



भारत सरकार / Government of India

उत्तरी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान / Northern Region Farm Machinery Training and Testing Institute

ट्रैक्टर नगर, सिरसारोड, हिसार) हरियाणा (/ Tractor Nagar, Sirsa Road, Hisar (Haryana)- 125 001

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[ ISO - 9001 : 2015 CERTIFIED ]

## TECHNICAL SPECIFICATIONS FOR SELF PROPELLED ENGINE OPERATED/ELECTRIC AGRICULTURAL TOOL BAR

<b>1.1</b>	<b>General:</b>		
	Type of machine	:	
	Make	:	
	Model	:	
	Serial No.	:	
	Name and address of manufacture	:	
	Name and address of applicant/importer	:	
	Year of manufacture	:	
Country of origin	:		
<b>1.2</b>	<b>Details of prime mover</b>		
	Name and address of manufacturer	:	
	Type	:	
	Make	:	
	Model	:	
	Sr. No.	:	
	Country of origin	:	
	Year of manufacture	:	
	<b>Engine speed (recommended setting), rpm:</b>		
	-High idle speed	:	
	-Low idle speed	:	
	Rated speed, rpm	:	
	No load engine speed for field operation, rpm	:	
	Speed at maximum torque, rpm	:	
	<b>Electric motor speed (recommended setting), rpm (if applicable):</b>		
-High idle speed	:		
-Low idle speed	:		

Name of the Manufacturer/ Applicant	Document No, if any Revision status	Name of the Test Agency: NRFMTTI, Hisar
Signature :	Make :	Signature :
Name :	Model :	Name :
Designation :	Sheet No. _____ of _____	Designation :
Date :		Date :

	Rated speed, rpm	:	
	No load motor speed for field operation, rpm	:	
	Speed at maximum torque, rpm	:	
	Whether the prime mover (engine/electric motor & battery) has already been tested by authorized testing centre (Yes/No)	:	
	If yes, then specify the valid test report No. and upload the copy of test report	:	
	If yes test report Number	:	
<b>1.3</b>	<b>Battery (if applicable):</b>		
	Name and address of manufacturer	:	
	Type	:	
	Make	:	
	Model	:	
	Sr. No.	:	
	Capacity and rating	:	
	Country of origin	:	
	Year of manufacture	:	
<b>1.3.1</b>	<b>Battery charger from AC supply:</b>		
	Make	:	
	Model	:	
	Input voltage	:	
	Output voltage	:	
	Output current	:	
	Country of origin	:	
<b>1.4</b>	<b>Cylinder &amp; cylinder head</b>		
	Number	:	
	Disposition	:	
	Bore/Stroke, mm	:	
	Capacity, cc	:	
	Type of valve	:	
	<b>Valve clearance (mm):</b>		
	-Inlet	:	
	-Exhaust	:	
	Compression ratio	:	
<b>1.5</b>	<b>Carburetor (if applicable):</b>		
	Make	:	
	Type	:	

Name of the Manufacturer/ Applicant	Document No, if any Revision status	Name of the Test Agency: NRFMTTI, Hisar
Signature :	Make :	Signature :
Name :	Model :	Name :
Designation :	Sheet No. _____ of _____	Designation :
Date :		Date :

<b>1.6</b>	<b>Spark Plug (if applicable):</b>		
	Make	:	
	Model	:	
	Spark plug gap, mm	:	
<b>1.7</b>	<b>Fuel supply system:</b>		
	Type of fuel feed	:	
<b>1.7.1</b>	<b>Fuel tank</b>		
	Material	:	
	Capacity of fuel tank, l	:	
	Location of fuel tank	:	
	Provision for draining of sediments/ water	:	
	Fuel filter	:	
	Provision of fuel on/off cock	:	
<b>1.7</b>	<b>Governor:</b>		
	Make	:	
	Model/Group combination number	:	
	Type	:	
<b>1.8</b>	<b>Fuel injection pump (If applicable)</b>		
	Type	:	
	Make	:	
	Model/Group combination number	:	
	Sr. No.	:	
	Method of drive	:	
<b>1.9</b>	<b>Fuel Injector (If applicable)</b>		
	Type	:	
	Make	:	
	Model/Group combination number	:	
	Sr. No.	:	
	Injection pressure (MPa)	:	
	Injection timing (degrees)	:	
<b>1.10</b>	<b>Air intake system:</b>		
<b>1.10.1</b>	<b>Pre-cleaner:</b>		
	Type	:	
	Make & Model	:	
<b>1.10.2</b>	<b>Air cleaner</b>		
	Type	:	
	Make and model	:	
	Location	:	
	Recommended service schedule, h	:	

Name of the Manufacturer/ Applicant	Document No, if any Revision status	Name of the Test Agency: NRFMTTI, Hisar
Signature :	Make :	Signature :
Name :	Model :	Name :
Designation :	Sheet No. _____ of _____	Designation :
Date :		Date :

<b>1.11</b>	<b>Exhaust:</b>	
	Type of silencer	:
	Location of silencer	:
	Spark arresting device, if any	:
<b>1.12</b>	<b>Lubrication system:</b>	
	Type	:
	Oil filter	:
	Oil capacity, l	:
	Recommended grade of lubricant oil	:
	Oil change period (h)	:
<b>1.13</b>	<b>Cooling system:</b>	
	Type	:
	Dia. of blower, mm	:
	No. of vanes	:
<b>1.14</b>	<b>Starting system:</b>	
	Type	:
	Aid for cold starting	:
	Any other provision for easy starting	:
<b>1.15</b>	<b>Electrical System:</b>	
<b>1.15.1</b>	<b>Battery:</b>	
	Make & model	:
	Type	:
	Capacity and rating	:
	Serial no.	:
	Location	:
<b>1.15.2</b>	<b>Starter:</b>	
	Make	:
	Model	:
	Type	:
	Power rating	:
	Sr. no.	:
<b>1.15.3</b>	<b>Generator:</b>	
	Make	:
	Type	:
	Power rating	:
	Method of drive	:
<b>1.15.4</b>	<b>Voltage regulator:</b>	
	Make	:
	Model	:

Name of the Manufacturer/ Applicant	Document No, if any Revision status	Name of the Test Agency: NRFMTTI, Hisar
Signature :	Make :	Signature :
Name :	Model :	Name :
Designation :	Sheet No. _____ of _____	Designation :
Date :		Date :

	Type	:	
	Cut off voltage & current	:	
	Location	:	
<b>1.15.5</b>	<b>Main switch</b>		
<b>1.15.6</b>	<b>Horn</b>		
	Make	:	
	Type	:	
	location	:	
<b>1.16</b>	<b>Power Transmission system:</b>		
	Type	:	
<b>1.16.1</b>	<b>Clutch</b>		
	Make	:	
	Type of clutch	:	
	Dia. of clutch plate, mm	:	
	Number of friction plate	:	
	Method of operation	:	
	Location of clutch	:	
<b>1.16.2</b>	<b>Transmission system:</b>		
	Type	:	
	Make	:	
	No. of speed	:	
	Recommended grade of oil	:	
	Oil capacity, l	:	
	Oil change period	:	
	<b>Gear ratio engine to drive wheel</b>		
	-L1	:	
	-L2	:	
	-L3	:	
	-H1	:	
	-H2	:	
	-H3	:	
	-LR1	:	
	-LR2	:	
	-LR3	:	
<b>1.16.3</b>	<b>Rear differential unit:</b>		
	Type	:	
	Reduction through crown wheel & pinion	:	
	Oil capacity, l	:	
	Grade of oil ( <b>apa</b> )	:	
	Oil change period ( <b>apa</b> )	:	

Name of the Manufacturer/ Applicant	Document No, if any Revision status	Name of the Test Agency: NRFMTTI, Hisar
Signature :	Make :	Signature :
Name :	Model :	Name :
Designation :	Sheet No. _____ of _____	Designation :
Date :		Date :

	<b>Differential lock:</b>		
	Type	:	
	Location	:	
	Method of operation	:	
<b>1.16.4</b>	<b>Final drive:</b>		
	Make (apa)	:	
	Type	:	
	Reduction through final drive	:	
	Oil capacity of final drive, l	:	
	Oil change period	:	
<b>1.16.5</b>	<b>Power take-off shaft:</b>		
	Type	:	
	Method of engaging	:	
	No. of shaft	:	
	PTO speed corresponding to rated engine speed, rpm	:	
<b>1.16.6</b>	<b>Power lift ( Hydraulic system):</b>		
	Make	:	
	Type	:	
	No. and type of cylinder	:	
	Type of linkage lock for transport	:	
<b>1.16.6.1</b>	<b>Hydraulic pump:</b>		
	Make	:	
	Type	:	
	Location	:	
	Method of drive	:	
	No. & type of filters	:	
	Hydraulic oil capacity, l	:	
	Oil change period	:	
	Details of control levers	:	
	Method of draft sensing	:	
<b>1.17</b>	<b>Brakes:</b>		
<b>1.17.1</b>	<b>Service brakes:</b>		
	Numbers	:	
	Make	:	
	Type	:	
	Location	:	
	No. of disc/shoes	:	
	Area of lining	:	
	Method of operation	:	

Name of the Manufacturer/ Applicant	Document No, if any Revision status	Name of the Test Agency: NRFMTTI, Hisar
Signature :	Make :	Signature :
Name :	Model :	Name :
Designation :	Sheet No. _____ of _____	Designation :
Date :		Date :

	Oil capacity, l	:	
<b>1.17.2</b>	<b>Parking brake:</b>		
	Type	:	
	Location & method of operation	:	
<b>1.18</b>	<b>Depth control mechanism:</b>		
<b>1.18.1</b>	<b>Skid:</b>		
	Type & material	:	
	Size of flat, mm	:	
	Method of fixing	:	
<b>1.16.2</b>	<b>Adjusting flat plate:</b>		
	Type	:	
	Depth adjustment, mm	:	
	Method of mounting	:	
<b>1.17</b>	<b>Hitch pyramid</b>		
	Construction details	:	
<b>1.18</b>	<b>Attachments:</b>		
<b>1.18.1</b>	<b>Rotary tiller/rotavator:</b>		
<b>1.18.1.1</b>	<b>Rotor cover:</b>		
	Material	:	
	Length, mm	:	
	Width, mm	:	
	Thickness, mm	:	
	Method of fixing	:	
<b>1.18.1.2</b>	<b>Rotor shaft:</b>		
	Material	:	
	Type of rotor axle	:	
	Width across flat of rotor axle, mm	:	
	Length of shaft, mm	:	
	Length of extension shaft, mm	:	
	No. of flanges	:	
	Type of flanges	:	
	Size of flanges, mm	:	
	Thickness of flange, mm	:	
	Distance between two flanges, mm	:	
	No. of blades on each flange	:	
	Overall length of rotor, mm	:	
	Diameter of rotor with blades, mm	:	
	Method of fixing of blade	:	
	No. of disc	:	
	Diameter of disc, mm	:	

Name of the Manufacturer/ Applicant	Document No, if any Revision status	Name of the Test Agency: NRFMTTI, Hisar
Signature :	Make :	Signature :
Name :	Model :	Name :
Designation :	Sheet No. _____ of _____	Designation :
Date :		Date :

<b>1.18.1.3</b>	<b>Rotor blades:</b>		
	Number	:	
	Type	:	
	Material	:	
	Thickness, mm	:	
	Width of beveled edge, mm	:	
	No. and size of hole on each blade for fixing it to the flanges, mm	:	
	Arrangement of blades on the axle	:	
<b>1.18.1.4</b>	<b>Depth control mechanism:</b>		
	Type	:	
	No. of flat	:	
	Material	:	
	Size of flat, mm		
	Length Width Thickness	: : :	
Provision for depth adjustment	:		
<b>1.18.1.5</b>	<b>Overall dimensions of rotavator (mm):</b>		
	-Length	:	
	-Width	:	
	-Height	:	
<b>1.18.1.6</b>	<b>Mass, kg</b>	:	
<b>1.18.1.7</b>	<b>Color of rotavator</b>	:	
<b>1.18.1.8</b>	<b>Labeling /Identification plate of rotavator:</b>		
<b>1.18.2</b>	<b>Cultivator:</b>		
<b>1.18.2.1</b>	<b>Main frame:</b>		
	Material & size, mm	:	
	Dimension of frame, mm	:	
<b>1.18.2.2</b>	<b>Extension frame:</b>		
	Number	:	
	Size of square box, mm	:	
	Dimension of frame, mm	:	
<b>1.18.2.3</b>	<b>Tine:</b>		
	Number	:	
	Type	:	

Name of the Manufacturer/ Applicant	Document No, if any Revision status	Name of the Test Agency: NRFMTTI, Hisar
Signature :	Make :	Signature :
Name :	Model :	Name :
Designation :	Sheet No. _____ of _____	Designation :
Date :		Date :



	Arrangement on main frame	:	
	Material	:	
	Dimensions, mm	:	
	No., type and size of bolts for tightening shovel to the tyne, mm	:	
	Method of fixing	:	
	Provision for adjusting the spacing between the tynes, mm	:	
	Provision for height adjustments	:	
<b>1.18.2.4</b>	<b>Shovel:</b>		
	No. of shovels	:	
	Type	:	
	Material	:	
	Number and size of holes on each shovel for fixing the tyne, mm	:	
	Hole spacing, mm	:	
	Method of fixing	:	
<b>1.18.2.5</b>	<b>Depth control mechanism:</b>		
	Type	:	
	No. of flat	:	
	Material	:	
	Size of flat, mm		
		Length :	
		Width :	
		Thickness :	
	Provision for depth adjustment	:	
<b>1.18.2.6</b>	<b>Overall dimensions of cultivator, mm:</b>		
	-Length	:	
	-Width	:	
	-Height	:	
<b>1.18.2.7</b>	Mass, kg	:	
<b>1.18.2.8</b>	<b>Color of cultivator</b>	:	
<b>1.18.2.9</b>	<b>Labeling /Identification plate of cultivator:</b>		

Name of the Manufacturer/ Applicant	Document No, if any Revision status	Name of the Test Agency: NRFMTTI, Hisar
Signature :	Make :	Signature :
Name :	Model :	Name :
Designation :	Sheet No. _____ of _____	Designation :
Date :		Date :

<b>1.18.3</b>	<b>Details of additional attachment (s), if any:</b>	
<b>1.19</b>	<b>Steering handle bar:</b>	
	Material	:
	Dia. of pipe, mm	:
	No. of hand grips	:
	Length of grip, mm	:
	Material of grip	:
	Dia. of grip, mm	:
	Provision for handle height adjustment	:
	Height of handle bar from ground level, mm	:
	Provision for angle adjustment	:
	Stand	:
	Transport wheel	:
	Type	:
	Make	:
	Number Size, mm	:
Recommended pressure at 150 kg load, kPa	:	
<b>1.20</b>	<b>Wheel equipment:</b>	:
<b>1.20.1</b>	<b>Steering wheels:</b>	
	Type	:
	Make	:
	Number	:
	Size, mm	:
	Track width, mm	:
	Recommended load at -----kPa pressure, kg	:
<b>1.20.2</b>	<b>Drive wheels:</b>	
	Type	:
	Make	:
	Number	:
	Size, mm	:
	Track width, mm	:
	Recommended load at -----kPa pressure, kg	:
	<b>Wheel base</b>	:
<b>1.21</b>	<b>Details of controls:</b>	
<b>i)</b>		
<b>ii)</b>		
<b>iii)</b>		
<b>iv)</b>		

Name of the Manufacturer/ Applicant	Document No, if any Revision status	Name of the Test Agency: NRFMTTI, Hisar
Signature :	Make :	Signature :
Name :	Model :	Name :
Designation :	Sheet No. _____ of _____	Designation :
Date :		Date :

<b>1.22</b>	<b>Details of safety provision:</b>		
<b>i)</b>			
<b>ii)</b>			
<b>iii)</b>			
<b>iv)</b>			
<b>1.23</b>	<b>Overall dimensions of machine (mm):</b>		
	-Length	:	
	-Width	:	
	-Height	:	
<b>1.24</b>	<b>Mass, kg</b>	:	
<b>1.25</b>	<b>Color of machine:</b>		
	Engine	:	
		:	
	Main drive cover & transmission system		
	Rotary drive cover	:	
	Fuel tank	:	
	Handle bar		
<b>1.26</b>	<b>Labeling /Identification plate of machine:</b>		

Name of the Manufacturer/ Applicant	Document No, if any Revision status	Name of the Test Agency: NRFMTTI, Hisar
Signature :	Make :	Signature :
Name :	Model :	Name :
Designation :	Sheet No. _____ of _____	Designation :
Date :		Date :

ADDITIONAL INFORMATION (if applicable)			
<b>1. Engine Performance:</b>			
i.	Maximum Power, kW (Ps)	:	
ii.	Rated Power, kW (Ps)	:	
iii.	Specific fuel consumption corresponding to maximum power, kg/kWh (g/hph)	:	
iv.	Maximum equivalent crankshaft torque, Nm (kgf-m)	:	
v.	Back-up torque (%)	:	
vi.	<b>Maximum temperatures (°C):</b>		
	-Engine oil	:	
	-Coolant (water)/liner wall	:	
vii.	Lubricating oil consumption (g/kWh)	:	
viii.	Coolant consumption (% of total Coolant capacity)	:	
ix.	Smoke level (Bosch No.)	:	
<b>2.</b>	Mechanical Vibration at steering/hands	:	
<b>3.</b>	<b>Air cleaner-oil pullover:</b>	:	
	-Maximum oil pull-over (%)	:	
<b>4.</b>	<b>Noise level:</b>	:	
	Maximum ambient noise level dB(A)	:	
	Maximum noise level at the Operator's ear level dB(A)	:	

Name of the Manufacturer/ Applicant	Document No, if any Revision status	Name of the Test Agency: NRFMTTI, Hisar
Signature :	Make :	Signature :
Name :	Model :	Name :
Designation :	Sheet No. _____ of _____	Designation :
Date :		Date :

Sl. No.	Critical engine components (if applicable)	Initial Setting	Discard
1	Cylinder bore dia. (mm)		
2	Piston to cylinder clearance at skirt ,mm		
3	Piston dia (mm)		
4	<b>Ring-end gap (mm):</b>		
	-Top compression ring		
	-2 <sup>nd</sup> compression ring		
	-3 <sup>rd</sup> compression ring		
	- Oil ring		
5	<b>Ring groove clearance (mm):</b>		
	-Top compression ring		
	-2 <sup>nd</sup> compression ring		
	-3 <sup>rd</sup> compression ring		
	- Oil ring		
6	<b>Clearance of big end bearings (mm):</b>		
	- Diametrical		
	- Axial		
7	Crankshaft end float (mm)		
8	Backlash of timing gears		
9	Backlash of primary gear box gears		
10	Backlash of secondary gear box gears		
11	Overall thickness of clutch plate (mm)		
12	<b>Spring stiffness, N/mm (kgf/mm):</b>		
	-Inlet		
	-Exhaust		
13	<b>Clearance between valve guide and valve Stem (mm):</b>		
	-Inlet valve		
	-Exhaust valve		

Place:

Signature: -----

Date:

Name of the applicant: -----

Designation: -----

Address: -----

Name of the Manufacturer/ Applicant	Document No, if any Revision status	Name of the Test Agency: NRFMTTI, Hisar
Signature :	Make :	Signature :
Name :	Model :	Name :
Designation :	Sheet No. _____ of _____	Designation :
Date :		Date :