

व्यावसायिक परीक्षण रिपोर्ट वैरिंट (प्रथम बैच)
COMMERCIAL TEST REPORT Variant (1st Batch)

संख्या/No. : T- 1266/1793/2019
माह/Month : September, 2019

(यह परीक्षण रिपोर्ट 30/09/2024 तक वैध है | / THIS TEST REPORT IS VALID UPTO 30/09/2024)



**MAHINDRA B-275 DI TU MKM DLX
(Brand Name: Bhoomiputra) 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)

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CENTRAL FARM MACHINERY TRAINING & TESTING INSTITUTE

(An ISO 9001: 2015 Certified Institute)

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T-1266/1793/2019	MAHINDRA B-275 DI TU MKM DLX (Brand Name : Bhoomiputra) TRACTOR - Commercial Variant (1 st Batch) Test
	(THIS TEST REPORT IS VALID UPTO 30/09/2024)

Manufacturer : **M/s. Mahindra & Mahindra Ltd.**
(Farm Equipment Sector)
Mahindra Research Valley
Mahindra World City, Plot No. 41/1, Anjur P.O.,
Chengalpattu , Kanchipuram District ,
Tamilnadu,India - 603204

Month: September	Test Report No. T- 1266/1793/2019	Year: 2019
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T-1266/1793/2019	MAHINDRA B-275 DI TU MKM DLX (Brand Name : Bhoomiputra) TRACTOR - Commercial Variant (1st Batch) Test
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Type of Test : **COMMERCIAL Variant (1st Batch)**
 Test code/Procedure : IS: 5994-1998 (Reaffirmed in 2014) and IS: 12207-2014.
 Period of Test : April, 2019 to August, 2019
 Test Report No. : **T-1266/1793/2019**
 Month/Year : **September, 2019**

- i) The results reported in this report are observed values and no corrections have been applied for atmospheric and site conditions.
- ii) The data given in this report pertain to the particular machine selected randomly from the production line by the representative of testing authority for test
- iii) The results presented in this report do not in any way attribute to the durability of the machine.
- iv) This report should not be reproduced in part or full without prior permission of the Director, Central Farm Machinery Training and Testing Institute, Budni (M.P.)
- v) This is a test report on variant model submitted for the batch test on “Mahindra B275 DI TU MKM DLX (Brand name: Bhoomiputra)” tractor and therefore, should be read in conjunction with the Test Report of commercial variant model i.e. “Mahindra B275 DI TU MKM DLX (Brand name: Bhoomiputra)” tractor bearing report No. T- 799/1307/2011 released in **September, 2011** and the base model “Mahindra B-275 DI TU MKM (Brand name: Bhoomiputra)” bearing report No. T- 1150/1676/2018 released in **April, 2018**.

SELECTED CONVERSIONS

SELECTED CONVERSIONS		
S.No	Units	Conversion Factor
1	Force:	
	1 kgf	9.80665 N 2.20462 lbf
	2	Power:
	1 hp	1.01387metric hp (Ps) 745.7 W
	1 Ps	735.5 W
	1 kW	1.35962 Ps
3	Pressure:	
	1 psi	6.895 kPa
	1 kgf/cm ²	98.067 kPa = 735.56 mm of Hg
	1 bar	100 kPa = 10 N/cm ²
	1 mm of Hg	1.3332 m-bar

ABBREVIATIONS	
apa	As per applicant
TDC	Top Dead Centre
IS	Indian Standard
LHS /RHS	Left Hand Side/ Right Hand Side
Hg	Mercury
Temp.	Temperature
N.R.	Not recorded
rpm	Revolutions per minute
O.D/I.D	Outer diameter/ Inner diameter
N.A.	Not available/Not applicable
PTO	Power take-off
R.H.	Relative Humidity
SIP	Seat Index Point

T-1266/1793/2019	MAHINDRA B-275 DI TU MKM DLX (Brand Name : Bhoomiputra) TRACTOR - Commercial Variant (1 st Batch) Test
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- Manufacturer** : **M/s. Mahindra & Mahindra Ltd.**
(Farm Equipment Sector)
Mahindra Research Valley
Mahindra World City, Plot No. 41/1, Anjur P.O.,
Chengalpattu , Kanchipuram District ,
Tamilnadu,India - 603204
- Location of manufacturing plants (apa) : **i) M/s. Mahindra & Mahindra Ltd.**
(Farm Equipment Sector)
Mahindra Research Valley
Mahindra World City, Plot No. 41/1, Anjur P.O., Chengalpattu , Kanchipuram District , Tamilnadu,India – 603204
- ii) Mahindra & Mahindra Ltd.**
(Farm Equipment Sector)
Akurli Road, Kandivli (E)
Mumbai – 400 101
- iii) Mahindra & Mahindra Ltd.**
(Farm Equipment Sector)
Hingna Road, Hingna MIDC
Nagpur– 440 016.
- iv) Mahindra & Mahindra Ltd.**
(Farm Equipment Sector)
Agri Business Development Center,
Khatima Panipat Highway, Udham Singh Nagar, Vil. Lalpur, Tehsil-Kichha,
Rudrapur – 263 153
- v) Mahindra & Mahindra Ltd.**
(Farm Equipment Sector)
Agri Development Center, Vil.- Mehla,
Tehsil – Dudu, Jaipur- Ajmer Road,
Jaipur– 303 007
- vi) Mahindra & Mahindra Ltd.**
(Farm Equipment Sector)
Near Bidar “T” Junction , Mahindra Nagar, Zaheerabad- 502 220
Medak District, Telangana
- Test requested by : The manufacturer
Selected for test by : The testing authority
Place of running-in : At manufacturer’s works
Duration of said running-in, (h):
- Engine : 15
- 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.

T-1266/1793/2019	MAHINDRA B-275 DI TU MKM DLX (Brand Name : Bhoomiputra) TRACTOR - Commercial Variant (1 st Batch) Test
	(THIS TEST REPORT IS VALID UPTO 30/09/2024)

1. SCOPE OF TEST

The tractor model “Mahindra B-275 DI TU MKM DLX (Brand name: Bhoomiputra)” tractor had undergone Commercial (Variant) test vide test report number T-799/1307/2011 (September, 2011) derived from the base model “Mahindra B-275 DI TU (Brand name: Bhoomiputra)” tractor bearing test report number T-738/1246/2010 (September, 2010). Now the applicant vide letter No. Nil, dated 20.05.2016 has declared that the base model “Mahindra B 275 DI TU” (Brand name: Bhoomiputra) tractor is obsolete and submitted last chassis cut-off number as NDHW28941 (July, 2010) and requested to consider “Mahindra B 275 DI TU MKM” tractor as a base model bearing test report no T-1150/1676/2018, released in April, 2018.

The competent authority has accepted the applicant’s request under clause 7.5 of IS: 12207-2014 and therefore this tractor was subjected to different tests as per table 3 & 4 to be carried out during Batch test as the original base model has been obsolete.

In view of the above facts & considering the declarations made by the firm vide letter No. Nil, dated 09.08.2016, the earlier test reports released by this Institute bearing test report No. T-738/1246/2010 (September, 2010) became invalid and hence shall not be considered for any purpose such as Institutional financing, etc. from the date the models became obsolete.

The major features of Base model and Variant model are listed below:

S. No.	Parameters	Base Model (Vide Test report no. T-1148/1674/2018, April,2018)	Variant Model
1	2	3	4
1.	Tractor make & model	Mahindra B-275 DI TU MKM	Mahindra B-275 DI TU MKM DLX
2.	Engine model	MDI1895B3A	MDI1895B3A
3.	Type of clutch	Mechanical, single dry friction plate	Mechanical, Dual dry friction plate
4.	Steering system:		
	- Make	Rane	Eaton
	-Type	Mechanical, Worm & nut with re-circulating above clutch housing	Hydrostatic, Open center
5.	Brakes:		
	Make	TVS Girling	Brakes india
	Type	Mechanical, dry disc brakes	Mechanical, oil immersed disc brakes
	No. of friction disc(s)	Two (on each wheel side)	Three (on each wheel side)
	Area of liners, (cm ²)	607 (on each wheel side)	691.68 (on each wheel side)
6.	Masses (front/rear/total), (kg)	785/1030/1815	750/1130/1880
7.	Overall dimensions:		
	-Length, (mm)	3440	3305
	-Width, (mm)	1685	1730
	-Height, (mm)	2170	2185

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	TRACTOR - Commercial Variant (1st Batch) Test
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Subsequent to the examination of the case in light of Indian Standard **IS: 12207-2014**, under table 3 & 4 the following tests were considered to be carried out :

- Specification checking
- Nominal speed test
- Two hour maximum PTO power performance test, under natural ambient condition
- Brake performance test
- Location of Centre of gravity
- Turning ability test

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:

S.No.	Particulars	As recommended by the manufacturer	As used during the test
1.	Engine, Air cleaner	20W40	As recommended
2.	Gearbox, differential, rear axle, rear final drive system oil, Hydraulic & brake system oil	MTRAC-30	Oil originally filled in the tractor was not changed
3.	Steering system	SAE140	--do--
3.	Grease	MP3 Lithium base	MP Grease

3. ESSENTIAL TESTS

3.1 SPECIFICATIONS

- 3.1.1 Tractor:**
- Make : Mahindra
Model : B-275 DI TU MKM DLX
Brand name : Bhoomiputra
Type : Four wheeled, rear wheel driven, general purpose, Agricultural Tractor.
Year of manufacture : GJ (October, 2018)
Chassis number : MBNABAEUEJNG00008
Country of origin : INDIA
- 3.1.2 Engine:**
- Make : Mahindra
Model : MDI1895B3A
Type : Four stroke, Liquid cooled, naturally aspirated, direct injection, diesel engine
Serial number : NJG2EJE0005
Year of manufacture : 2018 (apa)
Country of origin : India

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3.1.2.1 Engine speed (rpm), (Manufacturer's recommended production settings):

- Maximum speed at no load : 2275 to 2375
- Low idle speed : 750 to 850
- Speed at maximum torque : 1300 to 1500

Rated speed, (rpm):

- For PTO use : 2100
- For drawbar use : 2100

3.1.3 Cylinder & Cylinder Head:

- Number : Three
- Disposition : Vertical, Inline
- Bore/stroke, (mm) : 88.9 / 110 (apa)
- Capacity as specified by the applicant, (cc) : 2048
- Compression ratio : 20.2 : 1
- Type of cylinder head : Monoblock
- Type of cylinder liners : Wet, replaceable
- Type of combustion chamber : Re-entrant bowl cavity on piston crown
- Arrangement of valves : Overhead, inline
- Valve clearance (cold/hot):**
- Inlet valve, (mm) : 0.40/0.30
- Exhaust valve, (mm) : 0.50/0.40

3.1.4 Fuel System:

- Type of fuel feed system : Gravity and force feed

3.1.4.1 Fuel tank:

- Make : Mahindra (apa)
- Capacity, (l) : 48.20
- Location : Above clutch housing
- Provision for draining of sediments/ water : Not provided
- Material of fuel tank : Metallic

3.1.4.2 Water separator : Not provided

3.1.4.3 Fuel feed pump:

- Make : Bosch, India
- Type : Plunger
- Model/Group combination No. : FP/KSG22AD106, F002A50040
- 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. : F002H20117
- Number : Two
- Type of elements:**
- Primary : Paper
- Secondary : Paper
- Capacity of final stage filter, (l) : 0.45

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3.1.4.5 Fuel Injection pump:

Make : Bosch, India
 Model/Group combination No. : F002A0Z734, PES3A85D320RS2000
 Type : Inline, Plunger
 Serial number : 85700378
 Method of drive : Through timing gear

3.1.4.6 Fuel injectors:

Make : Bosch, India
 Model/ group combination no. :
 Holder Number : F002 C70 007 856
 Nozzle Number : DSLA 144P 1754
 Type : Multi hole (five holes)
 Manufacturer's production pressure setting, (MPa) : 25 + 0.8
 Injection timing : 8.0 ± 1 degree BTDC
 Firing order : 1 - 3 - 2

3.1.4.7 Governor:

Make : Bosch, India
 Model/Group combination No. : RSV400...1050A5C1596R
 Type : Mechanical, centrifugal, variable speed
 Rated engine speed, rpm : 2100
 Governed range of engine speed, (rpm) : 750 to 2375

3.1.5 Air intake system:

3.1.5.1 Pre-cleaner:

Make : Popular (apa)
 Type : Centrifugal with transparent dust collector
 Location : On top of the main air cleaner inlet tube, outside the bonnet

3.1.5.2 Air cleaner:

Make : PAI Auto (apa)
 Type : Combination of oil bath and paper element
 Location : On RHS of engine, Under the bonnet
 Range of suction pressure at maximum power, (kPa) : 2.6 to 2.7
 Oil capacity, (l) : 0.50
 Oil change period : After every 50 h or earlier, if required in dusty condition

3.1.6 Exhaust System:

Type of silencer : Updraft, (Cylindrical)
Position of silencer outlet with respect to SIP, (mm):
 - Vertical : 840
 - Longitudinal : 1470
 - Lateral : 180 (RHS)
 Range of exhaust gas pressure at maximum power (kPa) : 4.0 to 4.3
 Provision of spark arresting device : **Not provided**
 Provision against entry of rain water : A bend is provided at the top of silencer

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3.1.7	Lubricating system:	
	Type	: Forced feed-cum-splash
	Oil sump capacity,(l)	: 4.70
	Total lub oil capacity, (l)	: 5.40
	Oil change period	: First change after 250 hours and subsequently after every 300 hours of operations.
	Type of cooling device, (if any)	: None
3.1.7.1	Filters:	
	Type	: Full flow, spin-on throw away, paper element
	Number	: One
3.1.7.2	Pump:	
	Make	: Precision Autowares Ltd.
	Type	: Eccentric, lobe
	Method of drive	: Through camshaft
	Pressure release setting, (kPa)	: 206.84 to 241.32 (apa)
	Minimum permissible pressure, (kPa)	: 100 (apa)
3.1.8	Cooling system:	
	Type	: Forced circulation of coolant
	Brand name of the coolant	: Lubzs (apa)
	Coolant water ratio	: 0.05 : 1 (apa)
3.1.8.1	Details of Pump	: Centrifugal, semi open impeller of 82.4 mm of outer diameter having seven vanes, and driven through crankshaft pulley by a cogged 'V'-belt
3.1.8.2	Details of fan	: Suction type, having six polypropylene blades of 395 mm diameter and mounted on water pump shaft.
	Means of temperature control	: Thermostat
	Bare radiator capacity, (l)	: 1.70
	Coolant expansion tank capacity,(l)	: 0.80
	Total coolant capacity, (l)	: 5.50
	Radiator cap pressure, (kPa)	: 88
3.1.9	Starting System:	
	Type	: Electrical,12 V, DC
	Aid for cold starting	: None
	Any other device provided for easy starting	: None
3.1.10	Electrical System:	
3.1.10.1	Battery:	
	Make and model	: AMARON & TRS10D31L
	Number	: One
	Type	: Lead Acid
	Capacity and rating	: 12V, 80 Ah at 20 hour discharge rating
	Location	: On RHS of clutch housing in separate metallic box

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3.1.10.2 Starter:

Make : Auto, Lek
 Model : STMRV-1105
 Type : Pre-engaging, solenoid operated
 Power rating : 12V, 1.8 kW
 Serial number : Not Available

3.1.10.3 Generator:

Make : LUCAS TVS
 Model : A115
 Type : Alternator
 Serial number : 26021490
 Output rating : 12V, 36 Amp @ 6000 rpm
 Method of drive : Through crank shaft pulley by a cogged "V- belt" common to water pump

3.1.10.4 Voltage regulator : In-built with alternator

3.1.10.5 Details of lights:

Description	No. & capacity of bulb	Height of the centre of beam above ground level, (mm)	Size, (mm)	Distance between centre of the beam and outside edge of tractor at standard rear track setting, (mm)
Present Sample:				
Front Lights:				
- Head lights	2, 12V, 60/55W	1170	90 x 180	715
- Parking lights	2, 12V, 5W	1270	35 x 65	170
- Turn Indicators-cum-hazard lights	2, 12V, 21W	1270	75 x 65	110
Rear lights:				
- Stop cum tail light	2, 12V, 21/5 W	1260	65 x 45	190
- Turn Indicators-cum-hazard lights	2, 12V, 21W	1260	65 x 40	110
Plough light (on RHS mudguard)	1, 12V, 55W	1340	110 Ø	410
Reflectors (Red)	02	1280	55 x 35	155
Registration plate Light	Part of rear tail light			

3.1.10.6 Main switch : Key turn type, having three position viz:
 i) OFF
 ii) 'Circuit' ON
 iii) START

3.1.10.7 Light switch : Rotary type having four positions viz.
 i) OFF
 ii) Dashboard light + Parking light
 iii) Head lights (short beam) + (ii)
 iv) Head lights (long beam) + (ii)

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3.1.10.8 Horn:
 Make : Minda
 Type : 12 V, 2B, Electromagnetically vibrated diaphragm
 Location : In LHS of radiator, under the bonnet

3.1.10.9 Fuse box : Contains six number of fuses of following capacity:

Capacity	5 A	10 A	15 A	20 A
No. of fuse	02	01	01	02

3.1.10.10 Details of other electrical accessories:

3.1.10.10.1 Starting safety switch : **Not Provided**

3.1.10.10.2 Flasher Unit:

Make : Interface
 Capacity:
 - Turn signal : 12V, 21W x 2 + 2W x 1
 - Hazard signal : 12V, 21W x 4 + 2Wx2
 Flashes/min. : 85

3.1.10.10.3 Seven pin trailer socket : Provided

3.1.11 Instrument panel details:

- i) Engine speed-cum-cumulative digital run hour meter (0 – 25 x 100 rpm)
- ii) Coolant temperature gauge (with colour zone)
- iii) Lubricating oil low pressure indicator light
- iv) Fuel level gauge (with colour zones).
- v) Battery charging warning indicator light
- vi) Main switch (key turn type)
- vii) Light switch rotary type
- viii) Parking brake light 'ON' indicator
- ix) Plough light switch
- x) Head light long beam "ON" indicator
- xi) Turn-cum-hazard light indicator
- xii) Turn indicator switch
- xiii) Hazard light switch
- xiv) Horn push button
- xv) Hand accelerator lever
- xvi) Fuel shut-off knob
- xvii) Rear view mirror
- xviii) Steering control wheel
- Xix) Mobile charging socket

3.1.12 Transmission System:

3.1.12.1 Clutch:

Make : Luk, India
 Type : Dual, Dry friction plate with pads
 No. of friction plate(s) : Two
 Material:
 -Transmission : Asbestos free
 -PTO : N.A.

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Size, (OD/ID) (mm):

- Transmission : 280 ϕ / 170 ϕ mm dia. and having five pads of 28.38 cm² area of each pad
 - PTO : 280 ϕ / 170 ϕ mm dia. and having three pads of 28.61 cm² area of each pad
- Method of operation:
- Transmission : By pressing LHS foot pedal half way
 - PTO : By pressing LHS foot pedal fully

3.1.12.2

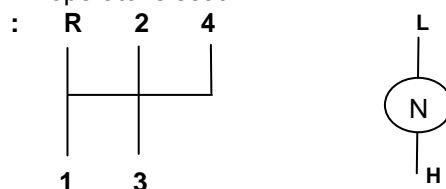
Gear box:

- Make : Mahindra
- Model : Not specified
- Type : Combination of sliding cum constant mesh gears.

No. of speeds:

- Forward : 08
 - Reverse : 02
- Location of gear shifting levers : Main gear shifting lever and range selection lever are provided in front of operator's seat.

Gear shifting pattern



Main gear shifting lever

Range selection lever

- Oil capacity, (l) : 41.5 (Common with differential, rear axle, final drive, hydraulic, brake and steering system)
- Oil changing period : Change after every 1200 hours of operation and subsequently change after every 1200 hours with cleaning of strainer.

3.1.12.3

Rear differential unit :

- Type : Crown wheel & bevel pinion with differential unit accommodated inside the differential housing
- Reduction through crown wheel & bevel pinion : 4.182 : 1 (46/11T)
- Oil capacity, (l) : 41.5 (Common with gearbox, rear axle, final drive, hydraulic, brake and steering system)
- Oil changing period : Change after every 1200 hours of operation and subsequently change after every 1200 hours with cleaning of strainer.

Differential lock:

- Type : Dog clutch
- Location : On RHS of differential unit
- Method of drive : By depressing the pedal provided on RHS of operator's seat

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3.1.12.4 Rear axle & final drive:

Type	: Bull gear and pinion type final reduction unit, accommodated inside the differential housing.
Reduction through final drive	: 3.583 : 1 (43/12T)
Oil capacity of final drive, (l)	: 41.5 (Common with gearbox, differential, final drive, hydraulic, brake and steering system)
Oil changing period	: Change after every 1200 hours of operation and subsequently change after every 1200 hours with cleaning of strainer.

3.1.13 Power lift (Hydraulic system):

- Make	: Mahindra and Mahindra
- Type	: Open centre, Live & ADDC
- No. and type of internal cylinder	: One, single acting
-Type of linkage lock for transport	: Hydraulic, isolated valve in its fully closed position acts as transport lock

3.1.13.1 Hydraulic pump:

- Make & Model	: Eaton
- Type	: Tandem gear
- Location	: On RHS of engine.
-Method of drive	: Through timing gears
No. & Type of filter	: Three <ul style="list-style-type: none"> i) Fine wire mesh strainer at suction line. ii) Full flow spin-on throw away types at hydraulic top cover, LHS of operator's seat. iii) Orifice filter on distributor
Hydraulic oil capacity, (l)	: 41.5 (Common with Transmission, brake and steering system)
Oil change period	: Change after every 1200 hours of operation and subsequently change after every 1200 hours with cleaning of strainer.
Provision for external tapping	: Provided
Method of draft sensing	: Through top link
Details of control:	<ul style="list-style-type: none"> i) Position control lever ii) Draft control lever iii) Isolated valve knob on distributor

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3.1.13.2 Three point linkage:

Sl. No.	Observations	As per IS:4468-1997(Part-I) (Cat.I / Cat.II), (mm)	As measured (mm)	Remarks
1	2	3	4	5
I.	Upper hitch points:			
	a) Dia of hitch pin hole	19.30 to 19.50 / 25.70 to 25.90	19.44/25.78	Conforms to Cat. - I & II
	b) Width of ball	44.0 (max.) / 51.0 (max)	44.0/51.0	Conforms to Cat. - I & II
II.	Lower hitch points:			
	a) Dia of hitch pin hole	22.40 to 22.65 / 28.70 to 29.00	28.73	Conforms to Cat. -II
	b) Width of ball	34.8 to 35.0 / 44.8 to 45.0	45.0	Conforms to Cat. -II
III.	Lateral distance from lower hitch point to centre line of tractor	359 / 435	435	Conforms to Cat. -II
IV.	Lateral movement of lower hitch points	100 (min) / 125 (min)	125	Conforms to Cat. -I
V.	Distance from end of power take-off to centre of lower hitch point (lower links in horizontal position)	450 to 575 / 550 to 625	475	Conforms to Cat. -I
VI.	Transport height	820 (min) / 950 (min)	913	Conforms to Cat. - I
VII.	Power range (Without force)	560 (min) / 650 (min)	605	Conforms to Cat. - I
VIII.	Leveling adjustment	100 (min) / 100 (min)	125	Conforms to Cat. - I & II
IX.	Lower hitch point tyre clearance	100 (min) / 100 (min)	240	Conforms to Cat. - I & II
X.	Lower hitch point height	200 (max) / 200 (max)	200	Conforms to Cat. - I & II

3.1.13.3 Drawbar:

3.1.13.3.1 Linkage Drawbar [Refer Fig. 1 (B)]:

Notation	As per IS: 12953-1995 (Cat. I)/(Cat.II) (mm)	As measured, (mm)	Remarks
A	683 ± 1.5 / 825 ± 1.5	826	Conforms to Cat. - II
B	75 (min) / 75 (min)	75.6	Conforms to Cat. - I & II
C	30 (min) / 30 (min)	32.4	Conforms to Cat. - I & II
D∅	21.79 to 22.00 / 27.79 to 28.00	27.8	Conforms to Cat. - II
E	39.0 (min) / 49.0 (min)	50.4	Conforms to Cat. - I & II
F∅	12.0 (min) / 12.0 (min)	12.4	Conforms to Cat. - I & II
G	15.0 (min) / 15.0 (min)	15.9	Conforms to Cat. - I & II
H∅	25 ± 1 / 25 ± 1	24.6	Conforms to Cat. - I & II
J	80 ± 1.5 / 80 ± 1.5	79.1	Conforms to Cat. - I & II
No. of holes	7 / 9	09	Conforms to Cat. - II

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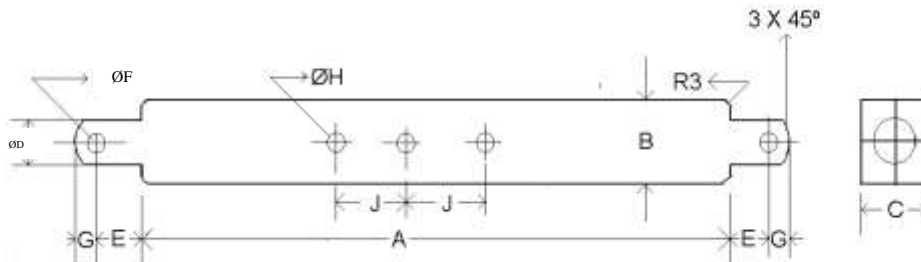


Fig. 1 (B): DIMENSIONAL NOTATIONS FOR LINKAGE DRAWBAR

- 3.1.13.3.2 **Swinging drawbar** : Not provided
- 3.1.13.3.3 **Provision to attach trailer brake valve assembly** : Not provided
- 3.1.14 **Power take-off shaft:**
- Type : Type-I, Semi Independent
- Method of engaging : By a hand lever provided on LHS of operator seat
- No. of shaft(s) : One
- PTO speed corresponding to rated engine speed of 2100 (rpm) : 551
- Distance behind rear axle, (mm) : 340
- Engine to PTO speed ratio : 3.812: 1
- Whether the PTO shaft is capable of transmitting the full power of engine : Yes

3.1.14.1 Specifications of Power Take-Off Shaft: [Refer Fig. 2 (a)]			
Specification	As per IS:4931-1995 (Type-I)	As observed	Remarks
1	2	3	4
Nominal speed (rpm)	540 ± 10	540 rpm of PTO corresponds to 2058 rpm of engine.	Conforms
No. of splines	6	6	Conforms
Direction of rotation	Clockwise	Clockwise	Conforms
Location	The position of the centre of the end of PTO shaft shall be within 50mm to right or left of the centre line of the tractor	In the centre line of tractor	Conforms
Dimensions (mm) [Refer Fig. 2 (a)]:			
DØ	34.79 ± 0.06	34.84	Conforms
dØ	28.91 ± 0.05	28.88	Conforms
BØ	29.4 ± 0.1	29.47	Conforms
AØ (Optional)	8.3 ± 0.5	8.38	Conforms

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1	2	3	4
W	8.69 – 0.09 - 0.16	8.60	Conforms
a	7	7	Conforms
b (Optional)	25 ± 0.5	25.05	Conforms
c	38	38	Conforms
X	30°	30°	Conforms
B	76 (min)	81.48	Conforms
h	450 to 675	565	Conforms

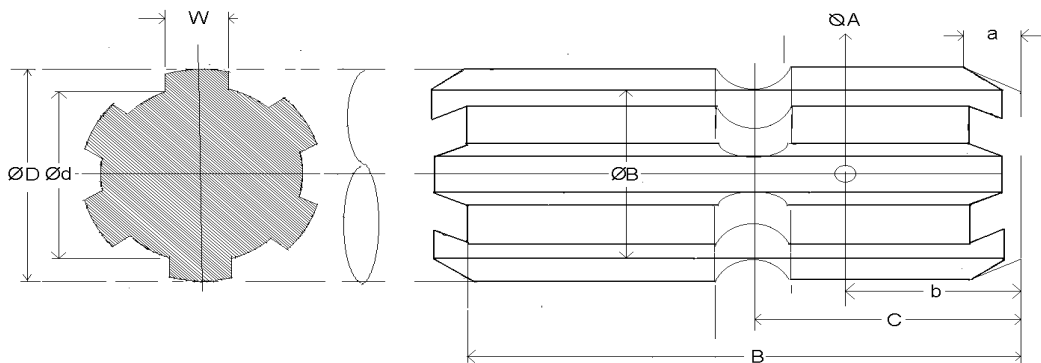


Fig. 2 (a) : DIMENSIONAL NOTATIONS FOR TYPE-I POWER TAKE-OFF SHAFT

3.1.14.2 Power Take-off Master Shield :

Dimensions of PTO master shield for type I & II PTO (mm) [See Fig. 2(b)]

Specification	As per IS 4931-1995	As observed	Remarks
k	70 (min)	66	Does not conform
m	125 ± 5	125	Conforms
n	85 ± 5	63	Does not conform
p	285 ± 5	280	Conforms
r	76 (max.)	0	Conforms

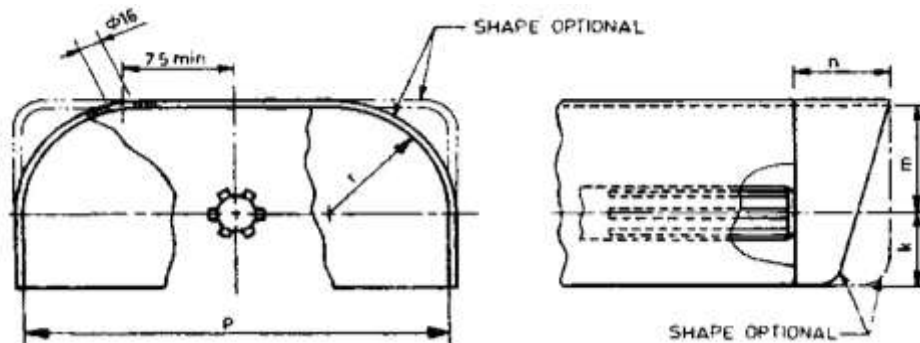


Fig. 2 (b): DIMENSIONAL NOTATIONS OF PTO SHAFT MASTER SHIELD

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3.1.15 Towing hitch:	
3.1.15.1 Front:	: Not Provided
3.1.15.2 Rear:	
Type	: Clevis
Location	: At rear of transmission housing
Height above ground level, (mm):	
- Maximum	: 715
- Minimum	: 360
No. of position	: 14
- Type of adjustment	: By changing and reversing the position of hitch on its mounting bracket
Distance of hitch point,(mm):	
- From rear axle centre	: 445
- From power take-off shaft end	: 105
Dia of pin hole, (mm)	: 31.8
Width of clevis, (mm)	: 80.2
3.1.16 Steering:	
Make	: Eaton
Type	: Open centre, Hydrostatic (power steering)
Location	: Above the clutch housing
Method of operation	: Manual by steering control wheel
Diameter of steering control wheel, (mm)	: 420
Make & type of pump	: Eaton and Gear
Location	: On RHS of engine
Method of drive	: Through timing gear
Make , type & number of hydraulic cylinder	: Not specified, double acting & one
Location of hydraulic cylinder	: Behind front axle in center
Steering oil capacity, (l)	: 41.5 (Common with Transmission, brake and hydraulic system)
Lubricant change period	: Change after every 1200 hours of operation and subsequently change after every 1200 hours with cleaning of strainer.
3.1.17 Brakes:	
3.1.17.1 Service Brake:	
Make	: JMI
Type	: Mechanical, oil immersed disc brake
Location	: On half axle differential shaft, outside of the differential housing
No. of discs	: Three (on each wheel side)
Area of liners. (cm ²)	: 691.68 (on each wheel side)
Material of liners	: Non Asbestos
Method of operation	: Individual / combine pedal operated by right foot.
3.1.17.2 Parking Brake:	
Type	: Toggle link locking mechanism
Location and method of operation	: Service brake acts as parking brake when locked in position by a hand lever provided on RHS of the operator's seat

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3.1.18 Wheel Equipment:

3.1.18.1 Steered Wheel(s):

Make : Apollo, Krishak
Number : Two
Type of tyre : Pneumatic, ribbed
Size : 6.00-16
Ply rating : 8
Maximum permissible loading capacity of each tyre at 200 kPa pressure, kgf : 385

Recommended inflation pressure, kPa :

- for field work : 167
- for road work : 196
Track width, (mm) : 1265 (Std.) & 1435
Method of changing track width : By reversing the wheel discs
Make & size of rim : SSWL & 4.5E x 16

3.1.18.2 Driving wheel:

Make : Apollo, Krishak gold
Number : Two
Type of tyre : Pneumatic, traction
Size : 12.4 -28
Ply rating : 12
Maximum permissible loading capacity of each tyre at 140 kPa pressure, kgf : 1148

Recommended inflation pressure, (kPa)

- for field work : 118
- for road work : 137
Track width, (mm) : 1295, 1385 (Std.), 1475, 1555, 1590, 1630, 1675, 1755 & 1875
Method of changing track width : By reversing the wheel disc and changing position of wheel disc on off-set rim lugs.
Make & size of rim : WILP & W11 x 28

3.1.18.3 Wheel base, (mm) : 1870
Method of changing wheel base, if any : **None**

3.1.19 Operator's seat:

Make : Polar
Type : Cushioned seat with backrest
Type of suspension : Two, Helical coil spring
Type of damping : One, Hydraulic shock absorber

Range of adjustment, (mm):

- Vertical : Nil
- Lateral : Nil
- Longitudinal : ± 130

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3.1.20 Provision for safety and comfort of operator:

3.1.20.1 Conformity with IS: 12343-1998 (Reaffirmed in 2014) :

All parameters meets the minimum requirements of IS: 12343-1998, (Re-affirmed in 2014), except the longitudinal distance from seat index point to the centre of steering control wheel.

3.1.20.2 Conformity with IS: 6283 (Part-1) – 2006 (Re-affirmed in 2014) & IS: 6283 (Part-2) – 2007 (Re-affirmed in 2014):

All the controls are identifiable with symbols and meet the requirements, **except the following:**

- i) Grease lubricant frequency chart is not provided
- ii) Oil type & lubricant frequency is not provided

3.1.20.3 Conformity with IS:8133-1983 (Re-affirmed in 2014) :

Location and movement of various controls meets the requirement, **except the safety switch against accidental start of engine has been not provided.**

3.1.20.4 Conformity with IS: 12239 (Part-1)-1996 (Re-affirmed in October, 2017):

Meets the requirements of IS: 12239 (Part-1)-1996 (Re-affirmed in October, 2017), **except the following:**

- i) Width of foot step is less than the minimum requirement.
- ii) Subsequent foot step has been not provided.
- iii) Provision of spark arresting device in the exhaust system.

3.1.20.5 Conformity with IS:12239 (Part-2)-1999 (Re-affirmed in 2014):

Meets the requirements of IS: 12239 (Part-2)-1999 (Re-affirmed in 2014), except the working clearance around the position control & draft control lever is less than the minimum requirement.

3.1.20.6 Conformity with IS: 14683 – 1999 (Re-affirmed in 2014) :

Lighting requirements conform to IS: 14683-1999.

3.1.20.7 Rear view mirror:

Rear view mirror has been provided

3.1.20.8 Slow moving emblem:

Slow moving vehicle emblem has been provided.

3.1.21 Labelling of tractor as per IS: 10273-1987 (Reaffirmed in 2014):

Location of labelling plate: The labelling plate is riveted on outside of LHS fender and provides the following information:

Name of Manufacturer	Mahindra & Mahindra Ltd. Farm Equipment Sector, India
Make	Mahindra
Model	B275 DI TU MKM DLX
Year of manufacturer	GJ (October, 2018)
Engine Serial Number	NJG2EJE0005
Chassis Serial Number	MBNABAEUEJNG00008
Maximum P.T.O Power, kW (hp)	25.0 (33.5)
Specific fuel consumption, g/kWh (g/hph)	258 (192)

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3.1.22 Mass of the tractor, (kg):

Particulars		Mass of the tractor without operator but with all the liquid reservoirs full, (kg)		
		Front	Rear	Total
i)	Without ballast	750	1130	1880
ii)	With road ballast	788	1280	2068
iii)	With ballast as used during parking brake test at 18% slope	855	1493	2348

3.1.22.1 Standard ballast, if any : None

3.1.23 Overall dimensions:

Condition	Length, (mm)	Width, (mm)	Height, (mm)		Ground Clearance, (mm)
			With exhaust pipe	Without exhaust pipe	
With Standard ballast	3305	1730	2185	1610 (at steering wheel)	325 (Below rear hitch mounting bracket)

3.1.24 Number of external lubricating points:

- Oiling : Nil
- Grease nipples : 14
- Grease cups : 02

3.1.25 Colour of tractor:

Chassis & engine : Red

Sheet metal:

- Bonnet & Mudguard : Red
- Rim & Disc : Red

3.2 NOMINAL SPEED TEST

Movement	Gear No.	No. of engine revolutions for one revolution of driving wheel		Nominal speed at rated engine speed when fitted with 12.4-28 size tyres of 590 mm rolling index (kmph)		Variation in nominal speed between base & variant (batch) model (%)
		Previous sample	Present sample	Previous sample	Present sample	
Forward	L1	158.91	158.60	2.94	2.95	0.3
	L2	93.00	96.69	5.02	4.84	-3.6
	L3	64.43	64.45	7.26	7.24	-0.3
	L4	45.54	45.52	10.25	10.26	0.1
	H1	52.20	52.18	8.91	8.95	0.4
	H2	30.62	31.81	15.27	14.69	-3.8
	H3	21.18	21.19	22.01	22.02	0.0
	H4	14.98	14.98	31.18	31.19	0.0
Reverse	LR	104.82	114.30	4.46	4.09	-8.3
	HR	34.48	37.61	13.55	12.43	-8.3

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3.3 PTO PERFORMANCE TEST

S.No.	Particulars	Previous sample	Present sample
1	Date(s) of test	09.03.2010 to 10.03.2010	27.06.2019
2	Tractor run at prior to start of PTO test, (h)	3.8	4.3
3	Dynamometer test bench used	Eddy current, Fuchino ESF 1000 S	Eddy current, SAJ,AG-400

Table-1

Test sample	Power (kW)	Speed, (rpm)		Fuel Consumption			Specific energy, (kWh/l)
		PTO	Engine	(l/h)	(kg/h)	(kg/kWh)	
1	2	3	4	5	6	7	8
a) Maximum power – 2 hours test (under natural ambient condition):							
Previous sample	23.6	551	2101	7.08	5.92	0.235	3.56
Present sample	25.2	577	2200	7.52	6.29	0.250	3.35

Sl. No.	Parameters	Previous model Natural Ambient (Max. power two hours test)	Present model Natural Ambient (Max. power two hours test)
1	2	3	4
i)	No load maximum speed, (rpm)	2329	2360
ii)	Equivalent crankshaft torque at maximum power (Nm)	107.2	109.4
iii)	Range of atmospheric condition :		
	- Temperature, (°C)	25 to 26	26 to 27
	- Pressure, (kPa)	97.5 to 97.7	97.7 to 97.8
	- Relative humidity, (%)	54.8 to 55.5	66.2 to 67.8
iv)	Maximum Temperature, (°C):		
	- Engine oil	122	118
	- Coolant	87	90
	- Fuel	49	50
	- Air intake	45	43
	- Exhaust gas	575	609
v)	Pressure at maximum power:		
	- Intake air, (kPa)	2.0 to 2.1	2.6 to 2.7
	- Exhaust gas, (kPa)	3.3 to 3.7	4.0 to 4.3

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4. OTHER APPLICABLE TESTS

4.1 BRAKE TEST

4.1.1 Service brake:

4.1.1.1 Cold brake test:

Date of test(s) : 22.04.2019 & 26.04.2019
 Type of Track : Concrete
 Maximum attainable speed (kmph):
 -Without Ballast : 35
 -With Road Ballasted : 35

		At maximum attainable speed (kmph)			
Unballast tractor	Braking device control, force (N)	338	268	199	130
	Mean deceleration, (m/sec ²)	3.55	3.27	2.90	2.50
	Stopping distance, (m)	13.18	14.44	16.30	18.90
Road ballast tractor	Braking device control, force (N)	392	316	240	164
	Mean deceleration, (m/sec ²)	3.55	3.21	2.91	2.50
	Stopping distance, (m)	13.39	14.74	16.21	18.90
		At 25 kmph travel speed (kmph)			
Unballast tractor	Braking device control, force (N)	337	272	207	143
	Mean deceleration, (m/sec ²)	3.42	3.32	3.13	2.50
	Stopping distance, (m)	7.13	7.26	7.71	9.65
Road ballast tractor	Braking device control, force (N)	349	284	218	153
	Mean deceleration, (m/sec ²)	3.44	3.23	3.12	2.50
	Stopping distance, (m)	7.19	7.46	7.74	9.65

4.1.1.2 Brake fade test:

		At maximum attainable speed (kmph)			
Braking device control, force (N)		430	351	272	193
Mean deceleration, (m/sec ²)		3.49	3.19	2.87	2.50
Stopping distance, (m)		13.46	14.82	16.45	18.90
		At 25 kmph travel speed (kmph)			
Braking device control, force (N)		429	341	253	166
Mean deceleration, (m/sec ²)		3.38	3.22	3.09	2.50
Stopping distance, (m)		7.21	7.50	7.80	9.65

Maximum deviation of tractor from its original course, (m) : None
 Abnormal vibration : None
 The brakes were heated by : Self braking

4.1.2 Parking brake test:

Particulars	18 percent slope		12 percent slope with trailer of 1.88 tonnes.	
	Up	Down	Up	Down
Braking device control force, (N)	139	163	185	199
Efficacy of parking brake	-----Effective-----			

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4.2 LOCATION OF CENTRE OF GRAVITY

Condition	Particulars	Coordinates
Tractor under standard ballasted condition and with all the liquid reservoirs full & the operator replaced by a 75 kg mass on the seat	Height above ground, (mm)	737.6
	Distance forward from the vertical plane containing the axis of rear wheels, (mm)	730.7
	Distance from the median plane parallel to the longitudinal axis of tractor bisecting the track, (mm)	8.9 (towards LHS)

4.3 TURNING ABILITY

Characteristics	Minimum turning diameter,(m)		Minimum clearance diameter,(m)	
	LHS	RHS	LHS	RHS
Brakes released	6.62	6.35	6.96	6.65
Brake applied	5.81	5.53	6.13	5.83

5. ADJUSTMENTS, DEFECTS, BREAKDOWNS AND REPAIRS

Sl. No.	Adjustments/Defects/Breakdowns and Repairs	Tractor run hours
	--None--	

6. COMPARISON OF SPECIFICATION AND PERFORMANCE CHARACTERISTICS OF BASE MODEL (TEST REPORT No. T-799/1307/2011) AND PRESENT SAMPLE

6.1	Specification:	Base Model	Present sample
6.1.1	Tractor:		
	Make :	Mahindra	Mahindra
	Model :	Mahindra B-275 DI TU MKM	Mahindra B-275 DI TU MKM DLX
6.1.2	Engine:		
	Make :	Mahindra	Mahindra
	Model :	MDI 1895 B 3A	MDI 1895 B 3A
	Bore/Stroke, (mm) :	88.9 / 110	88.9 / 110
	Specified cubic capacity, (cu.cm) :	2048	2048
	Rated engine speed, (rpm) :	2100	2100
6.1.2.1	Fuel system:		
	Make & model of fuel feed pump :	Bosch, India & FP/KS 22AD62, 9 440 030 029)	Bosch, India & FP/KSG 22AD 106, F 002 A50 040
	Make & model of fuel filters :	Bosch, India & F 002 H20 117	Bosch, India & F 002 H20 117
	Make and model of fuel injection pump :	Bosch, India & F 002 A0Z 734, PES3A85D320RS2000	Bosch, India & F 002 A0Z 734, PES3A85D320RS2000

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	<u>Base Model</u>	<u>Present sample</u>
Make & model of fuel injectors :	Bosch, India & F 002 C70 007	Bosch, India & F 002 C70 007
Type of injector :	Multi hole (five holes)	Multi hole (five holes)
Manufacturer's production pressure setting, (MPa) :	25.0 + 0.8	25.0 + 0.8
Injection timing :	8.0 ± 1 degree BTDC	8.0 ± 1 degree BTDC
Make & model of governor :	Bosch, India & RSV400...1050A5C1596R	Bosch, India & RSV400...1050A5C1596R
6.1.2.2 Lubricating system:		
Total lubricating oil capacity,(l) :	5.55	5.40
6.1.2.3 Cooling system:		
Bare radiator capacity, (l) :	1.75	1.70
Coolant expansion tank capacity,(l) :	0.83	0.80
Total coolant capacity, (l) :	5.95	5.50
6.1.3 Capacity & rating of battery :	12V,88 Ah at 20 hours discharge rate	12V,80 Ah at 20 hours discharge rate
6.1.4 Transmission:		
6.1.4.1 Clutch:		
Type of clutch plate :	Dual, dry friction plates with pads	Dual, Dry friction plate with pads
Size, (mm),(OD/ID):		
- Main transmission	280φ mm outer dia. and having five pads of 28.30 cm ² area of each pad	280 φ / 170 φ mm dia. and having five pads of 28.38 cm ² area of each pad
- PTO	278φ mm outer diameter and having three pads of 27.50 cm ² area of each pad	280 φ / 170 φ mm dia. and having three pads of 28.61 cm ² area of each pad
6.1.4.2 Gear Box:		
No. of speeds:		
- Forward :	08	08
- Reverse :	02	02
Range of speed, (kmph) :		
- Forward :	2.94 to 31.18	2.95 to 31.19
- Reverse :	4.46 to 13.55	4.09 to 12.43
6.1.5 Service Brake:		
Make :	TVS – Girling	JMI
Type :	Mechanical, dry discs brake	Mechanical, oil immersed disc brake
No. of friction disc :	Four (On each wheel side)	Three (On each wheel side)
Area of liners, (cm ²) :	950.10 (each wheel side)	691.68 (each wheel side)

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6.1.6 Wheel equipment:		<u>Base Model</u>	<u>Present sample</u>
Make & Size of tyres	:		
- Front	:	Good Year & 6.00-16	Apollo, Krishak & 6.00-16
- Rear	:	Good Year & 12.4 - 28	Apollo, Krishak & 12.4 - 28
Standard Track width, (mm):			
- Front	:	1245	1265
- Rear	:	1355	1385
6.1.6.1 Wheel base, (mm)	:	1880	1870
6.1.7 Overall dimensions, (mm):			
- Length	:	3400	3305
- Width	:	1700	1730
- Height	:	2175	2185
- Ground clearance, (mm)	:	315	325
		(below rear hitch mounting bracket)	(below rear hitch mounting bracket)
6.1.8 Operational mass of tractor (kg):			
		<u>Base Model</u> <u>(Standard ballast)</u>	<u>Present sample</u> <u>(Without ballast)</u>
- Front	:	780	750
- Rear	:	1150	1130
- Total	:	1930	1880
6.1.9 Conformity with following IS:			
i)	Guide lines for declaration of power and specific fuel consumption and labelling of agricultural tractors [IS10273: 1987 (Reaffirmed 2014)]	Didn't Conformed	Conforms
ii)	Agricultural tractors - Rear mounted power take-off - Types 1, 2 and 3 [IS:4931-1995 (Reaffirmed 2014)]	Didn't Conformed	Doesn't Conform
iii)	Agricultural wheeled tractors - Three-point linkage: Part 2 Category 1N (Narrow Hitch) [IS 4468 (Part-2):1993/ISO 730-2:1979 (Reaffirmed 2014)]	Conformed	Conforms
iv)	Drawbar for agricultural tractors – Link type [IS 12953:1990 (Reaffirmed 2007)]	Didn't Conformed	Conforms
v)	Agricultural tractors - Operator's seat technical requirement [IS 12343 –1998 (Reaffirmed 2014)]	Didn't Conformed	Doesn't Conform
vi)	Guide for safety & comfort of operator of agricultural tractors: Part 1 General requirements: [IS 12239 (PT-1) 1996/ISO 4254-1:1989 (Reaffirmed Oct., 2017)]	Didn't Conformed	Doesn't Conform

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vii)	Tractors and machinery for agriculture and forestry – Technical means for ensuring safety Part 2: Tractors (IS 12239 (PT-2) 1999) (Reaffirmed 2014)]	:	Didn't Conformed	Doesn't Conform
viii)	Guide lines for location and operation of operator controls on agricultural tractors and machinery (IS: 8133-1983 (Reaffirmed 2014))	:	Didn't Conformed	Doesn't 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 2014)]	:	Didn't Conformed	Doesn't Conform
x)	Agricultural Tractors and Machinery - Lighting device for travel on public roads (IS: 14683-1999) (Reaffirmed 2014)]	:	Conformed	Conforms
6.2	Performance Characteristics :		Previous Sample	Present Sample
6.2.1	PTO Performance:			
	Maximum Power, (kW)	:	23.6	25.2
	Power at Rated engine speed,(kW)	:	23.6	24.1
	Specific fuel consumption corresponding to maximum power, (g/kWh)	:	247	250
	Maximum temperatures (°c):			
	Engine oil	:	122	118
	Coolant	:	87	90
6.2.2	Brake performance test at 25 kmph speed (max):			
	parameters			
	Maximum Stopping distance, (m)	:	Cold 7.14	Hot 7.37
	Maximum force exerted on the brake Pedal effort required to achieve deceleration of 2.5 m/sq sec, (N)	:	Cold 319 to 337	Hot 153 to 166
	Whether parking brake is effective at a force of 600N at foot pedal (s) or 400 N at hand lever	:	Effective	Effective
6.3	Salient Observations:			
6.4	Adequacy of literature:			
	The following combined literature tractor models were supplied with the test sample for reference during the test.			
	a) Operator's manual	:	a) Operator's manual	
	b) Workshop manual	:	b) Workshop manual	
	c) Parts catalogue	:	c) Parts catalogue	

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7. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

7.1 On the basis of test conducted the performance results have been summarized as evaluative (mandatory) / Non-evaluative (Non-mandatory) parameter applicable for qualifying Minimum Performance criteria as per Clause-4 (Table-1) of IS: 12207-2014 for acceptance of the tractor for the purpose of subsidies/NABARD financing are for the applicable features for this tractor model.

Sl. No.	Characteristic	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2014	Values declared by the applicant / (D) Requirement (R)	As observed	Whether meets the requirements (Yes/No)
1	2	3	4	5	6	7
7.1.1	PTO Performance :					
a)	Maximum power under 2 h test, (kW) (Natural ambient condition)	Evaluative	Declared value to be achieved with a tolerance of: -5 / +10% for PTO power >26 kW. -7.5/+10% for PTO power ≤ 26 kW or -5 / +10% for Engine power >26 kW. -7.5/+10% for Engine power ≤ 26 kW	25.0 (D)	25.2	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	25.0 (D)	24.1	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Non Evaluative	+ 5%	258 (D)	250	Yes
d)	Maximum operating temperature, (°C)					
	1) Engine oil	Non 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)	118	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)	90	Yes

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1	2	3	4	5	6	7	8
7.1.2	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)	7.19	Yes
	2)	Hot brake	Evaluative	10	10 (R)	7.21	Yes
b)	Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 m/s ² (N)		Evaluative	600	600 (R)	153 to 166	Yes
c)	Whether parking brake is effective at a force of 600 N at foot pedal(s) or 400 N at hand lever, N		Evaluative	Yes / No	Yes	Yes	Yes
7.1.3	Safety features :						
a)	Guards against moving and hot parts		Evaluative	Belt drives, pullies, silencer, hydraulic pipes (As per IS 12239 (Part2))	--	Provided	Yes
b)	Lighting arrangement		Evaluative	As per CMVR	--	Provided	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 requirements	No
d)	Technical requirements for PTO shaft		Non Evaluative	Should meet the requirements of IS: 4931 (As amended from time to time)	--	Meets 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)	--	Meets the requirements	Yes
f)	Specifications of linkage drawbar		Non Evaluative	Should meet the requirements of IS 12953 and IS 12362 (Part 3) (As amended from time to time)	--	Meets the requirements	Yes
	Swinging drawbar				--	Not Provided	--

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1	2	3	4	5	6	7	
7.1.4	Labelling of tractors (Provision of labelling plate):						
	1)	Make	Evaluative	Should conform to the requirements of CMVR	--	Mahindra	Yes
	2)	Model	Evaluative		--	275 DI TU MKM DLX	Yes
	3)	Engine number	Evaluative		--	NJG2EJE0005	Yes
	4)	Chassis number	Evaluative		--	MBNABAE UEJNG0008	Yes
5)	Declaration of PTO power, (kW)	Evaluative	--		25.0	Yes	
7.1.5	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	
7.1.6	CATEGORY OF BREAKDOWNS / DEFECTS :						
Sl. No.	Category of breakdowns	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2014	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		
7.2	Optional requirements as per Clause-4 (Table-2) of IS:12207-2014:						
S.No.	Characteristic	Requirements as per IS: 12207-2014	As observed	Remarks			
1.	Fitment of ROPS	With a provision for fitment of ROPS.	Not Provided	No			
		If ROPS fitted it should meet the requirement of IS: 11821 (As amended from time to time) or equivalent International Standards	ROPS not fitted	Not applicable			
2.	Accessories	Trailer hitch, front tow hook, may be provided.	Front tow was not Provided	No			

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7.3 Salient Observations:

7.3.1 Laboratory tests:

7.3.1.1 PTO Performance:

- i) The maximum PTO power was recorded as **25.2 kW** against the declaration of **25.0 kW**. Which meets the requirement of IS: 12207-2014 with regard to tolerance limit.
- ii) The specific fuel consumption corresponding to maximum power was recorded as **250 g/kWh** against the declaration of **258 g/kWh**. Which meets the requirement of IS: 12207-2014 with regard to tolerance limit.

7.3.1.2 Operator's seat:

The longitudinal distance from seat index point to centre of steering control wheel does not meet the requirement of the IS: 12343 -1998 (Reaffirmed 2014). This should be looked into for necessary corrective action.

7.3.1.3 Operator's work place:

Operator's work place meets the requirements of IS: 12239 (Part-1) 1996(Reaffirmed Oct., 2017), **except the following:**

- i) Provision of subsequent step
- ii) Width of foot step
- iii) Provision of spark arresting device in the exhaust system.

7.3.1.4 Constructional requirement with regard to safety:

The working clearance around position control lever & draft control lever has not been provided as per IS: 12239 (Part-2)-1999 (Reaffirmed in 2014). This should be looked into for necessary corrective action.

7.3.1.5 Symbols of operator's controls and other displays:

Some of the controls / display such as oil lubricant & grease, its type & frequency are not identifiable with the symbols as per IS: 6283 (Part 1&2)-1998 (Reaffirmed 2014). This needs to be looked into for necessary corrective action.

7.3.1.6 Location of operator's controls with regard to safety:

Location of operator's controls with regard to safety meets the requirements of IS: 8133-1983(Reaffirmed 2014), except the provision of safety against accidental start of engine.

7.3.1.7 Power take-off master shield:

The dimension of "k" & "n" of Power Take-Off master shield does not meet the requirements of IS: 4931-1995 (Reaffirmed 2014). This should be looked into for necessary corrective action.

7.4 Maintenance / Service problems:

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

7.5 Recommendation with regard to safety on tractor:

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

- i) There should be provision for spark arresting device in exhaust system.
- ii) The working clearance around position control lever & draft control should be provided as per IS: 12239 (Part-2) – 1999.
- iii) Provision of Width of foot step as per the requirement of relevant standard.

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- iv) There should be provision of safety switch against accidental start of engine.
- v) There should be provision to attach trailer brake valve.
- vi) The minimum cautionary notice as per clause 11.2 of IS: 12239 (Part-2)-1999 should be provided.

7.6 Adequacy of Literature:

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

- a) Operator's manual of Mahindra B275 DI TU MKM DLX Tractor
- b) Service manual of Mahindra B275 DI TU MKM DLX Tractor
- c) Parts catalogue of Mahindra B275 DI TU MKM DLX Tractor

The result of the test carried out on Variant Batch model "Mahindra 275 DI TU MKM DLX (Brand name: Bhoomiputra) tractor" have been compared with those on base model "Mahindra B-275 DI TU MKM DLX tractor" vide test report no. T-799/1307/2011 (September) and found within the limit, as specified in Indian Standard: 12207-2014.

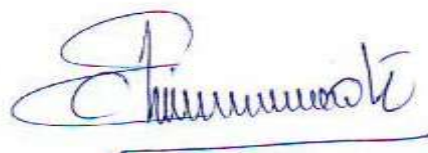
8. CITIZEN CHARTER

Duration of Test	Time frame for Testing & Evaluation as per Citizen Charter	Whether the Test Report is released within the time frame given in Citizen Charter	Remarks
04 Month (April,2019 to August, 2019)	10 Months	Yes	---

TESTING AUTHORITY:



**SHWETABH SINGH
AGRICULTURAL ENGINEER**



**C.V. CHIMOTE
TEST ENGINEER**



**J.J.R. NARWARE
DIRECTOR**

The report compiled by: **Shri Shwetabh Singh**, Agricultural Engineer.

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9. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's comments
		---None---

ANNEXURE – I

TRACTOR RUN HOURS DURING TEST

A.	LABORATORY AND TRACK TESTS	HOURS
1.	Running-in	--
2.	PTO performance test	3.12
3.	Brake Performance Test	2.0
4.	Location of Centre of Gravity	0.25
5.	Turning ability	0.50
6.	Nominal speed test	0.75
C.	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test	0.83
TOTAL:		7.45