

व्यावसायिक वैरिएंट परीक्षण रिपोर्ट (प्रथम बैच)

संख्या/ No. : T-1553/2081/2021

COMMERCIAL VARIANT TEST REPORT (1<sup>st</sup> Batch)

माह/ Month : June, 2021

[ONLINE TESTING]

(यह परीक्षण रिपोर्ट 30/06/2026 तक वैध है | / THIS TEST REPORT IS VALID UPTO: 30/06/2026)



**ESCORTS LIMITED, 60 F2  
(Brand Name: FARMTRAC) 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, Cooperation & Farmers Welfare)  
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## 2. FUEL AND LUBRICANTS

**2.1 Fuel** : The High-speed diesel oil supplied by M/s Indian Oil Corporation Limited having density of 0.836 g/cc at 15°C was used.

**2.2 Lubricants:**

S.No.	Particulars	As recommended by the manufacturer	As used during the test
1.	Air cleaner	SAE 15W40 / SAE 20W40	As recommended
2.	Engine oil	SAE 20W40	As recommended
3.	Gearbox	SAE 80W90 / EP 80	Oil originally filled in the systems were not changed
4.	Differential, rear axle housing, brake and hydraulic system oil	UTTO (Tract ELFSF-3I)	--do--
5.	Steering housing	SAE 90	--do--
6.	Grease	Servo grease MP	MP Grease

## 3. ESSENTIAL TESTS

### 3.1 SPECIFICATIONS

**3.1.1 Tractor:**

Make : Escorts Limited  
 Model : 60 F2  
 Brand name : Farmtrac  
 Type : Four Wheeled, Rear wheel driven (2WD), Unit construction, Standard Agricultural Tractor  
 Month & Year of manufacture : 02/21  
 Chassis number : T052537124LK  
 Country of origin : India

**3.1.2 Engine:**

Make : Escorts Limited  
 Model : AF3.344F-3A  
 Type : Four stroke, Liquid cooled, Naturally aspirated, Direct injection, Diesel engine.  
 Serial number : E2522014  
 Year of manufacture : 2021  
 Country of origin : India

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

- Maximum speed at no load : 2150 to 2250  
 - Low idle speed : 600 to 700  
 - Speed at maximum torque : 1000 to 1200

**Rated speed, (rpm):**

- For PTO use : 1850  
 - For drawbar use : 1850

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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>					
<b>a)</b>	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.	32.3 (D)	31.9	Yes
<b>b)</b>	Specific fuel consumption corresponding to maximum power, (g/kWh)	Evaluative	+ 10% Max.	260(D)	264	Yes
<b>7.1.2</b>	<b>Brake performance at 25 kmph:</b>					
<b>a)</b>	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)	7.27	Yes
	2) Hot brake	Evaluative	10	10 (R)	7.58	Yes
<b>b)</b>	Maximum force exerted on the brake pedal to achieve a deceleration of $2.5 \text{ m/s}^2$ , (N)	Evaluative	600	600 (R)	345 to 397	Yes
<b>c)</b>	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 (R)	Yes	Yes
<b>7.1.3</b>	<b>Safety features :</b>					
<b>a)</b>	Guards against moving and hot parts	Evaluative	Belt drives, pullies, silencer, hydraulics pipes(as per IS-12239 Part 2)	Meets the requirement		Yes
<b>b)</b>	Lighting arrangement	Evaluative	As per CMVR	Meets the requirement		Yes
<b>c)</b>	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)	<b>Does not meet the requirement</b>		<b>No</b>

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1	2	3	4	5	6	7
<b>d)</b>	Technical requirements for PTO shaft	Evaluative	Should meet the requirements of IS: 4931 (As amended from time to time)	Meets the requirement		Yes
<b>e)</b>	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>
<b>f)</b>	Specifications of linkage drawbar	Evaluative	Should meet the requirements of IS 12953 (As amended from time to time)	Meets the requirement		Yes
<b>g)</b>	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
<b>h)</b>	1) Maximum travelling speed at rated engine speed in reverse gears, kmph	Evaluative	Should not exceed 20 kmph	14.53 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>7.1.4</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 MM YY 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	ESCORTS LIMITED		Yes
	2) Model	Evaluative		60 F2		Yes
	3) Month & Year of manufacture	Evaluative		02/21		Yes
	4) Engine number	Evaluative		E2522014		Yes
	5) Chassis number	Evaluative		T052537124LK		Yes
	6) Declaration of PTO power, kW	Evaluative		32.3		Yes
<b>7.1.5</b>	<b>Literature (Submission to test agency):</b>					
<b>(a)</b>	Operator manual	Evaluative	Provided / Not Provided	Provided	Provided	Yes
<b>(b)</b>	Parts Catalogue	Evaluative	Provided / Not Provided	Provided	Provided	Yes
<b>(c)</b>	Workshop/ Service manual	Evaluative	Provided / Not Provided	Provided	Provided	Yes

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

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 PTO Performance:

- i) The maximum PTO power was recorded as **31.9 kW** against the declaration of **32.3 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 **264 g/kWh** against the declaration of **260 g/kWh** & which meets the requirement of IS: 12207-2019 with regard to tolerance limit.

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**7.3.1.2 Operator's Seat:**

Vertical distance from centre of clutch pedal to Seat Index Point does not meet the requirement of the IS: 12343 -1998 (Re-affirmed in January, 2019). This should be looked into for necessary corrective action.

**7.3.1.3 Three point linkage:**

- i) Lateral distance from lower hitch point to centre line of tractor does not meet the requirements of IS: 4468- (Part-1) -1997 (Reaffirmed in Oct., 2017). This should be looked into for necessary corrective action.
- 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 improvements may be incorporated.

**7.3.1.4 Operator's work place:**

Operator's work place meets the requirements of IS:12239 (Part-1) - 2018, **except the following:**

- i) Provision of vertical retainness at both sides of clutch pedal.
- ii) Provision of spark arresting device in the exhaust system.
- iii) Width of foot step is less than the minimum requirement.

**7.3.1.5 Constructional requirement with regard to safety:**

Constructional requirement with regard to safety meets the requirements of IS: 12239 (Part-2)-1999 (Reaffirmed in January, 2019), except the working clearance around the position control & draft control lever is less than the minimum requirement.

**7.3.1.6 PTO master shield:**

PTO master shield has not been provided on tractor as per the requirements of IS: 4931-1995 (Reaffirmed in January, 2019). This should be looked into for necessary corrective action.

**7.4 Maintenance / Service Problems:**

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

**7.5 Recommendation with regard to safety on tractor:**

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

- i) Vertical distance from seat index point to centre of clutch has been observed as 365 mm. It should be within 380 to 620 as per IS: 12343-1998 (Re-affirmed in January, 2019).
- ii) Width of foot step has been observed as 150 mm. It should be 200 mm (min) as per IS: 12239 (Part-1) - 2018.
- ii) Spark arrester should be provided in the exhaust system as per the requirement of IS: 12239 (Part-2)-1999 (Re-affirmed in January, 2019).
- iii) Master shield around the PTO shaft should be provided as per the requirement of IS: 4931-1995 (Re-affirmed in January, 2019).
- iv) Vertical retainers at both sides of clutch pedal should be provided as per IS: 12239 (Part-1) – 2018.
- v) Grade of oil lubricant should be mentioned on service chart provided on the tractor as per IS: 6283 (Part-1) – 2006 (Re-affirmed in January, 2019)
- vi) There should be provision of differential lock as per IS: 12239 (Part-2) – 1999 (Reaffirmed in January, 2019).

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- vii) The working clearance between position and draft control lever of hydraulic system was observed as 40 mm against the minimum requirement 70 mm as per IS: 12239 (Part-2)-1999 (Re-affirmed in January, 2019).

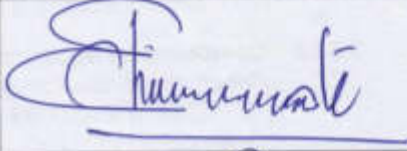
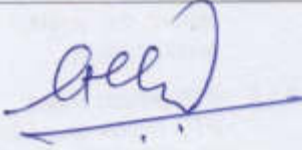
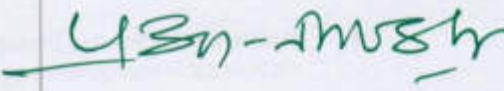
**7.6 Adequacy of Literature:**

**7.6.1** The following literatures were supplied with the test tractor for reference during the test-

- a) Service Manual of Escorts 60 F2 & 45 F9 tractor models.
- b) Parts Catalogue of Escorts 60 F2 tractor model.
- c) Operator's manual of Escorts 60 F2 & 45 F9 tractor models.

**7.6.2** The literature should be brought out in national as well as other regional languages of India for guidance of users.

**TESTING AUTHORITY:**

<b>C.V. CHIMOTE</b> TEST ENGINEER	
<b>Y.K.RAO</b> SENIOR AGRICULTURAL ENGINEER	
<b>P.K. PANDEY</b> DIRECTOR	

Draft test report is compiled by: **Poonam Khurasia**, Senior Technical Assistant

**8. APPLICANT COMMENTS**

Para No.	Our Reference	Applicant's comments
<b>8.1</b>	7.3.1.2, 7.3.1.3, 7.3.1.4, 7.3.1.5, 7.3.1.6 & 7.5	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, whenever 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	50.0
2.	PTO performance test	3.2
3.	Nominal speed test	1.1
4.	Brake Performance test	1.0
<b>B.</b>	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test	0.7
<b>TOTAL:</b>		<b>56.0</b>