

THIS TEST REPORT IS VALID UPTO 28/02/2027



**SAMYAK  
SELF PROPELLED REAPER, SPR 126 PLUS**



सत्यमेव जयते

भारत सरकार  
GOVT OF INDIA

कृषि एवं किसान कल्याण मन्त्रालय

MINISTRY OF AGRICULTURE & FARMERS WELFARE

कृषि, सहकारिता एवं किसान कल्याण विभाग

DEPARTMENT OF AGRICULTURE, COOPERATION & FARMERS WELFARE

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Machine 50/415	SAMYAK SELF PROPELLED REAPER, SPR 126 PLUS	COMMERCIAL (INITIAL)
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### 1. SCOPE OF TEST

The scope of test was limited to check and assess the following:

- 1.1 Specification and other data furnished by the applicant.
- 1.2 Engine Performance test
- 1.3 Vibration measurement
- 1.4 Noise measurement
- 1.5 Tuning Ability
- 1.6 Wear analysis of critical components (Cutter Bar blade)
- 1.7 Hardness and chemical analysis (Cutter Bar blade)
- 1.8 Field performance
- 1.9 Ease of operation and adjustments
- 1.10 Defects, breakdowns and repair



### 2. METHOD OF SELECTION

The test sample was selected by the testing authority through random selection. The following test sample were presented by the applicant during the random selection at Applicant site.

Sl. No	Serial no of test sample	Remarks
1	211011	Out of 5 samples, S. No. 5 has been randomly selected.
2	211034	
3	SPR12621J087	
4	SPR1261J085	
5	SPR12621J057	

### 3. TEST CODE/PROCEDURE

There is no Indian Standard Test Code available for testing of reaper as such. The guidelines, however, have been taken from the following:

- 1 IS: 11467:1985 ( Reaffirmed 2012) : Test code for cereal harvesting machines.
- 2 IS: 6025:1982 (Reaffirmed 1999) : Specification for knife sections for harvesting machine.
- 3 IS: 10378:1982 (Reaffirmed 2001) : Specification for knife back for harvesting machine.
- 4 IS: 7347:1974 (Reaffirmed 2006) : Specification for Performance of Small Size Spark Ignition Engines.

### 4. SPECIFICATIONS

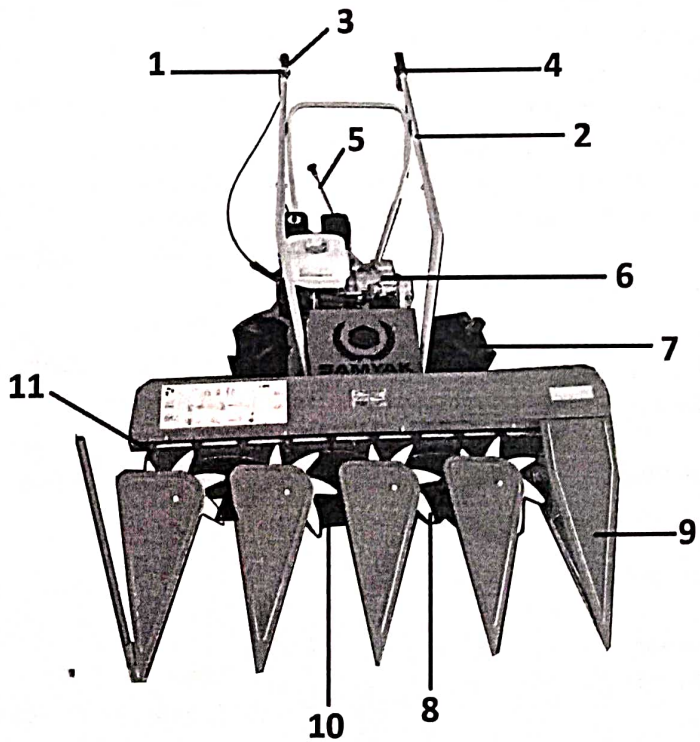
#### 4.1 General:

- Name and address of the manufacturer : M/s Samyak Motors Pvt. Ltd  
No. 3/34 C, Athipalayam Main Road  
Athipalayam, Coimbatore, Tamilnadu - 641110
- Name & Address of Applicant : M/s Samyak Motors Pvt. Ltd  
No. 3/34 C, Athipalayam Main Road  
Athipalayam, Coimbatore, Tamilnadu- 641110
- Name of machine : Vertical Conveyor Reaper
- Type : Self-Propelled, Walk behind Reaper
- Make : Samyak
- Model : SPR126 PLUS

Year of manufacture : 2021  
 Serial Number : SPR12621J057  
 Country of origin : India  
 Size of reaper, mm : 1200  
 Name of crop recommended (apa) : Paddy  
 Name of crop in which the test was conducted : Paddy

**4.2 Details of Prime Mover Used:**

Name and address of the manufacturer : Honda India Power Product, Plot No -5, Sector-41(Kasna) Greater Noida Industrial Development Area, Dist. GautamBudh Nagar, Uttar Pradesh 201310  
 Make : Honda  
 Model : GX160  
 Type : 4 stroke, Single cylinder, Air cooled  
 Year of manufacture : 2021  
 Serial Number : GCAED-1025899\*QTB\*  
 Country of origin : India  
 Recommended high idle speed (rpm) : 3800 ± 100  
 Recommended low idle speed (rpm) : 1400 ± 100  
 Recommended rated speed (rpm) : 3600  
 Recommended speed for field test (rpm) : 2800 ± 100  
 Speed at maximum torque, (rpm) : 2500± 50  
 Maximum power observed, kW : 2.92



**Fig.1: SamyakSelf-Propelled Reaper**



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### 11.2.1 Chemical composition of Knife Blade (Stationery):

The material of reaper knife blade was got analyzed for chemical composition. The results of chemical analysis test are as under:-

Constituents	As per IS: 6025-1982	CompositionAs observed (% of weight)	Remarks
Carbon ( C )	0.70 -0.95	0.815	Conforms
Silicon (Si)	--	0.172	--
Manganese (Mn)	0.3 – 0.50	0.363	Conforms
Sulphur (S)	--	0.008	--
Phosphorous (P)	--	0.012	--

## 12. FIELD PERFORMANCE TEST

The machine was operated for 25.39 hours for harvesting the Paddy crop. During the test of Paddy harvested to assess the performance of machine with regard to quality of work, rate of work, fuel consumption, safety and soundness of construction. The crop parameters conditions and performance field test are given in Annexure-I & II and summarized in table 1 & 2.

### SUMMARY OF CROP PARAMETERS

Table-1

S. No.	Parameters/operations	Range
1	Variety of crop	Jai shree ram 101, 1001, DRK-2
2	Straw moisture content (Wb)(%)	33.0 to 54.0
3	Grain moisture content (Wb) (%)	20.2 to 21.4
4	Plant height (cm)	78 to 120.6
5	Length of ear head (mm)	144.0 to 186.4
6	Number of grains per ear head	153.0 to 204.0
7	Number of hills per square meter	23.0 to 27.0
8	Number of tiller per hill	10 to 12
9	Straw-grain ratio	2.62 to 3.19

### SUMMARY OF FIELD PERFORMANCE

Table-2

S. No.	Parameters/operations	Range
1	Engine speed(rpm)	
	No load	2832 to 2837
	On load	2782 to 2798
2	Forward speed(kmph)	2.59 to 2.65
3	Width of cut(cm)	108.2 to 109.2
4	Stubble height(mm)	96.33 to 107.0
5	Losses(Percentage of total grain yield)	
	-Pre-harvested loss	Nil
	-Post harvest loss(Cutter bar)	0.10 to 0.23
	- Conveyor loss/shattering loss	0.087 to 0.37
6	Area harvested(ha/h)	0.2296 to 0.2443
7	Field efficiency %	81.76 to 85.24
8	Time required for one hectare(h)	4.09 to 4.35
9	Fuel consumption	
	- l/h	0.691 to 0.695
	- l/ha	2.838 to 2.980

**15.1.3 Ring Side clearance**

Piston Rings	Ring Side clearance (mm)	Max. Permissible wear limit (mm)
1st Compression ring	0.05	1.3
2nd compression ring	0.05	0.8
Oil ring	NA	1.0

**15.1.4 Ring end gap clearance**

Ring No.	Ring End gap (mm)			Max. Permissible wear limit (mm)
	At top	At middle	At bottom	
1st Compression ring	0.30	0.35	0.35	1.0
2nd compression ring	0.35	0.40	0.40	
Oil ring	NA	NA	NA	

**15.1.5 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	30.04	30.0	0.04	0.35	0.25	1.0

Condition of bearing: Normal

**15.1.6 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	0.13	NA	0.80
2.	Ball bearing			

**15.1.7 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
5.44	5.44	5.42	5.41	0.02	0.03	Not specified	Not specified

**Valve, guide and timing gear:-**

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

**16. COMMENTS AND RECOMMENDATIONS**

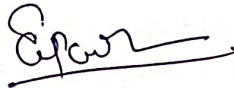
- 16.1** The amplitude of mechanical vibration marked as (\*) is on drastically higher side and is directly concerned with operator's health, safety and comfort. Besides, it is also adversely affect the useful life of the component in view of above this deserves to be given top priority for corrective action.
- 16.2** Noise at operator's ear level was observed on higher side against warning limit of 85 dB (A) as specified by ILO for continuous exposure of 8 hours per day. **This calls for reduction in noise level to improve the operator's comfort & safety.**
- 16.3** The hardness of (Movable & Stationary) knife blades does not conform to the requirement of IS 6025-1982. It should be looked into corrective action.



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- 16.4 Specification for knife sections for harvesting machine does not conform to IS 6025:1982 and it should be looked into for corrective action.
- 16.5 Specification for knife section back for harvesting machine dose not conform to IS 10378-1982 and it should be looked into corrective action.
- 16.6 Mentioned labeling plate Maximum Engine Power should be corrected as per Engine Performance test. It should be looked into corrective action.
- 16.7 After field test, during Transportation of machine from Manufacturer site following items are found damaged such as Air filter assembly, Engine carburettor and chain Tightener upper. And replaced with new one.
- 16.8 **Technical literature:**  
Operator cum Service Manual & Parts Catalogue was provided along with the machine during the course of testing. It is further recommended to bring out these manuals in hindi and other vernacular languages as per IS: 8132-1999

**TESTING AUTHORITY**



(S.G.PAWAR)  
AGRICULTURAL ENGINEER



(J.P. MANDAL)  
SENIOR AGRICULTURAL ENGINEER



(K.K. NAGLE)  
DIRECTOR

Draft test report compiled by - **Shri Khagendra Bora**  
Sr.Technical Assistant

**17. APPLICANTS COMMENTS**

No Comments received from Applicant