . Horizontally: | -590～289 mm |
| -Lateral adjustment(centre of clevis) | |
| . Right hand: | 80 mm |
| . Left hand: | 80 mm |
| -Distance of pivot point from rear -wheel axis, horizontally: | 895-1046 mm |
| -Diameter of drawbar pinhole: | 30 mm |
| -Maximum vertical permissible load: | 8.0 kN |

**1.8 Trailer hitch**

| | |
|---|---|
| - Type: | clevis |
| - Hole diameter: | 40 mm |
| - Height above ground: | 611～781 mm |
| - Distance of hitch point from rear wheel axis, horizontally: | 866 mm |
| - Distance of hitch point from power take－off shaft end | |
| • Vertically: | -119～50 mm |
| • Horizontally: | 388 mm |
| -Maximum vertical permissible load: | 25kN |

**1.9 Holed drawbar**

| | |
|---|---|
| -Number of holes: | 5 |
| -Distance between holes: | 70 mm |
| -Hole diameter: | 30 mm |
| -Thickness/width of the drawbar: | 25 mm/100 mm |
| -Height above ground | |
| . Minimum: | 730 mm |
| . Maximum | 140 mm |
| -Horizontal distance to power take-off shaft end(rear): | 420 mm |

**1.10 Steering**

| | |
|---|---|
| - Make/Model/Type: | Zhenjiang Hydraulic Element Works/BZZI-E160c/Hydrostatic power steering |
| - Method of operation: | Full hydraulic power |
| . Pump(s): | HLCB-D12/10 Constant flow pump |
| . Ram(s): | Double acting cylinder |
| - Working pressure: | 10 Mpa |

**1.11 Brakes**

1.11.1 *Service brake*

- Make/Model/Type: Own make/HL-650/Wet type plates
- Method of operation: Hydraulicall by pedals
- Trailer braking take-off: Air brake

1.11.2 *Parking brake*

- Type: Mechanical
- Method of operation: By hand

**1.12 WHEELS**

- Number
  . Front: 2, steering
  . Rear: 2, driving
- Wheelbase: 2366 mm

- Track width adjustment:

| | Minimum,mm | Maximum, mm | Adjustment method |
|---|---|---|---|
| Front | 1385 | 1685 | Changing offset of rims |
| Rear | 1502 | 2014 | Reversing wheels |

**1.13 Protective structure** None

**1.14 Seat**

1.14.1 *Driver's seat*

-Make/Model/Type: Xiamen GLM Driver's Seat Company LTD./-/Hydaulic damping

- Type of suspension: Spring with damper
- Type of damping: Hydaulic damper
- Range of adjustment
  . Longitudinal: 50 mm
  . Vertical: Automatic adjustment

1.14.2 Optional driver's seat(s) None

1.14.3 Passenger seat
- Location: at rear of driver's seat
- Capacity(number): 2

### 1.15 Lighting

| | Height above ground of centre, mm | Size, mm | Distance from outside edge of lights to median plane of tractor, mm |
|---|---|---|---|
| Headlights | 1255 | 190×130 | 260 |
| Sidelights | 1290 | 110×50 | 340 |
| Rearlights | 1582 | 185×75 | 800 |
| Reflectors | 1766 | 140×70 | 650 |

## 2. TEST CONDITIONS

### 2.1 Overall dimensions

| | Lenght, mm | Width, mm | | height at top of, mm | |
|---|---|---|---|---|---|
| | | minimum | maximum | Protective structure | exhaust pipe |
| Ballasted | 4060 | 1960 | 2045 | — | 2770 |
| Unballasted | 4060 | 1960 | 2045 | — | 2780 |

**2.2 Ground clearance** (unballasted tractor): 325 mm
- Clearance-limiting part: Under the lower link pivot

### 2.3 Tractor mass
Mass (without frame)

| | Ballasted | | Unballasted | |
|---|---|---|---|---|
| | Without driver,kg | With driver,kg | Without driver,kg | With driver,kg |
| Front | 1296 | 1304 | 1295 | 1303 |
| Rear | 2553 | 2610 | 1972 | 2029 |
| Total | 3849 | 3914 | 3267 | 3332 |

### 2.4 Ballast

| | Number | Total mass kg | Water, kg |
|---|---|---|---|
| Front | — | 0 | — |
| Rear | 6 | 582 | — |
| Optional | — | — | — |

### 2.5 Tyres and track width specifications

| | Front | Rear |
|---|---|---|
| Tyres: | | |
| -dimention | 6.50-20 | 13.6-38 |
| -ply rating | 6 | 8 |
| -type | cross ply | cross ply |
| -maximum load (tyre manufacture's) | 7.35 kN | 21.75 kN |
| -maximum load (tractor manufacture's) | 6.33 kN | 10.02 kN |
| -inflation pressure (tyre manufacture's) | 250 kPa | 200 kPa |
| -dynamic radius index | 405 mm | 740 mm |
| Chosen track width | 1585 mm | 1602 mm |

**2.6 Fuel**

- Type: Standard diesel fuel in conformity with national standard GB/T10327-89
- Density at 15℃: 0.8445 g/cm³

**2.7 Oils and lubrication**

2.7.1 *Capacity and change interval*

| | Capacity, dm³ | Oil change, h | Filter change, h |
|---|---|---|---|
| Engine | 17 | 200 | 200 |
| Gear box | 38 | 800 | 800 |
| Front axle | — | — | — |
| Rear axle | Common with gear box | Common with gear box | — |
| Final drive (front) | — | — | — |
| Final drive (rear) | Common with gear box | Common with gear box | — |
| Hydraulic system | 17 | 800 | 800 |
| steering | 3.5 | 800 | 800 |

2.7.2 *Specifications*

| | Recommended | Used during test |
|---|---|---|
| **Engine oil** | | |
| • Type: | SAE 15 W/30 | SAE 15 W/30 |
| • Viscosity: | 14.6 cst at 100℃ | 14.6 cst at 100℃ |
| • Classification: | L-ECC | L-ECC |
| **Transmission oils** | | |
| • Type: | N100D | N100D |
| • Viscosity: | 90-100 cst at 100℃ | 90-100 cst at 100℃ |
| • Classification: | Q/SH007.1.23-87 | Q/SH007.1.23-87 |
| **Hydraulic fluid** | | |
| • Type: | | |
| • Viscosity: | Same as trans.oil | Same as trans.oil |
| • Classification: | | |
| **Steering oil** | | |
| • Type: | | |
| • Viscosity: | Same as trans.oil | Same as trans.oil |
| • Classification: | | |

2.7.3 Grease:

-Number of lubrication points: 19

## 3. COMPULSORY TESTS RESULTS

### 3.1 Main power take-off

- Date and location of tests: 6th March, 2000, CAMTC
- Type of dynamometer: SCHENCK eddy-current brake W400

| Power | Speed | | Fuel consumption | | | Specific energy |
|---|---|---|---|---|---|---|
| | Engine | P.T.O | Hourly | | Specific | |
| kW | rev/min | | kg/h | l/h | g/(kW·h) | (kW·h)/l |
| 1.1 MAXIMUM POWER-TWO HOURS | | | | | | |
| 52.30 | 2083 | 601 | 12.895 | 15.269 | 246.6 | 3.425 |
| 1.2 POWER AT RATED ENGINE SPEED | | | | | | |
| 50.29 | 2399 | 692 | 13.2789 | 15.7240 | 264.0 | 3.200 |
| 1.3 STANDARD POWER TAKE-OFF SPEED (540±10 rev/min) | | | | | | |
| 51.01 | 1872 | 540 | 12.1122 | 14.3425 | 237.4 | 3.557 |
| 1.4 PART LOADS<br>1.4.1 the torque corresponding to maximum power at rated engine speed | | | | | | |
| 50.29 | 2399 | 692 | 13.2789 | 15.7240 | 264.0 | 3.200 |
| 1.4.2 85% of torque obtained in 1.4.1 | | | | | | |
| 43.21 | 2416 | 697 | 11.8104 | 13.9851 | 273.3 | 3.090 |
| 1.4.3 75% of torque defined in 1.4.2 | | | | | | |
| 32.95 | 2451 | 707 | 9.9832 | 11.8214 | 303.0 | 2.787 |
| 1.4.4 50% of torque defined in 1.4.2 | | | | | | |
| 22.27 | 2482 | 716 | 8.1838 | 9.6907 | 367.5 | 2.298 |
| 1.4.5 25% of torque defined in 1.4.2 | | | | | | |
| 11.22 | 2510 | 724 | 6.3812 | 7.5562 | 568.7 | 1.484 |
| 1.4.6 unloaded | | | | | | |
| 0 | 2541 | 733 | 4.7287 | 5.5994 | — | — |
| 1.5 PART LOADS AT STANDARD POWER TAKE-OFF SPEED (540 rev/min)<br>1.5.1 the torque corresponding to maximum power | | | | | | |
| 51.01 | 1872 | 540 | 12.1122 | 14.3425 | 237.4 | 3.557 |
| 1.5.2 85% of torque obtained in 1.5.1 | | | | | | |
| 44.36 | 1917 | 553 | 10.6792 | 12.6456 | 240.7 | 3.509 |
| 1.5.3 75% of torque defined in 1.5.2 | | | | | | |
| 34.38 | 1962 | 566 | 8.7351 | 10.3435 | 254.1 | 3.323 |
| 1.5.4 50% of torque defined in 1.5.2 | | | | | | |
| 23.42 | 2004 | 578 | 6.8888 | 8.1573 | 294.1 | 2.871 |
| 1.5.5 25% of torque defined in 1.5.2 | | | | | | |
| 11.86 | 2035 | 587 | 5.0100 | 5.9325 | 422.4 | 1.999 |
| 1.5.6 unloaded | | | | | | |
| 0 | 2066 | 596 | 3.1973 | 3.7860 | — | — |

- No load maximum engine speed: 2541 rev/min
- Torque (equivalent crankshaft) atmaximum power:
  . At rated engine speed 200.2 N.m
  . At 2-hour test 239.8N.m
- Maximum torque (equivalent crankshaft): 293.4 N.m
  (engine speed : 1439rev/min)

| Mean atmospheric conditions: | |
|---|---|
| Temperature | 18 ℃ |
| Pressure | 102.2 kPa |
| Relative humidity | 10 % |
| Maximum temperatures: | |
| Coolant | 95 ℃ |
| Engine oil | 95 ℃ |
| Fuel | 18 ℃ |
| Engine air intake | 18 ℃ |

**3.2 Hydraulic power and lifting force**

- Date of tests: 21st April, 2000

3.2.1 *Hydaulic power test*

- Sustained pressure with relief valve open: 16±0.5 MPa
- Pump delivery rate at minimum pressure: 33.12 1/min

| | Flow rate 1/min | Pressure MPa | Power kW |
|---|---|---|---|
| Flow rate corresponding to a hydraulic pressure equivalent to 90 percent of the actual relief valve pressure setting and corresponding hydraulic power | 27.41 | 14.4 | 6.58 |
| Flow rate and hydraulic pressure corresponding to maximum hydraulic power | 27.41 | 14.4 | 6.58 |

- Tapping point used for test: At rear part of the tractor
- Temperature of hydraulic fluid: 66℃
- Opening pressure of the unloading valve: None
- Closing pressure of the unloading valve: None

**3.2.2** *Power lift test*

| | at the hitch point | on the frame |
|---|---|---|
| Height of lower hitch points above ground in down position | 200 mm | 200 mm |
| Vertical movement | 659 mm | 716 mm |
| Maximum corrected force exerted through full range | 17.91 kN | 14.13 kN |
| Corresponding pressure of hydraulic fluid | 16.0 MPa | 16.0 MPa |
| Moment about rear wheel axis | 19.99 kNm | 24.38kN·m |
| Maximum tilt angle of mast from vertical | — | 7 degrees |

- Linkage settings for test-see Table 1.1 and Figures 1.1

| Lifting heights relative to the horizontal plane including the lower link pivot points | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | -371 | -322 | -300 | -200 | -100 | 0 | +100 | +200 | +300 | +337 | +345 |
| Lifting forces (the values measured are corrected to correspond to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting or to maximum power delivered by the hydraulic system,which is lower) | | | | | | | | | | | |
| at the hitch point kN | | 17.91 | 18.27 | 19.98 | 20.59 | 21.24 | 21.18 | 21.13 | 21.08 | 21.06 | |
| Corresponding pressure:16.0 MPa | | | | | | | | | | | |
| at the frame kN | 18.36 | | 18.18 | 18.00 | 17.46 | 16.92 | 16.38 | 15.78 | 15.21 | | 14.13 |
| Corresponding pressure:16.0MPa | | | | | | | | | | | |

**3.3 Drawbar power test (ballasted and unballasted tractor)**

- Date of tests: 16th March, 2000
- Type of track: Concrete

| | Height of drawbar above ground | Tyre inflation pressure | |
|---|---|---|---|
| | | Front | Rear |
| Unballasted | 360 mm | 180 kPa | 120 kPa |
| Ballasted | 350 mm | 180 kPa | 120 kPa |

| Gear and range | Power | Drawbar pull | Speed | Engine speed | Slip of wheels | Specific fuel consumption | Specific energy | Temperature | | | Atmospheric conditions | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Fuel | Coolant | Engine oil | Temperature | Relative humidity | Pressure |
| | kW | kN | km/h | rev/min | % | g/(kW·h) | (kW·h)/l | ℃ | ℃ | ℃ | ℃ | % | kPa |
| 3.1 MAXIMUM POWER IN TESTED GEARS(unballasted tractor) | | | | | | | | | | | | | |
| 2L | 15.65 | 18.06 | 3.12 | 2489 | 15 | 503.5 | 1.68 | 15 | 79 | 87 | 14 | 25 | 101.2 |
| 3L | 23.64 | 18.42 | 4.62 | 2450 | 15 | 431.5 | 1.96 | 15 | 84 | 88 | 14 | 25 | 101.2 |
| 4L | 40.88 | 19.73 | 7.46 | 2366 | 7 | 374.4 | 2.26 | 15 | 86 | 88 | 14 | 25 | 101.2 |
| 5H | 46.68 | 17.56 | 9.57 | 2235 | 5 | 275.5 | 3.07 | 15 | 88 | 89 | 14 | 25 | 101.2 |
| 6H | 43.80 | 13.42 | 11.75 | 2020 | 2 | 285.8 | 2.96 | 15 | 88 | 90 | 14 | 25 | 101.2 |
| 3.2 MAXIMUM POWER IN TESTED GEARS(ballasted tractor) | | | | | | | | | | | | | |
| 1L | 13.47 | 23.43 | 2.07 | 2490 | 15 | 534.5 | 1.58 | 16 | 72 | 89 | 15 | 25 | 101.2 |
| 2L | 20.48 | 25.08 | 2.94 | 2475 | 15 | 456.5 | 1.85 | 16 | 84 | 89 | 15 | 25 | 101.2 |
| 3L | 31.36 | 23.77 | 4.75 | 2421 | 15 | 381.4 | 2.22 | 16 | 86 | 90 | 15 | 25 | 101.2 |
| 4L | 41.07 | 20.62 | 7.17 | 2410 | 8 | 325.5 | 2.60 | 16 | 89 | 90 | 15 | 25 | 101.2 |
| 5H | 46.36 | 18.22 | 9.16 | 2406 | 8 | 291.7 | 2.90 | 16 | 89 | 91 | 15 | 25 | 101.2 |
| 6H | 42.29 | 11.56 | 13.17 | 2404 | 4 | 306.2 | 2.76 | 16 | 90 | 91 | 15 | 25 | 101.2 |
| 3.3.1 FIVE HOUR TEST at 75 percent of pull at maximum power | | | | | | | | | | | | | |
| 5H | 36.92 | 13.76 | 9.66 | 2423 | 4 | 319.9 | 2.64 | 16 | 88 | 90 | 15 | 25 | 101.4 |
| 3.3.2 FIVE HOUR TEST at pull corresponding to 15 percent wheelslip with additional ballast 300kg | | | | | | | | | | | | | |
| 3L | 31.35 | 23.76 | 4.75 | 2420 | — | — | — | 16 | 86 | 90 | 15 | 25 | 101.4 |

Oil consumption during ten hours duration of tests 3.3.1 and 3.3.2:81.1 g/h
(-)Those figures not quoted are irrelevant due to the additional ballast.

### 3.4 Turning area and turning circle

Details of wheel equipment:

| | Tyre size | Track width |
|---|---|---|
| front: | 6.50-20 | 1500 |
| rear: | 13.6-38 | 1600 |

| | With brakes | | Without brakes | |
|---|---|---|---|---|
| | Right hand | Left hand | Right hand | Left hand |
| | m | m | m | m |
| Radius of turning area | 3.93 | 3.99 | 4.43 | 4.51 |
| Radius of turning circle | 3.70 | 3.76 | 4.20 | 4.28 |

### 3.5 Location of centre of gravity

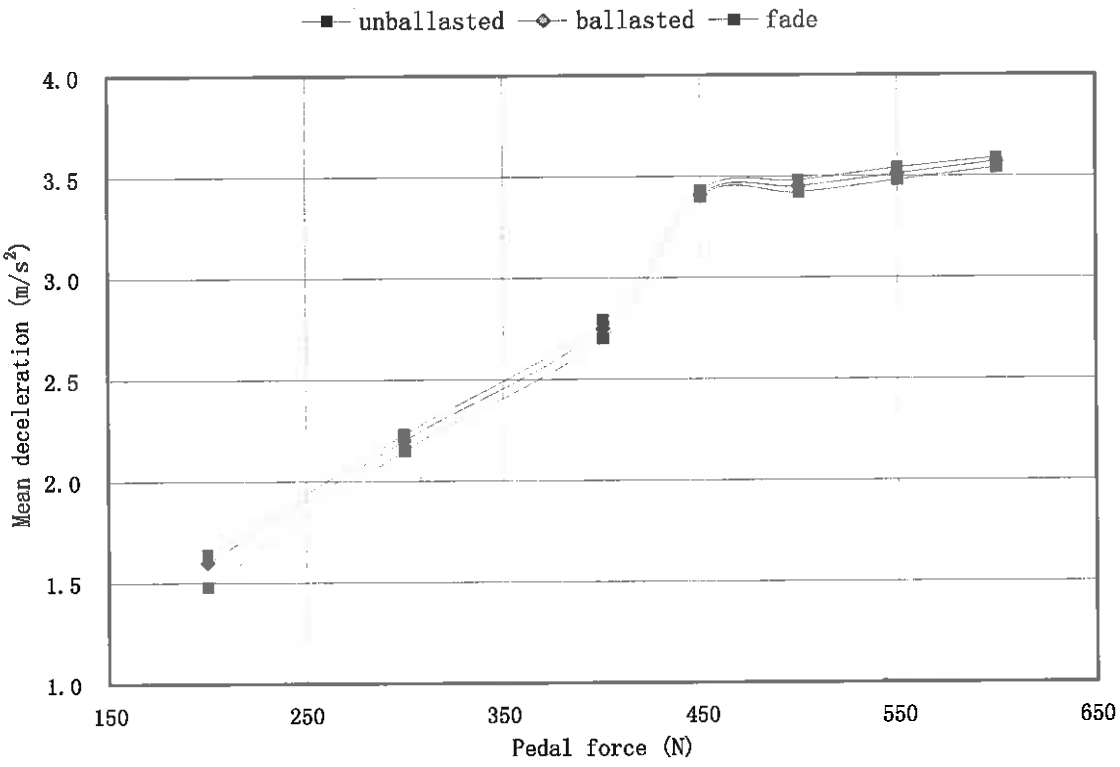
Height above ground: 837mm

Distance forward from the vertical plane containing the axis of the rear wheels: 927 mm

Distance from the median plane of the tractor to the right: 11 mm

### 3.6 Braking

- Date of tests: 7th March, 2000



3.6.1 *Cold service braking device test*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Ballasted tractor | Braking device control force,N | 200 | 300 | 400 | 450 | 500 | 550 | 600 |
| | Mean deceleration m/s² | 1.60 | 2.20 | 2.75 | 3.41 | 3.45 | 3.51 | 3.57 |
| Unballasted tractor | Braking device control force,N | 200 | 300 | 400 | 450 | 500 | 550 | 600 |
| | Mean deceleration m/s² | 1.64 | 2.23 | 2.79 | 3.43 | 3.48 | 3.54 | 3.59 |

Maximum deviation of tractor from its original course: 100 mm
Abnormal vibration: None

| | Speed before application of brakes | Braking device control force | Minimum stopping Distance without locking the wheels |
|---|---|---|---|
| | Km/h | N | m |
| Ballasted tractor | 26.60 | 300 | 12.41 |
| Unballasted tractor | 26.95 | 300 | 12.57 |

Note: The wheels are locking completely with a braking force over 450N

3.6.2 *Fade test*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Ballasted tractor | Braking device control force,N | 200 | 300 | 400 | 450 | 500 | 550 | 600 |
| | Mean deceleration m/s² | 1.48 | 2.15 | 2.70 | 3.40 | 3.42 | 3.48 | 3.54 |

| | Speed before application of brakes | Braking device control force | Minimum stopping Distance without locking the wheels |
|---|---|---|---|
| | Km/h | N | m |
| Ballasted tractor | 26.60 | 300 | 12.70 |

Note: The wheels are locking completely with a braking force over 450N
Maximum deviation of tractor from its original course: 100 mm
Abnormal vibration: None
Brakes were heated by: Driven with brakes applied for 1 km at 80% of maximum speed with a pedal force corresponding to a deceleration of 1 m/s²

3.6.3 *Parking braking device test*

| | Up | Down |
|---|---|---|
| Braking device control force N | 120 | 165 |

**3.7 Measurement of external noise**

- Date of test: 15th March, 2000
- Type of sound level meter: B&k 2235
- Type of track: Concrete
- Cear number: 8H
- Travelling speed before acceleration: 26.95 km/h
- Sound level: 85.9 dB(A)

**4. REPAIRS AND ADJUSTMENTS DURING TESTS:**

None

**5. REMARKS:**

None

Test carried out by: Zhangmenghua,Gengzhanbin ,Baiyuchuen,Liuqin,Changxiongbo

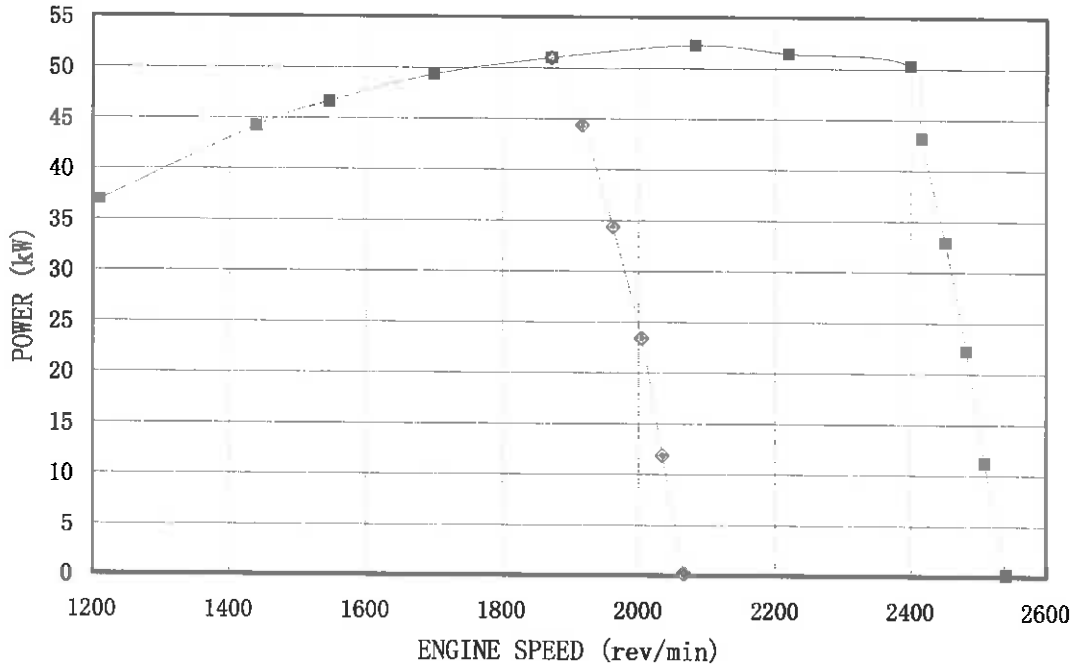
Officer in Charge: Li Xijiang

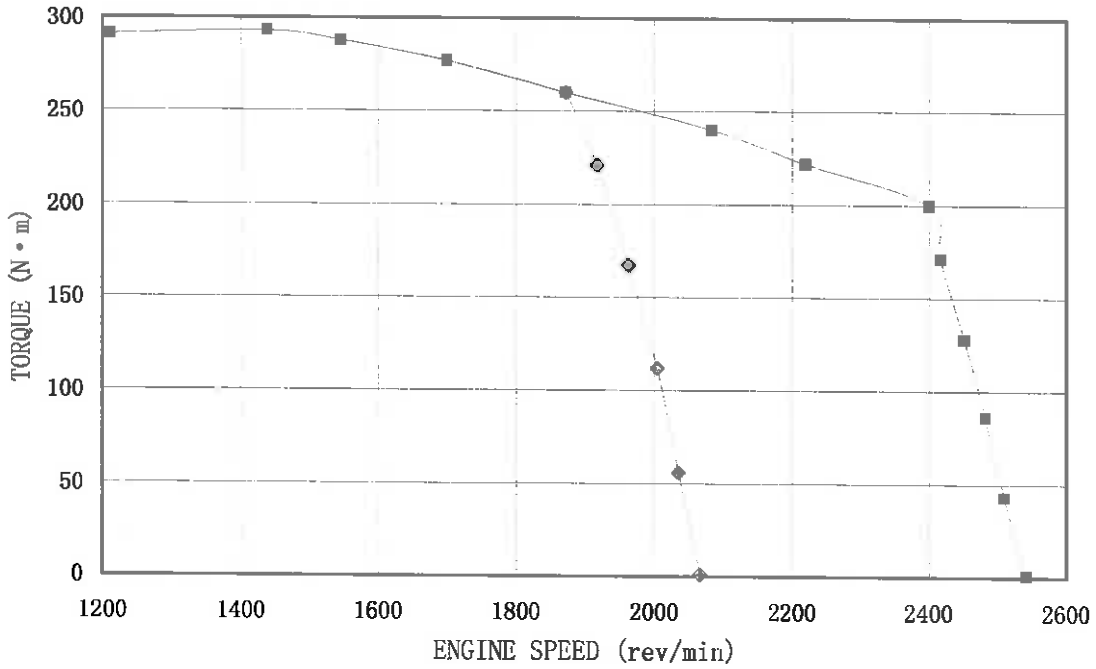
Chief of Tractor Testing Division:Xuzhijian

For the director:Zhuliang

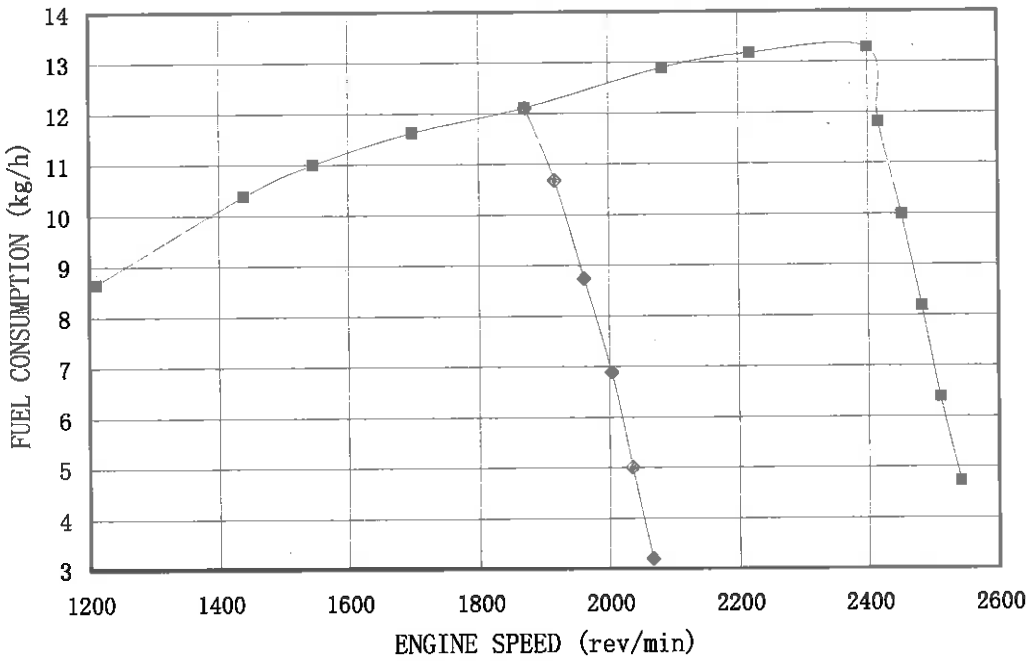
## ANNEX

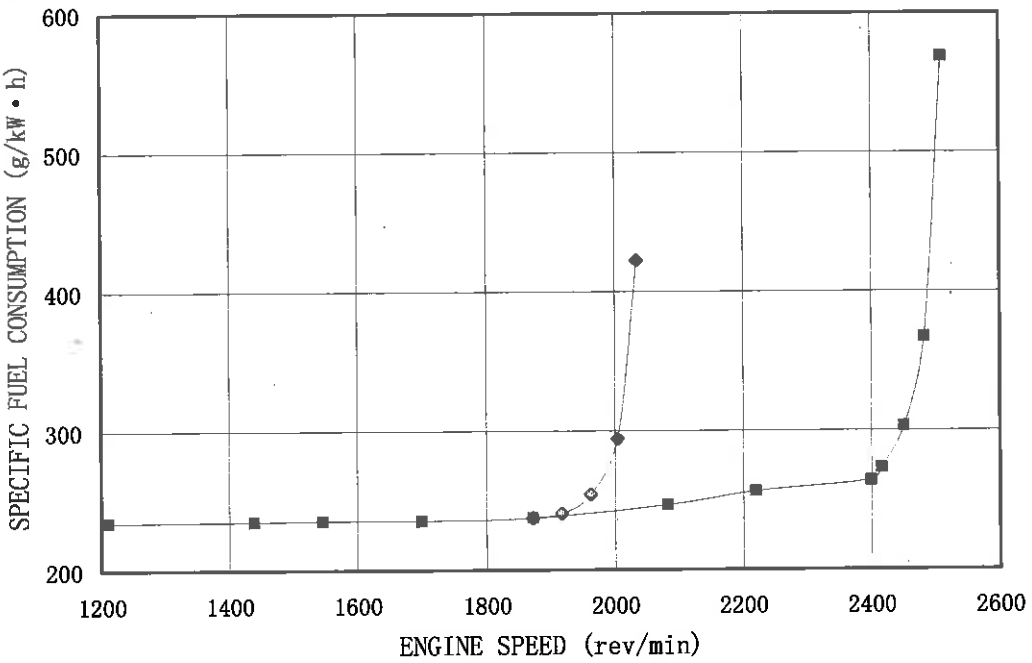
### MAIN POWER TAKE-OFF TEST CURVES



## MAIN POWER TAKE-OFF TEST CURVES



## MAIN POWER TAKE-OFF TEST CURVES

