

THIS TEST REPORT VALID UP TO : 28th February, 2025



**KRISHI CRAFT, KC-WP-7PE
POWER WEEDER**



भारत सरकार

Government of India

कृषि एवं किसान कल्याण मंत्रालय

Ministry of Agriculture and Farmers Welfare

कृषि, सहकारिता एवं किसान कल्याण विभाग

Department of Agriculture, Cooperation and Farmers Welfare

उत्तरी क्षेत्र कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान

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Sl. No.	Position	Slope, (°)	Loss of oil (g)	Oil pull over ,%	Remarks if any
1	Horizontal	-	0.07	0.13	The oil pull over is considered on higher side
2	Tilt longitudinally with front and up	15	0.06	0.11	
3	Tilt longitudinally with rear up	15	0.08	0.15	
4	Tilt laterally with right side up	15	0.04	0.08	
5	Tilt laterally with left side up	15	0.03	0.06	

- 10. HARDNESS & CHEMICAL COMPOSITION OF BLADES:** Hardness & chemical analysis of primary element of the blade were carried out as per IS: 6690 -1996. The details of same as given in table 3 & 4.

10.1 Table 3 : Hardness of blades

	Requirement as per IS: 6690-1996 (HRC)	Hardness (HRC) as observed	Remarks
At edge portion	56±3	34.2 to 46.0	Does not conform
At shank portion	37 to 45	34.2 to 46.0	Does not conform in toto

10.2 Table 4 : Chemical analysis of rotary blade

Elements	Requirements as per IS: 6690-1996 (%)	As observed (%)	Remarks
1.	2.	3.	4.
Carbon	0.50 to 0.60	0.3242	Does not conform
Manganese	0.50 to 1.00	0.7682	Conforms
Silicon	1.50 to 2.00	0.7471	Does not conform
Phosphorous	0.05 (Max.)	0.0425	Conforms
Sulphur	0.05 (Max.)	0.0714	Does not conform
Boron	--	0.0026	--

11. FIELD TEST

The field tests under dry land condition were conducted for 27.76 h (including running in and field adjustment time). The field tests were conducted at the 3000 rpm of engine. In all, 6 tests trials were conducted in sandy loam soil at the NRFMTTI farm, Hisar. The summary of the field test for dry land operation is represented in table-5.

Crop parameters

- i) Type of weed - Seasonal weeds
- ii) Height of weed, cm - 6.2 to 10.7



Table 5: SUMMARY OF FIELD PERFORMANCE TEST

Sl. No.	Parameter		Range
i)	Type of soil	:	Sandy
ii)	Average Soil moisture, %	:	6.8 to 14.8
iii)	Average Bulk density of soil, g/cc	:	1.41 to 12.3
iv)	Average Speed of operation, kmph	:	1.01 to 1.33
v)	Average depth of cut (cm)	:	5.77 to 7.30
vi)	Average Width of cut, m	:	0.68 to 0.73
vii)	Average Area covered, ha/h	:	0.059 to 0.075
viii)	Average Time required for one ha	:	13.33 to 16.95
ix)	Average Fuel consumption		
	l/h	:	0.98 to 1.23
	l/ha	:	13.42 to 20.16
x)	Average Weeding efficiency (%)	:	65.07 to 76.56
xi)	Average Field efficiency (%)	:	75.19 to 86.74

12. ADJUSTMENT, DEFECTS, BREAKDOWNS & REPAIR

The welding of gear shifting lever was broken during the field test.

13. COMPONENTS/ASSEMBLY INSPECTION AND ASSESSMENT OF WEAR**13.1 Engine :**

The Engine and other assemblies were dismantled after 46.58 h of engine operation.

13.1.1 Cylinder :**Cylinder bore dia. (mm)**

Top Position		Middle position		Bottom Position		Max. permissible wear limit
Thrust	Non-thrust	Thrust	Non-thrust	Thrust	Non-thrust	
70.02	70.02	70.02	70.02	70.03	70.01	70.55

13.1.2 Piston:**Piston diameter (mm)**

Top position		At Skirt			Max. permissible wear limit (mm)	
Thrust side	Non-thrust side	Thrust side	Non-thrust side	Piston to cylinder clearance (mm)	Piston dia. At skirt	Piston to cylinder clearance
69.57	69.58	69.97	Not measured due to piston design feature	0.05	69.40	0.45

Sl. No.	Initial mass (g)	mass after 27.76 hrs.(g)	Loss of mass (g)	Percent wear (%)	Percent wear per hour
1	341.3	331.3	10.0	2.93	0.11
2	337.0	323.2	13.8	4.09	0.15
3	348.8	338.8	10.0	2.87	0.10
4	341.9	330.9	11.0	3.22	0.12
5	352.1	338.2	13.9	3.94	0.14
6	353.5	341.4	12.1	3.42	0.12

14. SUMMARY OF OBSERVATIONS

S. No.	Characteristics	Declaration	Tolerance (as per IS :13539-2008)	As observed	Whether within the tolerance limit (Yes/No)
1	2	3	4	5	6
14.1	Engine performance test				
i)	Average rated power in rating test, kW	4.0	± 5%	3.17	No
ii)	Specific fuel consumption at average rated power in rating test, g/kwh	Not Specified	± 5%	409	--
iii)	Governing test		Tolerance (as per IS :7347-1974)		
	Momentary speed change in percentage of rated speed.	--	For class-1 governing-12% (Max) and class-2 governing-15% (Max)	7.25	Yes
	Permanent change in speed in percentage of rated speed	--	For class-1 governing- 6% (Max) and class-2 governing-10% (Max)	6.44	Yes
14.2	Amplitude of mechanical vibration (microns) at :				
i)	Steering handle grips				
	Left	100 max.	--	3100	No
	Right	100 max.	--	3100	No
ii)	Clutch/brake lever	100 max.	--	4800	No
iii)	Accelerator lever	100 max.	--	3400	No
14.3	Wear assessment				
i)	Cylinder bore diameter	70.55	---	70.03	Yes
ii)	Clearance between piston & cylinder liner	0.45	---	0.05	Yes

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iii)	Ring end gap		---		
	-Top ring	1.0	---	0.35	Yes
	-2 nd ring	2.0	---	0.65	Yes
	-oil ring	1.20	---	0.66	Yes
iv)	Ring groove clearance:		---		
	-Top ring	0.30	---	0.04	Yes
	-2 nd ring	0.30	---	0.04	Yes
	-Oil ring	0.15	---	0.13	Yes
v)	Clearance of big end bearing :		---		
	-Diametrical	0.25	---	0.06	Yes
	-Axial	0.80	---	0.80	Yes
vi)	Clearance of main bearing		---		
	-Diametrical	--	---	Ball bearing provided	--
	-Crankshaft end float	--			--

14.4	Safety requirements	Requirement	Observation	Remark
i)	Provision of guards on moving parts other than rotary	--	Provided	Yes
ii)	Provision of guard for tilling component as per clause 5.2 of IS 15925-2012	--	Provided	Yes
iii)	Location and direction of exhaust emission to be away from the operator	--	Provided	Yes
iv)	Covers on hot parts	--	Provided	Yes
v)	Provision of parking stand with locking	--	Provided	Yes
vi)	Identification of controls	Shall have the direction and/or method of operation clearly identified by durable label or mark	Provided	Yes
vii)	Marking/labels with Advice to read operator's manual Advice Wear eye and ear protection Cautionary information Safety signs near tines Distance warning for bystanders	--	Provided	Yes
viii)	Pertinent instructions	Shall be provided as presented in Annex A of IS:15925-2012	Not provided	No

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21	Provision for shield/cover to prevent flying of mud & stone from rotor	Must be provided	Provided	Conforms
22	Depth control mechanism	Must be provided	Provided	Conforms
23	Provision for transport wheels	Optional	Provided	Conforms
24	Provision for cover on exhaust	Must be provided	Provided	Conforms
25	Direction exhaust emission away from operator	Must be provided	Provided	Conforms
26	Marking /labeling of machine	The labeling plate should be riveted on the body of machine having Name and address of manufacturer & applicant, country of origin, make, model, year of manufacturer, serial number, engine number, engine HP, rated rpm & SFC	Address of manufacture, country of origin and SFC are not specified	Does not conform in toto
27	Literature	Operator manual, service manual and parts catalogue be provided	Not provided	Does not conform

16. COMMENTS & RECOMMENDATIONS

16.1 Mechanical vibration

The amplitude of mechanical vibration marked as (*) on the relevant chapter, are on drastically higher side. It is not just directly concerned with operator's health, safety and comfort, but also adversely affect the useful life of the components. In view of above, this deserved to be given top priority for corrective action.

16.2 Material for rotor shaft is not specified. **This is critical parameter and therefore, It MUST be specified.**

16.3 Emergency stop of engine was not provided. **This is critical parameter and therefore, It MUST be provided.**

16.4 Marking/Labeling of machine **does not meet the requirement of critical technical specification. It MUST be looked into.**

16.5 Make and Model of governor is not mentioned. **It MUST be mentioned.**

16.6 Specific fuel consumption at rated power was not declared. **It MUST be looked in to.**

16.7 The welding of gear shifting lever was broken during the field test. **It should be looked into.**

- 16.8 The power observed during engine performance test is less than the value declared by the applicant. It **MUST** be looked into.
- 16.9 Pertinent instruction is not mentioned. It **MUST** be mentioned.
- 16.10 Hardness of the blade does not conform to IS: 6690-1981. This needs to be looked into for corrective action.
- 16.11 The chemical composition of blades does not conform to as per IS: 6690-1981. This needs to be looked into for corrective action.
- 16.12 Provision for Aid for cold starting of engine is not provided. It **MUST** be provided.
- 16.13 Make of spark plug is not mentioned. It **MUST** be mentioned.
- 16.14 The marking of rotor blades is not mentioned. It **MUST** be mentioned.

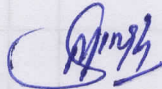
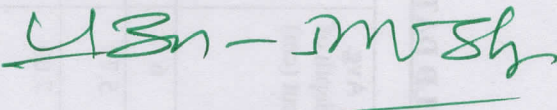
17. TECHNICAL LITERATURE

No technical literature was provided for reference during the testing.
The following literature must be provide

- i) Operator's manual,
- ii) Service manual and
- iii) Parts catalogue

Operator's manual should be brought out as per IS: 8132-1999

TESTING AUTHORITY

MAAN SINGH SENIOR TECHNICAL ASSISTANT	
P. K. PANDEY DIRECTOR	

18. APPLICANT'S COMMENTS

No comments received from the applicant.