

व्यावसायिक परीक्षण रिपोर्ट (प्रारंभिक)
COMMERCIAL TEST REPORT (Initial)
[ONLINE TESTING]

संख्या/No. : T-1657/2188/2022

माह/Month : June, 2022

(यह परीक्षण रिपोर्ट 30/06/2025 तक वैध है / THIS TEST REPORT IS VALID UPTO 30/06/2025)



KARTAR 5136 TRACTOR



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)

E-mail: fmti-mp@nic.in,
Telephone: 07564-299003

Web site: <http://www.fmttibudni.gov.in>

T-1657/2188/2022	KARTAR 5136 TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/06/2025

1. FUEL AND LUBRICANTS

1.1 Fuel : The High-speed diesel oil supplied by M/s Indian Oil Corporation Limited having density of 0.826 g/cc at 15°C was used.

1.2 Lubricants:

S. No.	Particulars	As recommended by the manufacturer	As used during the test
1.	Engine oil	SAE 15W40	SAE 15W40
2.	Transmission, differential, final drive, hydraulic & brake oil	API GL4	Oil originally filled in the tractor was not changed
3.	Steering housing	EP-68	
3.	Grease	Multis EP 2	MP grease

2. SPECIFICATIONS

- 2.1 Tractor:**
- Make : Kartar
 Model : Kartar 5136
 Brand Name : NA
 Type : Rear Wheel Drive, Standard Agricultural Tractor.
 Month & year of manufacture : 09/2021
 Chassis number : IBA51K000011
 Country of origin : India
- 2.2 Engine:**
- Manufacturer's address : Kirloskar Oil Engines Ltd., Pune, Khadki, Maharashtra, India
 Make : Kirloskar Oil Engine Ltd.
 Model : 3R1040
 Type : Four strokes, liquid cooled, direct injection, naturally aspirated, compression ignition, diesel engine.
 Serial number : 3H.2123/2020 475
 Country of origin : India
- 2.2.1 Engine speed (rpm), (Manufacturer's recommended production settings):**
- Maximum speed at no load : 2300 to 2400
 - Low idle speed : 650 to 750
 - Speed at maximum torque : 1200 to 1400
- Rated speed, (rpm):**
- For PTO use : 1765
 - For drawbar use : 2200
- 2.3 Cylinder & Cylinder Head:**
- Number : Three
 Disposition : Vertical, Inline
 Bore/stroke, (mm) : 105/120
 Capacity as specified by the applicant, (cc) : 3117
 Compression ratio : 18±0.5: 1
 Type of cylinder head : Monoblock
 Type of cylinder liners : Wet, replaceable
 Type of combustion chamber : Re-entrant

T-1657/2188/2022	KARTAR 5136 TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/06/2025

2.	During field test:	
	During field test with 2 bottom disc plough, engine speed got reduced and engine got stopped. Upon this, applicant submitted a request letter no. R & D KTPL/2022-23 dated 01.04.2022 and following works were carried out: a) Fuel tank, fuel tank knob, fuel filters and sediment bowl were cleaned. b) Air bleeding from the fuel supply system was carried out.	105.89
	During field test with 2 bottom disc plough, front disc of the plough got detached from the standard frame which was welded and test resumed.	
	During field test with Rotavator, engine speed was dropped to 2050 rpm against the rated engine speed of 2200 rpm. The applicant has requested vide letter no. Nil dated 11.04.2022 for replacement of rotavator (having 48 blades on 6 flanges) with new one Rotavator (having 36 blades on 7 flanges). The request of applicant for replacement of rotavator was allowed and rotation test was carried out with new Rotavator (having 36 blades on 7 flanges) (see annexure I)	115.89
	During field test with Rotavator, fuel leakage was observed from the return pipe (overflow pipe line). Upon this, applicant submitted a request letter no. R&D KTPL/2022-23 dated 15.04.2022 for the replacement of return pipe line (Part No. BB111301012AA). The fuel overflow pipe line (Part No. BB111301012AA) replacement was allowed with new one of same specification.	125.55

15. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

- 15.1** 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: 12207-2019** 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: 12207-2019	Values declared by the applicant/ (D) Requirement (R)	As observed	Whether meets the requirements (Yes/No)
1	2	3	4	5	6	7
15.1.1	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.	32.6 (D)	30.4	No
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	32.6 (D)	30.4	No
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Evaluative	+ 10% max.	234 (D)	265	No

T-1657/2188/2022	KARTAR 5136 TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/06/2025

1	2	3	4	5	6	7
d)	Maximum equivalent crankshaft torque, (Nm)	Non Evaluative	± 8%	188 (D)	167.2	No
e)	Back-up torque, percent	Evaluative	12 percent	25.3 (D) 12.0 (R)	26.7	Yes
f)	Maximum operating temperature, (°C)					
	1) Engine oil	Evaluative	The declared value should not exceed the max. value specified by the oil company and the observed value under high ambient condition should not exceed the declaration.	130 (D)	106	Yes
	2) Coolant	Evaluative	The declared value should not exceed the boiling temperature of coolant under the pressurized or otherwise and the observed value under high ambient condition should not exceed the declaration.	114 (D)	90	Yes
g)	Engine oil consumption, (g/kWh)	Evaluative	Not exceeding 1% of SFC at max. Power under High ambient conditions.	2.65 Maximum (R)	0.316	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).	3.25 Maximum (R)	0.09	Yes
15.1.2	Drawbar performance :					
a)	Max. drawbar pull with ballasted corresponding to 15 percent wheel slip, (kN)	Non Evaluative	Minimum 70% of static mass of tractor with ballast.	19.9 (D) 19.32 Minimum (R)	20.58	Yes
b)	Max. drawbar pull without ballast corresponding to 15 percent wheel slip, (kN)	Evaluative	Minimum 70% of static mass of tractor without ballast or with standard ballast, as the case may be.	14.8 (D) 14.59 (R) Minimum	15.23	Yes
c)	Maximum drawbar power without 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.	26.9 (D) 24.3 (R) Minimum	25.3	Yes

T-1657/2188/2022	KARTAR 5136 TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/06/2025

1	2	3	4	5	6	7
d)	Maximum transmission oil temperature, (°C)	Evaluative	The declared value should not exceed the maximum value specified by oil company	105 (D)	81	Yes
15.1.3	Power lift and hydraulic pump performance :					
a)	Maximum lifting capacity throughout the range of lift, (kN):					
1)	At hitch points	Evaluative	Tolerance of ± 10%	14.6 (D)	15.80	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.	11.0 (D) 7.15 (R) Minimum	10.23	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	80	No
15.1.4	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 (R)	6.77	Yes
2)	Hot brake	Evaluative	10	10 (R)	6.91	Yes
b)	Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 m/s ² , (N)	Evaluative	600	600 (R) Maximum	177 to 224	Yes
c)	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
15.1.5	Noise measurement :					
a)	Maximum ambient noise emitted by the tractor, dB(A)	Evaluative	As per CMVR	88 (R)	84	Yes
b)	Maximum noise at operator's ear level, dB(A)	Evaluative	As per CMVR	96 (R)	94	Yes
15.1.6	Amplitude of mechanical vibrations at:					
1)	Left foot rest	Non Evaluative	100 microns (max.)	100(R)	103	No
2)	Right foot rest				136	No
3)	Seat (with driver seated)				134	No
4)	Steering wheel				166	No

T-1657/2188/2022	KARTAR 5136 TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/06/2025

1	2	3	4	5	6	7
15.1.7	Air cleaner:					
	Maximum air cleaner oil pull over, (%)	Evaluative	0.25 (Max.)	Not applicable as dry type air cleaner is provided		Not applicable
15.1.8	Haulage requirements :					
a)	Gross mass of the trailers, (tones):					
	Two wheel	Non Evaluative	As specified by the manufacturer	5.0 (D)	5.0	Yes
	Four wheel	Non Evaluative		7.0 (D)	7.0	Yes
b)	Distance travelled / liter of fuel consumption, (km/l):					
	Two wheel	Non Evaluative	As specified by the manufacturer	3.5 to 5.5 (D)	5.05 to 5.30	Yes
	Four wheel	Non Evaluative		4.0 to 6.0 (D)	4.65 to 4.75	Yes
c)	Fuel consumption, (ml/km/tonne):					
	Two wheel	Non Evaluative	As specified by the manufacturer	30 to 50 (D)	37.7 to 39.7	Yes
	Four wheel	Non Evaluative		35 to 55 (D)	30.0 to 30.7	No
15.1.9	Wetland cultivation :					
	Sealing for the following assemblies:	Evaluative	The identified assemblies should essentially meet the requirement of IS: 11082. No water ingress in the identified assembly given in column-2. If tractor does not meet the requirements of wetland cultivation, it may be recommended for dry land operation only.	There should be no ingress of water and/or mud (R)	Manufacturer has recommended that “the tractor is not suitable for wet land cultivation (puddling operation)”	---
1)	Clutch assembly	-do-				
2)	Brake housings	-do-				
3)	Front axle hubs	-do-				
4)	Engine Oil	-do-				
5)	Transmission Oil	-do-				
15.1.1	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	Meets the requirement		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		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

T-1657/2188/2022	KARTAR 5136 TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/06/2025

1	2	3	4	5	6	7
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
f)	Specifications of linkage drawbar	Evaluative	Should meet the requirements of IS: 12953 (As amended from time to time)		Meets the requirement	Yes
g)	Swinging drawbar (wherever fitted)	Evaluative	Should meet the requirement 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		14.57 (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 fitted	Not applicable
15.1.11	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 and next two digits in box No.2 for YY will represent the year of Manufacturing.		Kartar	Yes
	2) Model	Evaluative			Kartar 5136	Yes
	3) Month & Year of manufacture	Evaluative			09/21	Yes
	4) Engine number	Evaluative			3H.2123/2020 475	Yes
	5) Chassis number	Evaluative			IBA51K000011	Yes
	6) Maximum PTO power, (kW)	Evaluative			32.6	Yes
15.1.12	Discard limit for:					
(a)	Cylinder bore diameter, (mm)	Evaluative	To be specified by the manufacturer and supported by the printed literature	105.20	105.004 to 105.014	Yes
(b)	Clearance between piston & cylinder liner at skirt, (mm)	Non Evaluative		0.40	0.129 to 0.132	Yes
(c)	Piston diameter at skirt, (mm)	Non Evaluative		104.7	104.881 to 104.885	Yes

T-1657/2188/2022	KARTAR 5136 TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/06/2025

1	2	3	4	5	6	7
d)	Ring end gap (mm):					
	- Top comp. ring.	Evaluative	To be specified by the manufacturer and supported by the printed literature	1.50	0.40 to 0.45	Yes
	- 2 nd comp. ring.			1.50	0.50 to 0.55	Yes
	- Oil ring.			1.50	0.45	Yes
e)	Ring groove clearance (mm):					
	- Top comp. ring.	Evaluative	To be specified by the manufacturer and supported by the printed literature	0.20	Tapered	---
	- 2 nd comp. ring.			0.20	0.068 to 0.070	Yes
	- Oil ring.			0.20	0.048 to 0.050	Yes
f)	Clearance of main bearings (mm):					
	- Diametrical clearance	Evaluative	To be specified by the manufacturer and supported by the printed literature	0.20	0.087 to 0.098	Yes
	- Crankshaft end float	Evaluative		0.50	0.25	Yes
g)	Clearance of big end bearings, (mm):					
	- Diametrical	Evaluative	-do-	0.20	0.069 to 0.074	Yes
	- Axial	Evaluative	-do-	0.75	0.45 to 0.50	Yes
h)	Clearance between king pin and bush, (mm)	Non Evaluative	-do-	0.50	0.093 to 0.097	Yes
i)	Clearance between centre pin and bush, (mm)	Non Evaluative	-do-	0.50	0.151 to 0.190	Yes
15.1.13	Literature (Submission to test agency)					
(a)	Operator manual	Evaluative	Provided / Not Provided	Provided	Provided*	Yes
(b)	Parts Catalogue	Evaluative	Provided / Not Provided	Provided	Provided	Yes
(c)	Workshop/ Service manual	Evaluative	Provided / Not Provided	Provided	Provided*	Yes
	*combined Operator and Service manual provided					
15.1.14	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:1182 or OECD code or equivalent International Standard		Not fitted	Not applicable
15.1.15	Standard Accessories	Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with tractor		Provided	Yes
15.1.16	Accessories (optional)	Non Evaluative	Ballast weight, if fitted, should meet the requirement of CMVR		Provided	Yes

T-1657/2188/2022	KARTAR 5136 TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/06/2025

15.2 CATEGORY OF BREAKDOWNS / DEFECTS (As per clause 5.0 of IS:12207-2019):					
Sl. No.	Category of break-downs	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 (1 major + 4 minor) or 5 minor breakdowns.	None	Yes

15.3 Salient Observations:

15.3.1 Laboratory tests:

15.3.1.1 PTO Performance Test:

- i) During PTO performance test, specific fuel consumption at maximum PTO power was observed as 263 g/kWh against the declaration of 234 g/kWh and which does not meet the evaluative requirement with regards to tolerance limit as per IS:12207-2019.

Upon this, the applicant has requested for carrying out following works on engine vide letter no. Nil dated 24.11.2021:

- (1) Tappet clearances of the inlet and exhaust valves were checked. Tappet clearance of all inlet valves were found as 0.25 mm each against the specified tappet clearance of 0.25 mm. Tappet clearance of 1st, 2nd and 3rd exhaust valve were found 0.30 mm, 0.35 mm and 0.30 mm respectively against the specified tappet clearance of 0.30 mm. So, tappet clearance of 2nd exhaust valve was adjusted to 0.30 mm.
- (2) Fuel delivery was checked and found within the specified specification.
- (3) Fuel injection timing was checked and observed as 12 degree BTDC against the specification of 12±1 degree before TDC.
- (4) Fuel meter connection with the engine was checked and found satisfactory.
- (5) Air cleaner filters elements were cleaned and refitted.

Fuel injector pressure was checked and found as 25.5, 26.5 and 25.0 MPa for 1st, 2nd and 3rd injector respectively against the specification of 27+0.10 MPa. The injection pressure of all the three injectors was adjusted to 27.0 MPa.

- ii) During the maximum power search test, maximum PTO power was observed as 30.6 kW against the declaration of 32.6 kW and which does not meet the evaluative requirement with regards to tolerance limit as per IS:12207-2019. The specific fuel consumption at maximum PTO power was observed as 264 g/kWh against the declaration of 234 g/kWh and which does not meet the evaluative requirement with regards to tolerance limit as per IS:12207-2019.

Upon this, the applicant has requested vide letter no. Nil dated 03.12.2021 for checking injector pressure. Injector pressure of all three injectors was checked and observed as 27.0 MPa which was within the specified limit of 27.0+0.1 MPa.

T-1657/2188/2022	KARTAR 5136 TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/06/2025

- iii) The maximum PTO power was observed as 30.4 kW against the declaration of 32.6 kW which does not meet the evaluative requirement with regards to tolerance limit as per IS: 12207-2019.
- iv) The specific fuel consumption at maximum PTO power was observed as 265 g/kWh against the declaration of 234 g/kWh which does not meet the evaluative requirement with regards to tolerance limit as per IS:12207-2019.
- v) Maximum equivalent crankshaft torque was observed as 167.2 Nm against the declaration of 188 Nm which does not meet the non-evaluative requirement with regards to tolerance limit as per IS: 12207-2019.

15.3.1.2 Hydraulic Performance Test:

Maximum drop in the height of the point of application of the force after 30 minutes was observed as 80 mm against the tolerance limit as per IS: 12207-2019. This calls for stringent quality control over hydraulic system.

15.3.1.3 Mechanical Vibration:

The amplitude of mechanical vibration on various assemblies marked as (*) in Chapter – 9 of this test report is on higher side. This calls for dampening down of vibrations especially on LHS and RHS foot rest, operator's seat & steering control wheel to improve the operational comfort and service life of components.

15.3.1.4 Specifications of three point linkage:

- i) Lateral distance from lower hitch point to centre line of tractor was observed as 363 against the requirement of 359 mm for Category I. This should be looked into for necessary corrective action.
- ii) Leveling adjustment of lower links was observed as 93 mm against the minimum requirement of 100 mm for Category I & II. This should be looked into for necessary corrective action.

15.3.1.5 Specifications

- i) The tractor model in the technical specification is mentioned as "5136" while as per the labeling plate the model name is mentioned as "Kartar 5136".
- ii) Coolant brand and Coolant water ratio should be mentioned the operator and service manual
- iii) Manufacturer's recommended production settings for PTO use are mentioned as 1765 while for Drawbar test it is mentioned as 2200.
- iv) Type of gear box is mentioned as "combination of constant and sliding mesh" while on observation it was fitted with "combination of constant and sliding mesh with epicyclic reduction unit for Low – High gear".
- v) The discard limits of component and assemblies of tractor were not mentioned unambiguous. Which were revised later.
These all issues call for stringent examination of technical specifications of the test sample before submission of the test sample.

15.3.2 Field tests:

- i) During field test with 2 bottom disc plough, engine speed got reduced and engine got stopped. Upon this, applicant submitted a request letter no. R & D KTPL/2022-23 dated 01.04.2022 and following works were carried out:
 - a) Fuel tank, fuel tank knob, fuel filters and sediment bowl were cleaned.
 - b) Air bleeding from the fuel supply system was carried out.
- ii) During field test with 2 bottom disc plough, front disc of the plough got detached from the standard frame which was welded and test resumed.

T-1657/2188/2022	KARTAR 5136 TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/06/2025

- iii) During field test with Rotavator, engine speed was dropped to 2050 rpm against the rated engine speed of 2200 rpm. The applicant has requested vide letter no. Nil dated 11.04.2022 for replacement of rotavator (having 48 blades on 6 flanges) with new one Rotavator (having 36 blades on 7 flanges). The request of applicant for replacement of rotavator was allowed and rotavation test was carried out with new Rotavator (having 36 blades on 7 flanges) (see annexure I)
- iv) During field test with Rotavator, fuel leakage was observed from the return pipe (overflow pipe line). Upon this, applicant submitted a request letter no. R&D KTPL/2022-23 dated 15.04.2022 for the replacement of return pipe line (Part No. BB111301012AA). The fuel overflow pipe line (Part No. BB111301012AA) replacement was allowed with new one of same specification.
- v) Manufacturer has recommended that **“the tractor is not suitable for wet land cultivation (puddling operation)”**. Hence test was not conducted. This fact should be highlighted in the printed literature/manuals.

15.4 Maintenance / Service Problems:

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

15.5 Recommendation with regard to safety on tractor:

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

- i) Fuel shut-off knob should be remained in “STOP” position without application of sustainable manual effort.
- ii) Vertical retainers at both sides of clutch pedal should be provided as per IS: 12239 (Part-1) – 2018.
- iii) Spark arrester should be provided in the exhaust system as per the requirement of IS: 12239 (Part-2)-1999 (Re-affirmed in January, 2019).
- iv) The working clearance between position and draft control lever of hydraulic system was measured as 30 mm against the minimum requirement 70 mm as per IS: 12239 (Part-2)-1999 (Re-affirmed in January, 2019).
- v) Master shield of PTO shaft should be provided as per the requirement of IS: 4931-1995 (Re-affirmed in January, 2019).

15.6 Adequacy of Literature supplied with machine:



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

- a) Operator and Service Manual for “Kartar 5136” tractor model.
- b) Spare part catalogue for “Kartar 5136” tractor model.

15.6.2 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) Safe hitch height of the trailer.
- ii) Coolant water ratio.
- iii) Ballasting details for various operation are not provided.
- iv) Details of matching implements and trailer are not provided.
- v) Incorporate correct gear selection pattern (wrongly mentioned on page no. 28).
- vi) As this tractor model is not suitable for wet land cultivation. This fact should be clearly mentioned in the printed literature/manuals.
- vii) Tractor is fitted as hydrostatic steering as standard fitment while in the operator manual it is mentioned as optional fitment (page no 86 of operator and service manual). This should be looked into for necessary correction.
- viii) The photo of the tractor on the front cover page of Manual and Spare part catalogue does not match with the Operator and Service of the submitted tractor. This calls for stringent checking of the printed literature.

TESTING AUTHORITY:

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

Draft test report is compiled by: **Nitesh Kumar Verma**, Agricultural Engineer.

16. Applicant's comments

Para no.	Our reference	Applicant's comments
16.1	2.13.2 & 15.3.1.4	Design aspect of three point linkage will be checked and changed as per relevant standard.
16.2	2.20.2 (i)	Frequency of grease lubrication will be provided during production of tractors.
16.3	2.20.4 & 15.5	1) Design will be looked into for vertical retainers. 2) Spark arresting device will be provided during production.
16.4	2.20.5	The design of the control sector will be checked and improvement will be done.
16.5	4.3, 15.3.1.1(v)	We will raise maximum crankshaft torque matter with the engine manufacturer and necessary changes will be done.
16.6	15.3.1.3	Design aspect of the vibrations will be checked and will control these during the tractor production.
16.7	15.3.1.2	Quality of the hydraulic components will be controlled and be taken care during the regular production.
16.8	15.3.1.5 (i)	Specifications of the tractor will be updated.
16.9	15.3.1.5 (ii)	Coolant brand and ratio will be updated in Operator & Service manual.
16.10	15.3.1.5 (iii), (iv) & (v)	Stringent examination of technical specifications will be done before test sample submission.
16.11	15.3.2(i)	Provision for filter on the fuel filling side of the diesel tank will be studied.
16.12	15.3.2(iii)	Rotavator specifications will be updated in the Operator and service manual to 7 flange and 36 blades.
16.13	15.5	All the safety recommendations will be worked upon and implemented during regular production.
16.14	15.6.2 (i, ii, iii, iv & v)	All the recommendations given for operator manual will be updated and necessary things related to tractor operation will be provided.
16.15	15.6.2	All the points will be updated in the printed literature.

T-1657/2188/2022	KARTAR 5136 TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/06/2025

ANNEXURE- I

BRIEF SPECIFICATION OF MATCHING IMPLEMENTS AS DECLARED BY APPLICANT

S.No.	Item	Disc Plough	Rotavator
1.	Make	Farmking	Mahindra
2.	Type	Mounted	Mounted
3.	No. of bottom/blades	Two	36 (in 7 flanges)
4.	Type of bottom/blades	Plain concave	Hatchet shape
5.	Size of bottom/blades, (mm)	660	265 x 85 x 8
6.	Spacing of bottom/flanges, (mm)	500	325
7.	Lower hitch point span, (mm)	800	785
8.	Mast height, (mm)	450	595
9.	Overall dimensions, (mm):		
	- Length	1500	970
	- Width	920	1690
	- Height	1120	1105
10.	Gross mass, (kg)	180	450

ANNEXURE- II

BRIEF SPECIFICATION OF TRAILER DECLARED AS MATCHING TRAILER BY APPLICANT

Sl No.	Item	Single Axle Trailer	Double Axle Trailer
1.	Make	Kisan Engineering Works, MIDC, Awadhan Dhule, (M.S.)	
2.	Model	Kisan 1062	Not available
3.	Type of trailer	Semi - Trailer	Semi – Trailer
4.	Number of axles	Single	Double
5.	Un laden Weight of Trailer, (kg)	1670	2800
6.	Fully laden Weight of Trailer, (kg)	4000	5500
7.	Overall dimensions of Trailer, (mm):		
	Overall Width	1870	2140
	Overall Length	4180	5785
	Overall Height	2175	2110
	Wheel Base	Not applicable	2835
	Wheel Track	1600	1740 (Front) &1765 (Rear)
8.	Dimension of fitted Platform, (mm):		
	Length	3040	4225
	Width	1830	2135
	Height from ground	1190	1305
9.	Brakes of Trailer	Not Provided	Not Provided

T-1657/2188/2022	KARTAR 5136 TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/06/2025

ANNEXURE- III

TRACTOR RUN HOURS DURING TEST

A.	LABORATORY AND TRACK TESTS:	HOURS
1.	Running-in	57.0
2.	PTO performance test	17.84
3.	Drawbar performance test	18.81
4.	Power lift and hydraulic pump performance test	4.75
5.	Turning ability & Location of centre of gravity	0.42
6.	Operator's field of vision	0.17
7.	Brake test	2.75
8.	Noise measurement	1.50
9.	Mechanical vibration test	0.83
10.	Theoretical speed test	1.66
B.	FIELD TEST:	
1.	Disc Plough	15.08
2.	Rotavation	20.92
C.	HAULAGE TEST:	4.98
D.	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test	12.99
TOTAL:		159.70