



**INTERNATIONAL TRACTORS LIMITED,
SONALIKA INTERNATIONAL DI-750 III RX TRACTOR**



भारत सरकार
कृषि मंत्रालय
(कृषि एवं सहकारिता विभाग)

GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE
(DEPARTMENT OF AGRICULTURE & CO-OPERATION)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान
ट्रैक्टर नगर, बुदनी (म.प्र.) ४६६ ४४५

CENTRAL FARM MACHINERY TRAINING & TESTING INSTITUTE

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T-854/1361/2012

**INTERNATIONAL TRACTORS LIMITED,
SONALIKA INTERNATIONAL DI-750 III RX
TRACTOR – Commercial (Variant)**

3.1.2 Engine:		<u>Base model</u>	<u>Variant model</u>
Make	:	International Tractors Ltd.	International Tractors Ltd.
Model	:	4100 IL	4100 DL
Type	:	Four stroke, naturally aspirated, water cooled, direct injection diesel engine.	
Serial number	:	4100IL03F206200	4100DL03C199435
Country of origin	:	India	India
Engine speed (rpm), (Manufacturer's recommended production setting):			
- Maximum speed at no load	:	2350 to 2450	2350 to 2450
- Low idle speed	:	650 to 750	650 to 750
- Speed at maximum torque	:	1200 to 1400	1200 to 1400
Rated speed, (rpm):			
- For PTO use	:	2200	2200
- For drawbar use	:	2200	2200
3.1.3 Cylinder & Cylinder Head:			
Number	:	Four	Four
Disposition	:	Vertical, in-line	Vertical, in-line
Bore/stroke, (mm)	:	100 / 118	100 / 118
Capacity as specified by the applicant, (cc)	:	3707	3707
Compression ratio	:	18.5 (± 0.2) :1	18.2 (± 0.2) :1
Type of cylinder head	:	Monoblock	Monoblock
Type of cylinder liners	:	Wet, replaceable	Wet, replaceable
Type of combustion chamber	:	Re-entrant	Re-entrant
Arrangement of valves	:	Overhead, Inline	Overhead, Inline
Valve clearance (cold/hot):			
- Inlet valve, (mm)	:	0.20- 0.30	0.3/0.3
- Exhaust valve, (mm)	:	0.20- 0.30	0.4/0.4
3.1.4 Fuel System:			
Type of fuel feed system	:	Gravity and force feed	
3.1.4.1 Fuel tank:			
Capacity, (l)	:	62.5	64.5
Location	:	Above clutch housing	
Provision for draining of sediments/ water	:	Not provided, however water separator is provided.	
Material of fuel tank	:	Metallic	Metallic
3.1.4.2 Water Separator:			
Make	:	Hilux	Hilux
Type	:	Inverted funnel centrifugal separation.	
Location	:	On LHS of engine in between fuel tank & fuel filter.	
Capacity (l)	:	Not available	0.49
3.1.4.3 Fuel feed pump:			
Make	:	Bosch, India	Bosch, India
Type	:	Plunger	Plunger
Model/Group combination No.	:	FP/KS 22AD 48/2, 9 440 030 011	FP/KS 22AD 48/2, 9 440 030 011
Provision of sediment bowl	:	Provided (Metallic)	Provided (Metallic)
Method of drive	:	Through cam shaft of fuel injection pump.	



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7. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

7.1 On the basis of test conducted the performance results have been summarized as evaluative (mandatory) and non – evaluative (not mandatory) parameters applicable for qualifying Minimum Performance Criteria as per clause-4 table-1 of Indian Standard 12207: 2008 for acceptance of tractor for the purpose of subsidies/NABARD financing for the applicable features for this tractor model.

Sl. No.	Characteristic	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2008	Values declared by the applicant/ requirement		As observed		Whether Variant model meets the require- ments (Yes/No.)
				Base model	Variant Model	Base model	Variant model	
1	2	3	4	5 a	5 b	6 a	6 b	7
7.1.1 PTO Performance :								
a)	- Max. 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	32.5	34.0	31.1	35.9	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	32.5	34.0	31.1	35.9	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Non Evaluative	± 5%	263	271	261	283	Yes
7.1.2 Labelling of tractors (Provision of labelling plate):								
1)	Make	Evaluative	Should conform to the requirements of CMVR along-with declared value of PTO HP	International Tractors Ltd.	International Tractors Ltd.			Yes
2)	Model	Evaluative		Sonalika International DI-750 III Super	Sonalika International DI-750 III RX			Yes
3)	Year of manufacture	Evaluative		2010	2012			Yes
4)	Engine serial number	Evaluative		4100IL03F20 6200	4100DL03C1 99435			Yes
5)	Chassis number	Evaluative		HZZDC2055 75/3	AZZDC1981 82/3			Yes
6)	Declaration of PTO power, Kw	Evaluative		32.5	34.0			Yes

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7.2 Salient Observations:

7.2.1 Laboratory tests:

7.2.1.1 PTO Performance:

- The maximum power was observed as **35.9 kW** against the declaration of **34.0 kW**, which meet the requirement of IS: 12207-2008 with regard to tolerance.
- The specific fuel consumption corresponding to maximum power was measured as **283 g/kWh** against the declaration of **271 g/kWh**, which meets the requirement of IS:12207-2008 with regard to tolerance.

7.2.1.2 Three point linkage:

- The lateral distance from lower hitch point to the centre of tractor does not meets the requirement of IS: 4468 (Part-1)-1997. This should be looked into for necessary corrective action.
- 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.

7.2.1.3 Linkage drawbar:

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.

7.2.1.4 Operator's Seat:

- Length of seat does not meet the requirement of IS: 12343-1998. This should be looked into for necessary corrective action.
- Longitudinal distance from seat index point to the center of steering control wheel.

7.2.1.5 Location and operation of operator's control:

The working clearance around the position lever to draft control and mudguard was observed as 45 mm against the minimum requirement of 70 mm as per per IS: 12239 (Part 2)-1996 This should be looked into for necessary corrective action.

7.3 Maintenance / Service Problems:

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

7.4 Recommendation with regard to safety on tractor:

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

- Provision of safety against accidental start of the engine.
- Provision for spark arresting device in exhaust system.
- Provision for retaining the fuel shut-off lever in "STOP" position.
- The working clearance between the draft control lever and mudguard may be provided as per IS: 12239 (Part-2) – 1999.
- Provision of PTO shaft master shield.

7.5 Adequacy of Literature supplied with machine:

7.5.1 The following literature was supplied with the test sample for reference during the test

- Operator's manual
- Part's catalogue for Sonalika RX, Worldtrac and Gardentrac series Tractor
- Service manual for Sonalika DI-750III RX Tractor



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7.5.2 The supplied literature was found adequate. However, these literatures should be brought out in national as well as other regional languages of India for guidance of users.

The results of the tests carried out on variant model "Sonalika international DI-750 III RX" have been compared with those on base model "Sonalika international DI-750 III Super" and found within the limit, as specified in Indian Standard:12207-2008.

TESTING AUTHORITY:

C. V. CHIMOTE
TEST ENGINEER

P. K. VERMA
SENIOR AGRICULTURAL ENGINEER

C. R. LOHI
DIRECTOR

Test Report compiled by: Shri Pramod Yadav, Senior Technical Assistant.

8. APPLICANT'S COMMENTS

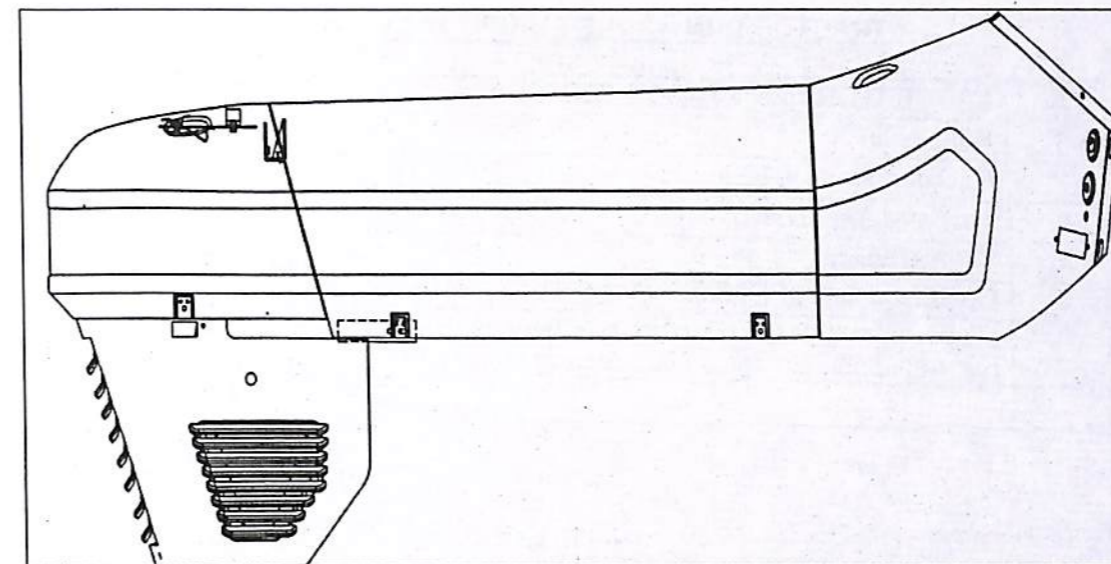
Para No.	Our Reference	Applicant's comments
8.1	7.2.1.2(i),(ii) &7.2.1.3	We will look into for necessary corrective action for improvement to maintain standardization regarding three point linkage drawbar parameters.
8.2	7.2.1.4 (i), (ii)	We will look into for necessary corrective action regarding operator's seat parameter.
8.3	7.2.1.5	We will look into for necessary corrective action regarding location and operation of operator's control.
8.4	7.4	We will look into for necessary corrective action regard to safety on tractor.



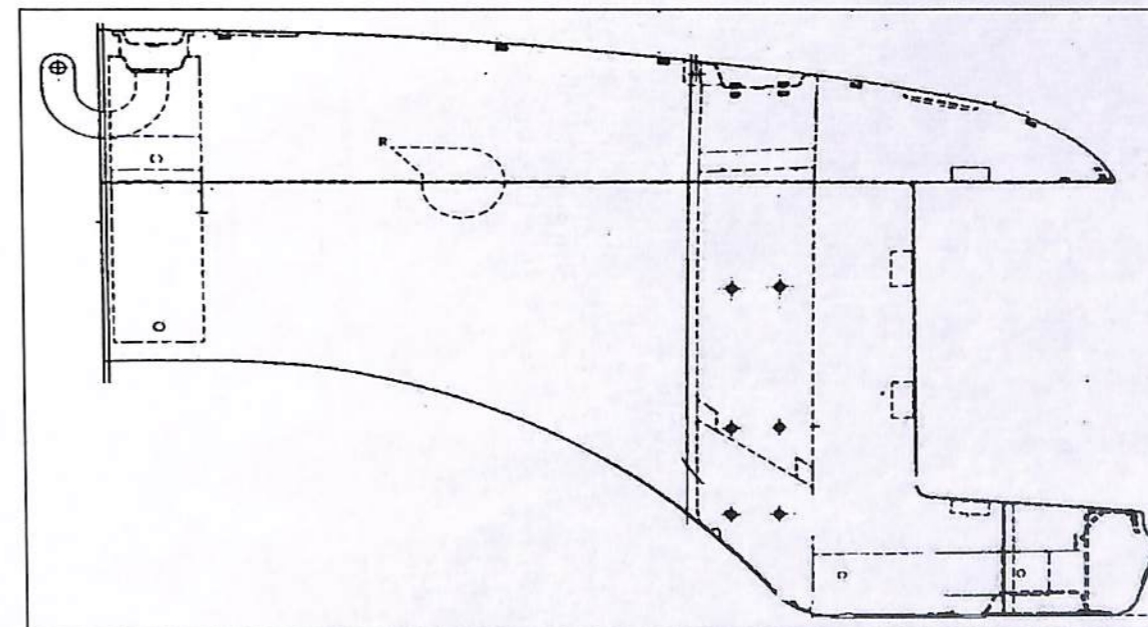
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ANNEXURE-I



COMPOUND STYLE BONNET OF SONALIKA INTERNATIONAL DI-750 III SUPER
[Base Model]



MONO STYLE BONNET OF SONALIKA INTERNATIONAL DI-750 III RX
[Variant Model]



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ANNEXURE- II

TRACTOR RUN HOURS DURING TEST

A.	LABORATORY AND TRACK TESTS:	HOURS
1.	Running-in	--
2.	PTO performance test	2.5
3.	Theoretical speed test	0.4
4.	Turning ability	0.4
5.	Operator's field of vision	--
B.	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test	0.3
	TOTAL:	3.6