

व्यावसायिक परीक्षण रिपोर्ट (वैरिअंट)

संख्या / No. : T- 1547/2075/2021

COMMERCIAL TEST REPORT (Variant)

माह / Month : June, 2021

[ONLINE TESTING]

(यह परीक्षण रिपोर्ट 30/06/2024 तक वैध है। / THIS TEST REPORT IS VALID UPTO :30/06/2024)



**NEW HOLLAND, 3600-2 A1 TRACTOR**



सत्यमेव जयते

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, COOPERATION & FARMERS WELFARE)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान  
ट्रैक्टर नगर, बुदनी (म.प्र.) 466 445  
**CENTRAL FARM MACHINERY TRAINING & TESTING INSTITUTE**  
(An ISO 9001: 2015 Certified Institute)  
**TRACTOR NAGAR, BUDNI (M.P.) 466 445**

E-mail: [fmti-mp@nic.in](mailto:fmti-mp@nic.in),

Web site: [fnttibudni.gov.in](http://fnttibudni.gov.in)

Telephone: 07564-234729, 234743

T- 1547/2075/2021		NEW HOLLAND, 3600-2 A1 TRACTOR – COMMERCIAL (VARIANT)	
		THIS TEST REPORT IS VALID UPTO: 30/06/2024	
1	2	3	4
	Other speed corresponding to rated engine speed, (rpm)	None	Clockwise - 168, 253, 373 & 562 Anticlockwise - 168
	Distance behind rear axle, (mm)	260	335
10.	<b>Type of steering system</b>	Mechanical	Open centre, Hydrostatic
11.	<b>Front axle</b>		
	Type	Fixed (see Annexure-I)	Adjustable see Annexure-I)
	Make & size of front wheel	MRF & 6.00-16, 8PR	Apollo & 6.50-16, 8PR
12.	<b>Rear rim size of rear wheel</b>	W 13 x 28	W 12 x 28
13.	<b>Wheel base</b>	2040	2105
14.	<b>Decals (sticker)</b>	New Holland 3630 TX	New Holland 3600-2 A1

Subsequent to the examination of the case in light of clause 8.4 and Table-2 (Sr.no. (i), (v), (ix) & (xiii) of Indian Standard :12207-2019, the following tests were considered to be carried out:

- Specification checking
- Nominal speed test
- PTO performance test, under natural ambient condition
- Location of center of gravity test
- Turning ability and steering effort 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:

	Particulars	As recommended by the manufacturer	As used during the test
	Air cleaner	SAE 20W40	As recommended
	Engine lubricating oil	SAE 20W40	As recommended
1.	Gearbox, differential, final drive, hydraulic and brake system	SAE-EP-80	Oil originally filled in the tractor system was not changed
2.	Steering system	SAE 20W40	
3.	Grease	Multipurpose grease	MP Grease

## 3. ESSENTIAL TEST

### 3.1. SPECIFICATIONS

3.1.1	Tractor:	Base Model	Variant Model
	Make	New Holland	
	Model	3630TX	3600-2 A1
	Brand name, if any	None	None
	Type	Four wheeled, Rear wheel driven, Unit construction, General purpose, Agricultural tractor	
	Month & Year of manufacture	2016	11/2020
	Chassis number	NHN3630SZHE389654	NHN36020ZLL527431
	Country of Origin	India	
3.1.2	<b>Engine:</b>		
	Make	IVECO	FPT Industrial (apa)
	Model	8035.05D.937	8035.05D.938
	Type	Four stroke, liquid cooled, naturally aspirated, direct injection, diesel engine	
	Serial number	205648DX	302026DX

T- 1547/2075/2021		NEW HOLLAND, 3600-2 A1 TRACTOR – COMMERCIAL (VARIANT)			
THIS TEST REPORT IS VALID UPTO: 30/06/2024					
1	2	3	4	5	6
17.	<b>Other changes:</b>				
	a)	Steering system	Mechanical	Open centre, Hydrostatic	<b>Changed</b>
	b)	Make & model of battery	Excide Express & MHD1000	Standard Furukawa & SFN 88L/TR	<b>Changed</b>
	c)	Capacity & rating of battery	12V, 100 Ah at 20 hour discharge rating	12V, 88 Ah at 20 hour discharge rating	<b>Changed</b>
	d)	Speed of engine lubrication pump at rated engine speed, (rpm)	1250	1620	<b>Changed</b>
	e)	Lubrication pump discharge at rated engine speed, (l/m)	42 ± 3	26 ± 3	<b>Changed</b>
	f)	Number of blade of cooling fan	04	06	<b>Changed</b>
	g)	Front tyre size	6.00-16	6.50-16	<b>Changed</b>
	h)	Rear rim size	W 13 x 28	W 12 x 28	<b>Changed</b>
	i)	Wheel base	2040	2105	<b>Changed</b>
	j)	Decals (sticker)	New Holland 3630 TX	New Holland 3600-2 A1	<b>Changed</b>

## 7. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

7.1 On the basis of test conducted the performance results have been summarized as evaluative (mandatory) and non – evaluative (not mandatory) parameters applicable for qualifying Minimum Performance Criteria as per clause-4 table-1 of **Indian Standard 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 <b>IS: 12207-2019</b>	Values declared by the applicant (D)/Requirement (R)		As observed		Whether Variant model meets the requirements (Yes/No)
				<u>Base model</u>	<u>Variant Model</u>	<u>Base model</u>	<u>Variant model</u>	
1	2	3	4	5a	5b	6a	6b	7
<b>7.1.1</b>	<b>PTO Performance:</b>							
a)	Max. power under 2 h test, (kW )	Evaluative	Declared value to be achieved with a tolerance of: ±5 percent for PTO power and engine power >26kW. ±10 percent for PTO power and or engine ≤ 26 kW.	33.6 (D)	33.6 (D)	33.7	33.3	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	33.6 (D)	33.6 (D)	31.4	33.3	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Evaluative	+ 10% Max.	262 (D)	262 (D)	266	264	Yes
d)	Maximum equivalent crankshaft torque, (Nm)	Non Evaluative	± 8%	195 (D)	195 (D)	193	187.8	Yes

T- 1547/2075/2021		NEW HOLLAND, 3600-2 A1 TRACTOR – COMMERCIAL (VARIANT)						
THIS TEST REPORT IS VALID UPTO: 30/06/2024								
1	2	3	4	5a	5b	6a	6b	7
e)	Back-up torque, percent	Evaluative	12 percent, min.	10 %, min (R)	12%, min(R)	37.7	24.3	Yes
f)	Smoke level	Evaluative	Maximum light absorption coefficient of 3.25 per meter or equivalent BOSCH No. 5.2 or 75 Hatridge value (As per CMVR)	3.25 per meter Maximum (R)	3.25 per meter Maximum (R)	0.27	0.21	Yes
<b>7.1.2 Safety features:</b>								
a)	Guards against moving and hot parts		Evaluative	Belt drives, pulleys, silencer, hydraulic pipes (As per IS 12239 (Part2))		Meets the requirements		Yes
b)	Lighting arrangement		Evaluative	As per CMVR		Meets the requirements		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)		<b>Does not Meet the requirements</b>		<b>No</b>
d)	Technical requirements for PTO shaft		Evaluative	Should meet the requirements of IS: 4931 (As amended from time to time)		Meets the requirements		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 requirements		Yes
f)	Specifications of linkage drawbar		Evaluative	Should meet the requirements of IS: 12953 (As amended from time to time)		Meets the requirements		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 gear, (kmph)	Evaluative	Should not exceed 20 kmph		10.16 kmph (Meets the requirement)		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.		Not applicable		Not applicable

T- 1547/2075/2021	<b>NEW HOLLAND, 3600-2 A1 TRACTOR – COMMERCIAL (VARIANT)</b>
	<b>THIS TEST REPORT IS VALID UPTO: 30/06/2024</b>

1	2	3	4	5	6	7		
<b>7.1.3</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. <table border="1" style="margin: 0 auto;"><tr><td>MM</td><td>YY</td></tr></table> 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.	MM	YY	New Holland	Yes
MM	YY							
	2)	Model	Evaluative		3600-2A1	Yes		
	3)	Month & Year of manufacture	Evaluative		11 /20	Yes		
	4)	Engine number	Evaluative		3302026DX	Yes		
	5)	Chassis number	Evaluative		NHN36020ZLL 527431	Yes		
	6)	Declaration of PTO power, kW	Evaluative		33.6	Yes		
	7)	Specific fuel consumption, g/hph	Evaluative	182.4	Yes			
<b>7.1.4</b>	<b>Literature (Submission to test agency):</b>							
	(a)	Operator manual	Evaluative	Provided / Not Provided	Provided	Yes		
	(b)	Parts Catalogue	Evaluative	Provided / Not Provided	Provided	Yes		
	(c)	Workshop/ Service manual	Evaluative	Provided / Not Provided	Provided	Yes		
<b>7.1.5</b>	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	ROPS not fitted	Not applicable		
<b>7.1.6</b>	Standard Accessories		Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with the tractor.	Provided	Yes		
<b>7.1.7</b>	Accessories (optional)		Non Evaluative	Ballast weights, if fitted, should meet the requirement of CMVR	Provided	Yes		
<b>7.2</b>	<b>CATEGORY OF BREAKDOWNS / DEFECTS (as per clause 5.0 of IS:12207-2019) :</b>							
Sl. 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 (1 major + 4 minor) or 5 minor breakdowns.	None	Yes		

T- 1547/2075/2021	<b>NEW HOLLAND, 3600-2 A1 TRACTOR – COMMERCIAL (VARIANT)</b>
	<b>THIS TEST REPORT IS VALID UPTO: 30/06/2024</b>

**7.3 Salient Observations:**

**7.3.1 Laboratory tests:**

**7.3.1.1 PTO Performance:**

- i) The maximum power was observed as **33.3 kW** against the declaration of **33.6 kW** which is within the tolerance limit as specified in **IS: 12207-2019**.
- ii) The specific fuel consumption corresponding to maximum power was observed as **264 g/kWh** against the declaration of **262 g/kWh** and which is within the tolerance limit of IS: 12207-2019.
- iii) The maximum equivalent crankshaft torque was recorded as **187.8 Nm** against the declaration of **195 Nm**, which meets the requirement of IS: 12207-2019 with regard to tolerance limit.
- iv) The backup torque is **24.3%** & meets the evaluative requirement of **IS: 12207-2019**.

**7.4 Maintenance / Service problems:**

No noticeable maintenance and service problems 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 as per relevant Indian Standards:

- i) Longitudinal distance from SIP to center of differential lock should be as per requirements of IS: 12343-1998, (Re-affirmed in January, 2019).
- ii) The spark arrester should be provided in the exhaust system as per the requirement of IS: 12239 (Part-1)-1996 (Re-affirmed in, 2018).
- iii) PTO master should be provided as per the requirement of IS: 12239 (Part -2) -1999 (Reaffirmed in January, 2019).
- iv) Working clearance around position control lever & mudguard should be as per the requirement of IS: 12239 (Part -2) -1999 (Reaffirmed in January, 2019).
- v) Fuel shut-off knob does not remain in "STOP" position as per the requirement of IS: 8133 -1983 (Reaffirmed in January, 2019).

**7.6 Adequacy of Literature:**

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

- i) Operator's manual for New Holland 3600-2 A1 tractor model.
- ii) Service Manual (Part-I, II, & III) New Holland 3600-2 A1 tractor model.
- iii) Service parts Catalogue for New Holland 3600-2 A1 tractor model.

**7.6.2** The supplied literature was found adequate. Except the following:

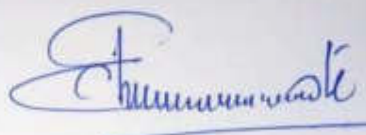

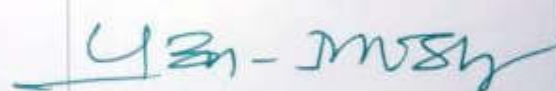
- i) Model name of the tractor is not completely mentioned inside the literature.
  - ii) The lubrication chart provided in the operator's manual doesn't meet with the details of the lubricants mentioned in the technical specifications provided during the test.
  - iii) The details of engine model, steering oil capacity are found wrong in the operator's manual.
  - iv) The type of steering oil is not provided in the literature and same was found missing in the technical details.
- The above raised points should be strictly checked while prepare and submit the literature.

**7.6.3** However, these literatures should also be brought out in other vernacular languages of India for guidance of users.

T- 1547/2075/2021	NEW HOLLAND, 3600-2 A1 TRACTOR – COMMERCIAL (VARIANT)
	THIS TEST REPORT IS VALID UPTO: 30/06/2024

The results of the tests carried out on variant model "New Holland, 3600-2 A1" Tractor have been compared with those on base model "New Holland, 3630 TX" Tractor tested vide test report No. T-1167/1694/2018, T-1410/1937/2020 (March, 2020), T-1539/2067/2021 (May, 2021) & found within the limit as specified in Indian Standard 12207-2019

**TESTING AUTHORITY:**

C.V. CHIMOTE TEST ENGINEER	
Y.K.RAO SENIOR AGRICULTURAL ENGINEER	
P.K. PANDEY DIRECTOR	

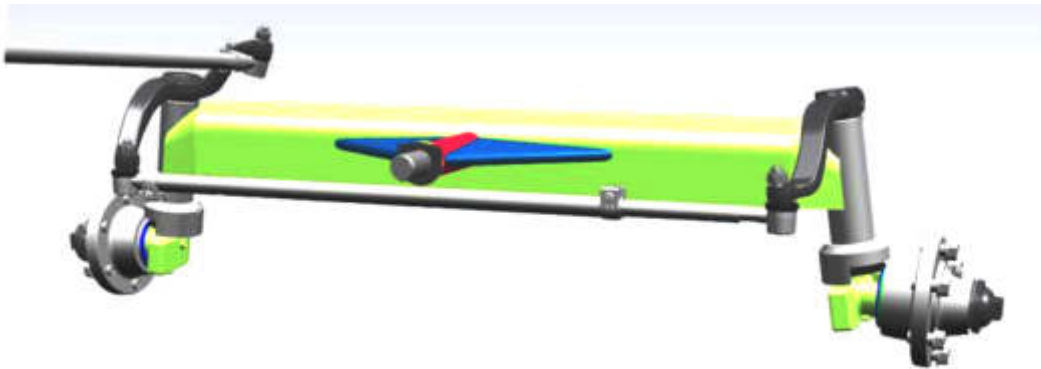
Draft test report is compiled by NITESH KUMAR VERMA, AGRICULTURAL ENGINEER

T- 1547/2075/2021	NEW HOLLAND, 3600-2 A1 TRACTOR – COMMERCIAL (VARIANT)
	THIS TEST REPORT IS VALID UPTO: 30/06/2024

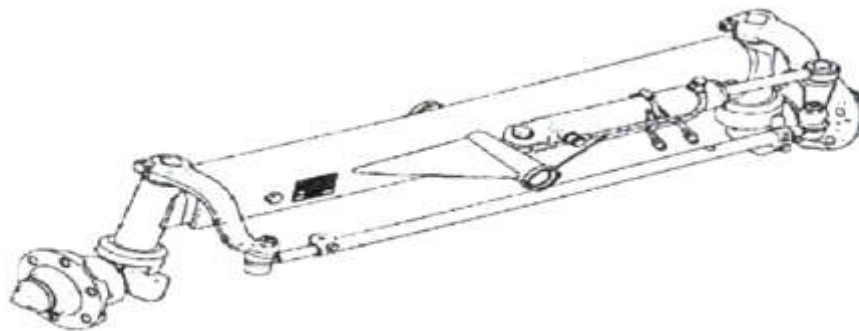
### 8. Applicant's comments

Para no.	Our reference	Comments received from the applicant
8.1	7.5.7, 7.6.2 & 7.6.3	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 take appropriate actions to eliminate these deviations soon wherever necessary.

### ANNEXURE- I



Fixed type front axle of base model, New Holland 3630 TX tractor



Adjustable type front axle of variant model, New Holland 3600-1 A1 tractor



T- 1547/2075/2021	NEW HOLLAND, 3600-2 A1 TRACTOR – COMMERCIAL (VARIANT)
	THIS TEST REPORT IS VALID UPTO: 30/06/2024

ANNEXURE- II

**TRACTOR RUN HOURS DURING TEST**

<b>A.</b>	<b>LABORATORY AND TRACK TESTS:</b>	<b><u>HOURS</u></b>
1.	Running-in	--
2.	PTO performance test	7.0
3.	Nominal speed test	1.0
4.	Location of centre of gravity	0.5
5.	Turning ability & steering effort test	1.0
<b>B.</b>	Miscellaneous test and other run hours including idle run, transportation, preparation for test and trial runs.	0.5
<b>TOTAL</b>		<b>9.7</b>