

Application Reference No. 28/2022-23/156

(यह परीक्षण रिपोर्ट 31/12/2028 तक वैध है / THIS TEST REPORT IS VALID UPTO 31/12/2028)



Make of Agricultural Tractor : M/s Escorts Kubota Limited
Model : 60 F41 (BRAND NAME - FARMTRAC)
Manufactured by : M/s. Escorts Kubota Limited, 15/5,
Mathura Road, Faridabad – 121 003,
Haryana



भारत सरकार

कृषि एवं किसान कल्याण मंत्रालय
(कृषि एवं किसान कल्याण विभाग)

GOVERNMENT OF INDIA

MINISTRY OF AGRICULTURE AND FARMERS WELFARE
(DEPARTMENT OF AGRICULTURE & FARMERS WELFARE)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

ट्रैक्टर नगर, बुदनी (म.प्र.) 466 445

CENTRAL FARM MACHINERY TRAINING & TESTING INSTITUTE

TRACTOR NAGAR, BUDNI (M.P.) 466 445

(An ISO 9001:2015 Certified Institute)

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| T-1809/2340//2023 | Escorts Kubota Limited, 60 F41 (BRAND NAME - FARMTRAC) - INITIAL COMMERCIAL TEST |
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IMPORTANT INFORMATION

The Government of India, Ministry of Agriculture and Farmers' Welfare has directed, vide an OM No. 13-17/2021-M&T (I&P) dated 28.07.2022, that since 15th August, 2022, only mandatory tests will be carried out on a tractor unless applicant has expressly requested for optional tests as well, mentioned in the above captioned OM.

In the instant case, there is no request from the applicant to carry out the optional tests hence only Mandatory Tests, as given below, have been conducted and reported in this report: -

1. PTO performance
2. Hydraulic performance
3. Drawbar performance
4. Brake performance

| | | |
|-----------------|-----------------------------------|------------|
| Month: December | Test Report No.: T-1809/2340/2023 | Year: 2023 |
|-----------------|-----------------------------------|------------|



GOVERNMENT OF INDIA
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|-----|---|--|
| [C] | Tractor manufacturer's name and address | : M/s. Escorts Kubota Limited, 15/5, Mathura Road, Faridabad – 121 003, Haryana |
| [D] | Location of tractor assembly | i) M/s. Escorts Kubota Limited, Plot No. 2 & 3, Sector – 13, Faridabad – 121 007, Haryana, India ii) Escorts Kubota India Private Limited, 18/4, Mathura Road, Faridabad-121007, Haryana, India |
| [C] | Submitted for test by (Applicant) | : M/s. Escorts Kubota Limited, Knowledge Management Centre, 15/5, Mathura Road, Faridabad – 121 003, Haryana |
| [C] | Selected for test by | : The Ministry vide OM No. 13-17/2021 - M&T (I&P) dated 28.07.2022, has allowed the applicant to submit the test sample directly to the Institute without requiring any random selection for Initial Commercial Testing. Thus, the applicant directly submitted the test sample to the Institute for test. |
| [D] | Place of running-in | : At manufacturer's works |
| [D] | Duration of running-in (h): | |
| | -Engine | : 10 |
| | -Transmission | : 15 |
| [C] | Location of test | : Government of India, Central Farm Machinery Training and Testing Institute, P.O. - Tractor Nagar, BUDNI – 466445 (M.P.), INDIA |

1. SPECIFICATIONS OF TRACTOR

1.1 Identification:

1.1.1 Denomination

| | | |
|-----|-----------------------------|---|
| [C] | Make of tractor | : M/s. Escorts Kubota Limited |
| [C] | Model (trade name) | : 60 F41 (BRAND NAME - FARMTRAC) |
| [C] | Type | : Four Wheeled, Rear wheel driven, Standard, Agricultural Tractor |
| [C] | Month & year of manufacture | : 08/23 |
| [D] | Country of origin | : India |

1.1.2 Numbers:

| | | |
|-----|---|----------------|
| [D] | 1 st Serial No. of prototype | : T052570455CK |
| [C] | Serial No. | : T052647901EM |

1.2 Engine:

| | | |
|-----|------------------------|---|
| [D] | Manufacturer's address | : M/s Escorts Kubota Limited, Plot No. 2 & 3, Sector – 13, Faridabad – 121 007, Haryana |
| [C] | Make | : M/s Escorts Kubota Limited |
| [C] | Model | : FN3.351C-3A |
| [C] | Type | : Naturally aspirated, Direct injection, liquid cooled |
| [C] | Serial No. | : E2640036 |

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6. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

6.1 On the basis of test conducted the performance results have been summarized as evaluative (mandatory) / Non-evaluative (Non-mandatory) parameters applicable for Qualifying Minimum Performance criteria as per Clause-4 (Table-1) of IS: 12207-2022 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: 12207-2022 | Values declared by the applicant/ (D) Requirement (R) | As observed | Whether meets the requirements (Yes/No) |
|---|---|--|---|--|-------------|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| MANDATORY TESTS: (As per Ministry's Office Memorandum No. 13-17/2021-M&T (I&P) dated 28th of July, 2022). | | | | | | |
| 6.1.1 PTO Performance: | | | | | | |
| a) | Maximum power under 2 h test, (kW) (Natural ambient condition) | Evaluative | Declared value to be achieved with a tolerance of: $\pm 5\%$ for PTO power and or engine power >26 kW. $\pm 10\%$ for PTO power and or engine ≤ 26 kW. | 33.6 (D) | 33.0 | Yes |
| b) | Power at rated engine speed, (kW) | Non Evaluative | -do- | 33.6 (D) | 33.0 | Yes |
| c) | Specific fuel consumption corresponding to maximum power, (g/kWh) | Evaluative | Should not be more than 10% of declared value. | 265 (D) | 258 | Yes |
| d) | Maximum equivalent crankshaft torque, (Nm) | Non Evaluative | $\pm 8\%$ | 216 (D) | 232.2 | Yes |
| e) | Back-up torque, percent | Evaluative | Should be min. 12% | 12 (D) 12 | 36.5 | Yes |
| f) | Maximum operating temperature, ($^{\circ}$ C): | | | | | |
| | 1) Engine oil | Evaluative | The declared value should not exceed the Max value specified by the oil company and the observed value under natural ambient/high ambient condition should not exceed the declaration. | 130 (D) | 110 | Yes |
| | 2) Coolant | Evaluative | Observed value should not exceed the declared value or boiling point of coolant at radiator cap pressure whichever is lower. The boiling point of the coolant at radiator pressure shall be provided by the applicant. | 118 (D) | 95 | Yes |
| g) | Engine oil consumption, (g/kWh) | Evaluative | Not exceeding 1% of SFC at Max power under natural ambient condition. The value would be based on the test conducted under natural ambient condition | 2.58 Maximum | 0.742 | Yes |
| h) | Smoke level, m^{-1} | Evaluative | Maximum light absorption coefficient of 3.25 per meter or equivalent BOSCH No. 5.2 or 75 Hatridge value (As per CMVR). Max Smoke level shall be reported out of 6 readings tested as per IS 12062 and observed value should be well within the required limits. | 3.25 per meter Maximum | 0.23 | Yes |

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| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|--------------|--|----------------|--|-------------------------------|-------|-----|
| 6.1.2 | Drawbar performance: | | | | | |
| a) | Max. drawbar pull with ballast corresponding to 15 percent wheel slip, (kN) | Non Evaluative | Minimum 70% of static mass of tractor with ballast. | * | * | * |
| b) | Max. drawbar pull with standard ballast corresponding to 15 percent wheel slip, (kN) | Evaluative | In case of tractors having total static mass \geq 1500 kg, Min 70% of static mass of tractor without ballast or with standard ballast, as the case may be. In case of light weight tractors having \leq 1500 kg total static mass of tractor, Min. 65% of static mass of tractor without ballast or with standard ballast, as the case may be. | 16.23 (D) 15.79 Minimum | 17.61 | Yes |
| c) | Maximum drawbar power with standard ballast, (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 \leq 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. | 26.88 (D) 26.4 Minimum | 27.9 | Yes |
| d) | Maximum transmission oil temperature, (°C) | Evaluative | The declared value should not exceed the recommendation by the oil manufacturer. The observed value should not exceed the declared value throughout the drawbar test. | 130 (D) | 100 | Yes |
| Remark:- | Applicant vide letter no. EKL/Hom/P-050 dated 27th Oct,2023 has requested not to conduct the ballasted drawbar performance test & ten-hour drawbar test which was allowed as per the additional guidelines for testing of tractors as per new regime of testing of tractors vide an OM No. 13-32/2023-M&T(I&P) (FTS-125476) dated 16.05.2023. Accordingly, drawbar performance test under un-ballasted condition was conducted only. | | | | | |

| | | | | | | |
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| 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|--------------|--|--|--|--|-------------------------------|-------|-----|
| 6.1.3 | Power lift and hydraulic pump performance: | | | | | | |
| a) | Maximum lifting capacity throughout the range of lift, (kN): | | | | | | |
| | 1) | At hitch points | Evaluative | Should not be less than 90% of declared value. | 19.61 (D) 17.65 Minimum | 19.52 | Yes |
| | 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. | 9.00 (D) 7.77 Minimum | 15.97 | 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 Minutes, (mm) | Non Evaluative | The observed value should not exceed 50 mm. | 50 (D) Maximum | 85 | No |
| 6.1.4 | 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 | 6.57 | Yes |
| | 2) | Hot brake | Evaluative | 10 | 10 | 6.65 | Yes |
| b) | 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 | Yes | Yes | |
| 6.1.5 | OPTIONAL TESTS: As the applicant has not applied for any optional tests, therefore no optional tests was conducted. | | | | | | |
| 6.1.6 | Safety features : | | | | | | |
| a) | Guards against moving and hot parts | Evaluative | Belt drives, pulleys, silencer, hydraulic pipes [As per IS 12239 (Part2)] | Meets the requirement | Yes | | |
| b) | Lighting arrangement | Evaluative | As per CMVR | Conforms | 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) | Does not meet the requirement | No | | |
| d) | Technical requirements for PTO shaft | Non Evaluative | Should meet the requirements of IS: 4931 (As amended from time to time) | Meets the requirement | Yes | | |
| e) | Dimensions of three point linkage | Non Evaluative | Should meet the requirements of IS: 4468 (Part-I) (As amended from time to time) | Does not meet the requirement | No | | |

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| f) | Specifications of linkage drawbar | Non Evaluative | Should meet the requirements of IS: 12953 (As amended from time to time) | Meets the requirement | Yes | | |
| g) | Swinging drawbar (wherever fitted) | Non Evaluative | Should meet the requirement of IS: 12362 (Part 3) (As amended from time to time) | Not provided | Not applicable | | |
| h) | Audible warning signal on tractor | Evaluative | If tractor travel speed in reverse gear exceeds 20 kmph, an audible warning signal on tractor shall get activated. A sticker to the effect that "operating the tractor beyond 20 kmph speed in reverse gear is not safe" should be prominently displayed. | Not fitted | Not applicable | | |
| 6.1.7 | Labelling of tractors (Provision of labeling plate): | | | | | | |
| | 1) Make | Evaluative | Should conform to the requirements of CMVR along-with declared value of PTO in kW, Specific fuel consumption (SFC) corresponding to maximum power in g/kWh and year of manufacture in numerical form <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 | Escort Kubota Limited (Formerly Escorts Limited) | Yes |
| MM | YY | | | | | | |
| | 2) Model | Evaluative | | 60 F41 | Yes | | |
| | 3) Month & Year of manufacture | Evaluative | | 08 / 23 | Yes | | |
| | 4) Engine number | Evaluative | | E2640036 | Yes | | |
| | 5) Chassis number | Evaluative | | T052647901EM | Yes | | |
| | 6) Maximum PTO power, (kW) | Evaluative | | 33.6 | Yes | | |
| | 7) Specific fuel consumption, (g/kWh) | Evaluative | 265 | Yes | | | |
| 6.1.8 | Literature (Submission to test agency): | | | | | | |
| (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 | Yes | | |
| (b) | Parts Catalogue | Evaluative | | Provided | Yes | | |
| (c) | Workshop/ Service manual | Evaluative | | Provided | Yes | | |
| 6.1.9 | Fitment of Roll Over Protective Structures (ROPS): | | | | | | |
| | For tractor 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 fitted | Not applicable | | |
| 6.1.10 | Standard Accessories | Evaluative | Trailer hitch, front tow hook, linkage drawbar should be provided with tractor | Provided | Yes | | |
| 6.1.11 | Accessories (optional) | Non Evaluative | Ballast weight, if fitted, should meet the requirement of CMVR | Provided | Yes | | |

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| 6.2 CATEGORY OF BREAKDOWNS / DEFECTS (As per clause 5.0 of IS:12207-2022): | | | | | |
|--|--------------------------------|---|--|--------------------|---|
| S. No. | Category of break-downs | Category (Evaluative / Non Evaluative) | Requirements as per IS: 12207-2022 | As observed | Whether meets the Requirement (Yes/No) |
| 1. | Critical | Evaluative | There is no 'critical breakdown' during the course of testing. | None | Yes |
| 2. | Major | Evaluative | There are not more than 2 major breakdowns and neither of them should be of repetitive nature. | None | Yes |
| 3. | Minor | Evaluative | There are not more than 5 minor defects during the test and neither of them should of repetitive nature. | None | Yes |
| 4. | Total breakdowns | Evaluative | In no case, the total number of breakdowns should exceed five that is, (2 major + 3 minor) or (1 major + 4 minor) or 5 minor breakdowns. | None | Yes |

6.3 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 Year 2019)] : Conforms
- ii) Agricultural tractors – Rear mounted power take-off - Types 1, 2 and 3 (third revision) [IS:4931-1995 (Reaffirmed Year 2019)] : Conforms
- iii) Agricultural wheeled tractors – Rear mounted three-point linkage: Categories 1N,1, 2N, 2, 3N, 3, 4N & 4 [IS:17231-2019] : **Does not conform**
- iv) Drawbar for agricultural tractors – Link type [IS 12953:1990 (Reaffirmed Year 2022)] : Conforms
- v) Agricultural tractors- Operator's seat technical requirement [IS12343 – 2021] : **Does not conform**
- vi) Guide for safety & comfort of operator of agricultural tractors:Part 1 General requirements (first revision):[IS 12239 (Part 1) – 2018] : **Does not conform**
- vii) Tractors and machinery for agriculture and forestry – Technical means for ensuring safety Part 2: Tractors (first revision) (IS 12239 (Part 2) 1999) (Reaffirmed Year 2019)] : **Does not conform**
- viii) Guide lines for location and operation of operator controls on agricultural tractors and machinery [IS: 8133 – 2021] : **Does not conform**
- ix) Tractors and machinery for agriculture and forestry, powered lawn and garden equipment – Symbols for operator controls and other displays Part2 Symbols for agricultural tractors and machinery [IS: 6283(Part-1) – 2006 (Reaffirmed Year 2019) and IS: 6283 (Part-2) – 2007 (Reaffirmed Year 2019)] : **Does not conform**
- x) Agricultural Tractors and Machinery-Lighting device for travel on public roads (IS:14683-1999) (Reaffirmed Year 2019)] : Conforms

6.4 Salient Observations:

6.4.1 Laboratory tests:

6.4.1.1 Three-point linkage:

The following parameter does not meet the requirements of IS: 17231-2019 and needs to be looked into for necessary corrective actions:

The dimensions viz. lateral distance from lower hitch point to centre line of tractor does not meet the requirements of IS: 17231-2019. This should be looked into for corrective action.

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6.4.1.2 Operator's seat:

The following parameters do not meet the requirement of IS: 12343-2021.

- i) Provision for adjustment of driver's mass has been specified as 50 to 120 kg against the requirement of 40 to 100 kg.
- ii) Vertical distance from SIP to centre of steering control wheel has been measured as 180 mm against the requirement of 265 to 385 mm.
- iii) Vertical distance of SIP from foot rest has been measured as 615 mm against the requirement of 450 to 520 mm.
- iv) Vertical distance from SIP to centre of accelerator pedal has been measured as 540 mm against the requirement of 230 to 460 mm.

Therefore, all of the above should be looked into for necessary corrective action.

6.4.1.3 Operator's work place:

The following parameters does not meet the requirement of IS: 12239 (Part-I) -2018.

- i) Vertical retainers on inner side of clutch & brake pedal are not provided.
- ii) Spark arresting device has not been provided in the exhaust system.

Therefore, all of the above should be looked into for necessary corrective action.

6.4.1.4 PTO master shield:

PTO master shield has not been provided on tractor. This should be looked into for necessary corrective action.

6.5 Maintenance / Service Problems:

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

6.6 Recommendation with regard to safety on tractor:

- i) Identification of hand controls by colour has not been provided as per the requirement as laid down in Table – 5 of IS: 8133-2021.
- ii) The hand accelerator lever, when moved away from the operator (i.e. forward) decreases the engine speed, which does not meet the requirement as laid down in Table – 1 of IS: 8133-2021.

Above parameters should be looked into for necessary corrective action.

6.7 Adequacy of Literature supplied with machine:

6.7.1 The following literatures were supplied with the test tractor for reference during the test: -




- i) Operator Manual for "Escorts Kubota Limited, 60 F41 (BRAND NAME: FARMTRAC)", Power maxx 40, 50 & 6055 tractor model.
- ii) Parts catalogue for "Escorts Kubota Limited, 60 F41 (BRAND NAME: FARMTRAC" tractor model.
- iii) Service manual (Part- 1 & 2) for "Escorts Kubota Limited, 60 F41 (BRAND NAME: FARMTRAC" tractor model.

6.7.2 The operator manual may be brought out for the guidance of users and service personnel as per IS: 8132-1999 incorporating, inter alia, the following:

- i) Recommended ballast masses for different operations.
- ii) Safe hitch height while using trailer.

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TEST CARRIED OUT AT C.F.M.T. & T.I., BUDNI (M.P.), INDIA
TESTING AUTHORITY

| | |
|---|---|
| B.N. DIXIT AGRICULTURAL ENGINEER |  |
| R.P. PANDEY SENIOR INSTRUMENTATION ENGINEER |  |
| A. K. UPADHYAY DIRECTOR (I/C) |  |

Draft Test Report compiled by **Sh. B.N. Dixit**, Agricultural Engineer.

7. APPLICANT'S COMMENTS

| Para no. | Our reference | Comments |
|----------|----------------------------------|---|
| 7.1 | 6.3(iii, v, vi, vii, viii & ix) | The observations will be studied and will try to take necessary corrective action |

ANNEXURE - I

TRACTOR RUN HOURS DURING TEST

| A. | LABORATORY AND TRACK TESTS: | HOURS |
|-----------|--|--|
| 1. | Running-in | Applicant has declared it to be conducted on their work place. |
| 2. | PTO performance test | 12.47 |
| 3. | Power lift and hydraulic pump performance test | 3.91 |
| 4. | Drawbar performance test | 6.6 |
| 5. | Brake performance test | 1.25 |
| 6. | Nominal speed test | 2.0 |
| B. | Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test | 1.67 |
| | TOTAL: | 27.9 |