

व्यावसायिक परीक्षण रिपोर्ट
COMMERCIAL TEST REPORT (Initial)

संख्या/No. : T-1660/2191/2022
माह/Month : June, 2022

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



INTERNATIONAL TRACTORS LIMITED, DI - 75 4WD 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

(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: 07564-299003

T-1660/2191/2022	INTERNATIONAL TRACTORS LIMITED, DI - 75 4WD TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/05/2025

The height of PTO shaft from ground level was measured as 700 mm with 16.9-30 tyre size (declared as Standard fitting), against the requirement of “450 to 675 mm” as per IS:4931-1995, **therefore does not meet the evaluative requirement of IS:12207-2019**. Yet, the applicant, vide letter No. Nil dated 10.01.2022, had requested the institute to continue the remaining tests on the tractor, which was allowed.

As this tractor model does not meet the evaluative requirement of PTO shaft height & maximum travelling speed in reverse gears H3 and H4, this tractor model shall not be accepted for subsidies/financing as per clause 3.3.1 of IS: 12207-2019.

Manufacturer	: M/s. International Tractors Limited Vill. Chak Gujran, P.O. Piplanwala, Jalandhar Road, Hoshiarpur - 146 022 (Punjab) India
Test requested by (applicant)	: The manufacturer
Selected for test by	: The testing authority
Place of running-in	: At Testing Institute
Duration of said running-in, (h):	
- Engine	: 20
- Transmission	: 20
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 mode.

Details of tractors made available for random selection	
Sr. No.	Chassis serial Number
1	JZHDR1099831S3
2	JZHDR1099802S3
3	JZHDR1097445S3
4	JZHDR1093019S3
5	JZHDR1092994S3

1. SPECIFICATIONS

1.1 Tractor:	
Make	: International Tractors Limited
Model	: DI-75 4WD
Variants, if any :	

S. No.	Variant model (*)	Variant features
1.	DI - 75	With rear wheel driven (2WD).

***The variant models have not been tested at this Institute yet.**

Type	: Four-Wheel Driven (4WD), Standard Agricultural Tractor.
Month & year of manufacture	: 08/21
Chassis number	: JZHDR1093019S3
Country of origin	: India

T-1660/2191/2022	INTERNATIONAL TRACTORS LIMITED, DI - 75 4WD TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/05/2025

- 1.2 Engine:**
- Manufacturer's address : M/s. International Tractors Limited
Vill. Chak Gujran, P.O. Piplanwala,
Jalandhar Road, Hoshiarpur - 146 022
(Punjab) India
- Make : International Tractors Limited
Model : 4107BHB
Type : Four stroke, naturally aspirated, liquid
cooled, direct injection, diesel engine
- Serial number : 4107BHB14H1084318F34
Country of origin : India
- 1.2.1 Engine speed (rpm), (Manufacturer's recommended production settings):**
- Maximum speed at no load : 2345 to 2355
- Low idle speed : 745 to 755
- Speed at maximum torque : 1300 to 1500
- Rated speed, (rpm):**
- For PTO use : 2200
- For drawbar use : 2200
- 1.3 Cylinder & Cylinder Head:**
- Number : Four
Disposition : Vertical, Inline
Bore/stroke, (mm) : 107/131
Capacity as specified by the
applicant, (cc) : 4712
Compression ratio : 16.5 : 1
Type of cylinder head : Individual
Type of cylinder liners : Wet, replaceable
Type of combustion chamber : Swirl chamber on piston crown
Arrangement of valves : Overhead, inline
- Valve clearance (cold/hot):**
- | | <u>Cold</u> | <u>Hot</u> |
|-----------------------|-------------|------------|
| - Inlet valve, (mm) | 0.3 | -- |
| - Exhaust valve, (mm) | 0.4 | -- |
- 1.4 Fuel System:**
- Type of fuel feed system : Gravity and force feed
- 1.4.1 Fuel tank:**
- Capacity, (l) : 62.5
Location : Above clutch housing
Provision for draining of sediments/
water : Provided
Material of fuel tank : Metallic
- 1.4.2 Water separator** : Water separation is provided in secondary
(Main filter) fuel filter.
- 1.4.3 Fuel feed pump:**
- Make : Bosch
Type : Vane type
Location : Built-in fuel injection pump
Method of drive : Through camshaft of fuel injection pump
- 1.4.5 Fuel filters:**
- Primary (Pre filter):**
- Make : Bosch
Model/Group combination No. : F 002 H20 108
Type of elements : Paper
Number : One

T-1660/2191/2022	INTERNATIONAL TRACTORS LIMITED, DI - 75 4WD TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/05/2025

15.3 Transmission gears: Observation
 Any visual damage, pitting & chipping of any transmission gear teeth : None
 Backlash between crown wheel and pinion, (mm) : 0.24 | Against discard limit of 1.0 mm

15.4 Brakes:

Description	Initial specified thickness of brake lining, (mm)	Measured thickness of brake disc after test, (mm)	Measured height of lining over oil groove, (mm)	Minimum permissible height of brake lining over oil groove, (mm)
Left	4.8+0.2	4.79 to 4.89	1.10 to 1.19	Up to oil groove
Right	4.8+0.2	4.79 to 4.85	1.08 to 1.19	

15.5 Front axle: : Front axle final drive reduction unit case is located near front wheel, accommodated into separate portal housing.
 Condition of front axle bushes, seals & bearings : Normal
 Any visual damage, pitting & chipping of front axle transmission gear teeth : None
 Clearance between king pin and bushes, (mm) : Not measured due to 4WD design
 Condition of center pin & bushes : Normal
 Clearance between centre pin and bushes, (mm) : 0.180 to 0.220 | Against discard limit of 1.0 mm

15.6 Steering system:
 Visual condition of the components of complete steering assembly : Normal

15.7 Starter motor & Alternator:
 Presence of soil/oil in housing : None
 Condition of bearings and other components : Normal

16. ADJUSTMENTS, DEFECTS, BREAKDOWNS AND REPAIRS

Sl. No.	Adjustments/Defects/Breakdowns and Repairs	Tractor run hours
1	2	3
1.	During Ballasted brake performance test, tractor was not able to get pickup to move. To rectify the issue, the applicant submitted request vide letter no. Nil dated 24.11.2021 for inspection of clutch assembly. Thereafter, the clutch housing was dismantled for inspection and the observations are under-: i) Main clutch plate & PTO clutch plate were worn out. ii) Marks of excessive heating on both clutch plates & pressure plates. iii) Waviness on pressure plate and flywheel surfaces due to uneven wear out. iv) Worn out pilot bearing. v) Deposition of metal dust over clutch assembly and inside clutch housing due to excessive wear. This defect has been categorized as Major defect Mj-8 as per IS: 12207-2019.	68.0

T-1660/2191/2022	INTERNATIONAL TRACTORS LIMITED, DI - 75 4WD TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/05/2025

1	2	3
	Upon this, the applicant vide letter no. Nil dated 09.12.2021 has requested to allow the replacement of damaged "Double Clutch for Independent PTO" assembly (Part No. 300274360A) with a new one of same specification, which was allowed. Thereafter, Double Clutch for Independent PTO" assembly (Part No. 300274360A) were replaced with new one of same specification.	
2.	During dryland rotavation test, sudden engine rpm drops and engine stalling were observed. On inspection, improver fuel delivery was observed from fuel tank to fuel filter due to chocked fuel pre-filter fitted inside fuel tank with sediments. The applicant vide letter no. Nil dated 29.03.2022 requested to clean the fuel tank thoroughly to rectify the issue, which was allowed, and accordingly the fuel tank assembly and fuel cock was cleaned.	99.5
3.	Again during dryland rotavation test, coolant leakage was observed from radiator lower hose due to a crack on the hose. This defect has been categorized as minor defect Mn-6 as per IS: 12207-2019. Upon this, the applicant vide letter no. NIL dated 31.03.2022 requested to replace the radiator lower hose ("Suction pipe to water pump", part no. 10002402AD), which was allowed. Accordingly, the hose was replaced with a new one of same specification.	107.3
4.	During the preparation of tractor for ballasted drawbar performance test, it was noticed that the tractor was not stopping even after fully depressing the clutch pedal. Upon this, the applicant vide letter no. Nil dated 27.04.2022 requested to inspect the clutch system for rectification of the problem. On inspection, free play of clutch pedal was found to be 35 mm against the recommended range of 25 to 30 mm. Thereafter, the free play was adjusted as 25 mm as per the recommended range.	126.2
5.	During the ballasted gear performance test, the rear LHS tyre got punctured due to excessive creeping of tyre over the rim. In this regard, the applicant submitted request vide letter no. Nil dated 07.05.2022, to replace the punctured LHS tube and reset air filling valve of RHS tyre, which was allowed. Accordingly, the LHS rear tube was replaced with a new one of same size (Item code: 20002350AA) and air filling valve of RHS tyre was reset.	130.5

17. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

17.1 *On the basis of test results, this tractor viz. INTERNATIONAL TRACTORS LIMITED, DI - 75 4WD TRACTOR does not satisfy the Evaluative Requirement of Technical Requirement for PTO Shaft*, The summary of the test results are given in the ensuing table.

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
17.1.1	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.	47.4	47.8	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	47.4	47.7	Yes

T-1660/2191/2022	INTERNATIONAL TRACTORS LIMITED, DI - 75 4WD TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/05/2025

1	2	3	4	5	6	7
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Evaluative	+ 10% max.	285 (D)	279	Yes
d)	Maximum equivalent crankshaft torque, (Nm)	Non Evaluative	± 8%	251 (D)	271.5	No
e)	Back-up torque, percent	Evaluative	12 percent	12 (D) 12 (R) Minimum	31.1	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.	132 (D)	122	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.	118 (D)	105	Yes
g)	Engine oil consumption, (g/kWh)	Evaluative	Not exceeding 1% of SFC at max. Power under High ambient conditions.	2.84 Maximum (R)	0.32	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 per meter Maximum (R)	0.03	Yes
17.1.2	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.	26.75 (D) 27.08 Minimum (R)	34.97	Yes
b)	Max. drawbar pull with standard 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.	21.19 (D) 26.69 (R) Minimum	28.42	Yes
c)	Maximum drawbar power with standard 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.	37.9 (D) 38.2 (R) Minimum	41.3	Yes
d)	Maximum transmission oil temperature, (°C)	Evaluative	The declared value should not exceed the maximum value specified by oil company	130 (D)	103	Yes

T-1660/2191/2022	INTERNATIONAL TRACTORS LIMITED, DI - 75 4WD TRACTOR - COMMERCIAL (Initial)					
	THIS TEST REPORT IS VALID UPTO: 30/05/2025					

1	2	3	4	5	6	7	
17.1.3	Power lift and hydraulic pump performance:						
a)	Maximum lifting capacity throughout the range of lift, (kN):						
	1)	At hitch points	Evaluative	Tolerance of $\pm 10\%$	18.0 (D)	16.89	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.	14.0 (D) 11.25 (R) Minimum	13.84	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	25	Yes
17.1.4	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)	4.83	Yes
	2)	Hot brake	Evaluative	10	10 (R)	4.91	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	242 to 251	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
17.1.5	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)	93	Yes
17.1.6	Amplitude of mechanical vibrations at:						
	1)	Left foot rest	Non Evaluative	100 microns (max.)	100 (R)	185	No
	2)	Right foot rest				195	No
	3)	Seat (with driver seated)				55	No
	4)	Steering wheel				198	No
17.1.7	Air cleaner:						
	Maximum air cleaner oil pull over, (%)		Evaluative	0.25 (Max.)	Dry type air cleaner fitted		Not applicable
17.1.8	Haulage requirements:						
a)	Gross mass of the trailers, (tonne):						
	Two wheel		Non Evaluative	As specified by the manufacturer	6.0 (D)	6.0	Yes
	Four wheel		Non Evaluative		8.0 (D)	8.0	Yes
b)	Distance travelled / liter of fuel consumption, (km/l):						
	Two wheel		Non Evaluative	As specified by the manufacturer	3 to 6 (D)	3.30	Yes
	Four wheel		Non Evaluative		3 to 6 (D)	3.06 to 3.25	Yes

T-1660/2191/2022	INTERNATIONAL TRACTORS LIMITED, DI - 75 4WD TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/05/2025

1	2	3	4	5	6	7
c)	Fuel consumption, (ml/km/tonne):					
	Two wheel	Non Evaluative	As specified by the manufacturer	30 to 60 (D)	50.37 to 50.57	Yes
	Four wheel	Non Evaluative		30 to 60 (D)	38.53 to 40.80	Yes
17.1.9	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 wet land cultivation	Not Recommended	Not Applicable
1)	Clutch assembly	-do-				
2)	Brake housings	-do-				
3)	Front axle hubs	-do-				
4)	Engine Oil	-do-				
5)	Transmission Oil	-do-				
17.1.10	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	No	
d)	Technical requirements for PTO shaft	Evaluative	Should meet the requirements of IS: 4931 (As amended from time to time)	Does not meet the requirement	No	
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	25.63 Kmph in RH3 gear & 37.80 Kmph in RH4 gear	No	
	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.	The audible warning signal on tractor is activated when the speed in reverse gear reaches to 20 kmph in HR3 & HR4 gears.	Yes	

T-1660/2191/2022	INTERNATIONAL TRACTORS LIMITED, DI - 75 4WD TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/05/2025

1	2	3	4	5	6	7	
17.1.11	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. <table border="1" style="margin: 5px auto; width: 100px; height: 20px;"> <tr> <td style="width: 50px;">MM</td> <td style="width: 50px;">YY</td> </tr> </table> 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.	MM	YY	International Tractors Limited	Yes
MM	YY						
	2) Model	Evaluative		DI-75 4WD	Yes		
	3) Month & Year of manufacture	Evaluative		08/21	Yes		
	4) Engine number	Evaluative		4107BHB14H108431 8F34	Yes		
	5) Chassis number	Evaluative		JZHDR1093019S3	Yes		
	6) Maximum PTO power, (kW)	Evaluative	47.4	Yes			
17.1.12	Discard limit for:						
(a)	Cylinder bore diameter, (mm)	Evaluative	To be specified by the manufacturer and supported by the printed literature	107.30	106.993 to 107.037	Yes	
(b)	Clearance between piston & cylinder liner at skirt, (mm)	Non Evaluative		0.45	0.122 to 0.129	Yes	
(c)	Piston diameter at skirt, (mm)	Non Evaluative		106.18	106.908 to 106.912	Yes	
d)	Ring end gap (mm):						
	- Top comp. ring.	Evaluative	To be specified by the manufacturer and supported by the printed literature	2.2	0.40 to 0.45	Yes	
	- 2 nd comp. ring.			2.2	0.60 to 0.65	Yes	
	- Oil ring.			2.2	0.40 to 0.55	Yes	
(e)	Ring groove clearance (mm):						
	- Top comp. ring.	Evaluative	To be specified by the manufacturer and supported by the printed literature	0.22	--Tapered--	--	
	- 2 nd comp. ring.			0.22	0.065 to 0.068	Yes	
	- Oil ring.			0.22	0.023 to 0.029	Yes	
(f)	Clearance of main bearings (mm):						
	- Diametrical clearance	Evaluative	To be specified by the manufacturer and supported by the printed literature	0.22	0.073 to 0.135	Yes	
	- Crankshaft end float	Evaluative		0.67	0.09	Yes	

T-1660/2191/2022	INTERNATIONAL TRACTORS LIMITED, DI - 75 4WD TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/05/2025

1	2	3	4	5	6	7	
(g)	Clearance of big end bearings, (mm):						
	-	Diametrical	Evaluative	-do-	0.22	0.073 to 0.098	Yes
	-	Axial	Evaluative	-do-	1.10	0.30 to 0.35	Yes
(h)	Clearance between king pin and bush, (mm)	Non Evaluative	-do-	1.00	Not measured due to 4WD design	Not applicable	
(i)	Clearance between centre pin and bush, (mm)	Non Evaluative	-do-	1.00	0.180 to 0.220	Yes	
17.1.13	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	
17.1.14	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	
17.1.15	Standard Accessories	Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with tractor		Provided	Yes	
17.1.16	Accessories (optional)	Non Evaluative	Ballast weight, if fitted, should meet the requirement of CMVR		Provided	Yes	

17.2 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	One (Mj-8)	Yes
3.	Minor	Evaluative	Not more than five and frequency of each should not be more than two.	One (Mn-6)	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.	Two (Major Mj-8) & (Min or Mn-6)	Yes

17.3 Salient Observations:

17.3.1 Laboratory tests:

17.3.1.1 PTO performance test:

The maximum equivalent crankshaft torque was recorded as **271.5 Nm** against the declaration of **251 Nm**, which does not meet the requirement of IS: 12207-2019 with regard to tolerance limit. This should be looked into for necessary corrective action.

T-1660/2191/2022	INTERNATIONAL TRACTORS LIMITED, DI - 75 4WD TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/05/2025

17.3.1.2 Drawbar performance:

- i) During the preparation of tractor for ballasted drawbar performance test, it was noticed that the tractor was not stopping even after fully depressing the clutch pedal. Upon this, the applicant vide letter no. Nil dated 27.04.2022 requested to inspect the clutch system for rectification of the problem. On inspection, free play of clutch pedal was found to be 35 mm against the recommended range of 25 to 30 mm. Thereafter, the free play was adjusted as 25 mm as per the recommended range. This should be looked into for necessary corrective action.
- ii) During the drawbar performance test under ballasted condition, the LHS rear tyre got puncture due to creeping of tyre over the rim. So, the applicant submitted request vide letter no. Nil dated 07.05.2022, to replace the punctured LHS tube and reset air filling valve of RHS tyre, which was allowed. Accordingly, the LHS rear tube was replaced with a new one of same size (Item code: 20002350AA) and air filling valve of RHS tyre was reset. This should be looked into for necessary corrective action.
- iii) During 10 hour drawbar test, creeping of LHS & RHS rear tyre over the rims was observed as 65 mm & 10 mm respectively, which was considered on higher side. This should be looked into for necessary corrective action.

17.3.1.3 Hydraulic Performance:

The moment about rear axle with standard frame was calculated as **20.62 kN-m**. Whereas, the moment about front axle was calculated as **21.32 kN-m** under standard ballasted condition. The moment about rear axle with coupled frame is on higher side as compared to moment about front axle under unballasted condition. This should be looked into for necessary corrective action.

17.3.1.4 Mechanical Vibration:

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

17.3.1.5 Brake Performance:

During Ballasted brake performance test, tractor was not able to get pickup to move. To rectify the issue, the applicant submitted request vide letter no. Nil dated 24.11.2021 for inspection of clutch assembly. Thereafter, the clutch housing was dismantled for inspection and the observations are under:-

- vi) Main clutch plate & PTO clutch plate were worn out.
- vii) Marks of excessive heating on both clutch plates & pressure plates.
- viii) Waviness on pressure plate and flywheel surfaces due to uneven wear out.
- ix) Worn out pilot bearing.
- x) Deposition of metal dust over clutch assembly and inside clutch housing due to excessive wear.

This defect has been categorized as **Major defect Mj-8** as per IS: 12207-2019.

Upon this, the applicant vide letter no. Nil dated 09.12.2021 has requested to allow the replacement of damaged "Double Clutch for Independent PTO" assembly (Part No. 300274360A) with a new one of same specification, which was allowed. Thereafter, "Double Clutch for Independent PTO" assembly (Part No. 300274360A) were replaced with new one of same specification. This should be looked into for necessary corrective action at production level.

17.3.1.6 Operator's Seat:

Vertical distance from seat index point to the centre steering control wheel has been measured as 220 mm, against the requirement of 265 to 385 mm. This should be looked into for necessary corrective action at production level.

T-1660/2191/2022	INTERNATIONAL TRACTORS LIMITED, DI - 75 4WD TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/05/2025

17.3.1.7 Operator's work place:

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

- i) Vertical retainer has not been provided on inner side of clutch pedal.
- ii) Height of foot step from ground level was measured 640 mm against the maximum requirement of 550 mm.
- iii) Spark arresting device has not been provided in the exhaust system.

Above parameters does not meet the requirement of IS: 12239 (Part-I) 1996 (Reaffirmed Oct., 2017). This should be looked into for necessary corrective action at production level.

17.4.1.8 Constructional requirement with regard to safety:

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

- i) The PTO shaft master shield has not been provided.
- ii) The working clearance around draft control lever & mud guard (RHS) has been measured as 40 mm against the minimum requirement of 70 mm.

Above parameters does not meet the requirement of IS: 12239 (Part-II)-1996 (Re-affirmed in January, 2019). This should be looked into for necessary corrective action at production level.

17.3.1.9 Specifications 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 27.06.2022 has submitted that "to meet the IS: 4931-1995 requirement, we have decided to remove 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.

Removed parts details:			
Sl.No.	Part name	Part number	Quantity
1.	Idler shaft	300180568A	01 No.
2.	Gear idler PTO	10090231BB	01 No.
3.	Bush for idler shaft	10090630BC	01 No.
4.	Cotter pin 6x46 Heavy Duty (DIN 1481)	200003527A	01 No.
5.	Needle cage 22*30*20	20004883AB	02 No.
6.	Spacer for idler shaft	300003569B	01 No.
7.	Bush for idler shaft	300003596A	01 No.
Added parts details:			
1.	Cap for gearbox housing	10091356AA	01 No.

17.3.1.10 PTO master shield:

PTO master shield not provided on tractor as per the requirements of IS: 4931-1995 (Reaffirmed in 2004). This should be looked into for necessary corrective action.

17.3.1.11 Specification of three point linkage:

- i) Width of ball.
- ii) Lateral distance from lower hitch point to centre line of tractor.
- iii) Lower hitch point tyre clearance.

Above said parameters does not meet the requirement of IS: 4468 (Part-1)-1997(Reaffirmed in October 2017). This should be looked into for necessary corrective action.

T-1660/2191/2022	INTERNATIONAL TRACTORS LIMITED, DI - 75 4WD TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/05/2025

17.3.1.12 Field performance:

17.3.1.12.1 Dry land operation:

- i) During dryland rotavation test, sudden engine rpm drops and engine stalling were observed. On inspection, improper fuel delivery was observed from fuel tank to fuel filter due to choked fuel pre-filter fitted inside fuel tank with sediments. The applicant vide letter no. Nil dated 29.03.2022 requested to clean the fuel tank thoroughly to rectify the issue, which was allowed, and accordingly the fuel tank assembly and fuel cock was cleaned.
- ii) Again during dryland rotavation test, coolant leakage was observed from radiator lower hose due to a crack on the hose. This defect has been categorized as **minor defect Mn-6** as per IS: 12207-2019. Upon this, the applicant vide letter no. NIL dated 31.03.2022 requested to replace the radiator lower hose ("Suction pipe to water pump", part no. 10002402AD), which was allowed. Accordingly, the hose was replaced with a new one of same specification.

All of the above needs to be looked into for necessary corrective action.

17.3.1.12.2 Wetland cultivation (Puddling Operation)

The manufacturer has recommended that the tractor is not suitable for wet land cultivation (puddling). Therefore, the fact that the tractor is not suitable for wet land cultivation (puddling) should be mentioned clearly and boldly in all the marketing literature relevant to the product.

17.3.1.13 Maximum Speed in reverse gears:

The maximum travelling speed at rated engine speed in reverse gears H3 & H4 was recorded as 25.63 km/hr & 37.80 km/hr respectively and which does not meet the evaluative requirement of IS:12207-2019. This should be looked into for necessary corrective action.

17.4 Maintenance / Service Problems:

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

17.5 Recommendation with regard to safety on tractor:

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

- i) Vertical distance from seat index point to the centre steering control wheel has been measured as 220 mm, against the requirement of 265 to 385 mm.
- ii) Vertical retainers at both sides of clutch pedal should be provided.
- iii) Height of foot step from ground level was measured 640 mm against the maximum requirement of 550 mm.
- iv) Spark arrester should be provided in the exhaust system as per the requirement of IS: 12239 (Part-2)-1999 (Re-affirmed in January, 2019).
- v) The working clearance around draft control lever & mud guard (RHS) has been measured as 40 mm against the minimum requirement of 70 mm.
- vi) Master shield of PTO shaft should be provided as per the requirement of IS: 4931-1995 (Re-affirmed in January, 2019).

17.6 Adequacy of Literature supplied with machine:


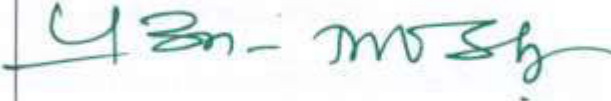
17.6.1 The following literatures were supplied with the test tractor for reference during the test:-

- a) Operator Manual for "International Tractors Limited, Di - 75 4WD" tractor model.
- b) Parts catalogue for "M International Tractors Limited, Di - 75 4WD" tractor model.
- c) Service manual (Part-I and Part-II) for "International Tractors Limited, Di - 75 4WD" tractor model.

T-1660/2191/2022	INTERNATIONAL TRACTORS LIMITED, DI - 75 4WD TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/05/2025

- 17.6.2 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:
- Safe hitch height while using trailer.
 - Coolant water ratio.
 - "CARE Button" for convenience of the farmers.
 - Information related to PTO & Drawbar of the tractor such as, maximum PTO power, maximum torque, backup torque, specific fuel consumption, maximum drawbar power etc should be included in the technical specification of the tractor for the guidance of the user's.

TESTING AUTHORITY:

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

Draft test report is compiled by: **Pramod Yadav**, Agricultural Engineer.

18. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's comments																																																
18.1	16 (1), 17.3.1.2 (i) & 17.3.1.5	Corrective actions for free play adjustment & re-verification is already implemented in production line.																																																
18.2	16 (3), 17.3.1.12.1 (ii)	We are reviewing further in design to avoid repetition in future.																																																
18.3	17.3.1.7 (i) & (ii)	We will consider the observations for potential improvements wherever required.																																																
18.4	17.3.1.9	<p>The applicant vide letter No. Nil dated 27.06.2022 has submitted that "to meet the IS: 4931-1995 requirement, we have decided to remove 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.</p> <table border="1"> <thead> <tr> <th colspan="4">Removed parts details:</th> </tr> <tr> <th>Sl.No.</th> <th>Part name</th> <th>Part number</th> <th>Quantity</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Idler shaft</td> <td>300180568A</td> <td>01 No.</td> </tr> <tr> <td>2.</td> <td>Gear idler PTO</td> <td>10090231BB</td> <td>01 No.</td> </tr> <tr> <td>3.</td> <td>Bush for idler shaft</td> <td>10090630BC</td> <td>01 No.</td> </tr> <tr> <td>4.</td> <td>Cotter pin 6x46 Heavy Duty (DIN 1481)</td> <td>200003527A</td> <td>01 No.</td> </tr> <tr> <td>5.</td> <td>Needle cage 22*30*20</td> <td>20004883AB</td> <td>02 No.</td> </tr> <tr> <td>6.</td> <td>Spacer for idler shaft</td> <td>300003569B</td> <td>01 No.</td> </tr> <tr> <td>7.</td> <td>Bush for idler shaft</td> <td>300003596A</td> <td>01 No.</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="4">Added parts details:</th> </tr> <tr> <th>Sl.No.</th> <th>Part name</th> <th>Part number</th> <th>Quantity</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Cap for gearbox housing</td> <td>10091356AA</td> <td>01 No.</td> </tr> </tbody> </table>	Removed parts details:				Sl.No.	Part name	Part number	Quantity	1.	Idler shaft	300180568A	01 No.	2.	Gear idler PTO	10090231BB	01 No.	3.	Bush for idler shaft	10090630BC	01 No.	4.	Cotter pin 6x46 Heavy Duty (DIN 1481)	200003527A	01 No.	5.	Needle cage 22*30*20	20004883AB	02 No.	6.	Spacer for idler shaft	300003569B	01 No.	7.	Bush for idler shaft	300003596A	01 No.	Added parts details:				Sl.No.	Part name	Part number	Quantity	1.	Cap for gearbox housing	10091356AA	01 No.
Removed parts details:																																																		
Sl.No.	Part name	Part number	Quantity																																															
1.	Idler shaft	300180568A	01 No.																																															
2.	Gear idler PTO	10090231BB	01 No.																																															
3.	Bush for idler shaft	10090630BC	01 No.																																															
4.	Cotter pin 6x46 Heavy Duty (DIN 1481)	200003527A	01 No.																																															
5.	Needle cage 22*30*20	20004883AB	02 No.																																															
6.	Spacer for idler shaft	300003569B	01 No.																																															
7.	Bush for idler shaft	300003596A	01 No.																																															
Added parts details:																																																		
Sl.No.	Part name	Part number	Quantity																																															
1.	Cap for gearbox housing	10091356AA	01 No.																																															

T-1660/2191/2022	INTERNATIONAL TRACTORS LIMITED, DI - 75 4WD TRACTOR - COMMERCIAL (Initial)
	THIS TEST REPORT IS VALID UPTO: 30/05/2025

ANNEXURE-I

BRIEF SPECIFICATION OF MATCHING IMPLEMENTS AS DECLARED BY APPLICANT

S. No.	Parameters	Disc Plough	Rotavator
1	Make	Not Provided	Sonalika
2	Type	Mounted	Mounted
3	No. of Discs / Blades	03	54 blades in 10 flange
4	Type of Discs / Blades	Plain concave	Hatchet
5	Size of Discs / Blades, (mm)	635	135 x 80 x 07
6	Spacing of Discs /Flanges, (mm)	560	240
7	Lower hitch point span, (mm)	930	710
8	Mast height, (mm)	530	440
9	Overall Dimensions, (mm):		
	Length	2420	2520
	Width	960	1050
	Height	1185	700
10	Gross Mass, (kg)	375	490

ANNEXURE-II

BRIEF SPECIFICATION OF MATCHING TRAILERS AS DECLARED BY APPLICANT

S. No.	Parameters	Trailer	Trailer
1.	Type of trailer	Semi –Trailer	Semi –Trailer
2.	Number of axles	Single	Double
3.	Un laden Weight of Trailer, Kg	1670	2800
4.	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)
5.	Brakes of Trailer	Not provided	Not provided

ANNEXURE-III

TRACTOR RUN HOURS DURING TEST

A.	LABORATORY AND TRACK TESTS:	HOURS
1.	Running-in	40.0
2.	PTO performance test	13.3
3.	Power lift and hydraulic pump performance test	5.22
4.	Drawbar performance test	23.5
5.	Turning ability	0.5
6.	Location of centre of gravity	0.2
7.	Operator's field of vision	--
8.	Brake test	4.3
9.	Noise measurement	2.3
10.	Mechanical vibration test	1.3
11.	Nominal speed test	2.6
B.	FIELD TEST:	
1.	Disc ploughing	16.6
2.	Rotavation	22.7
C.	HAULAGE TEST:	4.3
D.	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test	12.9
	TOTAL:	149.7