

SpE(YKJ)

व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT (Variant)

संख्या / No. : T - 1038/1563/2016
माह / Month : September, 2016



MAHINDRA YUVO 275 DI TRACTOR



सत्यमेव जयते

भारत सरकार

GOVERNMENT OF INDIA

कृषि एवं किसान कल्याण मंत्रालय

(कृषि, सहकारिता एवं किसान कल्याण विभाग, मशीनीकरण एवं प्रयोगिकी प्रभाग)

MINISTRY OF AGRICULTURE AND FARMERS WELFARE

(Deptt. of Agriculture, Co-operation & Farmers Welfare, 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.) 466 445

E-mail fmti-mp@nic.in

Website : <http://cfmmtti.dacnet.nic.in/>

Telephone : 07564 - 234729

Fax : 07564 - 234743

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3.	Steering housing	SAE 140	--do--
4.	Grease	MP3 Lithium base	MP Grease

*(includes gear box, differential housing, rear axle, final drive (rear) Hydraulic system and brake housing)

3. ESSENTIAL TESTS

3.1. SPECIFICATIONS

	<u>Base Model</u>	<u>Variant Model</u>
3.1.1 Tractor:		
Make	: Mahindra	Mahindra
Model	: YUVO 265 DI	YUVO 275 DI
Brand name	: None	None
Type	: Four wheeled, two wheel drive unit construction general purpose Agricultural Tractor.	
Year of manufacture	: FE (September , 2014)	2015
Chassis Serial number	: ZGDA 00016	CJDB00004
Country of Origin	: India	India
3.1.2 Engine:		
Make	: Mahindra	Mahindra
Model	: MDI 17853AD	DHE 2235NA3A
Type	: Four stroke, Naturally aspirated , liquid cooled, direct injection, diesel engine.	
Serial number	: ZGDA 00016	CJDB00004
Engine speed (Manufacturer's recommended production setting)(rpm):		
- Maximum speed at no load	: 2175 to 2375	2150 to 2350
- Low idle speed	: 750 to 850	750 to 850
- Speed at maximum torque	: 1300 to 1500	1100 to 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) (apa)	: 88.9/110	88.9/120
Capacity as specified by the applicant, (cc)	: 2048	2235
Compression ratio, (apa)	: 19.8±1 : 1	20+/-1 : 1
Type of cylinder head	: Monoblock	Monoblock
Type of cylinder liners	: Wet, replaceable	Wet, replaceable
Type of combustion chamber	: Re-entrant bowl cavity on piston top	
Arrangement of valves	: Overhead, inline	Overhead, inline
Valve clearance (Cold/ Hot) :		
- Inlet valve, (mm)	: 0.40/0.30	0.40/0.30
- Exhaust valve, (mm)	: 0.50/0.40	0.50/0.40

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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: 2014 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: 12207-2014	Values declared by the applicant/ requirement		As observed		Whether Variant model meets the requirem ents (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 hrs. 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 or -5 / +10% for Engine power >26 kW. - 7.5/+10% for Engine power ≤ 26 kW	20.37 (D)	23.17 (D)	20.5	23.1	Yes
b)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Non Evaluative	± 5%	243 (D)	249 (D)	246	246	Yes
6.1.2	Labelling of tractors (Provision of labelling plate):							
	1) Make	Evaluative	Should conform to the requiremen ts of CMVR along with declared value of PTO HP	Mahindra	MAHINDRA			Yes
	2) Model	Evaluative		YUVO 265 DI	YUVO 275 DI			Yes
	3) Year of manufacture	Evaluative		2014	2015			Yes
	4) Engine serial number	Evaluative		ZGDA 00016	CJDB00004			Yes
	5) Chassis serial number	Evaluative		ZGDA 00016	CJDB00004			Yes
	6) Declaration of PTO power, kW	Evaluative		20.37	23.17			Yes
6.1.3	Literature (Submission to test agency)							
(a)	Operator manual	Evaluative	Provided/ Not Provided	As per relevant IS Code (IS 8132)	Provided			Yes
(b)	Parts Catalogue	Evaluative	Provided/Not Provided	As per relevant IS Code (IS 8132)	Provided			Yes
(c)	Workshop/Service manual	Evaluative	Provided/Not Provided	As per relevant IS Code (IS 8132)	Provided			Yes

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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 model were observed as 20.5 & 23.1kW against the declaration of 20.37 & 23.17 kW respectively which is within the tolerance limit as specified in IS:12207-2014.
- ii) The specific fuel consumption corresponding to maximum power was observed as 246 g/kWh against the declaration of 243 & 249 g/kWh respectively which is within the tolerance limit as specified in IS:12207-2014.

6.2.1.2 Provision for safety and comfort of operator, (Conformity with IS: 12343-1998):
Meets the all requirements.

6.2.1.3 Operator's work place: IS :12239 (Part-I& II)

- i) The provision for the spark arrester on silencer is not provided
- ii) Sufficient clearance around the control levers.

6.2.1.4 Location & operation of controls (Conformity with IS: 8133 -1983)

- i) The engine stopping knob should be remained in STOP position.

6.2.1.5 Labelling of tractor: -

The engine and chassis serial number of the tractor were embossed/ punched same (CJDB00004) at engine housing & labeling plate. For noteworthy identification of engine and chassis (Transmission) the serial number of these assemblies should be different. It is therefore, the labeling of tractor considered as **"Does not conform"**.
The engine and chassis serial number of the tractor should be given separately for its noteworthy identification.

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) Vertical retainers should be provided on both sides of brake & clutch pedals.

6.5 Adequacy of Literature supplied with machine:

6.5.1 The following literatures were supplied by the manufacturer for reference during the test.

- a) Service Manual for Mahindra, Yuvo 275 DI tractor.
- b) Parts Catalogue for Mahindra, Yuvo 275 DI tractor.
- c) Operator's manual Mahindra, Yuvo 275 DI tractor.


6.5.2 The revised literature submitted by the firm was found adequate. However, these literatures may also be brought out in national as well as other regional languages.

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7. CITIZEN CHARTER

Duration of Test	Time frame for Testing & Evaluation as per Citizen Charter	Whether the Test Report is released within the time frame given in Citizen Charter	Remarks
01 Month (August, 2016)	10 Months	Yes	None


TESTING AUTHORITY:



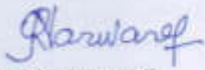
NITESH KUMAR VERMA
AGRICULTURAL ENGINEER



C.V. CHIMOTE
TEST ENGINEER



Y.K.RAO
SENIOR AGRICULTURAL ENGINEER



J.J.R. NARWARE
DIRECTOR

Test report compiled by Shri, NITESH KUMAR VERMA, Agricultural Engineer

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8. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's comments
8.1	6.2.1.3 (i),(ii),6.2.1.4(i),6.4 (ii)	Observation will be studied and necessary action will be incorporated.
8.2	6.2.1.5	we have studied your valuable suggestions and already initiated the process for the implementation of different engine & chassis numbering system on Mahindra Tractor models.

TRACTOR RUN HOURS DURING TEST

Annexure-I

A.	LABORATORY AND TRACK TESTS	HOURS
1.	Running –in	--
2.	PTO Performance Test	2.9
3.	Nominal speed test	1.2
B.	Miscellaneous test and other run hours, including idle run transportation, trial and preparation for the tests.	0.2
Total (hrs)		4.3