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COMMERCIAL TEST REPORT (Initial)

Lakl[;k / No. : T- 1629/2160/2022
eghuk / Month : February, 2022

[ONLINE TESTING]

(;g ijh{k.k fjiksVZ 28/02/2025 rd oSèk gSA@ THIS TEST REPORT IS VALID UPTO : 28/02/2025)

TAFE, MF 245 DI S6 SMART TRACTOR

सत्यमेव जयते

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, Cooperation & Farmer's Welfare)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान
ट्रैक्टर नगर, बुदनी (म.प्र.)466 445
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 **Web site:** http://www.fmttibudni.gov.in

Telephone: 07564-234729, 234743

Manufacturer	:	**M/s. Tractor and Farm Equipment Limited,** Post Box No. 3302, (New 77), 35 Mahatma Gandhi Road, Nungambakkam, Chennai - 600 034 (Tamil Nadu)
Location of other manufacturing plants (apa)	:	(i) **M/s. Tractor and Farm Equipment Limited,** Kalladipatti Plant, 10/205, Kalladipatti (P.O.), Pin code- 624201, Dindigul district, (Tamil Nadu)
	:	**(ii) M/s. Tractor and Farm Equipment Limited,** Doddaballapur plant, Plot No. 1, Kiadb Industrial Estate, Doddaballapur, Bangalore – 561203
Test requested by (applicant)	:	The manufacturer
Selected for test by	:	The Testing Authority
Place of running-in	:	At manufacturer‟s work place
Duration of said running-in, (h):		
- Engine	:	12
- Transmission	:	24
Method of Selection	:	The test sample was selected randomly out of five tractors from the production line by the representative of testing authority through online.

Details of tractors made available for random selection :		
Sr. No.	Chassis Number	Engine Number
(i)	MEAAF895DM1315028	S325.5L66691
(ii)	MEAAF895DM1315038	S325.5L66710
(iii)	MEAAF895DM1315041	S325.5L66692
(iv)	MEAAF895DM1315044	S325.5L66698
(v)	MEAAF895DM1315052	S325.5L66693

1. SPECIFICATIONS

1.1 Tractor:

Make	:	TAFE
Model	:	MF 245 DI S6 SMART
Brand name	:	None
Variants, if any	:	None
Type	:	Rear wheel drive, Standard Agricultural Tractor.
Month & Year of manufacture	:	April, 2021 (04 / 2021)
Chassis number	:	MEAAF895DM1315052
Country of origin	:	India

1.2 Engine:

Manufacturer‟s address	:	M/s. Simpsons & Co. Ltd., Huzur Garden, Sembiem, Chennai- 600011
Make	:	Simpson
Model	:	TIIIA 325.5-F31
Type	:	Four stroke, natural aspirated, water cooled, direct injection, diesel engine
Serial number	:	S325.5L66693
Year of manufacture	:	Not Available

18. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

18.1 On the basis of tests conducted the performance results have been summarized as evaluative (mandatory) / Non-evaluation (Non-mandatory) parameter applicable for qualifying Minimum Performance criteria as per Clause-4 (Table-1) of **Indian standard: 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 require-ments (Yes/No)
1	2	3	4	5	6	7
18.1.1	**PTO Performance :**					
a)	Maximum power under 2 h test, (kW) (Natural ambient condition)	Evaluative	Declared value to be achieved with a tolerance of ±5 % for PTO power and or Engine power >26 kW ±10% for PTO power and or engine ≤ 26 kW	30.5 (D)	29.8	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	30.5 (D)	29.8	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Evaluative	+10 percent Max.	265 (D)	257	Yes
d)	Maximum equivalent crankshaft torque, (Nm)	Non Evaluative	± 8 percent	155 (D)	159.2	Yes
e)	Back-up torque, percent	Evaluative	12 percent	12 (D) 12 (R)	23.0	Yes
f)	**Maximum operating temperature, (^{O}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.	132 (D)	125	Yes
	2) Coolant (water)	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.	112 (D)	96	Yes
g)	Engine oil consumption, (g/kWh)	Evaluative	Not exceeding 1% of SFC at max. power under High ambient conditions	2.78 (Maximum) (R)	0.366	Yes
h)	Smoke level	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 per metre (Maximum) (R)	0.05	Yes

1	2	3	4	5	6	7
18.1.2	**Drawbar performance :**					
a)	Maximum drawbar pull with ballast corresponding to 15 percent wheel slip, (kN)	Non Evaluative	Minimum 70 percent of static mass with ballast	20.00 (D) 19.68 (R) (Minimum)	22.93	Yes
b)	Max. drawbar pull with standard ballast, as the case may be corresponding to 15 percent wheel slip or 7 percent track slip, (kN)	Evaluative	Minimum 70 percent of static mass of tractor without ballast or with standard ballast, as the case may be	14.00 (D) 14.14 (R) (Minimum)	17.54	Yes
c)	Maximum drawbar power with standard ballast as the case may be, (kW)	Evaluative	Minimum 80 % of PTO power as referred in Sl No. i) a) of PTO performance in case of tractors having total static mass > 1500 kg Minimum 75 % of PTO power as referred in Sl 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 Sl No. i) a) of engine performance in case of tractors which do not have a PTO shaft.	24.5 (D) 23.8 (R) (Minimum)	25.5	Yes
d)	Max. transmission oil temperature (^{o}C)	Evaluative	The declared value should not exceed the maximum value specified by oil company	132 (D)	88	Yes
18.1.3	**Power lift and hydraulic pump performance :**					
a)	Maximum lifting capacity throughout the range of lift, (kN)**:**					
	1) At hitch points	Evaluative	[Tolerance of ± 10%]	12.50 (D)	13.01	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.	8.00 (D) 7.01 (R) (Minimum)	11.13	Yes
b)	Maximum drop in the height of the point of application of the force after each 5 min. interval for a total duration of 30 min/ mm	Non Evaluative	The observed value should not exceed 50 mm.	50 (D) 50 (R) (Maximum)	80	**No**
18.1.4	**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)	7.92	Yes
	2) Hot brake	Evaluative	10	10 (R)	8.12	Yes
b)	Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 $m/s^{2,}$ (N)	Evaluative	600	600 (R)	308 to 437	Yes

1	2	3	4	5	6	7
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 (R)	Yes	Yes
18.1.5	**Noise measurement :**					
a)	Maximum ambient noise emitted by the tractor at bystanders position, dB(A)	Evaluative	88 dB(A) for >1.5 tonne GVW and 85 dB(A) for <1.5 tonne GVW (as per CMVR)	88 (R)	85	Yes
b)	Maximum noise at operator's ear level dB(A)	Evaluative	As per CMVR	96 (R)	95	Yes
18.1.6	**Amplitude of mechanical vibrations at :**					
	1) Left foot rest	Non Evaluative	100 microns (max)	100 (D)	141	**No**
	2) Right foot rest				174	**No**
	3) Seat (with driver seated)				46	Yes
	4) Steering Wheel				272	**No**
18.1.7	**Air cleaner oil pull over :**					
	Maximum air cleaner oil pull over (%)	Evaluative	0.25 % (max.)	0.25	0.13	Yes
18.1.8	**Haulage requirements :**					
a)	Gross mass of the trailers, (tones)**:**					
	-Two wheel	Non Evaluative	--	6.0 (D)	6.0	Yes
	-Four wheel		--	6.0 (D)	6.0	Yes
b)	Distance travelled / litre of fuel consumption, (km/l)**:**					
	-Two wheel	Non Evaluative	--	4.8 to 6.5 (D)	4.50 to 4.65	**No**
	-Four wheel		--	4.8 to 6.5 (D)	4.67 to 4.70	**No**
c)	Fuel consumption (ml/km/tonne)**:**					
	-Two wheel	Non Evaluative	--	25 to 30 (D)	35.86 to 37.07	**No**
	-Four wheel		--	25 to 30 (D)	35.46 to 35.66	**No**
18.1.9	**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	The manufacturer has recommended that the tractor is not suitable for wetland cultivation (puddling operation).	No ingress ofwater and/or mud was observed.	**Yes**
	1) Clutch assembly	-do-				
	2) Brake housings	-do-				
	3) Front axle hubs	-do-				
	4) Engine oil	-do-				
	5) Transmission oil	-do-				

1	2	3	4	5	6	7
18.1.10	**Safety features:**					
a)	Guards against moving and hot parts	Evaluative	Belt drives, pullies, 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 requirements (Tractors having more than 1150 mm rear track width)	Non Evaluative	Should meet the requirements of IS: 12343-1998	-	**Does not meet the requirement**	**No**
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)	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:12953-1990	-	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 fitted**	**Not appli-cable**
h)	1) Maximum travelling speed at rated engine speed in reverse gears, Kmph	Evaluative	Should not exceed 20 Kmph	-	(10.66 kmph) (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 appli-cable**

1	2	3	4	5	6	7
18.1.11	**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 & next two digits in box No.2 for YY will represent the year of manufacturing.		TAFE	Yes
	2) Model	Evaluative			MF 245 DI S6 SMART	Yes
	3) Month & Year of manufacture	Evaluative			04/21	Yes
	4) Engine number	Evaluative			S325.5L66693	Yes
	5) Chassis number	Evaluative			MEAAF895DM1315052	Yes
	6) Declaration of PTO power,kW	Evaluative			30.5	Yes
	7) Specific fuel consumption ,g/kWh	Evaluative			265	Yes
18.1.12	**Discard limit for:**					
(a)	Cylinder bore diameter, (mm)	Evaluative	To be specified by Manufacturer	95.202	95.005 to 95.019	Yes
(b)	Clearance between piston & cylinder liner at skirt, (mm)	Non Evaluative		0.25 With new ring	0.194 to 0.202	Yes
(c)	Piston diameter at skirt, mm	Non Evaluative		Piston is discard when the ring grove clearance exceed 0.25 with new ring	94.817 to 94.822	Yes
(d)	**Ring end gap (mm):**					
	- Top comp. ring.	Evaluative	-do-	1.5	0.25 to 0.35	Yes
	- 2nd comp. ring.		-do-	1.5	0.55 to 0.65	Yes
	- Oil ring.		-do-	1.5	0.40 to 0.55	Yes
(e)	**Ring groove clearance (mm):**					
	- Top comp. ring.	Evaluative	-do-	--	Tappered	--
	- 2nd comp. ring.	-do-	-do-	0.25	0.084 to 0.089	Yes
	- Oil ring.	-do-	-do-	0.25	0.019 to 0.027	Yes
(f)	**Clearance of main bearings, (mm):**					
	- Diametrical	Evaluative	-do-	0.50	0.101 to 0.125	Yes
	- Crank shaft end float	Evaluative	-do-	0.50	0.100	Yes
(g)	**Clearance of big end bearings, (mm):**					
	- Diametrical	Evaluative	-do-	0.50	0.057 to 0.109	Yes
	- Axial	Evaluative	-do-	0.75	0.30 to 0.40	Yes
(h)	Clearance between king pin and bush,(mm)	Non Evaluative	-do-	0.50	0.111 to 0.140	Yes
(i)	Clearance between center pin and bush,(mm)	Non Evaluative	-do-	0.50	0.105 to 0.124	Yes

1	2	3	4	5	6	7
18.1.13	**Literature (Submission to test agency):**					
(a)	Operator manual	Evaluative	The printed literature in booklet form should be provided as per IS 8132 & should submit along with the test sample	Provided / Not Provided	Provided	Yes
(b)	Parts Catalogue	Evaluative		Provided / Not Provided	Provided	Yes
(c)	Workshop/ Service manual	Evaluative		Provided / Not Provided	Provided	Yes
18.1.14	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 provided	**Not fitted**	**Not applicable**
18.1.15	Standard accessories	Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with tractor	Provided	Provided	Yes
18.1.16	Accessories (Optional)	Non Evaluative	Ballast weights if fitted should meet the requirement of CMVR.	Provided	Provided	Yes

18.2	**CATEGORY OF BREAKDOWNS / DEFECTS (As per clause 5.0 of IS:12207-2019):**				
S. No.	**Category of Breakdown**	**Category (Evaluative / Non Evaluative)**	**Requirements as per IS: 12207-2019**	**As observed**	**Whether meets the requirement (Yes/No.)**
1.	Critical breakdown	Evaluative	There is no 'critical breakdown' during the course of testing.	None	Yes
2.	Major breakdowns	Evaluative	There are not more than 02 major breakdowns and neither of them is of repetitive nature.	None	Yes
3.	Minor breakdowns	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

18.3 Conformity with following IS:

i)	Guide lines for declaration of power and specific fuel consumption and labelling of agricultural tractors (First revision) [IS10273: 1987 (Reaffirmed in January, 2019)]	:	Conforms
ii)	Agricultural tractors - Rear mounted power take-off - Types 1, 2 and 3 (third revision) [IS:4931-1995 (Reaffirmed in January, 2019)]	:	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)]	:	**Does not conform**
iv)	Drawbar for agricultural tractors – Link type [IS 12953:1990 (Reaffirmed October, 2017)]	:	Conforms
v)	Agricultural tractors - Operator"s seat technical requirement [IS 12343 –1998 (First revision) (Reaffirmed in January, 2019)]	:	**Does not conform**
vi)	Guide for safety & comfort of operator of agricultural tractors: Part 1 General requirements (first revision): [IS 12239 (PT-1) -2018 /ISO 4254-1:2018]	:	**Does not conform**
vii)	Tractors and machinery for agriculture and forestry – Technical means for ensuring safety Part 2: Tractors (first revision) (IS 12239 (PT-2) 1999) (Reaffirmed in January, 2019)]	:	**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)]	:	**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)]	:	**Does not conform**
x)	Agricultural Tractors and Machinery - Lighting device for travel on public roads (IS: 14683-1999) (Reaffirmed in January, 2019)]	:	Conforms

18.4 Salient Observations:

18.4.1 Laboratory tests:

18.4.1.1 Hydraulic performance test:

The maximum cumulative drop in the height of hydraulic lift during lift maintenance load test for total duration of 30 minute has been recorded as **80 mm** against the requirement of **50 mm** maximum as per IS:12207-2019. This should be looked into for necessary corrective action.

18.4.1.2 Mechanical Vibration:

The amplitude of mechanical vibration on various assemblies marked as (*) in Chapter-9 of this test report is on higher side especially at especially on the left and right foot rest and steering wheel. This calls for dampening down of vibrations to improve the operational comfort and service life of components.

18.4.1.3 Three point linkage:

(i) The lateral distance from lower hitch point to centre line of the tractor of three point linkage does not meet the requirement of IS: 4468 (Part-I): 1997 (Re-affirmed in October, 2017). This should be looked into for necessary corrective action.

(ii) Some of the parameters of three point linkages conform to Cat. I and some of them conform to Cat. II. Keeping in view the spirit of standardization, necessary improvements may be incorporated.

18.4.1.4 Operator's Seat:

Longitudinal distance from seat index point to center of steering control wheel does not meet the requirement of the IS: 12343 -1998 (Re-affirmed in 2019). This should be looked into for necessary corrective action.

18.4.1.5 Operator's work place:

Operator"s work place meets the requirements of IS: 12239 (Part-I) 1996 (Reaffirmed Oct., 2017), except the following:

(i) Provision of vertical retainers at inner sides of clutch & brake pedal.

(ii) Provision of spark arresting device in the exhaust system.

18.4.1.6 Constructional requirement with regard to safety:

Meets the requirements of IS: 12239 (Part-II)-1996 (Re-affirmed in January, 2019), except the following:

(i) Minimum Cautionary notice as per clause 11.2 of above referred standard has not been provided.

(ii) PTO master shield has not been provided.

(iii) Differential lock has been not provided.

18.4.1.7 Specification of Power Take-off Shaft :

In addition to clockwise rotation of PTO shaft, anticlockwise rotation has also been provided in contrast of "clockwise rotation" recommended in Clause No.4 of IS: 4931-1995. The provision of anticlockwise rotation has the potential of rendering the tractor not conforming to IS: 4931- 1995. In this case, it may lead to non-inclusion of tractor in the subsidy list. This should be looked into for necessary corrective action.

In response thereto, the applicant vide letter No. Nil dated 03.03.2022 has submitted that "to meet the IS: 4931-1995 requirement, we have decided to remove/addition of following parts and thereby there would be only one direction of rotation i.e. clockwise, and which conforms to IS: 4931-1995 was allowed. Thus tractor now became IS: 4931-1995 conformant.

(A)	**Removed parts**	
Sl.No.	**Part name**	**Part number**
1.	Gear driven	1549C03601
2.	Lever pinion MS-PTO	1549C06101
3.	Guide plate	1549C05101
4.	Knob MSPTO	1549C08701
5.	Leaf spring	3761997M01
6.	Hex screw	3009491X01
7.	Thin nut	0715592M01
8.	Bolt	0353503X01
(B)	**Added of part**	
1.	Gear spacer	1549C05901

18.4.2 Field performance test:

18.4.2.1 Haulage performance:

(i) The distance travel per litre of fuel consumption in case of two wheel and four wheel trailer was observed as **4.50 to 4.65** km/l & **4.67 to 4.70** km/l against the declaration of **4.8 to 6.5** km/l. The observed value is on lower side and does not meet the non-evaluative requirement of IS: 12207-2019 with regard to tolerance. This should be looked into for necessary corrective action.

(ii) The specific fuel consumption (ml/km/ton) in case of two wheel and four wheel trailer was recorded as **35.86 to 37.07** ml/km/ton & **35.46 to 35.66** ml/km/ton, against the declaration of **25 to 30** ml/km/ton. The observed value was on higher side and does not meet the non - evaluative requirement of IS: 12207-2019 with regard to tolerance. This should be looked into for necessary corrective action.

18.5 Maintenance / Service Problems:

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

18.6 Recommendation with regard to safety on tractor:

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

(i) Provision of spark arrester in the exhaust system of tractor's engine as per **IS: 12239 (Part-I) 2018.**

(ii) Vertical retainers at both sides of clutch pedals should be provided as per relevant standard.

(iii) Provision of PTO master shield around the PTO shaft as per IS:4931-1995(Reaffirmed in January, 2019).

(iv) The fuel shut Off knob should be provided as per IS: 8133-1983 (Reaffirmed in January, 2019).

(v) Provision of Differential lock.

18.7 Adequacy of Literature supplied with machine:

18.7.1 The following literature was supplied with the tractor for reference during the testing.

(i) Operator Instruction book of **"TAFE, MF 245 DI S6 SMART"** Tractor model.

(ii) Service manual of **"TAFE, MF 245 DI S6 SMART"** Tractor model.

(iii) Parts Catalogue of **"TAFE, MF 245 DI S6 SMART"** Tractor model.

18.7.2 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) The other PTO shaft speed corresponding to rated engine speed has been specified as "all speeds at 1680 ERPM" vide page No. 107 of Operator Instruction book. **This** should be looked into for necessary corrective action.

TESTING AUTHORITY:

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

Draft test report is compiled by: Shwetabh Singh, Agricultural Engineer.

19. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's comments
19.1	18.4.1.1 & 18.4.1.2	We will study and take appropriate corrective actions.
19.2	18.4.1.3 (i),(ii), 18.4.1.4, 18.4.1.5 (i),(ii), 18.4.1.6 (i),(ii),(iii) & 18.4.2.1 (i),(ii)	
19.3	18.6 (i),(ii),(iii), (iv),(v) & 18.7.2 (i)	
19.4	18.4.1.7	The applicant vide letter No. Nil dated 03.03.2022 has submitted that 'to meet the IS: 4931-1995 requirement, we have decided to remove/addition of following parts and thereby there would be only one direction of rotation i.e. clockwise, and which conforms to IS: 4931-1995 was allowed.

(A)	Removed parts	
Sl.No.	Part name	Part number
1.	Gear driven	1549C03601
2.	Lever pinion MS-PTO	1549C06101
3.	Guide plate	1549C05101
4.	Knob MSPTO	1549C08701
5.	Leaf spring	3761997M01
6.	Hex screw	3009491X01
7.	Thin nut	0715592M01
8.	Bolt	0353503X01
(B)	Added part	
1.	Gear spacer	1549C05901

ANNEXURE- I

BRIEF SPECIFICATION OF IMPLEMENTS USED DURING FIELD TEST

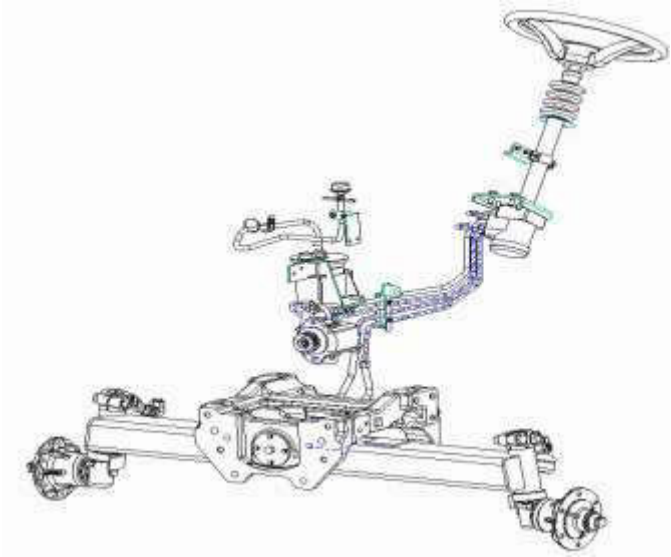
S.No.	I t e m	Disc Plough	Rotavator
1.	Make	Farm King	Agristar
2.	Type	Mounted	Mounted
3.	No. of bottom/blades	Two	30 (in 5 flanges)
4.	Type of bottom/blades	Plain concave	Hatchet shape
5.	Size of bottom/blades, (mm)	655	200 x 55 x 7
6.	Spacing of bottom/flanges, (mm)	495	225
7.	Lower hitch point span, (mm)	760	570
8.	Mast height, (mm)	480	630
9.	**Overall dimensions, (mm):**		
	- Length	1480	1100
	- Width	1060	1490
	- Height	1180	1090
10.	Gross mass, (kg)	200	360

ANNEXURE-II

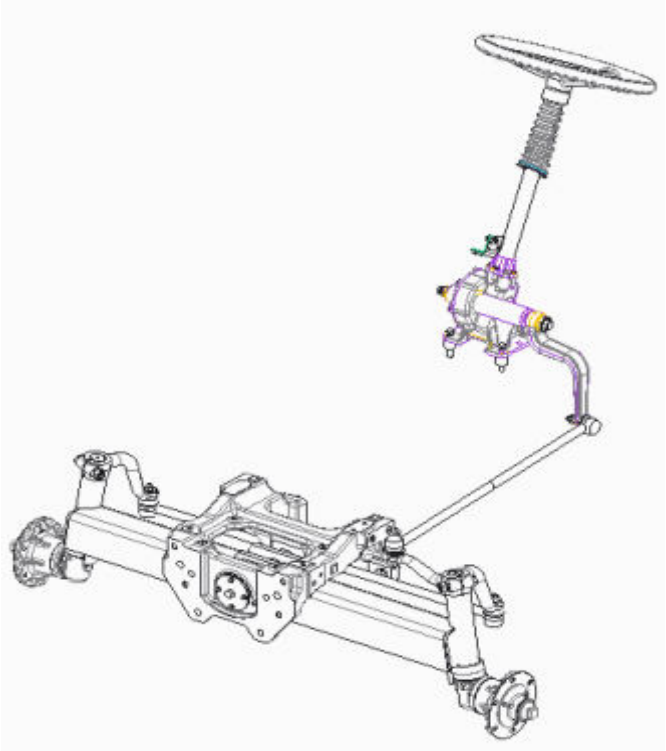
BRIEF SPECIFICATION OF FULL CAGE WHEEL

S. No.	Parameters	Specification
1	Type	Full cage wheel
2	Outer dia. (mm)	1265
3	Width (mm)	950
4	No. & Type of Lugs	26, straight lugs made of MS anglesection welded to angle iron frame
5	Size of angle section, (mm)	50 x 50 x 5
6	Length of lug, (mm)	470
7	Spacing of lug, (mm)	265
8	Weight of each cage wheel (kg)	130

ANNEXURE-III



STANDARD FITMENT- STRAIGHT FIXED AXLE WITH POWER STEERING



OPTIONAL FITMENT- STRAIGHT FIXED AXLE WITH MANUAL STEERING

ANNEXURE- IV

TRACTOR RUN HOURS DURING TEST

A.	LABORATORY AND TRACK TESTS:	HOURS
1.	Running-in	36.0
2.	PTO performance test	11.0
3.	Drawbar performance test	18.9
4.	Power lift and hydraulic pump performance test	3.8
5.	Brake test	2.0
6.	Noise measurement	2.0
7.	Air cleaner oil-pull over test	3.5
8.	Mechanical vibration test	0.8
9.	Turning ability	0.2
10.	Location of centre of gravity	0.1
11.	Operator‟s field of vision	--
12.	Theoretical speed test	0.9
B.	**FIELD TEST:**	
1.	Disc Plough	11.3
2.	Rotavation	10.9
3.	Puddling (including 5.0 hours water proof test)	15.2
C.	**HAULAGE TEST:**	6.0
D.	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test	9.6
	TOTAL:	**132.2**