व्यावसायिक वैरिएंट परीक्षण रिपोर्ट (प्रथम बैच) संख्या/No. : T-1756/2287/2023

COMMERCIAL VARIANT TEST REPORT (1st Batch) माह/Month : July, 2023

Application Reference No. 28/2022-23/95

(यह परीक्षण रिपोर्ट 31/07/2030 तक वैध है / THIS TEST REPORT IS VALID UPTO 31/07/2030)



Make of Agricultural Tractor : JOHN DEERE

Model : 5105 4WD V2

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)

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	JOHN DEERE, 5105 4WD V2 TRACTOR
T-1756/2287/2023	- COMMERCIAL VARIANT (1 st BATCH TEST)

THIS TEST REPORT IS VALID UPTO: 31/07/2030

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-1756/2287/2023 Year: 2023



GOVERNMENT OF INDIA
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JOHN DEERE, 5105 4WD V2 TRACTOR - COMMERCIAL VARIANT (1st BATCH TEST) T-1756/2287/2023 THIS TEST REPORT IS VALID UPTO: 31/07/2030 [C] Tractor manufacturer's name and M/s. John Deere India Pvt. Ltd. Gat No.166 - 167 & 271 - 291, address Off. Pune-Nagar Road, Sanaswadi, Pune - 412 208 [D] Location of tractor assembly M/s. John Deere India Pvt. Ltd. Gat No.166 - 167 & 271 - 291. Off. Pune-Nagar Road, Sanaswadi, Pune - 412 208 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 test sample was selected randomly out of Five tractors from the production line by the representative of testing authority through online mode. Details of tractors made available for random selection: S. Chassis Number No. 1PY5105DLPH026106 i) 1PY5105DHPH026107 ii) iii) 1PY5105DEPH026108 iv) 1PY5105DKPH026096 1PY5105DPPH026095 V) Place of running-in At manufacturer's works [D] Duration of running-in, (h): [D] -Engine 12 -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** JOHN DEERE Make of tractor [C] Model (trade name) 5105 4WD V2 [C] Type Four Wheel Drive, Standard Agricultural : Tractor. [C] Month & year of manufacture 06 & 23 Country of origin India [D] 1.1.2 Numbers: 1st Serial No. or prototype [D] 1PY5105DPKA008231 Serial No. [C] 1PY5105DKPH026096 1.2 **Engine:** Manufacturer's address [D] M/s. John Deere India Pvt. Ltd. (i) Gat No.166 - 167 & 271 - 291, Off. Pune-Nagar Road, Sanaswadi Taluka - Shirur, 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

JOHN DEERE, 5105 4WD V2 TRACTOR - COMMERCIAL VARIANT (1st BATCH TEST)

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7. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

7.1 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:

SI. No.	Ch	aracteristic	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2022	Values declared by the applicant/ (D) Requirement (R)	As observed	Whether meets the requirem- ents (Yes/No)
1		2	3	4	5	6	7
	date	d 28 th of July, 2	TS: (As per M 2022).	inistry's Office Memorandum	n No. 13-17/	2021-M&	T (I&P)
7.1.1		Performance:	T		1	T	1
a)	unde (kW)	mum power r 2 h test, (Natural ent 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.	25.8 (D)	23.8	Yes
b)		er at rated ne speed,	Non Evaluative	-do-	25.5 (D)	23.8	Yes
c)	consi	ific fuel umption sponding to mum power, Vh)	Evaluative	Should not be more than 10% of declared value.	272 (D)	274	Yes
d)		valent kshaft torque,	Non Evaluative	± 8%	144 (D)	132.3	No
е)	Back perce	-up torque, ent	Evaluative	Should be min. 12%	Above 12 (D) 12 (R)	22.4	Yes
f)		mum operating		°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)	123	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)	102	Yes
g)	Engir cons (g/kV	umption,	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	2.74 Maximum (R)	0.28	Yes
h)	Smol	ke 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)	0.10	Yes

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1		2	3	4	5	6	7
7.1.2		wbar performa					
a)	with cor 15 slip	responding to percent wheel , (kN)	Non Evaluative	Minimum 70% of static mass of tractor with ballast.	18.88 (D) 		Not appli- cable
b)	with cor 15	x. drawbar pull nout ballast responding to percent wheel , (kN)	Evaluative	In case of tractors having total static mass ≥ 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 ≤ 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.	13.73 (D) 13.56 (R) Minimum	16.62	Yes
c)	pov ball	ast, (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.	20.64 (D) 19.0 (R) Minimum	20.1	Yes
d)	trar	ximum nsmission oil nperature, (°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.	110 (D)	86	Yes
7.1.3		wer lift and hydi					
a)				ut the range of lift, (kN):	44.00 (D)	40.54	
	1)	At hitch points	Evaluative	Should not be less than 90% of declared value.	14.00 (D) 12.60 (R) Minimum	13.54	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.	11.80 (D) 5.60 (R) Minimum	11.14	Yes
b)	the point of each intended	ximum drop in height of the ht of application the force after th 5 minutes erval for a total ation of 30 jutes, (mm)	Non Evaluative	The observed value should not exceed 50 mm.	50 (D) Maximum	05	Yes

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1	2	3	4	5	6	7
7.1.4	Brake performance	_	-	<u> </u>	ı <u> </u>	
a)			orce, equal to or less than 600	N on brake	pedal wi	th road
	ballast, (m):		, 1		•	
	1) Cold brake	Evaluative	10	10 (R)	7.51	Yes
	2) Hot brake	Evaluative	10	10 (R)	7.56	Yes
b)	Whether parking	Evaluative	Yes / No	Yes	Yes	Yes
	brake is effective					
	at a force of 600 N					
	at foot pedal (s) or					
	400 N at hand					
	lever					
7.1.5	OPTIONAL TESTS					
	• •	as not applied	for any optional tests, there	etore no opt	ional tes	ts was
	conducted.					
7.1.6	Safety features :		15 % 1:			
a)	Guards against	Evaluative	Belt drives, pulleys,	Meets		Yes
	moving and hot		silencer, hydraulic pipes	requirer	nent	
P)	parts Lighting	Evaluative	[As per IS 12239 (Part2)] As per CMVR	Confo	rme	Yes
b)	arrangement	⊏valualive	AS PEL CIVIVIC	Cornor	11115	162
c)	Seating	Non	Should meet the	Does	not	No
0,	requirements	Evaluative	requirements of IS: 12343	meet		110
	(Tractors having		(As amended from time to	require		
	more than 1150		time)	roquiro		
	mm rear track		,			
	width)					
d)	Technical	Non	Should meet the	Meets	the	Yes
	requirements for	Evaluative	requirements of IS: 4931	requirer	ment	
	PTO shaft		(As amended from time to			
	D:		time)			.
e)	Dimensions of	Non	Should meet the	Does		No
	three point linkage	Evaluative	requirements of IS: 4468	meet	-	
			(Part-I) (As amended from time to time)	require	ment	
f)	Specifications of	Non	Should meet the	Meets	the	Yes
''	linkage drawbar	Evaluative	requirements of IS: 12953	requirer		103
	iiiikago arawbai	Lvaldativo	(As amended from time to	roquiroi	110111	
			time)			
g)	Swinging drawbar	Non	Should meet the	Not fit	ted	Not
0,	(wherever fitted)	Evaluative	requirement of IS: 12362			appli-
			(Part 3) (As amended from			cable
			time to time)			
h)	Audible warning	Evaluative	If tractor travel speed in	Not fit	ted	Not
	signal on tractor		reverse gear exceeds 20			appli- cable
			kmph, an audible warning			Cable
			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.			
l	1			<u> </u>		

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1		2	3	4	5	6	7
7.1.7	Lab	elling of tracto	rs (Provision	of labelling plate):			
	1)	Make	Evaluative	Should conform to the	e Jo	ohn Deere	Yes
	2)	Model	Evaluative	requirements of CMVF	R 51	05 4WD V2	Yes
	3)	Month & Year of manufacture	Evaluative	along-with declared valu of PTO in kW, Specific fue consumption (SFC	el	06/23	Yes
	4)	Engine number	Evaluative	maximum power in g/kW	า	3029D748312	Yes
	5)	Chassis number	Evaluative	and year of manufacture inumerical form	1P	75105DKPH0 26096	Yes
	6)	Maximum PTO power, (kW)	Evaluative	Digit 01-12 in box No. 1 for MM will represent the		25.8	Yes
	7)	Specific fuel consumption, (g/kWh)	Evaluative	month and next two digit i the box No. 2 for YY wi	า	272	Yes

7.1.8	Literature (Submis	sion to test ag	ency):		
(a)	Operator manual	Evaluative	The printed literature in	Provided	Yes
(b)	Parts Catalogue	Evaluative	booklet form should be	Provided	Yes
(c)	Workshop/ Service manual	Evaluative	provided as per IS 8132 and should submit along with the test sample.	Provided	Yes
7.1.9	Fitment of Roll Ove	er Protective S	tructures (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
7.1.10	Standard Accessories	Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with tractor	Provided	Yes
7.1.11	Accessories (optional)	Non Evaluative	Ballast weight, if fitted, should meet the requirement of CMVR	Not fitted	Not applicable

7.2	CATEGORY O	F BREAKDOV	VNS / DEFECTS (As per clause 5.0	of IS:12207-202	2):
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

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7.3 Conformity with following IS:

 Guidelines for declaration of power and specific fuel consumption and: Conforms labeling of agricultural tractors (First revision) [IS:10273 -1987 (Reaffirmed Year 2019)]

ii) Agricultural tractors - Rear mounted power take-off - Types 1, 2 and 3 (third : Conforms revision) [IS:4931-1995 (Reaffirmed Year 2019)]

iii) Agricultural wheeled tractors – Rear mounted three-point linkage: Part 1 : **Does not** Categories 1, 2, 3 & 4 (fourth revision) [IS:4468(Part-I) – 1997 (Reaffirmed in 2022)]

iv) Drawbar for agricultural tractors – Link type [IS 12953:1990 (Reaffirmed Year : 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 : Does not requirements (first revision):[IS 12239 (Part 1) - 2018] conform

vii) Tractors and machinery for agriculture and forestry – Technical means for : Does not ensuring safety Part 2: Tractors (first revision) (IS 12239 (Part 2) 1999) conform (Reaffirmed Year 2019)]

viii) Guide lines for location and operation of operator controls on agricultural : Does not tractors and machinery [IS: 8133 - 2021] 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)]

x) Agricultural Tractors and Machinery-Lighting device for travel on public roads: Conforms (IS:14683-1999) (Reaffirmed Year 2019)]

7.4 Salient Observations:

7.4.1 Laboratory tests:

7.4.1.1 PTO Performance Test:

Maximum equivalent crankshaft torque was observed as 132.3 Nm against the declaration of 144.0 Nm, which does not meet the requirement of IS: 12207-2022. Even though this parameter is categorized as 'Non-Evaluative', as per IS: 12207-2022, yet for the sake of improvement it would be advisable to look into the matter to make it conforming to the requirement.

7.4.1.2 Hydraulic Performance Test:

During hydraulic pump performance test, discharge of hydraulic pump at minimum pressure and rated engine speed was observed as 41.3 l/min against the declaration of 22.6 l/min by the manufacturer. This should be looked into for necessary corrective action.

7.4.1.3 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 lower hitch point hole has been measured as 25.74 and 28.86 mm against the requirement of 19.30 to 19.50 mm and 22.40 to 22.65 mm respectively.
- ii) The distance from end of power take-off to centre of lower hitch point (lower links in horizontal position) has been measured as 600 mm against the requirement of 450 to 575 mm.

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7.4.1.4 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 490 mm against the requirement of 230 to 460 mm.
- iii) Longitudinal distance from SIP centre of steering control wheel has been measured as 400 mm against the requirement of 425 to 525 mm.
- iv) Vertical distance from SIP to centre of steering control wheel has been measured as 245 mm against the requirement of 265 to 385 mm.
- v) Vertical distance of SIP from foot rest has been measured as 560 mm against the requirement of 450 to 520 mm.

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

7.4.1.5 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.

7.4.1.6 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	Recochem	John Deere COOL-GARD II
	coolant, Coolant -water	ethylene glycol, 1:4	Premix, in a concentration of
	ratio		50% ethylene glycol. (P. No.
			85-5)
b.	Transmission oil	34.0	32.0 (P. No. 155-5)
	capacity, (I)		
C.	Transmission oil filter	First after 1100 hours,	Every 500 hours (P. No.
	change period	subsequently change after	90-2), Every 1250 hours (P.
		1250 hours	No. 90-3), Replace first 100
			hours, replace every 500
			hours (P. No. 90-4), Every
			1250 hours (P. No. 120-1)
e.	Maximum equivalent	144.0	157.0 (P. No. 155-8)
	crankshaft torque, (N-m)		
f.	Standard PTO speed	540 @ 2070 engine rpm	540@ 2050 engine rpm
			(P. No. 155-8)
g.	Maximum hydraulic	5.0	6.8 (P. No. 155-8)
	power, (kW)		
h.	Maximum drawbar pull	13.73	14.23 (P. No. 155-8)
	without ballast, (kN)		

7.5 Maintenance / Service Problems:

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

7.6 Recommendation with regard to safety on tractor:

 Colour codes on illuminated display has not been provided as per the requirement as laid down in IS: 6283 (Part 2): 2007.

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- 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.
- iii) The distance of engine stop control from the engine start control has been measured as 320 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 has been measured as 50 mm respectively against the minimum requirement of 70 mm as per the requirement of IS: 12239 (Part II) 1999.
- v) The working clearance between 2WD-4WD engaging lever & LHS mudguard has been measured as 40 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.

7.7 Adequacy of Literature supplied with machine:

- 7.7.1 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, 5050D, 5050D V8, 5105, 5105 4WD V2, 5205 and 5005 tractor models.
 - b) Workshop/ Service/ Repair Technical Manual Part-1 & Part-2 for John Deere 5036D, 5038D, 5039D 5042D, 5045D, 5050D, 5050D V8, 5105, 5105 4WD V2, 5205 and 5005 tractor models.
 - c) Parts Catalogue for John Deere 5105 -5105 V5 and 5105 4WD V2 tractor models.

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

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

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

8. APPLICANT'S COMMENTS

Para no.	Our reference	Applicant comments
8.1	7.4.1.6 (i) a, b, c, d, e, f, g & h	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.

CENTRAL FARM MACHINERY TRAINING AND TESTING INSTITUTE - BUDNI	
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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	12.0
3.	Power lift and hydraulic pump performance test	4.5
4.	Drawbar performance test	3.4
5.	Brake performance test	2.0
6.	Nominal speed test	1.1
B.	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test.	1.2
	TOTAL:	24.2