

[ONLINE TESTING]



NEW HOLLAND, 3630 TX 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, Co-operation & Farmers Welfare)

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T-1539/2067/2021	NEW HOLLAND, 3630 TX TRACTOR - Commercial (Technical Extension)
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Manufacturer : **M/s. CNH Industrial (India) Pvt. Limited,
Plot N0.-3, Udyog Kendra,
Greater Noida – 201 306,
Distt. Gautam Budh Nagar,
Uttar Pradesh**

Month: May	Test Report No. T-1539/2067/2021	Year : 2021
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T-1539/2067/2021	NEW HOLLAND, 3630 TX TRACTOR - Commercial (Technical Extension)
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Type of Test : **COMMERCIAL (Technical Extension)**

Test code/Procedure : IS: 5994-1998 (Reaffirmed in 2014)
and IS: 12207-2019.

Period of Test : January, 2021 to March, 2021

Test Report No. : **T-1539/2067/2021**

Month/Year : **May, 2021**

- i) The results reported in this report are observed values and no corrections have been applied for atmospheric and site conditions.
- ii) The data given in this report pertain to the particular machine submitted by the applicant for test.
- iii) The results presented in this report do not in any way attribute to the durability of the machine.
- iv) This report should not be reproduced in part or full without prior permission of the Director, Central Farm Machinery Training and Testing Institute, Budni (M.P.).
- v) This is the Technical Extension report and therefore, should be read in conjunction with the 2nd Batch Test Report of base model “**NEW HOLLAND, 3630 TX**” Tractor bearing report no. **T-1167/1694/2018** released in **June, 2018**, and Administrative Extension test report of “**NEW HOLLAND, 3630 TX**” vide test report No. **T-1410/1937/2020** released in **March, 2020**”

SELECTED CONVERSIONS		
Sl. No	Units	Conversion Factor
1	Force:	
	1 kgf	9.80665 N 2.20462 lbf
2	Power:	
	1 Mechanical horse power	1.01387 Metric horse power 745.7 W
	1 Metric horse power	735.5 W
	1 kW	1.35962 Metric horse power
3	Pressure:	
	1 psi	6.895 kPa
	1 kgf/cm ²	98.067 kPa = 735.56 mm of Hg
	1 bar	100 kPa = 10 N/cm ²
	1 mm of Hg	1.3332 m-bar

ABBREVIATIONS	
apa	As per applicant
TDC	Top Dead Centre
IS	Indian Standard
LHS /RHS	Left Hand Side/ Right Hand Side
Hg	Mercury
Temp.	Temperature
N.R.	Not recorded
rpm	Revolutions per minute
O.D/I.D	Outer diameter/ Inner diameter
N.A.	Not available/Not applicable
PTO	Power take-off
R.H.	Relative Humidity
SIP	Seat Index Point

C O N T E N T S

	<u>PAGE</u>
1. Scope of Test	05
2. Fuel & Lubricants	05
3. Essential Tests	
3.1 Specifications	06
3.2 Nominal Speed Test	18
3.3 PTO Performance Test	18
4. Other Applicable Test	
4.1 Turning Ability Test	19
4.2 Steering effort	19
5. Adjustments, Defects And Breakdowns	19
6. Summary of Observations, Comments & Recommendations	20
7. Applicant's comments	23
ANNEXURE –I & II	23 & 24

T-1539/2067/2021	NEW HOLLAND, 3630 TX TRACTOR - Commercial (Technical Extension)
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1. SCOPE OF TEST

The “NEW HOLLAND, 3630 TX” tractor had undergone “2nd Batch Test” at this Institute vide test report No. T- 1167/1694/2018 released in **June, 2018**. The firm has made the following changes in the technical specifications of tractor and requested, application No. vide 28/2020-21/22, dated: 03.12.2020, for **Technical Extension** of “NEW HOLLAND, 3630 TX” tractor.

The major features of Previous and Present Extension model are listed below:-

S.No.	Parameters	Previous Sample (T- 1167/1694/208, June, 2018)	Present Sample
1.	Tractor make & model	New Holland & 3630 TX	New Holland & 3630 TX
2.	Front axle	Fixed type	Fixed type (Standard fitment) Adjustable type(Optional fitment)
3.	Front wheel size	6.00-16, 8PR	6.00-16, 8PR (Standard) 7.50-16,8PR (Optional fitment)
4.	Front rim size	4.50 E x 16	4.50 E x 16 (Standard) 5.50 E x 16 (Optional fitment)
5.	Rear wheel size	14.9-28, 12PR	14.9-28, 12PR (Standard) 13.6-28,12PR (Optional fitment)
6.	Rear Wheel rim size	W13 x 28	W13 x 28 (Standard) W15 x 28 (Optional fitment)
7.	Differential lock	Provided	Provided (Standard) Not provided (Optional fitment)

Subsequent to the examination of the case in the light of clause 3.2.5 (b) & 6.1 of Indian Standard 12207: 2019, the following tests were considered to be carried out to ascertain as being the same model as tested earlier:

1. Specifications checking
2. Nominal speed test
3. 2 hours maximum PTO power test under normal ambient condition

Apart from the above, following tests were conducted due to induction of optional features

4. Turning ability test
5. Steering effort test

Manufacturer : M/s. CNH Industrial (India) Pvt. Ltd.,
Plot NO.-3, Udyog Kendra,
Greater Noida – 201 306,
Distt. Gautam Budh Nagar, Uttar Pradesh

Test requested by : The manufacturer
Selected for test by : The manufacturer
Place of running-in : At manufacturer’s works

Duration of said running-in, (h):

- Engine : 50
- Transmission : 50

Method of Selection : The tractor was submitted directly by the applicant for test as Ministry has exempted the random selection of the tractor upto 31.03.2021.

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.	Air cleaner	SAE 20W40	As recommended
	Engine	SAE 20W40	As recommended
2.	Gear box, differential, rear axle, final drive and hydraulic system oil	SAE EP-80	Oil originally filled in the tractor system were not changed
3.	Steering system oil	SAE 140	
4.	Grease	NLG1-2	MP Grease

3.1. SPECIFICATIONS

		<u>Previous sample</u>	<u>Present sample</u>
3.1.1 Tractor:			
Make	:	New Holland	
Model	:	3630 TX	
Brand name	:	None	
Type	:	Four wheeled, rear wheel driven, unit construction, general purpose, agricultural tractor	
Month & Year of manufacture	:	2016	10 / 20
Chassis number	:	NHN3630SZHE389 654	NHN3630SZLK526386
Country of origin	:	India	
3.1.2 Engine:			
Make	:	IVECO	
Model	:	8035.05D.937	
Type	:	Four stroke, liquid cooled, naturally aspirated, direct injection , diesel engine.	
Serial number	:	205648DX	301170DX
Country of origin	:	India	
3.1.2.1 Engine speed (rpm), (Manufacturer's recommended production settings):			
- Maximum speed at no load	:	2750±50	
- Low idle speed	:	650±50	
- Speed at maximum torque	:	1400±200	
Rated speed, (rpm):			
- For PTO use	:	2500	
- For drawbar use	:	2500	
3.1.3 Cylinder & Cylinder Head:			
Number	:	Three	
Disposition	:	Vertical, Inline	
Bore/stroke, (mm)	:	104 / 115 (apa)	
Capacity as specified by the applicant, (cc)	:	2931 (apa)	
Compression ratio	:	18±0.5 : 1	
Type of cylinder head	:	Mono block	
Type of cylinder liners	:	Dry, replaceable	
Type of combustion chamber	:	Omega shape on piston head (apa)	
Arrangement of valves	:	Overhead	
Valve clearance (cold/hot):			
- Inlet valve, (mm)	:	0.30 / 0.30	
- Exhaust valve, (mm)	:	0.30 / 0.30	
3.1.4 Fuel System:			
Type of fuel feed system	:	Gravity and force feed	
3.1.4.1 Fuel tank:			
Capacity, (l)	:	60.0	63.6
Location	:	Above clutch housing	
Provision for draining of sediments/ water	:	Not provided	
Material of fuel tank	:	HDPE	
3.1.4.2 Water separator:			
Make	:	Hilux	
Type	:	Gravity separation, transparent inverted funnel	
Location	:	On RHS of engine between fuel tank & fuel feed pump	
Capacity, (l)	:	0.45	

	<u>Previous sample</u>	<u>Present sample</u>
3.1.4.3 Fuel feed pump:		
Make	:	Iveco
Type	:	Diaphragm
Model/Group combination No.	:	Not available
Provision of sediment bowl	:	Not Provided
Method of drive	:	Through timing gear
3.1.4.4 Fuel filters:		
Make	:	New Holland
Model/Group combination No.	:	479 5600 LC 77 - 3150 479 5600 EC 77 - 3150
Number	:	Two
Type of elements:		
- Primary	:	Paper
- Secondary	:	Paper
Capacity of final stage filter, (l)	:	0.50 0.40
3.1.4.5 Fuel Injection pump:		
Make	:	Bosch, India
Model/Group combination No.	:	0460423080, VE3/12F1250L1187
Type	:	Rotary
Serial number	:	71926204 07708285
Method of drive	:	Through timing gear
3.1.4.6 Fuel injectors:		
Make	:	Bosch, India
Model/Group combination No.:	:	
Holder Number	:	0432193414
Nozzle Number	:	DSL A133P5619
Type	:	Multi hole (Six holes)
Manufacturer's production pressure setting, (MPa)	:	26 to 27.2
Injection timing	:	1.5 ± 0.2 mm plunger lift at TDC
Firing order	:	1-2-3
3.1.4.7 Governor:		
Make	:	Bosch, India
Model/Group combination No.	:	Inbuilt with FIP
Type	:	Mechanical, centrifugal variable speed
Rated engine speed, (rpm)	:	2500
Governed range of engine speed, (rpm)	:	600 to 2800
3.1.5 Air intake system:		
3.1.5.1 Pre-cleaner:		
Make	:	New Holland (apa)
Type	:	Centrifugal with transparent dust collector.
Location	:	Above main air cleaner inlet tube, outside the bonnet.
3.1.5.2 Air cleaner:		
Make	:	Sietz
Type	:	Oil Bath
Location	:	In front of radiator, under the bonnet
Range of suction pressure at maximum power, (kPa)	:	4.1 to 4.2
Oil capacity, (l)	:	0.80
Oil change period/ Maintenance schedule	:	After every 50 hours of operation in normal condition.

		<u>Previous sample</u>	<u>Present sample</u>
3.1.6 Exhaust System:	Type of silencer	Updraft, cylindrical	
	Position of silencer outlet with respect to SIP, (mm):		
	- Vertical	1000	1070
	- Longitudinal	1350	1340
	- Lateral	245 (on LHS)	240 (on LHS)
	Range of exhaust gas pressure at maximum power (kPa)	3.7 to 4.0	5.9 to 6.1
	Provision of spark arresting device	Not provided	
	Provision against entry of rain water	A bend is provided at the top of silencer	
3.1.7 Lubricating system:	Type	Force feed cum splash	
	Oil sump capacity,(l)	7.0	6.5
	Total lub oil capacity, (l)	8.0	7.300
	Oil change period	First change after 50 hours and subsequently after every 300 hours of operation.	
	Type of cooling device, (if any)	Not provided	
3.1.7.1 Filters:	Type	Full flow, Spin-on, throw away, paper element	
	Number	One	
3.1.7.2 Pump:	Type	Rotary (Internal gear)	
	Method of drive	Through cam shaft gear.	
	Pressure release setting, (kPa)	294.2 (apa)	
	Minimum permissible pressure, (kPa)	39.0 (apa)	
3.1.8 Cooling system:	Type	Forced circulation of coolant and water.	
	Brand name of the coolant	Ambra agri flu - OT	
	Coolant water ratio	1:4 (apa)	
3.1.8.1 Details of Pump	: Centrifugal, semi open impeller of 95.8 mm of outer diameter having seven vanes, and driven through crankshaft pulley by a cogged 'V'-belt common to alternator.		
3.1.8.2 Details of fan	: Suction type, having Four metallic blades of 390 mm outer diameter and mounted on water pump shaft.		
	Means of temperature control	Thermostat	
	Bare radiator capacity, (l)	4.15	4.20
	Coolant expansion tank capacity,(l)	0.80	0.70
	Total coolant capacity, (l)	10.33	9.60
	Radiator cap pressure, (kPa)	88	
3.1.9 Starting System:	Type	12 V, DC, Electrical	
	Aid for cold starting	None	
	Any other device provided for easy starting	None	
3.1.10 Electrical System:			
3.1.10.1 Battery:	Make and model	Exide Express & MHD1000	
	Type	Lead acid	
	Capacity and rating	12V, 100 Ah at 20 hour discharge rating	
	Location	In front of radiator under the bonnet	

T-1539/2067/2021	NEW HOLLAND, 3630 TX TRACTOR - Commercial (Technical Extension)
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- 3.1.10.2 Starter:**
- | | <u>Previous sample</u> | <u>Present sample</u> |
|--------------|------------------------|---------------------------------|
| Make | : | Spark Minda |
| Model | : | N1039-1357 N1081-1038 |
| Type | : | Pre-engaging, solenoid operated |
| Power rating | : | Not available 12V, 2.7 kW |
- 3.1.10.3 Generator:**
- | | | |
|-----------------|---|--|
| Make | : | PMP |
| Model | : | 7030 |
| Type | : | Alternator |
| Serial number | : | 017D22225 Not Available |
| Output rating | : | Not available 12V, 23 Amp |
| Method of drive | : | Through crank shaft pulley by a cogged V-belt in common to water pump. |
- 3.1.10.4 Voltage regulator** : In-built with alternator
- 3.1.10.5 Details of lights:**

Description	No. & capacity of bulb	Height of the centre of beam above ground level, (mm)	Size, (mm)	Distance between centre of the beam and outside edge of tractor at standard rear track setting, (mm)
Front Lights:				
Previous Sample:				
- Head lights	2, 12V, 60/55W	1060	140 x 105	537
- Parking lights	2, 12V, 5W	1350	75 x 75	215
- Turn Indicators-cum-hazard lights	2, 12V, 21W	1350	110 x 75	125
Present Sample:				
- Head lights	2, 12V, 35/35W	1020	140 x 100	537
- Parking lights	2, 12V, 5W	1390	75 x 75	280
- Turn Indicators-cum-hazard lights	2, 12V, 21W	1390	110 x 75	200
Rear lights:				
Previous Sample:				
-Tail-cum-brake light	2, 12V, 21/5W	1350	75 x 75	250
- Turn Indicators-cum-hazard lights	2, 12V, 21W	1350	110 x 75	155
Plough light (on RHS mudguard)	1, 12V, 55W	1475	140 x 105	400
Reflectors (Red)	2	1350	20 x 55	230
Registration plate Light	Part of rear RHS combination lamp assembly			
Present Sample:				
-Tail-cum-brake light	2, 12V, 21/5W	1405	75 x 75	345
- Turn Indicators-cum-hazard lights	2, 12V, 21W	1405	110 x 75	250
Plough light (on RHS mudguard)	1, 12V, 55W	1510	140 x 100	480
Reflectors (Red)	2			
Registration plate Light	Part of rear RHS combination lamp assembly			

3.1.10.6 Details of other electrical accessories:

- | | <u>Previous sample</u> | <u>Present sample</u> |
|--|------------------------|--|
| 3.1.10.6.1 Starting safety switch | : | Starter will not operate unless the High/Low range selection lever is in neutral position. |
| 3.1.10.6.2 Seven pin trailer socket | : | Provided |

		<u>Previous sample</u>	<u>Present sample</u>
3.1.10.7	Instrument panel details:		
	i) Engine rpm meter guage (0-32 x 100 rpm).	Provided	Provided
	ii) Lubricating oil pressure guage (with color zone)	Provided	Provided
	iii) Coolant temperature guage (with colour zones)	Provided	Provided
	iv) Fuel level guage (with colour zones)	Provided	Provided
	v) Battery charging warning indicator	Provided	Provided
	vi) Head light long beam on indicator	Provided	Provided
	vii) Parking light ON indicator	Provided	Provided
	viii) Main switch (key turn type)	Provided	Provided
	ix) Light switch (Rotary type)	Provided	Provided
	x) Hazard light switch	Provided	Provided
	xi) Turn indicator light switch	Provided	Provided
	xii) Turn/ hazard light indicator	Provided	Provided
	xiii) Horn push button	Provided	Provided
	xiv) Mobile charging socket	Provided	Provided
	xv) Hand accelerator lever	Provided	Provided
	xvi) Steering control wheel	Provided	Provided
	xvii) Rear view mirror	Provided	Provided
	xviii) Engine stop by key turn off	Provided	Provided

3.1.11 Transmission System:

3.1.11.1 Clutch:

Make	:	LUK, India
Type	:	Dual, Diaphragm dry friction.
No. of friction plate, (s)	:	Two
Size, (mm):		
- PTO , OD/ID	:	279.9/167.9 Ø
- Transmission, OD/ID	:	279.7 /165.4 Ø
Method of operation :		
- Main transmission clutch	:	By a foot pedal provided on LHS of operator's seat
- PTO clutch	:	By a hand lever provided on LHS beneath the dashboard

3.1.11.2 Gear box:

Make	:	CNH (apa)
Type	:	Mechanical, Combination of constant mesh and semi synchromesh gears with epicyclic unit for speed range selection.

No. of speeds:

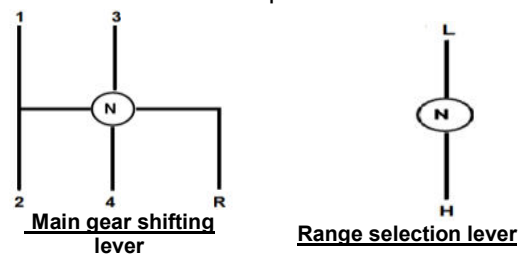
- Forward	:	08
- Reverse	:	02

Location of gear shifting levers: : Centre shift

Main Gear shift lever : In-front of operator seat.

Range selection lever : In-front of operator seat.

Gear shifting pattern :



- | | <u>Previous sample</u> | <u>Present sample</u> |
|--|--|-----------------------|
| Oil capacity (l) | : 28.0 (Common with differential, hydraulic and brake system) | |
| Oil changing period | : Change after every 1200 hours of operation. | |
| 3.1.11.4 Differential : | | |
| Type | : Crown wheel & pinion with differential unit accommodated inside the differential housing | |
| Reduction through crown wheel & bevel pinion | : 3.357: 1 (47/14 T) | |
| Oil capacity (l) | : 28.0 (Common with gearbox, brakes and hydraulic system). | |
| Oil changing period | : Change after every 1200 hours of operation. | |
| Differential lock | : Provided | Not provided |
| Type | : Pin | Not applicable |
| Location | : RHS of differential housing | Not applicable |
| Method of operation | : By pressing a foot pedal provided on RHS of operator seat. | Not applicable |
| 3.1.11.5 Rear axle & final drive: | | |
| Type | : Bull gear and pinion type final reduction unit accommodated in separate portal housing outside the differential housing after brake. | |
| Reduction through final drive | : 5.636 : 1 (62T/11T) | |
| Oil capacity of final drive, (l) | : 4.5 (on each side) 4.3 (on each side) | |
| Oil changing period | : Change after every 1200 hours of operation. | |
| 3.1.12 Power lift (Hydraulic system): | | |
| - Make | : CNH | |
| - Type | : Open centre, live, ADDC | |
| - No. and type of cylinder | : One, single acting | |
| - Type of linkage lock for transport | : Hydraulic, response control valve in fully closed position act as a transport lock. | |
| 3.1.12.1 Hydraulic pump: | | |
| - Make & Model | : Dynamics | |
| - Type | : Gear | |
| - Location & drive | : On RHS of engine, through timing gears. | |
| No. & Type of filter | : One, full flow, spin on paper element throwaway. | |
| Hydraulic oil capacity, (l) | : 28.0 (Common with gear box, differential and brake system). | |
| Oil change period | : Change after every 1200 hours of operation. | |
| Provision for external tapping | : Provided | |

Details of control :

Sl. No.	Control level	Functions
1.	Position control lever	To control depth of the implement
2.	Draft control lever	To control the draft of the implement
3.	Lift-o-matic button	To raise the implement quickly without altering the position of control lever 1 & 2
4.	Sensitivity control knob	For adjusting the sensitivity of hydraulic system when working in draft control.
5.	Response control knob	Varies the speed of drop of lower links.
6.	Diverter valve	To supply oil in the external supply port

Method of draft sensing : Through top link

T-1539/2067/2021	NEW HOLLAND, 3630 TX TRACTOR - Commercial (Technical Extension)
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3.1.12.2 Three point linkage:

Sl. No.	Observations	As per IS:4468-1997(Part-I) (Reaffirmed in October, 2017), (Cat.I / Cat.II), (mm)	As measured (mm)		Remarks in case of <u>Present sample</u>
			<u>Previous sample</u>	<u>Present sample</u>	
I.	Upper hitch points:				
	a) Dia of hitch pin hole	19.30 to 19.50 / 25.70 to 25.90	25.71	25.88	Conforms to Cat. II
	b) Width of ball	44.0 (max.) / 51.0 (max)	44.24	43.88	Conforms to Cat. I & II
II.	Lower hitch points:				
	a) Dia of hitch pin hole	22.40 to 22.65 / 28.70 to 29.00	28.77	28.93	Conforms to Cat. II
	b) Width of ball	34.8 to 35.0 / 44.8 to 45.0	44.80	45.0	Conforms to Cat. II
III.	Lateral distance from lower hitch point to centre line of tractor	359 / 435	435	435	Conforms to Cat. II
IV.	Lateral movement of lower hitch points	100 (min) / 125 (min)	205	105	Conforms to Cat. I
V.	Distance from end of power take-off to centre of lower hitch point (lower links in horizontal position)	450 to 575 / 550 to 625	660	650	Does not conform
VI.	Transport height	820 (min) / 950 (min)	1045	1055	Conforms to Cat. I & II
VII.	Power range (Without force)	560 (min) / 650 (min)	690	680 & 615	Conforms to Cat. I
VIII.	Leveling adjustment	100 (min) / 100 (min)	385	355	Conforms to Cat. I & II
IX.	Lower hitch point tyre clearance	100 (min) / 100 (min)	165	255	Conforms to Cat. I & II
X.	Lower hitch point height	200 (max) / 200 (max)	200	200	Conforms to Cat. I & II

3.1.12.3 Drawbar:

3.1.12.3.1 Linkage Drawbar [Refer Fig. 1]:

Notation	As per IS: 12953-1995 (Reaffirmed in October, 2017), (Cat. I)/(Cat.II) (mm)	As measured, (mm)		Remarks in case of <u>Present model</u>
		<u>Previous sample</u>	<u>Present sample</u>	
A	683 ± 1.5 / 825 ± 1.5	825.0	824.0	Conforms to Cat. II
B	75 (min) / 75 (min)	76.20	75.38	Conforms to Cat. II
C	30 (min) / 30 (min)	30.98	31.40	Conforms to Cat. II
D∅	21.79 to 22.00 / 27.79 to 28.00	27.91	27.92	Conforms to Cat. II
E	39.0 (min) / 49.0 (min)	64.51	50.08	Conforms to Cat. II
F∅	12.0 (min) / 12.0 (min)	12.07	12.08	Conforms to Cat. II
G	15.0 (min) / 15.0 (min)	15.02	16.04	Conforms to Cat. II
H∅	25 ± 1 / 25 ± 1	24.48	25.10	Conforms to Cat. II
J	80 ± 1.5 / 80 ± 1.5	80.17	80.25	Conforms to Cat. II
No. of holes	7 / 9	09	09	Conforms to Cat. II

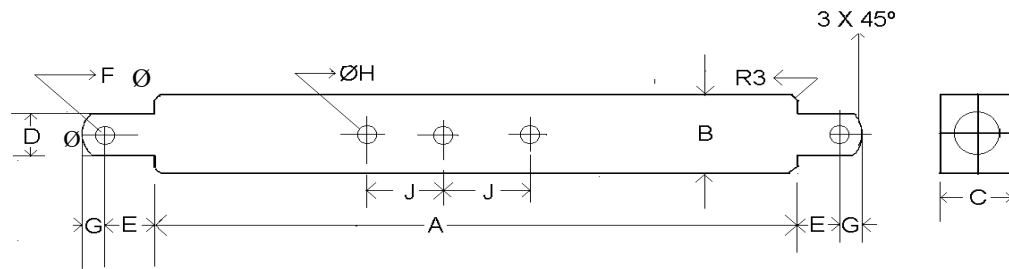


Fig. 1 : DIMENSIONAL NOTATIONS FOR LINKAGE DRAWBAR

3.1.12.3.2 Swinging drawbar	:	Not provided
3.1.12.3.3 Provision to attach trailer brake valve	:	Provided
3.1.13 Power take-off shaft:		
Type	:	Type-I, Independent
Method of engaging	:	i) By hand clutch lever provided on LHS beneath the dashboard ii) By hand lever provided on LHS of operator's seat
No. of shaft(s)	:	One
PTO speed corresponding to rated engine speed, (rpm)	:	686
Distance behind rear axle, (mm)	:	260
Engine to PTO speed ratio	:	3.643:1
Whether the PTO shaft is capable of transmitting the full power of engine	:	Yes

3.1.13.2 Specifications of Power Take-Off Shaft: [Refer Fig. 2]

Specification	As per IS:4931-1995 (Type-I) (Reaffirmed in 2014),	As observed		Remarks in case of Present model
		<u>Previous sample</u>	<u>Present sample</u>	
1.	2.	3.	4.	5.
Nominal speed (rpm)	540 ± 10	540 rpm	1967 rpm	Conforms
No. of splines	6	6	6	Conforms
Direction of rotation	Clockwise	Clockwise	Clockwise	Conforms
Location	The position of the centre of the end of PTO shaft shall be within 50mm to right or left of the centre line of the tractor	In the centre line of tractor	In the centre line of tractor	Conforms
Dimensions (mm) (Refer Fig. 2):				
DØ	34.79 ± 0.06	34.80	34.83	Conforms
dØ	28.91 ± 0.05	28.89	28.93	Conforms
BØ	29.4 ± 0.1	29.50	29.45	Conforms
AØ (Optional)	8.3 ± 0.5	8.21	8.28	Conforms
W	8.69 – 0.09 – 0.16	8.60	8.56	Conforms
a	7	7	7	Conforms
b (Optional)	25 ± 0.5	25.40	24.65	Conforms

1.	2.	3.	4.	5.
c	38	38	38	Conforms
X	30°	30	30°	Conforms
B	76 (min)	86.69	87.52	Conforms
h	450 to 675	640	635	Conforms

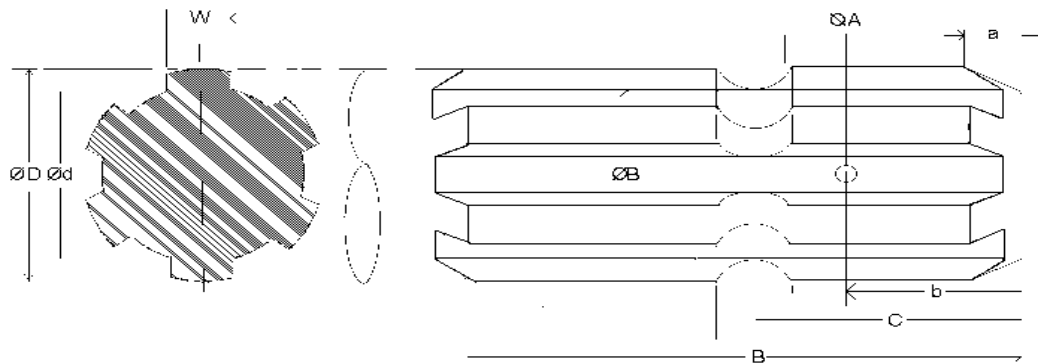


Fig. 2: DIMENSIONAL NOTATIONS FOR TYPE-I POWER TAKE-OFF SHAFT

		<u>Previous sample</u>	<u>Present sample</u>
3.1.13.3 Power Take-off Master Shield	:	Not provided	Not provided
3.1.14 Towing hitch:			
3.1.14.1 Front			
Type	:		Clevis
Location	:	At front on front standard ballast weight	
Height above ground level, (mm)	:	675	630
Type of adjustment	:		Fixed
Dia of pin hole, (mm)	:	29.50	34.24
Width of clevis, (mm)	:	120.14	55.70
3.1.14.2 Rear			
Type	:		Clevis
Location	:	At the rear of differential housing	
Height above ground level, (mm) :			
- Maximum	:	740	690
- Minimum	:	425	475
- No. of positions	:	06	06
- Type of adjustment	:	By changing and reversing the position of hitch on its mounting bracket	
Distance of hitch point, (mm):			
-From rear wheel centre	:	380	370
-From power take-off shaft end	:	120	110
Dia of pin hole, (mm)	:	35.51	29.10
Width of clevis, (mm)	:	90.97	82.50
3.1.15 Steering:			
Make	:	Rane	
Type	:	Mechanical, Recirculating ball type	
Location	:	Above clutch housing	
Diameter of steering control wheel, (mm)	:	455	
Oil capacity of steering system, (l)	:	0.640	
Oil change period	:	Change after every 1200 hours of operation.	

	<u>Previous sample</u>	<u>Present sample</u>
3.1.16 Brakes:		
3.1.16.1 Service Brake:		
Make	:	JMI
Type	:	Mechanical, oil immersed multi discs.
Location	:	Inside the trumpet housing at rear axle shaft before final reduction.
No. of discs	:	Three (on each wheel side)
Area of liners. (cm ²)	:	695 (on each wheel side)
Material of liners	:	Prendo Abex HDT 303 (apa)
Method of operation	:	Independent / combined pedal operation by right foot
Oil capacity, (l)	:	28.0 (Common with gear box, rear differential, final drive and hydraulic system)
Oil change period	:	Change after every 1200 hours of operation.
3.1.16.2 Parking Brake:		
Type	:	Pawl and ratchet arrangement
Method of operation	:	By locking the service brake in position through a hand lever provided on RHS of operator's seat.
3.1.17 Wheel Equipment:		
3.1.17.1 Steered Wheel(s):		
Make	:	MRF
Number	:	Two
Type of tyre	:	Pneumatic, ribbed
Size	:	6.00 -16
Ply rating	:	8
Maximum permissible load on each tyre at inflation pressure recommended for road work, (kgf)	:	450 @ 230 kPa (As per ITTAC manual)
Recommended inflation pressure, kPa :		
- for field work	:	235
- for transport	:	235
Track width, (mm)	:	1380 (std.), 1500
Method of changing track width	:	By reversing the wheel disc.
Make & size of rim	:	Wheels India & 4.5E X16
3.1.17.2 Driving wheel:		
Make	:	MRF
Number	:	Two
Type of tyre	:	Pneumatic, traction
Size	:	14.9-28
Ply rating	:	12
Maximum permissible load on each tyre at inflation pressure recommended for road work, (kgf)	:	1600 @ 140 kPa (As per ITTAC manual)
Recommended inflation pressure, (kPa)		
- for field work	:	110
- for transport	:	140
Track width, (mm)	:	1366,1430 (Std), 1540, 1630, 1750, 1810 & 1960
Method of changing track width	:	By changing and reversing the position of disc on off-set wheel rim lugs
Make & size of rim	:	SSWL & W13 x 28 WIL & W13 x 28
3.1.17.3 Wheel base, (mm)	:	2040 2035
Method of changing wheel base, if any	:	None

3.1.18	Operator's seat:		<u>Previous sample</u>	<u>Present sample</u>
	Make	:	New Holland (apa)	Harita seating system limited
	Type	:	Cushioned seat with backrest	
	Type of suspension	:	Two Helical coil springs	
	Type of damping	:	Hydraulic shock absorber	
	Range of adjustment,(mm):			
	- Vertical	:		Nil
	- Lateral	:		Nil
	- Longitudinal	:	± 55	± 75

3.1.19 Provision for safety and comfort of operator:

3.1.19.1 Conformity with IS: 12343-1998 (Reaffirmed in 2014)

All parameters meets the minimum requirements of IS: 12343-1998, (Re-affirmed in 2014)

<u>Previous sample</u>	<u>Present sample</u>
Meets the minimum requirements, except the following:	Meets the minimum requirements, except the following:
i) Width of seat did not meet the minimum requirement.	i) Width of seat is measured as 405 mm against the minimum requirement of 450 mm.
ii) Distance from seat index point to centre of differential lock pedal did not meet the minimum requirement.	ii) Longitudinal distance from SIP to center of differential lock is measured as 155 mm against the requirement of 355 to 770 mm.
iii) Vertical distance of seat index point from foot rest is more than the maximum requirement of 630 mm.	

3.1.19.2 Conformity with IS: 6283 (Part-1) – 2006 (Re-affirmed in 2014) & IS: 6283 (Part-2) – 2007 (Re-affirmed in 2014):

All the controls are identifiable with symbols as per IS: 6283 (Part-1) – 2006 (Re-affirmed in 2014) & IS: 6283 (Part-2) – 2007 (Re-affirmed 2014). Meets the minimum requirements

3.1.19.3 Conformity with IS:8133-1983 (Re-affirmed in 2014).

Location and movement of various controls meets the requirement of IS:8133-1983 (Re-affirmed in 2014):

3.1.19.4 Conformity with IS: 12239 (Part-1)-1996 (Re-affirmed in October, 2017):

Meets the requirements of IS: 12239 (Part-1)-1996 (Re-affirmed in October, 2017),

<ul style="list-style-type: none"> i) Spark arrester was not provided in the exhaust system. ii) Width of foot step was less than the minimum requirement 	<ul style="list-style-type: none"> i) Spark arrester is not provided in the exhaust system. ii) Width of foot step is measured 170 mm against the minimum requirement of 200 mm.
---	--

3.1.19.5 Conformity with IS:12239 (Part-2)-1999 (Re-affirmed in 2014):

Meets the requirements of IS:12239 (Part-2)-1999 (Re-affirmed in 2014), **except the following:**

<ul style="list-style-type: none"> i) PTO shaft master shield was not Provided 	<ul style="list-style-type: none"> i) PTO shaft master shield is not Provided ii) Working clearance around position control lever & draft control lever is measured as 30 mm against the requirement of 70 mm.
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3.1.19.6 Conformity with IS: 14683 – 1999 (Re-affirmed in 2014) :

All lighting arrangements meet the requirements of IS: 14683-1999 (Re-affirmed in 2014).

3.1.19.7 Rear view mirror:

Rear view mirror has been provided.

3.1.19.8 Slow moving emblem:

Slow moving emblem has been provided.

3.1.20 Labelling of tractor as per IS: 10273-1987 (Reaffirmed in March, 2014):

Locations of 17Labeling plate:- It is riveted on LHS of front axle support and provides the following information:

Name of Manufacturer	: CNH Industrial (India) Pvt. Limited.
Make	: New Holland
Model	: 3630 TX
Month & Year of manufacture	: 10/ 20
Engine Serial Number	: 301170DX
Chassis Serial Number	: NHN3630SZLK526386
Maximum PTO Power, kW	: 33.6
Specific fuel consumption, g/hph	: 198

3.1.21 Mass of standard ballasted tractor, (kg):

	<u>Previous sample</u>	<u>Present sample</u>
- Front	795	
- Rear	1230	
- Total	2025	

3.1.22 Over all dimensions:

- Length	3480	3465
- Width	1815	1820
- Height (with exhaust pipe)	2350	2370
Minimum ground clearance, (mm)	385 (Below rear hitch mounting bracket)	380 (Below rear hitch mounting bracket)

3.1.23 Number of external lubricating points:

- Oiling	Nil
- Grease cups	02
- Grease nipples	13

3.1.24 Colour of tractor:

Chassis & engine	Black
Sheet metal:	
Mudguard	White
Bonnet	Blue
Rim & disc	White

3.1.25 Optional features of base model if any :

3.1.25.1 Front axle : Adjustable front axle

3.1.25.2 Steered Wheel:

Size & Ply rating	: 6.50-16 & 8
Maximum permissible loading capacity of each tyre recommended for road work, (kgf)	: 655 @ 340 kPa (As per ITTAC manual)
Track width, (mm)	: 1260 (std.), 1360, 1395, 1465, 1485, 1570, 1600 & 1705
Method of changing track width	: By extending the telescopic front axle & reversing the wheel disc.
Rim make & size	: WIL & 5.0 E x 16

T-1539/2067/2021	NEW HOLLAND, 3630 TX TRACTOR - Commercial (Technical Extension)
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- 3.1.25.3 Driving wheel:**
 Size & Ply rating : 16.9-28 & 12
 Maximum permissible loading capacity of each tyre recommended for road work, (kgf) : 1930 @ 140 kPa (As per ITTAC manual)
 Track width, (mm) : 1435,1535(std.), 1625, 1735, 1835 & 1955
 Method of changing track width : By changing and reversing the position of disc on off-set wheel rim lugs
 Rim make & size : WIL & 15 L x 28

- 3.1.25.4 Differential lock** : Not provided

3.2 NOMINAL SPEED TEST

Movement	Gear No.	No. of engine revolutions for one revolution of driving wheel		Nominal speed at rated engine speed when tractor is fitted with 14.9-28 tyres size with 640 mm of radius index, (kmph). (Standard fitment)		Computed nominal speed at rated engine speed when fitted with 16.9-28 tyres size with 670 mm of radius index, (kmph).	Variation in nominal speed (%) in Present sample with standard fitment
		<u>Previous sample</u>	<u>Present sample</u>	<u>Previous sample</u>	<u>Present sample</u>	<u>Optional fitment</u>	
Forward	L1	196.01	195.98	3.08	3.08	3.22	0.00
	L2	133.03	132.97	4.54	4.54	4.75	0.00
	L3	90.86	90.84	6.65	6.65	6.96	0.00
	L4	70.36	70.33	8.57	8.57	8.97	0.00
	H1	54.46	54.42	11.07	11.08	11.60	0.09
	H2	36.93	36.94	16.33	16.32	17.09	-0.06
	H3	25.22	25.25	23.89	23.90	25.02	0.04
	H4	19.53	19.50	30.85	30.93	32.38	0.26
Reverse	RL	139.59	139.21	4.33	4.33	4.53	0.00
	RH	38.68	38.67	15.59	15.61	16.34	0.13

3.3 PTO PERFORMANCE TEST

S. No.	Particulars	<u>Previous sample</u>	<u>Present sample</u>
(i)	Date(s) of test	14.12.2017 & 15.12.2017	12.02.2021
(ii)	Tractor run at this Institute prior to start of PTO test, (h)	1.58	1.24
(iii)	Dynamometer test bench used	SAJ AG 250 Eddy Current	SAJ AG-720, Eddy Current

- 3.3.1** Maximum power at two hours test under natural ambient condition was conducted. The results of Power take-off performance test under natural ambient & high ambient of **Previous & Present sample** are tabulated in **Table-1**.

Table-1

	Power, (kW)	Speed, (rpm)		Fuel Consumption			Specific energy, (kWh/ l)
		PTO	Engine	(l/h)	(kg/h)	(kg/kWh)	
a) Maximum power – 2 hours test:							
Previous sample	33.7	631	2299	10.81	9.04	0.266	3.11
Present sample	32.1	645	2350	10.11	8.45	0.263	3.18

Sl. No.	Parameters	<u>Previous sample</u>		<u>Present sample</u>
		Natural Ambient	High Ambient	Natural Ambient (Max. power Two Hours)
i)	No load maximum speed, (rpm)	2740	2721	2750
ii)	Equivalent crankshaft torque at maximum power, (Nm)	140.2	129.5	130.4
iii)	Equivalent crankshaft torque at rated engine speed, (Nm)	--	--	121.5
iv)	Maximum equivalent crank shaft torque, (Nm)	193.0	181.6	182.6
v)	Engine speed at maximum equivalent crankshaft torque, (rpm)	1301	1301	1250
vi)	Backup torque, (%)	37.7	40.2	50.3
vii)	Smoke level at 80 % of max. power	0.27	--	--
viii)	Range of atmospheric condition :			
	- Temperature, (OC)	26 to 29	42 to 45	26 to 27
	- Pressure, (kPa)	99.4 to 99.8	100.5 to 100.9	99.1 to 99.5
	- Relative humidity, (%)	52 to 65	22 to 34	25 to 30
ix)	Maximum Temperature, (OC):			
	- Engine oil	120	130	113
	- Coolant	102	115	96
	- Fuel	54	67	60
	- Air intake	29	46	30
	- Exhaust gas	653	672	599
x)	Pressure at maximum power:			
	- Intake air, (kPa)	4.1 to 4.2	4.2 to 4.3	4.1 to 4.2
	- Exhaust gas, (kPa)	3.7 to 4.0	3.7 to 4.3	5.9 to 6.1
xi)	Consumptions:			
	Lub. Oil, (g/kWh)	--	0.29	--
	-Coolant (% of total coolant capacity)	--	Nil	--

4.0 OTHER APPLICABLE TESTS

4.1 TURNING ABILITY

Characteristics	Minimum turning diameter, (m)		Minimum clearance diameter, (m)	
	LHS	RHS	LHS	RHS
Brake applied	6.35	6.29	6.63	6.57
Brakes released	7.16	7.10	7.46	7.40

4.2 STEERING EFFORT TEST

Characteristics	Clockwise	Anticlockwise
Steering Effort, (N)	66	61

5.0 ADJUSTMENTS, DEFECTS, BREAKDOWNS AND REPAIRS

S. No.	Adjustment/Defect/Breakdown and Repairs	Category of Breakdown	Tractor run hours
-- None--			

6.0 SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

6.1 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 tractor for the purpose of subsidies/NABARD financing for the applicable features for this tractor model.

Sl. No.	Characteristic	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2019	Values declared by the applicant/ requirement		As observed		Whether present model meets the requirements (Yes/No.)
				Previous sample	Present sample	Previous sample	Present sample	
1	2	3	4	5 a	5 b	6 a	6 b	7
6.1.1 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.	33.6 (D)	33.6 (D)	33.7	32.1	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	33.6 (D)	33.6 (D)	31.4	31.8	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Evaluative	+ 10% Max.	239 (D)	262 (D)	266	263	Yes
d)	Maximum equivalent crankshaft torque, (Nm)	Non Evaluative	$\pm 8\%$	195 (D)	195 (D)	193.0	182.6	Yes
e)	Back-up torque, percent	Evaluative	12 percent, min.	25 (D)	25 (D)	37.7	50.3	Yes
				12 (R)	12 (R)			
6.1.2 Safety features :								
a)	Guards against moving and hot parts	Evaluative	Belt drives, pulleys, silencer, hydraulics pipes(as per IS-12239 Part 2)			Meet the requirements		Yes
b)	Lighting arrangement	Evaluative	As per CMVR			Meet 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)			Does not meet the requirements		No
d)	Technical requirements for PTO shaft	Evaluative	Should meet the requirements of IS: 4931 (As amended from time to time)			Meet 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)			Does not meet the requirements		No
f)	Specifications of linkage drawbar	Evaluative	Should meet the requirements of IS 12953 (As amended from time to time)			Meet the requirements		Yes
g)	Specifications of Swinging drawbar (wherever fitted)	Evaluative	Should meet the requirements of IS 12362 (Part 3) (As amended from time to time)			Not provided		--

1	2	3	4	5	6	7		
h)	1)	Maximum travelling speed at rated engine speed in reverse gears, kmph	Evaluative	Should not exceed 20 kmph	15.61 kmph (Meet the requirements)	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.	Not fitted	Not applicable		
6.1.3 Labeling of tractors (Provision of labeling plate):								
	1)	Make	Evaluative	Should conform to the requirements of CMVR along-with declared value of PTO in kW and year of manufacture in numerical <table border="1" style="display: inline-table; border-collapse: collapse; margin: 5px;"> <tr> <td style="width: 30px; text-align: center;">MM</td> <td style="width: 30px; text-align: center;">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		3630 TX	Yes		
	3)	Month & Year of manufacture	Evaluative		10/ 20	Yes		
	4)	Engine number	Evaluative		301170DX	Yes		
	5)	Chassis number	Evaluative		NHN3630SZLK52 6386	Yes		
	6)	Declaration of PTO power, kW	Evaluative	33.6	Yes			
6.1.4 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		

6.2	Conformity with following IS:	<u>Previous sample</u>	<u>Present sample</u>
i)	Guide lines for declaration of power and specific fuel consumption and labeling of agricultural tractors (First revision) [IS10273: 1987 (Reaffirmed 2014)]	Conformed	Conforms
ii)	Agricultural tractors – Rear mounted power take-off - Types 1, 2 and 3 (third revision) [IS:4931-1995 (Reaffirmed 2014)]	Conformed	Conforms
iii)	Agricultural wheeled tractors - Three-point linkage: Part 1, Category-1,2,3 & 4 (Fourth Revision) [IS 4468 (Part-1):1997/ ISO 730-2:1994 (Reaffirmed in Oct., 2017)]	Did not conform	Does not conform
iv)	Drawbar for agricultural tractors – Link type [IS 12953:1990 (Reaffirmed October, 2017)]	Conformed	Conforms
v)	Agricultural tractors - Operator's seat technical requirement [IS 12343 –1998 (First revision) (Reaffirmed 2014)]	Did not conform	Does not conform

vi)	Guide for safety & comfort of operator of agricultural tractors: Part 1 General requirements (first revision): [IS 12239 (Pt-1) 1996/ISO 4254-1:1989 (Reaffirmed October, 2017)]	Did not conform	Does not conform
vii)	Tractors and machinery for agriculture and forestry – Technical means for ensuring safety Part 2: Tractors (first revision) (IS 12239 (Pt-2) 1999) (Reaffirmed 2014)]	Did not conform	Does not conform
viii)	Guide lines for location and operation of operator controls on agricultural tractors and machinery (first revision) IS: 8133-1983 (Reaffirmed 2014)]	Conformed	Conforms
ix)	Tractors and machinery for agriculture and forestry, powered lawn and garden equipment – Symbols for operator controls and other displays Part 2 Symbols for agricultural tractors and machinery [IS:6283 (Part-1)- 2006 and IS: 6283 (Part-2)-2007 (Reaffirmed 2014)]	Conformed	Conforms
x)	Agricultural Tractors and Machinery – Lighting device for travel on public roads (IS: 14683-1999) (Reaffirmed 2014)]	Conformed	Conforms

6.3 Salient Observations:

6.3.1 Laboratory tests:

6.3.1.1 PTO Performance Test:

- i) The maximum PTO power was recorded as **32.1 kW** against the declaration of **33.6 kW**, which meets the requirement of IS: 12207-2019 with regard to tolerance limit.
- ii) The specific fuel consumption corresponding to maximum power was recorded as **263 g/kWh** against the declaration of **262 g/kWh**, which is within the tolerance limit of IS: 12207-2019.
- iii) The backup torque is **50.3 %** and meets the requirement of IS:12207-2019.

6.3.2 Recommendation with regard to safety on tractor:

The following requirements, inter alia, may be considered for incorporation on the tractor:

- i) Width of seat should be as per requirements of IS: 12343-1998, (Re-affirmed in 2014).
- ii) Longitudinal distance from SIP to center of differential lock should be as per requirements of IS: 12343-1998, (Re-affirmed in 2014).
- iii) Width of foot step should be as per requirements of IS: 12239 (Part-1)-1996 (Re-affirmed in October, 2017).
- iv) The spark arrester should be provided in the exhaust system as per the requirement of IS: 12239 (Part-1)-1996 (Re-affirmed in October, 2017).
- v) PTO master should be provided as per the requirement of IS: 12239 (Part -2) - 1999 (Reaffirmed in 2014).
- vi) Working clearance around position control lever & draft control lever should be as per the requirement of IS: 12239 (Part -2) -1999 (Reaffirmed in 2014).

6.3.3 Adequacy of Literature supplied with machine:

Following literature has been submitted during the course of testing.

- i) Operator’s manual of New Holland 3630 TX Super, New Holland 3600-2 TX, New Holland 3630S Tier 3 and New Holland 3630 TX .
- ii) Service manual (Part I, II ,III, IV & V) of New Holland 3630 TX Super, New Holland 3600-2 TX, New Holland 3630S Tier 3 and New Holland 3630 TX.
- iii) Service parts catalogue of New Holland 3630 TX Super, New Holland 3600-2 TX, New Holland 3630S Tier 3 and New Holland 3630 TX.

**TESTING AUTHORITY:**

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

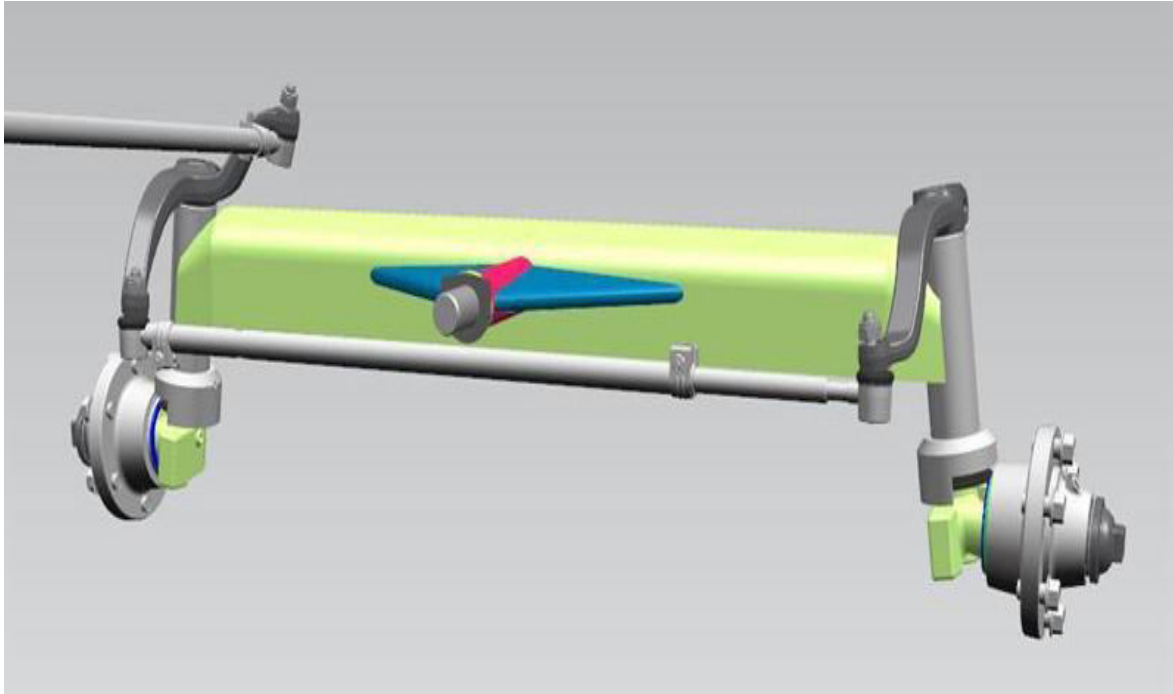
The report is compiled by: Shri **Nitesh Kumar Verma**, Agricultural Engineer.

7. Applicant's comments

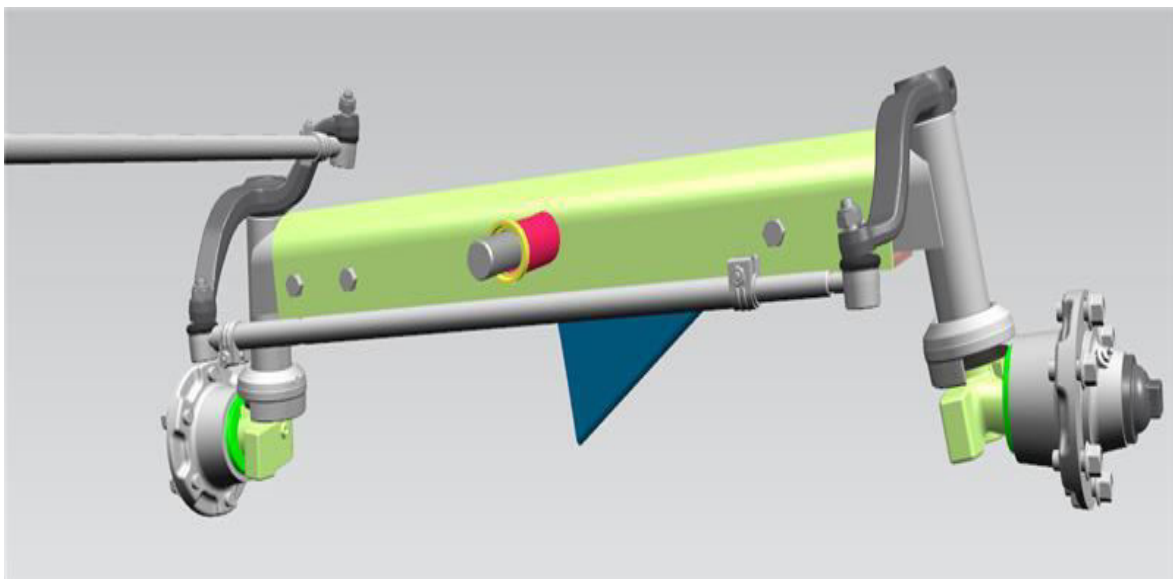
Para no.	Our reference	Comments received from the applicant
7.1	6.3.2	Valuable comments and suggestions for improvements are well taken. Under our policy of continuous product improvement these aspects are further being looked into and will take appropriate actions to eliminate these deviations soon wherever necessary.

ANNEXURE- I**TRACTOR RUN HOURS DURING TEST**

A.	LABORATORY AND TRACK TESTS	HOURS
1.	Running -in	100
2.	Nominal speed test	0.7
3.	PTO Performance Test	4.6
4.	Turning ability test	1.0
B.	Miscellaneous test and other run hours, including idle run transportation, trial and preparation for test.	0.3
Total		106.3



Fixed type front axle as Standard fitment



Adjustable type front axle as Optional fitment