प्रारंभिक व्यावसायिक परीक्षण रिपोर्ट संख्या/No. : T-1820/2351/2024

INITIAL COMMERCIAL TEST REPORT माह/Month : February, 2024

Application Reference No. 28/2023-24/18

(यह परीक्षण रिपोर्ट 28/02/2029 तक वैध है / THIS TEST REPORT IS VALID UPTO 28/02/2029)



Make of Agricultural Tractor : SWARAJ Model : 969 FE

Manufactured by : M/s. Mahindra & Mahindra Ltd.

Farm Equipment Sector, Swaraj Division Phase- IV, Industrial Area, S.A.S. Nagar,

Mohali, Punjab - 160 055



भारत सरकार

कृषि एवं किसान कल्याण मंत्रालय (कृषि एवं किसान कल्याण विभाग)

GOVERNMENT OF INDIA MINISTRY OF AGRICULTURE AND FARMERS WELFARE (DEPARTMENT OF AGRICULTURE & FARMERS WELFARE)

केन्द्रीय कृषि मशीनरी प्रशिक्षण एवं परीक्षण संस्थान ट्रैक्टर नगर, बुदनी (म.प्र.) 466 445

CENTRAL FARM MACHINERY TRAINING & TESTING INSTITUTE

TRACTOR NAGAR, BUDNI (M.P.) 466 445 (An ISO 9001: 2015 Certified Institute)

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T-1820/2351/2024 SWARAJ, 969 FE TRACTOR- INITIAL COMMERCIAL TEST THIS TEST REPORT IS VALID UPTO: 28/02/2029

IMPORTANT INFORMATION

The Government of India, Ministry of Agriculture and Farmers' Welfare has directed, vide a OM No. 13-17/2021-M&T (I&P) dated 28.07.2022, that since 15th August, 2022, only mandatory tests will be carried out on a tractor unless applicant has expressly requested for optional tests as well, mentioned in the above captioned OM.

In the instant case, there is no request from the applicant to carry out the optional tests hence only Mandatory Tests, as given below, have been conducted and reported in this report: -

- 1. PTO performance
- 2. Hydraulic performance
- 3. Drawbar performance
- 4. Brake performance

Month: February Test Report No.: T-1820/2351/2024 Year: 2024



GOVERNMENT OF INDIA CENTRAL FARM MACHINERY TRAINING & TESTING INSTITUTE TRACTOR NAGAR, BUDNI (MADHYA PRADESH) 466445, INDIA

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SWARAJ, 969 FE TRACTOR- INITIAL COMMERCIAL TEST

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There is apparently "Three Modes" in the tractor. The applicant has christened the different mode as 'ECO', 'Power' and 'Haulage'. However, the applicant vide letter no. SD/Budni/ICT/23-24/969FE/A-05/L-01 dated 21.11.2023 requested to conduct the test only on so called Power mode. Therefore, this report contains the observation on the so called 'Power' mode only.

[C] Manufacturer : M/s. Mahindra & Mahindra Ltd.

(Farm Equipment Sector),

Swaraj Division, Phase- IV, Industrial Area, S.A.S. Nagar, Mohali, Punjab – 160 055

[C] Submitted for test by (Applicant) : The Manufacturer

[C] Selected for test by : The Ministry vide OM No. 13-17/2021 - M&T

(I&P) dated 28.07.2022, has allowed the applicant to submit the test sample directly to the Institute without requiring any random selection for Initial Commercial Testing. Thus, the applicant directly submitted the test

sample to the Institute for test.

[D] Duration of running-in, (h):

-Engine : 28 -Transmission : 32

[C] Location of test : Government of India,

Central Farm Machinery Training and Testing

Institute, P.O. - Tractor Nagar, BUDNI – 466445 (M.P.), INDIA

1. SPECIFICATIONS OF TRACTOR

1.1 Identification:

1.1.1 Denomination

[C] Make of tractor : SWARAJ [C] Model (trade name) : 969 FE

[C] Type : 2WD, Standard Agricultural Tractor.

[C] Month & year of manufacture : 05/23
[D] Country of origin : India

1.1.2 Numbers:

[D] 1st Serial No. or prototype : MBNBS57ACPCB01639 [C] Serial No. : MBNBS57ACPCF01750

1.2 Engine:

[D] Manufacturer's address : M/s. Swaraj Engine Ltd., Plot No. 2, Industrial

Area, Phase-9, Mohali, Punjab-160 062

[C] Make : Swaraj Engines Limited

[C] Model : SK 365C

[C] Type : Four stroke, liquid cooled, turbocharged,

intercooled, common rail direct injection

(CRDI), diesel engine.

[C] Serial No. : FE.5001/SFF21762

1.2.1 Cylinders:

[C] Number/disposition : Three/ Vertical inline

Bore / Stroke, (mm) 110 / 122 [D] Capacity, cm³ [D] 3478 : Compression ratio 18.1 (±0.5): 1 [D] [D] Arrangement of valves Overhead [D] Cylinder liners Wet, replaceable [D] Type of combustion chamber Open re-entrant

SWARAJ, 969 FE TRACTOR- INITIAL COMMERCIAL TEST

THIS TEST REPORT IS VALID UPTO: 28/02/2029

6. SUMMARY OF OBSERVATIONS, COMMENTS & RECOMMENDATIONS

6.1 On the basis of test conducted the performance results have been summarized as evaluative (mandatory) / Non-evaluative (Non-mandatory) parameters applicable for Qualifying Minimum Performance criteria as per Clause-4 (Table-1) of IS: 12207-2022 for acceptance of the tractor for the purpose of subsidies/NABARD financing are summarized as under:

S. No.	CI	naracteristic	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2022	Values declared by the applicant/ (D) Requirement (R)	As observed	Whether meets the require- ments (Yes/No)
1		2	3	4	5	6	7
	date	d 28 th of July, 2		Ministry's Office Memorandur	n No. 13-17	7/2021-M <i>8</i>	kT (I&P)
6.1.1		Performance:				1	,
a)	unde (kW)	,	Evaluative	Declared value to be achieved with a tolerance of: ±5% for PTO power and or engine power >26 kW. ±10% for PTO power and or engine ≤ 26 kW.	42.5 (D)	42.8	Yes
b)	Powe	er at rated ne speed, (kW)	Non Evaluative	-do-	42.5 (D)	42.0	Yes
c)	Spec cons corre maxi (g/kV	cific fuel umption esponding to mum power, Vh)	Evaluative	Should not be more than 10% of declared value	279 (D)	254	Yes
d)		mum equivalent kshaft torque,	Non Evaluative	± 8%	305 (D)	279.3	No
e)	Back perce		Evaluative	Should be minimum 12 percent	12 (D) 12 (R)	39.1	Yes
f)	Maxi	mum operating t		(^o C):			
	1)	Engine oil	Evaluative	The declared value should not exceed the <i>Max</i> value specified by the oil company and the observed value under natural ambient/high ambient condition should not exceed the declaration	130 (D)	116	Yes
	2)	Coolant	Evaluative	Observed value should not exceed the declared value or boiling point of coolant at radiator cap pressure whichever is lower. The boiling point of the coolant at radiator pressure shall be provided by the applicant.	115 (D)	102	Yes
g)		ne oil umption, Vh)	Evaluative	The value would be based on the test conducted under natural ambient condition	2.54 Maximum (R)	0.17	Yes
h)	Smo	ke level, m ⁻¹	Evaluative	Max Smoke level shall be reported out of 6 readings tested as per IS 12062 and observed value should be well within the required limits.	3.25 per meter Maximum (R)	0.05	Yes

SWARAJ, 969 FE TRACTOR- INITIAL COMMERCIAL TEST THIS TEST REPORT IS VALID UPTO: 28/02/2029

1		2	3	4	5	6	7
6.1.2		vbar performan					
а)	with corre	drawbar pull ballast esponding to 15 ent wheel slip,	Non- Evaluative	Minimum 70% of static mass of tractor with ballast.	*	*	*
b)	without correct perconnection (kN)	esponding to 15 ent wheel slip,	Evaluative	Minimum 70% of static mass of tractor without ballast or with standard ballast, as the case may be.	20.00 (D) 18.98 (R)	22.54	Yes
с)	Maxi powe balla stane (kW)	st/ with dard ballast,	Evaluative	Minimum 80 % of PTO power as referred in SI No. i) a) of PTO performance in case of tractors having total static mass > 1500 kg Minimum 75 % of PTO power as referred in SI No. i) a) of PTO performance in case of light weight tractors having ≤1500 kg total static mass of tractor Minimum 75 % of the engine power as referred in SI No. i) a) of engine performance in case of tractors which do not have a PTO shaft.		36.8	Yes
d)	trans temp	mum smission oil perature, (°C)	Evaluative	Evaluative The declared value should not exceed the maximum value specified by oil company		108	Yes
		er ballasted condi		ballasting for drawbar test. Hen conducted.	ce, drawbar	penomai	ice test
6.1.3		er lift and hydra					
a)				ut the range of lift, (kN):			
	1)	At hitch points	Evaluative	Should not be less than 90% of declared value.	21.57 (D) 19.41 (R) Minimum	20.81	Yes
	2)	With the standard frame	Evaluative	The lift capacity should at least be 24 kg/PTO kW and it should be 21.5 kg/engine kW where the tractor is not provided with a PTO shaft.	17.65 (D) 10.07 (R) Minimum	20.70	Yes
b)	heigl appli after inter	mum drop in the hot of the point of the point of cation of the force each 5 minuted val for a total tion of 30 Minutes)	of Evaluative se ss al	The observed value should not exceed 50 mm	50 (D) Maximum	00	Yes

SWARAJ, 969 FE TRACTOR- INITIAL COMMERCIAL TEST THIS TEST REPORT IS VALID UPTO: 28/02/2029

Brake performance at 25 kmph: Maximum stopping distance at a force, equal to or less than 600 N on brake pedal without ballast, (m): 1	1	2	3	4	5 6	7
Maximum stopping distance at a force, equal to or less than 600 N on brake pedal without ballast, (m): 1		=	_	-	3 0	,
Minimum PTO Specific fuel consumption, and will represent the month and inspecting process. Minimum PTO Specific fuel consumption, and will represent the month and manufacture in Just 279 Minimum PTO Dower, (KW) Minimum Pto Dower to moving and marked power of maximum power time to moving and movi				e equal to or less than 600 N on b	rake pedal without	hallast
1) Cold brake Evaluative 10 10 (R) 9.65 Yes	<u>س</u>		arios ar a roro.	5, 5quai to 51 1000 than 500 11 611 51	ano poddi minodi	Danast,
Dimensions of three-point linkage drawbar (wherever fitted) Specifications of Swinging drawbar (wherever fitted) Audible warming signal on tractor special speci			Evaluative	10	10 (R) 9.65	Yes
b) Whether parking brake is effective at a force of 600 N at foot pedal (s) or 400 N at foot pedal (s) or 400 N at hand lever of 600 N at foot pedal (s) or 400 N at hand lever of 600 N at foot pedal (s) or 400 N at hand lever of 600 N at foot pedal (s) or 400 N at hand lever of 600 N at foot pedal (s) or 400 N at hand lever of 600 N at foot pedal (s) or 400 N at hand lever of 600 N at foot pedal (s) or 400 N at hand lever of 600 N at foot pedal (s) or 400 N at hand lever of 600 N at foot pedal (s) or 400 N at hand lever of 600 N at foot pedal (s) or 400 N at hand lever or 400 N at foot pedal (s) or 400 N at hand lever or 400 N at foot pedal (s) or 400 N at hand lever or 400 N at foot pedal (s) or 400 N at hand lever or 400 N at foot pedal (s) or 400 N at hand lever or 400 N at foot pedal (s) o					\ /	
Seffective at a force of 600 N at foot pedal (s) or 400 N at short pedal (s) or 400	b)			-		
6.1.5 OPTIONAL TESTS: As the applicant has not applied for any optional tests, therefore no optional tests was conducted. 6.1.6 Safety features: a) Guards against moving and hot parts by Lighting arrangement conducted. b) Lighting arrangement Evaluative by Lighting arrangement track width) c) Seating requirements Non Seating requirements Non Ist 12239 (Part2) d) Technical requirements for PTO shaft prequirements for PTO shaft prepared from time to time) e) Dimensions of three-point linkage by Dimensions of linkage drawbar (wherever fitted) h) Audible warning signal on tractor b) Specifications of Swinging drawbar (wherever fitted) h) Audible warning signal on tractor c) Labelling of tractors (Provision of labelling plate): 1) Make Evaluative Evaluative Evaluative Should conform to the manufacture for ma	,		Evoluctive	Voc. / No.	Voc Voc	Yes
6.1.5 OPTIONAL TESTS: As the applicant has not applied for any optional tests, therefore no optional tests was conducted. 6.1.6 Safety features: a) Guards against moving and hot parts moving and hot parts (Tractors having more than 1150 mm rear track width) d) Technical requirements for PTO shaft prequirements for three-point linkage (Paluative Evaluative to time) e) Dimensions of three-point linkage (Paluative Evaluative to time) g) Specifications of linkage drawbar (wherever fitted) h) Audible warning signal on tractor (Wherever fitted) h) Audible warning signal on tractor (Wherever fitted) c) Make Evaluative Evaluative (Paluative Evaluative Evaluative (Paluative Evaluative Evaluative (Paluative Evaluative E			Evaluative	res / No	res res	. 00
Optional tests was conducted. Safety features: a) Guards against moving and hot parts Evaluative Evaluative Evaluative Evaluative As per CMVR Meets the requirement Yes						
6.1.6 Safety features: a) Guards against moving and hot parts browing and hot parts bro	6.1.5			nt has not applied for any opti	onal tests, there	fore no
a) Guards against moving and hot parts			nducted.			
b) Lighting arrangement Evaluative Normalic pipes [As per IS] requirement 12239 (Part2)] As per CMVR Seating requirements (Tractors having more than 1150 mm rear track width) d) Technical requirements of track width) b) Dimensions of three-point linkage f) Specifications of Swinging drawbar (wherever fitted) h) Audible warning signal on tractor signal on tractor shall get activated. A sticker to the effect that "operating the tractor beyond 20 kmph speed in reverse gear is not safe" should be prominently displayed. 6.1.7 Labelling of tractors (Provision of Evaluative 1) Make Evaluative 2) Model Evaluative 3) Month & Year of manufacture 4) Evaluative 5) Chassis number Evaluative 5) Chassis number Evaluative consumption, or kWh 7) Specific fuel consumption, or kWh 7) Specific fuel consumption, or kWh 7) Specific fuel consumption, or kWh 7) Will represent the manufacture tractor box on the first tractor trace the month and next two digit in the box No. 2 for ywill represent the year of manufacture tractor box No. 1 for MM will represent the month and next two digit in the box No. 2 for ywill represent the prequirements of the requirement of 1239 (Part-3) (As amended from time to time) Meets the requirements of meet the requirements of Is: 12343 (As amended from time to time) Does not meet the requirements of Should meet the requirements of Is: 17231-2019 (As amended from time to time) Should meet the requirements of Meets the requirement of Is: 17231-2019 (As amended from time to time) Not provided Not meet the requirements of Is: 17231-2019 (As amended from time to time) Not provided (The audible warning signal on tractor is activated. A sticker to the effect that "operating the tractor beyond 20 kmph, and and be warning signal on tractor is activated. A sticker to the effect that "operating the tractor beyond 20 kmph, and and be prominently displayed. Should meet the requirements of Cmph, and and be provided (The audible warning signal on tractor is activated. A sticker to the effect that "ope		•	T			
b) Lighting arrangement C) Seating requirements (Tractors having more than 1150 mm rear track width) d) Technical requirements for PTO shaft e) Dimensions of three-point linkage f) Specifications of linkage drawbar f) Specifications of Swinging drawbar (wherever fitted) h) Audible warning signal on tractor Evaluative of Swinging of tractors (Provision of Swinging of Intactor and Intactor a	a)					Yes
C) Seating requirements (Tractors having more than 1150 mm rear track width) Should meet the requirements of track width) Should meet the requirements of track width Non track width		moving and hot parts	Evaluative		requirement	
c) Seating requirements (Tractors having more than 1150 mm rear track width) d) Technical requirements for PTO shaft e) Dimensions of three-point linkage f) Specifications of linkage drawbar (wherever fitted) h) Audible warning signal on tractor As per CWWR Should meet the requirements of lis: 12343 (As amended from time to time) Should meet the requirements of lis: 4931 (As amended from time to time) Should meet the requirements of lis: 4931 (As amended from time to time) Should meet the requirements of lis: 12343 (As amended from time to time) Should meet the requirements of lis: 12343 (As amended from time to time) Should meet the requirements of lis: 12343 (As amended from time to time) Should meet the requirement of lis: 12363 (As amended from time to time) Should meet the requirement of lis: 12363 (Part-3) (As amended from time to time) Form time to time) Should meet the requirements of lis: 12363 (Part-3) (As amended from time to time) Meets the requirement of lis: 12362 (Part-3) (As amended from time to time) Should meet the requirements of lis: 12363 (Part-3) (As amended from time to time) Meets the requirement of lis: 12363 (Part-3) (As amended from time to time) Should meet the requirements of lis: 12363 (Part-3) (As amended from time to time) Should meet the requirements of lis: 12363 (Part-3) (As amended from time to time) Should meet the requirements of lis: 12362 (Part-3) (As amended from time to time) Should meet the requirements of lis: 12362 (Part-3) (As amended from time to time) Should meet the requirements of lis: 12362 (Part-3) (As amended from time to time) Weets the requirement of lis: 12362 (Part-3) (As amended from time to time) Should meet the requirements of lis: 12362 (Part-3) (As amended from time to time) Is: 12362 (Part-3) (As amended from time to time) Not provided Not applicate to time) Is: 12362 (Part-3) (As amended from time to time) Weets the requirement of lis: 12362 (Part-3) (As amended from time to time) Not provided Not applicate to time) T				12239 (Part2)]		.,
C) Seating requirements (Tractors having more than 1150 mm rear track width) d) Technical requirements for PTO shaft e) Dimensions of three-point linkage f) Specifications of linkage drawbar (wherever fitted) h) Audible warning signal on tractor f) Make Evaluative (Saluative and Make) f) Make (Saluative (Saluative and Make) f) Chassis number (Saluative and Make) f) Makinum PTO apower, (kW) f) Specific fuel consumption, grkWh h	b)	Lighting arrangement	Evaluative	As per CMVR		Yes
(Tractor's having more than 1150 mm rear track width) d) Technical requirements for PTO shaft e) Dimensions of three-point linkage f) Specifications of linkage drawbar (wherever fitted) h) Audible warning signal on tractor f) Audible warning signal on tractor shall get activated. A sticker to the effect that "operating the tractor beyond 20 kmph speed in reverse gear is not safe" should be prominently displayed. f) Audible warning signal on tractor shall get activated. A sticker to the effect that "operating the tractor beyond 20 kmph speed in reverse gear is not safe" should be prominently displayed. f) Make Evaluative 2) Model Suluative 3) Month & Year of manufacture 4) Engine number Evaluative 5) Chassis number Evaluative 5) Chassis number Evaluative 5) Chassis number Evaluative power in g/kWh and year of manufacture (b) Maximum PTO power in g/kWh and year of manufacture (b) Maximum PTO power in g/kWh and year of manufacture (b) Maximum PTO power in g/kWh and year of manufacture (b) Maximum PTO power in g/kWh and year of manufacture (b) Maximum PTO power in g/kWh and year of manufacture (b) Maximum PTO power in g/kWh and year of manufacture (b) Maximum PTO power in g/kWh and year of manufacture in numerical form (b) MM YY Digit 01-12 in box No. 1 for MM will represent the work of the pequirement of the requirements of nective the requirements of maximum power in g/kWh and year of manufacture in numerical form (b) MM YY Digit 01-12 in box No. 1 for MM will represent the year of value for maximum power in g/kWh and year of maximu		Sooting requirements				Na
than 1150 mm rear track width) d) Technical Technical requirements for PTO shaft e) Dimensions of three-point linkage Tevaluative Subject of the specifications of linkage drawbar (wherever fitted) h) Audible warning signal on tractor 5.1.2belling of tractors (Provision of Model 2) Model Subjective (Provision of manufacture in numerical form manufacture in numerical form power, (kW) 7) Specific fuel consumption, grkWh and wark for mount and next two digit in the box No. 2 for Yw will represent the work of time to time) Fequirement so for Should meet the requirements of Is: 4931 (As amended from time to time) Should meet the requirements of Is: 17231-2019 (As amended from time to time) Should meet the requirement of Should meet the requirement of Is: 12953 (As amended from time to time) Should meet the requirement of Is: 12953 (As amended from time to time) Should meet the requirement of Is: 12953 (As amended from time to time) Should meet the requirements of Is: 12953 (As amended from time to time) Should meet the requirements of Is: 12953 (As amended from time to time) Should meet the requirements of Is: 12953 (As amended from time to time) Should meet the requirements of Is: 12953 (As amended from time to time) Should meet the requirements of Is: 12953 (As amended from time to time) Should meet the requirements of Is: 12953 (As amended from time to time) Should meet the requirements of Is: 12953 (As amended from time to time) Should meet the requirements of Is: 12953 (As amended from time to time) Should meet the requirements of Is: 12953 (As amended from time to time) Should meet the requirements of Is: 12953 (As amended from time to time) Should meet the requirements of Is: 12953 (As amended from time to time) Should meet the requirements of Is: 12953 (As amended from time to time) Should meet the requirements of Is: 12953 (As amended from time to time) Meets the requirement of Is: 12953 (As amended from time to time) Should meet the requirements of Is: 12953 (As amended from time to	(3)		Non			INO
track width) d) Technical requirements for PTO shaft e) Dimensions of three-point linkage f) Specifications of linkage drawbar (wherever fitted) h) Audible warning signal on tractor f) Audible warning signal on tractor f) Labelling of tractors (Provision of manufacture f) Make Evaluative (Provision of manufacture f) Maximum PTO power, (kW) 7) Specific fuel consumption, of Maximum PTO power, (kW) 7) Specific fuel consumption, or fixed by first and the power in g/kWh and year of mext the mequirements of size 4931 (As amended from time to time) Should meet the requirements of IS: 17231-2019 (As amended from time to time) Should meet the requirements of IS: 12953 (As amended from time to time) Should meet the requirement of IS: 12953 (As amended from time to time) Should meet the requirement of IS: 12953 (As amended from time to time) Should meet the requirements of IS: 12953 (As amended from time to time) Should meet the requirements of IS: 12953 (As amended from time to time) Should meet the requirements of IS: 12953 (As amended from time to time) Should meet the requirements of IS: 12953 (As amended from time to time) Should meet the requirements of IS: 12953 (As amended from time to time) Should meet the requirements of IS: 12953 (As amended from time to time) Should meet the requirements of IS: 12953 (As amended from time to time) Should meet the requirements of IS: 12953 (As amended from time to time) Should meet the requirements of IS: 12953 (As amended from time to time) If tractor travel speed in reverse gear is not safe" should be prominently on tractor is activated when the speed in RH gear reaches to 14.3 kmph.) Should meet the requirements of IS: 12953 (As amended from time to time) If tractor travel speed in reverse gear is not safe" should be prominently don tractor is activated when the speed in RH gear reaches to 14.3 kmph.) Should meet the requirements of IS: 12953 (As amended from time to time) Image: IS: 12953 (As amended from time to time) Image: IS: 12953 (As amend						
Technical requirements for PTO shaft Scalable Sca			Lvaluative		requirement	
requirements for PTO shaft e) Dimensions of three-point linkage f) Specifications of linkage drawbar g) Specifications of Swinging drawbar (wherever fitted) h) Audible warning signal on tractor A sticker to the effect that "operating the tractor beyond 20 kmph speed in reverse gear is not safe" should be prominently displayed. 6.1.7 Labelling of tractors (Provision of Balluative To Make Evaluative Should conform to the manufacture 4) Engine number Evaluative For Labeluative Should consumption, or kWh) 7) Specific fuel consumption, of Maximum PTO power, (kW) 7) Specific fuel consumption, or kWh) To page in the properties of time to time) Should meet the requirements of Is: 12953 (As amended from time to time) Non Evaluative Is Abould meet the requirement of Is: 12953 (As amended from time to time) Not provided Provided (The audible warning signal on tractor shall get activated. A sticker to the effect that "operating the tractor beyond 20 kmph speed in reverse gear is not safe" should be prominently displayed. 6.1.7 Labelling of tractors (Provision of labelling plate): Should meet the requirements of Is: 12953 (As amended from time to time) Not provided (The audible warning signal on tractor shall get activated. A sticker to the effect that "operating the tractor beyond 20 kmph speed in reverse gear is not safe" should be prominently displayed. 6.1.7 Labelling of tractors (Provision of labelling plate): Should meet the requirement of Is: 12953 (As amended from time to time) Not provided (The audible warning signal on tractor is activated warning signal on tractor is activated warning signal on tractor on tractor is activated warning signal on tractor is activated warning signal on tractor on tractor is activated warning signal on tractor is activated warning si	d)	,	Non	Should meet the requirements of	Meets the	Yes
shaft e) Dimensions of three-point linkage Non Evaluative f) Specifications of linkage drawbar g) Specifications of Swinging drawbar (wherever fitted) h) Audible warning signal on tractor Evaluative 2) Model Evaluative 3) Month & Year of manufacture 4) Engine number Evaluative 6) Maximum PTO power, (kW) 7) Specific fuel consumption, of KMD Minkage drawbar (b) Does not meet the requirements of list 17231-2019 (As amended from time to time) Should meet the requirement of list 12953 (As amended from time to time) Should meet the requirement of list 12962 (Part-3) (As amended from time to time) Should meet the requirement of list 12953 (As amended from time to time) Should meet the requirement of list 12953 (As amended from time to time) Should meet the requirement of list 12953 (As amended from time to time) Should meet the requirement of list 12953 (As amended from time to time) Should meet the requirements of list 12953 (As amended from time to time) Not provided (The audible warning signal on tractor shall get activated. A sticker to the effect that "operating the tractor beyond 20 kmph speed in reverse gear is not safe" should be prominently displayed. Should conform to the gear reaches to 14.3 kmph.) Should conform to the requirement of CMVR active active and tractor is activated when the speed in RH gear reaches to 14.3 kmph.) SwarRAJ Yes 969 FE Yes 1762 (Ms) FE.5001/SFF2 Yes 1762 (Ms) FE.5001/SFP2 Yes 17	۵,					. 00
Dimensions of three-point linkage Non Evaluative Should meet the requirements of lis: 17231-2019 (As amended from time to time) Non linkage drawbar Should meet the requirements of linkage drawbar Should meet the requirements of lis: 12953 (As amended from time to time) Meets the requirement of lis: 12953 (As amended from time to time) Not provided Not swinging drawbar (wherever fitted) Should meet the requirement of lis: 12953 (As amended from time to time) Not provided Not applicable Not provided		•		· ·		
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f) Specifications of linkage drawbar	 	three-point linkage			meet the	
f) Specifications of linkage drawbar Should meet the requirements of IS: 12953 (As amended from time to time) g) Specifications of Swinging drawbar (wherever fitted) Audible Warning signal on tractor Evaluative Signal on tractor h) Audible Warning signal on tractor Evaluative Signal on tractor Evaluative Signal on tractor 6.1.7 Labelling of tractors (Provision of labelling plate): 1) Make Evaluative Signal on two states of Should conform to the Tequirement of Swinging drawbar (wherever fitted) Should meet the requirement of Should meet the requirement of Should meet the requirement of Sis 12362 (Part-3) (As amended from time to time) If tractor travel speed in reverse gear is activated. A sticker to the effect that "operating the tractor beyond 20 kmph speed in reverse gear is not safe" should be prominently displayed. 6.1.7 Labelling of tractors (Provision of labelling plate): Should conform to the requirements of CMVR along-with declared value of PTO in kW, Specific fuel consumption (SFC) corresponding to maximum power in g/kWh and year of manufacture in numerical form MM			Evaluative	from time to time)		
g) Specifications of Swinging drawbar (wherever fitted) h) Audible warning signal on tractor Evaluative (wherever fitted) h) Audible warning signal on tractor Evaluative (wherever fitted) Figure 1	f)	Specifications of	Non	Should meet the requirements of		Yes
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				manufacturing		

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1	2	3	4	5	6	7
6.1.8	Literature (Subm	ission to test age	ency):			
(a)	Operator manual	Evaluative	The printed	literature in	Provided	Yes
(b)	Parts Catalogue	Evaluative	booklet form		Provided	Yes
(c)	Workshop/ Service manual	Evaluative	provided as per IS 8132 and should submit along with the test sample.		Provided	Yes
6.1.9	Fitment of Roll O	ver Protective St	Structures (ROPS):			
	For tractor having more than 1150 mm rear track width	Evaluative		of IS:1182 or or equivalent	Not fitted	Not applicable
6.1.10	Standard Accessories	Evaluative	Trailer hitch, front tow hook, linkage drawbar should be provided with tractor		Provided	Yes
6.1.11	Accessories (optional)	Non Evaluative	Ballast weight, if fitted, Not fitted should meet the requirement of CMVR		Not applicable	

6.2	CATEGORY OF BREAKDOWNS / DEFECTS (As per clause 5.0 of IS:12207-2022):				
S. No.	Category of break-downs	Category (Evaluative / Non Evaluative)	Requirements as per IS: 12207-2022	As observed	Whether meets the Requirements (Yes/No)
1.	Critical	Evaluative	There is no 'critical breakdown' during the course of testing	None	Yes
2.	Major	Evaluative	There are not more than2 major break downs and neither of them should be of repetitive nature.	None	Yes
3.	Minor	Evaluative	There are not more than 5 minor defects during the test and neither of them should of repetitive nature.	None	Yes
4.	Total breakdowns	Evaluative	In no case, the total number of break downs should exceed five that is, (2major + 3 minor) or (1 major + 4 minor) or 5 minor breakdowns.	None	Yes

6.3 Confe	ormity with following IS:		
i)	Guidelines for declaration of power and specific fuel consumption and	:	Conforms
	labeling of agricultural tractors (First revision) [IS:10273 -1987 (Reaffirmed		
	Year 2019)]		
ii)	Agricultural tractors - Rear mounted power take-off - Types 1, 2 and 3 (third	:	Conforms
	revision) [IS:4931-1995 (Reaffirmed Year 2019)]		
iii)	Agricultural wheeled tractors – Rear mounted three-point linkage: Categories	:	Does not
-	1N,1,2N, 2, 3N, 3,4N & 4 [IS: 17231:2019]		conform
iv)	Drawbar for agricultural tractors – Link type [IS 12953:1990 (Reaffirmed Year	:	Does not
•	2022)]		conform
v)	Agricultural tractors- Operator's seat technical requirement [IS12343 - 2021]	:	Does not

•		·	-	-	conform
vi)	Guide for safety & comfort of op	perator of agricultural tra	actors:Part 1 G	eneral:	Does not
•	requirements (first revision):[IS	12239 (Part 1) - 2018]			conform

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viii)

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vii) Tractors and machinery for agriculture and forestry – Technical means for ensuring safety Part 2: Tractors (first revision) (IS 12239 (Part 2) 1999) conform (Reaffirmed Year 2019)]

Guide lines for location and operation of operator controls on agricultural: **Does not** tractors and machinery [IS: 8133 - 2021] **conform**

Tractors and machinery for agriculture and forestry, powered lawn and : Conforms garden equipment - Symbols for operator controls and other displays Part2 Symbols for agricultural tractors and machinery [IS: 6283(Part-1) - 2006 (Reaffirmed Year 2019) and IS: 6283 (Part-2) – 2007 (Reaffirmed Year 2019)]

x) Agricultural Tractors and Machinery-Lighting device for travel on public roads : Conforms

(IS:14683-1999) (Reaffirmed Year 2019)]

6.4 Salient Observations:

6.4.1 PTO performance test:

- The applicant vide letter no. SD/Budni/ICT/23-24/969FE/A-05/L-01 dated 21.11.2023 has requested to restrict the PTO performance test up to 1000 engine rpm during the test at full load & varying speed, which was allowed. Hence, test at full load and varying speed under natural and high ambient conditions were conducted up to 1000 engine rpm.
- ii) The maximum equivalent crankshaft torque was recorded as 279.3 N-m against the declaration of 305 N-m, which does not meet the non-evaluative requirement of IS 12207: 2022. Even though this parameter is categorized as 'Non-Evaluative', as per IS: 12207-2022, yet for the sake of improvement it would be advisable to look into the matter to make it conforming to the requirement.
- iii) During two hour maximum power test under high ambient condition, 1700 ml coolant was spilled out from the expansion flask. This should be looked into for necessary corrective action.

6.4.2 Hydraulic performance test:

During lifting capacity test at coupled frame, tilt angle of mast over the range of lift was observed 2.4 degrees against the minimum requirement of 10 degree as per IS: 12224-1987.

6.4.3 Dimensions of three point linkage:

The following parameters does not meet the requirements of IS: 17231-2019 and needs to be looked into for necessary corrective actions:

- Lateral distance from lower hitch point to centre line of tractor has been measured as 364 mm against the requirement of 435 mm.
- ii) Distance from end of power take-off to centre of lower hitch point (lower links in horizontal position) has been measured as 520 mm against the requirement of 550 to 675 mm.

6.4.4 Specification of linkage drawbar:

The dimension of "B" of linkage drawbar has been measured 74.9 mm against the minimum requirement of 75 mm, which does not meet the non evaluative requirement of IS: 12953-1990(Cat-1). Even though this parameter is categorized as 'Non-Evaluative', as per IS: 12207-2022, yet for the sake of improvement it would be advisable to look into the matter to make it conforming to the requirement.

6.4.5 PTO master shield:

PTO master shield has not been provided on tractor. This should be looked into for necessary corrective action.

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6.4.6 Operator's seat:

The following parameters does not meet the requirement of IS: 12343-2021:

- i) Inclination of seat towards rear direction was measured as 2.0 degrees against requirement of 3 to 12 degrees.
- ii) Vertical adjustment of seat upward and downward from the mid position has been measured as ±20 mm against the minimum requirement of ±20 mm.
- iii) Longitudinal distance from SIP to centre of differential lock pedal has been measured as 180 mm against the requirement of 410 to 720 mm.
- iv) Vertical distance from SIP to centre of differential lock pedal has been measured as 470 mm against the requirement of 230 to 460 mm.
- v) Vertical distance from SIP to centre of accelerator pedal has been measured as 520 mm against the requirement of 230 to 385 mm.
- vi) Vertical distance of SIP from centre of steering control wheel has been measured as 155 mm against the requirement of 265 to 385 mm.

Therefore, all of the above should be looked into for necessary corrective action.

6.4.7 Operator's work place:

The following parameters does not meet the requirement of IS: 12239 (Part-I) -2018.

- (i) Vertical retainer on inner side of clutch and brake pedals has not been provided.
- (ii) Spark arresting device has not been provided in the exhaust system.

Therefore, all of the above should be looked into for necessary corrective action.

6.5 Maintenance / Service Problems:

No noticeable maintenance or service problem was observed during the test.

6.6 Recommendation with regard to safety on tractor:

The following requirements, inter alia, may be considered for incorporation on the tractor:

- i) Identification of hand controls by colour has not been provided as per the requirement as laid down in Table 5 of IS: 8133-2021.
- ii) The hand accelerator lever, when moved away from the operator (i.e. forward) decreases the engine speed, which does not meet the requirement as laid down in Table 1 of IS: 8133-2021.
- iii) The working clearance between position control and draft control lever has been measured as 5 mm against the minimum requirement of 70 mm as per the requirement of IS: 12239 (Part II) 2019.

All of the above should be looked into for necessary corrective action.

6.7 Adequacy of Literature supplied with machine:

- **6.7.1** Literature was supplied with the tractor for reference during the test.
 - i) Operator Manual for Swaraj 969 FE tractor model.
 - ii) Parts Catalogue for 969 FE tractor model.
 - iii) Service Manual (Part I & II) for 969 FE tractor model.
- 6.7.2 The operator manual may be brought out for the guidance of users and service personnel as per IS:8132-1999 incorporating, inter alia, the following:
 - i) Instructions for correct hitching of implements
 - ii) Recommended trailer capacity
 - iii) Safe hitch height for trailer.
 - iv) Information on multispeed PTO

SWARAJ, 969 FE TRACTOR- INITIAL COMMERCIAL TEST THIS TEST REPORT IS VALID UPTO: 28/02/2029

TEST CARRIED OUT AT C.F.M.T. & T.I., BUDNI (M.P.), INDIA TESTING AUTHORITY

B. N. DIXIT AGRICULTURAL ENGINEER	
R. P. PANDEY SENIOR INSTRUMENTATION ENGINEER	Rander
A. K. UPADHYAY DIRECTOR (I/C)	M

Draft Test Report compiled by Partha Lodh, Senior Technical Assistant

7. APPLICANT'S COMMENTS

Para no.	Our reference	Applicant comments	
7.1	6.4.1, 6.4.2 & 6.4.3	These requirements are being revisited for necessary corrective action at our end.	
7.2	6.4.4, 6.4.5, 6.4.6, 6.4.7 & 6.6	Study & trials are under progress for necessary corrective action.	
7.3	6.7.2	Necessary changes suggested by the institute will be incorporated in the manual for end user.	

ANNEXURE-I

TRACTOR RUN HOURS DURING TEST

Α.	LABORATORY AND TRACK TESTS:	HOURS
1.	Running-in	Applicant has declared it to be conducted on their work place.
2.	PTO performance test	13.8
3.	Power lift and hydraulic pump performance test	4.0
4.	Drawbar performance test	7.1
5.	Brake performance test	1.0
6.	Nominal speed test	1.5
B.	Miscellaneous test and other run hours including idle run, transportation, trials and preparation for test.	0.9
	TOTAL:	28.3

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