



ESCORTS LIMITED, FARMTRAC 6050 TRACTOR



सत्यमेव जयते

भारत सरकार

कृषि एवं किसान कल्याण मंत्रालय

कृषि, सहकारिता एवं किसान कल्याण विभाग

मशीनीकरण एवं प्रौद्योगिकी प्रभाग

GOVERNMENT OF INDIA

MINISTRY OF AGRICULTURE AND FARMERS WELFARE

(Department of Agriculture, Cooperation & Farmers Welfare, Mechanization & Technology Division)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

ट्रैक्टर नगर, बुदनी (म.प्र.) ४६६ ४४५

CENTRAL FARM MACHINERY TRAINING & TESTING INSTITUTE

(An ISO : 9001 - 2015 Certified Institute)

Tractor Nagar, Budni (M.P.) 466 445

E-mail fmti-mp@nic.in

Website : <http://www.fmttibudni.gov.in>

Telephone : 07564 - 234729, 234743

Test requested by (applicant) : **M/s. Escorts Knowledge Management Centre ,15/5, Mathura Road, Faridabad -121 003 (Haryana)**

Selected for test by : Testing Authority

Place of running-in : At manufacturer's works

Duration of said running-in, (h):

- Engine : 20

- Transmission : 30

Method of Selection : The test sample was selected randomly out of five tractors from the production line by the representative of testing authority.

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:

Sl. No.	Particulars	As recommended by the manufacturer	As used during the test
1.	Engine	SAE 15W40	As recommended
2.	Transmission	SAE 80W90/EP-80	Oil originally filled in the tractor system was not changed
3.	Differential, rear final drive hydraulic system, Brake oil	UTTO (Tract ELFSF-3I)	
4.	Steering housing	SAE 90/EP-90	
5.	Grease	Servo grease MP	As recommended

3. ESSENTIAL TEST

3.1. SPECIFICATIONS

	<u>Previous sample</u>	<u>Present sample</u>
3.1.1 Tractor:		
Make	:	Escorts Limited
Model	:	FARMTRAC 6050
Variants, if any	:	None
Brand name	:	Farmtrac
Type	:	Four-Wheel, rear-wheel driven, unit construction, General Purpose, Standard, Agricultural Tractor
Month & year of manufacture	:	14-K-04 02/20
Chassis number	:	T05-2326284 T052496837LJ
Country of Origin	:	India
3.1.2 Engine:		
Make	:	Escorts Limited (apa)
Model	:	AF3.344F-3A
Type	:	Four stroke, naturally aspirated, liquid cooled, direct injection, diesel engine.
Serial number	:	E2330906 E2499801
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

	<u>Previous sample</u>	<u>Present sample</u>
3.1.3 Cylinder & Cylinder Head:		

T- 1514/2041/2021	ESCORT LIMITED, FARMTRAC 6050 TRACTOR Commercial- (Technical Extension)
-------------------	--

5. ADJUSTMENTS, DEFECTS, BREAKDOWNS AND REPAIRS

S. No.	Adjustment/Defect/Breakdown and Repairs	Tractor run hours
-----None-----		

6. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

6.1 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 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)	Maximum power under 2 hours test, (kW) (Natural ambient condition)	Evaluative	Declared value to be achieved with a tolerance of: ± 5 per cent for PTO Power & or engine power $> 26 \text{ kW} \pm 10$ per cent for PTO Power & or engine $\leq 26 \text{ kW}$	32.3 (D)	32.3 (D)	32.9	31.5	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	32.3 (D)	32.3 (D)	32.6	31.0	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Evaluative	+ 10% Max.	260 (D)	260 (D)	259	263	Yes
6.1.2	Safety features:							
a)	Guards against moving and hot parts	Evaluative	Belt drives, pulley, silencer, hydraulic pipes (As per IS 12239 part 2)			Meets the requirement		Yes
b)	Lighting arrangement	Evaluative	As per CMVR			Meets the requirement		Yes
c)	Seating requirement (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
e)	Dimension of three point linkage	Non-Evaluative	Should meet the requirements of IS 4468 (part 1) (as amended from time to time)			Does not meet the requirement		No
f)	Specification of linkage drawbar	Evaluative	Should meet the requirements of IS 12953 (as amended from time to time)			Meets the requirement		Yes
g)	Specification of swinging drawbar (wherever fitted)	Evaluative	Should meet the requirements of IS IS 12362 (part 3) (as amended from time to time)			Not provided		Not applicable

T- 1514/2041/2021	ESCORT LIMITED, FARMTRAC 6050 TRACTOR Commercial- (Technical Extension)
--------------------------	--

1	2	3	4	5	6	7
h)	1)	Maximum travelling speed at rated engine speed in reverse gears, kmph	Evaluative	Should not exceed 20 kmph	10.86kmph 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. The safety aspects about the operation of shuttle technology shall be brought in operation and manufacturer/dealer shall ensure the training on this aspect to operator before the delivery of tractor.	Not applicable	Not applicable

6.1.4 Labelling of tractors (Provision of labelling plate):						
1)	Make	Evaluative	Should conform to the requirements of CMVR along-with maximum PTO power in kW and year of manufacture in numerical form MM YY Digit 01-12 in box No.1 for MM will represent the months & next two digits in box No.2 for YY will represent the year of manufacturing.	ESCORTS LIMITED	Yes	
2)	Model	Evaluative		FARMTRAC 6050	Yes	
3)	Month & Year of manufacture	Evaluative		02/20	Yes	
4)	Engine number	Evaluative		E2499801	Yes	
5)	Chassis number	Evaluative		T052496837LJ	Yes	
6)	Declaration of PTO power, (kW)	Evaluative		32.3	Yes	
7)	Specific fuel consumption, g/kWh	Evaluative		260	Yes	

6.1.5 Literature (Submission to test agency)						
(a)	Operator manual	Evaluative	Provided/Not Provided	Provided	Not Provided	No
(b)	Parts Catalogue	Evaluative	Provided/Not Provided	Provided	Not Provided	No
(c)	Workshop/ Service manual	Evaluative	Provided/Not Provided	Provided	Not Provided	No
6.1.6	Fitment of Roll Over Protective Structures (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
6.1.7	Standard accessories	Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with the tractor	---	Provided	Yes
6.1.8	Accessories (optional)	Non Evaluative	Ballast weights, if fitted, should meet the requirement of CMVR	---	Provided	Yes

6.2 CATEGORY OF BREAKDOWNS / DEFECTS: (As per clause 5.0 of IS-12207-2019)					
S. No.	Category of breakdowns	Category (Evaluative / Non-Evaluative)	Requirements as per IS: 12207-2019	As observed	Whether meets the Requirements (Yes/No.)
1.	Critical	Evaluative	No critical breakdown	None	Yes
2.	Major	Evaluative	Not more than two and neither of them should be repetitive in nature	None	Yes
3.	Minor	Evaluative	Not more than five and frequency of each should not be more than two.	None	Yes
4.	Total breakdowns	Evaluative	In no case, the total number of breakdowns should exceed five, that is, (2 major + 3 minor) or 5 minor breakdowns.	None	Yes

6.3 Salient Observations:

6.3.1 Laboratory tests:

6.3.1.1 PTO Performance:

- i) The maximum power in case of previous & present sample were observed as **32.9 & 31.5 kW** respectively, 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 in case of previous & present sample was recorded as **259 & 263 g/kWh** against respectively the declaration of **260 g/kWh**, which meets the requirement of IS: 12207-2019 with regard to tolerance limit.
- iii) The maximum equivalent crankshaft torque in case of previous & present sample were recorded as **201.0 & 196.1Nm** against the declaration of **215 Nm**, which meets the requirement of IS: 12207-2019 with regard to tolerance limit.
- iv) The backup torque was observed as **22.6%** and meets the evaluative requirement of IS: **12207-2019**.

6.4 Maintenance / Service problems:

No noticeable maintenance or service problems, observed during the test.

6.5 Recommendation with regard to safety on tractor:

The following requirements, inter alia, may be considered for incorporation on the tractor as per relevant Indian Standards:

- i) Vertical retainness in inner side of clutch and brake pedal has not been provided as IS:12239 (Part-I).
- ii) Provision for spark arresting device has not been provided.
- iii) Provision for PTO master shield has not been provided.
- iv) Working clearance in between position control & draft control lever is 30 mm as per IS:12239(Part-II)-1999.

6.6 Adequacy of Literature supplied with machine:

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


- a) Operator's manual for Farmtrac 6050 model
- b) Repair manual for Farmtrac 6050 model
- c) Spare part's catalogue for Farmtrac 6050 model

6.6.2 The modified operator's manual submitted by the applicant was found adequate.


6.6.3 The literatures should also be brought out in national as well as other regional languages for the guidance of users and service personnel.

7. CITIZEN CHARTER

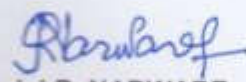
Time frame for Testing & Evaluation as per Citizen Charter	Duration of Test	Whether the Test Report is released within the time frame given in Citizen Charter	Remarks
10 Months	07 Months (July, 2020 to January, 2021)	Yes	--

TESTING AUTHORITY:


C.S. RAGHUWANSHI
AGRICULTURAL ENGINEER



C. V. CHIMOTE
TEST ENGINEER



J.J.R. NARWARE
DIRECTOR

The report compiled by: **Sh. Shivkumar Sharma**, Senior Technical Assistant.

8.0 APPLICANT COMMENT'S

Para No.	Our Reference	Applicant's comments
8.1	6.1.2 (e) & 6.5	Your valuable comments & suggestions for improvements are well taken. Under our policy of continuous product improvement these aspects are further being looked into and will try to eliminate these deviations soon wherever necessary

TRACTOR RUN HOURS DURING TEST

A.	LABORATORY AND TRACK TESTS	HOURS
1.	Running - in (Engine & transmission)	50.0
2.	PTO performance test	11.5
3.	Turning ability test & steering effort	0.50
B.	Miscellaneous test and other run hours, including idle run transportation, trial and preparation for test.	1.0
	TOTAL :	63.0