



TAFE, MF 241 DI PLANETARY PLUS V1 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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Subsequent to the examination of the case in light of Indian Standard IS 12207-2014, the following tests were considered to for the variant sample :

- Specification checking
- Two hour maximum PTO power performance test.
- Nominal speed test
- Brake test

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:

S. No.	Particulars	As recommended by the manufacturer	As used during the test in case of variant model
1.	Engine and Air cleaner oil	20W40	As recommended
2.	Transmission and hydraulic oil	SAE 90	Oil originally filled in the tractor was not changed
3.	Steering housing oil	SAE 140	--do--
4.	Grease	Servo Grease MP	Servo Grease MP

3. ESSENTIAL TESTS

3.1. SPECIFICATIONS

	<u>Base Model</u>	<u>Variant Model</u>
3.1.1 Tractor:		
Make	: TAFE	TAFE
Model	: MF 241 DI	MF 241 DI PLANETARY PLUS V1
Brand name	: None	None
Type	: Four-wheel drive ,Rear wheel driven general Purpose, Agricultural Tractor	
Year of manufacture	: 2014	2014
Chassis serial number	: MEA8D061KE2024402	MEA908A5KE2024206
Country of Origin	: India	India
3.1.2 Engine:		
Make	: SIMPSON & Co. Limited	SIMPSON & Co. Limited
Model	: T III A S325.1 -F2	T III A S325.1 -F2
Type	: Four stroke, naturally aspirated, liquid cooled, direct injection, diesel engine.	
Serial number	: S325.1G03173	S325.1G03244
Engine speed (Manufacturer's recommended production setting) (rpm) :		
- Maximum speed at no load	: 2100 to 2200	2100 to 2200
- Low idle speed	: 600 to 800	600 to 800
- Speed at maximum torque	: 1200 to 1400 (1100-1400)	1200 to 1400 (1100-1400)
Rated speed, (rpm):		
- For PTO use	: 2000	2000
- For drawbar use	: 2000	2000



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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 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 >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	27.2	27.2	28.3	28.9	Yes
b)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Non Evaluative	+ 5%	265	265	241	244	Yes
6.1.2	Brake performance at 25 kmph:							
	Maximum stopping distance at a force, equal to or less than 600 N on brake pedal with road ballast, (m):							
	1) Cold brake	Evaluative	10	10 (R)	6.53	6.46	Yes	
	2) Hot brake	Evaluative	10	10 (R)	7.13	6.89	Yes	
b)	Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 m/s ² (N)	Evaluative	600	600 (R) Maximum	251 to 353	201 to 2015	Yes	
c)	Whether parking brake is effective at a force of 600 N at foot pedal(s) or 400 N at hand lever	Evaluative	Yes / No	Yes	Yes	Yes	Yes	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	TAFE	TAFE		Yes	
	2) Model	Evaluative		MF 241 DI	MF 241 DI PLANETARY PLUS V1		Yes	
	3) Year of manufacture	Evaluative		KE	KE		Yes	
	4) Engine serial number	Evaluative		S325.1G03173	S325.1G03244		Yes	
	5) Chassis serial number	Evaluative		MEA8DO61KE20 24402	MEA908A5KE20 24206		Yes	
	6) Declaration of PTO power, kW	Evaluative		27.2	27.2		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 was observed as 28.9 kW against the declaration of 27.2 kW, which is within the tolerance limit of IS: 12207-2014
- ii) The specific fuel consumption corresponding to maximum power was measured as **244 g/kWh** against the declaration of **265 g/kWh**, which is within the tolerance limit of IS: 12207-2014. .

6.2.1.2 Specifications of Power Take Off Shaft & it's master shield:

Dimension "B ϕ " of PTO shaft does not meet to requirement of IS 4931:1995, while no PTO master shield is provided. This should be looked into for compliance.

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

The operator's work place provided on the tractor does not meet the following requirements and calls necessary improvement.

- i) Vertical retainers have not been provided on both sides of clutch & brake pedals.
- ii) Spark arrester not provided at the exhaust location.
- iii) The working clearance around the range selector lever .

6.3 Maintenance / Service Problems:

No noticeable maintenance was carried out for the tests/observations consider for the variant.

6.4 Recommendation with regard to safety on tractor:

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

- i) The length , width & inclination towards the rear direction of the driver seat were not as per the requirements of IS :12343-1998.

6.5 Adequacy of Literature supplied with machine:

6.5.1 Operator's instruction book, Parts Catalogue, Workshop manual of MF 241 DI Planetary Plus V1 Tractor.

6.5.2 The 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	Test duration under citizen charter	Whether the report released within time frame given citizen charter	Remark, if any
3 Months (July ,2016 to September,2016)	10 Months	Yes	Applicant submitted the test sample primarily for ICT and later on submitted application for variant consideration.

TESTING AUTHORITY:NITESH KUMAR VERMA
AGRICULTURAL ENGINEERC.V. CHIMOTE
TEST ENGINEERY.K.RAO
SENIOR AGRICULTURAL
ENGINEERJ.J.R. NARWARE
DIRECTOR

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

8. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's comments
1.	6.2.1.2,6.2.1.3,6.4 & 6.5.2	We will initiate the corrective action at the earliest .



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TRACTOR RUN HOURS DURING TEST

ANNEXURE - I

A.	LABORATORY AND TRACK TESTS	HOURS
1.	Running -in	--
2.	PTO Performance Test	2.83
3.	Nominal speed test	0.87
4.	Brake Test	1.93
B.	Miscellaneous test and other run hours, including idle run transportation, trial and preparation for test.	36.57
	Total	42.2