

[ONLINE TESTING]



ESCORTS LIMITED, FARMTRAC 6050 F1 UM 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)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

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Page 1 of 28

		<u>Previous sample</u>	<u>Present sample</u>
3.1.2.1	Engine speed(Manufacturer’s recommended production setting), (rpm):		
	- 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	
3.1.3	Cylinder & Cylinder Head:		
	Number :	Three	
	Disposition :	Vertical, Inline	
	Bore/stroke, (mm) :	111.76/117 (apa)	
	Capacity as specified by the applicant, (cc) :	3440	
	Compression ratio :	18.0 (± 0.5) : 1	
	Type of cylinder head :	Monoblock	
	Type of cylinder liners :	Dry, non replaceable	
	Type of combustion chamber :	Ré-entrant, cavity on piston crown	
	Arrangement of valves :	Overhead inline	
	Valve clearance (cold):		
	- Inlet valve, (mm) :	0.4	
	- Exhaust valve, (mm) :	0.6	
3.1.4	Fuel System:		
	Type of fuel feed system :	Gravity and force feed	
3.1.4.1	Fuel tank:		
	Capacity, (l) :	60.0	60.0
	Location :	Above clutch housing	
	Provision for draining of sediments/ water :	Not Provided, however water separator is provided	
	Material of fuel tank :	Sheet metal	
3.1.4.2	Water Separator:		
	Make :	Hilux	DEC
	Type :	Inverted funnel, gravity separation.	
	Location :	In between fuel tank & fuel feed pump	
3.1.4.3	Fuel feed pump:		
	Make :	Bosch, India	
	Type :	Plunger with hand primer	
	Model/Group combination No. :	F002 450 046, FP/KSG22AD106	
	Provision of sediment bowl :	Provided	
	Method of drive :	Through cam shaft of fuel injection pump	
3.1.4.4	Fuel filters:		
	Make :	Bosch, India	
	Model/Group combination No. :	9 450 030 120	F002 H20 187
	Number :	Two	One
	Type of elements :		
	- Primary :	Cloth	Full flow, spin on,
	- Secondary :	Paper	throw away, paper element
	Capacity of final stage filter, (l) :	0.50	0.55

T-1613/2144/2021	ESCORTS LIMITED, FARMTRAC 6050 F1 UM TRACTOR – Commercial (Technical Extension)
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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) and non – evaluative (not mandatory) parameters applicable for qualifying Minimum Performance Criteria as per clause-4 table-1 of Indian Standard **12207: 2019** for acceptance of tractor for the purpose of subsidies/NABARD financing for the applicable features for this tractor model.

Sl. No.	Characteristic	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2019	Values declared by the applicant/ requirement		As observed		Whether present model meets the requirements (Yes/No.)
				Previous sample	Present sample	Previous sample	Present sample	
1	2	3	4	5 a	5 b	6 a	6 b	7
6.1.1	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 ≤ 26 kW.	32.3 (D)	32.3 (D)	32.1	31.8	Yes
b)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Evaluative	+ 10% Max.	260 (D)	260 (D)	261	270	Yes
6.1.2	Safety features :							
a)	Guards against moving and hot parts	Evaluative	Belt drives, pulleys, silencer, hydraulics pipes(as per IS-12239 Part 2)			Meet the requirements		Yes
b)	Lighting arrangement	Evaluative	As per CMVR		Meet the requirements		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)		Do not meet the requirements		No	
d)	Technical requirements for PTO shaft	Evaluative	Should meet the requirements of IS: 4931 (As amended from time to time)		Meet the requirements		Yes	
e)	Dimensions of three point linkage	Non Evaluative	Should meet the requirements of IS: 4468 (Part-I) (As amended from time to time)		Do not meet the requirements		No	
f)	Specifications of linkage drawbar	Evaluative	Should meet the requirements of IS 12953 (As amended from time to time)		Meet the requirements		Yes	

T-1613/2144/2021	ESCORTS LIMITED, FARMTRAC 6050 F1 UM TRACTOR – Commercial (Technical Extension)
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1	2	3	4	5	6	7
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		9.64 kmph (Meet the requirements)	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 fitted	Not applicable
6.1.3	Labeling of tractors (Provision of labeling plate):					
	1) Make	Evaluative	Should conform to the requirements of CMVR along-with declared value of PTO in kW and 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			FARMTRAC 6050 F1 UM	Yes
	3) Month & Year of manufacture	Evaluative			04/21	Yes
	4) Engine number	Evaluative			E2527656	Yes
	5) Chassis number	Evaluative			T052546597AK	Yes
	6) Declaration of maximum PTO power, kW	Evaluative			32.3	Yes
6.1.4	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
6.1.5	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		Not Fitted	Not applicable
6.1.6	Standard accessories	Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with tractor		Provided	Yes
6.1.7	Accessories (Optional)	Non Evaluative	Ballast weights if fitted should meet the requirement of CMVR.		Provided	Yes

6.2 Conformity with following IS:	<u>Previous sample</u>	<u>Present sample</u>
i) Guide lines for declaration of power and specific fuel consumption and labelling of agricultural tractors (First revision) [IS10273: 1987 (Reaffirmed in January, 2019)]	: Conformed	Conforms
ii) Agricultural tractors - Rear mounted power take-off - Types 1, 2 and 3 (third revision) [IS:4931-1995 (Reaffirmed in January, 2019)]	: Conformed	Conforms
iii) Agricultural wheeled tractors - Rear mounted three-point linkage: Part 1 Categories 1, 2, 3 & 4 (fourth revision) [IS 4468(Part-I):1997/ISO 730-1:1994 (Reaffirmed in 2017)]	: Did not conform	Does not conform
iv) Drawbar for agricultural tractors – Link type [IS 12953:1990 (Reaffirmed in 2017)]	: Conformed	Conforms
v) Agricultural tractors - Operator’s seat technical requirement [IS 12343 –1998 (First revision) (Reaffirmed in January, 2019)]	: Conformed	Does not conform
vi) Guide for safety & comfort of operator of agricultural tractors: Part 1 General requirements (first revision): [IS 12239 (PT-1) 1996/ISO 4254-1:2018]	: Did not conform	Does not conform
vii) Tractors and machinery for agriculture and forestry – Technical means for ensuring safety Part 2: Tractors (first revision) (IS 12239 (PT-2) 1999) (Reaffirmed in January, 2019)]	: Did not conform	Does not conform
viii) Guide lines for location and operation of operator controls on agricultural tractors and machinery (first revision) IS: 8133-1983 (Reaffirmed in January, 2019)]	Did not conform	Does not conform
ix) Tractors and machinery for agriculture and forestry, powered lawn and garden equipment - Symbols for operator controls and other displays Part 2 Symbols for agricultural tractors and machinery [IS:6283 (Part-1)- 2006 and IS: 6283 (Part-2)-2007 (Reaffirmed in January, 2019)]	: Conformed	Conforms
x) Agricultural Tractors and Machinery - Lighting device for travel on public roads (IS: 14683-1999) (Reaffirmed in January, 2019)]	: Conformed	Conforms

6.3 Salient Observations:

6.3.1 Laboratory tests:

6.3.1.1 PTO Performance:

- i) The maximum power was observed as **31.8 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 **270 g/kWh** against the declaration of **260 g/kWh**, which meets the requirement of IS: 12207-2019 with regard to tolerance limit.

6.3.1.2 Three-point linkage:

- i) The Lateral distance from lower hitch point to centre line of tractor does not meet the requirement of IS: 4468- 1997 (Part-I) (Reaffirmed in October, 2017). This should be looked into for necessary corrective action at production level.
- ii) Some of the parameters of three point linkage conform to Cat. I and some of them conform to Cat.II. Keeping in view the spirit of standardization, necessary improvement may be incorporated.

6.3.2 Recommendation with regard to safety on tractor:

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

- i) Longitudinal distance from seat index point to the centre of differential lock pedal has been measured as 195 mm against the requirement of 355 to 770 mm as per IS: 12343-1998 (Re-affirmed in January, 2019).
- ii) Vertical distance from seat index point to centre of foot rest has been measured as 660 mm. It should be maximum 630 mm as per IS: 12343-1998 (Re-affirmed in January, 2019).
- iii) Fuel shut-off knob should be remained in "STOP" position without application of sustainable manual effort.
- iv) Master shield around the PTO shaft should be provided as per the requirement of IS: 4931-1995 (Re-affirmed in January, 2019).
- v) Vertical retainers at both sides of clutch pedal should be provided as per IS: 12239 (Part-1) – 2018.
- vi) Spark arrester should be provided in the exhaust system as per the requirement of IS: 12239 (Part-2)-1999 (Re-affirmed in January, 2019).
- vii) The working clearance between position and draft control lever of hydraulic system was observed as 30 mm against the minimum requirement 70 mm as per IS: 12239 (Part-2)-1999 (Re-affirmed in January, 2019).


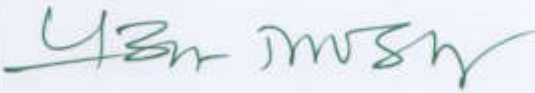
6.4 Adequacy of Literature supplied with machine:

6.4.1 The following literature was supplied with test sample for reference during the test.

- a) Operator's manual for Escorts, Farmtrac 6050 F1 UM tractor model
- b) service manual for Escorts, Farmtrac 6050 F1 UM tractor model
- c) Spare part's catalogue for Escorts, Farmtrac 6050 F1 UM tractor model

The supplied literature was found adequate as per IS: 8132-1999 (Reaffirmed in 2019)

TESTING AUTHORITY:

C.V. CHIMOTE TEST ENGINEER	
P.K. PANDEY DIRECTOR	

The report compiled by: **Poonam Khurasia, Senior Technical Assistant**

7. APPLICANT COMMENTS

Para No.	Our Reference	Applicant's comments
7.1	6.1.2 [(c) & (e)] 6.2 [(iii), (v), (vi), (vii) & (viii)], 6.3.1.2 & 6.3.2	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.

ANNEXURE- I

TRACTOR RUN HOURS DURING TEST

A.	LABORATORY AND TRACK TESTS	HOURS
1.	Running-in	50.00
2.	PTO performance test	2.30
3.	Nominal speed test	2.00
B.	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test	0.50
TOTAL:		54.8