प्रारंभिक व्यावसायिक परीक्षण रिपोर्ट संख्या/No. : T-1782/2313/2023 INITIAL COMMERCIAL TEST REPORT माह/Month : October, 2023

Application Reference No. 28/2022-23/131

(यह परीक्षण रिपोर्ट तक वैध है 31/10/2028 / THIS TEST REPORT IS VALID UPTO 31/10/2028)



Make of Agricultural Tractor: M/s Escorts Kubota Limited

Model : 60 F47 (BRAND NAME - FARMTRAC)

Manufactured by : M/s. Escorts Kubota Limited, Plot No. 2 & 3,

Sector - 13, Faridabad - 121 007, 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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### ESCORTS KUBOTA LIMITED, 60 F47 (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 15<sup>th</sup> 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: October Test Report No.: T-1782/2313/2023 Year: 2023



## GOVERNMENT OF INDIA CENTRAL FARM MACHINERY TRAINING & TESTING INSTITUTE TRACTOR NAGAR, BUDNI (MADHYA PRADESH) 466445, INDIA

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CENTRAL FARM MACHINERY TRAINING AND TESTING INSTITUTE - BUDNI

T-178	32/2313/2023	ESCORTS KUBOTA LIMITED, 60 F47 (BRAND NAME - FARMTRAC) - INITIAL COMMERCIAL TEST THIS TEST REPORT IS VALID UPTO: 31/10/2028				
[C]	Tractor mai	nufacturer's name and	:	M/s. Escorts Kubota Limited,		

address Plot No. 2 & 3, Sector – 13 Faridabad - 121 007, Haryana [D] Location of tractor assembly Escorts Kubota Limited. Plot No. 2 & 3, Sector - 13 Faridabad – 121 007, Haryana ii) Escorts Kubota India Private Limited, 18/4, Mathura Faridabad-121007, Haryana, India [C] Submitted for test by (Applicant) 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
[0]	Make of treater

[C] Make of tractor : Escorts Kubota Limited

[C] Model (trade name) : 60 F47 (BRAND NAME - FARMTRAC)

[C] Type : Rear Wheel Drive, Standard Agricultural Tractor

[C] Month & year of manufacture : 08/22
[D] Country of origin : India

1.1.2 Numbers:

[D] 1<sup>st</sup> Serial No. of prototype : T052620901KL [C] Serial No. : T052606316EL

1.2 Engine:

[D] Manufacturer's address : Escorts Kubota Limited,

Plot No. 2 & 3, Sector – 13, Faridabad – 121 007,

Haryana

[C]Make: Not available[C]Model: FN3.351C-3A

## ESCORTS KUBOTA LIMITED, 60 F47 (BRAND NAME - FARMTRAC) - INITIAL COMMERCIAL TEST

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

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:

SI. No.			Requirements as per IS: 12207-2022	Values declared by the applicant/ (D) Requirement (R)	As observed	Whether meets the requirem- ents (Yes/No)	
1			3	4	5	6	7
				inistry's Office Memorandum	No. 13-17/	2021-M&	T (I&P)
		d 28 <sup>th</sup> of July, 2	2022).				
6.1.1		Performance:	T			1	
a)	a) Maximum power under 2 h test, (kW) (Natural ambient condition)		Evaluative	Declared value to be achieved with a tolerance of: ±5% for PTO power and or engine power >26 kW. ±10% for PTO power and or engine ≤ 26 kW.	33.6 (D)	34.3	Yes
b)		er at rated ne speed,	Non Evaluative	-do-	33.6 (D)	33.3	Yes
c)	consi corre maxii (g/kV		Evaluative	Should not be more than 10% of declared value.	265 (D)	245	Yes
d)	Maximum equivalent crankshaft torque, (Nm)		Non Evaluative	± 8%	216 (D)	219.1	Yes
e)	Back perce	-up torque, ent	Evaluative	Should be min. 12%	12 (D) 12 (R)	27.6	Yes
f)	Maxii	mum operating	temperature, (	<sup>o</sup> 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)	114	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)	96	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	2.45 Maximum (R)	0.46	Yes
h)	Smol	ke level, m <sup>-1</sup>	Evaluative	Maximum light absorption coefficient of 3.25 per meter or equivalent BOSCH No. 5.2 or 75 Hatridge value ( <b>As per CMVR</b> ). 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 (R)	0.10	Yes

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## ESCORTS KUBOTA LIMITED, 60 F47 (BRAND NAME - FARMTRAC) - INITIAL COMMERCIAL TEST

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1	2	3	4	5	6	7
6.1.2	Drawbar performa	nce:				
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 unballast corresponding to 15 percent wheel slip, (kN)	Evaluative	In case of tractors having total static mass ≥ 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 ≤ 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.	16.85 (D) 16.31 (R) Minimum	19.74	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 ≤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) 27.4 (R) Minimum	30.7	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)	89	Yes
*Remar	conduct the ballowed as per testing of tra 16.05.2023. Acconducted.	allasted draw the additiona ctors vide a cordingly, or	EKL/Hom/P-023 dated 08.09 bar performance & ten-hou guidelines for testing of tra OM No. 13-32/2023-M&T ally standard ballasted draw	r drawbar t ctors as per (I&P) (FTS-	est which new regi -125476)	n was me of dated
6.1.3	Power lift and hyd					
a)	T		out the range of lift, (kN):	T .= == :=:	T . =	
	1) At hitch	Evaluative	Should not be less than 90%	17.65 (D)	18.52	Yes

6.1.3	Pov	Power lift and hydraulic pump performance:							
a)	Ma	Maximum lifting capacity throughout the range of lift, (kN):							
	1)	At hitch	Evaluative	Should not be less than 90%	17.65 (D)	18.52	Yes		
		points		of declared value.	15.89 (R)				
					Minimum				
	2)	With the	Evaluative	The lift capacity should at	9.00 (D)	17.36	Yes		
		standard		least be 24 kg/PTO kW and it	8.07 (R)				
		frame		should be 21.5 kg/engine kW	Minimum				
				where the tractor is not					
				provided with a PTO shaft.					

## ESCORTS KUBOTA LIMITED, 60 F47 (BRAND NAME - FARMTRAC) - INITIAL COMMERCIAL TEST

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1	2	3	4	5	6	7
b)	Maximum drop in	Non	The observed value should	50 (D)	60	No
	the height of the	Evaluative	not exceed 50 mm.	Maximum		
	point of application					
	of the force after					
	each 5 minutes					
	interval for a total duration of 30					
	Minutes, (mm)					
6.1.4	Brake performance	e at 25 kmph:		1		
a)			orce, equal to or less than 600	) N on brake	pedal wit	h road
	ballast, (m):		, . ,			
	1) Cold brake	Evaluative	10	10 (R)	6.88	Yes
	2) Hot brake	Evaluative	10	10 (R)	7.06	Yes
b)	Whether parking	Evaluative	Yes / No	Yes	Yes	Yes
	brake is effective at					
	a force of 600 N at					
	foot pedal (s) or 400 N at hand lever					
6.1.5		· As the applic	cant has not applied for any	nntional tost	s thorafo	ore no
0.1.5	optional tests was		sant has not applied for any o	optional test	.5, 11161610	) <del>C</del> 110
6.1.6	Safety features :	oonaaotea.				
a)	Guards against	Evaluative	Belt drives, pulleys,	Meets	the	Yes
	moving and hot		silencer, hydraulic pipes	requirement		
	parts		[As per IS 12239 (Part2)]			
b)	Lighting	Evaluative	As per CMVR	Confo	ms	Yes
,	arrangement		·			
c)	Seating	Non	Should meet the	Does	not	No
	requirements	Evaluative	requirements of IS: 12343	meet	the	
	(Tractors having		(As amended from time to	require	ment	
	more than 1150		time)			
	mm rear track					
۵۱	width) Technical	Non	Should meet the	Meets	tho	Yes
d)	requirements for	Evaluative	requirements of IS: 4931	requirer		165
	PTO shaft	Lvaldative	(As amended from time to	requirer	HOIR	
	1 10 Shart		time)			
e)	Dimensions of	Non	Should meet the	Does	not	No
	three point linkage	Evaluative	requirements of IS: 4468	meet		
			(Part-I) (As amended from	require		
			time to time)	•		
f)	Specifications of	Non	Should meet the	Meets		Yes
	linkage drawbar Evaluative requirements of IS: 12953 requirements		ment			
			(As amended from time to			
~)	Swinging drawbar	Non	time) Should meet the	Not prov	/ided	Not
g)	(wherever fitted)	Evaluative	requirement of IS: 12362	inot bio	/lu <del>c</del> u	appli-
	(winciever inteu)	Lvaluative	(Part 3) (As amended from			cable
			time to time)			Cabio
h)	Audible warning	Evaluative	If tractor travel speed in	Provid	led	Yes
	signal on tractor		reverse gear exceeds 20	(26.55 kmp		
			kmph, an audible warning	geai		
			signal on tractor shall get	S	-	
			activated.  A sticker to the effect that			
			"operating the tractor beyond			
			20 kmph speed in reverse			
			gear is not safe" should be			
			prominently displayed.			

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1		2		3				4			5	6	5	7
6.1.7	Lab	elling of	tracto											
	1)	Make		Evalua	tive	Should required along-w	men		f CM		Escort Limited Escorts		erly	Yes
	2)	Model		Evalua	tive	PTO ir						F47	<i>,</i> , , , , , , , , , , , , , , , , , ,	Yes
	3)	Month &		Evalua		consum			(SF		08 / 22			Yes
	'	Year of				corresp								
		manufac	ture			power i	n g/	kWh a	nd year	r of				
	4)	Engine number		Evalua	tive	manufa form	ctur	e in	numeri -	ical	E25	76635		Yes
	5)	Chassis number		Evalua	tive	MM Digit 01	-12	YY in hox	No 1	for	T0526	06316E	ΞL	Yes
	6)	Maximur PTO po (kW)		Evalua	tive	MM will and nex No. 2 f	rep kt tw	resent o digit	the mo	nth oox	3	3.6		Yes
	7)	Specific consump (g/kWh)		Evalua	tive	the yea					2	265		Yes
6.1.8	l ito	rature (S	uhmis	sion to	tost a	dency).		-						
(a)		erature (S			iest ag iative		nrin	ted lite	erature	in	Dro	vided		Yes
(b)		ts Catalog			uative				should			vided		Yes
(c)		rkshop/	uc		uative				r IS 81					Yes
(6)		vice manu	ıal	Lvaic	alive	and s	shou		mit alc		Provided		163	
6.1.9	Fitr	nent of R	oll Ove	er Prote	ctive					ı				
	For tractor having Ev			uative ROPS should meet the requirement of IS: 11821 or OECD code or equivalent International Standard.		321 or	Not fitted			Not applica- ble				
6.1.10		ndard essories		Evalua	itive				bar	Pro	vided		Yes	
6.1.11	Acc	essories		No	on			veight,	if fitt	ed.	Not fitted			Not
		tional)			uative	Ballast weight, if fitted, should meet the requirement of CMVR						applica- ble		
6.2	C A -	TECODY	0E DE		NA/NIC					F	0 -4 10.44	207.20	221.	
S. No.		TEGORY egory of		egory	JVVINO			ments		Se 5.	As obse			her meets
3. No.		k-downs	(Eval	uative Non		as per l					AS OUS	ei veu	Req	the uirement es/No)
4	0	inal		uative)	T1	<u> </u>	· •	liaci II	- ا- ا- ا		ķī.			Vas
1.	Crit			uative	durin	e is no g the cou	ırse	of test	ing.					Yes
2.	Maj	or 		uative	There are not more than 2 major breakdowns and neither of them should be of repetitive nature.			Non	e 		Yes			
3.	Min	or	Eval	uative	There are not more defects during the te of them should of rep			test a	nd neitl	her	One <b>(Mn</b> -			Yes
4.	Tota brea	al akdowns	Eva	luative	In no break that i majo	case, cdowns s, (2 ma r + 4 cdowns.	the sho ijor	total r uld ex + 3 mi	number ceed f nor) or	of five (1	One	Э		Yes

### ESCORTS KUBOTA LIMITED, 60 F47 (BRAND NAME - FARMTRAC) - INITIAL COMMERCIAL TEST

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#### 6.3 Conformity with following IS:

Guidelines for declaration of power and specific fuel consumption and labeling : Conforms of agricultural tractors (First revision) [IS:10273 -1987 (Reaffirmed Year 2019)]

ii) Agricultural tractors - Rear mounted power take-off - Types 1, 2 and 3 (third : Conforms revision) [IS:4931-1995 (Reaffirmed Year 2019)]

iii) Agricultural wheeled tractors – Rear mounted three-point linkage: Categories : **Does not** 1N, 1, 2N, 2, 3N, 3, 4N and 4 [IS 17231: 2019] **conform** 

iv) Drawbar for agricultural tractors – Link type [IS 12953:1990 (Reaffirmed Year : Conforms 2022)]

v) Agricultural tractors- Operator's seat technical requirement [IS12343 - 2021] : Does not

vi) Guide for safety & comfort of operator of agricultural tractors:Part 1 General : Does not

requirements (first revision):[IS 12239 (Part 1) - 2018] conform

vii) Tractors and machinery for agriculture and forestry – Technical means for : Does not

ensuring safety Part 2: Tractors (first revision) (IS 12239 (Part 2) 1999) conform (Reaffirmed Year 2019)]

viii) Guide lines for location and operation of operator controls on agricultural : **Does not** tractors and machinery [IS: 8133 - 2021] conform

ix) Tractors and machinery for agriculture and forestry, powered lawn and garden : Does not equipment - Symbols for operator controls and other displays Part2 Symbols for agricultural tractors and machinery [IS: 6283(Part-1) - 2006 (Reaffirmed Year 2019)] conform

x) Agricultural Tractors and Machinery-Lighting device for travel on public roads : Conforms (IS:14683-1999) (Reaffirmed Year 2019)]

#### 6.4 Salient Observations:

#### 6.4.1 Laboratory tests:

#### 6.4.1.1 PTO performance test:

- i) During preparation of tractor for PTO performance test leakage of exhaust gases was noticed for the inlet & outlet flanges of the muffler. Upon this, the applicant vide letter No. EKL/Hom/P-017 dated 01.09.2023 has requested for welding of flange joints and vide letter No. EKL/Hom/P-019 dated 01.09.2023 has requested to replace two numbers of "Gasket Exhaust Elbow (part no. D10621640AB.9) at inlet end and outlet end of the muffler, which was allowed. This defect was considered as 'Minor defect Mn-7' as per Annexure C of IS: 12207 2022. This should be looked into for necessary corrective action.
- ii) During two hours maximum power PTO performance test under high ambient condition, 350 ml coolant was spilled over from the expansion flask. This should be looked into for necessary corrective action.

#### 6.4.1.2 Hydraulic performance test:

During maintenance of lift load test of hydraulic system, cumulative drop in height was observed as 60 mm against the maximum allowable drop of 50 mm for the duration of 30 minutes and does not meet the non-evaluative requirement of IS: 12207-2022. This should be looked into for necessary corrective action.

#### 6.4.1.3 Three-point linkage:

The following parameters does not meet the requirements of IS 17231: 2019:

The dimensions viz. width of ball of lower hitch pin hole and 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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#### 6.4.1.4 Operator's seat:

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

- i) Inclination of seat towards rear direction is measured as 0.8 degree against the requirement of 3 to 12 degree.
- ii) Provision for adjustment of driver's mass is provided as 50 to 120 kg against the requirement of 40 to 100 kg.
- iii) Vertical distance from SIP to centre of steering control wheel has been measured as 240 mm against the requirement of 265 to 385 mm.

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

#### 6.4.1.5 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 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.

#### 6.4.1.6 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) Identifiable symbol of fuel level & water temperature by colour has not been provided as per the requirement as laid down in Table - 5 of IS: 6283 Part-2-2007.
- ii) Identification of transmission control PTO engaging lever by colour has not been provided as per the requirement as laid down in Table 5 of IS: 8133-2021.
- iii) 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.
- v) Differential lock has not been provided.
- vi) The working clearance between position control lever & draft control lever, and position control lever & mudguard has been measured as 35 mm, and 30 mm respectively against the minimum requirement of 70 mm.

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: -
  - a) Operator's Manual for 60 F47 (BRAND NAME FARMTRAC), FARMTRAC 6055 WORLDMAXX and FARMTRAC 6065 WORLDMAXX tractor models.
  - b) Part's Catalogue for 60 F47 (BRAND NAME FARMTRAC) tractor model.
  - c) Service manual for 60 F47 (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) Recommended matching implements for wet land operation.
  - iii) Approximate recommended water ballast for drawbar/parking test is mentioned "Nil" in application whereas in operator's manual, it is given as 150 kg (Page No. 15C)

## ESCORTS KUBOTA LIMITED, 60 F47 (BRAND NAME - FARMTRAC) - INITIAL COMMERCIAL TEST

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



Draft Test Report compiled by **Sh. C.K. Tijare,** Agricultural Engineer & **Sh Shivkumar Sharma**, Senior Technical Assistant.

#### 7. APPLICANT'S COMMENTS

Para no.	Our reference	Comments
7.1	6.3 (iii, v, vi, vii, viii, ix)	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	14.4
3.	Power lift and hydraulic pump performance test	0.8
4.	Drawbar performance test	6.8
5.	Brake performance test	1.3
6.	Nominal speed test	2.0
B.	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test	6.8
	TOTAL:	32.1