

व्यावसायिक परीक्षण रिपोर्ट (वैरिंट)  
COMMERCIAL TEST REPORT (Variant)

संख्या/No. : T-1683/2214/2022  
माह/Month : October, 2022

[ONLINE TESTING]

(यह परीक्षण रिपोर्ट 31/10/2027 तक वैध है / THIS TEST REPORT IS VALID UPTO 31/10/2027)



## NEW HOLLAND 5510 E TRACTOR



सत्यमेव जयते  
भारत सरकार

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

**GOVERNMENT OF INDIA**

**MINISTRY OF AGRICULTURE AND FARMERS WELFARE**  
(DEPARTMENT OF AGRICULTURE AND 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)

E-mail: [fmti-mp@nic.in](mailto:fmti-mp@nic.in), Web site: [fmontbudni.gov.in](http://fmontbudni.gov.in), Telephone: 07564-299003

Page 1 of 44

T-1683/2214/2022	NEW HOLLAND, 5510 E TRACTOR - Commercial (Variant)
	THIS TEST REPORT IS VALID UPTO: 31/10/2027

During the examination, it was observed that proposed tractor is four wheel driven (4WD) where as base model two wheel driven (2WD) and it meets the requirement of IS: 12207-2019.

Therefore, in pursuance of clause 8.4 and Sr. No. (x) Of Table-2, the following tests were considered to be carried out:

- Specification checking
- Nominal speed test
- Two hours maximum PTO performance test under natural ambient condition
- Drawbar performance 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
1.	Engine oil	SAE 10 W 40	As recommended
2.	Gear box, Differential, rear axle, final drive, hydraulic and brake system oil	SAE EP-80	Oil originally filled in the tractor systems were not changed
3.	Front axle	20W30	
4.	Steering system oil	SAE EP-140	
5.	Grease	NL G2	As recommended

## 3. SPECIFICATIONS CHECKING

S.No.	Parameter		Base Model	Variant Model	Remarks
1	2		3	4	5
<b>3.1.1</b>	<b>Tractor:</b>				
	Make	:	New Holland	New Holland	No Change
	Model	:	NEW HOLLAND 5510 E1	NEW HOLLAND 5510 E	<b>Changed</b>
	Type	:	Rear Wheel Drive, Standard Agricultural Tractor.	Four-wheel Driven, Standard Agricultural Tractor.	<b>Changed</b>
	Month & Year of manufacture	:	11 / 20	03 / 22	<b>Changed</b>
	Chassis number	:	NHN55100ZLL52 6863	NHN55100ZNC5 96102	<b>Changed</b>
	Country of Origin	:	India	India	No Change
<b>3.1.2</b>	<b>Engine:</b>				
	Manufacturer's address	:	M/s. CNH industrial (India) Pvt. Ltd.	M/s. CNH industrial (India) Pvt. Ltd.	No Change
	Make	:	FPT Industrial	FPT Industrial	No Change
	Model	:	8035.05D.941	8035.05D.941	No Change
	Type	:	Four stroke, liquid cooled, naturally aspirated, direct injection, diesel engine.	Four stroke, liquid cooled, naturally aspirated, direct injection, diesel engine.	No Change
	Serial number	:	301644DX	355484DX	<b>Changed</b>

T-1683/2214/2022	<b>NEW HOLLAND, 5510 E TRACTOR - Commercial (Variant)</b>
	<b>THIS TEST REPORT IS VALID UPTO: 31/10/2027</b>

## 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: 12207-2019 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/ 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
<b>7.1.1</b>	<b>PTO Performance:</b>							
<b>a)</b>	Max. power under 2 h test, (kW ) (Natural ambient condition)	Evaluative	Declared value to be achieved with a tolerance of: $\pm 5\%$ for PTO power or engine power $>26$ kW, $\pm 10\%$ for PTO power or Engine power $\leq 26$ kW.	33.6 (D)	33.6 (D)	32.7	31.9	Yes
<b>b)</b>	Specific fuel consumption corresponding to maximum power, (g/kWh)	Evaluative	+ 10% Max.	255 (D)	255 (D)	273	272	Yes
<b>7.1.2</b>	<b>Drawbar performance:</b>							
<b>a)</b>	Maximum drawbar pull with ballast corresponding to 15 percent wheel slip, (kN)	Evaluative	Minimum 70% of static mass with ballast	24.2 (D)	28.18 (D)	28.56	35.77	Yes
				24.37 minimum (R)	25.88 minimum (R)			
<b>b)</b>	Maximum drawbar pull with standard ballast corresponding to 15 percent wheel slip, (kN)	Evaluative	Minimum 70% of static mass of tractor without / standard ballast	17.65 (D)	19.32 (D)	20.90	26.64	Yes
				17.50 minimum (R)	19.02 minimum (R)			
<b>c)</b>	Maximum drawbar power with standard ballast as the case may be, 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.	26.9 (D)	26.9 (D)	26.9	27.0	Yes
				26.2 minimum (R)	25.5 minimum (R)			
<b>d)</b>	Maximum transmission oil temperature ( $^{\circ}$ C)	Evaluative	The declared value should not exceed the maximum value specified by oil company.	132 (D)	132 (D)	81	83	Yes

T-1683/2214/2022	<b>NEW HOLLAND, 5510 E TRACTOR - Commercial (Variant)</b>
	<b>THIS TEST REPORT IS VALID UPTO: 31/10/2027</b>

1	2	3	4	5	6	7
<b>7.1.3</b>	<b>Noise measurement :</b>					
<b>a)</b>	Maximum ambient noise emitted by the tractor dB(A)	Evaluative	88 dB (A) for >1.5 tonne GVW and 85 db (A) for <1.5 tonne GVW (as per CMVR)	81	80	Yes
<b>b)</b>	Maximum noise at operator's ear level dB(A)	Evaluative	96 (as per CMVR)	92	92	Yes
<b>7.1.4</b>	<b>Safety features:</b>					
<b>a)</b>	Guards against moving and hot parts	Evaluative	Belt drives, pulleys, silencer, hydraulic pipes (As per IS 12239 (Part2).	Meets the requirement		Yes
<b>b)</b>	Lighting arrangement	Evaluative	As per CMVR	Meets the requirement		Yes
<b>c)</b>	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 meet the requirement</b>		<b>No</b>
<b>d)</b>	Technical requirements for PTO shaft	Evaluative	Should meet the requirements of IS: 4931 (As amended from time to time).	Meets the requirement		Yes
<b>e)</b>	Dimensions of three point linkage	Non Evaluative	Should meet the requirements of IS: 4468 (Part-I) (As amended from time to time).	Meets the requirement		Yes
<b>f)</b>	Specifications of linkage drawbar	Evaluative	Should meet the requirements of IS: 12953 (As amended from time to time).	Meets the requirement		Yes
<b>g)</b>	Swinging drawbar (wherever fitted)	Evaluative	Should meet the requirement of IS: 12362 (Part 3) (As amended from time to time).	Not fitted		Not applicable
<b>h)</b>	1) Maximum travelling speed at rated engine speed in reverse gears, Kmph	Non-Evaluative *	Should not exceed 20 Kmph	23.46 kmph in HR3 gear & 34.87 kmph in HR3 gear.		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.	Provided		Yes
* mentioned as Non-Evaluative as per the Ministry's OM No. 13-17/2021-M&T(I&P) dated 27.10.2022.						

T-1683/2214/2022	<b>NEW HOLLAND, 5510 E TRACTOR - Commercial (Variant)</b>
	<b>THIS TEST REPORT IS VALID UPTO: 31/10/2027</b>

1	2	3	4	5	6	7
<b>7.1.5</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.		New Holland	Yes
	2) Model	Evaluative			5510 E	Yes
	3) Month & Year of manufacture	Evaluative			03 / 22	Yes
	4) Engine number	Evaluative			355484DX	Yes
	5) Chassis number	Evaluative			NHN5100ZNC 596102	Yes
	6) Declaration of PTO power, (kW)	Evaluative			33.6	Yes
	7) Specific fuel consumption, (g/hph)	Evaluative			190	Yes
<b>7.1.6</b>	<b>Literature (Submission to test agency):</b>					
<b>(a)</b>	Operator manual	Evaluative	Provided/ Not Provided	Provided	Provided	Yes
<b>(b)</b>	Parts Catalogue	Evaluative	Provided/Not Provided	Provided	Provided	Yes
<b>(c)</b>	Workshop/Service manual	Evaluative	Provided/Not Provided	Provided	Provided	Yes
<b>7.1.7</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 Provided	Not fitted	Not Applicable
<b>7.1.8</b>	Standard Accessories	Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with tractor.	Provided	Provided	Yes
<b>7.1.9</b>	Accessories (optional)	Non Evaluative	Ballast weight, if fitted, should meet the requirement of CMVR.	Provided	Provided	Yes
<b>7.2</b>	<b>CATEGORY OF BREAKDOWNS / DEFECTS:</b>					
<b>Sl. No.</b>	<b>Category of breakdowns</b>	<b>Category (Evaluative / Non Evaluative)</b>	<b>Requirements as per IS: 12207-2019</b>	<b>As observed</b>	<b>Whether meets the Requirements (Yes/No.)</b>	
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 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 five, that is, (2 major + 3 minor) or 5 minor breakdowns.	None	Yes	

**7.3 Maintenance / Service Problems:**

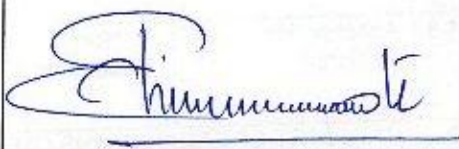
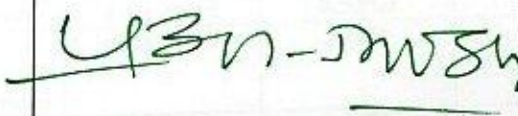
No noticeable maintenance or service problem was observed during the test.

T-1683/2214/2022	NEW HOLLAND, 5510 E TRACTOR - Commercial (Variant)
	THIS TEST REPORT IS VALID UPTO: 31/10/2027

- 7.4 Recommendation with regard to safety on tractor:**  
The following requirements, inter alia, may be considered for incorporation on the tractor:
- i) The spark arrester in the exhaust system should be provided as per IS: 12239 (Part-1)-2018.
  - ii) Vertical retainer should be provided on inner side of clutch pedal as per IS: 12239 (Part-1)-2018.
  - iii) PTO master shield should be provided on tractor as per IS:4931-1995 (Reaffirmed in January, 2019).
  - iv) Working clearance around the position and draft control lever has been measured as 25 mm, in between PTO clutch lever and LHS fender has been measured as 40 mm should be provided as per the requirement of IS: 12239 (Part-2) - 1999, (Reaffirmed in January, 2019).
- 7.5 Adequacy of Literature supplied with machine:**  
The following literature of tractor models was supplied with the test sample for reference during the test.
- a) Operator's manual of New Holland 5510 E, 5510 E1, 5510 E2, 5510 E3, 5510 E4, 5510 E5, 5510 E6, 5510 E6 & 5510 E7 tractor models.
  - b) Service manual New Holland 5510 E & 550 E1 tractor models.
  - c) Service Parts catalogue (Part-I, II & III) New Holland 5510 E tractor model.
- 7.5.1** The operator manual may be brought out for guidance of users and service personnel as IS: 8132-1999 incorporating, inter alia, the following:
- 7.5.2** Service manual pages found irregular.
- 7.5.3** Recommended grade of lubricant, coolant & grease is given in operator's manual does not match with specification submitted by the applicant.

The results of the tests carried out on variant model "NEW HOLLAND, 5510 E" tractor have been compared with those on base model "NEW HOLLAND, 5510 E1" tractor tested vide test report No. T-1606/2137/2021 (November, 2021) & found within the limit as specified in Indian Standard: 12207-2019.

**TESTING AUTHORITY:**

<b>C.V. CHIMOTE</b> TEST ENGINEER	
<b>P. K. PANDEY</b> DIRECTOR	

Draft test report compiled by: **Pratyush Satya**, Senior Technical Assistant

T-1683/2214/2022	NEW HOLLAND, 5510 E TRACTOR - Commercial (Variant)
	THIS TEST REPORT IS VALID UPTO: 31/10/2027

### 8. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's comments
8.1	7.4, 7.5.1, 7.5.2 & 7.5.3	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 we will take appropriate actions to eliminate these deviations soon wherever necessary.

### ANNEXURE-I

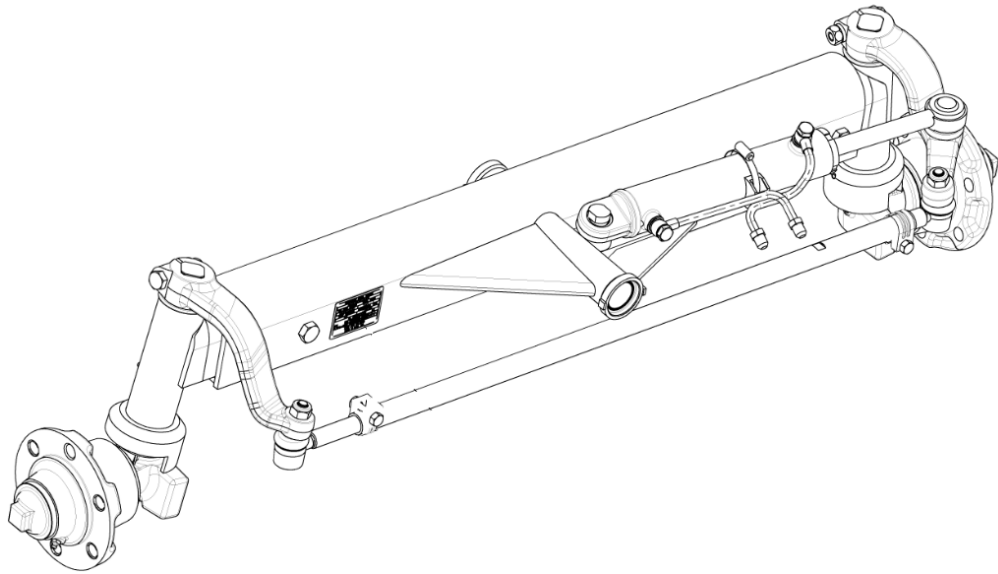
#### TRACTOR RUN HOURS DURING TEST

A.	LABORATORY AND TRACK TESTS	<u>HOURS</u>
1.	Running – in	100
2.	PTO performance test	3.8
3.	Nominal speed test	4.8
4.	Drawbar Performance Test	23.3
B.	Miscellaneous test and other run hours, including idle run transportation, trial and preparation for test.	8.0
<b>Total</b>		<b>139.9</b>

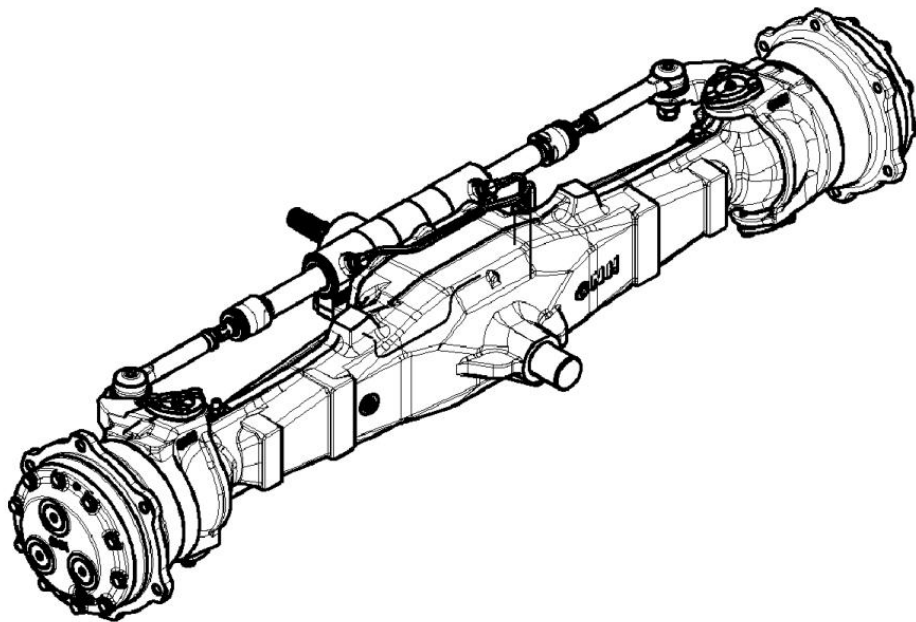
### ANNEXURE-II

CENTRAL FARM MACHINERY TRAINING & TESTING INSTITUTE – BUDNI	Page 43 of 44
---	---------------

T-1683/2214/2022	NEW HOLLAND, 5510 E TRACTOR - Commercial (Variant)
	THIS TEST REPORT IS VALID UPTO: 31/10/2027



**FRONT AXLE DESIGN ON BASE MODEL NEW HOLLAND 5510 E1**



**FRONT AXLE DESIGN ON VARIANT MODEL NEW HOLLAND 5510 E**