प्रारंभिक व्यावसायिक परीक्षण रिपोर्ट
INITIAL COMMERCIAL TEST REPORT

संख्या/No. **CSIR/CMERI/FMTTC/2023/006**
माह/Month: **July 2023**

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

YKT 100G
POWER WEEDER

कृषि मशीनरी प्रशिक्षण और परीक्षण केंद्र
Farm Machinery Training and Testing Centre
सीएसआईआर- केन्द्रीय यांत्रिक अभियांत्रिकी अनुसंधान संस्थान
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Name of Machine	:	Petrol Engine Operated Power Weeder
Type	:	Self-propelled, Walk Behind.
Make	:	YUKATO
Model	:	YKT 100G
Name and address of Manufacturer	:	Yukato Japan Industrial Development Ltd. 9-13, CHOME, KOME HIGASHIMACHI, OBIHIRO, HOKKAIDO, 080-0847, JAPAN.
Name and address of Applicant	:	UGT TECH PVT LTD. B-1/300 FL NO. A 4th 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.

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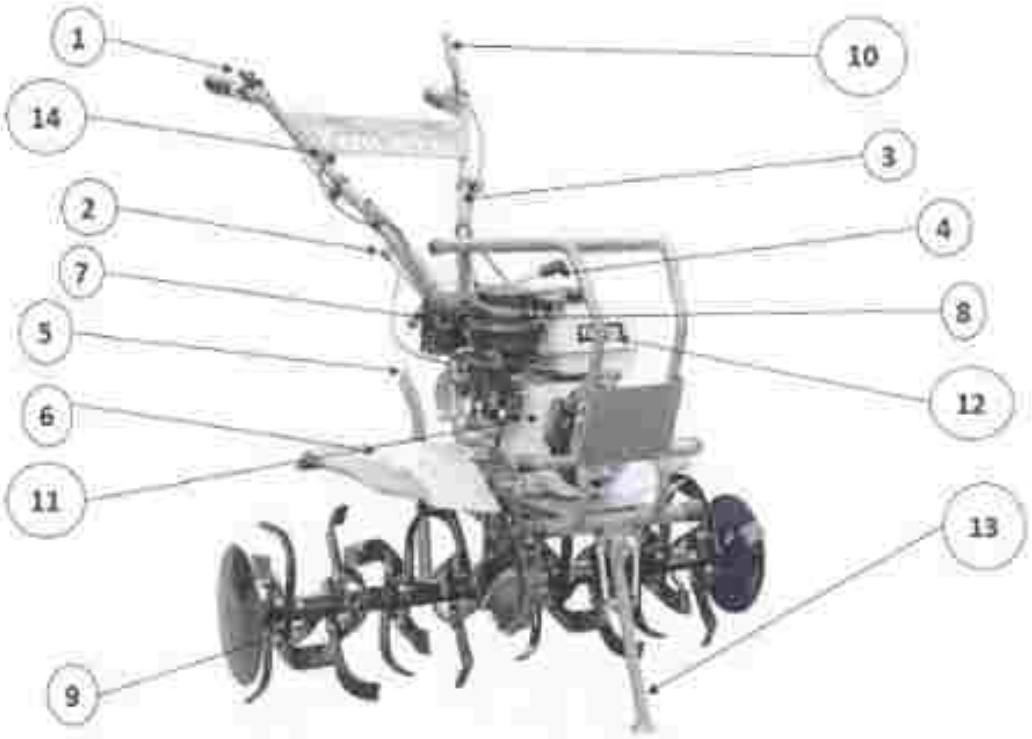
[vide DAC&FW OM No. 13-24/2018- M&T (I&P) dated 19.09.2018]



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	14	Off/On switch

Fig.1: Component details of Power Weeder, YKT 100G

4.8 Lubrication system

Type	:	Splash
Make and type of filter	:	Not Available
Number of filters	:	01
Oil capacity (L)	:	0.6
Recommended grade of lubricant oil	:	SAE20W40 (4T)
Oil change period	:	First change after 10-12 hours, second at 25-26 hours of operation & subsequently after every 50

Type	:	Gear Drive
No. of teeth on pinion	:	8 (1st Pair) & 8 (2nd Pair)
No. of teeth on crown	:	35 (1st Pair) & 30 (2nd Pair)
Reduction ratio	:	4.375:1 (1st Pair) & 3.75:1 (2nd Pair)
Mode of power transmission from reduction unit to ground level	:	Engine power is transmitted to rotor through gearbox, Gear Drive, Bevel Pinion

Fig. 2: Schematic Power Transmission Diagram

4.12 Rotor

4.12.1 Rotor cover

Material	:	M.S. Sheet
Size, mm		
Length	:	475
Width	:	680 (340 one side)
Thickness	:	3 mm
Method of fixing	:	Bolted to Chassis with the help of 4 nos. of bolts of M6 x 16L,

4.12.2 Rotor shaft

Material	:	Mild Steel
Type of rotor axle	:	Hexagonal
Size of shaft, (Dia x Length)	:	34.12 mm hexagonal shaft x 490 mm length x 2 sets (4 pcs. Adjustable length)
Length of shaft, mm	:	490 x 2
No. of flanges	:	4 + 4
Type of flanges	:	Rectangular
Size of flanges, mm	:	97 x 94
Thickness of flange, mm	:	5.2
Distance between two flanges, mm	:	129.2
No. of blades on each flange	:	04
Overall length of rotor, mm	:	1175
Diameter of rotor with blades, mm	:	355
Method of fixing of blade	:	By bolts (M10 × 30L), nuts and spring washer

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 **BS225, Sr. No.- 2010235B0001** with a test report No. - **20230053 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 100G**	Rating	: 6.2 hp / 4.6 kW
RPM	: 3600	Governor Class	: --
Fuel Consumption	: 330 gm/Kwh	Lubricating oil consumption	: 0.012 l/hr.
Number of Cylinder	: One	Type of Cooling	: Air

ULR NO. TC754423100000053P

IS CODE NO. - IS 7347:1974

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	304	308	60	3600	10.53	4.20	112	1318	332.2
2	11.00	98.5	304	308	60	3600	10.53	4.20	112	1318	332.2
3	12.00	98.5	305	309	61	3600	10.45	4.20	113	1306	331.8
4	13.00	98.5	306	310	55	3600	10.45	4.20	113	1306	331.8
5	14.00	98.5	307	311	51	3600	10.45	4.20	113	1306	331.8
6	15.00	98.5	307	311	51	3600	10.45	4.20	113	1306	331.8
7	16.00	98.4	307	311	46	3600	10.48	4.20	113	1306	331.8
8	16.30	98.4	307	311	46	3600	10.48	4.20	113	1306	331.8
9	17.00	98.4	307	311	46	3586	11.55	4.62	101	1461	337.1
10	17.10	98.4	307	311	46	3640	8.34	3.38	136	1085	341.6
11	17.20	98.4	307	311	46	3658	5.56	2.27	172	858	403.2
12	17.30	98.4	307	311	46	3676	2.78	1.14	210	703	657.2
13	17.40	98.4	307	311	46	3712	0.00	0.00	252	586	--

B. Governing Test:

Sl. No.	Parameter		Observed value
1	Momentary speed change in percentage of rated speed from Full Load to No Load	:	6.17
2	Permanent speed change in percentage of rated speed from Full Load to No Load	:	3.11

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	
Report Verified by	Scientist, CSIR-CMERI Farm Machinery Testing Centre	21/7/23
Report Approved by	In-Charge, CSIR-CMERI Farm Machinery Testing Centre	21/7/2023
Report Approved for release by	Head, Business Innovation and Skill Group, CSIR-CMERI, Durgapur	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	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	27/06/23	3.35	1	1.60	1.227	6.8	Sandy Loam	17.1	1.71	0.81	4.89	0.165	6.07	87.5	98.4
2		1.68	2	2.22	1.223	7.2	Sandy Loam	15.3	1.72	0.65	3.06	0.214	4.68	81.7	98.6
3	05/07/23	3.25	1	1.46	1.210	6.7	Sandy Loam	19.0	1.68	0.80	5.28	0.151	6.61	87.9	96.6
4		3.53	2	2.05	1.203	7.3	Sandy Loam	18.4	1.58	0.62	3.53	0.177	5.66	73.0	97.2
5	06/07/23	3.23	1	1.59	1.195	6.4	Sandy Loam	18.4	1.68	0.84	5.49	0.152	6.57	81.2	97.1
6		2.97	2	1.80	1.187	7.1	Sandy Loam	18.1	1.7	0.64	3.52	0.182	5.49	85.7	97.1
7	07/07/23	3.25	1	1.54	1.178	6.6	Sandy Loam	17.9	1.65	0.85	5.73	0.148	6.77	81.1	91.5
8		3.33	2	2.12	1.170	7.5	Sandy Loam	17.7	1.58	0.63	3.30	0.191	5.24	76.4	84.9
9	12/07/23	2.20	1	1.75	1.162	7.4	Sandy Loam	15.8	1.71	0.82	5.00	0.164	6.11	79.2	98.7
10		2.33	2	1.83	1.153	6.8	Sandy Loam	17.6	1.77	0.69	3.81	0.180	5.56	83.3	96.2