### ANTAM POWER TILLER CODE Approval and date

**Testing station**

**Report on test in accordance with ANTAM test Code for testing of power tiller**

PHOTO of power tiller

Make /model of power tiller

### Manufacturer

**Testing station report number**

**Date**

2

Table of content

|  |  |  |
| --- | --- | --- |
| Sr.No. | Name of test | Page |
| 1 | Specification |  |
| 2 | Engine performance test |  |
| 3 | Rotary shaft performance test |  |
| 4 | Vibration measurement test |  |
| 5 | Drawbar performance test |  |
| 6 | Turning ability measurement |  |
| 7 | Parking brake test |  |
| 8 | Noise measurements at operator’s ear level |  |
| 9 | Waterproof test |  |
| 10 | Repair and adjustment |  |
| 11 | Remarks |  |

This test report provides the results of the tests conducted in accordance with the ANTAM Test Codes …..(Code version ANTAM 1001/2016) for Power Tiller.

This report has been approved by the ANTAM Secretariat and isnot authentic without the official approval number of ANTAM.

No reproduction of this report or any part of it can be made without prior approval by the testing station(s).

Power Tiller manufacturer’s name :

Address :

Location of Power Tiller assembly :

Submitted for test by :

Selected for test by :

Place of running-in :

Duration of running-in (hours) :

Location of test :

ANTAM Code Version :

Signature of test engineer Signature of Head of Testing Station

Address: Address:

Date:

Official seal/stamp of the testing station

### 1 SPECIFICATIONS

**1.1 Power Tiller**

Type :

Make :

Model :

Serial number :

Year of manufacture :

### 1.2 Engine

Type :

Make :

Model :

Serial number :

Engine rated speed (recommended by : manufacturer), rpm

Power at rated speed, kW :

### 1.3 Cylinder and Cylinder Head

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Configuration (vertical/horizontal) | Bore/stroke, (mm) | Capacity  (cc) | Compression ratio | Type of combustion chamber |
|  |  |  |  |  |

**1.4 Fuel System**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Capacity of fuel tank, (l) | Type of fuel filter | **Injector** | | |
| Type | Manufacturer’s production pressure setting (kPa) | Injection timing |
|  |  |  |  |  |

**1.5 Governor**

|  |  |  |
| --- | --- | --- |
| Type | Governed range of engine speed, rpm | Rated engine speed, rpm |
|  |  |  |

**1.6 Air Cleaner**

|  |  |  |
| --- | --- | --- |
| Type | Location of air intake (in case of no pre-cleaner) | Oil sump capacity, l |
|  |  |  |

**1.7 Exhaust**

Type of silencer: Location:

### 1.8 Lubrication

### –Type of lubricant oil:

### -Oil sump capacity, l :

**1.9 Cooling System**

|  |  |  |
| --- | --- | --- |
| Type | Details of pump and fan, if available | Coolant capacity, l |
|  |  |  |

**1.10 Electrical System**

|  |  |  |  |
| --- | --- | --- | --- |
| Voltage, V | Generator | Output power, kW | Details of headlights (number, Watt) |
|  |  |  |  |

**1.11 Power Transmission System**

|  |  |  |  |
| --- | --- | --- | --- |
| Type of gearbox | Oil capacity, l | Type of main clutch | Type of steering clutch |
|  |  |  |  |

|  |  |  |
| --- | --- | --- |
|  | Gear Number | Nominal travel speed at rated engine……rpm, km/h |
| Forward | L1 |  |
| L2 |  |
| L3 |  |
| H1 |  |
| H2 |  |
| H3 |  |
| Reverse | L1 |  |
| H1 |  |

**1.12 Rotary Shaft**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Location | Number of splines | Speed, rpm | Diameter of shaft, mm | Height above ground, mm |
|  |  |  |  |  |
| Direction of rotation (viewed from driving end) | Rotary shaft speed at rated engine speed, rpm | Type of Power transmission system | Number/ type/Arrangement for fitting of tines on the shaft | |
|  |  |  |  | |

**1.13 Main Pulley**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type and number of belts | Diameter of pulley, mm | Location | Reduction ratio (from engine to clutch) | Rotational speed at rated engine speed, rpm |
|  |  |  |  |  |

**1.14 Hitch**

|  |  |  |  |
| --- | --- | --- | --- |
| Type | Location | Height above ground level, mm | |
| Maximum | Minimum |
|  |  |  |  |

**1.15 Parking Brake**

Type:

Method of operation:

### 1.16 Wheels

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Types | Make | Number | Size/ Ply rating | Recommended inflation pressure, kPa | | Track width, mm: Method of changing track width |
| fieldwork | transport |
|  |  |  |  |  |  |  |

Steel/cage wheel:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type | Size | | Mass, (kg) | Track width, (mm) |
| Diameter (mm) | Width (mm) |
|  |  | |  |  |

### 1.17 Operator’s Seat

Type:

Type of suspension:

Range of adjustment (if any), mm:

### 1.18 Ballast Mass

|  |  |  |
| --- | --- | --- |
| Optional ballast | Water (Kg) | Cast Iron Weight on Wheel (Kg) |
|  |  |

**1.19 Mass of Power Tiller (without driver but with all lubricants, fuel and coolant full)**

|  |  |  |
| --- | --- | --- |
| **Total** | **Ballast** | **Unballast** |
|  |  |

**1.20 Overall Dimensions**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Conditions | Length\* (mm) | Width\* (mm) | Height\* (mm) | Ground Clearance (mm) |
| Without ballast |  |  |  |  |
| \* Measure the outermost points | | | | |

**1.21 Fuel and Lubricants used for test**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Fuel** | Type | | Density at 15°C | |
|  | |  | |
| **Lubricants** | Engine | | Transmission | |
| Type | Grade | Type | Grade |
|  |  |  |  |

**2 ENGINE PERFORMANCE TEST**

Date and place of test:

Type of dynamometer used:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Pow er (kW) | | Crank Shaft Torque (Nm) | | Engin e Speed (rpm) | Fuel Consumption | | Specific Energy (kWh/1) | Temperature, 0C | | | | | Atmospheric Conditions | | |
| Hourly (kg/h) | Specific (g/kWh) | Fuel | Engine oil | Intake Air | Coolant | Air exhaust | Temp (0C) | RH (%) | Pres sure (kPa) |
| **Power At Rated Engine speed** | | | | | | | | | | | | | | | |
|  | |  |  | |  |  |  |  |  |  |  |  |  |  |  |
| **Varying Load Test**  a) Torque corresponding to maximum power at rated engine speed | | | | | | | | | | | | | | | |
|  |  | |  | |  |  |  |  |  |  |  |  |  |  |  |
| b) 85% torque obtained in (a) | | | | | | | | | | | | | | | |
|  |  | |  | |  |  |  |  |  |  |  |  |  |  |  |
| c) 75% torque obtained in (b) | | | | | | | | | | | | | | | |
|  |  | |  | |  |  |  |  |  |  |  |  |  |  |  |
| d) 50% torque obtained in (b) | | | | | | | | | | | | | | | |
|  |  | |  | |  |  |  |  |  |  |  |  |  |  |  |
| e) 25% torque obtained in (b) | | | | | | | | | | | | | | | |
|  |  | |  | |  |  |  |  |  |  |  |  |  |  |  |
| f) Unloaded | | | | | | | | | | | | | | | |
|  |  | |  | |  |  |  |  |  |  |  |  |  |  |  |
| **Five hour engine rating test**  90% load corresponding to maximum power | | | | | | | | | | | | | | | |
|  |  | |  | |  |  |  |  |  |  |  |  |  |  |  |
| Load corresponding to maximum power. | | | | | | | | | | | | | | | |
|  |  | |  | |  |  |  |  |  |  |  |  |  |  |  |

**3 ROTARY SHAFT TEST**

Date and place of test:

Type of dynamometer used:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Tests | Rotary Shaft Power  kW | Rotary Shaft Torque  Nm | Engine Speed  rpm | Fuel Consumption | | Specific Energy  kWh/l | Temperature  oC | | | | | Pressurre  kPa | | | Atmospheric Conditions | | | Rotary Shaft Oil Temp  oC |
| Hourly  kg/h | Specific  g/kWh | Fuel | Engine Oil | Exhaust | Intake Air | Coolant | Intake Air | Exhaust Gas | Lub Oil | Temp  oC | Relative Humidity  % | Pressure  kPa |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| Varying engine speed at full load  i)  ii)  iii)  etc |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Five hours test at rated power of rotary shaft a)At load corresponding to 90% of maximum power (4 hours):  i)  ii)  iii)  etc  b) At load corresponding to maximum power  i)  ii)  iii)  etc |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**4 VIBRATION TEST**

F-1 Date of test F-2 Type of instrument

F-3 Location of test

TYPE of POWER TILLER (tilling or pull)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S.No. | Measuring points | | Vibration (Hz) | |
| Acceleration  (m/s2) | |
| (1) | (2) | | (3) | |
| HD | VD |
| 1 | Steering handle | Left arm grip |  |  |
| Right arm grip |  |  |
| 2 | Operator’s seat (without operator) | |  |  |
| 3 | At main frame where engine mounted | |  |  |

## \* HD: horizontal direction

VD: vertical direction

**5 DRAWBAR PERFORMANCE TEST**

Type of track:

Height of drawbar point above ground:

Maximum Power test (power tiller un-blasted)

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Gear Number | Travel Speed (km/h) | Drawbar Pull (kN) | Drawbar Power (kW) | Wheel Slip (%) | Engine Speed (rpm) | Fuel Consumption | | Specific energy (kWh/l) | Atmospheric Conditions | | |
| (kg/h) | (g/kWh) | Temperature (0C) | Pressure (kPa) | RH (%) |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |

# 6 TURNING ABILITY

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Minimum Turning Diameter (mm) | | Minimum Turning Space (mm) | |
| RHS | LHS | RHS | LHS |
| Track width ----- (mm) with steering clutch |  |  |  |  |

**7 PARKING BRAKE TEST**

|  |  |  |
| --- | --- | --- |
| Observation | Facing up Slope | Facing Down Slope |
| Parking device control force (N) |  |  |
| Whether rolling of braking wheels noticed | Yes/No | Yes/No |
| Efficacy of brakes | Yes/No | Yes/No |

**8 NOISE MEASUREMENT AT OPERATOR’S EARLEVEL**

Brief Description of the Silencing System: Background Noise Level, dB (A):

## Sound Level Meter

|  |  |  |
| --- | --- | --- |
| Type | Make | Model |
|  |  |  |

Atmospheric Conditions:

|  |  |  |
| --- | --- | --- |
| Temperature, 0C: | Relative humidity, %: | Pressure, kPa: |
|  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Gear Number | Travel Speed (km/h) | Engine Speed (rpm) | Slip (%) | Drawbar Pull (kN) | Sound Level dB (A) |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

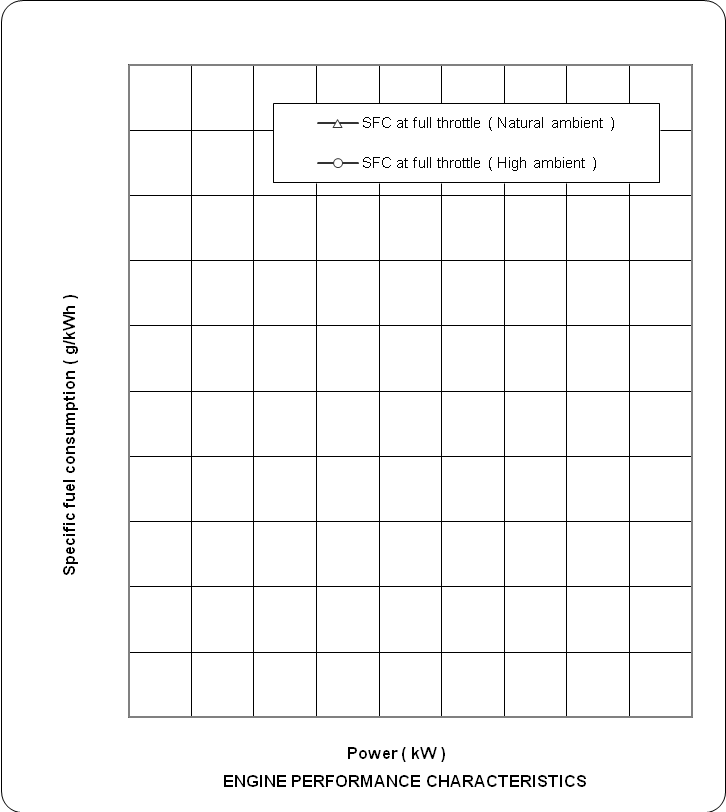
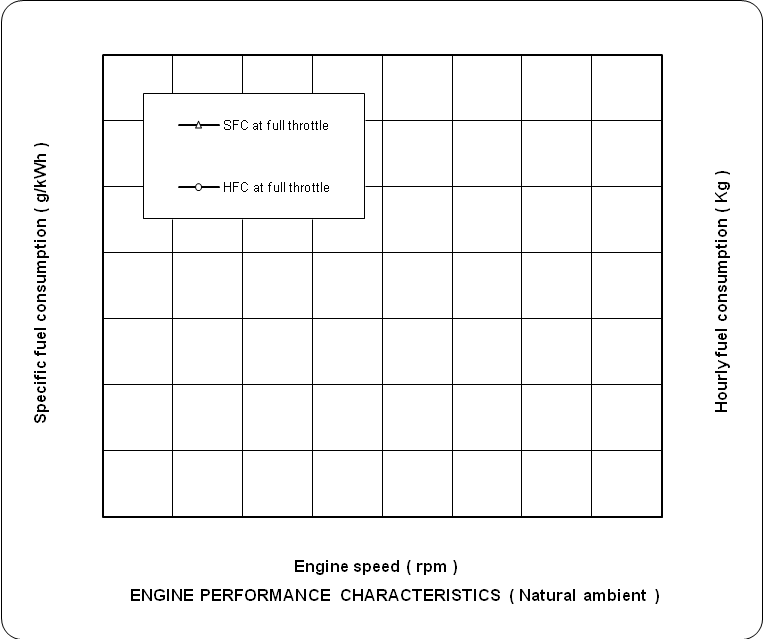
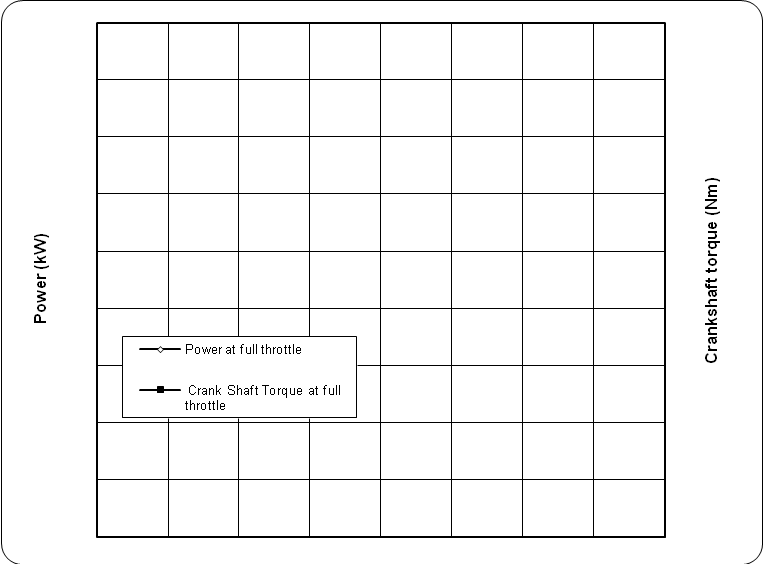
**9 WATERPROOF TEST**

|  |  |  |
| --- | --- | --- |
| Sr No. | Components | Ingress of Mud/Water |
| 1 | Axle | Yes/No |
| 2 | Clutch housing | Yes/No |
| 3 | Brake assembly | Yes/No |

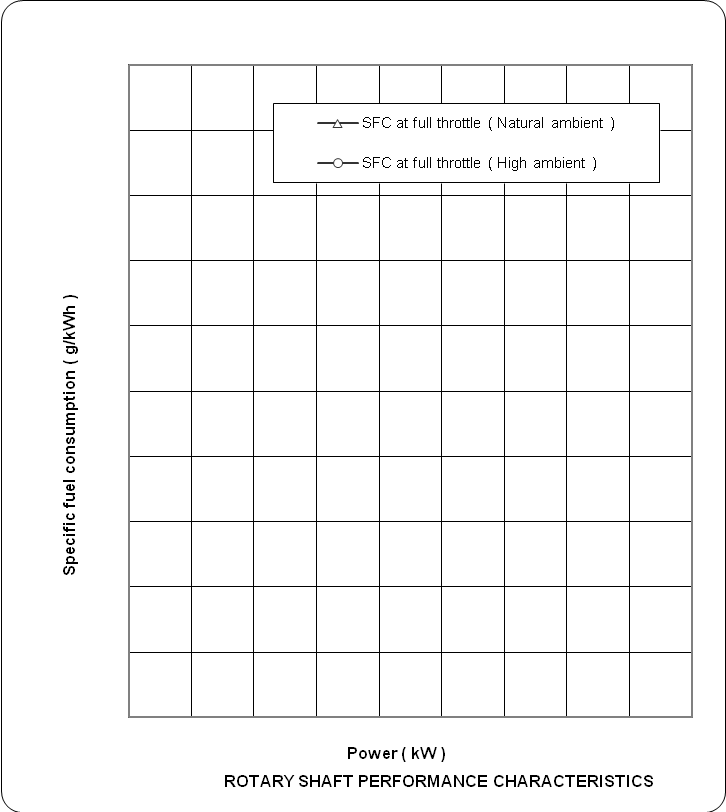
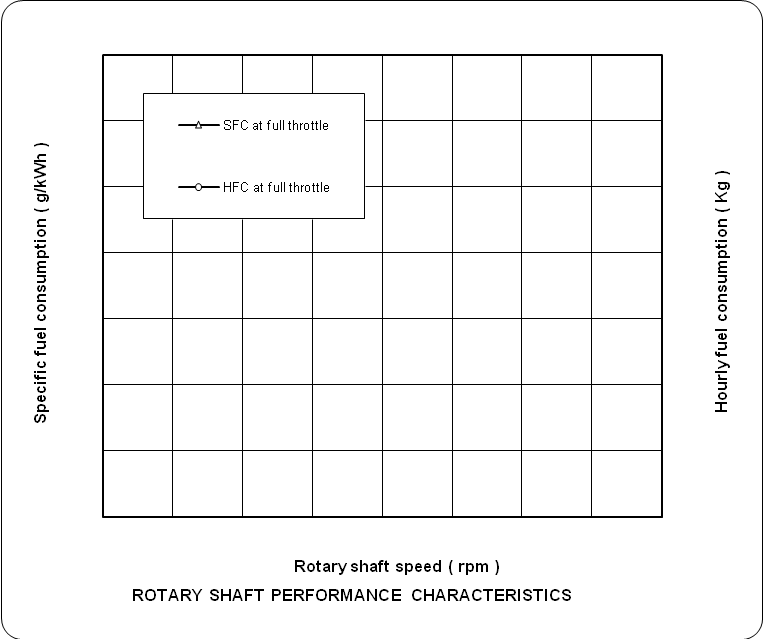
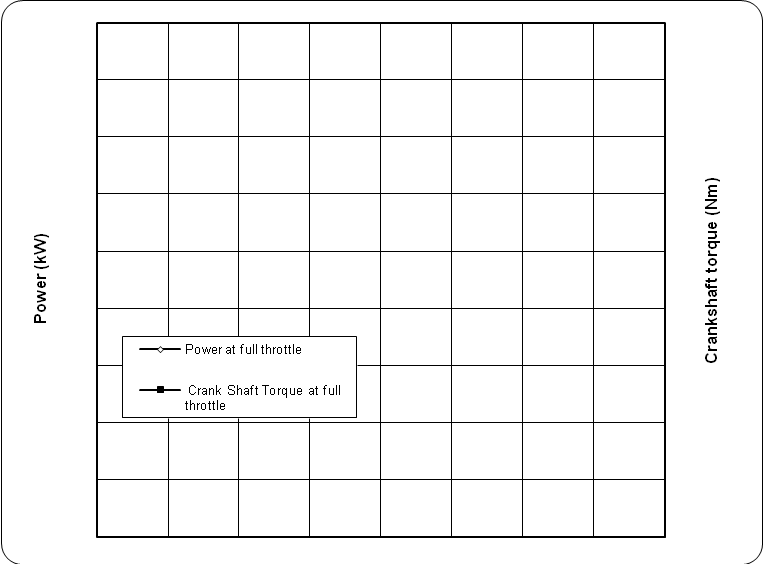
**10 REPAIRS AND ADJUSTMENTS DURING TEST**

**11 REMARKS**

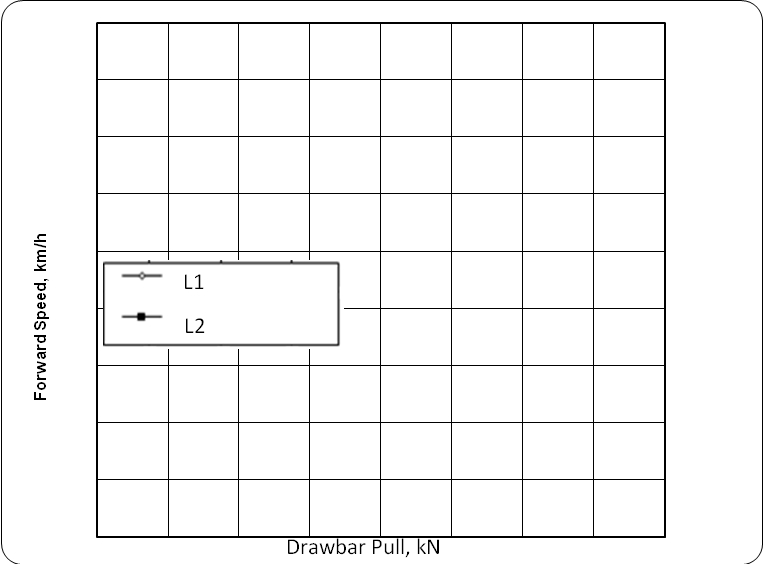
**Curves of Engine Performance Test**



**Curves of Rotary Shaft Test**



**Curves of Drawbar Performance Test**



L1

L2

Drawbar Pull, kN

