

Application Reference No. 28/2022-23/83

(यह परीक्षण रिपोर्ट 30/06/2028 तक वैध है / THIS TEST REPORT IS VALID UPTO 30/06/2028)



Make of Agricultural Tractor : New Holland
Model : 3230 TX A1
Manufactured by : CNH Industrial (India) Pvt. Ltd.
Plot No.-03, Udyog Kendra, Greater Noida-201306 , Distt. Gautam Budh Nagar, Uttar Pradesh, India.



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-1739/2270/2023	NEW HOLLAND, 3230 TX A1 TRACTOR - INITIAL COMMERCIAL TEST
	THIS TEST REPORT IS VALID UPTO: 30/06/2028

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: June	Test Report No.: T-1739/2270/2023	Year: 2023
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[C]	Tractor manufacturer's name and address	:	CNH Industrial (India) Pvt. Ltd. Plot No.-3, Udyog Kendra, Greater Noida-201306, Distt. Gautam Budh Nagar, Uttar Pradesh, India.
[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:		
	-Engine	:	50
	-Transmission	:	50
[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	:	New Holland
[C]	Model (trade name)	:	3230 TX A1
[C]	Type	:	Rear Wheel Drive, Standard Agricultural Tractor.
[C]	Month & year of manufacture	:	07 & 22
[D]	Country of origin	:	India

1.1.2 Numbers:

[D]	1 st Serial No. or prototype	:	NHN32300ZLC504807
[C]	Serial No.	:	NHN32300ZNG617838

1.2 Engine:

[D]	Manufacturer's address	:	M/s. Simpson Co. Ltd., R&D Centre, Hosur Garden, Sembiam, Chennai-600 011
[C]	Make	:	Simpsons
[C]	Model	:	TIIIA S325.5-F31
[C]	Type	:	Four stroke, naturally aspirated, liquid cooled, direct injection, diesel engine.
[C]	Serial No.	:	S325.5M63372

1.2.1 Cylinders:

[C]	Number/disposition	:	Three, vertical, in-line
[D]	Bore / Stroke, (mm)	:	95/127
[D]	Capacity, cm ³	:	2700
[D]	Compression ratio	:	17.5 (±0.3): 1
[D]	Arrangement of valves	:	Overhead, inline
[D]	Cylinder liners	:	Dry, replaceable
[D]	Type of combustion chamber	:	Re-entrant cavity on piston crown

1.2.2 Supercharging

: **Not Available**

1.2.3 Fuel system:

[C]	Fuel feed system	:	Gravity and force feed
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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:

S. 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.	30.2 (D)	29.7	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	30.2 (D)	29.5	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Evaluative	Should not be more than 10% of declared value	252 (D)	262	Yes
d)	Maximum equivalent crankshaft torque, (Nm)	Non-Evaluative	$\pm 8\%$	165 (D)	156.7	Yes
e)	Back-up torque, percent	Evaluative	Should be minimum 12 percent	12 (D) 12 (R)	22.3	Yes
f)	Maximum operating temperature, ($^{\circ}\text{C}$):					
	1) Engine oil	Evaluative	The declared value should not exceed the <i>Max</i> value specified by the oil company and the observed value under natural ambient/high ambient condition should not exceed the declaration	132 (D)	132	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.	124 (D)	104	Yes
g)	Engine oil consumption, (g/kWh)	Evaluative	Not exceeding 1% of SFC at <i>Max</i> power under natural ambient conditions.	2.62 Maximum (R)	0.71	Yes
h)	Smoke level, m^{-1}	Evaluative	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)	0.09	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.	17.9 (D)	*	*	
b)	Max. drawbar pull with standard ballast corresponding to 15 percent wheel slip, (kN)	Evaluative	In case of tractors having total static mass \geq 1500 kg, <i>Min</i> 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, <i>Min.</i> 65% of static mass of tractor without ballast or with standard ballast, as the case may be.	13.4 (D)	15.04	Yes	
				12.55 (R)			
c)	Maximum drawbar power without ballast / 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 \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.	24.2 (D)	24.5	Yes	
				23.8 (R)			
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	Min 70% of PTO power as referred in SI No. i) a) of PTO performance in case of tractors having total static mass > 1 500 kg.	Not fitted	Not fitted	Not applicable	
e)	Maximum transmission oil temperature, (°C)	Evaluative	The declared value should not exceed the maximum value specified by oil company	132 (D)	86	Yes	
<p>* Applicant vide letter no. PD-PV 210131 dated 21.06.2023 has requested not to conduct the ballasted drawbar performance test & ten-hour drawbar test which was allowed as per the additional guidelines for testing of tractors as per new regime of testing of tractors vide an OM No. 13-32/2023-M&T(I&P) (FTS-125476) dated 16.05.2023. Accordingly, drawbar performance test under standard ballast condition was conducted only.</p>							
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.	17.65 (D)	17.28	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.	14.12 (D)	16.69	Yes
6.99(R) Minimum							

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1	2	3	4	5	6	7
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) Max	10	Yes
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 standard ballast, (m):					
	1) Cold brake	Evaluative	10	10 (R)	6.85	Yes
	2) Hot brake	Evaluative	10	10 (R)	7.02	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	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	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-2) (As amended from time to time)	Meets the requirement		Yes
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)	Specifications of Swinging drawbar (wherever fitted)	Non Evaluative	Should meet the requirement of IS: 12362 (Part-3) (As amended from time to time)	Not provided		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 provided		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	New Holland	Yes
MM	YY						
2)	Model	Evaluative		3230 TX A1	Yes		
3)	Month & Year of manufacture	Evaluative		07 & 22	Yes		
4)	Engine number	Evaluative		S325.5M63372	Yes		
5)	Chassis number	Evaluative		NH32300ZNG61 7838	Yes		
6)	Maximum PTO power, (kW)	Evaluative		30.2	Yes		
7)	Specific fuel consumption, g/kWh	Evaluative	252	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:1182 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 Requirements (Yes/No)
1.	Critical	Evaluative	No critical breakdown	None	Yes
2.	Major	Evaluative	Not more than two and neither of them should be repetitive in nature	None	Yes
3.	Minor	Evaluative	Not more than five and neither of them should be repetitive in 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

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- iii) Agricultural wheeled tractors – Rear mounted three-point linkage: Part 1 Categories II (Narrow Hitch) [IS:4468(Part-II) – 1993 (Reaffirmed in 2019)] : **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 During the PTO performance test, max power was recorded as **28.6 kW** against the declaration of **30.2 kW** and which does not meet the evaluative requirement of IS:12207-2022 with regard to tolerance limit.

Upon this, the applicant vide letter No. PD-PV210127 dated 17.05.2023, has requested for following checking / adjustment / replacement, which was allowed.

- i) Tappet valve clearance of intake & exhaust valve was checked & measured. No adjustment was done in tappet valve.
- ii) Injection Timing has been checked by spill cut off method as described in service manual & found correct in all the three cylinders. No adjustment was done in injection timing
- iii) Fuel injectors pressure were checked as per service manual & no adjustment were made.
- iv) Air cleaner oil condition was checked & cleaning of air assembly was also cleaned.
- v) Exhaust manifold was checked & oil was not observed inside the manifold.
- vi) During inspection of fuel supply system, it was observed that the strainer fitted on feed pump was found choked with foreign materials. The fuel supply lines were cleaned with compressed air, the strainer on feed pump was also thoroughly cleaned & refitted.

6.4.2 Operator’s seat:

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

- i) Vertical distance from SIP from footrest has been measured as 600 mm against the requirement of 450 to 520 mm.
 - ii) Vertical distance from SIP to centre of steering control wheel has been measured as 210 mm against the requirement of 265 to 385 mm.
 - iii) Vertical distance of SIP from accelerator pedal has been measured as 540 mm against the requirement of 230 to 460 mm.
 - iv) Vertical distance of SIP from differential lock pedal has been measured as 510 mm against the requirement of 230 to 460 mm.
Longitudinal distance of SIP from differential lock pedal has been measured as 180 mm against the requirement of 410 to 720 mm.
 - v) Provision for adjustment of drivers has not been provided as per IS 12343-2021.
- Therefore, all of the above should be looked into for necessary corrective action.

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6.4.3 Operator's work place:

The following parameters does not meet the requirement of IS: 12239 (Part-I) 2018.

- i) Vertical retainers on inner side of clutch pedal is not provided.
- ii) Spark arresting device has not been provided in the exhaust system.

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

6.4.4 PTO master shield:

PTO master shield has not been provided on tractor as per IS:12239-1999 (Part-2). This should be looked into for necessary corrective action.

6.5 Specification of Tractor:

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)	Total Coolant capacity, (l)	10.8	9.8
b)	Steering oil capacity, (l)	2.0	2.7
c)	High Idle engine speed (rpm)	2415±50	2200±50
d)	Tappet valve clearance, (mm) (Cold/Hot)	0.254/0.254	0.300/0.250
e)	Tractor model name specified	New Holland 3230 TX A1	New Holland 3230 TX
f)	Engine model	TIIIA S325.5-F31	TIIIA S325/NH
h)	Nominal traveling speed at rated engine speed (rev/min)	2200 rpm	2000 rpm

6.6 Maintenance / Service Problems:

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

6.7 Recommendation with regard to safety on tractor:

- i) Fuel shutoff knob does not remain in stop position as per the requirement of IS: 8133-2021.
- ii) Identification of differential lock by yellow colour has not been provided as per the requirement as laid down in Table – 5 of IS: 8133-2021.
- iii) The hand accelerator lever, when moved away from the operator (i.e. forward) decreases the engine speed, which does not meet the requirement as laid down in Table – 1 of IS: 8133-2021.
- iv) Identification symbol of rock shaft (Basic, Up & Down) has not been provided as per the requirement of IS:6283 (Part-1) 2006 and IS: 6283 (Part-2) – 2007 (Reaffirmed Year 2019).
- v) The working clearance between draft control lever and position control lever has been measured as 30 mm against the minimum requirement of 70 mm.

Above parameters should be looked into for necessary corrective action.

6.8 Adequacy of Literature supplied with machine:

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

- a) Operator Manual for “New Holland 3032 TX A1,3037 TX A1 & 3230 TX A1” tractors model.
- b) Parts catalogue for “New Holland 3032 TX A1,3037 TX A1 & 3230 TX A1” tractors model.
- c) Service manual Part – I & II for “New Holland 3032 TX A1,3037 TX A1, 3230 TX A1 & 3600 TX A1” tractors model.



6.8.2 The operator manual may be brought out for the guidance of users and service personnel as per IS: 8132-1999 incorporating, inter alia, the following:

- i) Safe hitch height while using trailer.
- ii) Recommended ballast masses for different operations.

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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 Chanchlesh Singh Raghuwanshi, Agricultural Engineer

7. APPLICANT'S COMMENTS

Para No.	Our reference	Applicant's comments
7.1	6.1.6 (c) ,6.3 (iii, v, vi, vii, viii & ix), 6.4.2, 6.4.3, 6.4.4,6.5, 6.6.,6.7 & 6.8.2	Your valuable comments and suggestions for improvements are well taken. Under our policy of continuous product improvement, these aspects are being looked into further and will take appropriate actions 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	20.8
3.	Power lift and hydraulic pump performance test	3.9
4.	Drawbar performance test	2.8
5.	Brake performance test	1.0
6.	Nominal speed test	0.6
B.	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test	2.8
TOTAL:		31.9