



**INTERNATIONAL TRACTORS LIMITED,
SONALIKA INTERNATIONAL DI-35 RX CM SERIES 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
TRACTOR NAGAR, BUDNI (M.P.) - 466 445

E-mail : fmti-mp@nic.in

Web site : cfmtti.dacnet.nic.in

Telephone : 07564-234729

Fax : 07564-234743



3. ESSENTIAL TESTS

3.1 SPECIFICATIONS

3.1.1 Tractor:	Base model	Variant model
Make	: International Tractors Limited	: International Tractors Limited
Model	: Sonalika International DI-39 RX	: Sonalika International DI-35 RX CM series
Type	: Four wheeled, Rear-wheel drive, general purpose, unit construction, Agricultural Tractor	
Year of manufacture	: 2008	: 2011
Chassis serial number	: DZJDB 152525/3	: EYASW251825/3
Country of origin	: India	: India
3.1.2 Engine:		
Make	: International Tractors Ltd.	: International Tractors Ltd.
Model	: 3100 FLI (apa)	: 3100 FLS (apa)
Type	: Four strokes, naturally aspirated, water cooled, direct injection diesel engine.	
Serial number	: 3100 FL82153208	: 3100 FLS 13G
Country of origin	: India	: India
Engine speed (rpm), (Manufacturer's recommended production setting):		
- Maximum speed at no load	: 2200±50	: 2200±50
- Low idle speed	: 650±50	: 700±50
- Speed at maximum torque	: 1200±100	: 1300
Rated speed, (rpm):		
- For PTO use	: 2000	: 2000
- For drawbar use	: 2000	: 2000
3.1.3 Cylinder & Cylinder Head:		
Number	: Three	: Three
Disposition	: Vertical, Inline	: Vertical, Inline
Bore/stroke, (mm)	: 100/118	: 100/118
Capacity as specified by the applicant, (cc)	: 2780	: 2780
Compression ratio	: 18.2 : 1	: 19.5 : 1
Type of cylinder head	: Individual	: Individual
Type of cylinder liners	: Wet, replaceable	: Wet, replaceable
Type of combustion chamber	: Re-entrant cavity on piston crown	: Re-entrant cavity on piston crown
Arrangement of valves	: Overhead, Inline	: Overhead, Inline
Valve clearance (cold/hot):		
- Inlet valve, (mm)	: 0.2-0.3	: 0.3/0.3
- Exhaust valve, (mm)	: 0.2-0.3	: 0.4/0.4
3.1.4 Fuel System:		
Type of fuel feed system	: Gravity and force feed	

6. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

6.1 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 requirements (Yes/No.)
				Base model	Variant Model	Base model	Variant model	
1	2	3	4	5 a	5 b	6 a	6 b	7
6.1.1	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	24.6	24.6	24.7	26.0	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	24.6	24.6	24.2	26.0	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Non Evaluative	± 5%	265	265	256	252	Yes
6.1.2	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- 39 RX	Sonalika International DI- 35 RX CM series		Yes
3)	Year of manufacture	Evaluative		-	2008	2011		Yes
4)	Engine serial number	Evaluative		-	3100 FL82 I 153208	3100 FLS 13G252483F2		Yes
5)	Chassis number	Evaluative		-	DZJBD1525 25/3	EYASW251825 /3		Yes
6)	Declaration of PTO power, kW	Evaluative		-	24.6	24.6		Yes

6.2 Salient Observations:

6.2.1 Laboratory tests:

6.2.1.1 PTO Performance:

- i) The maximum PTO power in case of base and variant models was observed as 24.7 & 26.0 kW respectively against the declaration of 24.6 kW which is within the specified limit.
- ii) The specific fuel consumption in case of base and variant models corresponding to maximum power was observed as 256 & 252 g/kWh respectively against the declaration of 265 g/kWh. Which is within the tolerance limit of IS: 12207:2008.



T-848/1358/2012

**INTERNATIONAL TRACTORS LTD, SONALIKA
INTERNATIONAL DI-35 RX CM SERIES TRACTOR –
Commercial (Variant)**

6.2.1.2 Three point linkage:

- i) The lateral distance from lower hitch point to the centre 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 conform to Cat. I and some to Cat. II. Keeping in view the spirit of standardization, necessary improvements may be incorporated.

6.2.1.3 Linkage drawbar:

Some of the parameters conform to Cat. I and some to Cat. II. Keeping in view the spirit of standardization, necessary improvements may be incorporated.

6.2.1.4 Operator's Seat:

Length of seat, Width of seat and Longitudinal distance from SIP to the centre of steering control wheel does not meet the requirement of IS: 12343-1998, (Re-affirmed in March, 2009). This should be looked into for necessary corrective action.

6.2.1.5 Operator's control:

Controls for Hand brake, Grease lubricant type, Oil lubricant type and frequency are not identifiable with symbols as per IS: 6283 (Part-1 & 2)-1998, This should be looked into.

6.3 Maintenance / Service Problems:

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

6.4 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) Provision of PTO shaft master shield.
- v) Provision of differential lock.
- vi) The minimum cautionary notice as per clause 11.2 of IS: 12239 (Part-2)-1999 should be provided.
- vii) The working clearance around draft control lever may be provided as per requirement of IS: 12239 (part-2) -1999.

6.5 Adequacy of Literature supplied with machine:

6.5.1 No literature was supplied with the tractor for reference during the test.

It is therefore, recommended that following literature may be brought out as per IS: 8132-1999 (Reaffirmed in March, 2009) for the guidance of users and service personnel in national as well as regional languages for this model of tractor.

- a) Operator's Manual
- b) Parts catalogue
- c) Service Manual



T-848/1358/2012

**INTERNATIONAL TRACTORS LTD, SONALIKA
INTERNATIONAL DI-35 RX CM SERIES TRACTOR –
Commercial (Variant)**

- 6.5.2** Information related to PTO, Drawbar and hydraulic performance of the tractor such as, maximum PTO power, rated PTO power, power at standard PTO speed, maximum torque, backup torque, specific fuel consumption, maximum drawbar power & pull, hydraulic pump discharge rate, hydraulic power & lifting capacities etc should be included in the operator's manual of the tractor for the guidance of the user's.

The results of the tests carried out on variant model "Sonalika International DI-35 RX CM series" have been compared with those on base model "Sonalika International DI-39 RX" and found within the limit, as specified in Indian Standard:12207-2008.

TESTING AUTHORITY:

PRADIPKUMAR C. MESHAM
AGRICULTURAL ENGINEER

H. L. YADAV
SENIOR AGRICULTURAL ENGINEER

V.N. KALE
DIRECTOR

Test Report compiled by: **P. RISHI PRAKASH**, Senior Technical Assistant.



T-848/1358/2012	INTERNATIONAL TRACTORS LTD, SONALIKA INTERNATIONAL DI-35 RX CM SERIES TRACTOR – Commercial (Variant)
-----------------	--

7. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's comments
7.1	3.1.20.1, 3.1.20.2, 3.1.20.5, 6.2.1.2, 6.2.1.3, 6.2.1.4, 6.2.1.5	We will look into for necessary improvements.
7.2	3.1.20.3, 3.1.20.4, 3.1.20.5 & 6.4	We will look into these safety features.
7.3	6.5	Operator manual, spare parts catalogue & workshop/service manual will be supplied with the production unit.

ANNEXURE-I

TRACTOR RUN HOURS DURING TEST

A.	LABORATORY AND TRACK TESTS:	HOURS
1.	Running-in	--
2.	PTO performance test	3.2
3.	Theoretical speed test	0.6
B.	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test	0.4
	TOTAL:	4.2