



DEUTZ-FAHR, AGROLUX 75 PROFILINE TRACTOR



भारत सरकार

GOVERNMENT OF INDIA

कृषि मंत्रालय (कृषि एवं सहकारिता विभाग, मशीनीकरण एवं प्रौद्योगिकी प्रभाग)

Ministry of Agriculture (Deptt. of Agri. & Co-op, Mechanization & Technology Division)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

CENTRAL FARM MACHINERY TRAINING & TESTING INSTITUTE

(An ISO : 9001-2008 Certified Institute)

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T-882/1397/2013

DEUTZ-FAHR, AGROLUX 75 PROFILINE TRACTOR-
Commercial (Initial)

Manufacturer : M/s. SAME DEUTZ-FAHR INDIA (P) LTD
72, SIPCOT, Industrial Complex,
Ranipet – 632 403 (Tamil Nadu)

Test requested by (applicant) : The manufacturer
Selected for test by : Applicant
Place of running-in : At Applicant's works

Duration of said running-in (h):
- Engine : Nil
- Transmission : 25

Method of Selection : The tractor was submitted directly by the
applicant for test. Hence, method of
selection is not known.

1. SPECIFICATION

1.1 Tractor:
Make : DEUTZ-FAHR
Model : AGROLUX 75 Profiline
Type : Four wheeled, four wheel driven, standard
agricultural tractor.
Year of manufacture : 2012
Chassis number : ZKDL7902WORD10002D12
Country of Origin : India

1.2 Engine:
Make : SAME DEUTZ-FAHR INDIA (P) LTD
Model : 1000.3WTI-72 CV
Type : Four stroke, liquid cooled, turbo charged,
direct injection, diesel engine.
Serial number : 1000.3WTI1E3*10334*D12

Engine speed (Manufacturer's recommended production setting), (rpm) :
- Maximum speed at no load : 2330 to 2430
- Low idle speed : 600 to 900
- Speed at maximum torque : 1150 to 1400

Rated speed, (rpm):
- For PTO use : 2200
- For drawbar use : 2200

1.3 Cylinder & Cylinder Head:
Number : Three
Disposition : Vertical, inline
Bore/stroke, (mm) : 105 / 115.5
Capacity as specified by the applicant, (cc) : 3000
Compression ratio, (apa) : 16 ± 0.3 : 1
Type of cylinder head : Individual
Type of cylinder liners : Wet, replaceable
Type of combustion chamber : Open cavity on piston crown
Arrangement of valves : Overhead



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Valve clearance (cold):
- Inlet valve, (mm) : 0.25
- Exhaust valve, (mm) : 0.25

1.4 Fuel System:
Type of fuel feed system : Force feed

1.4.1 Fuel tank:
Capacity, (l) : 71.0
Location : Above clutch housing
Provision for draining of sediments/
water : Provided
Material of fuel tank : Plastic (apa)

1.4.2 Water Separator : Not provided

1.4.3 Fuel feed pump:
Make : Torino
Type : Plunger
Model/Group combination No. : None
Provision of sediment bowl : Provided
Method of drive : Through camshaft of Fuel injection pump

1.4.4 Fuel filters:
Make : Flaam
Model/Group combination No. : N.A
Number : One
Type of elements : Paper

1.4.5 Additional filters:
Make : SAME DEUTZ-FAHR INDIA (P) LTD
Type : Strainer at the intake of fuel suction pipe
Type of elements : Wire mesh

1.4.6 Injection pump:
Make : Bosch
Model/Group combination No. : 0 414 396 006
Type : Individual, plunger
Serial number : Not available
Method of drive : Through camshaft
Firing order : 1-3-2

1.4.7 Fuel injectors:
Make : Bosch
Holder Number : 0432 191 226
Nozzle Number : DLLA 150 P 2159
Type : Multi hole (Five holes)
Manufacturer's production pressure
setting, (MPa) : 18.0 to 18.8
Injection timing : 10 ± 1 degree before TDC (apa)

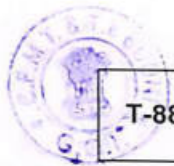
1.4.8 Governor:
Make : SAME DEUTZ-FAHR INDIA (P) LTD
Model/Group combination No. : None
Type : Mechanical, centrifugal, variable speed
Rated engine speed, (rpm) : 2200
Governed range of engine speed (rpm) : 600 to 2430 (apa)



16. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

16.1 Evaluative (mandatory) / Non-evaluation (Non-mandatory) parameters applicable for qualifying Minimum Performance criteria as per Clause-4 (Table-1) of IS: 12207-2008 for acceptance of the tractor for the purpose of subsidies/NABARD financing are summarized as under:

Sl. No.	Characteristic	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2008	Values declared by the applicant (D) / Requirement (R)	As observed	Whether meets the requirements (Yes/No)
1	2	3	4	5	6	7
16.1.1 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 >35hp. -7.5/+10% for PTO power ≤ 35 hp.	46.7 (D)	49.3	Yes
b)	Power at rated engine speed, (kW)	Non Evaluative	-do-	46.7 (D)	49.0	Yes
c)	Specific fuel consumption corresponding to maximum power, (g/kWh)	Non Evaluative	± 5%	298 (D)	286	Yes
d)	Maximum equivalent crankshaft torque, (Nm)	Non Evaluative	± 8%	295 (D)	313	Yes
e)	Back-up torque, percent	Non Evaluative	7 percent, min.	7 percent, min.(R)	49.7	Yes
f) 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.	140 (D)	135	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.	110 (D)	110	Yes



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1	2	3	4	5	6	7
g)	Engine oil consumption, (g/kWh)	Evaluative	Not exceeding 1% of SFC at max. power under High ambient conditions	2.90 (D)	0.64	Yes
h)	Smoke level	Evaluative	Maximum light absorption coefficient of 3.25 per metre or equivalent BOSCH No. 5.2 or 75 Hatridge value (As per CMVR)	Max 3.25 per meter (R)	1.87	Yes
16.1.2 Drawbar performance :						
a)	Maximum drawbar pull with ballast corresponding to 15 percent wheel slip, (kN)	Non Evaluative	Minimum 65% of static mass with ballast	24.85 (D) 24.86 (R) Minimum	32.52	Yes
b)	Maximum drawbar pull without ballast corresponding to 15 percent wheel slip, (kN)	Evaluative	Minimum 65% of static mass of tractor without ballast	16.45 (D) 16.45 (R) Minimum	23.01	Yes
c)	Maximum drawbar power without ballast, (kW).	Evaluative	Min. 80% of PTO power as referred in 17.1.1(a) of PTO performance	37.4 (D) 39.4 (R) Minimum	41.2	Yes
d)	Maximum transmission oil temperature (°C)	Non Evaluative	The declared value should not exceed the maximum value specified by oil company.	120 (D)	104	Yes
16.1.3 Power lift and hydraulic pump performance :						
a)	Maximum lifting capacity throughout the range of lift, (kN):					
1)	At hitch points	Non Evaluative	[Tolerance of minus 10%]	14.00 (D)	14.36	Yes
2)	With the standard frame	Evaluative	The lift capacity should at least be 18 kg/PTO hp. And it should be 16 kg/engine hp where the tractor is not provided with a PTO shaft.	11.8(D) 11.7 (R) Minimum	13.85	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 minute, (mm)	Non Evaluative	[Tolerance of plus 5 mm]	50(D)	0	Yes
16.1.4 Brake performance at 25 kmph:						
a)	Maximum stopping distance at a force, equal to or less than 600 N on brake pedal with ballast* (m):					
With rear wheel brake system in engaged condition						
1)	Cold brake	Evaluative		10	10 (R)	5.09 Yes
2)	Hot brake	Evaluative		10	10 (R)	5.84 Yes



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1	2	3	4	5	6	7
With front & rear wheel brake system in engaged condition						
1)	Cold brake	Evaluative	10	10 (R)	5.39	Yes
2)	Hot brake	Evaluative	10	10 (R)	5.40	Yes
b)	Maximum force exerted on the brake pedal to achieve a deceleration of 2.5 m/s ² (N)	Evaluative	600	600 (R)	257 to 273	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 (R)	Yes	Yes
16.1.5 Noise measurement :						
a)	Maximum ambient noise emitted by the tractor dB(A)	Evaluative	As per CMVR	88 (R)	86	Yes
b)	Maximum noise at operator's ear level dB(A)	Evaluative	As per CMVR	98 (R)	97	Yes
16.1.6 Amplitude of mechanical vibrations at :						
			100 microns (max)	100 (R)	70	Yes
1)	Left foot rest	Non Evaluative	-do-	100 (R)	50	Yes
2)	Right foot rest			100 (R)	30	Yes
3)	Seat (with driver seated)			100 (R)	90	Yes
4)	Steering wheel			100 (R)	90	Yes
16.1.7 Haulage requirements :						
a)	Gross mass of the trailers, (tones):					
1)	Two wheel	Non Evaluative	--	6.0 (D)	6.0	Yes
2)	Four wheel	Evaluative	--	7.0 (D)	7.0	Yes
b)	Distance travelled / litre of fuel consumption, (km/l):					
1)	Two wheel	Non Evaluative	--	4.25 to 7.00 (D)	4.14 to 4.16	No
2)	Four wheel	Evaluative	--	4.25 to 7.00 (D)	3.56 to 3.61	No
c)	Fuel consumption (ml/km/tonne):					
1)	Two wheel	Non Evaluative	--	25 to 50 (D)	40.0 to 40.3	Yes
2)	Four wheel	Evaluative	--	25 to 60 (D)	39.5 to 40.2	Yes
6.1.8 Wetland cultivation :						
Sealing for the following assemblies:		Evaluative	The identified assemblies should essentially meet the requirement of IS: 11082. No water ingress in the identified assembly given in column-2. If tractor does not meet the requirements of wetland cultivation, it may be recommended for dry land operation only.		There should be no ingress of water and/or mud	No ingress of mud and / or water was observed
1)	Clutch assembly	-do-				
2)	Brake housings	-do-				
3)	Front axle hubs	-do-				

	2)	With the standard frame	Evaluative	The lift capacity should at least be 18 kg/PTO hp. And it should be 16 kg/engine hp where the tractor is not provided with a PTO shaft.	11.8(D) 11.7 (R) Minimum	14.00 (D) 14.36	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 minute, (mm)	Non Evaluative	[Tolerance of plus 5 mm]	50(D)	0	Yes
16.1.4 Brake performance at 25 kmph:							
a)	Maximum stopping distance at a force, equal to or less than 600 N on brake pedal with ballast* (m):						
	With rear wheel brake system in engaged condition						
	1)	Cold brake	Evaluative	10	10 (R)	5.09	Yes
	2)	Hot brake	Evaluative	10	10 (R)	5.84	Yes

	2)	Four wheel	Non Evaluative	-	4.25 to 7.00 (D)	3.90 to 3.61	Yes
c) Fuel consumption (ml/km/tonne):							
	1)	Two wheel	Non Evaluative	-	25 to 50 (D)	40.0 to 40.3	Yes
	2)	Four wheel	Non Evaluative	--	25 to 60 (D)	39.5 to 40.2	Yes
6.1.8 Wetland cultivation :							
		Sealing for the following assemblies:	Evaluative	The identified assemblies should essentially meet the requirement of IS: 11082. No water ingress in the identified assembly given in column-2. If tractor does not meet the requirements of wetland cultivation, it may be recommended for dry land operation only.	There should be no ingress of water and/or mud	No ingress of mud and / or water was observed	Yes
	1)	Clutch assembly	-do-				
	2)	Brake housings	-do-				
	3)	Front axle hubs	-do-				



1	2	3	4	5	6	7
16.1.9	Safety features :					
a)	Guards against moving and hot parts	Evaluative	As per CMVR	At present no requirements	Provided	Yes
b)	Lighting arrangement	Evaluative	As per CMVR	--	Provided	Yes
16.1.10	Labelling of tractors (Provision of labelling plate):					
1)	Make	Evaluative	Should conform to the requirements of CMVR along-with declared value of PTO HP	--	DEUTZ- FAHR	Yes
2)	Model	Evaluative		--	AGROLUX 75 PROFILINE	Yes
3)	Year of manufacture	Evaluative		--	2012	Yes
4)	Engine number	Evaluative		--	1000.3WT11E3* 0334*D12	Yes
5)	Chassis number	Evaluative		--	ZKDL7902WOR D10002D12	Yes
6)	Declaration of PTO power, (kW)	Evaluative		--	46.7	Yes
16.1.11	Discard limit for:					
(a)	Cylinder bore diameter, (mm)	Evaluative	To be specified by the manufacturer	105.1	105.00 to 105.02	Yes
(b)	Clearance between piston & cylinder liner at skirt, (mm)	Non Evaluative		0.42	0.143 to 0.156	Yes
(c)	Ring end gap (mm):	Evaluative	-do-			
	- Top comp. ring.			1.5	0.50	Yes
	- 2 nd comp. ring.			1.5	0.40 to 0.45	Yes
(d)	Ring groove clearance (mm):	Evaluative	To be specified by the manufacturer	1.5	0.45 to 0.50	Yes
	- Top comp. ring.			0.25	0.04 to 0.056	Yes
	- 2 nd comp. ring.			0.25	0.056 to 0.068	Yes
(e)	Clearance of main bearings (mm):	Evaluative	-do-	0.15	0.03 to 0.047	Yes
	- Diametrical clearance			0.40	0.072 to 0.113	Yes
	- Crankshaft end float			0.50	0.20	Yes
(f)	Clearance of big end bearings, (mm):	Evaluative	-do-	0.40	0.044 to 0.057	Yes
	- Diametrical			0.80	0.20	Yes
	- Axial			0.85	0.02 to 0.028	Yes
(g)	Clearance between king pin and bush, (mm)	Non Evaluative	-do-	0.85	0.02 to 0.028	Yes
(h)	Clearance between center pin and bush, (mm)	Non Evaluative	-do-	0.85	0.131 to 0.150	Yes



16.1.12 CATEGORY OF BREAKDOWNS / DEFECTS :					
Sl. No.	Characteristic	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2008	As observed	Whether meets the requirements (Yes/No.)
1.	Critical	Evaluative	There should be no 'critical breakdown' during its validation after all tests including Repeat / Supplementary tests.	None	Yes
2.	Major	Evaluative	There should not be more than two 'major breakdowns' and neither of them is of repetitive nature.	None	Yes
3.	Minor	Evaluative	There should not be more than five 'minor defects' during the test 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

16.2 Optional requirements as per Clause-4 (Table-2) of IS:12207-2008:				
S. No.	Characteristic	Requirements as per IS: 12207-2008	As observed	Remarks
			4	5
1.	Air cleaner oil pull over, max. oil pull over (%)	0.25% (max.)	Not applicable	--
2.	Seating requirements	Should meet the requirements of IS: 12343-1998	Does not meet the requirement	No
3.	Fitment of ROPS	With a provision for fitment of ROPS.	Provided but not fitted	Yes
		If ROPS fitted it should meet the requirement of IS: 11821-1992	Provided	--
4.	Technical requirements for PTO shaft	Should meet the requirements of IS: 4931 -1995	Does not meet the requirement	No
5.	Dimensions of three point linkage	Should meet the requirements of IS: 4468 (Part-I)-1997	Meets the requirements	Yes
6.	Specifications of linkage	Should meet the requirements of IS: 12953-1990.	Meets the requirements	Yes
7.	Accessories	Trailer hitch, front tow hook, linkage drawbar may be provided.	Provided	Yes



- 16.3 Conformity with following IS:**
- i) Guidelines for declaration of power and specific fuel consumption and labeling of agricultural tractors (First revision) [IS 10273:1987 (Reaffirmed in March, 2009)] : Conforms
 - ii) Agricultural tractors – Rear mounted power take-off - Types 1, 2 and 3 (third revision) [IS: 4931-1995 (Reaffirmed in March, 2009)] : Does not conform
 - iii) Agricultural wheeled tractors - Rear mounted three-point linkage: Part 1 Categories 1, 2, 3 & 4 (fourth revision) [IS 4468 (Part-1):1997 (Reaffirmed in February, 2012)] : Conforms
 - iv) Drawbar for agricultural tractors – Link type [IS 12953:1990 (Reaffirmed in February, 2012)] : Conforms
 - v) Agricultural tractors - Operator's seat technical requirement [IS 12343 -1998 (First revision) (Reaffirmed in March, 2009)] : Does not conform
 - vi) Guide for safety & comfort of operator of agricultural tractors: Part 1 General requirements (first revision) : [IS 12239 (Part-1)-1996 (Reaffirmed in February, 2012) / ISO 4254-1:1989] : Conforms
 - vii) Tractors and machinery for agriculture and forestry – Technical means for ensuring safety Part 2: Tractors (first revision) IS 12239 (Part-2)-1999 (Reaffirmed in March, 2009)] : Does not conform
 - viii) Tractors and machinery for agriculture and forestry, powered lawn and garden equipment – Symbols for operator controls and other displays – Symbols for Agricultural Tractors and Machinery [IS: 6283 (Part-2) – 2007(Reaffirmed in March, 2009) / ISO 3767-2:1991]] : Conform
 - ix) Tractors and machinery for agriculture and forestry, powered lawn and garden equipment - Symbols for operator controls and other displays [IS: 6283 (Part-1) – 2006 (Reaffirmed in March, 2009) and IS: 6283 (Part-2)-2007 (Reaffirmed in March, 2009)] : Conforms
 - x) Agricultural Tractors and Machinery - Lighting device for travel on public roads (IS: 14683-1999) (Reaffirmed in March, 2009)] : Conforms

16.4 Salient Observations:

16.4.1 Laboratory tests:

16.4.1.1 PTO Performance:

- i) The backup torque is observed as 49.7%.
- ii) During the high ambient test the coolant(water) temp was reaching to 110 ° C in varying speed test at max torque & two hour max power test ,against the declaration of max coolant (water) temp 110 ° C ,which was considered on higher side. This should be looked into for necessary corrective action
- iii) The percentage drop in maximum power during natural ambient and high ambient condition was observed as 6.0%, which was considered on higher side. This should be looked into for necessary corrective action



- 16.4.1.2 Operator's seat:**
The Length of seat from seat index point & inclination of seat towards rear direction (in degrees) does not meet the requirements of IS: 12343-1998. This should be looked into for necessary corrective action.
- 16.4.1.3 Specifications of Power Take-off Shaft:**
Dimension "dØ" (Refer Fig.2) of PTO shaft does not meet the requirement of IS: 4931:1995, this should be looked into for compliance.
- 16.4.1.4 Location and operation of operator's control:**
Working clearance between position mudguard & forward –reverse shifting lever is 20 mm clearance ,which does not meet the requirement of the IS: 12239 (Part-2)-1999. This should be looked into for necessary corrective action.
- 16.4.2 Field performance test:**
- 16.4.2.1 Wetland cultivation (Puddling operation):**
No ingress of mud and / or water was noticed during puddling operation of the tractor and meet the requirements of IS: 11082-1984 (Technical requirements of agricultural tractors for wetland operation). Therefore, the tractor is recommended as suitable for wetland operation (Puddling).
- 16.4.2.2 Haulage test:**
 - (i) The distance travelled per litre of fuel consumption with two wheel trailer & four wheel trailer was observed as 4.14 to 4.16 & 3.56 to 3.61 km/l against the declaration 4.25 to 7.0 km/l. This does not meet the requirement of IS: 12207-2008 and therefore, should be looked into for necessary corrective action.
- 16.5 Maintenance / Service Problems:**
No noticeable maintenance or service problem was observed during the test.
- 16.6 Recommendation with regard to safety on tractor:**
The following requirements, inter-alia, may be considered for incorporation on the tractor:
 - i) Provision of spark arresting device in exhaust system.
 - ii) Working clearance between position mudguard & forward –reverse shifting lever may be provided as per IS: 12239 (Part-2) – 1999.
- 16.7 Adequacy of Literature supplied with machine:**
The following literature was supplied with the tractor for reference during the testing.
- 16.7.1**
 - i) Use and Maintenance manual in respect of Agrolux 75 profiline & Agrolux 80 profiline tractor models.
 - ii) Workshop service manual for Agrolux 75 profiline & Agrolux 80 profiline tractor models.
 - iii) Spare Parts Catalogue for Agrolux 75 profiline tractor.
- 16.7.2** Information related to PTO , Drawbar and hydraulic performance of the tractor such as, maximum engine power, rated engine power, maximum torque, backup torque, specific fuel consumption, maximum drawbar power & pull, hydraulic pump discharge rate, hydraulic power & lifting capacities etc should be included in the technical specification of the tractor for the guidance of the user's.
- 16.7.3** The literatures should also be brought out in national as well as other regional languages for the guidance of users and service personnel.



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17. CITIZEN CHARTER

Time frame for Testing & Evaluation as per Citizen Charter	Duration of Test	Whether the Test Report is released within the time frame given in Citizen Charter	Remarks
10 Months	9 Months (September, 2012 to May, 2013)	Yes	None

TESTING AUTHORITY:

P.K. Verma

P. K. VERMA
SENIOR AGRICULTURAL ENGINEER

C.R. Lohi

C. R. LOHI
DIRECTOR

Test Report compiled by: **Sh. Chanchlesh Singh Raghuwanshi**, Senior Technical Assistants.

18. Applicant's Comments

Para No.	Our Reference	Applicant's comments
18.1	16.4.1.1(ii),(iii) & 16.4.1.4	Would be analyzed/reviewed.
18.2	16.4.1.2	This is proprietary item will be taken up with supplier for necessary correction.
18.3	16.7.2	Necessary information will be provided.
18.4	16.7.3	Suggestion is considered.



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ANNEXURE- I

BRIEF SPECIFICATION OF IMPLEMENTS USED DURING FIELD TEST

S.No	Item	Disc Plough	Rotavator
1.	Make	M & M	Shaktimaan
2.	Type	Mounted	Mounted
3.	No. of bottoms/blades	Four	48, in 9 flanges
4.	Type of bottoms/blades	Plain concave	Hatchet
5.	Size of bottoms/blades, (mm)	665	130 x 70 x 5
6.	Spacing of bottoms/flanges, (mm)	505	245
7.	Lower hitch point span, (mm)	860	835
8.	Mast height, (mm)	415	610
9.	Overall dimensions, (mm):		
	- Length	2415	1115
	- Width	970	2040
	- Height	1145	1130
10.	Gross mass, (kg)	430	525

ANNEXURE- II

BRIEF SPECIFICATION OF FULL CAGE WHEEL

S. No.	Items	Specifications
1.	Type	Full cage wheel
2.	Dia, (mm)	1210
3.	Width, (mm)	900
4.	No. and types of lugs	24, straight lugs made up of MS-angle section welded to angle iron frame.
5.	Size of angle section, (mm)	40 x 40 x 5
6.	Length of lugs, (mm)	444
7.	Spacing of lugs, (mm)	290
8.	Weight of each cage wheels (kg)	120

ANNEXURE- III

TRACTOR RUN HOURS DURING TEST

A.	LABORATORY AND TRACK TESTS:	HOURS
1.	Running-in	--
2.	PTO performance test	19.2
3.	Drawbar performance test	15.5
4.	Power lift and hydraulic pump performance test	3.4
5.	Turning ability	0.3
6.	Location of centre of gravity	--
7.	Operator's field of vision	3.1
8.	Brake test	1.6
9.	Noise measurement	--
10.	Air cleaner oil-pull over test	1.0
11.	Mechanical vibration test	3.1
12.	Theoretical speed test	13.0
B.	FIELD TEST:	
1.	Disc plough	10.3
2.	Rotavation	15.2
3.	Puddling (including five hours water proof test)	10.0
C.	HAULAGE TEST:	
D.	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test	11.4
TOTAL:		117.4