

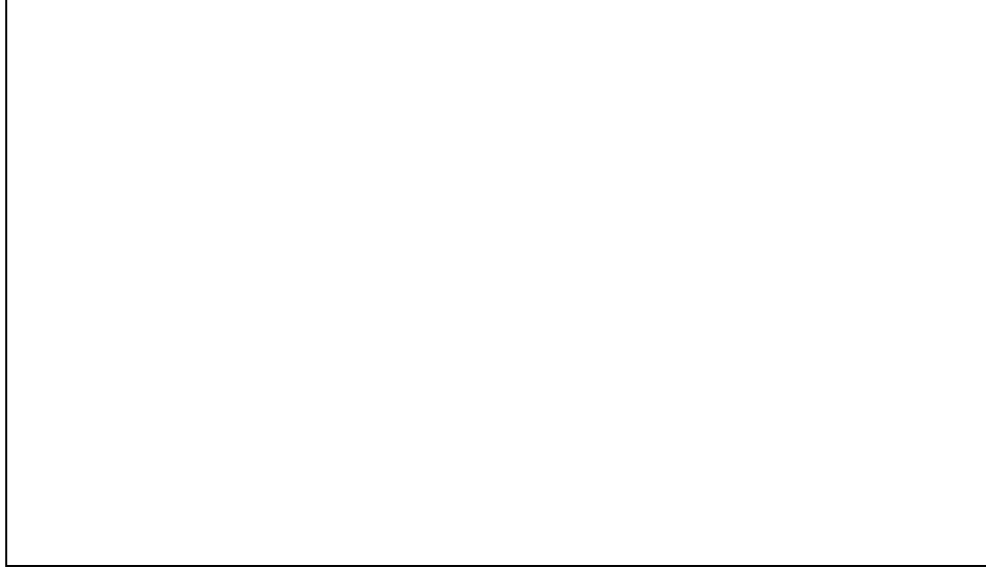
व्यावसायिक परीक्षण रिपोर्ट (प्रथम बैच परीक्षण)

संख्या/No. : T-1550/2078/2021

COMMERCIAL TEST REPORT (First Batch Test)

माह/Month : June, 2021

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



## TAFE, MF 1035 DI V2 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, Cooperation & Farmers Welfare)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

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The “TAFE, MF 1035 DI V2” tractor had undergone “Initial Commercial Test” at this Institute and a test report No. T- 1046/1571/2016 was released on **November, 2016**. Now the applicant has submitted application No. Nil dated 07.07.2020 for Batch testing of “TAFE LTD., MF 1035 DI V2” tractor.

All necessary tests as per Table-1 of clause 6.0 of IS: 5994 – 1998 (Reaffirmed in 2019) were carried out and test report released as under.

**Manufacturer** : **M/s. Tractors and Farm Equipment Limited, P.O. Box No.3302, (New 77) 35, Mahatma Gandhi Road, Nungambakkam, Chennai- 600 034**

Location of other manufacturing plants (apa) : M/s. Tractors and Farm Equipment Limited, Kalladipatti Plant, 10/205, Kalladipatti (P.O.), Pin code - 624 201Dindigul Dist., Tamilnadu  
: M/s. Tractors and Farm Equipment Limited, Doddaballapur Plant, Plot No. 1, KIADB Industrial Area , Doddaballapur, Bangalore - 561 203

Test requested by (applicant) : The Manufacturer  
Selected for test by : Applicant  
Place of running-in : At Applicant's works

**Duration of said running-in (h):**  
- Engine : 12  
-Transmission : 24

**Method of Selection** : Due to Covid-19 pandemic, it was not possible to conduct the random selection. Nor was it possible for applicant to facilitate the random selection. As a last resort, applicant requested to allow the direct submission of test sample which was allowed.

## 1. SPECIFICATION

**1.1 Tractor:**  
Make : TAFE  
Model : MF 1035 DI V2  
Type : Four wheeled, Rear-wheel driven, General Purpose, Unit construction, Agricultural Tractor.  
Variant: if any : Yes

Sr. no.	Variant model	Variant features
1.	TAFE 1035 DI V18	PTO power, dual clutch system, nominal speed change & Oil immersed disc brake (Vide test report no. T- 1200/1727/2018 (November, 2018).

Year of manufacture : 09 | 20  
Chassis number : MEA9721JL2311748  
Country of origin : India

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### 15. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

**15.1** On the basis of test conducted the performance results have been summarized as evaluative (mandatory) / Non-evaluative (Non-mandatory) parameters 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:

Sl. No.	Characteristic	Category (Evaluative / Non-Evaluative)	Requirements as per IS: 12207-2019	Values declared by the applicant/ (D) Requirement (R)	As observed	Whether meets the require- ments (Yes/No)
1	2	3	4	5	6	7
<b>15.1.1</b>	<b>PTO Performance:</b>					
a)	Maximum power under 2 h test, (kW) (Natural ambient condition)	Evaluative	Declared value to be achieved with a tolerance of: $\pm 5\%$ for PTO power and or engine power $> 26$ kW. $\pm 10\%$ for PTO power and or engine $\leq 26$ kW.	23.9 (D)	24.8	Yes
b)	Power at rated engine speed, (kW)	Non-Evaluative	-do-	23.9 (D)	24.8	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Evaluative	+ 10% max.	265 (D)	248	Yes
d)	Maximum equivalent crankshaft torque, (Nm)	Non-Evaluative	$\pm 8\%$	137.4 (D)	139.0	Yes
e)	Back-up torque, percent	Evaluative	12 percent	12% (D) 12% (R) Minimum	17.6	Yes
f)	Maximum operating temperature, ( $^{\circ}\text{C}$ )					
	1) Engine oil	Evaluative	The declared value should not exceed the max. value specified by the oil company and the observed value under high ambient condition should not exceed the declaration.	132 (D)	113	Yes
	2) Coolant	Evaluative	The declared value should not exceed the boiling temperature of coolant under the pressurized or otherwise and the observed value under high ambient condition should not exceed the declaration.	112 (D)	100	Yes
g)	Engine oil consumption, (g/kWh)	Evaluative	Not exceeding 1% of SFC at max. power under High ambient conditions.	1% of SFC 2.52 (R)	0.36	Yes
h)	Smoke level, $\text{m}^{-1}$	Evaluative	Maximum light absorption coefficient of 3.25 per meter or equivalent BOSCH No. 5.2 or 75 Hatridge value ( <b>As per CMVR</b> ).	3.25 per meter Maximum (R)	0.18 per meter	Yes

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1	2	3	4	5	6	7	
<b>15.1.2</b>	<b>Drawbar performance:</b>						
a)	Max. drawbar pull with ballasted corresponding to 15 percent wheel slip, (kN)	Non-Evaluative	Minimum 70% of static mass of tractor with ballast.	15.60 (D) 14.62 (R) Minimum	18.41	Yes	
b)	Max. drawbar pull with standard ballasted as the case may be 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.	11.5 (D) 11.29 (R) Minimum	14.20	Yes	
c)	Maximum drawbar power with standard ballast, (kW).	Evaluative	Minimum 80 % of PTO power as referred in SI No. i) a) of PTO performance in case of tractors having total static mass > 1500 kg Minimum 75 % of PTO power as referred in SI No. i) a) of PTO performance in case of light weight tractors having ≤1500 kg total static mass of tractor Minimum 75 % of the engine power as referred in SI No. i) a) of engine performance in case of tractors which do not have a PTO shaft.	19.1 (D) 19.8 (R) Minimum	22.2	Yes	
d)	For tractors fitted with air conditioned /heated cabin: Maximum drawbar power without ballast, or with standard ballast as the case may be, kW	Evaluative	Minimum 70 % of PTO power as referred in SI No. i) a) of PTO performance in case of tractors having total static mass > 1500 kg	Not fitted	Not applic-able	Not appli-cable	
e)	Maximum transmission oil temperature (°C)	Evaluative	The declared value should not exceed the maximum value specified by oil company	132 (D)	63	Yes	
<b>15.1.3</b>	<b>Power lift and hydraulic pump performance:</b>						
a)	Maximum lifting capacity throughout the range of lift, (kN):						
	1)	At hitch points	Evaluative	Tolerance of ± 10%	8.7 (D)	9.19	Yes
	2)	With the standard frame	Evaluative	The lift capacity should at least be 24 kg/PTO kW. and it should be 21.5 kg/engine kW where the tractor is not provided with a PTO shaft.	6.0 (D) 5.84 (R) Minimum	7.23	Yes
b)	Maximum drop in the height of the point of application of the force after each 5 minutes interval for a total duration of 30 Minutes, (mm)	Non-Evaluative	The observed value should not exceed 50 mm	50 (D) Maximum	80	No	

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1	2	3	4	5	6	7	
<b>15.1.4</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 standard ballast, (m):						
	1)	Cold brake	Evaluative	10	10 (R)	7.13	Yes
	2)	Hot brake	Evaluative	10	10 (R)	7.66	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) Maximum	366 to 400	Yes
c)	Whether parking brake is effective at a force of 600 N at foot pedal (s) or 400 N at hand lever, N		Evaluative	Yes / No	Yes	Yes	Yes
<b>15.1.5</b>	<b>Noise measurement:</b>						
a)	Maximum ambient noise emitted by the tractor dB(A)		Evaluative	As per CMVR	88 (R)	81	Yes
b)	Maximum noise at operator's ear level dB(A)		Evaluative	As per CMVR	96 (R)	94	Yes
<b>15.1.6</b>	<b>Amplitude of mechanical vibrations at:</b>						
	1)	Left foot rest	Non Evaluative	100 microns (max)	100(R)	90	Yes
	2)	Right foot rest				90	Yes
	3)	Seat (with driver seated)				38	Yes
	4)	Steering wheel				215	<b>No</b>
<b>15.1.7</b>	<b>Air cleaner Oil Pull-Over:</b>						
	Maximum air cleaner oil pull over, (%)		Evaluative	0.25% (Maximum)	0.14	Yes	
<b>15.1.8</b>	<b>Haulage requirements:</b>						
a)	Gross mass of the trailers, (tones):						
	Two wheel	Non-	--	5.0 (D)	5.0	Yes	
	Four wheel	Evaluative	--	5.0 (D)	5.0	Yes	
b)	Distance travelled / liter of fuel consumption, (km/l):						
	Two wheel	Non- Evaluative	--	4.8 to 6.5 (D)	7.26 to 8.11	<b>No</b>	
	Four wheel		--	4.8 to 6.5 (D)	7.80 to 8.89	<b>No</b>	
c)	Fuel consumption (ml/km/tonne):						
	Two wheel	Non- Evaluative	--	25 to 30 (D)	24.66 to 27.56	<b>No</b>	
	Four wheel		--	25 to 30 (D)	22.49 to 25.63	<b>No</b>	
<b>15.1.9</b>	<b>Wetland cultivation (Puddling Operation):</b>						
	Sealing for the following assemblies:		Evaluative	The identified assemblies should essentially meet the requirement of IS: 11082. No water ingress in the identified assembly given in column-2. If tractor does not meet the requirements of wetland cultivation, it may be recommended for dry land operation only.	There should be no ingress of water and/or mud (R)	No ingress of water and / or mud was observed during ICT test vide test report no. <b>T-1046/1571 /2016 (November, 2016)</b>	--
	1)	Clutch assembly	-do-				
	2)	Brake housings	-do-				
	3)	Front axle hubs	-do-				
	4)	Engine oil	-do-				
	5)	Transmission oil	-do-				

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1	2	3	4	5	6	7
<b>15.1.10</b>	<b>Safety features:</b>					
a)	Guards against moving and hot parts	Evaluative	Belt drives, pulleys, silencer, hydraulic pipes (As per IS 12239 (Part-2))		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)		<b>Does not Meets the requirement</b>	<b>No</b>
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)		<b>Does not Meets the requirement</b>	<b>No</b>
f)	Specifications of linkage drawbar	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) Maximum travelling speed at rated engine speed in reverse gears, Kmph	Evaluative	Should not exceed 20 Kmph		12.11 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 provided	Not applicable
<b>15.1.11</b>	<b>Labelling of tractors (Provision of labelling plate):</b>					
	1) Make	Evaluative	Should conform to the requirements of CMVR along with maximum PTO Power in kW and year of manufacture in numerical form. MM YY Digit 01 – 12 in box No.1 for MM will represent the months and next two digits in box No.2 for YY will represent the year of Manufacturing.		TAFE	Yes
	2) Model	Evaluative			MF 1035 DI V2	Yes
	3) Month & Year of manufacture	Evaluative			09 & 20	Yes
	4) Engine number	Evaluative			S324F15886	Yes
	5) Chassis number	Evaluative			MEA39721JL2311748	Yes
	6) Maximum PTO power, (kW)	Evaluative			23.9	Yes
	7) Specific fuel consumption, (g/kWh)	Evaluative			265	Yes
<b>15.1.12</b>	<b>Discard limit for:</b>					
(a)	Cylinder bore diameter, (mm)	Evaluative	To be specified by the manufacturer and supported by the printed literature	89.21 (D)	88.94 to 88.94	Yes
(b)	Piston & cylinder liner clearance at skirt, (mm)	Non-Evaluative		0.25 (D)	0.135 to 0.136	Yes
(c)	Piston diameter at skirt, mm	Non-Evaluative		88.87 to 88.94	88.515 to 88.810	Yes
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1	2	3	4	5	6	7
(d)	<b>Ring end gap (mm):</b>					
	- Top comp. ring.	Evaluative	-do-	1.50	0.35	Yes
	- 2 <sup>nd</sup> comp. ring.		-do-	1.50	0.35	Yes
- Oil ring.	-do-		1.50	0.35 to 0.40	Yes	
(e)	<b>Ring groove clearance (mm):</b>					
	- Top comp. ring.	Evaluative	-do-	0.25 (D)	0.074 to 0.076	Yes
	- 2 <sup>nd</sup> comp. ring.		-do-	0.25 (D)	0.079 to 0.080	Yes
- Oil ring.	-do-		0.25 (D)	0.039 to 0.041	Yes	
(f)	<b>Clearance of main bearings (mm):</b>					
	- Diametrical clearance	Evaluative	-do-	0.75 (D)	0.091 to 0.120	Yes
- Crankshaft end float	Evaluative	0.50 (D)		0.25	Yes	
(g)	<b>Clearance of big end bearings, (mm):</b>					
	- Diametrical	Evaluative	-do-	0.75 (D)	0.074 to 0.117	Yes
	- Axial	Evaluative	-do-	0.75 (D)	0.30	Yes
(h)	Clearance between king pin and bush, (mm)	Non-Evaluative	-do-	0.50 (D)	0.149 to 0.249	Yes
(i)	Clearance between centre pin and bush, (mm)	Non-Evaluative	-do-	1.25 (D)	0.038 to 0.141	Yes
<b>15.1.13</b>	<b>Literature (Submission to test agency)</b>					
(a)	Operator manual	Evaluative	Provided / Not Provided	Provided	Provided	Yes
(b)	Parts Catalogue	Evaluative		Provided	Provided	Yes
(c)	Workshop/ Service manual	Evaluative		Provided	Provided	Yes
<b>15.1.14</b>	<b>Fitment of Roll Over Protective Structures (ROPS):</b>					
	For tractor having more than 1150 mm rear track width	Evaluative	ROPS should meet the requirement of IS:1182 or OECD code or equivalent International Standard		Not fitted	Not applicable
<b>15.1.15</b>	Standard Accessories	Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with tractor		Provided	Yes
<b>15.1.16</b>	Accessories (optional)	Non Evaluative	Ballast weight, if fitted, should meet the requirement of CMVR		Provided	Yes

<b>15.2 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	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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**15.3 Salient Observations:**

**15.3.1 Laboratory tests:**

**15.3.1.1 PTO Performance Test:**

- i) The maximum power in case of previous & present sample were observed as 25.6 & 24.8 kW respectively, against the declaration of 23.9 kW, which meets the requirement of IS: 12207-2019 with regard to tolerance limit.
- ii) The specific fuel consumption corresponding to maximum power in case of previous & present sample was recorded as 259 & 248 g/kWh against respectively the declaration of 265 g/kWh, which meets the requirement of IS: 12207-2019 with regard to tolerance limit.
- iii) The maximum equivalent crankshaft torque in case of previous & present sample were recorded as 142.6 & 139.0 Nm against the declaration of 137.3 Nm, which meets the requirement of IS: 12207-2019 with regard to tolerance limit.
- iv) The backup torque was observed as 17.6 % and meets the evaluative requirement of IS: 12207-2019.

**15.3.1.2 Drawbar performance test:**

- i) Maximum drawbar pull in case of previous & present sample with standard ballast corresponding to 15 percent wheel slip, (kN) was recorded as 13.76 kN & 14.20 kN respectively against the minimum requirement of 11.5 kN, which meets the requirement of IS: 12207-2019 with regard to tolerance limit.
- ii) Maximum drawbar power in case of previous & present sample under standard ballasted condition was recorded as 24.2 kW & 22.2 kW respectively against the minimum requirement of 19.8 kW in case of present sample which meets the minimum requirement of IS: 12207-2019.

**15.3.1.3 Hydraulic performance test:**

- i) Maximum lifting capacity throughout the range of lift at hitch point and standard frame was recorded as 9.19 kN & 7.23 kN respectively against the declaration of 8.70 kN & 6.0 kN respectively, which meets the requirement of IS: 12207-2019 with regard to tolerance limit.
- ii) During the hydraulic lift load maintenance test the drop in vertical height of the lower links was observed as 80 mm against the maximum permissible limit of 50 mm. This may be looked into for necessary corrective action.

**15.3.1.4 Three-point linkage:**

The lateral distance from lower hitch point to centre line of tractor does not meet the requirement of IS: 4468 (Part-1)-1997. This should be looked into for necessary corrective action.

**15.4 Maintenance / Service Problems:**

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

**15.5 Recommendation with regard to safety on tractor:**

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


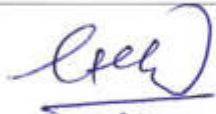

- i) Inclination of seat back rest & vertical distance of SIP from foot rest has not been provided as IS: 12343-1998 (Reaffirmed in: 2019).
- ii) Vertical retainness at inner side of clutch pedal, width of foot step & provision for spark arresting device has not been provided as IS :12239 (Part-I)-2018.
- iii) Provision of master shield has not been provided as IS: 12239 (Part-II) (Reaffirmed in: 2019).
- iv) Working clearance in between position control and draft control lever is (40 mm) not as per IS: 12239 (Part-II) (Reaffirmed in: 2019).
- v) Oil lubricant, type & frequency should be provided as per IS 6283 (part 1 & 2)-1998 (Reaffirmed in: 2019).



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- 15.6.1** The supplied literature was found adequate
- a) Operator Instruction book for MF 1035 DI V2, MF 241 DI, MF 241 DI PLANETARY PLUS V1, MF 5245 DI PLANETARY PLUS V1 Tractors models.
  - b) Parts book for MF 1035 DI V2 tractor model.
  - c) Workshop Service manual (Part -1 & 2) for MF 241 DI PLANETARY PLUS V1 & MF 1035 DI V2 tractor model.
- 15.6.2** The literature should be brought out in national as well as other regional languages of India for guidance of users.

**TESTING AUTHORITY:**

<b><u>TESTING AUTHORITY:</u></b>	
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 compiled by: **C.S. Raghuvanshi**, Agricultural Engineer.

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#### 16. APPLICANT'S COMMENTS

Para no.	Our reference	Applicant comments
<b>16.1</b>	15.3.1.3 (ii), 15.5 [(i), (ii), (iii), (iv) & (v)] 15.6.1 & 15.6.2	We will study and take appropriate corrective actions.

#### ANNEXURE- I

#### TRACTOR RUN HOURS DURING TEST

A.	LABORATORY AND TRACK TESTS:	HOURS
1.	Running-in	36.0
2.	PTO performance test	11.1
3.	Drawbar performance test	15.5
4.	Power lift and hydraulic pump performance test	1.5
5.	Brake test	2.0
6.	Noise measurement	0.8
7.	Air cleaner oil-pull over test	2.5
8.	Mechanical vibration test	1.0
9.	Theoretical speed test	0.8
<b>B.</b>	Haulage Test	5.3
<b>C.</b>	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test	6.4
<b>TOTAL:</b>		<b>83.0</b>