

THIS TEST REPORT IS VALID UPTO 31.01.2033



MITSUYAMA, MY-SPR-1200G, SELF PROPELLED REAPER



भारत सरकार

GOVERNMENT OF INDIA

कृषि एवं किसान कल्याण मंत्रालय

MINISTRY OF AGRICULTURE AND FARMERS WELFARE

कृषि एवं किसान कल्याण विभाग

DEPARTMENT OF AGRICULTURE AND FARMERS WELFARE

उत्तर पूर्वी क्षेत्र कृषि यंत्र प्रशिक्षण एवं परीक्षण संस्थान

NORTH EASTERN REGION FARM MACHINERY TRAINING & TESTING INSTITUTE

बिश्वनाथ चारिआलि, जिला - बिश्वनाथ(असम)

BISWANATH CHARIALI, DIST- BISWANATH, ASSAM, PIN - 784 176

[AN ISO 9001:2015 CERTIFIED INSTITUTION]

4. SPECIFICATIONS

4.1 General:

Name and address of the manufacturer : M/S. WEIFANG SHENGCHUAN MACHINERY CO.LTD., No.5999, Qingyuan, Street, ETDZ, Weifang, Shandong, CHINA

Name and address of the applicant : M/S. REALLY AGRITECH PRIVATE LIMITED, Building No D/3, Unit No:13 & 14, Angel Compound Mumbai-Nashik Highway NH 3 Village Pimpalas, Bhiwandi, Thane-421 311, Maharashtra

Name of machine : Self-propelled Reaper

Type : Self-propelled, Walk behind

Make : MITSUYAMA

Model : MY-SPR-1200G

Year of manufacture : 2024

Serial Number : MY/SPR/2025/0111

Country of origin : CHINA

Size of reaper(mm) : 1210

Name of the crops recommended by applicant : Paddy and wheat

Name of the crop in which field test was conducted : Paddy

4.2 Details of prime mover used:

Name and address of the manufacturer (apa) : M/s Chongqing Jiamu Machinery Co. Ltd., No. 2 Aokang Ave, Bishan District, Chongqing, China

Make (apa) : CHONGQING

Model : GM170FA

Type : Four stroke, petrol engine, single cylinder, air cooled

Year of manufacture : 2025

Serial Number : 2025011510111

Country of origin : CHINA

Recommended high idle speed (rpm) : 1950 ±75

Recommended low idle speed (rpm) : 700 +100/-75

Recommended rated speed (rpm) . : 1800

Recommended speed for field test (rpm) : 3600

Engine rated power observed(kW) : 4.04

Engine rated power declared (kW) : 4.50

summarized in Table 1 & 2 below.

SUMMARY OF CROP PARAMETERS

Table-1

Sr. No	Parameters	Observations
1	Variety of crop	Bismoti / Ranjit
2	Straw moisture content (%)	28.7 to 39.5
3	Grain moisture content (%)	13.1 to 16.2
4	Plant height (mm)	870 to 1216.4
5	Length of ear head (mm)	198 to 220
6	Number of grains per ear head	165 to 204
7	Number of hills per square meter	22 to 31
8	Number of tillers per hill	10 to 12
9	Straw-grain ratio	1.83:1 to 2.68:1

SUMMARY OF FIELD PERFORMANCE

Table-2

Sr. No.	Parameters/operations	Observations
1	Forward speed (kmph)	3.65 to 3.86
2	Width of cut (m)	1.12 to 1.15
3	Stubble height (mm)	58.0 to 139.0
4	Losses (Percentage of total grain yield)	
	- Pre-harvest loss	0.08 to 0.10
	- Post harvest loss (Cutter bar)	0.16 to 0.23
	- Conveyor loss/shattering loss	0.26 to 1.50
5	Area harvested (ha/h)	0.30 to 0.35
6	Field efficiency (%)	72.71 to 83.33
7	Time required for one hectare (h)	2.86 to 3.29
8	Fuel consumption	
	- l/h	0.97 to 1.08
	- l/ha	3.06 to 3.19

13.1 For Paddy Harvesting

13.1.1 Rate of work

- The forward speed of machine was observed as 3.65 to 3.86 kmph.
- The area harvested by the machine was recorded as 0.30 to 0.35 ha/h.

13.1.2 Quality of work

- Field efficiency was observed as 72.71 to 83.33 %.
- The post-harvest loss (cutter bar) was observed as 0.16 to 0.23 % of total grain yield.
- The conveyor loss/shattering loss was observed as 0.26 to 1.50 % of total grain yield.
- The stubble height was recorded as 58.0 to 139.0 mm.
- Machine leaves the harvested crop in windrows.

13.2 Labour requirement

- One unskilled labour is required for cutting the crop manually at corner and side of each field.
- Two skilled labours are required for operating the machine continuously.

13.3 Operator's comfort, safety and ease of operation

- All the controls were within the easy reach of the operator.
- The machine was provided with main clutch for stopping forward motion of the machine and cutter bar operation at same time.

14. EASE OF OPERATION AND ADJUSTMENT

No noticeable difficulties were observed in operation and adjustment during the field test.

15. DEFECTS, BREAKDOWNS AND REPAIRS

No noticeable defect or breakdown was observed during test.

16. COMPONENTS / ASSEMBLY INSPECTION AND ASSESSMENT OF WEAR

16.1 Engine:

The Engine and other assemblies were dismantled after 40.76 hours of operation.

16.1.1 Cylinder:

Cylinder	Cylinder bore dia (mm)						Max. Permissible wear limit (mm)
	Top position		Middle position		Bottom position		
	Thrust side	Non Thrust side	Thrust side	Non Thrust side	Thrust side	Non Thrust side	
1	70.02	70.02	70.10	70.02	70.01	70.01	70.20

16.1.2 Piston:

Piston no.	Piston dia (mm)				Piston liner side clearance observed, mm	Max. Permissible wear limit (mm)
	At top		At skirt			
	Thrust side	Non Thrust side	Thrust side	Non Thrust side		
1	69.56	69.59	69.57	NA	0.44	0.50

16.1.3 Ring Side clearance

Piston Rings	Ring Side clearance (mm)	Max. Permissible wear limit (mm)
1st Compression ring	0.05	0.30
2nd compression ring	0.05	0.30
Oil ring	NA	NA

16.1.4 Ring end gap clearance

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Ring No.	Ring End gap (mm)			Max. Permissible wear limit (mm)
	At top	At middle	At bottom	
1st Compression ring	0.15	0.15	0.15	1.0
2nd compression ring	0.25	0.25	0.25	1.0
Oil ring	NA	NA	NA	NA

16.1.5 Big end bearing

Bearing no.	Dia of bearing (mm)	Dia of Crank pin (mm)	Clearance (mm)		Max. Permissible wear limit (mm)	
			Dimetrical	Axial	Dimetrical	Axial
1	29.92	29.94	0.02	0.50	0.30	0.80

Condition of bearing: Normal

16.1.6 Main bearing: Two Nos. of ball bearing 6205 were used

Bearing No.	Diametrical clearance, (mm)	Crankshaft end float, (mm)	Max. permissible clearance limit, (mm)	
			Diametrical clearance	Crankshaft end float
1.	Ball bearing	0.01	0.30	0.30
2.	Ball bearing			

16.1.7 Valve guide clearance

Valve guide diameter (mm)		Valve stem diameter (mm)		Valve guide clearance (mm)		Max. Permissible wear limit (mm)	
Inlet	Exhaust	Inlet	Exhaust	Inlet	Exhaust	Inlet	Exhaust
5.50	5.48	5.46	5.45	0.04	0.03	0.20	0.20

Valve, guide and timing gear:-

Any marked sign of overheating of valves : None
Pitting of seat/faces of valves : None
Any visual damage of teeth of timing gears : None
Condition of ignition coil & magneto : Normal

17. CRITICAL TECHNICAL SPECIFICATIONS

(Vide Ministry's letter No. 13-9/2019-(M&T) (I&P)-Part dated 26.04.2019)

Sr. No.	Parameters	Specifications	Observation	Remarks
1.	Type of machine	Walk-behind type	Walk-behind type	Conforms

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2.	Effective width of cutter bar (mm)	1100 (Min.)	1205	Conforms
3.	Number of crop dividers	5 (Min.)	5	Conforms
4.	Type of knife section	Serrated	Serrated	Conforms
5.	Number of knife sections on cutter bar	24 (Min.)	24	Conforms
6.	Type of crop conveyor	Chain/Belt	Chain	Conforms
7.	Numbers and type of wheel equipment	Two/Pneumatic or Iron	Two pneumatic	Conforms
8.	Type of prime mover	Diesel/Petrol/Kerosene/Petrol start kerosene run IC engines.	Petrol	Conforms
9.	Minimum power of prime mover (kW)	2.0 to 4.5	4.04	Conforms
10.	Material of knife section	High Carbon steel EN42J or above	High Carbon steel	Conforms
11.	Material of knife back	High Carbon steel EN42J or above	EN42J (apa)	Conforms
12.	Material of ledger plate	High Carbon steel EN44 above	Spring steel (apa)	Does not conform
13.	Hardness of knife section HRC	38(Min)	59	Conforms
14.	Hardness of ledger plate	45 (Min.)	58	Conforms
15.	Provision for adjusting the height of cutter bar	Must be provided	Not Provided	Does not conform
16.	Guards against all moving parts/drives and hot parts	Must be provided	Provided	Conforms
17.	Spark arrester in engine exhaust	Must be provided	Provided	Conforms
18.	Location and direction of emission to be away from the operator and machine for satisfactory operation	Must be provided	Provided	Conforms
19.	Slip clutch/safety pins at cutter bar drive	Must be provided	Not Provided	Does not conform
20.	Slip clutch/safety pins at conveyor drive	Must be provided	Not Provided	Does not conform
21.	Provision of row marker/crop guide	Must be provided	Not Provided	Does not conform
22.	Marking/labeling of machine	The labeling plate should be riveted on the body of machine having Name and address of manufacturer, Country of origin, Make, Model, Year of manufacturer, Serial number, Type, size, Size of prime mover (kW)	Name and address of manufacturer, Country of origin, Year of manufacturer, Type, Size of prime mover	Does not conform

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			(kW) were not provided.	
23.	Literature	Operator manual, Service manual and Parts catalogue should be provided.	Provided	Conforms

18. COMMENTS AND RECOMMENDATIONS

- 18.1 Rated power of the engine was observed as 4.04 kW against declared value of 4.50 kW by the applicant/manufacturer. This shall be looked into for corrective action.
- 18.2 The specific fuel consumption (SFC) in rating test of engine was observed as 317 g/kWh against declared value of 395 g/kWh by the manufacturer which exceeded by more than 5 percent of that declared by the manufacture and does not fulfill the requirement of IS 7347-1974 (reaffirmed 2006). This should be looked into for corrective action.
- 18.3 The amplitude of mechanical vibration marked as (*) was on drastically higher side and is directly concerned with operator's health, safety and comfort. Besides, it is also adversely affect the useful life of machine components. In view of above, this deserves to be given top priority for corrective action.
- 18.4 Noise at operator's ear level was observed on higher side against danger limit of 90 dB (A) as specified by International Labour Organization (ILO) for continuous exposure of 8 hours per day. This calls for reduction in noise level to improve the operator's comfort and safety.
- 18.5 Specifications of knife section of the cutter bar do not conform to IS 6025:2024 (Reaffirmed 1999) and it should be looked into for corrective action.
- 18.6 Specifications of knife section back does not conform to IS 10378-2024 (Reaffirmed 2001) and it should be looked into for corrective action.
- 18.7 The hardness and chemical composition of knife sections (both movable and stationary) does not conform to the requirement of 6025-2024. It should be looked into for improvement.
- 18.8 Material of ledger plate, provision for adjusting the height of cutter bar, slip clutch/safety pins at cutter bar drive and slip clutch/safety pins at conveyor drive did not conformed to critical technical specifications (vide Ministry's letter No. 13-9/2019-(M&T) (I&P)-Part dated 26.04.2019). This should be looked into for corrective action.
- 18.9 Name and address of manufacturer, country of origin, year of manufacture, type, size of prime mover (kW) were not provided on the labeling plate of the machine. This should be looked into for corrective action.
- 18.10 **Adequacy of Literature**
The following literature in English language was provided for reference during testing:

- Operator's/ Service manual
- Parts catalogue

It is recommended to bring out the manual in Hindi and other vernacular languages as per IS: 8132-1999.

TESTING AUTHORITY

(M.R. PATIL)
SENIOR AGRICULTURAL ENGINEER

P. Kamalabai
(P. KAMALABAI)
DIRECTOR

Draft test report compiled by - Shri D. Deori, Technical Assistant

19. APPLICANT'S COMMENTS

We have noted the comments and recommendation. We will do the corrective action in future products.

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ANNEXURE-I

CROP PARAMETERS

Place of test: Village-Jamuguri, Dist- Sonitpur, Assam
Name of the crop in which field test conducted: Paddy

Sr. No.	Parameters	I	II	III	IV	V
1	Date of test	22.11.25	24.11.25	25.11.25	26.11.25	27.11.25
2	Av. Moisture Content (%)					
	- Grain	14.6	13.1	14.4	16.2	15.7
	- Straw	32.9	28.7	34.6	39.5	39.1
3	Variety of crop	Paddy (Bismoti/Ranjit)				
4	Av. Plant Height (mm)	870	1074	1184	1216.4	880
5	Av. length of ear head(mm)	199	220	198	203	203
6	Av. No of grains per ear head	195	195	204	165	185
7	No. of hills per m ²	27	29	22	31	30
8	No. of tillers per hill	10	12	12	10	10
9	Straw- grain ratio	2.51:1	2.68:1	2.63:1	2.37:1	1.83:1
10	Atmospheric conditions					
	- Temperature (°C)	35.2	37.4	36.8	30.3	29.5
	- Humidity (%)	69.1	59.2	62.7	60.1	61.3
	- Pressure (kPa)	99.8	100.2	100.1	98.7	100.1

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ANNEXURE-II

FIELD PERFORMANCE RESULTS

Place of test: Village-Jamuguri, Dist- Sonitpur, Assam
Name of the crop in which field test conducted: Paddy

Sr. No.	Parameters	I	II	III	IV	V
		Paddy				
1	Date of test	22.11.25	24.11.25	25.11.25	26.11.25	27.11.25
2	Net test duration (h)	5.25	5.50	5.34	4.50	5.83
3	Forward speed (kmph)	3.73	3.65	3.75	3.86	3.68
4	Av. Width of cut (m)	1.12	1.13	1.12	1.12	1.15
5	Av. Stubble height (mm)	58	105	86	110	139
6	Losses (% of total gain yield)					
	- Pre Harvest loss	0.10	0.09	0.08	Nil	Nil
	- Post harvest loss (cutter bar + Uncut)	0.17	0.19	0.23	0.21	0.16
	- Conveyor loss/shattering loss	0.31	0.26	0.34	1.50	0.72
7	Av. Mass of crop per m ² (g)	1840	1670	1598	1365	1302
8	Area harvested (ha/h)	0.30	0.32	0.32	0.34	0.35
9	Field efficiency (%)	72.71	78.72	75.66	79.07	83.33
10	Time required for one ha (h)	3.29	3.08	3.15	2.94	2.86
11	Fuel consumption					
	- l/h	0.97	1.00	0.99	1.04	1.08
	- l/ha	3.19	3.08	3.12	3.06	3.09