प्रारंभिक व्यावसायिक परीक्षण रिपोर्ट
INITIAL COMMERCIAL TEST REPORT

संख्या/No. CSIR/CMERI/FMTTC/2024/054
माह/Month: September 2024

THIS TEST REPORT VALID UP TO : 31st AUGUST, 2031

MUKTESWAR SUPPLYERS
POWER WEEDER (MODEL: MS – 700P)

सत्यमेव जयते
Goverment Of India

कृषि मशीनरी प्रशिक्षण और परीक्षण केंद्र
Farm Machinery Training and Testing Centre
सीएसआईआर- केन्द्रीय यांत्रिक अभियांत्रिकी अनुसंधान संस्थान
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CSIR/CMERI/FMTTC/2024/054	MUKTESWAR SUPPLYERS POWER WEEDER (MODEL NO.- MS-700P) (INITIAL COMMERCIAL TEST)

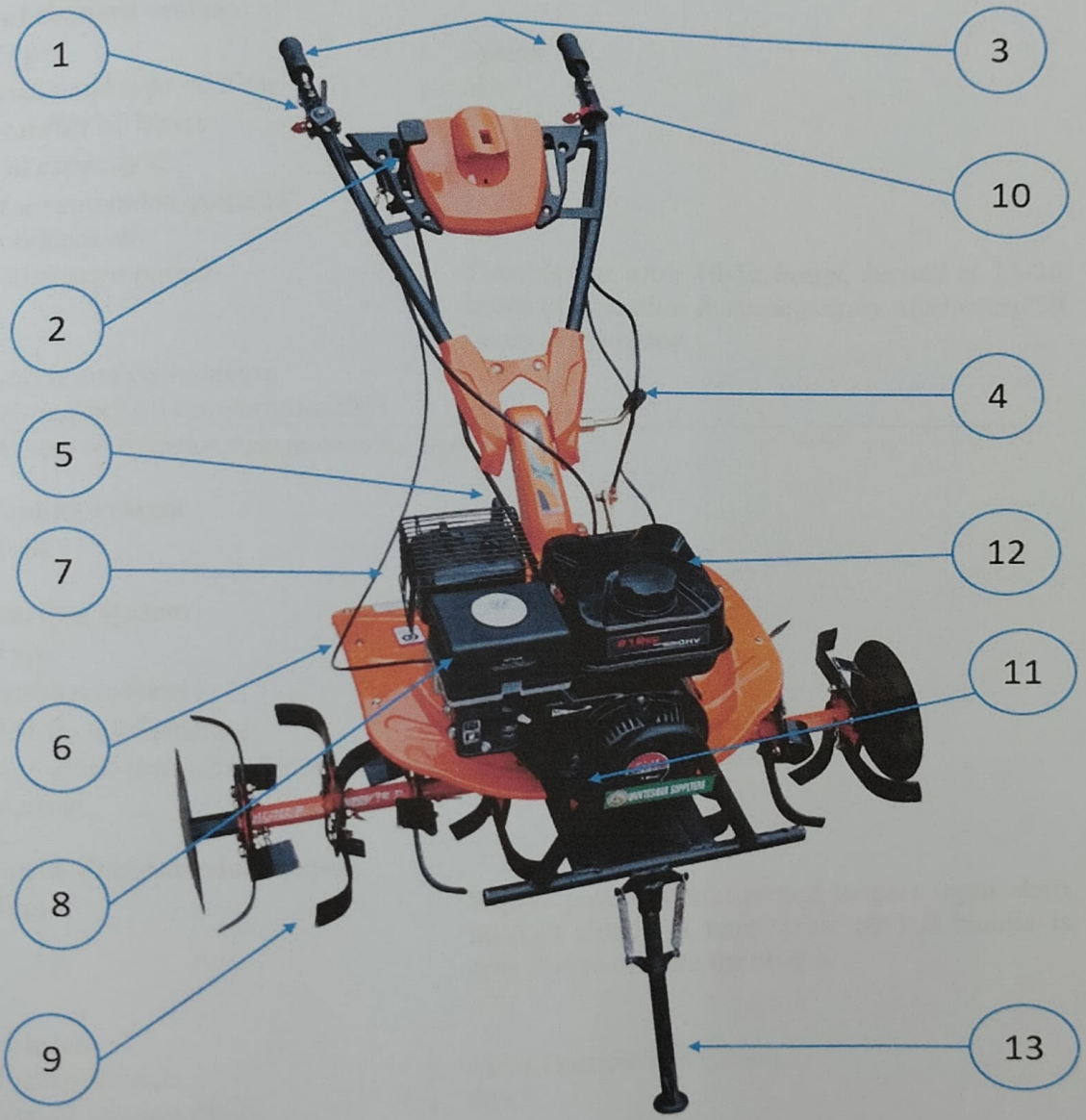
Name of Machine	:	Power Weeder With 4-Stroke 7.5 HP Petrol Engine
Type	:	Self-propelled, Walk-behind Type
Make	:	Mukteswar Supplyers
Model	:	MS-700P
Name and address of Manufacturer	:	M/s. Mukteswar Supplyers Basantadhia, Naroda, Raghuagorada, Pubagada, Balipatna, Khordha, 752102
Name and address of Applicant	:	M/s. Mukteswar Supplyers Basantadhia, Naroda, Raghuagorada, Pubagada, Balipatna, Khordha, 752102
Test Conducted at	:	Farm Machinery Training and Testing Centre CSIR - Central Mechanical Engineering Research Institute, M G Avenue, Durgapur, Pin – 713209, West Bengal.

THIS TEST REPORT IS VALID UP TO: 31st August, 2031
[vide DAC&FW OM No. 13-22/2020- M&T (I&P) dated 12.12.2023]

सत्यमेव जयते
Goverment Of India

Report No.: CSIR/CMERI/FMTTC/2024/054 Month: September Year: 2024

CSIR - Central Mechanical Engineering Research Institute,
Durgapur - 713209
(W.B.), INDIA



Key Words:

1	Accelerator lever	2	Gear shifting lever (Main & Reverse)
3	Steering handle bar	4	Handle height adjustment lever
5	Depth control mechanism	6	Rotor cover
7	Exhaust system	8	Air cleaner
9	Rotor	10	Clutch lever
11	Recoil starter	12	Fuel Tank
13	Stand		

Fig.1: Component details of Power Weeder, MS – 700P

Report prepared by

Report verified by
Subrata Kr Mandal

4.11.3 Axle & Final Drive

Type	:	Bevel & pinion
No. of teeth on pinion	:	10
No. of teeth on crown	:	36
Reduction ratio	:	3.6 : 1
Mode of power transmission from reduction unit to ground level	:	Engine power is transmitted to rotor through gearbox. Gear Drive, Bevel Pinion.

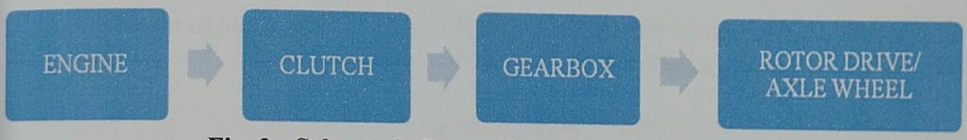


Fig. 2: Schematic Power Transmission Diagram

4.12 Rotor

4.12.1 Rotor cover

Material	:	MS Sheet
Size, mm		
Length	:	580
Width	:	220
Thickness	:	1.4
Method of fixing	:	Fixed to the chassis with nuts & bolts.

4.12.2 Rotor shaft

Material	:	Mild Steel
Type of rotor axle	:	Hexagonal
Size of shaft, (Dia. x Length)	:	Ø 24.2 x 290
No. of flanges	:	4 on each side
Type of flanges	:	Square
Size of flanges, mm	:	95 X 95
Thickness of flange, mm	:	3.6
Distance between two flanges, mm	:	120
No. of blades on each flange	:	04 nos.
Overall length of rotor, mm	:	1130
Diameter of rotor with blades, mm	:	360
Method of fixing of blade	:	Fixed to the flanges with the help of nuts and bolts

Report prepared by

Report verified by
Subrata Kr Mandal

Table 4: Chemical analysis of rotary blade

Elements	Requirement as per IS: 6690-1981 (%)	As observed (%)	Remarks
Carbon	0.50 to 0.60	0.72	**Does not Confirm**
Manganese	0.50 to 1.00	0.85	Conforms
Silicon	1.50 to 2.00	0.81	**Does not Confirm**
Phosphorous	0.05 (Max.)	0.028	Conforms
Sulphur	0.05 (Max.)	0.015	Conforms

11 RUNNING IN

The Power weeder was run-in for one hour before field performance test as recommended by the applicant. All the fasteners were checked & tightened thereafter.

12 FIELD TEST

The field test under dry land condition was conducted for 17.57 h. The field performance tests were conducted at the rated 3600 rpm. Multiple test trials were conducted in sandy loam soil at the FMTTC, CSIR-CMERI farm, Durgapur. The results of the field test for dry land operation are summarized in Table-5.

Crop parameters

i) Type of weed : Seasonal Grass

ii) Height of weed, cm : 7 – 17

Table 5: Summary of field performance test

Sl. No.	Parameter		Range
I	Type of soil	:	Sandy Loam
ii	Average Soil moisture (%)	:	15.0 to 18.3
iii	Average Bulk density of soil (g/cc)	:	1.66 to 1.89
iv	Average Speed of operation (kmph)	:	1.33 to 1.77
v	Average depth of cut (cm)	:	8.77 to 10.07
vi	Average Width of cut (m)	:	1.13 to 1.15
vii	Average Area covered (ha/h)	:	0.08 to 0.15
viii	Average Time required for one ha (Hr.)	:	6.50 to 12.59
ix	Average Fuel consumption		
	L/hr.	:	0.68 to 2.29
	L/ha	:	5.9 to 28.9
x	Average Weeding efficiency (%)	:	94.6 to 96.7
xi	Average Field efficiency (%)	:	52.7 to 89.8

The detailed field performance testing data is given in Annexure I.

13 ADJUSTMENT, DEFECTS, BREAKDOWNS & REPAIRS

No noticeable breakdown occurred during test.

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17 TECHNICAL LITERATURE

The following literatures are not provided by the applicant during the test along with the application form.

a) User's manual book

b) Parts' catalogue

c) Service manual

These manuals need to be provided as per IS: 8132-1999.

TESTING AUTHORITY

Report Prepared by	Sr. Technical Officer, CSIR-CMERI Farm Machinery Testing Centre	24/09/2024
Report Approved by	In-Charge, CSIR-CMERI Farm Machinery Testing Centre	24.09.2024
Report Approved for release by	Head, Business Development Unit, CSIR-CMERI, Durgapur	24/09/24

18 APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's Comments
18	16.1 to 16.5	Noted, we take necessary step with your recommendation in future production

CSIR - Central Mechanical Engineering Research Institute * Durgapur- 713209 *

FARM MACHINERY TRAINING AND TESTING CENTRE * CSIR-CMERI DURGAPUR

ANNEXURE - I

Place: CSIR-CMERI, Durgapur, West Bengal

FIELD DATA SHEET OF ROTARY POWER WEEDER

SL No	Date	Duration of Test	Gear	Speed of Operation	Average Width of cut	Average Depth of cut	Type of Soil	Average Soil Moisture	Bulk Density	Fuel consumption		Area covered	Time Required for one hectare	Field Efficiency	Weeding Efficiency
		(h)		(kmph)	(m)	(cm)		(%)	(g/cc)	(l/hr)	l/ha	ha/h	h/ha	(%)	(%)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	05/09/24	0.67	1	1.87	1.130	9.63	Sandy Loam	15.3	1.84	1.275	9.44	0.135	7.41	63.8	94.5
2		1.05	2	1.85	1.130	10.17	Sandy Loam	16.7	1.85	1.810	13.19	0.137	7.29	65.6	96.2
3	06/09/24	1.97	1	1.52	1.127	9.73	Sandy Loam	15.7	1.89	1.093	7.11	0.154	6.50	89.4	94.2
4		2.00	2	1.64	1.137	9.80	Sandy Loam	16.7	1.85	2.200	16.30	0.135	7.41	72.6	93.9
5	09/09/24	2.20	1	1.61	1.140	9.90	Sandy Loam	15.0	1.82	1.455	11.85	0.123	8.15	67.3	95.7
6		2.35	2	1.57	1.150	10.53	Sandy Loam	17.3	1.79	0.894	7.78	0.115	8.70	64.6	97.9
7	10/09/24	2.02	1	1.34	1.147	9.17	Sandy Loam	17.7	1.78	1.339	10.00	0.134	7.47	88.2	97.3
8		1.83	2	1.41	1.137	9.73	Sandy Loam	16.0	1.85	1.309	12.99	0.101	9.92	63.1	97.2
9	20/09/24	1.13	1	1.33	1.137	10.27	Sandy Loam	16.7	1.87	2.294	28.89	0.079	12.59	52.7	95.4
10		2.35	2	1.62	1.130	10.40	Sandy Loam	15.7	1.66	0.681	5.93	0.115	8.70	62.7	95.5

Report prepared by

Report verified by
Srikanta Kr Mandal