

व्यावसायिक परीक्षण रिपोर्ट (वैरिएंट बैच परीक्षण)
COMMERCIAL TEST REPORT (Variant Batch Test)

संख्या / No. : T-1484/2011/2020
माह / Month : October, 2020

(यह परीक्षण रिपोर्ट 31/10/2025 तक वैध है। / THIS TEST REPORT IS VALID UP TO : 31/10/2025)



DEUTZ-FAHR, AGROMAXX 45 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

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T- 1484/2011/2020	DEUTZ-FAHR, AGROMAXX 45 TRACTOR - Commercial (Variant Batch)
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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 g/cc at 15°C was used.

2.2 Lubricants:

	Particulars	As recommended by the manufacturer	As used during the test
1.	Engine oil	SDF Super Motor oil, 15W40	As recommended
2.	Transmission, rear axle, final drive rear differential, and hydraulic system	SDF UTTO	Oil originally filled in the tractor was not changed
3.	Steering system	Servo gear HP 140	
4.	Brake system	Servo transdex-II	Servo grease MP
5.	Grease	Servo gem, EP-1	

3. ESSENTIAL TESTS

3.1. SPECIFICATIONS

	<u>Base Model</u>	<u>Variant Model</u>
3.1.1 Tractor:		
Make	:	Deutz-Fahr
Model	:	Agrolux 45 E Agromaxx 45
Type	:	Four-wheel, rear-wheel driven, unit construction, general purpose, agricultural tractor
Month & Year of manufacture	:	2017 08 & 2019
Chassis number	:	M1TAF31RDBC000098 M1TAE91RDHE000546
Country of Origin	:	India
3.1.2 Engine:		
Make	:	Deutz-Fahr
Model	:	1000.3W-40CV (apa) *Engine model is not available on the engine.
Serial number	:	3B41837B17 3B51562H19
Type	:	Four stroke, liquid cooled, naturally aspirated, direct injection, diesel engine
Engine speed (Manufacturer's recommended production setting),(rpm) :		
- Maximum speed at no load	:	2330 to 2430
- Low idle speed	:	600 to 900
- Speed at maximum torque	:	1150 to 1400
Rated speed, (rpm):		
- For PTO use	:	2200
- For drawbar use	:	2200
3.1.3 Cylinder & Cylinder Head:		
Number	:	Three
Disposition	:	Vertical, Inline
Bore/stroke, (mm)	:	105 / 115.5 (apa)
Capacity as specified by the applicant, (cc)	:	3000 (apa)



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:

Sl. 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 requirements (Yes/No)
				Base model 5 a	Variant Model 5 b	Base model 6 a	Variant model 6 b	
1	2	3	4	5 a	5 b	6 a	6 b	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 -5% for PTO power and or engine power >26 kW. ±10% for PTO power and or engine ≤ 26 kW.	26.5 (D)	26.5 (D)	27.6	27.7	Yes
b)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Evaluative	+ 10% max.	280 (D)	265 (D)	263	262	Yes
d)	Maximum equivalent crankshaft torque, (Nm)	Non Evaluative	± 8%	143 (D)	147 (D)	164.3	167.4	No
e)	Back-up torque, percent	Evaluative	12 percent min.	12 %, min (R)	12 %, min (R)	37.4	39.4	Yes
7.1.2 Drawbar performance :								
a)	Max. drawbar pull without ballast corresponding to 15 percent wheel slip, (kN)	Evaluative	Minimum 70% of static mass of tractor without ballast or with standard ballast, as the case may be.	13.52 (R)	12.77 (R)	15.05	15.06	Yes
				12.75 (D)	12.77 (D)			
b)	Maximum drawbar power without ballast, (kW).	Evaluative	Minimum 80 % of PTO power as referred in SI No. 1 of all PTO performance in case of tractors having total static mass ≤ 1500 kg. Minimum 75 % of PTO power as referred in SI No. 1 of all PTO performance in case of light weight tractors having < 1500 kg total static mass. Minimum 70 % of the engine power as referred in SI No. 1 of engine performance in case of tractors which do not have a PTO shaft.	22.1 (R)	22.2 (R)	22.3	25.2	Yes
				21.8 (D)	21.2 (D)			
c)	Maximum transmission oil temperature (°C)	Evaluative	The declared value should not exceed the maximum value specified by oil company.	120 (D)	120 (D)	86	78	Yes



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NOTATIONS

Summarized as applicable of Indian purpose of

AS served	Whether variant model meets the requirements (Yes/No)
Variant model	7
6 b	7

27.7 Yes

262 Yes

167.4 No

39.4 Yes

5 15.06 Yes

3 25.2 Yes

78 Yes

1	2	3	4	5 a	5 b	6 a	6 b	7
7.1.3	Safety features :							
a)	Guards against moving and hot parts	Evaluative	Bolt drives, pulleys, silencer, hydraulic pipes (As per IS 12239 (Part2))	--		Meets the requirement		Yes
b)	Lighting arrangement	Evaluative	As per CMVR	--		Meets the requirement		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 requirement		No
d)	Technical requirements for PTO shaft	Evaluative	Should meet the requirements of IS: 4931 (As amended from time to time)	--		Meets the requirement		Yes
e)	Dimensions of three point linkage	Non Evaluative	Should meet the requirements of IS: 4468 (Part-I) (As amended from time to time)	--		Meets the requirement		Yes
f)	Specifications of linkage	Evaluative	Should meet the requirements of IS: 12953 (As amended from time to time)	--		Meets the requirement		Yes
g)	Swinging drawbar (wherever fitted)	Evaluative	Should meet the requirement of IS: 12362 (Part 3) (As amended from time to time)	--		Not Provided		Not applicable
h)	1)	Evaluative	Maximum traveling speed at rated engine speed in reverse gears, Kmph	--		12.80 kmph (Meets the requirement)		Yes
	2)	Evaluative	Audible warning signal on tractor	--		Not applicable		Not applicable
			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.					



7.1.4 Labelling of tractors (Provision of labelling plate):							
	1)	Make	Evaluative	Should conform to the requirements of CMVR along with maximum PTO Power in kW and year of manufacture in numerical form.	--	Deutz-Fahr	Yes
	2)	Model	Evaluative		--	Agromaxx 45	Yes
	3)	Month & Year of manufacture	Evaluative		--	08/19	Yes
	4)	Engine number	Evaluative		--	3B51562H19	Yes
	5)	Chassis number	Evaluative	MM YY Digit 01 - 12 in box No.1	--	M1TAE91RD HE000546	Yes
	6)	Declaration of PTO power, (kW)	Evaluative	for MM will represent the months and next two digits in box No.2 for YY will represent the year of Manufacturing.	--	26.5	Yes

7.1.5 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
	(c)	Workshop/Service manual	Evaluative	Provided/Not Provided	Provided	Provided	Yes
7.1.6		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 applicable
7.1.7		Standard accessories	Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with tractor	Provided	Provided	Yes
7.1.8		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)					
Sl. No.	Category of breakdowns	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2019	As observed	Whether meets the requirement (Yes/No)
1.	Critical	Evaluative	No critical breakdown	None	Yes
2.	Major	Evaluative	Not more than one and neither of them should be repetitive in nature	None	Yes
3.	Minor	Evaluative	Not more than three 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 four, that is, (1 major + 3 minor) or 4 minor breakdowns.	None	Yes



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-Fahr	Yes
axx 45	Yes
19	Yes
52H19	Yes
E91RD	Yes
0546	
.5	Yes
vided	Yes
vided	Yes
vided	Yes
fitted	Not applicable
vided	Yes
vided	Yes
12207-2019)	
served	Whether meets the requirement (Yes/No)
one	Yes
one	Yes
None	Yes
one	Yes

7.2 Salient Observations:

7.2.1 Laboratory tests:

7.2.1.1 PTO performance:

- i) The maximum PTO power was recorded as **27.7 kW** against the declaration of **26.5 kW** which meets the evaluative requirement of IS: 12207-2019.
- ii) The specific fuel consumption corresponding to maximum power was recorded as **262 g/kWh** against the declaration of **265 g/kWh** which meets the evaluative requirement of IS: 12207-2019.
- iii) The maximum equivalent crankshaft torque was recorded as **167.4 N-m** against the declaration of **147.0 N-m** which does not meet the non-evaluative requirement of IS: 12207-2019. This should be looked into for necessary corrective action.
- iv) The backup torque was observed 39.4% & meets the evaluative requirement of IS: 12207-2019.

7.2.2 Operator's seat:
The longitudinal distance from Seat Index Point to centre of differential lock pedal does not meet the requirement of IS: 12343-1998(Rc-affirmed in 2014). This should be looked into for necessary corrective action.

7.2.3 PTO master shield:
The parameter of PTO master shield "n" does not meet the requirement of IS: 4931-2005(Reaffirmed in 2004). This should be looked into for necessary corrective action.

7.2.4 Engine model :
The engine model is not embossed or etched or punched on engine. It is essential things for identification of engine model. This should be looked into for necessary corrective action for distinct identification of engine model.

7.3 Maintenance / Service Problems:
No noticeable maintenance or service problem was observed during the test.

7.4 Recommendation with regard to safety on tractor:
The following requirements, inter alia, may be considered for incorporation on the tractor:

- i) The Longitudinal distance of from seat index point to the centre of differential lock pedal should be as per relevant Indian Standard.
- ii) Vertical retainness at both sides of pedals should be provided as per relevant standard.
- iii) Provision of spark arrester in the exhaust system.
- iv) Hand operated throttle lever should be provided as per relevant standard.
- v) The working clearance between the draft control lever and position control lever should be provided as per the requirement of relevant Indian Standard.
- vi) Fuel shut-off knob should remain in "STOP" position.

7.5 Adequacy of Literature supplied with machine:

7.5.1 The following literatures were supplied with the test tractor for reference during the test.-

- a) Operator's manual of Agromaxx 40, Agromaxx 45, Agromaxx 50, Agromaxx 55 & Agromaxx 60 tractor models.
- b) Parts catalogue of Agrolux & Agromaxx series tractor models.
- c) Service Manual of Agrolux 40e, Agrolux 50e, Agrolux 60e & Agrolux 70e.



T- 1484/2011/2020

DEUTZ-FAHR, AGROMAXX 45
TRACTOR - Commercial (Variant Batch)
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7.5.2 These literatures may also be brought out in national & other regional languages for the guidance of user's and service personnel.

The results of the tests carried out on variant model "Deutz-Fahr Agromaxx 45" Tractor have been compared with those on base model "Deutz-Fahr Agrolux 45 E" Tractor tested vide test report No. T- 1129/1655/2018 (January) and found within the limit, as specified in Indian Standard: 12207-2019.

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	4 Month (May, 2020 to August, 2020)	Yes	None

TESTING AUTHORITY:

SHWETABH SINGH
AGRICULTURAL ENGINEER

C.V. CHIMOTE
TEST ENGINEER

J.J.R. NARWARE
DIRECTOR

The report compiled by: **Shri Vithato Keyho**, Senior Technical Assistant.

9. APPLICANT COMMENT'S

Para No.	Our Reference	Applicant's comments
9.1	7.2.1.1, 7.2.1.2, 7.2.1.4 & 7.4 (i, v & vi)	Would be reviewed.
9.2	7.5.3	Literature available in following languages: Tamil, English, Hindi, Telugu, Kanada, Marathi, Gujarati & Nepali.



ANNEXURE-I

TRACTOR RUN HOURS DURING TEST

A.	LABORATORY AND TRACK TESTS	HOURS
1.	Running – in	–
2.	PTO performance test	4.3
3.	Drawbar performance test	3.5
4.	Nominal speed test	0.8
B.	Miscellaneous test and other run hours, including idle run transportation, trial and preparation for test.	2.1
Total		10.7

Remarks	
None	

NOTE
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anguages: Tamil
Marathi, Gujarati