

व्यावसायिक परीक्षण रिपोर्ट

संख्या/ No.: COMB.-251/2781/2022

COMMERCIAL TEST REPORT (FIRST BATCH)

माह/Month: January, 2022

**THIS TEST REPORT VALID UP TO : 31<sup>st</sup> January, 2027**



**CLAAS DOMINATOR 40 TERA TRAC,  
SELF PROPELLED COMBINE HARVESTER,  
TRACK TYPE (FIRST BATCH)**



भारत सरकार

**Government of India**

कृषि एवं किसान कल्याण मंत्रालय

**Ministry of Agriculture and Farmers Welfare**

कृषि एवं किसान कल्याण विभाग

**Department of Agriculture and Farmers Welfare**

उत्तरी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

**Northern Region Farm Machinery Training and Testing Institute**

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**12.1.5.2 Big end bearings**

Bearing No.	Clearance, mm		Permissible wear limit, mm	
	Diametrical	Axial	Diametrical	Axial
1	0.10	0.20	0.20	0.50
2	0.07	0.25		
3	0.11	0.25		
4	0.09	0.20		

**12.1.6 Valves and valve guides**

**Observation**

Any marked sign of overheating of valves :  
 Pitting of seat/faces of valves :  
 Spring stiffness, N/mm (kgf/mm)  
 Inlet valve spring : 36.32 to 37.26 (3.70 to 3.80)  
 Exhaust valve spring : 35.40 to 37.83 (3.61 to 3.85)

**Clearance between valve guide and valve stem(mm):**

**Observations**

**Discard limit**

- Inlet valve	: 0.04 to 0.05	0.20
- Exhaust valve	: 0.03 to 0.06	0.25

**12.2 Steering system**

Visual condition of the components of complete steering assembly : No noticeable defect observed.

**12.3 Chains, sprockets and belts**

Visual condition of the components of complete assembly : No noticeable defect observed.

**12.4 Bearings**

Visual condition of the components of complete assembly : No noticeable defect observed.

**13. SUMMARY OF OBSERVATIONS**

**13.1 ENGINE PERFORMANCE TEST**

**Table-1: ENGINE PERFORMANCE TEST (NATURAL AMBIENT)**

Brake Power kW	Engine speed (rpm)	Fuel consumption			Specific energy, kWh/l
		l/h	kg/h	Specific, kg/ kWh	
(1)	(2)	(3)	(4)	(5)	(6)
<b>a) Maximum power – 2 hours test</b>					
57.8	2225	17.15	14.10	0.244	3.40

<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>
<b>b) Power at rated engine speed: (2200 rpm)</b>					
57.3	2200	17.02	14.01	0.245	3.37

**Table-2: ENGINE TEST (HIGH AMBIENT)**

Brake power (kW)	Engine speed (rpm)	Fuel consumption			Specific energy, kWh/l
		l/h	kg/h	Specific, kg/kWh	
(1)	(2)	(3)	(4)	(5)	(6)
<b>a) Maximum power -</b>					
57.0	2246	17.10	13.97	0.245	3.34
<b>b) Power at rated engine speed (2200 rpm)</b>					
56.6	2200	17.49	14.31	0.253	3.24

**13.2 Conformity to Indian Standard**

- |              |  |                                   |
|--------------|--|-----------------------------------|
| <b>(i)</b>   | IS: 6025-1982 (Reaffirmed 2014)-Specification for knife section for harvesting machine.  | <b>Partially Does not conform</b> |
| <b>(ii)</b>  | IS: 6024-1983 (Reaffirmed 2014)-Specification for guards for harvesting machines.  | <b>Not applicable</b>             |
| <b>(iii)</b> | IS: 10378-1982 (Reaffirmed 2016)-Specification of knife back for harvesting machine.   | <b>Partially Does not conform</b> |
| <b>(iv)</b>  | IS: 6283 (Part I & Part II)-2007(Reaffirmed 2014)- Tractors and machinery for agriculture and forestry- symbol for operator controls and other displays. | Conforms                          |
| <b>(v)</b>   | IS: 8133-1983 (Reaffirmed 2014)-Guidelines for location & operation of operator controls on agricultural tractors and machinery.                         | Conforms                          |
| <b>(vi)</b>  | IS: 15806-2018 (Combine Harvester recommendation on selected performance and other characteristics   | Conforms                          |

#### 14. SELECTED PERFORMANCE AND OTHER CHARACTERISTICS

##### 14.1: Acceptance Criteria for Performance Characteristics as per clause/Para 4.1 of IS: 15806-2018.

S. No	Characteristics	Category (Evaluative/Non evaluative)	Requirement (R)/ Declaration (D)	Tolerance	Observed	Remarks
1	2	3	4	5	6	7
<b>I. Prime mover performance</b>						
	a) Max. power (absolute) average max. Power observed during 2 hrs. max. power test in natural ambient condition, kW	Evaluative	56 (D)	±5% of declared value	57.8	Conforms
	b) Max. power observed during test after adjusting the no load engine speed as per recommendation of the manufacturer for field work, kW	Evaluative	56 (D)	±5% of declared value	57.8	Conforms
	c) Power at rated engine speed, kW (under natural ambient condition)	Non-evaluative	56 (D)	±5% of declared value	57.3	Conforms
	d) Specific fuel consumption corresponding to average maximum power under 2 h maximum power test, g/kWh.	Evaluative	235 (D)	+5% of declared value	244.4	Conforms
	e) Max. Smoke density (Bosch no) at 80% load between the speed at max. Power and 55% of speed at max. Or 1000 rpm whichever is higher	Evaluative	As per Central Motor Vehicles, Rules (CMV) Rules (R)	Nil	2.50	Conforms

1	2	3	4	5	6	7
	<b>f)</b> Max. Crank shaft torque, (Nm) observed during the test after no load engine speed is adjusted as per manufacture's recommendation for field work	Evaluative	275 <b>(D)</b>	±8%	276.2	Conforms
	<b>g)</b> Back up torque, % (Natural Ambient)	Evaluative	7 % min. <b>(R)</b>	Nil	11.37	Conforms
	<b>h)</b> Max. Operating temperature, C° i) Engine oil ii) Coolant	Evaluative	i) 130 <b>(D)</b> ii) 110 <b>(D)</b>	Nil	i) 101.6 ii) 87.5	Conforms
	<b>i)</b> Lubrication oil consumption, g/kWh	Evaluative	Not exceeding 1 % of SFC at maximum power (high ambient condition) <b>(R)</b>	Nil	0.625	Conforms

**II. Brake performance at 24 km/h or maximum speed whichever is less**

	<b>a)</b> Max. Stopping distance at a force equal to or less than 600 N on brake pedal (m)- (cold brake and hot brake)	Evaluative	As per requirement of CMVR <b>(R)</b>	<b>Not applicable</b>		
	<b>b)</b> Max. Force exert on brake pedal to achieve a deceleration of 2.5 m/sec <sup>2</sup> (N)	Evaluative	≤ 600 N <b>(R)</b>			
	<b>c)</b> Effectiveness of parking brake at a force of 600 N at foot pedal or 400 N at hand lever	Evaluative	As per requirement of CMVR <b>(R)</b>			



**III. Mechanical vibration**

	<b>a)</b> Operator's platform	Non-evaluative	120 µm max.	Nil	183	<b>Does not conform</b>
	<b>b)</b> Steering control wheel/ Lever for front and rear	Non -evaluative	150 µm max.	Nil	296	<b>Does not conform</b>
	<b>c)</b> Seat with driver seated	Non -evaluative	120 µm max.	Nil	206	<b>Does not conform</b>

1	2	3	4	5	6	7
<b>IV. Air cleaner oil pull over</b>						
	a) Air cleaner oil pull over in % when tested in accordance with IS 8122 part (II) 2000	Evaluative	0.20max.	Nil	Dry type air cleaner provided hence test is not applicable	Not applicable
<b>V. Noise measurement</b>						
	a) Max. ambient noise emitted by combine at bystanders position dB (A)	Evaluative	As per CMV rules (R)	Nil	84	Conforms
	b) Max. noise at operator's ear level dB (A)	Evaluative	As per CMV rules (R)	Nil	97	Conforms
<b>VI. Header lifting Test</b>						
	a) Satisfactory completion of header lifting test	Evaluative	-	Nil	Satisfactory completed	Conforms
<b>VII. Discard limit</b>						
	a) Cylinder bore diameter, mm	Evaluative	97.135 (D)	Nil	97.01	Conforms
	b) Piston diameter, mm	Evaluative	96.755 (D)	Nil	96.89	Conforms
	c) Piston to cylinder liner clearance at skirt	Evaluative	0.245 (D)	Nil	0.012	Conforms
	d) Ring end gap, mm i) Top compression ring ii) 2 <sup>nd</sup> compression ring iii) Oil ring	Evaluative	i) 1.5 (D) ii) 1.5 (D) ii) 1.5 (D)	Nil	i) 0.35 ii) 0.55 ii) 0.35	Conforms
	e) Ring groove clearance, mm 1. Top compression ring 2. 2 <sup>nd</sup> compression ring 3. Oil ring	Evaluative	i) 0.15 (D) ii) 0.15 (D) ii) 0.15 (D)	Nil	i) Tapered ii) 0.07 ii) 0.03	Conforms
	f) Diametrical and axial clearance of big end bearing, mm  Diametrical Axial	Evaluative	0.20 (D) 0.50 (D)	Nil	0.11 0.25	Conforms

<b>16.10</b>	<b>Colour of Combine:</b>		
	Reel assembly	:	Blood orange Blood orange
	Conduct pipe canopy cover	:	Light gray Light gray
	Engine components and electrical components	:	Gray Gray
	Sheet metal and combine components	:	Seed green Seed green

**TESTING AUTHORITY**

Er. SANJAY KUMAR AGRICULTURAL ENGINEER	
Dr. MUKESH JAIN DIRECTOR	 31.01.2022

Draft test report compiled by: C. Veeranjanyulu, Senior Technician

**17. APPLICANT'S COMMENTS**

Recommendations and suggestions will be studied and appropriate action will be taken.