

व्यावसायिक परीक्षण रिपोर्ट (वैरिएंट)
COMMERCIAL TEST REPORT (Variant)

संख्या / No. : T-1100/1626/2017
माह / Month : August, 2017



ACE DI 37 XT 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, CO-OPERATION AND FARMERS WELFARE)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान
ट्रैक्टर नगर, बुदनी (म.प्र.) ४६६ ४४५

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T- 1100/1626/2017

ACE DI 37 XT TRACTOR– Commercial (Variant)

Manufacturer : M/s. Action Construction Equipment Ltd.
Plant-II, Dudhola Link Road, Dudhola
Palwal, Haryana – 121 102

Applicant : M/s. Action Construction Equipment Ltd.,
25th Mile Stone, Jajru Road, Mathura
Road, Ballabgarh, Faridabad, Haryana –
121 004

Month: August

Test Report No. T- 1100/1626/2017

Year : 2017



सत्यमेव जयते

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T- 1100/1626/2017	ACE DI 37 XT TRACTOR– Commercial (Variant)
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Type of Test : **COMMERCIAL (Variant)**

Test code/Procedure : IS: 5994-1998 (Reaffirmed in March 2009), and IS: 12207-2014

Period of Test : July, 2017

Test Report No. : **T- 1100/1626/2017**

Month/Year : **August, 2017**

- 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 submitted by the applicant 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 Variant test report and, should be read in conjunction with the Test Report of base model i.e. "ACE DI 350 NG Tractor" bearing No. T- 959/1477/2015, March, 2015.

SELECTED CONVERSIONS & ABBREVIATIONS

SELECTED CONVERSIONS		
Sl. 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

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Manufacturer	: M/s. Action Construction Equipment Ltd., Plant-II, Dudhola Link Road, Dudhola Palwal, Haryana – 121 102
Test requested by (applicant)	: M/s. Action Construction Equipment Ltd., 25 th Mile Stone, Jajru Road, Mathura Road, Ballabgarh, Faridabad, Haryana – 121 004
Selected for test by	: Applicant
Place of running-in	: At applicant's works
Duration of said running-in (h):	
- Engine	: 25
- Transmission	: 25
Method of Selection	: The tractor was directly submitted by applicant for test. Hence method of selection is not known

1. SCOPE OF TEST

The "ACE DI 350 NG" tractor had undergone "Initial Commercial Test" at this Institute and a test report No. T- 959/1477/2015, was released in March, 2015. Now the applicant has submitted an application vide letter No. ICT/37XT/001, dated 27.12.2016 for testing of "ACE DI 37 XT" tractor as a Variant of "ACE DI 350 NG" tractor.

The applicant having enclosed a list of following differences in the technical specifications between "ACE DI 350 NG" and "ACE DI 37 XT" and requested to test the "ACE DI 37 XT" as a variant of "ACE DI 350 NG" tractor.

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

S. No.	Parameters	Base Model (Test Report No. T-959/1477/2015)	Variant Model
1	2	3	4
1.	Model of tractor	ACE DI 350 NG	ACE DI 37 XT
2.	Exhaust System (Position of silencer outlet w.r.t SIP, mm)		
	-Vertical	970	920
	-Longitudinal	1465	1380
	-Lateral	485 (on RHS)	420 (RHS)
3.	Range of nominal speed, (kmph):		
	- Forward	2.37 to 28.74	2.38 to 28.62 (with variation of 0.42 to - 0.42 %)
	- Reverse	2.97 to 11.69	2.97 to 11.68 (with variation of 0 to - 0.09 %)
4.	Location of gear shifting lever:	Centre shift	Side shift
5.	Track width of steered wheel, mm	1265 (std.) & 1495	1280 (std.) & 1520
6.	Minimum & maximum height of front towing hitch, mm	620 (fixed)	645 (Fixed)
7.	Minimum & maximum height of rear towing hitch, mm	425 & 870	530 to 860
8.	Overall dimensions (Length, Width & Height), mm	3720, 1710 & 2310	3770, 1720 & 2300

Subsequent to the examination of the case in light of Clause 8.4 & Sl. No. v) of Table-3 of Indian Standard IS 12207-2014, 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



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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 oil	SAE 20 W 40	As recommended
2.	Gearbox, Differential, rear axle housing and hydraulic system oil	EP 80	Oil originally filled in the systems were not changed
3.	Steering system	EP 80	--do--
4.	Grease	Servo grease MP	MP Grease

3. ESSENTIAL TESTS

3.1. SPECIFICATIONS

	<u>Base Model</u>	<u>Variant Model</u>
3.1.1 Tractor:		
Make	:	ACE
Model	:	DI 350 NG DI 37 XT
Brand name, if any	:	None
Type	:	Four wheeled, rear-wheel driven, unit construction, Standard Agricultural Tractor
Year of manufacture	:	2013 2016
Chassis number	:	NAC 350000003 SAF370025453
Country of Origin	:	India India
3.1.2 Engine:		
Make	:	ACE
Model	:	A40
Type	:	Four stroke, water cooled, naturally aspirated, direct injection, diesel engine
Serial number	:	TMAC 0000003 TSAF0002730
Engine speed (Manufacturer's recommended production setting), (rpm) :		
- Maximum speed at no load	:	1950 to 2050
- Low idle speed	:	650 to 750
- Speed at maximum torque	:	1100 to 1300
Rated speed, (rpm):		
- For PTO use	:	1800
- For drawbar use	:	1800
3.1.3 Cylinder & Cylinder Head:		
Number	:	Three
Disposition	:	Vertical, Inline
Bore/stroke, (mm)	:	105/110
Capacity as specified by the applicant, (cc)	:	2857
Compression ratio, (apa)	:	18.5 : 1
Type of cylinder head	:	Individual
Type of cylinder liners	:	Wet, replaceable
Type of combustion chamber	:	Re-entrant
Arrangement of valves	:	Overhead, inline



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	<u>Base Model</u>	<u>Variant Model</u>
Valve clearance (cold):		
- Inlet valve, (mm) :	0.30	0.30
- Exhaust valve, (mm) :	0.40	0.40
3.1.4 Fuel System:		
Type of fuel feed system :	Gravity and force feed	
3.1.4.1 Fuel tank:		
Capacity, (l) :	59	55.2
Location :	Above clutch housing	
Provision for draining of sediments/ water :	Provided	
Material of fuel tank :	Metallic	
3.1.4.2 Water separator		
Make :	Hilux	
Type :	Inverted funnel, gravity separation	
Location :	Mounted on LHS of engine in between fuel tank and fuel feed pump.	
Capacity (l) :	0.50	
3.1.4.3 Fuel feed pump:		
Make :	Bosch, India	
Type :	Plunger	
Model/Group combination No. :	FP/KS22AD48/294400300 11	FP/KSG 22AD105, F002 A50 040 (apa)
Provision of sediment bowl :	Provided (Metallic)	
Method of drive :	Through cam shaft of fuel injection pump	
3.1.4.4 Fuel filters:		
Make :	Bosch, India	
Model/Group combination No. :	9 450 030 118	
Number :	Two	
Type of elements:		
-Primary :	Cloth	
-Secondary :	Paper	
Capacity of final stage filter, (l) :	0.45	0.41
3.1.4.5 Fuel Injection pump:		
Make :	Bosch, India	
Model/Group combination No. :	E 040 266 900 (Production No. F002 AOZ 950, PES3A90D320RS3500)	F002 A0Z 950, PES3A90D320RS3500
Type :	Inline, plunger	
Serial number :	104001	65472228
Method of drive :	Through timing gears	
3.1.4.6 Fuel injectors:		
Make :	Bosch, India	
Model/Group combination No. :		
Holder number :	F 002 C70 552	F 002 C70 552
Nozzle number :	DSLA 140 PV3 391 672 (Production No. DSLA 140 P 5601)	DSLA 140 P 5601
Type :	Multiholes (five holes)	
Manufacturer's production pressure setting, (Mpa) :	25 ± 0.8	
Injection timing :	9 ± 1 degree before TDC	
Firing order :	1-3-2	



		<u>Base Model</u>	<u>Variant Model</u>
3.1.4.7 Governor:			
Make	:	Bosch, India	
Model/Group combination No.	:	E 042 207 500 (Production No. RSV350...900A5C1735R)	RSV350...900A5C1735R
Type	:	Mechanical, centrifugal, variable speed	
Rated engine speed, (rpm)	:	650 to 2050	
Governed range of engine speed, (rpm)	:	1800	
3.1.5 Air intake system:			
3.1.5.1 Pre-cleaner	:	Not provided	
3.1.5.2 Air cleaner	:		
Make	:	Donaldson	
Type	:	Dry	
Location	:	In front of radiator, under the bonnet	
Range of suction pressure at maximum power, (kPa)	:	0.60 to 2.5	2.2 to 2.4
Details of elements:			
		<u>Secondary element</u>	<u>Primary element</u>
- Size (OD/ID), (mm)	:	78.59/64.78	127.15 / 84.95
- Length, (mm)	:	295	305
- Type	:	Plastic	
- No. of elements	:	One	One
Air flow restriction indicator	:	Provided on dash board	
Dust unloading valve	:	Provided	
Maintenance schedule	:	i) Cleaning of primary element if required in arduous condition or after every 300 hours of operation. Replace primary element after every 900 hours of operation or after 3 cleanings of primary filter element. ii) Replace secondary element after every 2700 hours or after 3 replacement of primary filter element.	
			Not specified
3.1.6 Exhaust System:			
Type of silencer	:	Updraft, elliptical	
Position of silencer outlet with respect to SIP, (mm):			
- Vertical	:	970	920
- Longitudinal	:	1465	1380
- Lateral	:	485 (on RHS)	420 (RHS)
Range of exhaust gas pressure at maximum power, (kPa)	:	1.59 to 6.53	3.33 to 4.00
Provision of spark arrestor	:	None	
Provision against entry of rain water.	:	A bend is provided at the top of silencer	
3.1.7 Lubricating system:			
Type	:	Forced feed-cum-splash	
Oil sump capacity, (l)	:	6.2	6.7
Total lub oil capacity, (l)	:	7.2	7.1
Oil change period	:	First change after 50 hours and subsequently after every 250 hours of operation.	
Cooling device, (if any)	:	None	



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	<u>Base Model</u>	<u>Variant Model</u>
Lubrication oil Filters:		
Make	:	Mico
Type	:	Spin-on, replaceable type
Number	:	One
Lubrication oil Pump:		
Make	:	Not available Viraj automotive / United Gear
Type	:	Gear
Method of drive	:	Through timing gears
Pressure release setting, (kPa)	:	450 (apa)
Minimum permissible pressure, (kPa)	:	49 (apa)
3.1.8 Cooling system:		
Type	:	Forced circulation of liquid
Coolant as recommended	:	PEE KAY INTERNATIONAL
Coolant water ratio	:	1:10
Details of pump	:	Centrifugal, semi open impeller having 12 vanes of 89.54 mm diameter and driven through crankshaft pulley by a "V" belt common to alternator.
		Centrifugal, semi open impeller having 12 vanes of 90 mm (apa) diameter and driven through crankshaft pulley by a "V" cogged belt common to alternator.
Details of fan	:	Suction type having 07 polypropylene blades of 420 mm diameter, driven through crankshaft pulley by a "V" belt common to alternator and mounted on water pump shaft.
Means of temperature control	:	Thermostat
Bare radiator capacity, (l)	:	2.3 2.60
Capacity of expansion flask, (l)	:	1.1 1.0
Total coolant capacity, (l)	:	7.9 7.5
Radiator cap pressure, (kPa)	:	49 (apa) 90 (apa)
3.1.9 Starting System:		
Type	:	12V, DC, Electrical
Aid for cold starting	:	None
Any other device provided for easy starting.	:	None
3.1.10 Electrical System:		
3.1.10.1 Battery:		
Make & Model	:	Amaron & TRA 550 D31R Exide & MF70Z
Number	:	One
Type	:	Lead Acid
Capacity and rating	:	12V, 88 Ah at 20 hours discharge rate 12V, 75 Ah at 20 hours discharge rate
Location	:	In front of radiator, under the bonnet On RHS of clutch housing in separate metallic box
3.1.10.2 Starter:		
Make	:	Magneton Penalfa
Model	:	Not available AS010-2450
Type	:	Pre-engaging, solenoid operated
Capacity and rating	:	12V, 2.5 kW 12V, 2.5 kW (apa)
Serial Number	:	5006 - 1571 Not available



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3.1.10.3 Generator:	Base Model	Variant Model
Make	: Magneton	Penalfa
Model	: AS 00 31371 - G	Ad034-0876
Type	: Alternator	
Output rating	: 12V, 42 Amps	12V, 42 Amp (apa)
Serial number	: 0324201027	Not available
Method of drive	: Through crankshaft pulley by a cogged "V" belt.	

3.1.10.4 Voltage regulator : Inbuilt 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)
1	2	3	4	5
Base Model:				
Front Lights:				
- Head lights	2, 12V, 60/55W	1230	160 x 100	700
- Parking lights	2, 12V, 5W	1265	65 x 65	180
- Turn-cum-hazard Indicator light	2, 12V, 21W	1265	65 x 70	110
Reflectors (White)	2	1265	30 x 55	220
Rear lights:				
- Tail-cum-brake light	2, 12V, 21/5W	1240	65 x 65	180
- Turn-cum-hazard Indicator light	2, 12V, 21W	1240	65 x 70	110
- Plough light (on RHS mudguard)	1, 12V, 55 W	1410	125 φ	340
- Reflectors (Red)	2	1330	30 x 55	220
- Registration plate light (RHS)	Part of rear light assembly			
Variant Model:				
Front Lights:				
- Head lights	2, 12V, 60/55W	1240	160 x 100	705
- Parking lights	2, 12V, 5W	1285	65 x 65	155
- Turn-cum-hazard Indicator light	2, 12V, 21W	1285	65 x 70	85
Reflectors (White)	2	1285	30 x 55	200
Rear lights:				
- Tail-cum-brake light	2, 12V, 21/5W	1280	65 x 65	155
- Turn-cum-hazard Indicator light	2, 12V, 21W	1280	65 x 70	90
- Plough light (on RHS mudguard)	1, 12V, 55 W	1440	125 φ	320
- Reflectors (Red)	2	1280	30 x 55	195
- Registration plate light (RHS)	Part of rear light assembly			



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3.1.11 Instrument panel details:-		<u>Base model</u>	<u>Variant model</u>
i)	Engine speed- cum- digital cumulative run hour meter (0 - 30 x 100 rpm)	Provided	Provided
ii)	Coolant (water) temperature gauge (with colour zones)	Provided	Provided
iii)	Battery voltmeter (with colour zones)	Provided	Provided
iv)	Lubricant oil pressure gauge (with colour zones)	Provided	Provided
v)	Fuel level gauge (with colour zones)	Provided	Provided
vi)	Air cleaner clogging indicator light	Provided	Provided
vii)	Main switch (key-turn type)	Provided	Provided
viii)	Light switch (rotary type)	Provided	Provided
ix)	Head light (long beam) indicator lamp	Provided	Provided
x)	Battery charging indicator lamp	Provided	Provided
xi)	Turn indicator-cum-hazard indicator lamp	Provided	Provided
xii)	Turn indicator switch	Not provided	Provided
xiii)	Hazard light switch	Provided	Provided
xiv)	Mobile charger socket	Provided	Provided
xv)	Fuel shut-off knob	Provided	Provided
xvi)	Steering control wheel	Provided	Provided
xvii)	Hand accelerator lever	Provided	Provided
xviii)	Horn push button	Provided	Provided
xix)	Rear view mirror	Provided	Provided

3.1.12 Transmission System:

3.1.12.1 Clutch:

	<u>Base model</u>	<u>Variant model</u>
Make	: Luk, India	: Luk, India (apa)
Type	: Dry, single friction plate	
No. of friction plate, (s)	: One	: One
Size, (OD/ID, mm):	: 279.62/165.99	: 280 / 165 (apa)
Method of operation	: By fully pressing the clutch pedal transmission or PTO will be engaged.	

3.1.12.2 Gear box:

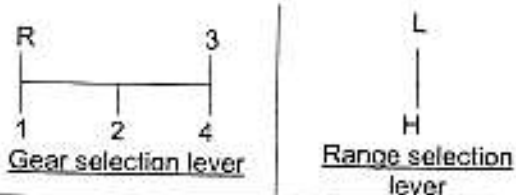
Make	:	ACE
Model	:	None
Type	:	Mechanical, combination of constant and sliding mesh gear with epicyclic gear reduction unit for Hi-low gear selection.
		Mechanical, combination of constant and sliding mesh gear with epicyclic gear reduction unit for Hi-low gear selection (apa)

No. of speeds:

- Forward	:	08
- Reverse	:	02

Gear shifting pattern on

Base model and Variant model





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	<u>Base model</u>	<u>Variant model</u>
Location of gear shifting levers	: Centre shift	Side shift
Main gear shift	: In-front of operator's seat	On RHS of operator's seat
Range selection (high-low & medium)	: In-front of operator's seat	On LHS of operator's seat
Oil capacity, (l)	: 54.0	52.0
	(Common with differential, rear final drive & hydraulic system)	
Oil changing period	: First change after 750 hours of operation subsequently changes after every 1000 hours of operation.	
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	: 3.23 : 1 (42/13 T)	3.23 : 1 (42/13T) (apa)
Oil capacity (l)	: 54.0	52.0
	(Common with differential, rear final drive & hydraulic system)	
Oil changing period	: First change after 750 hours of operation subsequently changes after every 1000 hours of operation.	
Differential lock:	: Not provided	
3.1.12.4 Rear axle & Rear final drive:		
Make	: Not available	
Type	: Bull and pinion gear reduction unit accommodated inside differential housing on both sides.	
Reduction through final drive	: 4.462 : 1 (58/13T)	4.462:1 (58/13T) (apa)
Oil capacity of rear axle & final drive, (l)	: 54.0	52.0
	(Common with gear box , differential & hydraulic system)	
Oil changing period	: First change after 750 hours of operation subsequently changes after every 1000 hours of operation.	
3.1.13 Power lift (Hydraulic system):		
Make	: NA	ACE (apa)
Model	:	NA
Type	:	Open center, live, ADDC
No. and type of cylinder	:	One, single acting
Type of linkage lock for transport	: Hydraulic, response control valve in fully closed position act as a transport lock.	
3.1.13.1 Hydraulic pump:		
- Make	: NA	United (apa)
- Type	:	Gear
- Location & drive	: On RHS of engine & Through timing gears	
No. & type of filters	: Two, both of fine wire mesh strainer type	Three, two fine wire mesh strainer and one spin-on throw away type filter (apa)
Cooling device for hydraulic oil, if any	: None	

	<u>Base model</u>	<u>Variant model</u>
Hydraulic oil capacity, (l)	: 54.0	52.0
	(Common with gear box , differential & rear final drive)	
Oil change period	: First change after 750 hours of operation subsequently changes after every 1000 hours of operation.	
Provision for external tapping	: Provided	
Details of control levers	: i) Position control lever ii) Draft control lever iii) Response control knob (at distributor)	
Method of draft sensing	: Through top link	

3.1.13.2 Three point linkage:

S. No.	Observations	As per IS: 4468- (Part-1) -1997, (Cat.I / Cat.II), (mm)	As measured (mm)		Remarks in case of variant model
			<u>Base model</u>	<u>Variant model</u>	
1	2	3	4	5	6
I.	Upper hitch points:				
	a) Dia of hitch pin hole	19.30 to 19.50 / 25.70 to 25.90	25.76	27.71	Conforms to Cat.II
	b) Width of ball	44.0 (max.) / 51.0 (max.)	50.82	50.98	Conforms to Cat.II
II.	Lower hitch points:				
	a) Dia of hitch pin hole	22.40 to 22.65 / 28.70 to 29.00	29.0	28.97	Conforms to Cat. II
	b) Width of ball	34.8 to 35.0 / 44.8 to 45.0	45.0	44.99	Conforms to Cat. II
III.	Lateral distance from lower hitch point to centre line of tractor.	359 / 435	359	364	Does not conform
IV.	Lateral movement of lower hitch points	100 (min) / 125 (min)	140	195	Conforms to Cat.I & II
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	520	500	Conforms to Cat.I
VI.	Transport height	820 (min)/ 950 (min)	825	855	Conforms to Cat.I
VII.	Power range (without force)	560(min)/ 650 (min)	630	645	Conforms to Cat.I
VIII.	Leveling adjustment	100 (min)/ 100 (min)	250	260	Conforms to Cat.I & II
IX.	Lower hitch point clearance	100 (min)/ 100 (min)	225	222	Conforms to Cat.I & II
X.	Lower hitch point height	200 (max)/ 200 (max)	200	200	Conforms to Cat.I & II



3.1.13.3 Linkage Drawbar [Refer Fig.1] :

Notation	As per IS: 12953-1990, (Cat.I) / (Cat.II), (mm)	As measured, (mm)		Remarks in case of variant model
		Base model	Variant model	
A	683 ± 1.5 / 825 ± 1.5	683	684	Conforms to Cat-I
B	75 (min) / 75 (min)	75	75	Conforms to Cat I & II
C	30 (min) / 30 (min)	30.1	31.47	Conforms to Cat I & II
ØD	21.79 to 22.0 / 27.79 to 28.00	27.89	27.96	Conforms to Cat-II
E	39.0 (min) / 49.0 (min)	54.6	54.35	Conforms to Cat I & II
FØ	12.0 (min) / 12.0 (min)	12.0	12.06	Conforms to Cat I & II
G	15.0 (min) / 15.0 (min)	15.0	16.63	Conforms to Cat I & II
HØ	25 ± 1 / 25 ± 1	25.1	24.86	Conforms to Cat I & II
J	80 ± 1.5 / 80 ± 1.5	80	80.87	Conforms to Cat I & II
No. of holes	7 / 9	07	07	Conforms to Cat-I

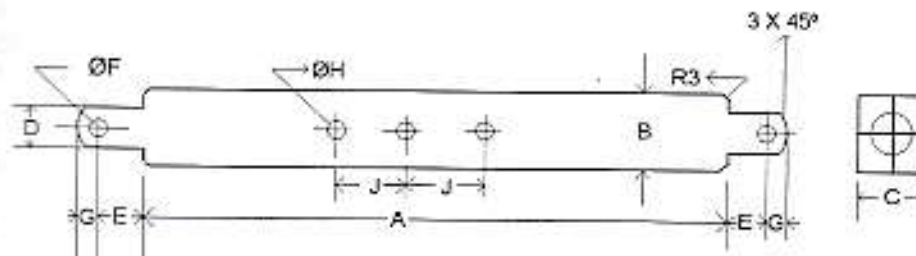


Fig. 1: DIMENSIONAL NOTATIONS FOR LINKAGE TYPE DRAWBAR

	<u>Base model</u>	<u>Variant model</u>
3.1.13.3.2 Swinging drawbar :		Not provided
3.1.13.3.3 Provision for coupling of trailer brakes :		Provided
3.1.14 Power take-off shaft:		
Type :	Type-I, Independent	Not Type-I, Not Independent
Method of engaging :	By a hand lever provided on LHS of operator's seat.	
No. of shaft,(s) :	One	One
PTO speed corresponding to rated engine speed, (rpm):	551	551
Distance behind rear axle, (mm) :	355	360
Engine to PTO speed ratio :	3.267 : 1	3.267:1
Whether the PTO shaft is capable of transmitting the full power of engine :	Yes	Yes
Other speed (rpm) :	Not provided	Not provided

3.1.14.1 Specifications of Power Take-Off Shaft:

Specification	As per IS: 4931-1995 (Type-I)	As observed		Remarks in case of variant model
		Base model	Variant model	
Nominal speed, (rpm)	540 ± 10	540	540 rpm of PTO shaft corresponds to 1764 rpm of engine	Conforms
No. of splines	6	6	6	Conforms
Direction of rotation	Clockwise	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.	08 mm LHS from centre line	08 mm LHS from centre line	Conforms
Dimensions, (mm) [Refer Fig.2]:				
D \varnothing	34.79 ± 0.06	34.95	34.84	Conforms
d \varnothing	28.91 ± 0.05	28.94	28.94	Conforms
B \varnothing	29.4 ± 0.1	29.3	29.40	Conforms
A \varnothing (optional)	8.3 ± 0.1	8.3	8.22	Conforms
W	8.69 - 0.09 - 0.16	8.55	8.60	Conforms
a	7	7	7	Conforms
b (optional)	25 ± 0.5	25.5	25.05	Conforms
c	38	38	38	Conforms
X	30°	30°	30°	Conforms
B	76 (min)	80	90.60	Conforms
h	450 to 675	615	620	Conforms

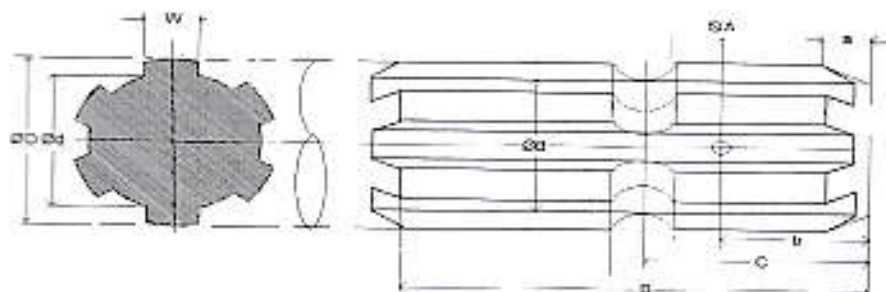


Fig.2 (a): DIMENSIONAL NOTATIONS FOR TYPE-I POWER TAKE-OFF SHAFT

3.1.14.2 Power Take-off Master Shield (Type I): Base model Not provided Variant model Provided

Dimensions of Power take-Off Master Shield. [Refer Fig. 2(b)]:

Specification	As per IS 4931- 1995 (mm)	As Observed		Remark
		Base model	Variant model	
K	70(Min.)	Not applicable	70	Conforms
M	125 ± 5		125	Conforms
N	85 ± 5		80	Conforms
P	285 ± 5		285	Conforms
r	76 (Max.)		0	Conforms

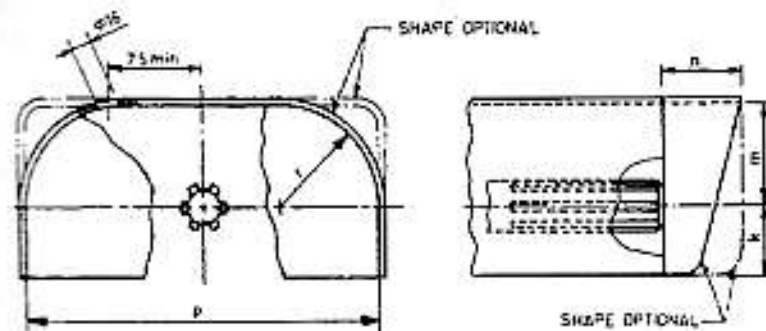


Fig. 2(b): DIMENSIONAL NOTATIONS FOR PTO SHAFT MASTER SHIELD

		<u>Base model</u>	<u>Variant model</u>
3.1.15	Towing hitch:		
3.1.15.1	Front		
	Type	Clevis	Clevis
	Location	At front axle support bracket	At front axle support bracket
	Height above ground level, (mm)	620 (fixed)	645 (Fixed)
	Type of adjustment	None	Fixed
	Width of clevis, (mm)	52	49.61
	Dia. of pin hole, (mm)	28	28.05
3.1.15.2	Rear:		
	Type		Clevis
	Location	At rear of transmission housing	Behind differential housing
	Height above ground level, (mm):		
	- Maximum	870	860
	- Minimum	425	530
	- No. of positions	8	Eight
	- Type of adjustment	By changing the position and reversing and changing of hitch on mounting bracket.	By changing and reversing the hitch on mounting bracket
	Distance of hitch point, (mm):		
	-From rear wheel centre	450	470
	-From power take-off shaft end	95	110
	Dia of pin hole, (mm)	35	34.54
	Width of clevis, (mm)	83	90.70
3.1.16	Steering:		
	Make	ZF India	ZF (apa)
	Type	Mechanical (worm and roller)	Mechanical (worm and roller) with single drop arm
	Location	Mounted on gearbox housing	Above clutch housing
	Method of operation	Manual, by steering control wheel	
	Diameter of steering control wheel, (mm)	430	
	Steering oil capacity, (l)	0.42	0.45
	Lubricant change period	First change after 750 hours of operation subsequently changes after every 1000 hours of operation.	



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		<u>Base model</u>	<u>Variant model</u>
3.1.17	Brakes:		
3.1.17.1	Service Brake:		
	Make	: Vishwas	Not available (apa)
	Type	: Mechanical, dry disc brakes	Mechanical, dry disc brakes (apa)
	Location	: On bull-pinion half axle shaft, outside of the differential housing.	On RHS & LHS bull pinion half axle shaft (apa)
	No. of disc (s)	: Two (on each wheel side)	Two (on each wheel side) (apa)
	Area of liners, (cm ²)	: 734.88 (on each wheel side)	734.4 (on each wheel side) (apa)
	Material of liners	: Asbestos (apa)	
	Method of operation	: Individual or combined pedal operation by right foot.	
3.1.17.2	Parking Brake:		
	Type	: Pawl and ratchet arrangement	
	Location & Method of operation	: Service brake acts as parking brake when locked in position by a hand lever provided on RHS of operator's seat.	
3.1.18	Wheel Equipment:		
3.1.18.1	Steered Wheel(s):		
	Make	: Good Year	Apollo krishak gold
	Number	:	Two
	Type of tyre	:	Pneumatic, ribbed
	Size	:	6.00 -16
	Ply rating	:	8
	Maximum permissible load on each tyre at inflation pressure recommended for road work, (kgf)	: 675	675
	Recommended inflation pressure, kPa :		
	- for field work	:	230
	- for transport	:	230
	Track width, (mm)	: 1265 (std.) & 1495	1280 (std.) & 1520
	Method of changing track width	:	By reversing the wheel disc
	Make & size of rim	: SSWL, W 4.50 x 16	CWPL & 4.5 E x 16
3.1.18.2	Drive wheel (s):		
	Make	: Good Year	Apollo krishak gold
	Number	:	Two
	Type of tyre	:	Pneumatic, traction
	Size	:	13.6 - 28
	Ply rating	:	12
	Maximum permissible load on each tyre at inflation pressure recommended for road work, (kgf)	: 1800	1800
	Recommended inflation pressure, (kPa):		
	- For field work	:	110
	- For transport	:	113



	<u>Base model</u>	<u>Variant model</u>
Track width, (mm)	: 1365 (std.),1455,1555,1595 ,1705,1795 & 1905	1360 (std.), 1460, 1570, 1600, 1710, 1800 & 1900
Method of changing track width	: By changing & reversing the wheel disc on off-set rim lugs.	
Make & size of wheel rim	: SSWL & W12 x 28	CWPL & W12 x 28
Wheel base, (mm)	: 1970	1980
Method of changing wheel base, if any, and range	: None	None
Operator's seat:		
Make	: NA	Autofit
Type	:	Cushioned
Type of Suspension	:	Two Helical coil springs
Type of Damping	:	Hydraulic shock absorber
Range of adjustment, (mm):		
Vertical	: Nil	Nil
Lateral	: Nil	Nil
Longitudinal	: ± 85	±50
3.1.20 Provision for safety and comfort of operator:		
3.1.20.1 Operator's Seat:		
Meets the minimum requirements of IS: 12343-1998, (Re-affirmed in March, 2009), except the following:		
	<u>Base model</u>	<u>Variant model</u>
	Operator's seat meets the minimum requirements of IS: 12343-1998 (Re-affirmed in March, 2009)	
3.1.20.2 Conformity with IS: 6283 (Part 1 & 2)-1998 (Re-affirmed in March, 2009) :		
Controls and displays are identifiable with symbols meets the requirements as per IS: 6283 (Part 1&2) – 1998.		
	Meets the requirements	Meets the requirements
3.1.20.3 Conformity with IS : 8133-1983 (Re-affirmed in March, 2009) :		
Location and movement of various controls meets the requirement of IS: 8133-1983, except the following:		
	i) Provision of safety against accidental start of engine has not been provided.	i) Provision of safety against accidental start of engine has not been provided.
3.1.20.4 Conformity with IS:12239 (Part-1)-1996 (Re-affirmed in March,2007) :		
Meets the requirements of IS: 12239 (Part-1) – 1996, except the following:		
	i) Provision of spark arresting device in the exhaust system.	i) Spark arrester in the exhaust system is not provided.
	ii) Subsequent steps should be provided.	ii) Subsequent steps should be provided.
3.1.20.5 Conformity with IS:12239 (Part-2)-1999 (Re-affirmed in March,2009) :		
Meets the requirements of IS:12239 (Part-2)-1999, except the following:		
	i) Differential lock is not provided.	i) Differential lock is not provided.
	ii) PTO shaft masler shield is not provided.	
3.1.20.6 Conformity with IS: 14683 – 1999 (Re-affirmed in March, 2009) :		
Lightings provided on the tractor meets the requirements and conform to IS: 14683-1999.		
3.1.20.7 Rear view mirror:		
Rear view mirror has been provided		
1.20.8 Slow moving emblem:		
Slow moving emblem has been provided.		



3.1.21	Mass of tractor, (kg): Without ballast	Base model			Variant model		
		Front	Rear	Total	Front	Rear	Total
	:	800	1175	1975	780	1190	1970

3.1.22	Over all dimensions:	Base model			Variant model		
		Length	Width	Height (with exhaust pipe)	Length	Width	Height (with exhaust pipe)
	- Length	:	3720		3770		
	- Width	:	1710		1720		
	- Height (with exhaust pipe)	:	2310		2300		
	Minimum ground clearance, (mm)	:	400 (below differential housing drain plug)		397 (below trailer hitch mounting bolt)		

3.1.23 **Labelling plate of tractor:**
Location of labelling plate: Labelling plate is riveted on LHS of gearbox housing and provides the following information:-

Name of Manufacturer	:	M/s. Action Construction Equipment LTD. Dhudholla Link Road, Village : Dhudholla, Palwal -121 102 HARYANA (INDIA)
Make	:	ACE
Model	:	DI 37 XT
Year of manufacture	:	2016
Engine Serial Number	:	TSAF0002730
Chassis Serial Number	:	SAF370025453
Maximum PTO Power, kW	:	27.0
Specific fuel consumption, gm/kWh	:	265

3.1.24 **Number of external lubricating points:**

	Base model	Variant model
- Oiling	:	Nil
- Grease nipples	:	19
- Grease cups	:	02

3.1.25 **Colour of tractor:**

Chassis & engine	:	Black
Bonnet & Mudguards	:	Blue
Wheel discs & rims	:	Silver

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 13.6-28 size tyres of 610 mm radius index, (kmph)		Variation in nominal speed (%)
		Base model	Variant model	Base model	Variant model	
1	2	3	4	5	6	7
Forward	L1	174.37	174.24	2.37	2.38	0.42
	L2	128.63	120.46	3.22	3.43	6.52
	L3	77.48	77.44	5.34	5.34	0.00
	L4	56.79	56.67	7.29	7.30	0.14
	H1	44.25	44.26	9.35	9.37	0.21
	H2	32.63	30.55	12.69	13.56	6.86
	H3	19.66	19.69	21.05	20.99	-0.29
	H4	14.41	14.41	28.74	28.62	-0.42
Reverse	LR	139.58	139.39	2.97	2.97	0.00
	HR	35.40	35.45	11.69	11.68	-0.09



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3.3 PTO PERFORMANCE TEST

S. No.	Particulars	Base Model	Variant Model
1	Date(s) of test	07.06.2014, 18.06.2014 & 19.06.2014	21.07.2017
2	Tractor run at this Institute prior to start of PTO test, (h)	7.31	0.72
3	Dynamometer test bench used	SAJ-AG-250 Eddy Current	

Maximum power two hours test under natural ambient condition was conducted. The results of Power take-off performance test under natural ambient of base & variant models are tabulated in Table-1.

Table-1

	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):							
Base model	27.0	566	1849	8.69	7.27	0.269	3.11
Variant model	26.9	551	1800	8.57	7.17	0.267	3.14
b) Power at rated engine speed (1800 rpm):							
Base model	26.8	551	1800	8.54	7.14	0.268	3.12
Variant model	26.9	551	1800	8.57	7.17	0.267	3.14

Base Model

Variant Model

Sl. No.	Parameters	Natural Ambient	High Ambient	Natural Ambient (Under max. power two hours test)
i)	No load maximum speed, (rpm)	1973	1973	1986
ii)	Equivalent crankshaft torque at maximum power (Nm)	139.5	130.5	142.9
iii)	Maximum equivalent crank shaft torque (Nm)	160.9	149.9	--
iv)	Engine speed at maximum equivalent crankshaft torque, (rpm)	1150	1150	--
v)	Backup torque (%)	15.34	--	--
vi)	Smoke level, maximum light absorption coefficient, (per meter)	0.19	--	--
vii)	Range of atmospheric condition :			
	- Temperature, (^o C)	25 to 28	42 to 45	30 to 31
	- Pressure, (kPa)	97.39 to 98.08	98.29 to 98.84	98.1 to 98.2
	- Relative humidity, (%)	52.1 to 63.8	31.7 to 51.2	80 to 85
viii)	Maximum Temperature, (^oC):			
	- Engine oil	97	108	90
	- Coolant	81	97	75
	- Fuel	48	63	46
	- Air intake	35	53	31
	- Exhaust gas	616	632	573
ix)	Pressure at maximum power:			
	- Intake air, (kPa)	2.1	1.9	2.2 to 2.4
	- Exhaust gas, (kPa)	4.66	6.53	3.33 to 4.00
x)	Consumptions:			
	Lub. Oil (g/kWh)	--	0.844	--
	-Coolant (% of total coolant capacity)	--	Nil	--



4. OTHER APPLICABLE TESTS

-- None --

5. ADJUSTMENTS, DEFECTS, BREAKDOWNS AND REPAIRS

S. No.	Adjustment/ Defects/ breakdowns and Repairs	Category of breakdown	Tractor run hours
--None--			

6. COMPARISON BETWEEN BASE MODEL AND VARIANT MODEL
(Based on Table 3 & 4 of Indian Standard 12207: 2014)

Sl. No.	Clause No	Features	Observation on base model T-959/1477/2015, March, 2015)	Observation on variant model	Remarks			
1	2	3	4	5	6			
1.	i)	Clutch	Same configuration in base & variant models (refer para 3.1.12.1)		No change			
2.	ii)	Air cleaner	Same configuration in base & variant models except (refer para 3.1.5.2)		No change			
3.	iii)	Exhaust system						
	a)	Position of silencer outlet w.r.t SIP, mm						
		-Vertical	970	920	Changed			
		-Longitudinal	1465	1380	Changed			
		-Lateral	485 (on RHS)	420 (RHS)	Changed			
	b)	Range of exhaust gas pressure at maximum power (kPa)	4.66	3.33 to 4.00	Changed			
4.	iv)	Gear Box:						
		Type	Mechanical, combination of constant and sliding mesh gear with epicyclic gear reduction unit for Hi-low gear selection.		No change			
		Location of gear shifting lever:	Centre shift	Side shift	Changed			
		Main gear shift lever	At front of operator's seat	On RHS of operator's seat	Changed			
		Range selection lever	At front of operator's seat	On LHS of operator's seat	Changed			
5.	v)	Reduction ratio of transmission:						
		Movement	Gear	Base model	Variant model	Variation (%)	Remark	
	Forward		L1	174.37	174.24	-0.07	No changed	
			L2	128.63	120.46	-6.35	Changed	
				L3	77.48	77.44	-0.05	No changed
				L4	56.79	56.67	-0.21	No changed
				H1	44.25	44.26	0.02	No changed
				H2	32.63	30.55	-6.37	Changed
				H3	19.66	19.69	0.15	No changed
				H4	14.41	14.41	0.00	No changed
	Reverse		LR	139.58	139.39	-0.14	No changed	
				HR	35.40	35.45	0.14	No changed



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1	2	3	4	5	6
		Range of speeds, (kmph):			
		- Forward	2.37 to 28.74	2.38 to 28.62	No change
		- Reverse	2.97 to 11.69	2.97 to 11.68	No change
		Additional no. of speed	None	None	No change
		Fitment of accessories:			
		- Expansion tank	Provided	Provided	No change
		- Additional hydraulic pump	None	None	No change
		- Air compressor	None	None	No change
		- Radiator	Provided	Provided	No change
		- Bare radiator capacity, (l)	2.30	2.60	No change
		Total coolant capacity,(l)	7.90	7.50	No change
		- Oil cooler	Not provided	Not provided	No change
		Brake system:			
		Type	Mechanical, dry disc brakes	Mechanical, dry disc brakes	No Change
		No. of disc (s)	Two (on each wheel side)	Two (on each wheel side)	No Change
		Area of liners (cm ²)	734.88 (on each wheel side)	734.88 (on each wheel side)	No Change
		Type of three point linkage			
		Type	Cat.I / Cat.II	Cat.I / Cat.II	No change
		Rear/front mounted	Rear mounted	Rear mounted	No change
		PTO shaft (s)			
		Location	08 mm LHS from centre line	08 mm LHS from centre line of tractor	No change
		Type	Type-I, Not Independent	Type-I, Not Independent	No change
		Speed corresponding to rated engine speed (rpm)	551 - Clockwise rotation	551 - Clockwise rotation	No change
		Other speed corresponding to rated engine speed (rpm)	None	None	No change
		- Anticlockwise rotation speed (rpm)	Not provided	Not provided	No change
		Type of drive:			
			2WD	2WD	No change
		Hydraulic system:			
		Location & type of Hydraulic pump drive	Same configuration in base & variant models (refer para 3.1.13).		No change
		Positioning of Hydraulic Sensing Mechanism:			
		Lower link, top link, etc.	Through top link	Through top link	No change
		Rear Final Reduction:			
		Reduction through final drive	4.462 : 1 (58/13T)	4.462 : 1 (58/13T)	No change
		Type	Bull and pinion gear reduction unit accommodated inside differential housing on both sides.		No change
		Type of fuel Injection pump:			
		Inline/Rotary/Common rail	Inline plunger	Inline plunger	No change



1	2	3	4	5	6
15.	Change related to statutory/ regulatory requirements (As per Table 4):				
a)	Engine operating principle (spark/ compression ignition, two/four stroke)	Compression Ignition, 4 stroke	Compression Ignition, 4 stroke	No change	
b)	Number & arrangement of cylinders	Three vertical inline	Three vertical inline	No change	
c)	Maximum declared PTO power, (kW)	27.0	27.0	No change	
d)	Bore /stroke ,(mm)	105/110	105/110	No change	
e)	Engine displacement (cc)	2857	2857	No change	
d)	Rated engine speed (rpm)	1800	1800	No change	
e)	Naturally aspirated/turbo charged	Naturally aspirated	Naturally aspirated	No change	
16.	Change related to ergonomics, safety comfort, statutory / regulatory requirements:				
a)	IS: 10273	Conformed	Conforms	No change	
b)	IS: 4931	Did not conform	Conforms	Changed	
c)	IS: 4468	Conformed	Does not conform	Changed	
d)	IS: 12953	Conformed	Conforms	No change	
e)	IS:12343	Conformed	Conforms	No change	
f)	IS:12239 (Pt-I)	Did not conform	Does not conform	No change	
g)	IS:12239 (Pt-II)	Did not conform	Does not conform	No change	
h)	IS:8133	Did not conform	Does not conform	No change	
i)	IS: 6283	Conformed	Conforms	No change	
j)	IS:14683	Conformed	Conforms	No change	
17.	Other changes:				
a)	Model Group combination of fuel feed pump	FP/KS22AD48/29 440030011	FP/KSG 22AD 105, F002 A50 040	Changed	
b)	Front towing hitch	Various configuration in base model (refer para 3.1.15.1)		Changed	
c)	Rear towing hitch	Various configuration in base model (refer para 3.1.15.2)		Changed	
d)	Wheel equipments:				
	Track width of steered wheel, mm	1265 (std.) & 1495	1280 (std.) & 1520	Changed	
f)	Over all dimensions, mm:				
	- Length	3720	3770	Changed	
	- Width	1710	1720	Changed	
	- Height (with exhaust pipe)	2310	2300	Changed	
g)	Battery:				
	Make & Model	Amaron & TRA 550 D31R	Exide & MF70Z	Changed	
	Capacity and rating	12V, 88 Ah at 20 hours discharge rate	12V, 75 Ah at 20 hours discharge rate	Changed	
h)	Generator:				
	Make	Magneton	Penalfa	Changed	
	Model	AS 00 31371 - G	Ad034-0876	Changed	
i)	Sheet metal:				
	Style of bonnet & Fender				
	- Colour	Blue	Blue	No change	
	-Decals (Sticker)	ACE DI 350 NG	ACE DI - 37 XT	Changed	



7. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

On the basis of test conducted the performance results have been summarized as evaluative (mandatory) and non – evaluative (not mandatory) parameters applicable for qualifying Minimum Performance Criteria as per clause-4 table-1 of Indian Standard 12207: 2014 for acceptance of tractor for the purpose of subsidies/NABARD financing for the applicable features for this tractor model.

7.1 Evaluative & Non Evaluative Parameters:

Sl. No.	Characteristic	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2014	Values declared by the applicant/ requirement		As observed		Whether Variant model meets the requirements (Yes/No)
				Base model	Variant Model	Base model	Variant model	
1	2	3	4	5 a	5 b	6 a	6 b	7
7.1.1 PTO Performance :								
a)	- Max. 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	27 (D)	27 (D)	27.0	26.9	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	27 (D)	27 (D)	26.8	26.9	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Non Evaluative	± 5%	265 (D)	265 (D)	269	267	Yes
7.1.2 Labelling of tractors (Provision of labeling plate):								
1)	Make	Evaluative	Should conform to the requirements of CMVR along-with declared value of PTO HP	--	ACE			Yes
2)	Model	Evaluative		--	DI 37 XT			Yes
3)	Year of manufacture	Evaluative		--	2016			Yes
4)	Engine number	Evaluative		--	TSAF0002730			Yes
5)	Chassis number	Evaluative		--	SAF370025453			Yes
6)	Declaration of PTO power, kW	Evaluative		--	27.0			Yes
7.1.3 Literature (Submission to test agency)								
(a)	Operator manual	Evaluative	Provided/ Not Provided	Provided	Provided	Provided	Yes	
(b)	Parts Catalogue	Evaluative	Provided/Not Provided	Provided	Provided	Provided	Yes	
(c)	Workshop/Service manual	Evaluative	Provided/Not Provided	Provided	Provided	Provided	Yes	



7.2 Salient Observations:

7.2.1 Laboratory tests:

7.2.1.1 PTO Performance:

- i) The maximum PTO power was observed as **26.9 kW** against the declaration of **27.0 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 **267 g/kWh** against the declaration of **265 g/kWh**, which is within the tolerance limit of IS: 12207-2014.

7.2.1.2 Three point linkage:

Dimension of lateral distance from lower hitch point to centre of tractor does not meet the requirement of IS 4468 (Part-I): 1997. Some of the parameters of three point linkages meet to the Cat.I and some of Cat. II of IS 4468 (Part-I): 1997. Keeping in view the spirit of standardization, necessary improvements may be incorporated.

7.2.1.3 Linkage Drawbar:

Some of the parameters of linkage drawbar meet to the Cat.I and some of Cat. II of IS 12953 : 1990 (Reaffirmed in 2000). Keeping in view the spirit of standardization, necessary improvements may be incorporated.

7.3 Maintenance / Service Problems:

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

7.4 Recommendation with regard to safety on tractor:

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

- i) The spark arrester has not been provided in the exhaust system.
- ii) Differential lock should be provided
- iii) Provision of safety against accidental start of engine has not been provided.

7.5 Adequacy of Literature supplied with machine:

7.5.1 The following literature has been supplied with the tractor

- a) Service Manual of **ACE DI 37 XT** tractor.
- b) Parts Catalogue of **ACE DI 37 XT** tractor.
- c) Operator's manual of **ACE DI 37 XT** tractor.

7.5.2 The supplied literature was found adequate, except the following:

- i) Recommended oil grade on various systems of tractor is not specified in operator's or service manual.
- ii) Servicing schedule of air cleaner, transmission system oil specified on specifications submitted by applicant is not matching with operator's manual.
- iii) Servicing schedule of steering system is not specified in operator's manual.
- iv) It is therefore, recommended that following literature may be brought out as per IS: 8132-1999 (Reaffirmed in March, 2009) for the guidance of users and service personnel in national as well as regional languages for this model of tractor.

The results of the tests carried out on variant model "**ACE DI 37 XT**" Tractor have been compared with those on base model "**ACE DI 350 NG**" Tractor 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
01 Month (July, 2017)	10 Months	Yes	None

TESTING AUTHORITY:

RAJNEESH PATEL
AGRICULTURAL ENGINEER

C.V. CHIMOTE
TEST ENGINEER

Y.K. RAO
SENIOR AGRICULTURAL ENGINEER

J.J.R. NARWARE
DIRECTOR

The report compiled by: Shri **Rajneesh Patel**, Agricultural Engineer.

9. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's comments
9.1	7.2.1.2 (ii), 7.2.1.3, 7.5.2 & 7.4 (iv)	The standardization of three point linkage, linkage drawbar and to add information in operator manual and to provided provision of safety against accidental start of engine. We will take the necessary action during the production.

**ANNEXURE-I****TRACTOR RUN HOURS DURING TEST**

A.	LABORATORY AND TRACK TESTS	HOURS
1.	Running -in	--
2.	PTO Performance Test	3.77
3.	Theoretical speed test	0.42
B.	Miscellaneous test and other run hours, including idle run transportation, trial and preparation for test.	0.30
	Total	4.49