

व्यावसायिक - वैरिएंट- (प्रथम बैच )

संख्या / No. : T- 1617/2148/2022

COMMERCIAL -VARIANT (First Batch Test)

माह / Month : January, 2022

[ONLINE TESTING]

(यह परीक्षण रिपोर्ट 31/01/2027 तक वैध है | / THIS TEST REPORT IS VALID UPTO: 31/01/2027)



**ESCORTS LIMITED, EURO 50  
(BRAND NAME: POWERTRAC) TRACTOR**



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 AND FARMERS WELFARE)

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(An ISO 9001: 2015 Certified Institute)

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### 3. SPECIFICATIONS

- 3.1 Tractor:**
- Make : ESCORTS LIMITED  
 Model : EURO 50  
 Brand name : POWERTRAC  
 Type : Rear Wheel Drive, Standard Agricultural Tractor  
 Month & Year of manufacture : 10/21  
 Chassis number : T053575525GK  
 Country of origin : India
- 3.2 Engine:**
- Manufacturer's Address : M/s. Escorts Limited, Plot No. 2 & 3, Sector – 13, Faridabad – 121 007, Haryana  
 Make : M/s Escorts Ltd.  
 Model : AE3.276B-3A  
 Type : Four stroke, liquid cooled, naturally aspirated, direct injection, diesel engine.  
 Serial number : E3646328  
 Year of manufacture : 2021  
 Country of origin : India
- 3.2.1 Engine speed (rpm), (Manufacturer's recommended production settings):**
- Maximum speed at no load : 2305 to 2455
  - Low idle speed : 700 to 800
  - Speed at maximum torque : 900 to 1100
- Rated speed, (rpm):**
- For PTO use : 2200
  - For drawbar use : 2200
- 3.3 Cylinder & Cylinder Head:**
- Number : Three  
 Disposition : Vertical, Inline  
 Bore/stroke, (mm) : 98/122 (apa)  
 Capacity as specified by the applicant, (cc) : 2761  
 Compression ratio : 17.5 (± 5%): 1  
 Type of cylinder head : Monoblock  
 Type of cylinder liners : Wet, replaceable  
 Type of combustion chamber : Direct injection, open chamber in piston crown  
 Arrangement of valves : Overhead, inline
- Valve clearance (cold):**
- Inlet valve, (mm) : 0.3
  - Exhaust valve, (mm) : 0.4
- 3.4 Fuel System:**
- Type of fuel feed system : Gravity and force feed
- 3.4.1 Fuel tank:**
- Capacity, (l) : 55.20  
 Location : Above clutch housing  
 Provision for draining of sediments/ water : Not provided  
 Material of fuel tank : Metallic
- 3.4.2 Water separator:**
- Make : Hilux  
 Type : Inverted funnel, gravity separation,  
 Location : On RHS, between fuel tank and fuel feed pump

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## 7. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

7.1 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 observed	Whether meets the requirements (Yes/No)
1	2	3	4	5	6	7
<b>7.1.1</b>	<b>PTO Performance :</b>					
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.	34.0 (D)	33.8	Yes
b)	Power at rated engine speed, (kW)	Non-Evaluative	-do-	34.0 (D)	33.8	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Evaluative	+ 10% Max.	250 (D)	260	Yes
d)	Maximum equivalent crankshaft torque, (Nm)	Non-Evaluative	$\pm 8\%$	193 (D)	195.3	Yes
e)	Back-up torque, percent	Evaluative	12 percent, min.	12 (R)	33.2	Yes
f)	Smoke level, (m-1)	Evaluative	Maximum light absorption coefficient of 3.25 per meter or equivalent BOSCH No. 5.2 or 75 Hat ridge value (As per CMVR)	3.25 (R)	0.21	Yes
<b>7.1.2</b>	<b>Safety features :</b>					
a)	Guards against moving and hot parts	Evaluative	Belt drives, pullies, silencer, hydraulics pipes (as per IS-12239 Part 2)	Meets the requirement		Yes
b)	Lighting arrangement	Evaluative	As per CMVR	Meets the requirement		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)	Meets the requirement		Yes
d)	Technical requirements for PTO shaft	Evaluative	Should meet the requirements of IS: 4931 (As amended from time to time)	Meets the requirement		Yes

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1	2	3	4	5	6	7		
e)	Dimensions of three point linkage	Non Evaluative	Should meet the requirements of IS: 4468 (Part-I) (As amended from time to time)	<b>Does not meet the requirement</b>		<b>No</b>		
f)	Specifications of linkage drawbar	Evaluative	Should meet the requirements of IS 12953 (As amended from time to time)	Meets the requirement		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		Not applicable		
h)	1) Maximum travelling speed at rated engine speed in reverse gears, kmph	Evaluative	Should not exceed 20 kmph	Meets the requirement		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 applicable		--		
<b>7.1.3</b>	<b>Labelling of tractors (Provision of labelling plate):</b>							
	1) Make	Evaluative	Should conform to the requirements of CMVR along with maximum declared value of PTO power in kW and for month & year of manufacture in numerical <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>MM</td><td>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	Escorts Limited		Yes
MM	YY							
	2) Model	Evaluative		EURO 50 (Brand Name - POWERTRAC)		Yes		
	3) Month & Year of manufacture	Evaluative		10/21		Yes		
	4) Engine number	Evaluative		T053575525GK		Yes		
	5) Chassis number	Evaluative		E3646328		Yes		
	6) Declaration of PTO power, kW	Evaluative	34.0		Yes			
<b>7.1.4</b>	<b>Literature (Submission to test agency):</b>							
(a)	Operator manual	Evaluative	The printed literature in booklet form should be provided as per IS 8132 and should submit along with the test sample	Provided	Provided	Yes		
(b)	Parts Catalogue	Evaluative		Provided	Provided	Yes		
(c)	Workshop/ Service manual	Evaluative		Provided	Provided	Yes		
<b>7.1.5</b>	<b>Fitment of Roll Over Protective Structure (ROPS):</b> 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	Not Provided	Not Fitted	Not Applicable		

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1	2	3	4	5	6	7
7.1.6	<b>Standard accessories</b>	Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with tractor	Provided	Provided	Yes
7.1.7	<b>Accessories (Optional)</b>	Non Evaluative	Ballast weights if fitted should meet the requirement of CMVR.	Not Provided	Not Fitted	Not Applicable

7.2 CATEGORY OF BREAKDOWNS / DEFECTS (As per clause 5.0 of IS:12207- 2019) :					
S. No.	Category of Breakdown	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2019	As observed	Whether meets the requirement (Yes/No)
1.	Critical breakdown	Evaluative	There is no 'critical breakdown' during the course of testing	None	Yes
2.	Major breakdowns	Evaluative	There are not more than 1 major breakdowns and neither of them is of repetitive nature	None	Yes
3.	Minor breakdowns	Evaluative	There are not more than 3 minor defects during the test and the frequency of each is not be more than two	None	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	None	Yes

### 7.3 Salient Observations:

#### 7.3.1 Laboratory tests:

##### 7.3.1.1 Three Point Linkage and Linkage Drawbar

- i) The dimension of lateral distance from lower hitch point to centre line of tractor does not meet the requirement of IS: 4468 (Part I) – 1997. This observation was also made in the previous Test Report No. T-1095/1620/2017 (June, 2017), but no improvement have been made in this regard so far. This should be looked into for corrective measures.
- ii) Some of the parameters conform to Cat. I and some of them conform to Cat. II. Keeping in view the spirit of standardization, necessary improvement may please be incorporated.

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

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

- i) Provision for spark arrester in exhaust system should be provided as per IS-12239 (Part-I) 2018.
- ii) Working clearance between the position control & draft control levers, position control lever & fender should be provided as per IS: 12239 (Part-2) – 1999.
- iii) Safety switch against accidental start of tractor should be provided.
- iv) Differential lock has not been provided.
- v) Vertical retainers should be on both side of pedals as per IS: 12239 (Part-1)-2018
- vi) PTO master shield should be provided as per IS:4931-1995.
- vii) Fuel shut off knob does not remain in stop position as per the requirement of IS: 8133-1983.


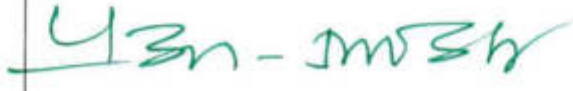
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The recommendations at S. No. (i), (iii), (iv) and (vii) were also made in the previous Test Report No. T-1095/1620/2017 (June, 2017), but no improvements have been made in this regard so far.

**7.4 Adequacy of Literature:**

- 7.4.1** The following literatures were supplied with the test tractor for reference during the test:-
- a) Operator's Manual for EURO 41 E3 (Brandname: POWERTRAC) and EURO 50 (Brandname: POWERTRAC) tractor models.
  - b) Part's Catalogue for EURO 50 (Brandname: POWERTRAC) tractor.
  - c) Repair Manual for EURO 41 E3 (Brandname: POWERTRAC) and EURO 50 (Brandname: POWERTRAC) tractor models.
- 7.4.2** The manufacturer has not recommended the type of coolant and the coolant-water ratio for the tractor in any of the manuals. Moreover, the coolant water ratio as declared by the applicant i.e. 97:3, does also seem to be erroneous. This should be looked into for corrective action.
- 7.4.3** The operator manual may be brought out in national as well as other regional languages for the guidance of users and service personnel as per IS: 8132-1999.

**TESTING AUTHORITY:**

<b>C.V. CHIMOTE</b> TEST ENGINEER	
<b>P.K. PANDEY</b> DIRECTOR	

Draft test report is compiled by: **Partha Lodh**, Senior Technical Assistant

**8. APPLICANT'S COMMENTS**

Para no.	Our reference	Applicant comments
8.1	7.3.1.1, 7.3.1.2, 7.4.2 & 7.4.3	Your valuable comments & suggestions for improvements are well taken. Under our policy of continuous product improvement these aspects are further being looked into & will try to eliminate these deviations soon wherever necessary.

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**ANNEXURE – I**

**TRACTOR RUN HOURS DURING TEST**

<b>A.</b>	<b>LABORATORY AND TRACK TESTS</b>	<b>HOURS</b>
1.	Running-in	51.5
2.	PTO performance test	7.2
3.	Nominal speed test	1.0
<b>B.</b>	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test	0.4
<b>TOTAL:</b>		<b>60.1</b>