

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

संख्या/No. : T-1642/2173/2022
माह/Month : April, 2022

[ONLINE TESTING]

(यह परीक्षण रिपोर्ट 30.04.2025 तक वैध है / THIS TEST REPORT IS VALID UPTO 30.04.2025)



NEW HOLLAND 4710 A2 4WD TRACTOR



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, CO-OPERATION AND FARMERS WELFARE)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

ट्रैक्टर नगर, बुदनी (म.प्र.)-466 445

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(An ISO 9001: 2015 Certified Institute)

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3. ESSENTIAL TESTS

3.1. SPECIFICATIONS

S.No.	Parameter	Base Model	Variant Model	Remarks	
1	2	3	4	5	
3.1.1	Tractor:				
	Make	: New Holland	New Holland	No Change	
	Model	: 4710 A	4710 A2 4WD	Changed	
	Type	: Rear Wheel Drive, Standard Agricultural Tractor.	Four-wheel Driven, Standard Agricultural Tractor.	Changed	
	Month & Year of manufacture	: 02 / 20	11/ 21	Changed	
	Chassis number	: NHN47100ZLB500807	NHN47100ZML579059	Changed	
	Country of Origin	: India	India	No Change	
3.1.2	Engine:				
	Manufacturer's address	: M/s. Simpson & Co. Limited, R & D Centre, Hosur garden, Sembiam, Chennai-600011	M/s. Simpson & Co. Limited, R & D Centre, Hosur garden, Sembiam, Chennai-600011	No Change	
	Make	: SIMPSON Co. Ltd.	SIMPSON Co. Ltd.	No Change	
	Model	: T III A SJ327/NH-F3.1	T III A SJ327/NH-F3.1	No Change	
	Type	: Four stroke, naturally aspirated, liquid cooled, direct injection, diesel engine.	Four stroke, naturally aspirated, liquid cooled, direct injection, diesel engine.	No Change	
	Serial number	: SJ-327A79363	SJ-327B23332	Changed	
	Engine speed (Manufacturer's recommended production setting),(rpm) :				
	- Maximum speed at no load	: 2450 to 2520	2450 to 2520	No Change	
	- Low idle speed	: 600 to 800	600 to 800	No Change	
	- Speed at maximum torque	: 1200 to 1400	1200 to 1400	No Change	
	Rated speed, (rpm):				
	- For PTO use	: 2250	2250	No Change	
- For drawbar use	: 2250	2250	No Change		
3.1.3	Cylinder & Cylinder Head:				
	Number	: Three	Three	No Change	
	Disposition	: Vertical, Inline	Vertical, Inline	No Change	
	Bore/stroke, (mm)	: 95 / 127 (apa)	95 / 127 (apa)	No Change	
	Capacity as specified by the applicant, (cc)	: 2700	2700	No Change	
	Compression ratio, (apa)	: 18:3±0.3(apa)	18:3±0.3(apa)	No Change	
	Type of cylinder head	: Mono block	Mono block	No Change	
	Type of cylinder liners	: Dry, replaceable	Dry, replaceable	No Change	
	Type of combustion chamber	: Re-entrant, cavity on piston crown	Re-entrant, cavity on piston crown	No Change	
	Arrangement of valves	: Overhead	Overhead	No Change	
	Valve clearance (cold / hot):				
	- Inlet valve, (mm)	: 0.30 / 0.25	0.30 / 0.25	No Change	
	- Exhaust valve, (mm)	: 0.30 / 0.25	0.30 / 0.25	No Change	

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7. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

7.1 On the basis of tests conducted the performance results have been summarized as evaluative (mandatory) and non-evaluation (not-mandatory) parameter 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
7.1.1	PTO Performance:							
a)	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 ≤ 26 kW.	31.6 (D)	31.6 (D)	32.5	30.7	Yes
b)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Evaluative	+ 10% Max.	265 (D)	265 (D)	281	269	Yes
7.1.2	Drawbar performance:							
a)	Maximum drawbar pull with ballast corresponding to 15 percent wheel slip, (kN)	Evaluative	Minimum 70% of static mass with ballast	20 (D) 17.3 minimum (R)	20 (D) 19.22 minimum (R)	20.80	24.83	Yes
b)	Maximum drawbar pull with unballast corresponding to 15 percent wheel slip, (kN)	Evaluative	Minimum 70% of static mass of tractor without / standard ballast	14.0 (D) 13.59 minimum (R)	14.7 (D) 15.48 minimum (R)	16.97	21.22	Yes
c)	Maximum drawbar power without ballast, or 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.	25.4 (D) 26.0 minimum (R)	25.3 (D) 24.52 minimum (R)	27.1	25.5	Yes
d)	Maximum transmission oil temperature ($^{\circ}$ C)	Evaluative	The declared value should not exceed the maximum value specified by oil company.	130 (D)	130 (D)	88	89	Yes

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1	2	3	4	5	6	7
7.1.3 Noise measurement:						
a)	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)	80	81	Yes
b)	Maximum noise at operator's ear level dB(A)	Evaluative	96 (as per CMVR)	94	93	Yes
7.1.4 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	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).	Meets the requirement	Yes	
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 fitted	Not applicable	
h)	1) Maximum travelling speed at rated engine speed in reverse gears, Km/h	Evaluative	Should not exceed 20 Km/h	10.90 km/h (Meets the requirement)	Yes	
	2) Audible warning signal on tractor	Evaluative	As soon as the travelling speed in reverse gear reaches to 20 km/h, 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 applicable	Not applicable	

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1	2	3	4	5	6	7
7.1.5	Labelling of tractors (Provision of labelling plate):					
	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			4710 A2 4WD	Yes
	3) Month & Year of manufacture	Evaluative			11 / 21	Yes
	4) Engine number	Evaluative			SJ327B23332	Yes
	5) Chassis number	Evaluative			NHN47100ZML5 79059	Yes
	6) Declaration of PTO power, (kW)	Evaluative			31.6	Yes
	7) Specific fuel consumption, (g/kWh)	Evaluative			265	Yes
7.1.6	Literature (Submission to test agency):					
(a)	Operator manual	Evaluative	Provided/ Not Provided	Provided	Provided	Yes
(b)	Parts Catalogue	Evaluative	Provided/Not Provided	Provided	Provided	Yes
(c)	Workshop/Service manual	Evaluative	Provided/Not Provided	Provided	Provided	Yes
7.1.7	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 Provided	Not fitted	Not App- licable
7.1.8	Standard Accessories	Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with tractor.	Provided	Provided	Yes
7.1.9	Accessories (optional)	Non Evaluative	Ballast weight, if fitted, should meet the requirement of CMVR.	Provided	Provided	Yes
7.2	CATEGORY OF BREAKDOWNS / DEFECTS:					
S. 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 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 Salient Observations:

7.3.1 Laboratory tests:

7.3.1.1 Operator's seat:

- i) Inclination of seat towards rear direction 24° against requirement of 3° to 12°.
- ii) Inclination of back rest 20° against requirement of 5° to 15°.

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7.3.1.2 Specifications of Power Take-off Shaft:

In addition to clockwise rotation of PTO shaft, anticlockwise rotation has also been provided in contrast of “clockwise rotation” recommended in Clause No.4 of IS: 4931-1995. The provision of anticlockwise rotation has the potential of rendering the tractor not conforming to IS: 4931-1995. In this case it may lead to non-inclusion of tractor in the subsidy list. This should be looked into for necessary corrective action.

In response thereto, the applicant vide letter No. PD/PV 210065 dated 26.04.2022 has submitted that “to meet the IS:4931 requirement, we have decided to block the multi speed PTO option by adding one coupler (Part No. 91826358)” and thereby there would be only one speed of PTO & one direction of rotation i.e. clockwise, and which conforms to IS: 4931-1995 was allowed. Thus tractor now became IS: 4931-1995 conformant.

7.4 Maintenance / Service Problems:

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

7.5 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) The working clearance around the position control & draft control lever is measured as 50 mm, position control lever & mudguard measured as 40 mm and range selector & operator seat is measured as 10 mm should be provided as per the requirement of IS: 12239 (Part-2) - 1999, (Reaffirmed in January, 2019).

7.6 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 4710A & 4710 A2 4WD tractor models.
- b) Service manual (Part-I, II & III) New Holland 4710A, 4710 A2 4WD, & 3600-2 tractor models.
- c) Service Parts catalogue (Part-I & II) New Holland 4710A, 4710 A2 4WD, & 3600-2 tractor models.

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

- a) Part number & date of issue.


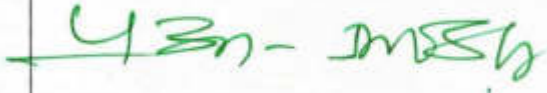
7.6.2 Maintenance schedule for transmission oil, rear axle oil, steering oil and engine oil given in operator’s manual does not match with specification submitted by the applicant.

7.6.3 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 4710 A2 4WD**” tractor have been compared with those on base model “**New Holland 4710 A**” tractor vide test report No. T-1020/1544/2016 (March, 2016), Technical Extension vide test report No. T-1530/2058/2021, (April, 2021) and First Batch Test of base model vide test report No. T-1531/2059/2021, (April, 2021) and found within the limit, as specified in **IS: 12207-2019**.

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TESTING AUTHORITY:

C.V. CHIMOTE TEST ENGINEER	
P. K. PANDEY DIRECTOR	

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

8. APPLICANT COMMENT'S

Para No.	Our Reference	Applicant's comments
8.1	3.1.18.1, 6.0 & 7.2.1.2	The applicant vide letter No. PD/PV 210065 dated 26.04.2022 has submitted that "to meet the IS:4931 requirement, we have decided to block the multi speed PTO option by adding one coupler (Part No. 91826358)" which was allowed.
8.2	7.2.1.1 & 7.2.1.1	Your valuable comments & suggestions for improvements are well taken, under our policy of continuous product improvement. These aspects are further being looked into and will take appropriate actions to eliminate these deviations soon wherever necessary.
8.3	7.5.1, 7.5.2 & 7.5.3	We will study this further & appropriate actions will taken.

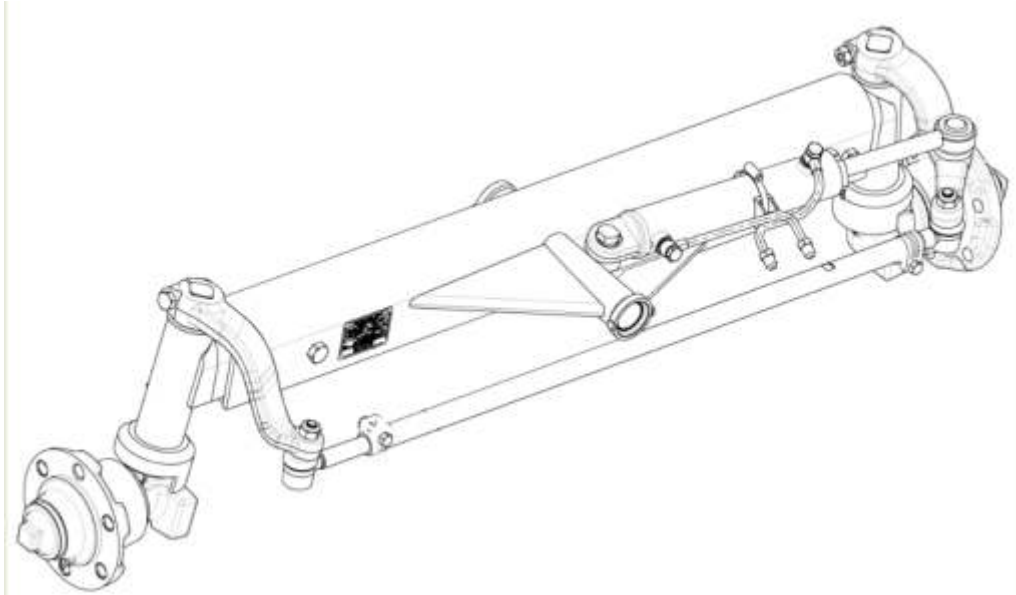
ANNEXURE-I

TRACTOR RUN HOURS DURING TEST

A.	LABORATORY AND TRACK TESTS	HOURS
1.	Running – in	101.3
2.	PTO performance test	3.2
3.	Nominal speed test	1.7
4.	Drawbar Performance Test	18.0
5.	Noise Measurement	1.0
B.	Miscellaneous test and other run hours, including idle run transportation, trial and preparation for test.	3.1
Total		128.0

ANNEXURE-II

FRONT AXLE DESIGN ON BASE MODEL NEW HOLLAND 4710 A



FRONT AXLE DESIGN ON VARIANT MODEL NEW HOLLAND 4710 A2 4WD

