



**INTERNATIONAL TRACTORS LIMITED,  
SONALIKA INTERNATIONAL DI-740 SUPER CM SERIES TRACTOR**



**भारत सरकार**

**GOVERNMENT OF INDIA**

कृषि मंत्रालय (कृषि एवं सहकारिता विभाग, मशीनीकरण एवं प्रौद्योगिकी प्रभाग)  
Ministry of Agriculture (Deptt. of Agri. & Co-op, Mechanization & Technology Division)

**केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान**

**CENTRAL FARM MACHINERY TRAINING & TESTING INSTITUTE**

**(An ISO : 9001-2008 Certified Institute)**

ट्रैक्टर नगर, बुदनी (म.प्र.) ४६६ ४४५ TRACTOR NAGAR, BUDNI (M.P.) 466445

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T- 896/1411/2013

**INTERNATIONAL TRACTORS LIMITED,  
SONALIKA INTERNATIONAL DI-740 SUPER CM SERIES TRACTOR  
Commercial (Batch Test)**

Manufacturer : **M/s. International Tractors Limited,  
Vill. Chack Gujran, P.O. Piplanwalan,  
Jalandhar Road,  
HOSHIARPUR (Punjab) – 146 022**

Test requested by (applicant) : The Manufacturer  
Selected for test by : The Testing authority  
Place of running-in : At CFMTTI Budni

**Duration of said running-in (h):**  
- Engine : 35  
- Transmission : NIL

**Method of Selection** : The test sample was selected randomly out of five tractors from the production line by the representative of testing authority.

**1. SPECIFICATIONS**

**1.1 Tractor:**  
Make : International Tractors Limited  
Model : Sonalika International DI-740 Super CM Series  
Variant, if any : No variant models declared by the manufacture  
Type : Four wheeled, Rear wheel driven, general purpose Agricultural Tractor.  
Year of manufacture : 2012  
Chassis number : KSADD 87783S3  
Country of Origin : India

**1.2 Engine:**  
Make : Simpsons & company Ltd.  
Model : T III A S 325.2-F 2.2  
Type : Four stroke, naturally aspirated, water cooled, direct injection, diesel engine.  
Serial number : S325.2E29676

**Engine speed (Manufacturer's recommended production setting)(rpm):**  
- Maximum speed at no load : 2100 to 2200  
- Low idle speed : 650 to 750  
- Speed at maximum torque : 1200 to 1400

**Rated speed, (rpm):**  
- For PTO use : 2000  
- For drawbar use : 2000

**1.3 Cylinder & Cylinder Head:**  
Number : Three  
Disposition : Vertical, in-line  
Bore/stroke, (mm) : 91.4 / 127  
Capacity as specified by the applicant, (cc) : 2500  
Compression ratio, (apa) : 18.5 :1  
Type of cylinder head : Monoblock



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Type of cylinder liners : Wet replaceable  
Type of combustion chamber : Open chamber  
Arrangement of valves : Overhead, Inline

**Valve clearance (cold/hot):**  
- Inlet valve, (mm) : 0.254  
- Exhaust valve, (mm) : 0.254

**1.4 Fuel System:**  
Type of fuel feed system : Gravity & force feed

**1.4.1 Fuel tank:**  
Capacity, (l) : 55.00  
Location : Above the clutch housing  
Provision for draining of sediments/ water : Not Provided  
Material of fuel tank : Metallic

**1.4.2 Water separator :**  
Make : Alert  
Type : Inverted funnel  
Location : Between fuel tank and fuel injection pump

**1.4.3 Fuel feed pump:**  
Make : Bosch, India  
Type : Plunger  
Model/Group combination No. : P/KSG 22AD 45, 9440030030  
Provision of sediment bowl : Provided (Metallic)  
Method of drive : Through cam shaft of fuel injection pump.

**1.4.4 Fuel filters:**  
Make : Bosch, India  
Model/Group combination No. : F002H20151  
Number : Two  
**Type of elements:**  
- Primary : Cloth  
- Secondary : Paper  
Capacity of final stage filter, ( l ) : 0.45

**1.4.5 Fuel Injection pump:**  
Make : Bosch, India  
Model/Group combination No. : F002 AOZ 778, PES3A80D320RS2000  
Type : Inline, Plunger  
Serial number : 20821876  
Method of drive : Through timing gears

**1.4.6 Fuel injectors:**  
Make : Bosch, India  
Model/Group combination No. : F 002 C70 018 209  
Type : Multiholes (Five holes)  
Manufacturer's production pressure : 25 + 0.8  
Injection timing : 14 (+ 0/ -2) degree before TDC  
Firing order : 1 - 2 - 3



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**Previous Sample**

- v) The coolant (Water) consumption was observed to be 6.0% of total coolant capacity, which was on higher side.
- vi) The amplitude of mechanical vibration on various assemblies marked as (\*) in Chapter-9 of test report No T-501/978 were on higher side. This calls for dampening down of vibrations to improve the operational comfort and service life of components.

**Present Sample**

The coolant (Water) consumption was observed as 0.13 % of total coolant capacity.  
  
The amplitude of mechanical vibration on various assemblies marked as (\*) in Chapter-9 of this test report are on higher side. This calls for dampening down of vibrations to improve the operational comfort and service life of components.

- 13.4 i) **Adequacy of literature:**  
No literature was supplied with the tractor for reference during the test.

The literature supplied with the tractor for reference during the test was found adequate.

**14. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS**

14.1 Evaluative (mandatory) / Non-evaluation (Non-mandatory) parameter applicable for qualifying Minimum Performance criteria as per Clause-4 (Table-1) of IS: 12207-2008 for acceptance of the tractor for the purpose of subsidies/NABARD financing are summarized as under:

S. No.	Characteristic	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2008	Values declared by the applicant (D)/ Requirement (R)	As observed	Whether meets the requirements (Yes/No.)
1	2	3	4	5	6	7
<b>14.1.1 PTO Performance :</b>						
a)	Maximum power under 2 h test, (kW) (Natural ambient condition)	Evaluative	Declared value to be achieved with a tolerance of: -5 / +10% for PTO power >35hp. -7.5/+10% for PTO power ≤ 35 hp	26.5 (D)	28.4	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	26.5 (D)	28.4	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Non Evaluative	+ 5%	287 (D)	249	Yes
d)	Maximum equivalent crankshaft torque, (Nm)	Non Evaluative	± 8%	148 (D)	157.6	Yes
e)	Back-up torque, percent	Non Evaluative	7 percent, min.	7 percent, min. (R)	16.3	Yes



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1	2	3	4	5	6	7
<b>f) Maximum operating temperature, (°C)</b>						
1)	Engine oil	Non Evaluative	The declared value should not exceed the max. value specified by the oil company and the observed value under high ambient condition should not exceed the declaration.	132 (D)	125	Yes
2)	Coolant (water)	Evaluative	The declared value should not exceed the boiling temperature of coolant under the pressurized or otherwise and the observed value under high ambient condition should not exceed the declaration.	115 (D)	93	Yes
g)	Engine oil consumption, (g/kWh)	Evaluative	Not exceeding 1% of SFC at max. power under High ambient conditions	2.47 (R)	0.84	Yes
h)	Smoke level	Evaluative	Maximum light absorption coefficient of 3.25 per metre or equivalent BOSCH No. 5.2 or 75 Hatridge value (As per CMVR)	3.25 per meter (R)	0.16 per metre	Yes
<b>14.1.2 Drawbar performance :</b>						
a)	Max. drawbar pull with ballast corresponding to 15 percent wheel slip, (kN)	Non Evaluative	Minimum 65% of static mass with ballast	16.47 (D) 16.38 (R) Minimum	21.50	Yes
b)	Max. drawbar pull without ballast corresponding to 15 percent wheel slip, (kN)	Evaluative	Minimum 65% of static mass of tractor without ballast	12.65 (D) 12.49 (R) Minimum	16.53	Yes
c)	Maximum drawbar power without ballast, (kW).	Evaluative	Min. 80% of PTO power as referred in 16.1.1 (a) of PTO performance	21.2 (D) 22.7 (R) Minimum	26.4	Yes
d)	Max. transmission oil temperature (°C)	Non Evaluative	The declared value should not exceed the maximum value specified by oil company	130 (D)	80	Yes
<b>14.1.3 Power lift and hydraulic pump performance :</b>						
<b>a) Maximum lifting capacity throughout the range of lift, (kN):</b>						
1)	At hitch points	Non Evaluative	[Tolerance of minus 10%]	10.82 (D)	11.16	Yes
2)	With the standard frame	Evaluative	The lift capacity should at least be 18 kg/PTO hp. And it should be 16 kg/engine hp where the tractor is not provided with a PTO shaft	9.81 (D) 6.81 (R) Minimum	11.19	Yes
b)	Maximum drop in the height of the point of application of the force after each 5 minutes interval for a total duration of 30 Minutes, (mm)	Non Evaluative	[Tolerance of plus 5 mm]	50 (D)	08	Yes



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**Previous Sample****Present Sample**

- v) The coolant (Water) consumption was observed to be 6.0% of total coolant capacity, which was on higher side. The coolant (Water) consumption was observed as 0.13 % of total coolant capacity.
- vi) The amplitude of mechanical vibration on various assemblies marked as (\*) in Chapter-9 of test report No T-501/978 were on higher side. This calls for dampening down of vibrations to improve the operational comfort and service life of components. The amplitude of mechanical vibration on various assemblies marked as (\*) in Chapter-9 of this test report are on higher side. This calls for dampening down of vibrations to improve the operational comfort and service life of components.
- 13.4 **Adequacy of literature:**
- i) No literature was supplied with the tractor for reference during the test. The literature supplied with the tractor for reference during the test was found adequate.

**14. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS**

- 14.1 Evaluative (mandatory) / Non-evaluation (Non-mandatory) parameter applicable for qualifying Minimum Performance criteria as per Clause-4 (Table-1) of IS: 12207-2008 for acceptance of the tractor for the purpose of subsidies/NABARD financing are summarized as under:

S. No.	Characteristic	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2008	Values declared by the applicant (D)/ Requirement (R)	As observed	Whether meets the requirements (Yes/No.)
1	2	3	4	5	6	7
<b>14.1.1 PTO Performance :</b>						
a)	Maximum power under 2 h test, (kW) (Natural ambient condition)	Evaluative	Declared value to be achieved with a tolerance of: -5 / +10% for PTO power >35hp. -7.5/+10% for PTO power ≤ 35 hp	26.5 (D)	28.4	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	26.5 (D)	28.4	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Non Evaluative	+ 5%	287 (D)	249	Yes
d)	Maximum equivalent crankshaft torque, (Nm)	Non Evaluative	± 8%	148 (D)	157.6	Yes
e)	Back-up torque, percent	Non Evaluative	7 percent, min.	7 percent, min. (R)	16.3	Yes



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1	2	3	4	5	6	7	
<b>f) Maximum operating temperature, (°C)</b>							
1)	Engine oil	Non Evaluative	The declared value should not exceed the max. value specified by the oil company and the observed value under high ambient condition should not exceed the declaration.	132 (D)	125	Yes	
2)	Coolant (water)	Evaluative	The declared value should not exceed the boiling temperature of coolant under the pressurized or otherwise and the observed value under high ambient condition should not exceed the declaration.	115 (D)	93	Yes	
<b>g) Engine oil consumption, (g/kWh)</b>							
			Not exceeding 1% of SFC at max. power under High ambient conditions	2.47 (R)	0.84	Yes	
<b>h) Smoke level</b>							
			Maximum light absorption coefficient of 3.25 per metre or equivalent BOSCH No. 5.2 or 75 Hatridge value (As per CMVR)	3.25 per meter (R)	0.16 per metre	Yes	
<b>14.1.2 Drawbar performance :</b>							
<b>a) Max. drawbar pull with ballast corresponding to 15 percent wheel slip, (kN)</b>				Non Evaluative	Minimum 65% of static mass with ballast	16.47 (D) 16.38 (R) Minimum	21.50 Yes
<b>b) Max. drawbar pull without ballast corresponding to 15 percent wheel slip, (kN)</b>				Evaluative	Minimum 65% of static mass of tractor without ballast	12.65 (D) 12.49 (R) Minimum	16.53 Yes
<b>c) Maximum drawbar power without ballast, (kW).</b>				Evaluative	Min. 80% of PTO power as referred in 16.1.1 (a) of PTO performance	21.2 (D) 22.7 (R) Minimum	26.4 Yes
<b>d) Max. transmission oil temperature (°C)</b>				Non Evaluative	The declared value should not exceed the maximum value specified by oil company	130 (D)	80 Yes
<b>14.1.3 Power lift and hydraulic pump performance :</b>							
<b>a) Maximum lifting capacity throughout the range of lift, (kN):</b>							
1) At hitch points		Non Evaluative	[Tolerance of minus 10%]	10.82 (D)	11.16	Yes	
2) With the standard frame		Evaluative	The lift capacity should at least be 18 kg/PTO hp. And it should be 16 kg/engine hp where the tractor is not provided with a PTO shaft	9.81(D) 6.81 (R) Minimum	11.19	Yes	
<b>b) Maximum drop in the height of the point of application of the force after each 5 minutes interval for a total duration of 30 Minutes, (mm)</b>				Non Evaluative	[Tolerance of plus 5 mm]	50 (D)	08 Yes



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1	2	3	4	5	6	7	
<b>14.1.4</b>	<b>Brake performance at 25 kmph:</b>						
a)	Maximum stopping distance at a force, equal to or less than 600 N on brake pedal with road ballast, (m):						
	1) Cold brake	Evaluative	10	10 (R)	8.02	Yes	
	2) Hot brake	Evaluative	10	10 (R)	8.01	Yes	
b)	Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 m/s <sup>2</sup> (N)	Evaluative	600	600 (R)	211 to 301	Yes	
c)	Whether parking brake is effective at a force of 600 N at foot pedal(s) or 400 N at hand lever	Evaluative	Yes / No	Yes (R)	Yes	Yes	
<b>14.1.5</b>	<b>Noise measurement :</b>						
a)	Maximum ambient noise emitted by the tractor dB(A)	Evaluative	As per CMVR	88 (R)	86	Yes	
b)	Maximum noise at operator's ear level dB(A)	Evaluative	As per CMVR	98 (R)	95	Yes	
<b>14.1.6</b>	<b>Amplitude of mechanical vibrations at :</b>						
	1) Left foot rest	Non Evaluative	100 microns (max)	100 (R)	130	No	
	2) Right foot rest			100 (R)	130	No	
	3) Seat (with driver seated)			100 (R)	60	Yes	
	4) Steering wheel			100 (R)	150	No	
<b>14.1.7</b>	<b>Haulage requirements :</b>						
a)	Gross mass of the trailers, (tonnes):						
	1) Two wheel	Non Evaluative	--	4.0 (D)	4.0	Yes	
	2) Four wheel		--	5.0 (D)	5.0	Yes	
b)	Distance travelled / litre of fuel consumption, (km/l):						
	1) Two wheel	Non Evaluative	--	5 to 6 (D)	5.61 to 5.86	Yes	
	2) Four wheel		--	5 to 6 (D)	5.01 to 5.34	Yes	
c)	Fuel consumption (ml/km/tonne):						
	1) Two wheel	Non Evaluative	--	30 to 40 (D)	42.7 to 44.6	No	
	2) Four wheel		--	30 to 40 (D)	37.5 to 39.9	Yes	
<b>14.1.8</b>	<b>Wetland cultivation :</b>						
	Sealing for the following assemblies:	Evaluative	The identified assemblies should essentially meet the requirement of IS: 11082. No water ingress in the identified assembly given in column-2. If tractor does not meet the requirements of wetland cultivation, it may be recommended for dry land operation only.	There should be no ingress of water and/or mud (R)	No Ingress of mud and water was observed in the assemblies specified in column 3 during Initial Commercial Testing of tractor . (Test Report No T-603/1106 Nov.2007)	--	
	1) Clutch assembly	-do-					
	2) Brake housings	-do-					
	3) Front axle hubs	-do-					



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1	2	3	4	5	6	7	
<b>14.1.9</b>	<b>Safety features :</b>						
a)	Guards against moving and hot parts	Evaluative	As per CMVR	At present no requirements	Not provided for hydraulic pipe	No	
b)	Lighting arrangement	Evaluative	As per CMVR	--	Provided	Yes	
<b>14.1.10</b>	<b>Labelling of tractors (Provision of labelling plate):</b>						
	1) Make	Evaluative	Should conform to the requirements of CMVR along-with declared value of PTO HP	--	International Tractors Ltd.	Yes	
	2) Model	Evaluative		--	Sonalika International DI-740 Super CM Series	Yes	
	3) Year of manufacture	Evaluative		--	2012	Yes	
	4) Engine number	Evaluative		--	S 325.2E 29676	Yes	
	5) Chassis number	Evaluative		--	KSADD 87783 S 3	Yes	
	6) Declaration of PTO power, (kW)	Evaluative		--	26.5(35.53)	Yes	
<b>14.1.11</b>	<b>Discard limit for:</b>						
a)	Cylinder bore diameter, (mm)	Evaluative	To be specified by the manufacturer	91.68	91.49 to 91.50	Yes	
b)	Clearance between piston & cylinder liner at skirt, (mm)	Non Evaluative		0.45	0.144 to 0.158	Yes	
c)	<b>Ring end gap (mm):</b>						
	- Top comp. ring.	Evaluative	-do-	1.50	0.45 to 0.50	Yes	
	- 2 <sup>nd</sup> comp. ring.		-do-	1.50	0.50 to 0.55	Yes	
	- Oil ring.		-do-	1.50	0.50	Yes	
d)	<b>Ring groove clearance (mm):</b>						
	- Top comp. ring.	Evaluative	-do-	0.25	0.057 to 0.065	Yes	
	- 2 <sup>nd</sup> comp. ring.		-do-	0.25	0.054 to 0.058	Yes	
	- Oil ring.		-do-	0.25	0.028 to 0.038	Yes	
e)	<b>Clearance of main bearings (mm):</b>						
	- Diametrical clearance	Evaluative	-do-	0.25	0.114 to 0.141	Yes	
	- Crankshaft end float	Evaluative	-do-	0.50	0.25	Yes	
f)	<b>Clearance of big end bearings, (mm):</b>						
	- Diametrical	Evaluative	-do-	0.25	0.083 to 0.126	Yes	
	- Axial	Evaluative	-do-	0.75	0.35	Yes	
g)	Clearance between king pin and bush, (mm)	Non Evaluative	-do-	1.00	0.13 to 0.16	Yes	
h)	Clearance between centre pin and bush, (mm)	Non Evaluative	-do-	1.00	0.24	Yes	



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14.1.12 CATEGORY OF BREAKDOWNS / DEFECTS :					
S. No.	Category of breakdowns	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2008	As observed	Whether meets the requirements (Yes/No.)
1.	Critical	Evaluative	No critical breakdown	None	Yes
2.	Major	Evaluative	Not more than two and neither of them should be repetitive in nature	None	Yes
3.	Minor	Evaluative	Not more than five and frequency of each should not be more than two.	4 (Mn14)	Yes
4.	Total breakdowns	Evaluative	In no case, the total number of breakdowns should exceed five, that is, (2 major + 3 minor) or 5 minor breakdowns.	4	Yes

14.2 Optional requirements as per Clause-4 (Table-2) of IS:12207-2008:				
S. No.	Characteristic	Requirements as per IS: 12207-2008	As observed	Whether meets the requirements (Yes/No.)
1	2	3	4	5
1	Air cleaner oil pull over, max. Oil pull over (%)	0.25% (max.)	0.21	Yes
2.	Seating requirements	Should meet the requirements of IS: 12343-1998	Does not meet the requirement	No
3.	Fitment of ROPS	With a provision for fitment of ROPS.	Not provided	No
		If ROPS fitted it should meet the requirement of IS: 11821-1992	ROPS not fitted	Not applicable
4.	Technical requirements for PTO shaft	Should meet the requirements of IS: 4931 -1995	Meets the requirement	No
5.	Dimensions of three point linkage	Should meet the requirements of IS: 4468 (Part-I)-1997	Does not meet the requirement	No
6.	Specifications of linkage drawbar	Should meet the requirements of IS: 12953-1990.	Meets the requirement	No
	Specification of swinging drawbar	Should meet the requirements of IS: 12362 Part 3-1994.	Not provided	Not applicable
7.	Accessories	Trailer hitch, front tow hook, linkage drawbar may be provided.	Provided	Yes

**14.3 Conformity with following IS:**

- i) Guidelines for declaration of power and specific fuel consumption and labelling of agricultural tractors (First revision) [IS 10273:1987 (Reaffirmed in March, 2009)] : **Conforms**



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- ii) Agricultural tractors – Rear mounted power take-off - Types 1, 2 and 3(third revision)[IS: 4931-1995 (Reaffirmed in March, 2009)] : **Does not conform**
- iii) Agricultural wheeled tractors - Rear mounted three-point linkage: Part 1 Categories 1, 2, 3 & 4 (fourth revision) [IS 4468(Part-I):1997 (Reaffirmed in March, 2007) / ISO 730-1:1994] : **Does not conform**
- iv) Drawbar for agricultural tractors – Link type [IS 12953:1990 (Reaffirmed in March, 2009)] : **Does not conform**
- v) Agricultural tractors - Operator's seat technical requirement [IS 12343 –1998 (First revision) (Reaffirmed in March, 2009)] : **Does not conform**
- vi) Guide for safety & comfort of operator of agricultural tractors: Part 1 General requirements (first revision) : [IS 12239 (PT-1) 1996 (Reaffirmed in March, 2007) /ISO 4254-1:1989] : **Does not Conform**
- vii) Tractors and machinery for agriculture and forestry – Technical means for ensuring safety Part 2: Tractors (first revision) (IS: 12239 (Part-2) 1999) (Reaffirmed in March, 2009)] : **Does not conform**
- viii) Tractors and machinery for agriculture and forestry, powered lawn and garden equipment - Symbols for operator controls and other displays [IS: 6283 (Part-1) – 2006 (Reaffirmed in March, 2009) and IS: 6283 (Part-2)-2007 (Reaffirmed in March, 2009)] : **Conforms**
- ix) Guidelines for location and operation of operator controls on agricultural tractors and machinery (first revision) IS: 8133-1983 (Reaffirmed in March, 2009)] : **Does not conform**
- x) Agricultural Tractors and Machinery - Lighting device for travel on public roads (IS: 14683-1999) (Reaffirmed in March, 2009)] : **Conforms**

14.4

**Salient Observations:**

14.4.1

**Laboratory tests:**

14.4.1.1

**PTO Performance:**

- i) The backup torque is 16.3%.
- ii) The specific fuel consumption corresponding to maximum power was measured as 249 g/kWh against the declaration of 287 g/kWh, which meets the requirement of IS: 12207-2008 with regard to tolerance.

14.4.1.2

**Hydraulic Performance:**

- i) During hydraulic performance test the lower hitch point stucked in raised position and two number 'O' ring were replaced with new one.
- ii) During hydraulic load maintenance test, the hydraulic lift fully dropped after 20 minutes duration due to internal leakage in the hydraulic system. Two numbers 'O' rings of the composite valve assembly were replaced with new one.
- iii) During hydraulic lifting capacity test at standard frame the angle through which the mast rotates was observes as 3 degree which does not meet the requirements of Indian Standard.
- iv) The above defect indicates the requirement of improvement in the hydraulic system.



**14.4.1.3 Mechanical Vibration:**

The amplitude of mechanical vibration on various assemblies marked as (\*) in Chapter-9 of this test report are on higher side, especially at steering control wheel & foot rests. This calls for dampening down of vibrations to improve the operational comfort and service life of components.

**14.4.1.4 Three point linkage:**

- i) The lateral distance from lower hitch point to centre line of tractor does not meet the requirement of IS: 4468 (Part-1)-1997. This should be looked into for necessary corrective action.
- ii) Some of the parameters of the three point linkage conform to Cat. I and some of them conform to Cat.II. Keeping in view of the spirit of standardization, the necessary improvements may be incorporated.
- iii) The dia of hitch pin hole of lower hitch point does not meet the requirements of IS: 4468 (Part-1)-1997. This should be looked into for necessary corrective action.

**14.4.1.5 Linkage drawbar:**

- i) Some of the parameters of linkage drawbar conform to Cat.I and some of them conform to Cat.II. In view of the spirit of standardization, necessary improvements may be incorporated.

**14.4.1.6 Operator's Seat:**

Length of seat does not meet the requirement of IS: 12343-1998. This should be looked into for necessary corrective action.

**14.5 Maintenance / Service Problems:**

No noticeable maintenance or service problem was observed during the test.

**14.6 Recommendation with regard to safety on tractor:**

The following requirements, inter alia, may be considered for incorporation on the tractor:

- i) Provision of safety against accidental start of the engine.
- ii) Provision for spark arresting device in exhaust system.
- iii) Provision for retaining the fuel shut-off lever in "STOP" position.
- iv) The working clearance between the draft control lever and mudguard may be provided as per IS: 12239 (Part-2) - 1999.
- v) Provision of PTO shaft master shield.
- vi) Provision of adequate guards for hydraulic pipe line, alternator and its drive belt.

**14.7 Adequacy of Literature supplied with machine:**

The following literature was supplied by the applicant during test.

- i) Operator's manual
- ii) Service manual
- iii) Spare part's catalogue

14.7.2 Details of all variant models and their features at a glance should be included in the operator's manual of the tractor.



**15. Citizen charter**

Duration of Test	Test duration under citizen charter	Whether the report released within time frame given citizen charter	Remark, if any
10 Months (January, 2013 to October, 2013)	10 Months	Yes	None

**TESTING AUTHORITY:**

*R.K.Nema*  
**R.K.NEMA**  
AGRICULTURAL ENGINEER

*P.K.Verma*  
**P.K.VERMA**  
SENIOR AGRICULTURAL ENGINEER

*C.R.Lohi*  
**C.R.LOHI**  
DIRECTOR

**16. Applicant's Comments**

Para No.	Our Reference	Applicant's comments
16.1	1.13.2(i,ii,iii), 1.13.4.1(B), 12,14.1.6 (1,2,4), 14.1.7 (c), 14.4.1.2, 14.4.1.3	We will look into for corrective action.
16.2	1.20.1, 1.20.3, 1.20.4, 1.20.5	We will look into for corrective action.
16.3	13.1.8 (ii,iii,v,vi,vii,viii), 14.1.9 (a), 14.2 (2,4,5,6), 14.3 (ii,iii,iv,v,vi,vii,ix), 14.4.1.4, 14.4.1.5, 14.4.1.6	We will look into for implementation of these safety features.