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APPROVED	14.4.50	MBH2-11-00	
CHECKED	<i>M. J. [Signature]</i>	COVER FROM THE SIDE OF DRIVE	WEIGHT SCALE
CONTROLLERATE OF INSPECTION (ICV) (25)			SHT 1 SITS 1
			78

DESIGNATION.		DESCRIPTION.	QTY.	REMARKS
		<u>TECHNICAL PAPERS.</u>		
22.	MBn 2-15-00CB.	Assembly drawing.		
		<u>PARTS.</u>		
11.	1. MBn 2-15-01.	Reinforcing ring.	1	
		<u>MATERIAL.</u>		
	2.	Rubber 3825		
		TY 005.216-75.	7	g

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 29 MAY 2007
 JWM/STD

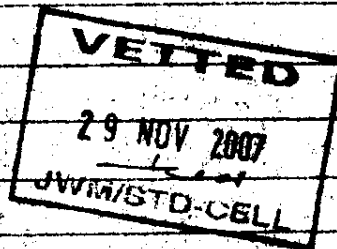
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D-571

4.

APPROVED		MBn 2-15-00	
CHECKED	NSC/this	SEALING RING	WEIGHT SCALE
CONTROLLERATE OF INSPECTION		SHT 1	SHTS 1
(29)		82/146	

DESIGNATION			DESCRIPTION	QTY	REMARKS
			<u>TECHNICAL PAPERS</u>		
22.		MBn 2-16-00 CB.	Assembly drawing		
			<u>ASSEMBLY UNITS</u>		
11.	1.	MBn 2-010.	Commutator	1	
11.	2.	MBn 2-10-00.	Shaft with armature iron.	1	
			<u>PARTS</u>		
11.	3.	MBn 2-003.	Gasket	1	
11.	4.	MBn 2-09-01.	Insulation on front parts	54	
11.	5.	MBn 2-16-01.	Washer	1	
11.	6.	ГA-10-326.	Washer	1	
11.	7.	MB 55-01-02.	Insulation of slot	27	
11.	8.	MB 55-01-03.	Wedge of slot	27	
			<u>MATERIAL</u>		
9.			Wire nCB-1,81MM		
			GOST 7019-71.	29 M	
10.			Tape A-20 GOST 18251-72.	200 MM.	
11.			Tape M-20-48, type 1		
			GOST 4514-78.	300 MM	



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M. YASU

FIELD

Milichy

MBn2-16-00

CONTROLLERATE
OF
INSPECTION
(ICV)

(31)

ARMATURE

WEIGHT SCALE

SHT 1 SHTS 2

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	DESIGNATION.	DESCRIPTION.	Q.TY	REMARKS
		<u>TECHNICAL PAPERS.</u>		
22	MBn 2.020 CB.	Assembly drawing.	1	
		<u>MATERIALS.</u>		
1.		Wire n ₃ TB- 2, 0.5 OCT 16.0.505.001-80.	510	g
2.		Wire n ₀ Γ00 1.5 TY 16-505.967-77.	950MM	
3.		Varnished cloth nxM-105 0.17, GOST2214-78. Width 15±1.	4.8M	
4.		Varnished cloth nxM-105 0.17 GOST2214-78 Width 25±1.	0.2M	
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APPROVED	M. VASU	MBn2-020	
CHECKED	N. G. Gurus	SHUNT COILS	WEIGHT SCALE
CONTROLLERATE OF INSPECTION (ICV) (11)		SHT 1 PYS 2	
		62 11/16	

NO.	DESIGNATION.	DESCRIPTION.	QTY	REMARKS
5.		Varnish cloth nxM-105 0.17, GOST2214-78 Width 15±1.	0.1M	
6.		Wire nW, 0.75 GOST 9125-74.	0.33M	
7.		Tape A 20 GOST 18251-72.	1.6M	
8.		Tube I T3C 3 GOST 10699-72.	0.29M	
9.		Paper K-120 GOST 23436-79 Width 20.	0.04M.	
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APPROVED	M VASU	MBN2-020	
CHECKED		SHUNT COILS	WEIGHT SCALE
CONTROLLERATE OF INSPECTION (ICV)			SHT 2
			63/1146

5 INFORMATION ABOUT PRESERVATION

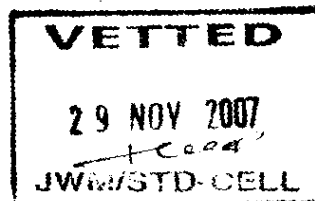
ELECTROMOTOR IS Preserved with oil K - 17 COST 10877-7
FOR INTERPLANT SHIFTING WITH OIL K - 17 for Storage at
store houses; in sealed cover for along times storage at
store houses cover for along times storage at store houses
 (cross-out which are not necessary)

Preservation period 0.5 : 5 : 8 Years
 (Crosscut which are not necessary)

Preservation date _____
 TIB (dept) _____

Remarks: In future working corrections in the
 certificates issued by typographic process, should
 be agreed by customer's Representative.

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1. BASIC ELECTRICAL DATA AND CHARACTERISTICS

1. Rated voltage - 27 V D.C
2. Nominal power - 300 Watts
3. Rotational speed - 3400 ^r /min
4. Armature rated current - 25.5A
5. Design - Waterproof
6. Working conditions - Continuous while immersion of drive in water till face of Body.
7. Circuit diagram - Double wire
8. Mass - 9.4 kg
9. Silver content - 0.08424 gram

2. DELIVERY SET

- 2.1 Electric motor - 1 piece
- 2.2 Certificate - 1 piece

3. ACCEPTANCE CERTIFICATE

Electric motor conforms to specifications MB.0007 and acknowledged fit for use

TIB (dept) _____

Customer's Representative _____

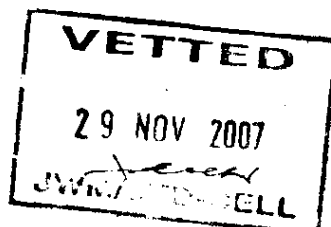
4. GUARANTEE OBLIGATIONS

Guarantee period of electromotor is 500 motor hours of operation of main engine. In 6000 or 10000 hrs of use in conformity with guarantee life on section.

Storage life of electromotors presented in par 5.1.1. 74, at user of storehouses should not exceed 3 years while packaging in sealed covers as per OCT 74-101-40 more than 6 years

Remarks: Electromotor is not sealed

Contd...3/-



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SECRET/CLASSIFIED

NUMBER 810 000 DC

SHEET. 1 OF 3

SUPERSEDES.

I-569

ALBUM No-26

TECHNICAL DOCUMENTS FOR

ARTICLE 84/08487A-03-10-40007

PASS PORT MBП-2

ELECTRIC MOTOR MBП-2

CERTIFICATE

MBП-000PC

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JVM/STB-000

CONTROLLERATE OF INSPECTION
(INFANTRY COMBAT VEHICLES)

SECURITY AGO

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Appendix

LIST OF
DOCUMENTS TO WHICH REFERENCE IS MADE IN
TECHNICAL SPECIFICATIONS:

Nomenclature of document	Designation of document	Number of pages of technical specifications at which documents reference is given:
1. Procedure of approving using of commercial article	GOST 2.117-71	26
2. Electric driven machines common testing methos.	GOST 11828-75	13
3. Reagents sodium chloride technical specifications	GOST 4233-77	20
4. Assembly units and parts of tracked vehicles. Methods and means of preservation	OCT B3-2381-74	5.26.27
6. Electrical equipment of special ransport vehicles	OCT B3-1164-72	2.45.5a.26

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Ordnance Factory
Project
Hyderabad.

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NUMBER ML/W/000. 27

SHEET 1 OF 1

ELECTRIC MOTORS MB/7
TECHNICAL SPECIFICATIONS
MB/7 .000 Ty

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Present technical specifications refers to compound excitation DC electric motor MB7 herein after referred to as electric motor meant for driving water pumps.

Designation of electric motor while ordering:
Electric motor MB7 -2, MB7 .000 Ty.

1. TECHNICAL SPECIFICATIONS: REQUIREMENTS.

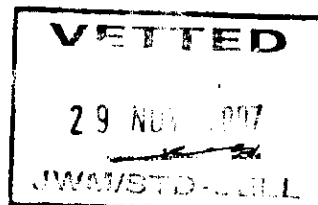
Electric motor should correspond to the requirements of present technical specifications set of papers in compliance with the specifications and O ST B3.1164.72.

All completing articles and materials used for manufacturing motor should correspond to the effective standards and technical specifications for them.

1.1 BASIC PARAMETERS AND DIMENSIONS:

1.1.1 Electric motor should have the following basic parameters:

- | | |
|--------------------------------------|---|
| a) Rated voltage | -27V DC |
| b) Rated power | -300W; |
| c) Rated ^{rotational} speed | -3400RPM |
| d) Mode of operation | -Continuous Upto 1.5hrs
which driving part is
dipped in water to
face of body. |
| e) Connection diagram | |
| f) Design | -Double-wire; |
| g) Working position | -Water proof;
-Vertical with out
put end of shaft.
down wards. |



- h) Rated torque - 0.085 kgf.m.
- i) Direction of rotation of shaft - Clock wise-
- j) Weight, max. . 9.4 kg.

1.1.2 Over all dimensions of electric motor are as per drawing MB7 - 0274

1.2 CHARACTERISTICS:

1.2.1 Overall dimensions, mounting dimensions and appearance of electric motor should correspond to drawing MB7 - 0274 and set of papers in accordance with the specifications MB7 2-000.

1.2.2 Electric motor should with stand test at a rational speed of 6000 RPM for 2 minutes without damages and residual deformation.

1.2.3 Electric motor should:

- a) Consume current not exceeding 10A and generate rational speed not exceeding 5000RPM at a voltage of during 27V, ideal run;
- b) Have clock wise rotation of shaft;
- c) Consume current not exceeding 23.5 A at rated voltage and rated power and has rational speed of atleast 3400RPM.
- d) Have commutator over heating of not more than 130°C at rated voltage and rated power when the driving part of electric motor is dipped in water to the face of body same commutator over heating temperature is allowed after one hour of idle run of electric motor without dipping into water.

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1.2.4 Insulation resistance between electrical circuits and body at the time of delivery from manufacturing plant should be:

a) At least 20M under normal climatic conditions in cold condition.

b) At least 0.2M under increased temperature of $+50^{\circ}\text{C}$

c) At least 1M under high humidity conditions.

1.2.5 Insulation between electrical circuits and body should withstand a testing voltage of 500V 50Hz (effective value) without breakdown or surface flash over.

1.2.6 Parts and assembly units of articles having same serial number should be interchangeable.

1.2.7 Electric motor should not have members and assembly units with resonant frequency of upto 40Hz.

1.2.8 Electric motor should not generate noise deteriorating radio signal reception and operation of tank interphone system.

1.2.9 Electric motor should be serviceable in operation and maintain its parameters in conditions given in OST B3-1154-72.

1.2.10 Electric motor should be of water proof design.

1.2.11 Electric motor should withstand 100 hrs of running during bench test for ensuring the guaranteed life.

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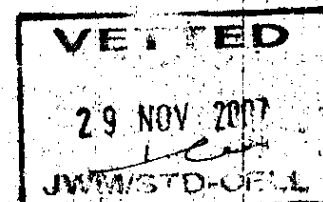
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1.2.12 Electric motor should withstand 100 hours of running during bench test in order to ensure the service life of 1000 operating hours.

1.3 Completeness of set.

1.3.1 Set includes
a) Electric motor
b) Certificate.



1.4 MARKING:

1.4.1 Marking of electric motor should be carried out in compliance with the set of papers as per specification MB7 2.000.

1.5 PACKING:

1.5.1 Packing and preservation of electric motor are carried out in compliance with the requirements of OST B3-1164-72 and with effective packing drawing.

Preservation of articles supplied as spare parts, is carried out considering the requirements of OST B3-2381-74.

2. ACCEPTANCE RULES:

2.1 Present technical specifications OST BB-1164-72 and sets of papers in compliance with specifications MB7 2.000 are the basic documents for manufacturing testing and acceptance of electric motor.

Each motor should undergo technological rev-up at idle run for a period of 30 minutes.

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2.2 All the trade articles should be checked by incoming TID before installing in electric motor. Scope and method of incoming control are set by agreement with customer's representative.

2.3 Testing of electric motor is sub divided into approval, periodical and type tests.

2.4 Each motor is subjected to approval test in scope and procedure as per table 1.

Electric motors are ^{subjected} subjected for acceptance by batches containing 30 to 60 pieces.

2.5 Conduct the periodical test twice in a year on two samples in scope and procedure given in table 1.

2.6 Type tests are conducted when it is necessary to check electric motor for compliance with the requirements of present technical specifications, in case of basic changes in diagram, design or manufacturing technology of motor, affecting operating properties; when the service life of electric motor is to be checked and measures approved for eliminating the defects are to be taken; and also for initial batches of full-scale production.

Necessity to conduct type tests including service life test is determined and approved by manufacturer and customer's representative in scope sufficient for checking the effectiveness of taken measures or service life according to the test programme, guided by the types of tests given in table 1.

Table:1

Types of tests and checks	Item number		Category test		
	Require ments	Procedure	Appro -val test	Perio -dical test	Type test
1. Checking for completeness of set and conformity with drawing	1.2.1	3.2	+	+	+
2. Test at higher rational speed	1.2.2	3.3	+	+	+
3. Checking of functional parameters					
a) Checking of no-load current	1.2.3a	3.4a	+	+	+
b) Checking of correctness of direction of rotation of shaft	1.2.3a	3.4a	+	+	+
c) Checking of rated parameters	1.2.3	3.4	+	+	+
d) Checkings of over heating of commutator	1.2.3	3.4	-	+	+
4. Insulation resistance test:					
q) under normal climatic conditons	1.2.4	3.5	+	+	+
b) Under increased temperature conditions	1.2.4	3.5	-	+	+
c) Under increased humidity conditions	1.2.4	3.5	-	+	+

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1	2	3	4	5	6
5. Testing for dielectric strength	1.2.5	3.6	+	+	+
6. Testing for water resistance	1.2.10	3.7	+	+	+
7. Testing for interchangeability	1.2.6	3.8	+	+	+
8. Testing for absence of design members and assembly units with resonance frequency in electric motor	1.2.7	3.9	-	-	+
9. Testing for effect of increased relative humidity	1.2.9	3.10	-	+	+
10. Testing for effect of increased ambient air temperature	1.2.9	3.12	-	+	+
11. Testing for effect of lower ambient air temperature	1.2.9	3.11	-	+	+
12. Testing for resistance effect of frost and dew	1.2.9	3.13	-	-	+
13. Testing for effect of sea (salty) fog	1.2.9	3.14	-	+	+
14. Testing for effect of cyclic changes of temperature	1.2.9	3.15	-	+	+

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1	2	3	4	5	6
15. Vibrant strength test	1.2.9	3.16	-	+	+
16. Impact strength test	1.2.9	3.17	-	+	+
17. Testing for effect of xxx(xxxx)xx atmospheric pressure reduced:					
a) down to 460mm Hg	1.2.9	3.18	-	-	+
b) down to 170 mm Hg	1.2.9	3.18	-	-	+
18. Testing for guarantee life	1.2.11	3.19	-	+	+
19. Service life test	1.2.12	3.20	-	-	+
20. Testing for effect of single impacts	1.2.9	3.21	-	-	+
21. Testing for effect of fumes of antifreeze and fuels and oils	1.2.9	3.22	-	-	+
22. Testing for effect of γ and γ back ground	1.2.9	3.23	-	-	+
2.3 Testing for radio interference level:	1.2.8	3.24	-	-	+

Designations "+" tests conducted
"-" tests not conducted.

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- REMARKS:
1. Testing for di-electric insulation strength is to be carried out after testing insulation resistance.
 2. Sequence for conducting the vibration strength test and impact strength test is determined by procedure of testing.
 3. Checking for water resistance is carried out during periodical and type tests after guaranteed life test.

3. TEST METHODS:

- 3.1 All tests are conducted at normal climatic conditions except those where the climatic conditions are specially mentioned.

Characteristics of normal climatic conditions:

- a) Temperature of ambient air - $+25$ to $+10^{\circ}\text{C}$
- b) Relative humidity of air - 45 to 80% ^{mm.}
- c) Atmospheric pressure - 630 to 800Hg.

NOTE: Relative humidity should not exceed 70% at a temperature of more than 30°C .

Instrumentation should have accuracy class not below 1.

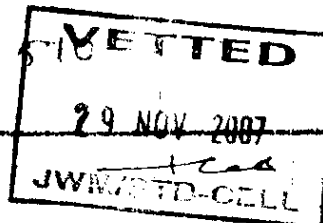
- 3.2 Check visually the completeness ^{of} set of electric motor, conformity with the requirements of drawings, quality of assembly external finish and absence of loose fasteners and check the mounting and overall dimensions with the help of instrumentation.

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Technological running is carried out at 27V under no load.

3.3 Test the motor at higher rational speed under no load by changing the supply voltage.

Measure the rational speed by stroboscope. Read the time from the moment when the present rational speed is attained.

Electric motor is considered to have passed the test if it meets the requirements of item 1.2.2 of present technical specifications.

3.4 Carry out checking of functional parameters of electric motor in the following manner:

- a) Check the no-load current of motor after it runs for 5 to 6 sec under no load at 27Vots.

Electric motor is considered to have passed the test if it meets the requirements of item 1.2.3 a of present technical specifications.

- b) Check the proper direction of rotation of shaft simultaneously with the no-load current check.

Electric motor is considered to have passed the test, if satisfied the requirements of item 1.2.3 d of present technical specifications.

- c) Check the rated parameters of electric motor on *wake test set(*under load) ensuring a torque of 0.085kgf.m. at a rational speed of 3400 RPM after 30 minutes of operation at no-load.

Apply a breaking torque of 0.085 kgf.m (torque 0.085 kgf.m corresponds to rated power 300W) to the -

to the motor and after 1 minute of operation of electric motor at rated voltage and torque 0.035 kgf-m. measure consumed current and rational speed.

Electric motor is considered to have passed the test if it meets the requirements of item 1.2.3d of present technical specifications.

d) Measure the overheating of commutator with thermocouple by extra polation of cooling curve to the time of disengagement in correspondance with GOST 11828-75, After running the electric motor for 1.5 hrs under rated voltage and with rated power while the driving part of motor to the face of body of electric motor is dipped in water having a temperature not exceeding 25°C or after running the motor for 1 hr at no-load under rated voltage.

To take measurement, thermocouple is brought to the commutator through a hole in the body of electric motor used for the plug connector.

Electric motor is considered to have passed the test if it is satisfied the requirements of item 1.2.3d of present technical specifications.

NOTE: . Check parameters as per item 3.4d after all the tests.

3.5 Insulation resistance test is carried out by 500V- DC megohmmeter. Measure the insulation resistance between the body of electric motor and any contact of the plug connector,

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Electric motor is considered to have passed the test if the measured insulation resistance value corresponds to the requirements of item 1.2.4 of present technical specifications (for respective test conditions).

- 3.6 Check the di-electric insulation strength at high-voltage test set having power of atleast 0.5KVA by feeding a full testing voltage for 1 minute.

Testing voltage is applied between the body and any contact of the plug connector.

Electric motor is considered to have passed the test, if during the check breakdown or surface flash-over did not occur.

NOTE:1. It is allowed to reduce the time keeping insulation under a voltage to 1 sec by simultaneously increasing the test voltage upto 625 V(effective value)

2. In case of subsequent checks of electric motor, before installation in vehicle testing voltage is fixed by 80% from rated value preset by the requirements of present technical specifications.

3.7 Water resistance test:

- a) Dip the motor at switched-off and cold conditions in a tank filled with water having ambient air temperature for 1.5 minutes when acceptance test is conducted. Before immersing, dry air is forced through union into the motor for five minutes to obtain gauge pressure of 0.25 ± 0.05 atm.

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Depth of immersion from the water level ^{to} the upper point of motor should be atleast 3 cm.

Electric motor is considered to have passed the test, if during the time of being inside the water under a gauge pressure continuous or intermittent flow of air bubbles did not occur.

) Immerse the electric motor with closed union in switched-off condition into a bath filled with water for one hour; temperature of electric motor should exceed water temperature by 10 to 15°C at the time of dipping; depth of immersion from the water surface upto the upper limit of electric motor is 1 meter.

Electric motor is considered to have passed the test, if after testing there should not be water inside it.

3.8 To check the electric motor for compliance with drawings and interchangeability ^{air motor} ~~disassemble~~ one motor taken from the batch to be accepted on customer's representative's request. During ~~in~~ so doing check for conformity of parts and assembly units with the requirements of design documents is carried out.

Check interchangeability by replacing the parts and assembly units of disassembled electric motor using those available in assembly line and performing preset adjustment. If there are not parts and assembly units in assembly line, two electric motors are disassembled.

Electric motor is considered to have passed the test for interchangeability, if parts and assembly units correspond to the drawings and electric motor

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meets the requirements set forth in items of acceptance test of present technical specifications after their substitution.

NOTE: Check as per item 3.8 is carried out before setting parts of electric motor on sealent.

3.9 Testing for the absence of resonance of members is carried out during type test after visual inspection. Electric motor in switched-off conditions is fixed to the plat-form of vibration stand.

Test the motor in two mutually perpendicular positions in one of which the shaft of electric motor is positioned horizontally, in the other one vertically with out-put end of the shaft downwards as per the standards of table 2 while smoothly changing the vibrator frequency in each sub range.

Table 2

Frequency, subranges Hz	Amplitude value	
	Acceleration, g	Displacement, mm
from 5 upto 10	0.05-0.30	
above 10 upto 20	0.30-1.00	0.5-0.8
above 20 upto 25	1.00-2.00	
above 25 upto 40	2.00	0.3

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NOTE: Check is carried out by one of the following methods, by acceleration or displacement.

Time for passing each subrange should be sufficient to detect the resonance, but it should not exceed the 2 minutes. Check the absence of resonance of members and assembly units of electric motor visually or with the help of devices during the test.

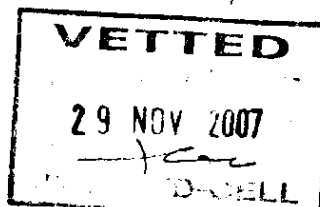
Electric motor is considered to have passed the test, if there is no resonance of members or assembly units in the range of the above-mentioned frequencies., and if no mechanical damages is detected during visual inspection.

3.10 While testing the electric motor for the effect of increased relative humidity the motor with preserved out-put end of shaft (in switched-off conditions) is placed in constant-humidity cabinet with relative air humidity of 93 to 97% and temperature of 20 to 25°C and kept in it for 5 days.

The humidity may be increased upto 98% and temperature upto plus 35°C, due to the fluctuations of ambient air temperature and the modes of operation of equipment used.

Not later than 3 min cabinet after removing the electric motor from constant humidity check:

- a) Insulation resistance as per the procedure of item 2.5 of present technical specifications.
- b) Parameters as per procedure of item 3.4 of present technical specifications.



c) Absence of corrosion, except locating surfaces, anticorrosive protection of which has not been provided with the drawings.

d) Condition of paint and varnish coatings.

Y. After keeping the electric motor for 24 hrs at normal climatic conditions check the insulation resistance and also di-electric insulation strength as per procedure of item 3.5 3.6 of present technical specifications.

Electric motor is considered to have passed the test if the parameters and insulation resistance correspond to the requirements of items 1.2.3 and 1.2.4 of present technical specifications; there are no separations of paint and varnish coatings and corrosion traces and if di-electric strength and insulation resistance corresponds to requirements of items 1.2.4a and 1.2.5 of present technical specifications after keeping the electric motor at normal climatic conditions.

3.11 Electric motor in switched-off condition is placed inside the cold chamber temperature of which is brought down to minus 50°C and maintained with an accuracy of $\pm 3^{\circ}\text{C}$ while testing for the effect of lower ambient air temperature.

Electric motor is kept in the chamber for 4 hrs after attaining the above-mentioned temperature, after which the current consumption is checked as per the procedure of item 3.4C of present technical specifications in the chamber or not later than 3 minutes after removing from the chambers in the normal climatic conditions, in this case, electric motor itself should start to rotate and run at the prescribed duty not later than 3 minutes after

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switching on the motor at the rated voltage and rated power. Check the electric motor for water resistance as per procedure of item 3.7a of present technical specifications after keeping it at normal climatic conditions for 4 hrs.

Electric motor is considered to have passed the test, if the current consumption does not exceed 22.5 and continuous or periodical flow of air bubbles is not observed while checking the motor for water resistance.

REMARK: It is allowed to place the electric motor in cold chamber, temperature of which is brought to -50°C before hand. In so doing electric motor is kept in the chamber for 4.5 hrs.

3.12 Set the hot chamber temperature to $+50^{\circ}\text{C}$ and maintain it with an accuracy of $\pm 3^{\circ}\text{C}$ while testing for the effect of higher ambient air temperature.

Keep the electric motor in the hot chamber under idle chamber condition for 3 hrs and then run it at no-load for 1 hr at 27V. This done, the electric motor is removed from hot chamber and not later than 3 min after this the motor is checked by switching it on three times at rated voltage as per the procedure of item 3.4C of present technical specifications. In so doing, the electric motor current is checked.

Electric motor is considered to have passed the test, if it is serviceable after three switchings on and consumes a current not exceeding 23.5A.

3.13 Electric motor in switched-off condition is placed in the cold chamber and kept in it at a temperature of $-20 \pm 5^{\circ}\text{C}$ for 2 hrs. While testing for the effects of frost and dew.

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This done, the electric motor is removed from the chamber, placed in normal climatic conditions and run at no load at a voltage of 27V. for 1 hr in so doing, measure current consumption. Immediately after switching on and every 30 minutes under the conditions of formation of frost and dew. As per procedure of item 2.4C of present technical specifications.

Electric motor is considered to have passed ^{the} test, if during the ^{time} of holding in normal climatic conditions after removal from cold chamber while testing as per procedure of item 3.4C of present technical specifications it consumes a current not exceeding 23.5A.

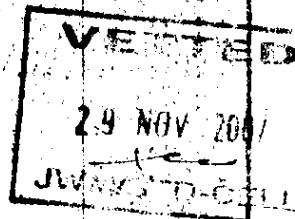
3.14

Electric motor with preserved end of the shaft, is placed in the chamber, the temperature of which is set to 27-30°C while testing for effect of sea (salty) fog, and subjected to effect of salty fog. Conduct visual inspection for the absence of damaged paint- and -varnish coatings before placing the motor in the chamber.

Electric motor is arranged in the chamber so that during testing splashes of solution and also drops from ceiling, walls and suspension system do not fall on it.

Sprayer salt solution which is prepared by dissolving sodium chloride in distilled water as per GOST 4233-77 in amounts of 3363 g/l by using fog is created by spraying centrifugal aerosol apparatus. Fog should possess a degree of dispersion of 1 to 10 microns (95% of drops) and water content of 2 to 3 g/m³.

Spray the solution for 15 minutes, every 45 min. Total testing time is 2 days. Duration of test is taken from the moment of first spraying of solution.



After the completion of the test the motor is cleaned with a ^{soap} ~~wash~~ after soaked in distilled water after which it is dried for 1 hr at temperature $+55 \pm 2^{\circ}\text{C}$ cooled subsequently and then subjected to visual inspection.

Electric motor is considered to have passed the test if there are ~~no~~ ^{no} traces of corrosion of base metal and damage to paint-and -varnish coatings

3.15 Electric motor in switched-off condition is subjected to three cyclic temperature changes, followed one after the other continuously while testing for resistance to cyclic temperature changes.

Each cycle is carried out in the following way:

Electric motor is placed in the cold chamber, the temperature of which is set upto -50°C before hand and kept ~~at~~ ^{at} this temperature for 4 hrs.

Electric motor is transferred immediately from cold chamber to hot chamber having temperature 65°C and kept in it at this temperature for 4 hrs.

Holding time in hot and cold chambers is counted from the moment of attaining the given air temperature in the chamber after loading the electric motor.

Electric motor is removed from hot chamber after the completion of last cycle of testing and is kept under normal climatic conditions for 4 hrs.

This done, motor is visually inspected, checked for serviceability as per procedure of item 1.2.3 to present technical specifications.

The electric motor is considered to have passed.

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the test if its parameters meet the requirements of item 1.2.3c of present Technical specifications.

NOTE: It is allowed to carry out the test for resistance to cyclic temperature changes in one chamber with the rate of temperature changes of atleast 0.5°C per minute.

3.16 Vibration strength test of electric motor is carried out when it is switched off. Conduct visual inspection of motor before testing.

Electric motor is mounted on the vibration stand with single-component ^{xxx} verticle vibration in vertical position with output end of shaft downwards and subjected to tests by methods of fixed frequency as per standards given in table 3.

Table.3

Fixed frequency	Amplitude value		Total testing time, h
	Acceleration, G	Displacement	
10	1.0	2.0	3.0
20	2.0	1.0	9.0
30	3.0	0.8	6.0
40		0.6	4.5
50		0.4	
60	4.0	0.3	
80		corresponds to accelera- -tion	1.5
100			
120			

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NOTE: Test is performed by one of the methods:
As per acceleration or displacement.

Vibration strength test is conducted simultaneously with guaranteed life test under the following conditions:
1/4 of total vibration time before the guaranteed life, test, 1/2 of total vibration time in the middle of vibration test and 1/4 of total vibration time after guaranteed life test.

Carry out visual inspection after testing and check parameters as per procedure of items 3.4a and 3.4c of present technical specifications

Electric motor is considered to have passed the test if during visual inspection of mechanical damages is detected and parameters correspond to the requirements of items 1.2.3a, 1.2.3c of present technical specifications.

3.17 Impact strength test of electric motor is conducted in switched-off condition in the middle of the guaranteed life test. Carry out its visual inspection before testing.

Electric motor is set on the stand in vertical position with output end of shaft downwards and is subjected to impacts as per standards given in table.4

Table.4

Acceleration, g	Duration, ms	Total number of impacts	Number of impacts per minute.
15	from 10 to 15	2000	upto 100

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After testing carry out visual inspection ^{and} of check parameters as per procedure of ^{items} 3.4a 3.4c of present technical specifications.

Electric motor is considered to have passed the test if during visual inspection mechanical damages is not detected, and parameters correspond to the requirements of items 1.2.3a, 1.2.3c of present technical specifications.

3.18 Testing ^{for} of effect of lower atmospheric pressure is carried out in pressure chamber at a emperature of $+25 \pm 10^{\circ}\text{C}$.

Carry out visual inspection before testing, and check the parameters of electric motor as per procedure of item 2.4c of present technical specifications.

Electric motor is placed in pressure chamber, and pressure in it is brought down to 460 MM Hg After which motor is switched on at idle run for 30 minutes at 29V. This done, the electric motor is removed from pressure chamber and the checking of parameters is carried out as per procedure of item 3.4c of present technical specifications. After this pressure of 170mm Hg is set ⁱⁿ the pressure chamber and electric motor in switched-off condition is kept in it under these conditions for 2 hrs. Then pressure in the chamber is gradually raised to the normal one, electric motor is removed rom chamber, visual inspection of it ^{and} is carried out parameters are checked as per proc of item 3.4a of present technical specifications.

Electric motor is considered to have passed the test, if its parameters correspond to requirements of item 1.2.3a of present technical specifications.

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Electric motor is considered to have passed the test, if its parameters correspond to requirements of item 1.2.3a of present technical specifications.

- 3.19 Gauranteed life test is carried out with water pump as per drawing 432.83.011 ~~cd~~ 3. or 54.83.78 ~~cd~~ A.

Electric motor with water pump and additional hydraulic resistance of 0.5 atm is switched on at a voltage of 27V for 60hrs. at a voltage of ~~27V~~ and 29V for 20 hrs sespectively. Electric motor is operated by cycles with a duration of 5 hrs. Interval between cycles is till the electric motor cools completely. Driving part of electric motor is dipped in water having temp not exceeding 25°C to the face of body.

Run the electric motor for 1 hr at 27V after gauranteed life test.

Visual inspection and checking of parameters, as per procedure of item 3.4a 3.4c of present, technical specifications are carried out after gauranteed life test.

Electric motor is considered to have passed the test, ~~it~~ retains serviceability and parameters meet the requirements of items 1.2.3a 1.2.3c of present technical specifications.

- 3.20 Test the ~~electric~~ ^{electric} motor for service ^{life} as per procedure of item 2.16, and 3.19 of present technical specifications.

Electric motor is considered to have passed the test for service life if it retains serviceability after testing additionally for 30 minutes.

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NOTE: Number of hours of gauranteed life test is counted for service life test.

3.21 Compliance of electric motor and its installation with the requirements for resistance to single impacts with greater accelerations is to be confirmed by full-scale tests on vehicle with the combined report being made.

3.22 Before working out the procedures of bench test for effect of fumes of antifreeze and feels and oils compliance of electric motor with these requirements to be confirmed by full-scale tests on the main article with combined report being made.

3.23 Testing for effect of f and h background not carried out. Compliance with given item of requirements is ensured by the electric motor design.

3.24 Compliance of electric motrs with the requirements of item 1.2.3 of present technical specifications is confirmed by full-scale test on the main article, with the combined test report being made.

4. TRANSPORTATION AND STORAGE:

4.1 Packed electric motors be ransported by any type of transport which ensures protection against atmospheric precipitation and mechanical damage.

4.2 Storage of electric motor is to be carried out in correspondance with the requirements of OST B 3-1164-72 and OST B3-2381-74.

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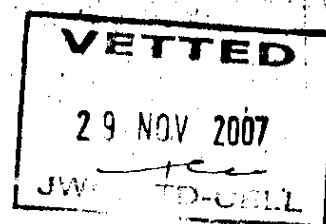
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OST B3-2381-74.



LIST OF APPENDICES:

1. List of documents to which reference is made in technical specifications.
2. Electric motor MBH-2 but line drg. MBH 02. TM

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I-570

ALBUM NO : 27

TECHNICAL PAPERS FOR
ARTICLE

84/0848711-03-15-40007

TECHNICAL SPECIFICATIONS:

O.F.P.H.NO: I-570

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EDITED	MAHAR	<i>[Signature]</i>		
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