

(यह परीक्षण रिपोर्ट 30/09/2025 तक वैध है। / THIS TEST REPORT IS VALID UP TO : 30/09/2025)



NEW HOLLAND, 6010 TRACTOR



सत्यमेव जयते

भारत सरकार

कृषि एवं किसान कल्याण मंत्रालय
कृषि, सहकारिता एवं किसान कल्याण विभाग
मशीनीकरण एवं प्रौद्योगिकी प्रभाग

GOVERNMENT OF INDIA

MINISTRY OF AGRICULTURE AND FARMERS WELFARE

(Department of Agriculture, Cooperation & Farmers Welfare, Mechanization & Technology Division)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

ट्रैक्टर नगर, बुदनी (म.प्र.) ४६६ ४४५

CENTRAL FARM MACHINERY TRAINING & TESTING INSTITUTE

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1. SPECIFICATIONS

1.1 Tractor:
Make : New Holland
Model : 6010
Brand name : New Holland
Variants. If any:

S. No.	Variants Model	Variant Feature
1	New Holland 6010 12+12	12+12 Transmission, 4WD (vide test report no. (T-1052/1577/2016, December, 2016)
2	New Holland 6010 2WD *	12+12 Transmission, 2WD
3	New Holland 6010 8+8 *	8+8 Transmission, 2WD
4	New Holland 6010 4WD *	24+24 Transmission, 4WD

Remark: - (*) The tractor models have not been submitted by the manufacturer for test at this Institute yet.

Type : Four wheeled, Rear-wheel driven, General purpose, unit construction, Agricultural Tractor.

Year of manufacture : 08 | 19
Chassis number : NHNB0100ZKH453116
Country of origin : India

1.2 Engine:
Make : IVECO (apa)
Model : 8035.45.723
Type : Four stroke, water cooled, turbocharged, intercooled, direct injection, diesel engine.
Serial number : 249874DT
Year of manufacture : 2018
Country of origin : India

1.2.1 Engine speed (rpm), (Manufacturer's recommended production settings):

- Maximum speed at no load : 2450 to 2600
 - Low idle speed : 600 to 700
 - Speed at maximum torque : 1100 to 1500

: Rated speed, (rpm):
 - For PTO use : 2300
 - For drawbar use : 2300

1.3 Cylinder & Cylinder Head:
Number : Three
Disposition : Three
Bore/stroke, (mm) : Vertical, Inline
Capacity as specified by the applicant, (cc) : 104 / 115 (apa)
Compression ratio : 2931
Type of cylinder head : 18:1±0.5(apa)
Type of cylinder liners : Mono block
Type of combustion chamber : Dry, replaceable
Arrangement of valves : Re-entrant, omega Shape
Valve clearance (cold/hot):
 - Inlet valve, (mm) : 0.30/0.30
 - Exhaust valve, (mm) : 0.30/0.30



14. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

14. On the basis of tests conducted the performance results have been summarized as evaluative (mandatory) and non-evaluative (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/ (D) Requirement (R)	As observed	Whether the require- ments (Yes/No)
1	2	3	4	5	6	7
14.1.1	PTO Performance :					
a)	Maximum power under 2 hours test, (kW) (Natural ambient condition)	Evaluative	Declared value to be achieved with a tolerance of 15 % for PTO power and or Engine power >26 kW ±10% for PTO power and or engine ≤ 26 kW	39.0 (D)	37.7	Yes
b)	Power at rated engine speed, (Kw)	Non Evaluative		39.0 (D)	37.7	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Evaluative	+ 10%	272 (D)	297	Yes
d)	Maximum equivalent crankshaft torque, (Nm)	Non Evaluative	± 8%	235 (D)	213.1	No
e)	Back-up torque, percent	Evaluative	12 percent, min.	12 (R) Minimum	36.2	Yes
f)	Maximum operating temperature (°C)					
	1) Engine oil	Evaluative	The declared value should not exceed the max value specified by the oil company and the observed value under high ambient condition should not exceed the declaration.	134 (D)	126	Yes
	2) Coolant (liquid)	Evaluative	The declared value should not exceed the boiling temperature of coolant under the pressurized or otherwise and the observed value under high ambient condition should not exceed the declaration.	124 (D)	112	Yes
g)	Engine oil consumption, (g/kWh)	Evaluative	Not exceeding 1% of SFC at max. power under High ambient conditions	3.01 (R)	1.02	Yes
h)	Smoke level	Evaluative	Maximum light absorption coefficient of 3.25 per metre or equivalent BOSCH No. 5.2 or 75 Hatridge value (As per CMVR)	3.25 per metre (R) (Max)	0.66	Yes

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1	2	3	4	5	6	7
14.1.2	Drawbar performance :					
a)	Maximum drawbar pull with ballast corresponding to 15 percent wheel slip, (kN)	Non Evaluative	Minimum 70% of static mass with ballast	26.00(D) 24.99 (R)	27.81	Yes
b)	Maximum drawbar pull with standard ballast corresponding to 15 percent wheel slip, (kN)	Evaluative	Minimum 70% of static mass of tractor with standard ballast,	18.5 (D) 17.75 (R)	21.81	Yes
c)	Maximum drawbar power 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 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.	33.0 (D) 30.2 (R)	32.2	Yes
d)	Maximum transmission oil temperature (°C)	Evaluative	The declared value should not exceed the maximum value specified by oil company	132 (D)	89	Yes
14.1.3	Power lift and hydraulic pump performance :					
a)	Maximum lifting capacity throughout the range of lift, (kN):					
	1) At hitch points	Evaluative	Tolerance of $\pm 10\%$	24.50 (D)	23.12	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.	18.10 (D) 8.87 (R)	20.00	Yes
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 minute. (mm)	Non Evaluative	The observed value should not exceed 50 mm	50 (D) Maximum	40	Yes
14.1.4	Brake performance at 25 kmph:					
a)	Maximum stopping distance at a force, equal to or less than 600 N on brake pedal with road ballast, (m):					
	1) Cold brake	Evaluative	10	10 (R)	8.16	Yes
	2) Hot brake	Evaluative	10	10 (R)	8.34	Yes
b)	Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 m/s ² (N)	Evaluative	600	600 (R) Maximum	226 to 297	Yes

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Yes

Yes

Yes

No

Yes

Yes

Yes

Yes

Yes



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1	2	3	4	5	6	7
c)	Whether parking brake is effective at a force of 600 N at foot pedal (s) or 400 N at hand lever, N	Evaluative	Yes / No	Yes	Yes	Yes
14.1.5	Noise measurement :					
a)	Maximum ambient noise emitted by the tractor dB(A)	Evaluative	As per CMVR	88 (R)	84	Yes
b)	Maximum noise at operator's ear level dB(A)	Evaluative	As per CMVR	96 (R)	96	Yes
c)	Amplitude of mechanical vibrations at:					
	1) Left foot rest	Non Evaluative	100 microns (max)	100(R)	31	Yes
	2) Right foot rest				26	Yes
	3) Seat (with driver seated)				50	Yes
	4) Steering wheel				153	No
14.1.6	Air cleaner:					
	Maximum air cleaner oil pull over, (%)	Evaluative	0.25 % (maximum)	Not applicable	Dry type air cleaner fitted	Yes
14.1.7	Haulage requirements :					
a)	Gross mass of the trailers, (tones):					
	1) Two wheel	Non	--	6.0 (D)	6.0	Yes
	2) Four wheel	Evaluative	--	8.0 (D)	8.0	Yes
b)	Distance travelled / liter of fuel consumption, (km/l):					
	1) Two wheel	Non	--	3.0 to 6.0 (D)	3.83 to 3.91	Yes
	2) Four wheel	Evaluative	--	3.0 to 6.0 (D)	3.45 to 3.56	Yes
c)	Fuel consumption (ml/km/tonne):					
	1) Two wheel	Non Evaluative	--	25 to 50(D)	42.59 to 43.52	Yes
	2) Four wheel				25 to 50(D)	35.15 to 36.27
14.1.8	Wetland cultivation :					
	Sealing for the following assemblies:	Evaluative	The identified assemblies should essentially meet the requirement of IS: 11082. No water ingress in the identified assembly given in column-2.If tractor does not meet the requirements of wetland cultivation, it may be recommended for dry land operation only.	There should be no ingress of water and/or mud (R)	Manufacture has not recommended the tractor for puddling operation. Hence the puddling test was not conducted during initial commercial testing.	Not applicable
	1) Clutch assembly	-do-				
	2) Brake housings	-do-				
	3) Front axle hubs	-do-				
	4) Engine Oil	-do-				
	5) Transmission Oil	-do-				

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1	2	3	4	5	6	7
14.1.9	Safety features :					
a)	Guards against moving and hot parts	Evaluative	Belt drives, pulley, silencer, hydraulic pipes (As per IS 12239 (part 2))		Meets the requirement	Yes
b)	Lighting arrangement	Evaluative	As per CMVR		Meets the requirement	Yes
c)	Seating requirement (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)	Dimension of three point linkage	Non-Evaluative	Should meet the requirements of IS 4468 (part 1) (as amended from time to time)		Meets the requirement	Yes
(f)	Specifications of linkage drawbar	Evaluative	Should meet the requirements of IS 12953		Meets the requirements	Yes
(g)	Swinging drawbar (wherever fitted)	Evaluative	Should meet the requirements of IS 12362 (Part 3) (As amended from time to time)		Not fitted	Not applicable
(h)	1) Maximum traveling speed at rated engine speed in reverse gear, kmph	Evaluative	Should not exceed 20 kmph		42.46 kmph Meets the requirements	Yes
	2) Audible warning signal on tractor	Evaluative	As soon as the traveling speed in reverse gear reaches to 20 kmph, an audible warning signal on tractor 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.		Audible warning signal provided	Yes
14.1.10	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 & next two digits in box No.2 for YY will represent the year of manufacturing.		New Holland	Yes
	2) Model	Evaluative			6010	Yes
	3) Year of manufacture	Evaluative			08/19	Yes
	4) Engine number	Evaluative			249874DT	Yes
	5) Chassis number	Evaluative			MHN601002K H453116	Yes
	6) Declaration of PTO power, (kW)	Evaluative			39.0	Yes
	7) Specific fuel consumption (g/hph)	Evaluative			198	Yes



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1	2	3	4	5	6	7
14.1.11	Discard limit for:					
(a)	Cylinder bore diameter, (mm)	Evaluative	To be specified by Manufacturer	104.204 (D)	103.982 to 104.017	Yes
(b)	Clearance between piston & cylinder liner at skirt, (mm)	Non Evaluative		0.50 (D)	0.130 to 0.148	Yes
(c)	Piston diameter	Non Evaluative		104.929 (D)	103.863 to 103.870	No
(d)	Ring end gap (mm):					
	- Top comp. ring.	Evaluative	-do-	1.50(D)	0.40	Yes
	- 2 nd comp. ring.	Evaluative	-do-	1.50(D)	0.75	Yes
	- Oil ring.	Evaluative	-do-	1.80(D)	0.45	Yes
(e)	Ring groove clearance (mm):					
	- Top comp. ring.	Evaluative	-do-	0.40 (D)	Tapered	Yes
	- 2 nd comp. ring.	Evaluative	-do-	0.40 (D)	0.47 to 0.62	Yes
	- Oil ring.	Evaluative	-do-	0.25 (D)	0.32 to 0.42	Yes
(f)	Clearance of main bearings (mm):					
	Diometrical clearance	Evaluative	-do-	0.50 (D)	0.055 to 0.089	Yes
	Crankshaft end float	Evaluative	-do-	0.50 (D)	0.20	Yes
(g)	Clearance of big end bearings, (mm):					
	- Diametrical	Evaluative	-do-	0.50 (D)	0.052 to 0.070	Yes
	- Axial	Evaluative	-do-	0.75 (D)	0.40	Yes
(h)	Clearance between king pin and bush, (mm)	Non Evaluative	-do-	0.40 (D)	0.128 to 0.161	Yes
(i)	Clearance between centre pin and bush, (mm)	Non Evaluative	-do-	0.50 (D)	0.106 to 0.118	Yes
14.1.12	Literature (Submission to test agency)					
(a)	Operator manual	Evaluative	The printed literature in booklet form should be provided as per IS 8132 & should submit along with the test sample	Provided/ Not Provided	Provided	Yes
(b)	Parts Catalogue	Evaluative			Provided	
(c)	Workshop/ Service manual	Evaluative			Provided	
14.1.13	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		Not filled	Not applicable
14.1.14	Standard Accessories	Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with the tractor.		Provided	Yes
14.1.15	Accessories (optional)	Non Evaluative	Ballast weights, if fitted, should meet the requirement of CMVR.		Provided	Yes

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14.1.16 CATEGORY OF BREAKDOWNS / DEFECTS :					
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	There is no 'critical breakdown' during the course of testing	None	Yes
2.	Major	Evaluative	There are not more than 1 major breakdowns.	01 (Mj-6)	Yes
3.	Minor	Evaluative	There are not more than 3 minor defects during the test and the frequency of each is not be more than two.	01 (Mn-9)	Yes
4.	Total breakdowns	Evaluative	In no case, the total number of breakdowns should exceed four that is, (1 major + 3 minor) or 4 minor breakdowns.	02 (Mj-6 & Mn-9)	Yes

14.3 Salient Observations:

14.3.1 Laboratory tests:

14.3.1.1 PTO Performance Test:

- The maximum power in case of previous & present sample were recorded as 37.8 & 37.7 kW respectively against the declaration of 38.0 kW, which meets the requirement of IS: 12207-2019 with regard to tolerance limit.
- The specific fuel consumption corresponding to maximum power in case of previous & present sample was recorded as 265 & 297 g/kWh against the declaration of 272 g/kWh respectively, which meets the requirement of IS: 12207-2019 with regard to tolerance limit.
- The maximum equivalent crankshaft torque was recorded as 213.1 Nm against the declaration of 235 Nm, which does not meets the requirement of IS: 12207-2019. This should be looked into for necessary corrective action.
- The backup torque is 36.2 %, which meets the requirement of IS: 12207-2019 with regard to tolerance limit.

14.3.1.2 Drawbar performance test:

- Maximum drawbar pull in case of previous & present sample with standard ballast corresponding to 15 percent wheel slip, was recorded as 22.73 kN & 21.18 kN respectively against the minimum requirement of 17.75 kN, which meets the requirement of IS: 12207-2019 with regard to tolerance limit.
- Maximum drawbar power with unballast in case of previous & present sample was recorded as 32.6 kW & 32.2 kW respectively against the minimum requirement of 30.2 kW in case of present sample, which meet the minimum requirement of IS: 12207-2019 with regard to tolerance limit.
- During ten hours drawbar performance test under ballasted condition, creeping of LHS & RHS tyre over the rim were observed as 15 & 20 mm. This should be looked into for necessary corrective action.

14.3.1.3 Hydraulic performance test:

- Maximum lifting capacity throughout the range of lift at hitch point and standard frame was recorded as 23.12 kN & 20.0 kN respectively against the declaration of 24.5 kN & 18.1 kN respectively, which meets the requirement of IS: 12207-2019 with regard to tolerance limit.



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- ii) The moment about rear axle at standard frame was calculated as 32.10 kN-m, whereas, the moment about front axle was calculated as 19.59 kN-m & 26.19 kN-m under unballasted & ballasted condition. The moment about rear axle at standard frame is on higher side as compared to the moment about front axle. It is therefore recommended that the lifting capacity of the hydraulic system may be reduced suitably or ballast mass recommendation may be reviewed to avoid the front lifting of the tractor.

14.3.1.4 Mechanical Vibration:

The amplitude of mechanical vibration on various assemblies marked as (*) in Chapter - B of this test report is on higher side. This calls for dampening down of vibrations especially on steering control wheel to improve the operational comfort.

14.3.1.5 Haulage Test:

During the haulage test with four wheel trailer, the abnormal noise was heard from the exhaust silencer & the tractor was unable to carry the load of trailer in SH-4 gear. On inspection, it was observed that the turbocharger assembly spares parts viz. turbine & compressor wheel shaft and O-ring seal were found broken. To rectify the problem persist in the turbocharger assembly, the following parts were replaced with new ones having same specifications.

Sr. No	Part description	Part number
i)	O-ring seal-4600888	3591805 (core of turbo)
ii)	Turbine wheel-3453672	
iii)	Compressor unit with shaft -3591801	
iv)	Lubrication unit/adaptor lubrication turbo-12112611	

The breakdown occurred in the turbocharger assembly has been considered as major breakdown (Mj-6) and the leakage from oil seal has been categorized as minor defect (Mn-9). This calls for introduction of stringent quality control measures at production level and improvements in the quality of parts used of turbocharger assembly on the tractor at manufacturing level.

14.3.1.6 Wet land cultivation (Puddling operation):

The manufacturer has not recommended the tractor for wetland cultivation (puddling operation). The declaration of the fact that the tractor is not suitable for wetland cultivation (puddling operation) should be mentioned clearly and boldly in all the literature relevant to this tractor model.

14.4 Maintenance / Service Problems:

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

14.5 Recommendation with regard to safety on tractor:

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

- There should be vertical retainness at inner side in clutch pedal
- Working clearance between auxiliary hydraulic lever & mud guard should be as per relevant standard.
- Inclination of seat towards rear direction.
- Longitudinal distance from SIP to center line of differential lock pedal.
- Grease lubricant frequency and oil lubricant type & frequency.

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**14.6 Adequacy of Literature supplied with machine:****14.6.1** The following literature was supplied with the tractor for reference during the test.

- i) Operator's manual (For New Holland 6010, New Holland 6510 & New Holland 7510 tractors model)
- ii) Service Parts catalogue (For New Holland 6010, New Holland 6510 & New Holland 7510 tractors model)
- iii) Service Manual (Part -I, II & III) (For 6010 NH 2 2WD TIER 3 ROPS, 6010 NH 4WD TIER 3 ROPS, 6510 NH 2WD TIER 3 ROPS, 6510 NH 4WD TIER 3 ROPS & 7510 tractor models)

14.6.2 The literatures should also be brought out in national as well as other regional languages for the guidance of users and service personnel.**15. Citizen charter**

Duration of Test	Time frame for testing & evaluation as per citizen charter	Whether the report released within time frame given in the citizen charter	Remark
09 Months (November, 2019 to July, 2020)	10 Months	Yes	(2.5 Months) 22-04-2020 to 03-07-2020. Delay due to break down during haulage test and lockdown due to COVID-19 pandemic.

TESTING AUTHORITY:
C.S. RAGHUWANSHI
AGRICULTURAL ENGINEER

C.V. CHIMOTE
TEST ENGINEER

J.J.R. NARWARE
DIRECTOR

Test Report compiled by Shri. Shiv Kumar Sharma, Senior Technical Assistant.

16. APPLICANT'S COMMENTS

Para no.	Our reference	Applicant comments
16.1	14.3.1.1 (iii), 14.3.1.2 (iii), 14.3.1.3 (ii), 14.3.1.4, 14.3.1.5 & 14.5	Your valuable comments & suggestion, for improvements are well taken. Under our policy of continuous product improvement these aspects are further being looked into & will take appropriate actions to eliminate these deviation soon wherever necessary.



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ANNEXURE - I

TRACTOR RUN HOURS DURING TEST

A.	LABORATORY AND TRACK TESTS	HOURS
1.	Running-in	100
2.	PTO Performance Test	10.0
3.	Power lift and hydraulic pump performance test	1.3
4.	Drawbar performance test	23.3
5.	Brake test	2.3
6.	Noise measurement	2.5
7.	Mechanical vibration test	1.2
8.	Nominal speed test	4.2
B.	HAULAGE TEST	5.0
C.	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test	20.5
TOTAL:		170.3