

Application Reference No. 28/2022-23/87

(यह परीक्षण रिपोर्ट 31/07/2028 तक वैध है / THIS TEST REPORT IS VALID UPTO 31/07/2028)



Make of Agricultural Tractor : JOHN DEERE
Model : 5045D 4WD V3
Manufactured by : M/s. John Deere India Pvt. Ltd.
Gat No.166 - 167 & 271 - 291,
Off. Pune-Nagar Road, Sanaswadi,
Pune - 412 208



भारत सरकार

कृषि एवं किसान कल्याण मंत्रालय
(कृषि एवं किसान कल्याण विभाग)

GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE AND FARMERS WELFARE
(DEPARTMENT OF AGRICULTURE & FARMERS WELFARE)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान
ट्रैक्टर नगर, बुदनी (म.प्र.) 466 445

CENTRAL FARM MACHINERY TRAINING & TESTING INSTITUTE
TRACTOR NAGAR, BUDNI (M.P.) 466 445
(An ISO 9001:2015 Certified Institute)

T-1754/2285/2023	JOHN DEERE, 5045D 4WD V3 TRACTOR - INITIAL COMMERCIAL TEST
	THIS TEST REPORT IS VALID UPTO: 31/07/2028

IMPORTANT INFORMATION

The Government of India, Ministry of Agriculture and Farmers' Welfare has directed, vide a OM No. 13-17/2021-M&T(I&P) dated 28.07.2022, that since 15th August, 2022, only mandatory tests will be carried out on a tractor unless applicant has expressly requested for optional tests as well, mentioned in the above captioned OM.

In the instant case, there is no request from the applicant to carry out the optional tests hence only Mandatory Tests, as given below, have been conducted and reported in this report: -

1. PTO performance
2. Hydraulic performance
3. Drawbar performance
4. Brake performance

Month: July	Test Report No.: T-1754/2285/2023	Year: 2023
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[C]	Tractor manufacturer's name and address	: M/s. John Deere India Pvt. Ltd. Gat No.166 - 167 & 271 - 291, Off. Pune-Nagar Road, Sanaswadi, Pune - 412 208
[D]	Location of tractor assembly	: (i) M/s. John Deere India Pvt. Ltd. Gat No.166 - 167 & 271 - 291, Off. Pune-Nagar Road, Sanaswadi, Pune - 412 208 (ii) M/s. John Deere India Pvt. Ltd. Survey No.501, Village-Khatamba Jamgod, Dewas Bhopal Highway, Dewas (Madhya Pradesh) - 455 115
[C]	Submitted for test by (Applicant)	: The Manufacturer
[C]	Selected for test by	: The Ministry vide OM No. 13-17/2021 - M&T (I&P) dated 28.07.2022, has allowed the applicant to submit the test sample directly to the Institute without requiring any random selection for Initial Commercial Testing. Thus, the applicant directly submitted the test sample to the Institute for test.
[D]	Place of running-in	: At manufacturer's works
[D]	Duration of running-in (h):	
	-Engine	: 20
	-Transmission	: 12
[C]	Location of test	: Government of India, Central Farm Machinery Training and Testing Institute, P.O. - Tractor Nagar, BUDNI – 466445 (M.P.), INDIA

1. SPECIFICATIONS OF TRACTOR

1.1 Identification:

1.1.1 Denomination

[C]	Make of tractor	: JOHN DEERE
[C]	Model (trade name)	: 5045D 4WD V3
[C]	Type	: Four Wheel Drive, Standard Agricultural Tractor.
[C]	Month & year of manufacture	: 11/22
[D]	Country of origin	: India

1.1.2 Numbers:

[D]	1 st Serial No. of prototype	: 1PY5045DCNA074796
[C]	Serial No.	: 1PY5045DHNA077817

1.2 Engine:

[D]	Manufacturer's address	: (i) M/s. John Deere India Pvt. Ltd. Gat No.166 - 167 & 271 - 291, Off. Pune-Nagar Road, Sanaswadi, Pune - 412 208 (ii) M/s. John Deere India Pvt. Ltd. Survey No.501, Village-Khatamba Jamgod, Dewas Bhopal Highway, Dewas (Madhya Pradesh) - 455 115
[C]	Make	: John Deere India Pvt. Ltd.
[C]	Model	: 3029DPY95

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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) / Non-evaluative (Non-mandatory) parameters applicable for Qualifying Minimum Performance criteria as per Clause-4 (Table-1) of IS: 12207-2022 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: 12207-2022	Values declared by the applicant/ (D) Requirement (R)	As observed	Whether meets the requirements (Yes/No)
1	2	3	4	5	6	7
MANDATORY TESTS: (As per Ministry's Office Memorandum No. 13-17/2021-M&T (I&P) dated 28th of July, 2022).						
6.1.1 PTO Performance:						
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 ≤ 26 kW.	28.1 (D)	28.3	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	27.8 (D)	28.2	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Evaluative	Should not be more than 10% of declared value.	270 (D)	282	Yes
d)	Maximum equivalent crankshaft torque, (Nm)	Non Evaluative	$\pm 8\%$	145 (D)	153.4	Yes
e)	Back-up torque, percent	Evaluative	Should be min. 12%	Above 12 (D) 12 (R)	19.6	Yes
f)	Maximum operating temperature, ($^{\circ}$ C):					
	1) Engine oil	Evaluative	The declared value should not exceed the Max value specified by the oil company and the observed value under natural ambient/high ambient condition should not exceed the declaration.	135 (D)	117	Yes
	2) Coolant	Evaluative	Observed value should not exceed the declared value or boiling point of coolant at radiator cap pressure whichever is lower. The boiling point of the coolant at radiator pressure shall be provided by the applicant.	120 (D)	112	Yes
g)	Engine oil consumption, (g/kWh)	Evaluative	Not exceeding 1% of SFC at Max power under natural ambient condition. The value would be based on the test conducted under natural ambient condition	2.82 Maximum (R)	0.18	Yes
h)	Smoke level, m^{-1}	Evaluative	Maximum light absorption coefficient of 3.25 per meter or equivalent BOSCH No. 5.2 or 75 Hatridge value (As per CMVR). Max Smoke level shall be reported out of 6 readings tested as per IS 12062 and observed value should be well within the required limits.	3.25 per meter Maximum (R)	0.35	Yes

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1	2	3	4	5	6	7
6.1.2	Drawbar performance:					
a)	Max. drawbar pull with ballast corresponding to 15 percent wheel slip, (kN)	Non Evaluative	Minimum 70% of static mass of tractor with ballast.	21.00 (D) --	--	Not applicable
b)	Max. drawbar pull without ballast corresponding to 15 percent wheel slip, (kN)	Evaluative	In case of tractors having total static mass \geq 1500 kg, Min 70% of static mass of tractor without ballast or with standard ballast, as the case may be. In case of light weight tractors having \leq 1500 kg total static mass of tractor, Min. 65% of static mass of tractor without ballast or with standard ballast, as the case may be.	13.28 (D) 13.66 (R) Minimum	18.29	Yes
c)	Maximum drawbar power without 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 \leq 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.	22.48 (D) 22.6 (R) Minimum	25.5	Yes
d)	Maximum transmission oil temperature, ($^{\circ}$ C)	Evaluative	The declared value should not exceed the recommendation by the oil manufacturer. The observed value should not exceed the declared value throughout the drawbar test.	120 (D)	84	Yes
6.1.3	Power lift and hydraulic pump performance:					
a)	Maximum lifting capacity throughout the range of lift, (kN):					
	1) At hitch points	Evaluative	Should not be less than 90% of declared value.	14.00 (D) 12.60 (R) Minimum	12.95	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.	12.40 (D) 6.66 (R) Minimum	11.18	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	35	Yes

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1	2	3	4	5	6	7	
6.1.4	Brake performance at 25 kmph:						
a)	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)	7.11	Yes
	2)	Hot brake	Evaluative	10	10 (R)	7.27	Yes
b)	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	
6.1.5	OPTIONAL TESTS: As the applicant has not applied for any optional tests, therefore no optional tests was conducted.						
6.1.6	Safety features :						
a)	Guards against moving and hot parts	Evaluative	Belt drives, pulleys, silencer, hydraulic pipes [As per IS 12239 (Part2)]	Meets the requirement	Yes		
b)	Lighting arrangement	Evaluative	As per CMVR	Conforms	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	Non 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)	Does not meet the requirement	No		
f)	Specifications of linkage drawbar	Non Evaluative	Should meet the requirements of IS: 12953 (As amended from time to time)	Meets the requirement	Yes		
g)	Swinging drawbar (wherever fitted)	Non Evaluative	Should meet the requirement of IS: 12362 (Part 3) (As amended from time to time)	Not fitted	Not applicable		
h)	Audible warning signal on tractor	Evaluative	If tractor travel speed in reverse gear exceeds 20 kmph, an audible warning signal on tractor shall get activated. A sticker to the effect that "operating the tractor beyond 20 kmph speed in reverse gear is not safe" should be prominently displayed.	Not fitted	Not applicable		

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1	2	3	4	5	6	7		
6.1.7	Labelling of tractors (Provision of labelling plate):							
	1)	Make	Evaluative	Should conform to the requirements of CMVR along-with declared value of PTO in kW, Specific fuel consumption (SFC) corresponding to maximum power in g/kWh and year of manufacture in numerical form <table border="1" style="margin-left: 20px;"><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	John Deere	Yes
	MM	YY						
	2)	Model	Evaluative		5045D 4WD V3	Yes		
	3)	Month & Year of manufacture	Evaluative		11/22	Yes		
	4)	Engine number	Evaluative		PY3029D721879	Yes		
	5)	Chassis number	Evaluative		1PY5045DHNA0 77817	Yes		
	6)	Maximum PTO power, (kW)	Evaluative		28.1	Yes		
7)	Specific fuel consumption, (g/kWh)	Evaluative	270		Yes			
6.1.8 Literature (Submission to test agency):								
(a)	Operator manual	Evaluative	The printed literature in booklet form should be provided as per IS 8132 and should submit along with the test sample.	Provided	Yes			
(b)	Parts Catalogue	Evaluative		Provided	Yes			
(c)	Workshop/ Service manual	Evaluative		Provided	Yes			
6.1.9	Fitment of Roll Over Protective Structures (ROPS):							
	For tractor having more than 1150 mm rear track width	Evaluative	ROPS should meet the requirement of IS:11821 or OECD code or equivalent International Standard.	Not fitted	Not applicable			
6.1.10	Standard Accessories	Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with tractor	Provided	Yes			
6.1.11	Accessories (optional)	Non Evaluative	Ballast weight, if fitted, should meet the requirement of CMVR	Not fitted	Not applicable			

6.2 CATEGORY OF BREAKDOWNS / DEFECTS (As per clause 5.0 of IS:12207-2022):					
S. No.	Category of break-downs	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2022	As observed	Whether meets the Requirement (Yes/No)
1.	Critical	Evaluative	There is no 'critical breakdown' during the course of testing.	None	Yes
2.	Major	Evaluative	There are not more than 2 major breakdowns and neither of them should be of repetitive nature.	None	Yes
3.	Minor	Evaluative	There are not more than 5 minor defects during the test and neither of them should of repetitive nature.	None	Yes
4.	Total breakdowns	Evaluative	In no case, the total number of breakdowns should exceed five that is, (2 major + 3 minor) or (1 major + 4 minor) or 5 minor breakdowns.	None	Yes

6.3 Conformity with following IS:

- i) Guidelines for declaration of power and specific fuel consumption and labeling of agricultural tractors (First revision) [IS:10273 -1987 (Reaffirmed Year 2019)] : Conforms
- ii) Agricultural tractors - Rear mounted power take-off - Types 1, 2 and 3 (third revision) [IS:4931-1995 (Reaffirmed Year 2019)] : Conforms
- iii) Agricultural wheeled tractors – Rear mounted three-point linkage: Part 1 Categories 1, 2, 3 & 4 (fourth revision) [IS:4468(Part-I) – 1997 (Reaffirmed in 2022)] : **Does not conform**
- iv) Drawbar for agricultural tractors – Link type [IS 12953:1990 (Reaffirmed Year 2022)] : Conforms
- v) Agricultural tractors- Operator’s seat technical requirement [IS12343 - 2021] : **Does not conform**
- vi) Guide for safety & comfort of operator of agricultural tractors:Part 1 General requirements (first revision):[IS 12239 (Part 1) - 2018] : **Does not conform**
- vii) Tractors and machinery for agriculture and forestry – Technical means for ensuring safety Part 2: Tractors (first revision) (IS 12239 (Part 2) 1999) (Reaffirmed Year 2019)] : **Does not conform**
- viii) Guide lines for location and operation of operator controls on agricultural tractors and machinery [IS: 8133 - 2021] : **Does not conform**
- ix) Tractors and machinery for agriculture and forestry, powered lawn and garden equipment - Symbols for operator controls and other displays Part2 Symbols for agricultural tractors and machinery [IS: 6283(Part-1) - 2006 (Reaffirmed Year 2019) and IS: 6283 (Part-2) – 2007 (Reaffirmed Year 2019)] : **Does not conform**
- x) Agricultural Tractors and Machinery-Lighting device for travel on public roads (IS:14683-1999) (Reaffirmed Year 2019)] : Conforms

6.4 Salient Observations:

6.4.1 Laboratory tests:

6.4.1.1 Hydraulic Performance Test

During Pressure relief valve performance test, hydraulic oil discharge at max power was observed as 13.3 l/min against the declaration of 18.0 l/min. Upon this, the manufacturer vide letter no. Nil dated 06.07.2023, has requested for cleaning of hydraulic oil and replacement of hydraulic oil filter, which was allowed. Accordingly, the hydraulic oil was drained, cleaned and refilled. Hydraulic filter was replaced with a new one (part no. RE45864) having same specification. Thereafter, the Pressure relief valve performance test and hydraulic pump performance test was conducted. However, the results observed after cleaning of hydraulic oil and replacement of filter has no significant difference from the earlier results. Upon this, the applicant vide letter no. nil dated 07.07.2023, has requested to continue the further tests, which was allowed and further tests were conducted.

6.4.1.2 Three-point linkage:

The following parameters does not meet the requirements of IS: 4468 (Part-I) – 1997 and needs to be looked into for necessary corrective actions:

- i) Diameter of upper hitch point hole and diameter of lower hitch point hole has been measured as 25.82 and 28.88 mm against the requirement of 19.30 to 19.50 mm and 22.40 to 22.65 mm respectively.
- ii) The leveling adjustment has been measured as 55 mm against the minimum requirement of 100 mm.

6.4.1.3 Operator's seat:

The following parameters do not meet the requirement of IS: 12343-2021.

- i) Provision for adjustment of driver's mass has been specified as 50 to 120 kg against the requirement of 40 to 100 kg.
- ii) Vertical distance from SIP centre of accelerator pedal has been measured as 515 mm against the requirement of 230 to 460 mm.
- iii) Longitudinal distance from SIP centre of steering control wheel has been measured as 385 mm against the requirement of 425 to 525 mm.
Vertical distance from SIP to centre of steering control wheel has been measured as 215 mm against the requirement of 265 to 385 mm.
- iv) Vertical distance of SIP from foot rest has been measured as 580 mm against the requirement of 450 to 520 mm.

Therefore, all of the above should be looked into for necessary corrective action.

6.4.1.4 Operator's work place:

Spark arresting device has not been provided in the exhaust system as per the requirement of IS: 12239 (Part-I) -2018. This should be looked into for necessary corrective action.

6.4.1.5 Specification of Tractor

- i) Discrepancies in the specification between the Specification sheet and Operator's manual are as under:

S. No.	Description	As per Specification Sheet	As per Operator's manual
a.	Name & Brand name of coolant, Coolant -water ratio	Ethylene glycol, 1:4	John Deere COOL-GARD II Premix, in a concentration of 50% ethylene glycol. (P. No. 85-6)
b.	Coolant capacity, (l)	9.5	9.8 (P. No. 155-5)
c.	Transmission oil capacity, (l)	34.0	32.0 (P. No. 155-5)
e.	Transmission oil filter change period	First after 1000 hours, subsequently change after 1250 hours	Replace first 100 hours, replace every 500 hours (P. No. 90-2, 90-4 & 90-5)
f.	Maximum equivalent crankshaft torque, (N-m)	145.0	179.0 (P. No. 155-5)
g.	Standard PTO speed	540 @ 2070 engine rpm	540@ 2050 engine rpm (P. No. 155-5)
h.	Maximum hydraulic power, (kW)	5.7	6.8 (P. No. 155-5)
i.	Maximum drawbar pull without ballast, (kN)	13.28	14.4 (P. No. 155-5)

6.5 Maintenance / Service Problems:

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

6.6 Recommendation with regard to safety on tractor:

- i) Colour codes on illuminated display has not been provided as per the requirement as laid down in IS: 6283 (Part 2): 2007.
- ii) Identification of hand controls by colour has not been provided as per the requirement as laid down in Table – 5 of IS: 8133-2021.

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- iii) The distance of engine stop control from the engine start control has been measured as 290 mm which does not meet the requirement of maximum 150 mm as laid down in Table 1 of IS: 8133-2021.
- iv) The working clearance between position control lever & RHS mudguard and between draft control lever & position control lever have been measured as 50 mm and 47 mm respectively against the minimum requirement of 70 mm as per the requirement of IS: 12239 (Part II) - 1999.

Above parameters should be looked into for necessary corrective action.

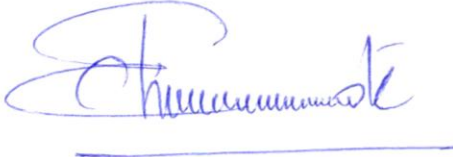

6.7 Adequacy of Literature supplied with machine:

6.7.1 The following literatures were supplied with the test tractor for reference during the test: -

- a) Operator's Manual for "John Deere 5036D, 5038D, 5039D, 5042D, 5045D, 5045D 4WD V3, 5050D, 5105, 5205 & 5005D" tractor models.
- b) Parts Catalogue Part- I, Part-II, Part-III & Part-IV for "John Deere 5045D 4WD V3" tractor model.
- c) Workshop/ Service/ Repair Technical Manuals Part-I & Part-II for "John Deere 5036D, 5038D, 5039D, 5040D, 5042D, 5045D, 5045D 4WD V3, 5047D, 5050D, 5105, 5205, 5305 and 5005D" tractor models.

TEST CARRIED OUT AT C.F.M.T. & T.I., BUDNI (M.P.), INDIA

TESTING AUTHORITY

C. V. CHIMOTE TEST ENGINEER	
A. K. UPADHYAY DIRECTOR (I/C)	

Draft Test Report compiled by **Partha Lodh**, Senior Technical Assistant.

7. APPLICANT'S COMMENTS

Para no.	Our reference	Applicant comments
7.1	6.4.1.5 (i) a, b, c, d, e, f, g, h & i	Your valuable comments and suggestions for improvements are well taken. Under our policy of continuous product improvement these aspects are further being looked into and will try to eliminate these deviations soon wherever necessary.

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ANNEXURE-I

TRACTOR RUN HOURS DURING TEST

A.	LABORATORY AND TRACK TESTS:	HOURS
1.	Running-in	Applicant has declared it to be conducted on their work place.
2.	PTO performance test	13.2
3.	Power lift and hydraulic pump performance test	5.3
4.	Drawbar performance test	2.8
5.	Brake performance test	2.0
6.	Nominal speed test	1.8
B.	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test	2.6
TOTAL:		27.7