

व्यावसायिक परीक्षण रिपोर्ट, वेरियंट (बैच)  
COMMERCIAL TEST REPORT, VARIANT (Batch)

संख्या / No. : T-1065/1590/2017  
माह / Month : January, 2017



**INTERNATIONAL TRACTORS LIMITED,  
SONALIKA INTERNATIONAL DI - 734 FE TRACTOR**



सत्यमेव जयते

भारत सरकार

कृषि एवं किसान कल्याण मंत्रालय  
(कृषि, सहकारिता एवं किसान कल्याण विभाग)

GOVERNMENT OF INDIA

MINISTRY OF AGRICULTURE AND FARMERS WELFARE

(DEPARTMENT OF AGRICULTURE, CO-OPERATION AND FARMERS WELFARE)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

ट्रैक्टर नगर, बुदनी (म.प्र.) ४६६ ४४५

**CENTRAL FARM MACHINERY TRAINING & TESTING INSTITUTE**

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

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T-1065/1590/2017

INTERNATIONAL TRACTORS LIMITED,  
SONALIKA INTERNATIONAL DI – 734 FE TRACTOR  
Commercial Variant (Batch) Test

3. ESSENTIAL TESTS  
3.1 SPECIFICATIONS

<b>3.1.1 Tractor:</b>	
Make	: INTERNATIONAL TRACTORS LIMITED
Model	: SONALIKA INTERNATIONAL DI – 734 FE
Type	: Four wheeled, Rear-wheel drive, standard, Agricultural Tractor.
Year of manufacture	: 2016
Chassis serial number	: MZQSF 545934 SM
Country of origin	: India
<b>3.1.2 Engine:</b>	
Make	: International Tractors Limited
Model	: 3100 DL
Type	: Four stroke, naturally aspirated, water cooled, direct injection, diesel engine.
Serial number	: 3100 DL 6385 41363 F3
Country of origin	: India
<b>Engine speed , (Manufacturer's recommended production setting),(rpm):</b>	
- Maximum speed at no load	: 2150 to 2250
- Low idle speed	: 600 to 700
- Speed at maximum torque	: 1100 to 1300
<b>Rated speed, (rpm):</b>	
- For PTO use	: 2000
- For drawbar use	: 2000
<b>3.1.3 Cylinder &amp; Cylinder Head:</b>	
Number	: Three
Disposition	: Vertical, inline
Bore/stroke, (mm)	: 100/118
Capacity as specified by the applicant, (cc)	: 2780
Compression ratio	: 18.2 ±0.2 :1
Type of cylinder head	: Monoblock
Type of cylinder liners	: Wet, replaceable
Type of combustion chamber	: Re-entrant, cavity on piston crown
Arrangement of valves	: Overhead, inline
<b>Valve clearance (cold/hot):</b>	
- Inlet valve, (mm)	: 0.30/0.30
- Exhaust valve, (mm)	: 0.40/0.40
<b>3.1.4 Fuel System:</b>	
Type of fuel feed system	: Gravity and force feed
<b>3.1.4.1 Fuel tank:</b>	
Capacity, (l)	: 53.55
Location	: Above clutch housing
Provision for draining of sediments/ water	: Not provided, however water separator is provided.
Material of fuel tank	: Metallic
<b>3.1.4.2 Water Separator:</b>	
Make	: DEC
Type	: Inverted funnel, Gravity separation.
Location	: On LHS of engine in between fuel tank & fuel feed pump.





T-1065/1590/2017

**INTERNATIONAL TRACTORS LIMITED,  
SONALIKA INTERNATIONAL DI – 734 FE TRACTOR  
Commercial Variant (Batch) Test**

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

**6.1** Evaluative (mandatory) / Non-evaluation (Non-mandatory) parameter applicable for qualifying Minimum Performance criteria as per Clause-4 (Table-1) of IS: 12207-2014 for acceptance of the tractor for the purpose of subsidies/NABARD financing are summarized as under:

Sl. No.	Characteristic	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2014	Values declared by the applicant/ (D) Requirement (R)	As Observed	Whether meets the requirement (Yes /No)
1	2	3	4	5	6	7
<b>6.1.1</b>	<b>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 >26 kW. -7.5/+10% for PTO power ≤ 26 kW.	21.2 (D)	21.1	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	21.2 (D)	21.1	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Non Evaluative	+ 5%	265(D)	262	Yes
<b>d)</b>	<b>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)	90	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.	118 (D)	72	Yes
<b>6.1.2</b>	<b>Safety features:</b>					
a)	Guards against moving and hot parts	Evaluative	Belt drives, pulleys, silencer, hydraulic pipes (As per IS 12239 Part 2)	--	Meets the requirements	Yes
b)	Lighting arrangement	Evaluative	As per CMVR	--	Meets the requirements	Yes
c)	Seating requirements (Tractors having more than 1150 mm track width)	Non Evaluative	Should meet the requirements of IS 12343 (as amended from time to time)	--	Meets the requirements	Yes
d)	Technical requirements for PTO shaft	Non Evaluative	Should meet the requirements of IS 4931 (as amended from time to time)	--	Meets the requirements	Yes

T-1065/1590/2017

**INTERNATIONAL TRACTORS LIMITED,  
SONALIKA INTERNATIONAL DI – 734 FE TRACTOR  
Commercial Variant (Batch) Test**



1	2	3	4	5	6	7
e)	Dimensions of three point linkage	Non Evaluative	Should meet the requirements of IS 4468 (Part 1) (as amended from time to time)	--	Does not meet the requirement	No
f)	Specifications of linkage drawbar	Non Evaluative	Should meet the requirements of IS 12953 (as amended from time to time)	--	Meets the requirement	Yes
	Specifications of swinging drawbar	Non Evaluative	Should meet the requirements of IS 12362 (Part 3) (as amended from time to time)	--	Not provided	NA
<b>6.1.3</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-734 FE	Yes
	3) Year of manufacture	Evaluative		--	2016	Yes
	4) Engine number	Evaluative		--	3100DL63B541363F3	Yes
	5) Chassis number	Evaluative		--	MZQSF 545934SM	Yes
	6) Declaration of PTO power, kW	Evaluative		--	21.2	Yes
<b>6.1.4</b>	<b>Literature (Submission to test agency):</b>					
a)	Operator manual	Evaluative	Provided/ Not provided	Provided	Provided	Yes
b)	Parts Catalogue	Evaluative	Provided/ Not provided	Provided	Provided	Yes
c)	Workshop/ Service manual	Evaluative	Provided/ Not provided	Provided	Provided	Yes
<b>6.1.5</b>	<b>CATEGORY OF BREAKDOWNS / DEFECTS :</b>					
<b>S. No.</b>	<b>Characteristic</b>	<b>Category (Evaluative / Non Evaluative)</b>	<b>Requirements as per IS: 12207-2014</b>	<b>As observed</b>	<b>Whether meets the requirements (Yes/No.)</b>	
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.	None	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.	None	Yes	





T-1065/1590/2017	<b>INTERNATIONAL TRACTORS LIMITED, SONALIKA INTERNATIONAL DI – 734 FE TRACTOR Commercial Variant (Batch) Test</b>
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6.1.6 Optional requirements as per Clause-4 (Table-2) of IS:12207-2014:				
S. No.	Characteristic	Requirements as per IS: 12207-2014	As observed	Whether meets the requirements (Yes/No.)
1	2	3	4	5
1.	Fitment of ROPS	With a provision for fitment of ROPS. If ROPS fitted it should meet the requirement of IS: 11821-1992.	Not provided  ROPS not fitted	No  Not applicable
2.	Accessories	Trailer hitch, front tow hook may be provided.	Provided	Yes

## 6.2 Salient Observations:

### 6.2.1 Laboratory tests:

#### 6.2.1.1 PTO Performance:

- i) The maximum PTO power was observed as **21.1 kW** against the declaration of **21.2 kW** which meets the requirement of IS: 12207-2014 with regard to tolerance limit.
- ii) The specific fuel consumption corresponding to maximum power was measured as **262 g/kWh** against the declaration of 265 g/kWh, which is within the tolerance limit of IS: 12207-2014.

#### 6.2.1.2 Power take off shaft :

The PTO master shield is not provided .This should be looked into for safety point of view on the tractor.

#### 6.2.1.3 Three point linkage:

The lateral distance of the lower hitch point from the center line of the tractor does not meet the requirements of IS 4468 (Part 1) 1998. This should be looked into for necessary corrective action.

## 6.3 Recommendation with regard to safety on tractor:

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

- ii) The provision of the safety start switch for the engine and the proper engine STOP knob.
- ii) Provision for spark arresting device in exhaust system.
- iii) Provision of differential lock.
- iv) The height of foot step from ground level and width of foot step should be as per relevant Indian Standard for easy mounting and dismounting of operator.
- v) The working clearance around the draft control lever should be as per relevant Indian Standard for easy operating the lever.

## 6.4 Adequacy of Literature supplied with machine:

### 6.4.1 The following literature has been supplied by the applicant.

- i) Operator's manual
- ii) Service manual
- iii) Part's catalogue

### 6.4.2 The supplied literature was found adequate however following points need to be incorporated in operator's manual:

- i) As per operator manual, manufacturer's recommendation about periodic maintenance of the lubricating oils is different than the declaration in the technical specification. This needs to be reviewed for the uniformity in the



various submitted literature and technical specification.

- ii) The service manual should be developed illustrating all the aspects of service/repair limits and process

**6.4.3** The printed literature supplied with the test sample is in English. The literature may be brought out as per IS: 8132-1999 (Reaffirmed in March, 2009) for the guidance of user and service personnel in national as well as other regional languages.

### 7. CITIZEN CHARTER

Duration of Test	Test duration under citizen charter	Whether the report released within time frame given in the citizen charter	Remark
4 Months (September to December 2016)	10 Months	Yes	--

#### TESTING AUTHORITY:

**C. K. TIJARE  
AGRICULTURAL ENGINEER**

**C. V. CHIMOTE  
TEST ENGINEER**

**Y. K. RAO  
SENIOR AGRICULTURAL  
ENGINEER**

**J.J.R. NARWARE  
DIRECTOR**

### 8. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's comments
8.1	6.2.1.2, 6.2.1.3 & 6.3	Observations have been studied & necessary action will be incorporated.
8.2	6.4.1, 6.4.2 & 6.4.3	The corrections will be taken care while updating literature of tractor.



T-1065/1590/2017

INTERNATIONAL TRACTORS LIMITED,  
SONALIKA INTERNATIONAL DI – 734 FE TRACTOR  
Commercial Variant (Batch) Test

ANNEXURE-I

**TRACTOR RUN HOURS DURING TEST**

<b>A.</b>	<b>LABORATORY AND TRACK TESTS:</b>	<b>HOURS</b>
1.	Running-in	--
2.	PTO performance test	3.12
3.	Theoretical speed test	1.33
<b>B.</b>	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test	0.25
	<b>TOTAL:</b>	<b>4.7</b>