

प्रारंभिक व्यावसायिक परीक्षण रिपोर्ट
INITIAL COMMERCIAL TEST REPORT

संख्या/No. CSIR/CMERI/FMTTC/2023/005
माह/Month: July 2023

THIS TEST REPORT VALID UP TO : 31st July, 2028



**YKT 110D
POWER WEEDER**



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/2023/005	UGT TECH PVT LTD. YKT 110D POWER WEEDER (INITIAL COMMERCIAL TEST)
Name of Machine	: Diesel Engine Operated Power Weeder
Type	: Self-propelled, Walk Behind
Make	: YUKATO
Model	: YKT 110D
Name and address of Manufacturer	: Yukato Japan Industrial Development Ltd. 9-13, CHOME, KOMA HIGASHIMACHI, OBIHIRO, HOKKAIDO, 080-0847, JAPAN
Name and address of Applicant	: UGT TECH PVT LTD. B-1/300 FL NO. A 4 th FLOOR, KALYANI, NADIA- 741235, W.B, India
Test Conducted at	: Farm Machinery Training and Testing Centre CSIR - Central Mechanical Engineering Research Institute, M G Avenue, Durgapur, Pin - 713209, West Bengal.

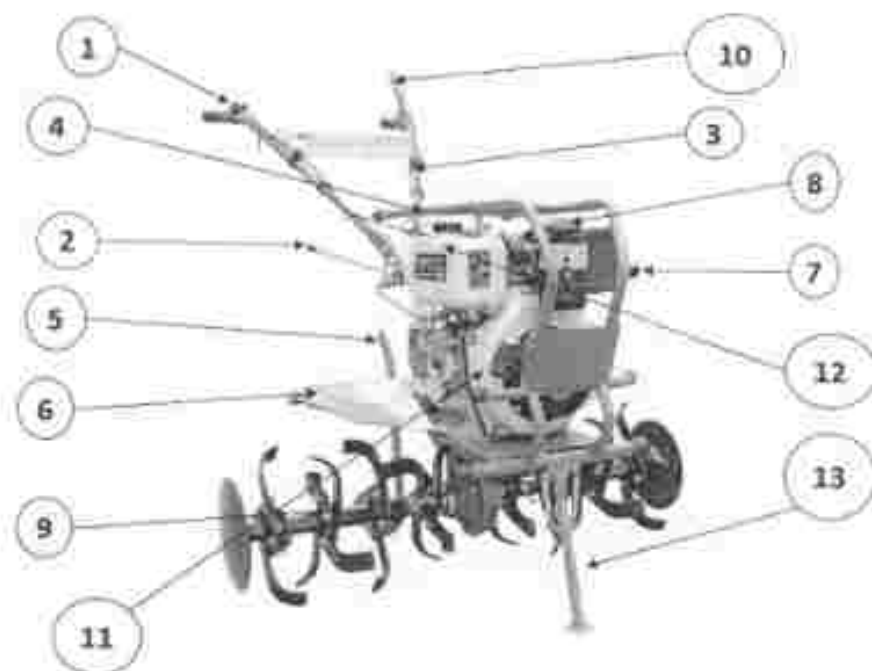
THIS TEST REPORT IS VALID UP TO : 31ST JULY, 2028
[vide DAC&FW OM No. 13-24/2018- M&T (I&P) dated 19.09.2018]



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**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, YKT 110D**4.8 Lubrication system**

Type	: Splash
Make and type of filter	: Not Available
Number of filters	: 01
Oil capacity (L)	: 0.9
Recommended grade of lubricant oil	: 15W40 (CP4)
Oil change period	: First change after 10-12 hours, second at 30 hours of operation & subsequently after every 50 hours of operation
Maximum permissible lubricating oil temperature (°C)	: 150°C



4.9 Cooling system

Type : Air cooled

4.10 Starting system

Type : Manual, Recoil
 Ignition system : Compression Ignition
 Aid for cold starting : N. A
 Any other provision for easy starting : Decompression System Available

4.11 Power Transmission system

Type : Engine power is transmitted to gear input shaft through clutch. A hand lever on left handle is provided to operate the clutch.

4.11.1 Clutch

Type of clutch : Wet type, Frictional Multi-plate
 Dia. of friction plate : 118.90 mm
 Thickness : 2.65 mm
 Number of Plates : 5
 Method of operation : Power Weeder starts by pressing the clutch lever. Gear changes must be done before pressing the clutch lever.
 Location of clutch : In between engine and transmission system

4.11.2 Gear Box

Type : Sliding Type Constant Gear Box, Oil Lubricated
 No. of speed : 3 (2 forward & 1 reverse)
 Grade of oil : EP 90
 Oil capacity, (L) : 2.20
 Oil change period : First change after 10 hours of operation & subsequently after every 50 hours of operation

4.11.3 Axle & Final Drive

Type : Hexagonal Gear Drive
 No. of teeth on pinion : 14 (1st Pair) & 25 (2nd Pair)
 No. of teeth on crown : 39 (1st Pair) & 40 (2nd Pair)
 Reduction ratio : 2.8:1 (1st Pair) & 1.6:1 (2nd Pair)
 Mode of power transmission from reduction unit to ground level : Engine power is transmitted to rotor through gearbox, Gear Drive, Bevel Pinion



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6. ENGINE PERFORMANCE TEST

The engine testing of the power weeder is not done in the FMTTC, CMERI, Durgapur. However, applicant has submitted a copy of the engine test report of BS305, Sr. No.- K20105*00127* with a test report No. - 20230055 dated - 24/06/2023 issued by NSIC - Technical services centre, Rajkot, A unit of the National Small Industries Corporation Ltd. (A Government of India enterprise). The experts from the test results of engine rating test and fuel consumption test from above mentioned report are given below without any correction.

Model	: YKT 110D	Rating	: 6.4 hp /4.73 kW
RPM	: 3600	Governor Class	: —
Fuel Consumption	: 330 gm/Kwh	Lubricating oil consumption	: 0.014 l/hr.
Number of Cylinder	: One	Type of Cooling	: Air

ULR NO. TC754423100000055P

IS CODE NO. - IS 11170:1985

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A. Engine rating and Fuel consumption test:

Sl. No	Time in hours & minutes after starting	Barometer Reading (kPa)	Air Temperature		Relative Humidity (d) %	Observed Speed (rpm)	Brake Load (Kg)	Power (kW)	Fuel consumption	
			Dry bulb (°K)	Engine Intake (°K)					Time for 41 gm. (s)	g/h S.F.C (g/kw-h)
1	10.00	98.5	305	309	55	3600	10.75	4.30	117	1252
2	11.00	96.7	306	310	50	3600	10.78	4.30	117	1252
3	12.00	98.7	306	310	50	3600	10.78	4.30	117	1252
4	13.00	98.7	307	311	51	3600	10.71	4.30	118	1251
5	14.00	98.7	308	312	47	3600	10.70	4.30	118	1251
6	15.00	98.5	308	312	47	3600	10.67	4.30	118	1251
7	16.00	98.7	308	312	47	3600	10.67	4.30	118	1251
8	17.00	98.5	307	311	56	3600	10.64	4.30	118	1251
9	18.00	98.4	307	311	56	3582	11.75	4.73	107	1379
11	19.00	98.4	307	311	51	3818	0	0	398	371
12	19.30	98.4	306	310	55	3762	2.26	0.95	270	547
13	20.00	98.4	306	310	55	3698	4.53	1.87	212	696
14	20.30	98.4	306	310	55	3660	6.79	2.78	170	868
15	21.00	98.4	305	309	61	3628	9.05	3.67	137	1077
16	21.30	98.4	305	309	61	3600	10.69	4.30	118	1251
17	22	98.4	304	308	66	3582	11.85	4.73	106	1392

B. Governing Test:

Sl. No.	Parameter	Observed value
1	Momentary speed change in percentage of rated speed from Full Load to No Load	9.03
2	Permanent speed change in percentage of rated speed from Full Load to No Load	6.06



17. TECHNICAL LITERATURE

The following literatures are 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.



18. TESTING AUTHORITY

Report Prepared by	Scientist, CSIR-CMERI Farm Machinery Testing Centre	<i>[Signature]</i> 21/07/23
Report Verified by	Scientist, CSIR-CMERI Farm Machinery Testing Centre	<i>[Signature]</i> 21/07/23
Report Approved by	In-Charge, CSIR-CMERI Farm Machinery Testing Centre	<i>[Signature]</i> 21/7/23
Report Approved for release by	Head, Business Innovation and Skill Group, CSIR-CMERI, Durgapur	<i>[Signature]</i> 21/7/23



19. APPLICANT'S COMMENTS

Para No.	Our Reference	Applicant's Comments
19	16.1 - 16.5	Corrective actions will be taken against the given comments from 16.1 to 16.5.

ANNEXURE - I

Place: CSIR-CMERI, Durgapur, West Bengal

FIELD DATA SHEET OF ROTARY POWER WEEDER

Sl. No	Date	Duration of Test (h)	Gear	Speed of Operation (kmph)	Average Width of cut		Average Depth of cut (cm)	Type of Soil	Average Soil Moisture (%)	Bulk Density (g/cc)	Fuel consumption		Area covered ha/h	Time Required for one hectare h/ha	Field Efficiency (%)	Weeding Efficiency (%)
					(m)	(m)					(l/hr)	(l/ha)				
1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16
1	25/06/23	2.80	1	1.63	1.217	6.5	Sandy Loam	18.4	1.68	0.66	4.40	0.150	6.67	78.1	92.3	
2		2.90	2	1.98	1.190	7.0	Sandy Loam	18.2	1.58	0.81	4.33	0.186	5.37	79.9	94.7	
3	06/07/23	3.07	1	1.60	1.193	7.0	Sandy Loam	17.0	1.7	0.73	4.65	0.157	6.39	82.7	89.1	
4		2.75	2	2.12	1.197	7.0	Sandy Loam	17.3	1.67	0.84	3.87	0.218	4.58	87.3	89.7	
5	11/07/23	3.03	1	1.57	1.190	6.6	Sandy Loam	16.7	1.64	0.75	4.71	0.158	6.32	85.3	92.9	
6		2.93	2	2.00	1.203	6.9	Sandy Loam	17.5	1.72	0.84	4.22	0.194	5.15	82.3	97.1	
7	13/07/23	3.27	1	1.49	1.187	6.8	Sandy Loam	16.4	1.63	0.82	5.58	0.147	6.81	83.8	92.3	
8		2.98	2	2.09	1.173	7.4	Sandy Loam	18.1	1.58	0.88	4.16	0.211	4.74	85.6	91.2	
9	14/07/23	2.60	1	1.55	1.157	7.1	Sandy Loam	17.0	1.37	0.79	5.72	0.138	7.22	75.7	89.5	
10		2.23	2	2.38	1.160	6.7	Sandy Loam	16.4	1.71	0.86	3.76	0.228	4.38	81.2	91.7	



Farm Machinery Training and Testing Centre,
CSIR-Central Mechanical Engineering Research Institute, Durgapur
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