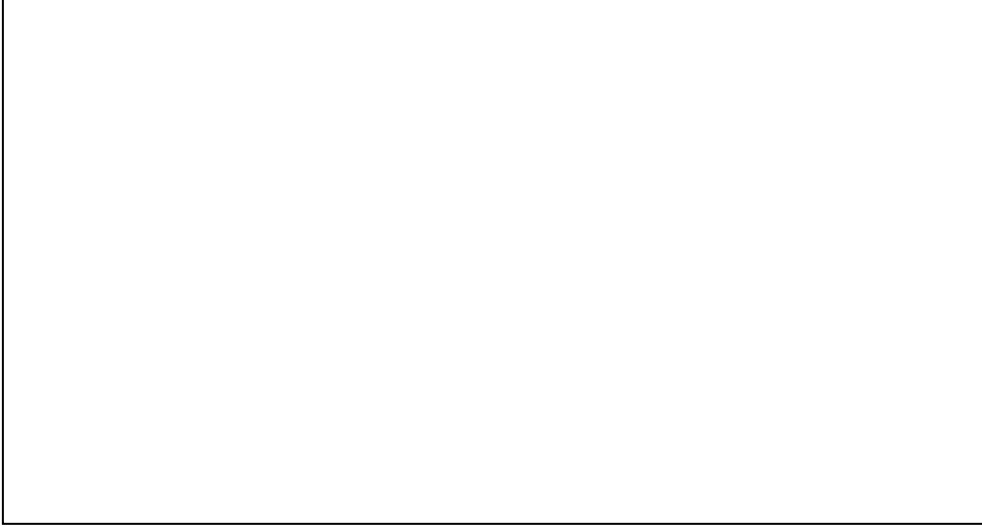


व्यावसायिक वैरिएंट परीक्षण रिपोर्ट (प्रथम बैच) संख्या/No. : T- 1542/2070/2021
COMMERCIAL VARIANT TEST REPORT (1st Batch) माह/Month : June, 2021

(यह परीक्षण रिपोर्ट 30/06/2026 तक वैध है |/THIS TEST REPORT IS VALID UPTO: 30/06/2026)



MAHINDRA, YUVO 575 DI TRACTOR



भारत सरकार

कृषि एवं किरान कल्याण मंत्रालय
(कृषि, सहकारिता एवं किरान 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

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(An ISO 9001: 2015 Certified Institute)

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3. ESSENTIAL TESTS

3.1 SPECIFICATIONS

3.1.1 Tractor:

Make	: Mahindra
Model	: Yuvo 575 DI
Brand name	: None
Type	: Four wheel, Rear wheel driven, Unit construction, Standard Agricultural Tractor
Month & Year of manufacture	: 11 / 20
Chassis number	: MBNSFALBULZH00001
Country of origin	: India

3.1.2 Engine:

Make	: Mahindra
Model	: DHE3045NA3A
Type	: Four stroke, Liquid cooled, Naturally aspirated, Direct injection, Diesel engine.
Serial number	: ZLH5GAF4771
Year of manufacture	: 2020
Country of origin	: India

3.1.2.1 Engine speed (rpm), (Manufacturer's recommended production settings):

- Maximum speed at no load	: 2150 to 2350
- Low idle speed	: 750 to 850
- Speed at maximum torque	: 1100 to 1300

Rated speed, (rpm):

- For PTO use	: 2000
- For drawbar use	: 2000

3.1.3 Cylinder & Cylinder Head:

Number	: Four
Disposition	: Vertical, inline
Bore/stroke, (mm)	: 88.9/120
Capacity as specified by the applicant, (cc)	: 2979
Compression ratio	: 20 (±1):1
Type of cylinder head	: Monoblock
Type of cylinder liners	: Wet, replaceable
Type of combustion chamber	: Open Re-entrant
Arrangement of valves	: Overhead, inline

Valve clearance (cold/hot):

- Inlet valve, (mm)	: 0.4 / 0.3
- Exhaust valve, (mm)	: 0.5 / 0.4

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Previous sample

Present sample

- iv) The maximum equivalent crankshaft torque was recorded as **176.1 N-m** against the declaration of **178.6 N-m**, which is within the permissible limit as specified in IS: 12207-2019.
- v) The backup torque is **41.9 %** and meets the requirement of IS: 12207-2019

6.4 Adequacy of literature:

Following literatures of Mahindra, Yuvo 575 DI tractor models were supplied with the test sample for reference during the test.

- | | |
|---|---|
| <ul style="list-style-type: none"> a) Service Manual b) Parts Catalogue c) Operator's manual | <ul style="list-style-type: none"> a) Service Manual b) Parts Catalogue c) Operator's manual |
|---|---|

7. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

7.1 On the basis of tests conducted the performance results have been summarized as evaluative (mandatory) and non-evaluation (not-mandatory) parameter applicable for qualifying Minimum Performance Criteria as per Clause-4 (Table-1) of **IS: 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 (D) / Requirement I	As observed	Whether meets the requirements (Yes / No)
1	2	3	4	5	6	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: $\pm 5\%$ for PTO power or engine power >26 kW, $\pm 10\%$ for PTO power or Engine power ≤ 26 kW.	30.20 (D)	30.3	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	30.20 (D)	26.0	No
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Evaluative	+ 10% Max.	238 (D)	243	Yes
d)	Maximum equivalent crankshaft torque, (Nm)	Non Evaluative	$\pm 8\%$	178.6 (D)	176.1	Yes
e)	Back-up torque, percent	Evaluative	12 % (Minimum)	21 (D) 12 I	41.9	Yes

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1	2	3	4	5	6	7	
7.1.2	Safety features :						
a)	Guards against moving and hot parts	Evaluative	Belt drives, pullies, silencer, hydraulics pipes(as per IS-12239 Part 2)	Meet the requirements	Yes		
b)	Lighting arrangement	Evaluative	As per CMVR	Meet 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)	Does not meet the requirements	No		
d)	Technical requirements for PTO shaft	Evaluative	Should meet the requirements of IS: 4931 (As amended from time to time)	Meet 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)	Does not meet the requirements	No		
f)	Specifications of linkage drawbar	Evaluative	Should meet the requirements of IS 12953 (As amended from time to time)	Meet the requirements	Yes		
g)	Specifications of Swinging drawbar (wherever fitted)	Evaluative	Should meet the requirements of IS 12362 (Part 3) (As amended from time to time)	Not provided	Not applicable		
h)	1) Maximum travelling speed at rated engine speed in reverse gears, kmph	Evaluative	Should not exceed 20 kmph	11.21 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.	Not fitted	Not applicable		
7.1.3	Labelling of tractors (Provision of labelling plate):						
	1) Make	Evaluative	Should conform to the requirements of CMVR along with maximum declared value of PTO power in kW and for month & year of manufacture in numerical <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>MM</td><td>YY</td></tr></table> Digit 01-12 in box No.1 for MM will represent the month and next two digit in the box No.2 for YY will represent the year of manufacturing	MM	YY	Mahindra	Yes
	MM	YY					
	2) Model	Evaluative		YUVO 575 DI	Yes		
	3) Month & Year of manufacture	Evaluative		11 / 20	Yes		
	4) Engine number	Evaluative		ZLH5GAF4771	Yes		
	5) Chassis number	Evaluative		MBNSFALBULZ H00001	Yes		
6) Declaration of PTO power, kW	Evaluative	30.2	Yes				

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1	2	3	4	5	6	7
7.1.4	Literature (Submission to test agency)					
(a)	Operator manual	Evaluative	Provided / Not Provided	Provided	Provided	Yes
(b)	Parts Catalogue	Evaluative	Provided / Not Provided	Provided	Provided	Yes
I	Workshop/ Service manual	Evaluative	Provided / Not Provided	Provided	Provided	Yes
7.1.5	Fitment of Roll Over Protective Structure (ROPS): for tractors having more than 1150 mm rear track width	Evaluative	ROPS should meet the requirement of IS:11821 or OECD code or equivalent International Standard	Provided	Not Fitted	Not Appli- cable
7.1.6	Standard accessories	Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with tractor	Provided	Provided	Yes
7.1.7	Accessories (Optional)	Non Evaluative	Ballast weights if fitted should meet the requirement of CMVR.	Provided	Provided	Yes

7.2 CATEGORY OF BREAKDOWNS / DEFECTS (As per clause 5.0 of IS:12207-2019) :						
S. No.	Category of Breakdown	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2019	As observed	Whether meets the requirement (Yes/No.)	
1.	Critical breakdown	Evaluative	There is no 'critical breakdown' during the course of testing	None	Yes	
2.	Major breakdowns	Evaluative	There are not more than 1 major breakdowns and neither of them is of repetitive nature	None	Yes	
3.	Minor breakdowns	Evaluative	There are not more than 3 minor defects during the test and the frequency of each is not be more than two	None	Yes	
4.	Total breakdowns	Evaluative	In no case, the total number of breakdowns should exceed four that is, (1 major + 3 minor) or 4 minor breakdowns	None	Yes	

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7.3 Salient Observations:

7.3.1 Laboratory tests:

7.3.1.1 PTO Performance:

- i) The maximum PTO power was recorded as 30.3 kW against the declaration of 30.2 kW & which meets the requirement of IS: 12207-2019 with regard to tolerance limit.
- ii) The rated PTO power was recorded as 26.0 kW against the declaration of 30.2 kW & which does not meet the requirement of IS: 12207-2019 with regard to tolerance limit. This should be looked into for necessary corrective action.
- iii) The specific fuel consumption corresponding to maximum power was recorded as 243 g/kWh against the declaration of 238 g/kWh & which meets the requirement of IS: 12207-2019 with regard to tolerance limit.
- iv) The maximum equivalent crankshaft torque was recorded as 176.1 Nm against the declaration of 178.6 Nm & which meets the requirement of IS: 12207-2019 with regard to tolerance limit.
- v) The backup torque has been observed as 41.9 % and meets the requirement of IS: 12207-2019.

7.3.1.2 Operator's seat:

- i) Vertical distance from centre of clutch pedal to Seat Index Point does not meet the requirement of the IS: 12343 -1998 (Re-affirmed in January, 2019). This should be looked into for necessary corrective action.
- ii) Longitudinal distance from centre of differential lock pedal to Seat Index Point does not meet the requirement of the IS: 12343 -1998 (Re-affirmed in January, 2019). This should be looked into for necessary corrective action.

7.3.1.3 Three point linkage:

Distance from end of power take-off shaft to centre of lower hitch point (lower links in horizontal position) does not meet the requirement of IS:4468-1997(Part-I) (Reaffirmed in 2017). This should be looked into for necessary corrective action.

7.3.1.4 Labelling plate:

- (i) The maximum PTO power has been specified as 40.5 hp in parenthesis on labelling plate. Whereas, by calculation we find the same as 41.1 metric horse power (1 kW = 1.3592 Metric horse power). This should be looked into for necessary corrective action.
- (ii) The specific fuel consumption has been specified as 177.48 g/hph in parenthesis on labelling plate. Whereas, by calculation we find the same as 175.05 g/hph (1 kW = 1.3592 Metric horse power). This should be looked into for necessary corrective action.

7.4 Maintenance / Service Problems:

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

7.5 Recommendation with regard to safety on tractor:

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

- i) Vertical distance from centre of clutch pedal to Seat Index Point has been observed as 365 mm against the requirement of 380 to 620 mm as per IS: 12343-1998, (Re-affirmed in January, 2019).
- ii) Longitudinal distance from centre of differential lock pedal to Seat Index Point has been observed as 280 mm against the requirement of 355 to 770 mm as per IS: 12343-1998, (Re-affirmed in January, 2019).
- iii) Spark arrester has not provided in the exhaust system as per the requirement of IS:12239 (Part-2)-1999 (Re-affirmed in January, 2019).
- iv) Fuel shut-off knob does not remain in "STOP" position as required vide IS:8133-1983 (Re-affirmed in 2014).

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- v) Master shield around the PTO shaft has not been provided as per the requirement of IS:4931-1995 (Re-affirmed in January, 2019).
- vi) The working clearance between position and draft control lever of hydraulic system was observed as 50 mm against the minimum requirement 70 mm as per IS:12239 (Part-2)-1999 (Re-affirmed in January, 2019).




7.6 Adequacy of Literature:

7.6.1 Following literature of following tractor models were supplied with the test sample for reference during the test.

- a) Service Manual of Mahindra, Yuvo 575 DI tractor models
- b) Parts Catalogue of Mahindra, Yuvo 575 DI tractor models
- c) Operator's manual of Mahindra, Yuvo 575 DI tractor models

7.6.2 The literature should be brought out in national as well as other regional languages of India for guidance of users.

TESTING AUTHORITY:

C.V. CHIMOTE TEST ENGINEER	
Y. K. RAO SENIOR AGRICULTURAL ENGINEER	
P. K. PANDEY DIRECTOR	

Draft Test Report is compiled by: **Sh. Rajneesh Patel**, Agricultural Engineer.

Draft Test Report is compiled by: **Sh. Rajneesh Patel**, Agricultural Engineer.

8. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's comments
8.1	7.3.1.1 (ii)	Performance characteristics at rated speed will be studied and necessary action will be incorporated.
8.2	7.3.1.4 (i) & (ii)	The conversion factor i.e. 1kW = 0.7457 hp is used on Vahan Portal & the same will be printed on RTO RC book of customer. We follow the same.
8.3	7.6.2	Literatures are available in various regional languages of India.

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ANNEXURE – I

TRACTOR RUN HOURS DURING TEST

A.	LABORATORY AND TRACK TESTS	HOURS
1.	Running-in (at manufacturer's work place)	69.00
2.	PTO performance test	4.98
3.	Nominal speed test	1.52
B.	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test	0.50
TOTAL		76.00