



**NEW HOLLAND, NEW HOLLAND 7500
TURBO SUPER 12+3 UG TRACTOR**



भारत सरकार
कृषि मंत्रालय
(कृषि एवं सहकारिता विभाग)

GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE
(DEPARTMENT OF AGRICULTURE & CO-OPERATION)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान
ट्रैक्टर नगर, बुदनी (म.प्र.) ४६६ ४४५

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T-833/1342/2012

**NEW HOLLAND, NEW HOLLAND 7500 TURBO SUPER
12+3 UG TRACTOR - Commercial (Initial)**

Manufacturer : M/s. New Holland Fiat (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 : Applicant
Place of running-in : At applicant'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. Hence method of selection is not known.**

1. SPECIFICATIONS

1.1 Tractor:
Make : NEW HOLLAND INDIA
Model : New Holland 7500 TURBO SUPER 12 + 3 UG

Variants. If any:

S. No.	Variant models	Variant features
1.	New Holland 7500 DT TURBO SUPER 12 + 3 UG (4 WD)	Four wheel drive version

*** The variant model has not been tested yet at this Institute.**

Type : **Four wheeled two wheel drive, General purpose, agricultural tractor.**
Year of manufacture : 2011
Chassis number : PD 0039
Country of origin : India

1.2 Engine:
Make : **Iveco**
Model : **8045.25.720**
Type : **Water cooled, four stroke Turbo charged direct injection ,diesel engine**
Serial number : **E20088**
Country of origin : **Italy**

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

- Maximum speed at no load : 2450-2600
- Low idle speed : 600-700
- Speed at maximum torque : 1200-1600
Rated speed, (rpm):
- For PTO use : 2300
- For drawbar use : 2300

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1.3 Cylinder Number Disposit Bore/stro Capacity applican Compre Type of Type of Type of Arrange Valve c - Inlet v - Exhau

1.4 Fuel S Type of

1.4.1 Fuel ta Capaci Locatio Provisi water Materi

1.4.2 Fuel f Make Type Model Provis Metho

1.4.3 Fuel f Make Mode Num Type Capa

1.4.4 Fuel Make Mode Type Serial Metho

1.4.5 Fuel Mak Mod Type Man setti Inje Fin



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14.6 Steering system:

Visual condition of the components of : Normal
complete steering assembly

14.7 Starter motor & Alternator:

Presence of soil/oil in housing : None
Condition of bearings and other : Normal
components

15. ADJUSTMENTS, DEFECTS, BREAKDOWNS AND REPAIRS

Sl. No.	Adjustments/Defects/Breakdowns and Repairs	Tractor run hours
1	The maximum PTO power was observed as 46.2 Kw against the declaration of 50.0 Kw. The fuel filters were replaced with new one. Thereafter The max. PTO power was observed as 48.1 Kw.	8.90

16. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

16.1 Evaluative (mandatory) / Non-evaluative (Non-mandatory) parameter applicable for qualifying Minimum Performance criteria as per Clause-4 (Table-1) of IS: 12207-2008 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: 12207-2008	Values declared by the applicant/ (D) Requirement (R)	As observed	Whether meets the requirements (Yes/No.)
1	2	3	4	5	6	7
16.1.1	PTO Performance :					
a)	Maximum power under 2 h test, (kW) (Natural ambient condition)	Evaluative	Declared value to be achieved with a tolerance of: -5 / +10% for PTO power >35hp. -7.5/+10% for PTO power ≤ 35 hp	50.0 (D)	48.1	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	50.0 (D)	47.6	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Non Evaluative	+ 5%	265 (D)	267	Yes
d)	Maximum equivalent crankshaft torque, (Nm)	Non Evaluative	± 8%	267 (D)	295.9	Yes
e)	Back-up torque, percent	Non Evaluative	10 percent, min.	10% (R)	41.8	Yes

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1	2	3	4	5	6	7	
f)	Maximum operating temperature, ($^{\circ}\text{C}$)						
	1)	Engine oil	Non 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.	132 (D)	118	Yes
	2)	Coolant (water)	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.	119 (D)	97	Yes
g)	Engine oil consumption, (g/kWh)		Evaluative	Not exceeding 1% of SFC at max. power under High ambient conditions	2.76 (R)	0.22	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)	0.75	Yes
16.1.2	Drawbar performance :						
a)	Maximum drawbar pull with ballast corresponding to 15 percent wheel slip, (kN)	Non Evaluative	Minimum 65% of static mass with ballast	25.43 (R)	29.34	Yes	
				25.50 (D) (Minimum)			
b)	Max. drawbar pull without ballast corresponding to 15 percent wheel slip, (kN)	Evaluative	Minimum 65% of static mass of tractor without ballast	17.66 (R)	22.15	Yes	
				17.85 (D) (Minimum)			
c)	Maximum drawbar power without ballast, (kW).	Evaluative	Min. 80% of PTO power as referred in 15.1.1 (a) of PTO performance	38.5 (R)	41.9	Yes	
				40.0 (D) (Minimum)			
d)	Maximum transmission oil temperature ($^{\circ}\text{C}$)	Non Evaluative	The declared value should not exceed the maximum value specified by oil company	132 (D)	100	Yes	
16.1.3	Power lift and hydraulic pump performance :						
a)	Maximum lifting capacity throughout the range of lift, (kN):						
	1)	At hitch points	Non Evaluative	[Tolerance of minus 10%]	19.0 (D)	19.61	Yes
	2)	With the standard frame	Evaluative	The lift capacity should at least be 16 kg/PTO hp. and it should be 16 kg/engine hp where the tractor is not provided with a PTO shaft	11.54 (R) (Minimum)	15.31	Yes
16.0 (D)							



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1	2	3	4	5	6	7
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 Minutes, (mm)	Non Evaluative	[Tolerance of plus 5 mm]	50 (R)	20	Yes
16.1.4 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)	7.28 to 8.12	Yes
2)	Hot brake	Evaluative	10	10 (R)	7.48	Yes
b)	Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 m/s ² (N)	Evaluative	600	600 (R)	278 to 323	Yes
c)	Whether parking brake is effective at a force of 600 N at foot pedal(s) or 400 N at hand lever	Evaluative	Yes / No	Yes (R)	Yes	Yes
16.1.5 Noise measurement :						
a)	Maximum ambient noise emitted by the tractor dB(A)	Evaluative	As per CMVR	88 (Maximum) (R)	85	Yes
b)	Maximum noise at operator's ear level dB(A)	Evaluative	As per CMVR	98 (Maximum) (R)	98	Yes
16.1.6 Amplitude of mechanical vibrations at :						
1)	Left foot rest	Non Evaluative	100 microns (max)	100 (Maximum) (R)	100	Yes
2)	Right foot rest				100	Yes
3)	Seat (with driver seated)				30	Yes
4)	Steering Wheel				100	Yes
16.1.7 Haulage requirements :						
a)	Gross mass of the trailers, (tones):					
1)	Two wheel	Non Evaluative	--	5.0 (D)	5.0	Yes
2)	Four wheel	Evaluative	--	8.0 (D)	8.0	Yes
b)	Distance travelled / litre of fuel consumption, (km/l):					
1)	Two wheel	Non Evaluative	--	4.0 to 5.0 (D)	2.88 to 2.94	No
2)	Four wheel	Evaluative	--	5.0 to 6.0 (D)	2.70 to 2.76	No
c)						
1)	Two wheel	Non Evaluative	--	29.0 to 31.0 (D)	68.0 to 69.5	No
2)	Four wheel	Evaluative	--	34.0 to 36.0 (D)	45.3 to 46.3	No

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1	2	3	4	5	6	7	
16.1.8	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	Manufacturer does not recommend the tractor for puddling operation	---	
	1) Clutch assembly	-do-					
	2) Brake housings	-do-					
3) Front axle hubs	-do-						
16.1.9	Safety features :						
a)	Guards against moving and hot parts	Evaluative	As per CMVR	At present no requirements	provided	Yes	
b)	Lighting arrangement	Evaluative	As per CMVR	--	Provided	Yes	
16.1.10	Labelling of tractors (Provision of labelling plate):						
1)	Make	Evaluative	Should conform to the requirements of CMVR along-with declared value of PTO HP	--	New Holland India	Yes	
2)	Model	Evaluative		--	New Holland 7500 Turbo Super 12+3 UG	Yes	
3)	Year of manufacture	Evaluative		--	L1 04 (2011, April)	Yes	
4)	Engine number	Evaluative		--	E 20088	Yes	
5)	Chassis number	Evaluative		--	PD 0039	Yes	
6)	Declaration of PTO power, kW(Ps)	Evaluative		--	50.0 (67.0)	Yes	
16.1.11	Discard limit for:						
(a)	Cylinder bore diameter, (mm)	Evaluative	To be specified by the manufacturer	104.204 (D)	104.01 to 104.04	Yes	
(b)	Clearance between piston & cylinder liner at skirt, (mm)	Non Evaluative		0.50 (D)	0.161 to 0.185	Yes	
(c)	Ring end gap (mm):						
-	Top comp ring.	Evaluative	-do-	1.32	0.55	Yes	
-	2 nd comp. ring		-do-	1.32	0.75 to 0.80	Yes	
-	Oil ring.		-do-	1.80	0.40 to 0.45	Yes	
(d)	Ring groove clearance (mm):						
-	Top comp. ring.	Evaluative	-do-	0.70	0.109 to 0.113	Yes	
-	2 nd comp. ring.		-do-	0.40	0.051 to 0.066	Yes	
-	Oil ring.		-do-	0.40	0.042 to 0.046	Yes	



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1	2	3	4	5	6	7	
(e)	Clearance of main bearings (mm):						
	-	Diametrical clearance	Evaluative	To be specified by the manufacturer	0.50	0.071 to 0.135	Yes
	-	Crankshaft end float	Evaluative		0.50	0.15	Yes
(f)	Clearance of big end bearings, (mm):						
	-	Diametrical	Evaluative	-do-	0.50	0.069 to 0.091	Yes
	-	Axial	Evaluative	-do-	0.75	0.30	Yes
(g)	Clearance between king pin and bush, (mm)		Non Evaluative	-do-	0.4	0.12 to 0.15	Yes
(h)	Clearance between centre pin and bush, (mm)		Non Evaluative	-do-	0.5	0.19 to 0.24	Yes

16.1.12 CATEGORY OF BREAKDOWNS / DEFECTS :					
S. No.	Category of breakdowns	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2008	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 five 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

16.2 Optional requirements as per Clause-4 (Table-2) of IS:12207-2008:

S. No.	Characteristic	Requirements as per IS: 12207-2008	AS observed	Whether meets the requirements (Yes/No.)
1	2	3	4	5
1	Maximum oil pull over, (%)	0.25% (max.)	Not Applicable	---
2.	Seating requirements	Should meet the requirements of IS: 12343-1998	Meets the requirements	Yes
3.	Fitment of ROPS	With a provision for fitment of ROPS.	Not provided	No
		If ROPS fitted it should meet the requirement of IS: 11821-1992	ROPS not fitted	--
4.	Technical requirements for PTO shaft	Should meet the requirements of IS: 4931 -1995	Does not meets the requirements	No



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1	2	3	4	5
5.	Dimensions of three point linkage	Should meet the requirements of IS: 4468 (Part-I)-1997	Does not meets the requirements	No
6.	Specifications of linkage drawbar	Should meet the requirements of IS: 12953-1990.	Meets the requirements	Yes
	Specification of swinging drawbar	Should meet the requirements of IS: 12362 Part 3-1994.	Not provided	--
7.	Accessories	Trailer hitch, front tow hook, linkage drawbar may be provided.	Provided	Yes

16.3 Conformity with following IS:

- i) Guidelines for declaration of power and specific fuel consumption and labeling of agricultural tractors (First revision) [IS 10273:1987 (Reaffirmed in March, 2009)] : Conforms
- ii) Agricultural tractors – Rear mounted power take-off - Types 1, 2 and 3(third revision)[IS: 4931-1995 (Reaffirmed in March, 2009)] : Does not conform
- iii) Agricultural wheeled tractors - Rear mounted three-point linkage: Part 1 Categories 1, 2, 3 & 4 (fourth revision) [IS 4468 (Part-I):1997 (Reaffirmed in March, 2007)/ISO 730-1:1994] : Does not conform
- iv) Drawbar for agricultural tractors – Link type [IS 12953:1990 (Reaffirmed in March, 2007)] : Conforms
- v) Agricultural tractors - Operator's seat technical requirement [IS 12343 -1998 (First revision) (Reaffirmed in March, 2009)] : Conforms
- vi) Guide for safety & comfort of operator of agricultural tractors: Part 1 General requirements (first revision) : [IS 12239 (PT-1)-1996 (Reaffirmed in March, 2009)/ISO 4254-1:1989] : 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 in March, 2009)] : Does not conform
- viii) Tractors and machinery for agriculture and forestry, powered lawn and garden equipment – Symbols for operator controls and other displays [IS: 6283 (Part-1 & Part-2) -2006 & 2007(Reaffirmed in March, 2009)/ ISO 3767-2:1991)] : Conforms
- ix) Guide lines for location and operation of operator controls on agricultural tractors and machinery (first revision) (IS: 8133 – 1983) (Reaffirmed in March, 2009)] : Conforms
- x) Agricultural Tractor & Machinery Lighting device for travel on public roads (IS: 14683-1999) (Reaffirmed in March, 2009)] : Conforms



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16.4 Salient Observations:

16.4.1 Laboratory tests:

16.4.1.1 PTO Performance:

- i) The backup torque is. **41.78%**.
- ii) The specific fuel consumption corresponding to maximum power was measured as **267 g/kWh** against the declaration of 265 g/kWh, which is within the tolerance limit of IS: 12207-2008.

16.4.1.2 Mechanical Vibration:

The amplitude of mechanical vibration on various assemblies marked as (*) in Chapter-9 of this test report is on higher side, especially at mud guard and battery base. This calls for dampening down of vibrations to improve the operational comfort and service life of components.

16.4.1.3 Three point linkage:

Distance from end of power take-off to centre of lower hitch point does not meet the requirements of **IS-4468-(Part I)-1997**. This should be looked into

11.4.1.4 Specifications of Power Take Off Shaft:

The dimensions 'dø' of the Power take-off shaft does not meet the requirement of IS: 4931-1995. This should be looked into for necessary corrective action.

16.4.1.5 Power take off shaft master shield :

The Power take off shaft master shield is not provided. It should be provided as per requirements of IS 12239-1999 (Part II)

16.4.2 Field performance test:

16.4.2.1 Wet land cultivation (Puddling operation):

The manufacturer has recommended that the tractor is not suitable for wetland cultivation (puddling operation). Hence, the wetland cultivation (puddling operation) was not conducted. **Therefore, 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 and also on the bonnet of the tractor.**

16.5 Maintenance / Service Problems:

No service/maintenance problem was observed during testing of tractor , however the possibility of providing pre air cleaner should be explored to enhance the air clening efficiency during heavy dusty condition operations.

16.6 Recommendation with regard to safety on tractor:

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

- i) Provision for spark arresting device in exhaust system.
- ii) Vertical retainness in not provided on both sides of clutch and inner brake pedal.It should be provide as per requirements of IS 12239-(Part I)
- iii) Power take off master shield should be provided for safety.

16.7 Adequacy of Literature supplied with machine:

The following literature has been supplied with the tractor

- i) Operator's manual 7500,6500,5500 Turbo super tractors
- ii) Service manual 7500, 6500, 5500 Turbo super tractors
- iii) Part's catalogue 5500/ 6500/ 7500 tractors



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The following point should be incorporated in the operator's manual.

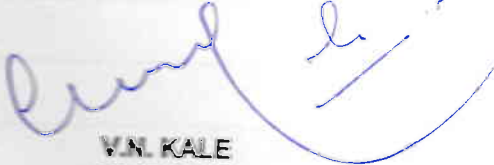
- a) List of standard fitments.
- b) Fuel saving tips
- c) List of matching implements and trailer

16.6.4 The literatures should also be brought out in national as well as other regional languages for the guidance of users and service personnel.

TESTING AUTHORITY:


R.K.NEMA
AGRICULTURAL ENGINEER


H.L.YADAV
SENIOR AGRICULTURAL ENGINEER


V.N. KALE
DIRECTOR

17. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's comments
17.1	1.14.2 & 16.3 (ii), 1.13.2(v) & 16.3 (iii), 1.20.4 & 16.3(vi)	Your valuable comments & suggestions 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 deviations soon wherever necessary.



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ANNEXURE - I

TRACTOR RUN HOURS DURING TEST

A.	LABORATORY AND TRACK TESTS:	HOURS
1.	Running-in	--
2.	PTO performance test	13.06
3.	Power lift and hydraulic pump performance test	3.43
4.	Drawbar performance test	15.0
5.	Turning ability	0.70
6.	Location of centre of gravity	0.50
7.	Operator's field of vision	0.30
8.	Brake test	1.50
9.	Noise measurement	1.50
10.	Mechanical vibration test	1.0
11.	Theoretical speed test	0.75
B.	FIELD TEST:	
1.	Disc ploughing	15.5
2.	Rotavation	20.0
C.	HAULAGE TEST:	8.41
D.	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test	9.31
	TOTAL:	90.96

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ANNEXURE - II

BRIEF SPECIFICATION OF IMPLEMENTS USED DURING FIELD TEST

S. No.	Item	Disc plough	Rotavator
1.	Make	Mahindra & Mahindra Ltd	Shaktimaan
2.	Type	Mounted	Mounted
3.	No. of disc/blades	Four	48, in 9 flanges
4.	Type of discs/blades	Plain, concave	Hatchet
5.	Size of discs/blades.(mm)	665	130X70X5
6.	Spacing of discs/flanges.(mm)	505	245
7.	Lower hitch point span.(mm)	860	835
8.	Mast height (mm)	415	610
9.	Overall dimensions,(mm):		
	- Length	2415	1115
	- Width	970	2040
	- Height	1145	1130
10	Gross mass, (kg)	430	525