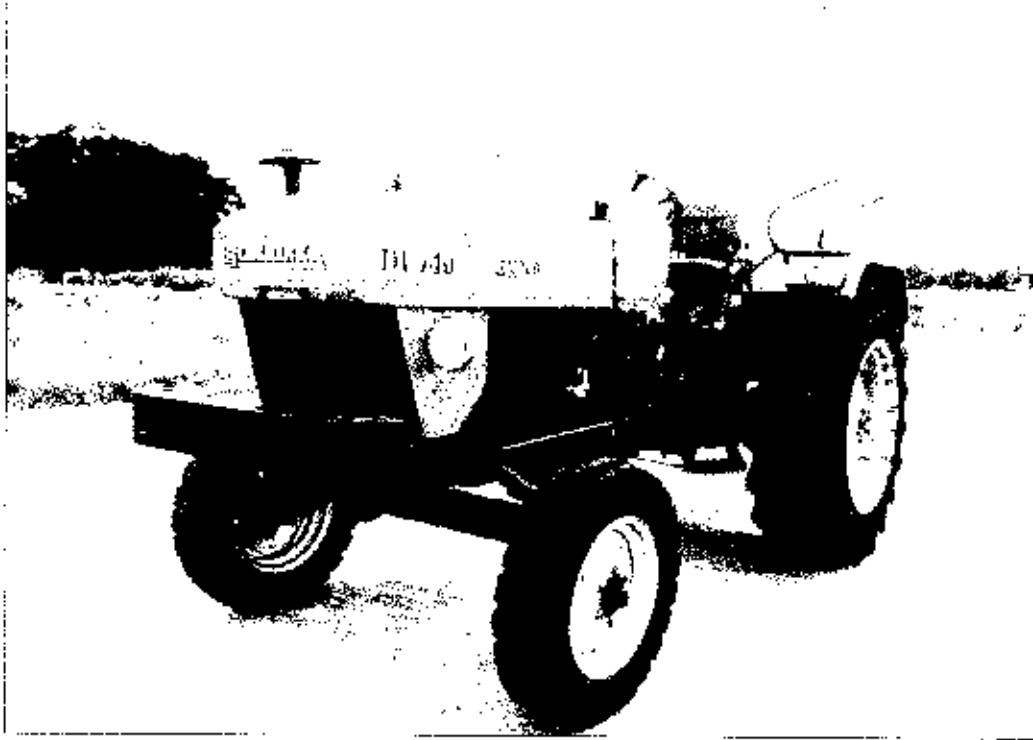


(यह परीक्षण रिपोर्ट 31/07/2025 तक वैध है। / THIS TEST REPORT IS VALID UP TO : 31/07/2025)



**INTERNATIONAL TRACTORS LIMITED,  
DI-740 HDM TRACTOR**



सत्यमेव जयते

भारत सरकार

कृषि एवं किसान कल्याण मंत्रालय  
कृषि, सहकारिता एवं किसान कल्याण विभाग  
मशीनीकरण एवं प्रौद्योगिकी प्रभाग

GOVERNMENT OF INDIA

MINISTRY OF AGRICULTURE AND FARMERS WELFARE

(Department of Agriculture, Cooperation & Farmers Welfare, Mechanization & Technology Division)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

ट्रैक्टर नगर, बुदनी (म.प्र.) ४६६ ४४५

**CENTRAL FARM MACHINERY TRAINING & TESTING INSTITUTE**

(An ISO : 9001 - 2015 Certified Institute)

Tractor Nagar, Budni (M.P.) 466 445

E-mail [fmti-mp@nic.in](mailto:fmti-mp@nic.in)

Website : <http://www.fmttibudni.gov.in>

Telephone : 07564 - 234729, 234743



The applicant had converted the base model i.e. 'Sonalika, DI-42 HDM' tractor to International Tractors Limited, 'DI-740 HDM' in the institute premises by replacing the following parts and submitted for testing.

Sr. No.	Part Number	Part Name	Quantity
1.	Brake housing (right) OIB	10024118AB	01
2.	Brake housing (left) OIB	10024115AB	01
3.	Disc Intermediate (OIB)	10024078AA	06
4.	Disc Friction (OIB)	10024079AA	08
5.	Disc Actuating (OIB)	10024093AE	04
6.	Brake Spring	10003795AA	06
7.	Link Plate (OIB)	10024075AA	04
8.	Jaw Pin (OIB)	10024076AA	02
9.	Spring Clevis (OIB)	10024276AA	02
10.	Pull Rod (OIB)	10024077AC	02
11.	Cover (Brake housing Right) (OIB)	10024072AC	01
12.	Cover (Brake housing Left) (OIB)	10024069AC	01
13.	Rubber Boot	10024095AC	02
14.	Brake Lever	10009158AC	04
15.	Gasket for Brake housing (OIB)	10009441AB	02
16.	Hex Bolt M*1*30	04041208030	24
17.	Spring Washer B 8	04030400008	24
18.	Special Bolt (OIB)	10024080AA	04

## 2. FUEL AND LUBRICANTS

**2.1 Fuel** : The high-speed diesel oil supplied by M/s Indian Oil Corporation Limited having density of 0.836 gm/cc at 15°C was used.

### 2.2 Lubricants:

S. No.	Particulars	As recommended by the manufacturer	As used during the test
1.	Air Cleaner & Engine	SAE 20 W 40	SAE 20 W 40
2.	Gearbox, differential, rear axle, final drive, brake, Steering housing & hydraulic system oil	SAE EP-80	Oil originally filled in the tractor systems was not changed
3.	Grease	MP Grease	MP Grease

## 3. ESSENTIAL TEST

### 3.1. SPECIFICATIONS

3.1.1 Tractor:	Base Model	Variant Model
Make	Sonalika	International Tractors Limited
Model	DI-42 HDM	DI-740 HDM
Type	Four wheeled, rear-wheels driven, standard agricultural tractor.	
Month & Year of manufacture	05 / 2018	
Chassis number	FYZSG74417583	
Country of Origin	India	

1	2	3	4	5	6
16.	xvi)	Change related to ergonomics, safety comfort & statutory / regulatory requirements:			
	a)	IS: 10273	Conformed	Conforms	No change
	b)	IS: 4931*	Conformed	Conforms	No change
	c)	IS: 4468	Did not conform	Does not conform	No change
	d)	IS: 12953	Conformed	Conforms	No change
	e)	IS:12343	Did not conform	Does not conform	No change
	f)	IS:12239 (Pt-I)	Did not conform	Does not conform	No change
	g)	IS:12239 (Pt-II)	Did not conform	Conforms	No change
	h)	IS:8133	Did not conform	Does not conform	No change
	i)	IS: 6283	Conformed	Conforms	No change
j)	IS:14683	Conformed	Conforms	No change	
*As per the technical extension report no. T-1442/1969/2020, June 2020.					
17.	xviii)	<b>Other changes:</b>			
		Decals (stickers)	Sonalika, DI-42 HDM	International Tractors Limited, DI-740 HDM	<b>Changed</b>

## 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 12207:2019** 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: 12207-2019	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	5a	5b	6a	6b	7
<b>7.1.1 PTO Performance:</b>								
a)	Maximum power under 2 h test, (kW) (Natural ambient condition)	Evaluative	Declared value to be achieved with a tolerance of: 15 percent for PTO power and engine power > 26 kW. +10 percent for PTO power and or engine < 26 kW.	29.5 (D)	29.5 (D)	29.9	29.9	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	29.5 (D)	29.5 (D)	29.9	29.9	Yes
c)	Specific fuel consumption corresponding to maximum power. (g/kWh)	Evaluative	+10 %	245 (D)	245 (D)	242	242	Yes



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1	2	3	4	5a	5b	6a	6b	7
d)	Maximum equivalent crankshaft torque, (Nm)	Non Evaluative	+ 8%	197 (D)	197 (D)	190.6	190.6	Yes
e)	Back-up torque, percent	Evaluative	12 % Minimum	12 % (R) Minimum	12 % (R) Minimum	20.4	20.4	Yes
<b>7.1.2</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 Un ballast, (m):							
	1) Cold brake	Evaluative	10 m	10 (R)	10 (R)	7.13	7.81	Yes
	2) Hot brake	Evaluative	10 m	10 (R)	10 (R)	7.19	8.00	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)	600 (R)	218 to 223	315 to 397	Yes
c)	Whether parking brake is effective at a force of 600 N at foot pedal (s) or 100 N at hand lever, N	Evaluative	Yes / No	Yes	Yes	Yes	Yes	Yes
<b>7.1.3</b>	<b>Safety features:</b>							
a)	Guards against moving and hot parts	Evaluative	Beit drives, pulleys, silencer, hydraulic pipes (As per IS 12239 (Part2)	Provided	Meets the requirements			Yes
b)	Lighting arrangement	Evaluative	As per CMVR	Provided	Meets the requirements			Yes
c)	Seating requirements (Tractors having more than 1150 mm rear track width)	Non Evaluative	Should meet the requirements of IS: 12343 (As amended from time to time)	Did not conform	Does not meets the requirements			No
d)	Technical requirements for PTO shaft	Evaluative	Should meet the requirements of IS: 4931 (As amended from time to time)	Did not conform	Meets the requirements			Yes
e)	Dimensions of three point linkage	Non Evaluative	Should meet the requirements of IS 4468 (Part-I) (As amended from time to time)	Did not conform	Does not meets the requirements			No
f)	Specifications of linkage	Evaluative	Should meet the requirements of IS: 12953 (As amended from time to time)	Conformed	Meets the requirements			Yes

1	2	3	4	5a	5b	6a	6b	7
g)	Swinging drawbar (wherever fitted)	Evaluative	Should meet the requirement of IS: 12362 (Part 3) (As amended from time to time)	Not Provided		Not Provided		Not applicable
h)	1) Maximum travelling speed at rated engine speed in reverse gear. (kmph)	Evaluative	Should not exceed 20 kmph	Conformed		12.01 kmph (Meets the requirement)		Yes
	2) Audible warning signal on tractor	Evaluative	As soon as the travelling speed in reverse gear reaches to 20 kmph, an audible warning signal on tractor shall be activated.  The safety aspects about the operation of shuttle technology shall be brought in operation and manufacturer/dealer shall ensure the training on this aspect to operator before the delivery of tractor.	Not applicable		Not applicable		Not applicable
7.1.5	<b>Labelling of tractors (Provision of labelling plate):</b>							
	1) Make	Evaluative	Should conform to the requirements of CMVR along with maximum PTO	International Tractors Limited				Yes
	2) Model	Evaluative	Power in kW and year of manufacture in numerical form.	DI - 740 HDM				Yes
	3) Month & Year of manufacture	Evaluative	Digit 12 in MM YY 01 - box	05 / 2018				Yes
	4) Engine number	Evaluative	No.1 for MM will represent the months and next two digits in box No 2 for YY will represent the year of manufacturing.	3:02FLU83H 736815F19				Yes
	5) Chassis number	Evaluative		FYZSG744175				Yes
	6) Declaration of PTO power. (kW)	Evaluative		S3 29.5				Yes



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1	2	3	4	5a	5b	6a	6b	7
<b>7.1.6</b>	<b>Literature (Submission to test agency):</b>							
(a)	Operator manual	Evaluative	Provided / Not Provided	Provided	Provided	Provided	Provided	Yes
(b)	Parts Catalogue	Evaluative	Provided / Not Provided	Provided	Provided	Provided	Provided	Yes
(c)	Workshop/ Service manual	Evaluative	Provided / Not Provided	Provided	Provided	Provided	Provided	Yes
<b>7.1.7</b>	Fitment of roll Over protective structures (ROPS): for tractor having more than 1150 mm rear track width	Evaluative	ROPS should meet the requirement of IS 11821 or OECD code or equivalent International standard	ROPS not fitted				Not applic- able
<b>7.1.8</b>	Standard Accessories	Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with the tractor.	Provided				Yes
<b>7.1.9</b>	Accessories (optional)	Non Evaluative	Ballast weights, if fitted, should meet the requirement of CMVR	Provided				Yes

<b>7.2 CATEGORY OF BREAKDOWNS / DEFECTS (as per clause 5.0 of IS:12207-2019) :</b>					
Sl. No.	Category of breakdowns	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2019	As observed	Whether meets the Requirements (Yes/No.)
1.	Critical breakdown	Evaluative	No critical breakdown	None	Yes
2.	Major breakdowns	Evaluative	Not more than two major breakdowns and neither of them of repetitive nature	None	Yes
3.	Minor breakdowns	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 (1 major + 4 minor) or 5 minor breakdowns.	None	Yes

**7.3 Salient Observations:**

7.3.1 Sonalika DI-42 HDM tractor was tested vide Test report No. T-1251/1778/2019, June 2019 (ICT) and the brake system of same tractor was converted from dry disc to oil immersed disc (OIB) by replacing brake disc assembly in the Testing Station's Premises. The serial number (tractor & engine), specification (Expect brake system), nominal speed & results of PTO performance reported in this report have been obtained from the tests carried out on 'Sonalika DI-42 HDM' tractor.

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

7.4.1 The following literature was supplied with tractor for reference during the test.

- i) Operator's manual for Sonalika DI-740 HDM tractor model.
- ii) Spare Parts Catalogue for Sonalika DI-740 HDM tractor model.
- iii) Service manual for Sonalika DI 740 HDM tractor model.

7.4.2 The supplied literature was not found adequate as it does not covering the following information. Therefore, it is recommended the relevant literature may be updated by incorporating the following information:

- i) Information related to PTO, Drawbar and hydraulic performance of the tractor such as Maximum torque, back-up torque, Specific fuel consumption, Maximum drawbar Power & pull, hydraulic pump discharge rate, hydraulic power & lifting Capacities etc. should be included in the technical specification of the tractor for the guidance of the user's.
- ii) The Maintenance schedule for transmission oil, rear axle & final drive oil, hydraulic & brake oil and air cleaner oil given in operator's manual does not match with specification submitted by applicant.
- iii) List of matching implements, trailers and other farming equipments.
- iv) List of Standard fittings.
- v) List of accessories & supplied with the tractor.

7.4.3 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.

The results of the tests carried out on variant model "International Tractor Limited, DI-740 HDM" tractor has been compared with those on base model "Sonalika, DI-42 HDM" and found within the limit, as specified in Indian Standard: 12207-2019.



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**8. CITIZEN CHARTER**

Time frame for Testing & Evaluation as per Citizen Charter	Duration of Test	Whether the Test Report is released within the time frame given in Citizen Charter	Remarks
10 Months	06 Months (January, 2020 to June, 2020)	Yes	--None--

**TESTING AUTHORITY:**

**NITESH KUMAR VERMA  
AGRICULTURAL ENGINEER**

**C.V. CHIMOTE  
TEST ENGINEER**

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

The report compiled by: **Shri Pratyush Satya**, Senior Technical Assistant

**9. APPLICANT'S COMMENTS**

Para No.	Our Reference	Applicant's comments
9.1	7.4.2 & 7.4.3	Your recommendations have been updated in tractor literature.

**ANNEXURE - I**

**TRACTOR RUN HOURS DURING TEST**

A. LABORATORY AND TRACK TESTS:		HOURS
1.	Brake Test	1.0
B.	Miscellaneous test and other run hours including idle run, transportation, preparation for test and trial runs	--
<b>TOTAL:</b>		<b>1.0</b>