व्यावसायिक परीक्षण रिपोर्ट (प्रथम बैच परीक्षण रिपोर्ट) संख्या / No. : T-1438/1965/2020 COMMERCIAL TEST REPORT (1st Batch Test) माह / Month : May, 2020

(यह परीक्षण रिपोर्ट 31/05/2025 तक वैध है। / THIS TEST REPORT IS VALID UP TO : 31/05/2025)



# MAHINDRA, 255 DI POWER + TRACTOR (Brand Name : Bhoomiputra)



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 (An ISO : 9001 - 2015 Certified Institute)

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	1. SPECIFICATION						
1.1	Tractor:						
	Make	:	Mahindra				
	Model	:	255 DI Power +				
	Brand name		Bhoomiputra				
	Variants, if any	:	None				
	Туре	:	Four wheel, Rear-wheel drive, General				
			Purpose, Unit construction, Agricultural Tractor				
	Year of manufacture	:	J.J				
	Chassis number	:	MBNAAABFLJRJ00565				
	Country of Origin	:	INDIA				
1.2	Engine:						
	Make	:	Mahindra				
	Model		MDI 1500 3A				
	Туре	:	Four stroke, naturally aspirated, liquid				
	.)po	•	cooled, direct injection, diesel engine				
	Serial number		RJJ3AAZ0756				
	Year of manufacture		Not available				
	Country of origin		India				
1.2.1							
1.2.1	Engine speed (rpm), (Manufacturer's	rec	2250 to 2350				
	<ul> <li>Maximum speed at no load</li> <li>Low idle speed</li> </ul>	:	750 to 850				
		÷					
	- Speed at maximum torque	•	1100 to 1300				
	Rated speed, (rpm): - For PTO use	-	2100				
	-	•	2100				
4.0	- For drawbar use	•	2100				
1.3	Cylinder & Cylinder Head:	_	Tur				
	Number	÷	Two				
	Disposition	÷	Vertical, Inline				
	Bore/stroke, (mm)	÷	88.9 / 120				
	Capacity as specified by the applicant, (cc)	:	1490 (apa)				
	Compression ratio	:	20.4 : 1 +/-1				
	Type of cylinder head	:	Monoblock				
	Type of cylinder liners		Wet, Replaceable				
	Type of combustion chamber		Re-entrant bowl				
	Arrangement of valves		Overhead,				
	Valve clearance (Cold/Hot):	-	······				
	- Inlet valve, (mm)	:	0.40 / 0.30				
	- Exhaust valve, (mm)		0.50 / 0.40				
1.4	Fuel System:						
	Type of fuel feed system	:	Gravity and force feed				
1.4.1	Fuel tank:						
	Capacity, (I)		48.4				
	Location	:	Above clutch housing				
	Provision for draining of sediments/	:	Drain plug provided at the bottom of fuel				
	water	•	tank on RHS.				
	Material of fuel tank		Metallic				
1.4.2	Water separator	:	Not provided				
		•					
1.4.3	Fuel feed pump:		Papah India				
	Make		Bosch, India				
	Type Model/Group combination No.	:	Plunger with hand primer				
	Model/Group combination No.	-	FP/KSG22AD104, F002 A50 038				
	Provision of sediment bowl	:	Provided				
	Method of drive	•	Through cam shaft of fuel injection pump				

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#### 14.4 Salient Observations:

#### 14.4.1 Laboratory test:

#### Previous Sample

#### 14.4.1.1 PTO Performance Test:

- The maximum PTO power was recorded as 16.0 kW against the declaration of 15.8 kW, which meets the requirement of IS: 12207-2014 with regard to tolerance limit.
- ii) The specific fuel consumption corresponding to maximum power was measured as 253 g/kWh against the declaration of 252 g/kWh, which is within the tolerance limit of IS: 12207-2014.
- iii) The maximum equivalent crankshaft torque was recorded as 93.8 N-m against the declaration of 100 N-m, which meets the permissible limit as specified in IS: 12207-2014.
- iv) The backup torque is 28.7 % and meet the requirement of IS: 12207-2014

#### 14.4.1.2 Drawbar Performance Test:

During drawbar performance creeping of tyre over rim was observed as 55 mm & 60 mm for LHS and RHS tyres respectively, which is on higher side and calls for necessary corrective action.

#### 14.5 Adequacy of literature:

# Following literature of tractor model was supplied with the test sample for reference during the test.

- a) Operator's manual
- b) Parts catalogue
- c) Service manual
- a) Operator's manual
- b) Parts catalogue
- c) Service manual

#### 15. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

15.1 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:

S. No.	Characteristic	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2019	Values declared by the applicant (D) / Requirement (R)	As obser ved	Whether meets the require- ments (Yes/No)
1	2	3	4	5	6	7
15.1.1	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 $\leq$ 26 kW.	15.8 (D)	15.6	Yes

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#### Present Sample

- i) The maximum PTO power was recorded as **15.6 kW** against the declaration of **15.8 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 255 g/kWh against the declaration of 252 g/kWh, which is within the tolerance limit of IS: 12207-2014.
- iii) The maximum equivalent crankshaft torque was recorded as 86.2 N-m against the declaration of 100 N-m, which does not meet the permissible limit as specified in IS: 12207-2019.
- iv) The backup torque is **21.6 %** and meet the requirement of IS: 12207-2019
- i) During 10 hours drawbar performance test, creeping of LHS & RHS rear tyre over the rims was recorded as 10 mm & 15 mm respectively. This should be looked into for necessary corrective action.

1		2	3	4	5	6	7
b)	Pow	er at rated	Non	-do-	15.8 (D)	15.6	Yes
		ne speed, (kW)	Evaluative	-40-	13.0 (D)	15.0	163
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)		Evaluative	+ 10% Max.	252 (D)	255	Yes
d)	Maxi	mum equivalent (shaft torque,	Non Evaluative	± 8%	100(D)	86.2	No
e)	Back perce	-up torque, ent	Evaluative	12 percent, min.	12 (D) 12 (R)	21.6	Yes
f)	Maxi	imum operating t					
	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.	130 (D)	115	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.	112 (D)	101	Yes
g)	Engine oil consumption, (g/kWh)		Evaluative	Not exceeding 1% of SFC at max. power under High ambient conditions	2.52 (R) Maximum	1.01	Yes
h)	Smoke level, (m <sup>-1</sup> )		Evaluative	Maximum light absorption coefficient of 3.25 per meter or equivalent BOSCH No. 5.2 or 75 Hat ridge value ( <b>As per</b> <b>CMVR</b> )	3.25 (R)	2.68	Yes
15.1.2		vbar performan					
a)	with	num drawbar pull ballast sponding to 15	Non Evaluative	Minimum 70% of static mass with ballast	14.85(D)	18.86	Yes
	perce (kN)	ent wheel slip,			14.76 (R) Minimum	10.00	
b)	Maxii pull		Evaluative	Minimum 70% of static mass of tractor without/	12.00 (D)		
	balla	st corresponding 5 percent wheel (kN)		standard ballast	11.81 (R) Minimum	14.01 Yes	
c)	Maximum drawbar power with <b>standard</b> ballast as the case may be, 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.	12.6(D) 12.5 (R) Minimum	15.0	Yes
d)	trans	imum smission oil perature (°C)	Evaluative	The declared value should not exceed the maximum value specified by oil company.	110 (D)	78	Yes

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15.1.3       Power lift and hydraulic pump performance :         a)       Maximum lifting capacity throughout the range of lift, (kN):         1)       At hitch points       Evaluative       ±10 percent       11.7 (D)       12.11       Ye         2)       With the standard frame 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       3.72       Minimum (R)       9.25       Ye         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)       Evaluative       The observed value should not exceed 50 mm       50 (D)       50 (R) Maximum       Ye         15.1.4       Brake performance at 25 kmph:       Maximum stopping distance at a force equal to or less than 600 N on brake pedal w road ballast, (m):       1)       Cold brake       Evaluative       10       10 (R)       9.0       Ye         b)       Maximum force exerted on the brake       Evaluative       10       10 (R)       9.1       Ye	7 Yes Yes with Yes Yes
a)       Maximum lifting capacity throughout the range of lift, (kN):         1)       At hitch points       Evaluative       ±10 percent       11.7 (D)       12.11       Ye         2)       With the standard frame       Evaluative       ±10 percent       11.7 (D)       12.11       Ye         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       3.72       Minimum (R)       9.25       Ye         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       Non       The observed value should not exceed 50       50 (D)       50       Ye         15.1.4       Brake performance at 25 kmph:       Maximum stopping distance at a force equal to or less than 600 N on brake pedal w road ballast, (m):       10 (R) 9.0       Ye         1)       Cold brake       Evaluative       10       10 (R) 9.1       Ye         2)       Hot brake       Evaluative       600       600 (R)       502         2)       Hot brake       Evaluative       600       600 (R)       502         2)       Hot brake       Evaluative       600       600 (R)       502         2)       Hot brake	Yes Yes with Yes Yes
1)At hitch pointsEvaluative±10 percent11.7 (D)12.11Ye2)With the standard frameEvaluativeThe 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 shaft7.8 (D)3.72b)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 EvaluativeThe observed value should not exceed 50 mm50 (D) 50 (R) Maximum50Ye15.1.4Brake performance at 25 kmph:Image: standard frame exerted on the brakeEvaluative1010 (R)9.0Yeb)Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 (N)Evaluative600600 (R)502 to Yec)Whether parkingEvaluative1010 (R)9.1Ye	Yes Yes with Yes Yes
2)With the standard frameEvaluativeThe 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 shaft7.8 (D)3.72 Minimum (R)9.25Yeb)Maximum drop in the height of the point of application of the force after each 5 minutes interval for a 	Yes Yes with Yes Yes
a)standard frameEvaluativeleast be 24 kg/PTO kW. and it should be 21.5 kg/engine kW where the tractor is not provided with a PTO shaft3.72 Minimum (R)9.25Yeb)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 	Yes with Yes 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       The observed value should be 21.5 kg/engine kW where the tractor is not provided with a PTO shaft       50 (D)       50 (D)       50       Ye         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)       Evaluative       Should not exceed 50 mm       50 (D)       50 (R)       Maximum       Ye         15.1.4       Brake performance at 25 kmph:       Maximum stopping distance at a force equal to or less than 600 N on brake pedal w road ballast, (m):       10 (R) 9.0 Ye         1)       Cold brake       Evaluative       10       10 (R) 9.1 Ye         b)       Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 m/s <sup>2</sup> (N)       Evaluative       600       600 (R)       502 restrict to Ye         c)       Whether parking       Evaluative       10       10 (R) 9.1 Ye       Ye	Yes with Yes 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 EvaluativeThe observed value should not exceed 50 mm50 (D) 50 (R) Maximum50 Ye for (R) Maximum15.1.4Brake performance at 25 kmph:a)Maximum stopping distance at a force equal to or less than 600 N on brake pedal w road ballast, (m):10 (R) 9.0 Yeb)Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 	Yes with Yes 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       The observed value should not exceed 50 mm       50 (D)       50 (R) Maximum         15.1.4       Brake performance at 25 kmph:       Maximum stopping distance at a force equal to or less than 600 N on brake pedal w road ballast, (m):       10 (R)       9.0 Ye         1)       Cold brake       Evaluative       10       10 (R)       9.1 Ye         2)       Hot brake       Evaluative       10       10 (R)       9.1 Ye         b)       Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 m/s <sup>2</sup> (N)       Evaluative       600       600 (R)       502 for Ye         c)       Whether parking       Evaluative       600       600 (R)       526 for Ye	with Yes 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 EvaluativeThe observed value should not exceed 50 mm50 (D) 50 (R) Maximum50 YeYe15.1.4Brake performance at 25 kmph:a)Maximum stopping distance at a force equal to or less than 600 N on brake pedal w road ballast, (m):1)Cold brakeEvaluative1010 (R)9.0Ye2)Hot brakeEvaluative1010 (R)9.1Yeb)Maximum force exerted on the brake pedal to achieve a 	with Yes Yes
height of the point of application of the force after each 5 minutes interval for a total duration of 30 minute, (mm)       Evaluative       should not exceed 50 mm       50 (R) Maximum         15.1.4       Brake performance at 25 kmph:       a       Maximum stopping distance at a force equal to or less than 600 N on brake pedal w road ballast, (m):         1)       Cold brake       Evaluative       10       10 (R)       9.0       Ye         2)       Hot brake       Evaluative       10       10 (R)       9.1       Ye         2)       Hot brake       Evaluative       600       600 (R)       502 for ye         b)       Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 m/s <sup>2</sup> (N)       Evaluative       600       600 (R)       to Ye         c)       Whether parking       Evaluative       600       600 (R)       to Ye	with Yes Yes
application of the force after each 5 minutes interval for a total duration of 30 minute, (mm)       mm       Maximum <b>15.1.4</b> Brake performance at 25 kmph:         a)       Maximum stopping distance at a force equal to or less than 600 N on brake pedal w road ballast, (m):         1)       Cold brake       Evaluative       10       10 (R)       9.0       Ye         2)       Hot brake       Evaluative       10       10 (R)       9.1       Ye         2)       Hot brake       Evaluative       10       10 (R)       9.1       Ye         b)       Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 m/s <sup>2</sup> (N)       Evaluative       600       600 (R)       to Ye         c)       Whether parking       For year in the stace pedal in the	Yes Yes
force after each 5 minutes interval for a total duration of 30 minute, (mm)       interval for a total duration of 30 minute, (mm)       interval for a total duration of 30 minute, (mm)         15.1.4       Brake performance at 25 kmph:         a)       Maximum stopping distance at a force equal to or less than 600 N on brake pedal w road ballast, (m):         1)       Cold brake       Evaluative         2)       Hot brake       Evaluative         2)       Hot brake       Evaluative         b)       Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 m/s <sup>2</sup> (N)       Evaluative         c)       Whether       parking	Yes Yes
minutes interval for a total duration of 30 minute, (mm)15.1.4Brake performance at 25 kmph:a)Maximum stopping distance at a force equal to or less than 600 N on brake pedal w road ballast, (m):1)Cold brakeEvaluative1)Cold brakeEvaluative2)Hot brakeEvaluative1010 (R)9.12)Hot brakeEvaluative600600 (R)502pedal to achieve a deceleration of 2.5 m/s² (N)Evaluativec)Whetherparking	Yes Yes
minute, (mm)15.1.4Brake performance at 25 kmph:a)Maximum stopping distance at a force equal to or less than 600 N on brake pedal w road ballast, (m):1)Cold brakeEvaluative1010 (R)9.0Ye2)Hot brakeEvaluative1010 (R)9.1Yeb)Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 m/s² (N)Evaluative600600 (R)toYec)Whether parkingparkingImage: constraint of the second	Yes Yes
15.1.4       Brake performance at 25 kmph:         a)       Maximum stopping distance at a force equal to or less than 600 N on brake pedal w road ballast, (m):         1)       Cold brake       Evaluative       10       10 (R)       9.0       Ye         2)       Hot brake       Evaluative       10       10 (R)       9.1       Ye         b)       Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 m/s <sup>2</sup> (N)       Evaluative       600       600 (R)       to Ye	Yes Yes
a)       Maximum stopping distance at a force equal to or less than 600 N on brake pedal w road ballast, (m):         1)       Cold brake       Evaluative       10       10 (R)       9.0       Ye         2)       Hot brake       Evaluative       10       10 (R)       9.1       Ye         b)       Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 m/s <sup>2</sup> (N)       Evaluative       600       600 (R)       to Ye	Yes Yes
road ballast, (m):1)Cold brakeEvaluative1010 (R)9.0Ye2)Hot brakeEvaluative1010 (R)9.1Yeb)Maximum exerted on the brake pedal to achieve a deceleration of 2.5 m/s² (N)Evaluative600600 (R)502 to 526c)Whether parkingparking600600 (R)10 (R)	Yes Yes
1)Cold brakeEvaluative1010 (R)9.0Ye2)Hot brakeEvaluative1010 (R)9.1Yeb)Maximumforce exerted on the brake pedal to achieve a deceleration of 2.5 m/s² (N)Evaluative600600 (R)502 to 526c)Whetherparking600600 (R)10 (R)10 (R)	Yes
2)Hot brakeEvaluative1010 (R)9.1Yeb)Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 m/s² (N)Evaluative600600 (R)502 to 526c)Whether parkingEvaluative600600 (R)10 (R)Ye	Yes
b)Maximum exerted on the brake pedal to achieve a deceleration of 2.5 m/s² (N)Evaluative600600 (R)502 to 526c)Whether parkingparking600600 (R)502 to 526	
exerted on the brake pedal to achieve a deceleration of 2.5 m/s² (N)Evaluative600600 (R)502 toYec)Whether parkingparkingImage: Constraint of the second seco	Yes
pedal to achieve a deceleration of 2.5 m/s² (N)Evaluative600600 (R)to 526Yec)Whether parkingparkingImage: Constraint of the second s	Yes
deceleration of 2.5 m/s <sup>2</sup> (N)     526       c)     Whether parking	Yes
m/s² (N)       c)     Whether	
c) Whether parking	
	Yes
pedal(s) or 400 N at 180	103
hand lever, N	
15.1.5 Noise measurement :	
a) Maximum ambient	
	Yes
tractor dB(A)	
b) Maximum noise at an	Vaa
	Yes
dB(A)       15.1.6     Amplitude of mechanical vibrations at :	
	Vee
	Yes
2) Right foot -do- 100 84 Ye	Yes
rest     Non     100     04     100       3)     Seat (with     Evaluative     (R)     040     (R)	
	No
driver seated)-do-2434)Steering wheeldo-133	No
,	No
15.1.7         Maximum air cleaner oil pull over:         Evaluative         0.25 % (max.)         0.25 % (max.)         0.11%         Ye	Yes
15.1.8 Haulage requirements :	
a) Gross mass of the trailers, (tonne):	
	Yes
	Yes
b) Distance travelled / litre of fuel consumption, (km/l):	
	No
	No
c) Fuel consumption (ml/km/tonne):	
1) Two wheel Non As specified by $35 \text{ to } 45 \text{ (D)}$ $30.05 \text{ to }$	No
Evaluative the manufacturer 30.01	
2) Four wheel Evaluative the manufacturer 35 to 45 (D) 29.98 N	No

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## MAHINDRA, 255 DI POWER + TRACTOR (BRAND NAME: BHOOMIPUTRA) COMMERCIAL -(1<sup>st</sup> BATCH TEST) THIS TEST REPORT IS VALID UPTO: 31/05/2025

1 15.1.9	1		· 2	Л	5	6	7
	Wetl	2 and cultivation	3	4	5	U	1
	Seali follov	ing for the	Evaluative -do- -do- -do-	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		d vide test	Yes
	4) 5)	Engine Oil Transmission Oil	-do- -do-			2014 (November 2014)	
15.1.10	Safe	ty features :					
a)	Guar movi parts	ng and hot	Evaluative	Belt drives, pulleys, silencer, hydraulics pipes(as per IS-12239 Part 2)		Meet the requirements	Yes
b)	Light arrar	ing ngement	Evaluative	As per CMVR		Meet the requirements	Yes
c)	Seat requi (Trac more mm width	irements ctors having e than 1150 rear track	Non Evaluative	Should meet the requirements of IS (As amended from time)		Does not meet the requirements	No
d)	Tech requi	inical irements TO shaft	Evaluative	Should meet the requirements of IS: 4931 (As amended from time to time)		Meet the requirements	Yes
e)	Dime	ensions of e point linkage	Non Evaluative	Should meet requirements of I (Part-I) (As ameno time to time)		Meet the requirements	Yes
f)	linka	sifications of ge drawbar	Evaluative	Should meet the requirements of IS 12953 (As amended from time to time)		Meet the requirements	Yes
g)	Swin (whe	cifications of ging drawbar rever fitted)	Evaluative	Should meet the		Not provided	Not appli- cable
h)	2)	Maximum travelling speed at rated engine speed in reverse gears, kmph Audible warning signal on tractor.	Evaluative	P Should not exceed 20 12.40 kmph Kmph Meet the requirements		Yes Not appli- cable	

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1	1	2	3	4	5	6	7
15.1.11	l ah	2 elling of tracto	-	•	-	U	'
13.1.11	1)	Make	Evaluative	Should con		Mahindra	Yes
	2)	Model	Evaluative	requirement		255 DI Power +	Yes
	3)	Month &	Evaluative	CMVR	along-with	200 DTT OWCT -	103
	5)	Year of		declared va		JJ	No
		manufacture		in kW an	d year of	00	
	4)	Engine	Evaluative	manufacture	ə in		
	.,	number	Eraldatro	numerical		RJJ3AAZ0756	Yes
	5)	Chassis	Evaluative	MM	YY	MBNAAABFLJRJ	Yes
	-,	number		Digit 01-1		00565	
	$\sim$	Destantion	E	No.1 for represent	MM will	00000	
	6)	Declaration	Evaluative	and next t		15 0	Vaa
		of PTO		the box No		15.8	Yes
	7)	power, kW Specific fuel	Evaluative	will represe			
	7)	consumption	Evaluative	of manufact		255	Yes
		(g/kWh)			0	200	100
15.1.12	Dise	card limit for:		L			
(a)	Cylir	nder bore	Evaluative	To be	00.40	88.902 to	Vee
	diam	neter, (mm)		specified	89.13	88.938	Yes
(b)		arance between	Non	by Manufaatur		0.129 to	
		on & cylinder	Evaluative	Manufactur -er	0.20	0.131	Yes
(-)		at skirt, (mm)	New	-61		0.101	
(c)		on diameter at , mm	Non Evaluative		88.15	88.799 to 88.807	Yes
(d)		g end gap (mm					
(4)		Top comp. ring.	·/·	-do-	2.5	0.35 to 0.40	Yes
		2 <sup>nd</sup> comp. ring.	Evaluative	-do-	2.0	0.50 to 0.40	Yes
		Oil ring.		-do-	2.0	0.40 to 0.50	Yes
(e)		g groove clear	ance (mm):	40	2.0	0.40 10 0.00	100
(0)	-	Top comp. ring.	Evaluative	-do-	0.30	Tapered ring	
	-	2 <sup>nd</sup> comp. ring.	-do-	0.50	0.30	0.068 to 0.069	Yes
	-	Oil ring.	-do-	0.20	0.20	0.041 to 0.047	Yes
(f)	Clea	arance of main			0.20	0.01.100.000	
	-	Diametrical	Evaluative	-do-	0.20	0.038 to 0.061	Yes
	-	Crank shaft	Evaluative	-do-	0.60	0.15	Yes
		end float			0.60	0.15	res
(g)	Clea	arance of big er					
	-	Diametrical	Evaluative	-do-	0.20	0.078 to 0.124	Yes
	-	Axial	Evaluative	-do-	0.75	0.20	Yes
(h)		rance between	Non	.	0.00	0.097 to 0.000	Vee
		pin and ,(mm)	Evaluative	-do-	0.30	0.087 to 0.222	Yes
(i)		rance between					
(1)	cente		Non	-do-	0.30	0.272 to 0.300	Yes
		,(mm)	Evaluative				
15.1.13		erature (Submis	ssion to test a				
(a)	Ope	erator manual	Evaluative	Provided /	Provided	Provided	Yes
				Not			
(b)	Port	e Catalagua	Evaluative	Provided Provided /	Provided	Provided	Yes
(b)	Part	ts Catalogue		Not	Flovided	Fiovided	res
				Provided			
(c)	Wor	kshop/	Evaluative	Provided /	Provided	Provided	Yes
		vice manual		Not			
				Provided			

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1	2	3	4	5	6		7
15.1.14	Fitment of Roll Over Protective Structure (ROPS): for tractors having more than 1150 mm rear track width	Evaluative	ROPS should meet the requirement of IS:11821 or OECD code or equivalent International Standard	ovided Not fitted		Not appli- cable	
15.1.15	Standard accessories	Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with tractor	Provided	Provide	d	Yes
15.1.16	Accessories (Optional)	Non Evaluative	Ballast weights if fitted should meet the requirement of CMVR.	Provided	Provide	d	Yes
15.2	CATEGORY OF BREAKDOWNS / DEFECTS :(As per clause 5.0 of IS-12207-2019)						
S. No.	Category of Breakdown	Category (Evaluative / Non Evaluative)	Requiremo as per IS: 122	As observed	me requ	hether ets the uirement s/No.)	
1.	Critical breakdown	Evaluative	There is no breakdown' du course of testing	ʻcritical ring the	None	`	⁄es
2.	Major breakdowns	Evaluative	There are not mo major breakdov neither of the repetitive nature	None	``	ſes	
3.	Minor breakdowns	Evaluative	There are not me minor defects duri and the frequency not be more than t	None	`	ſes	
4.	Total breakdowns	Evaluative	In no case, number of bi should exceed fo (1 major + 3 m minor breakdown	None	Ň	ſes	

#### 15.3 Salient Observations:

# 15.3.1 Laboratory tests:

## 15.3.1.1 PTO Performance Test:

- The maximum power in case of previous & present sample were observed as 16 & 15.6 kW against the declaration of 15.8 kW, which meets the requirement of IS: 12207-2019 with regard to tolerance limit.
- ii) The specific fuel consumption corresponding to maximum power in case of previous & present sample was recorded as 253 & 255 g/kWh against the declaration of 252 g/kWh, which meets the requirement of IS: 12207-2019 with regard to tolerance limit.
- iii) The maximum equivalent crankshaft torque was recorded as 86.2 N-m against the declaration of 100 N-m, which does not meets the requirement of IS: 12207-2019. This should be looked into for corrective action.
- iv) The backup torque is **21.6** % and meets the requirement of IS: 12207-2019.

## 15.3.1.2 Drawbar performance test:

- i) The maximum drawbar power under standard ballasted condition was observed as 14.0 & 15.0 kW against the declaration of 12.6 kW in case of previous & present sample respectively, which meets the requirement of IS: 12207-2019 with regard to tolerance.
- ii) The maximum drawbar pull corresponding to 15% wheel slip under standard ballasted condition was recorded as 15.09 & 14.01 kN against the requirement of 11.3 & 12.0 kN in case of previous & present sample respectively, which meets the requirement of IS: 12207-2019 with regard to tolerance.

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## **15.3.1.3 Hydraulic performance test:**

Total drop in height of lift during lift load maintenance test was recorded as **50** mm against the preferably maximum requirement of 50 mm, and calls for necessary corrective action.

#### 15.3.1.4 Air cleaner oil pull over test :

The maximum oil pull over was recorded as 0.11%, which meets the requirement of IS: 12207-2019 with regard to tolerance limit.

#### 15.3.1.5 Mechanical Vibration:

The amplitude of mechanical vibration on various assemblies marked as (\*) in Chapter – 8 of this test report is on higher side especially on steering control wheel and back rest of operator seat. This calls for dampening down of vibrations to improve the operational comfort and service life of components.

#### 15.3.1.6 Haulage Test:

- i) Distance travelled per litre of fuel consumption with two wheel and four wheel was recorded as 9.27 to 9.51 km/l and 8.89 km/l against the declaration of 6 to 7 km/l respectively, which does not meet the requirement of IS: 12207-2019. This should be looked into for necessary corrective action.
- ii) Specific fuel consumption (mm/km/tonne) with two wheel and four wheel was recorded as 30.05 to 30.81 ml/km/tonne and 29.98 ml/km/tonne against the declaration of 35 to 45 ml/km/tonne respectively. Which does not meet the requirement of IS: 12207-2019. This should be looked into for necessary corrective action.

## 15.3.1.7 Labelling plate:

The month & year of manufacture embossed on the labelling plate as '**JJ**', which does not meet the evaluative requirement of IS: 12207-2019. This should be in numerical form on the labelling plate.

#### 15.4 Maintenance / Service Problems:

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

#### 15.5 Recommendation with regard to safety on tractor:

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

- i) There should be provision for spark arresting device in exhaust system.
- ii) The working clearance around position control lever & draft control lever should be provided as per the relevant standard.
- iii) Hand holds for easy mounting and dismounting of operator .
- iv) Vertical retainness should be provided on both side of foot step and foot pedal.
- v) Width of foot step is less.
- vi) Vertical distance from SIP to foot rest should be provided as per the relevant standard.
- vii) Longitudinal of operator seat forward and reverse from mid position.
- viii) Vertical movement of implement symbol has not been provided.
- ix) The fuel shut-off knob should remain in stop position.

#### 15.6 Adequacy of Literature supplied with machine:

- **15.6.1** Literature was supplied with the tractor for reference during the test.
  - a) Operator's Manual
  - b) Part's catalogue
  - c) Service Manual
- **15.6.2** The supplied literature was found adequate.
- **15.6.3** However, these literatures should be brought out in other vernacular languages of India for guidance of users

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T- 1438/1965/2020	MAHINDRA, 255 DI POWER + TRACTOR (BRAND NAME: BHOOMIPUTRA) COMMERCIAL -(1 <sup>st</sup> BATCH TEST THIS TEST REPORT IS VALUE (1997)
	THIS TEST REPORT IS VALID UPTO: 31/05/2025
	STREPORT IS VALID UPTO: 31/05/2025

16. Citizen charter	16.	Ci	tizen	char	ter
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Time frame for testing & evaluation as per citizen charter	Duration of Test	terresold minimi unic manie	Remark
10 Months	08 Months (June , 2019 to, January , 2020)	given in the citizen charter Yes	None

# TESTING AUTHORITY:

C.S.RAGUWANSHI

AGRICULTURAL ENGINEER

C.V. CHIMOTE TEST ENGINEER

JJR NA DIRECTOR

The report compiled by: Smt. Dev Vrat Kumar, Senior Technical Assistant.

## **17. APPLICANT COMMENT'S**

Para No.	Our reference	Applicant's comment
17.1	15.6.3	Literatures are available in all languages of India.

## MAHINDRA, 255 DI POWER + TRACTOR (BRAND NAME: BHOOMIPUTRA) COMMERCIAL -(1<sup>st</sup> BATCH TEST) THIS TEST REPORT IS VALID UPTO: 31/05/2025

# <u>ANNEXURE – I</u>

# TRACTOR RUN HOURS DURING TEST

Α.	LABORATORY AND TRACK TESTS	HOURS
1.	Running-in	45.0
2.	PTO Performance Test	11.0
3.	Power lift and hydraulic pump performance test	2.5
4.	Drawbar performance test	15.7
5.	Brake test	1.0
6.	Noise measurement	1.2
7.	Air cleaner oil pull over test	3.5
8.	Mechanical vibration test	1.0
9.	Nominal speed test	0.6
В.	HAULAGE TEST	5.6
С.	Miscellaneous test and other run hours including idle	5.39
	run, transportation, trials and preparation for test	
	TOTAL:	92.4

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