

KM - 100 DV KM - 200 DV

KM - 300 DV KM - 400 DV

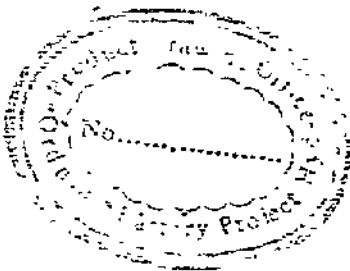
2 - 2753

KM-100 DV
(AB)

" COMMERCIAL INDEX 84/0048711 - 03 - V = 40027 NG "

" ALBUM NO. 2

TECHNICAL SPECIFICATIONS FOR CONTRACTOR NO. - 1000-✓



MASTER COPY

TRANSLATED	Kaligana.A	Ordnance Factory Project Hyderabad
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EDITED	S. Suman ✓	
REVIEWED	✓	DATE 10/1/77

KM-100-B; KM-600-A-B

SHEET NO.

SUPERSEDES.

I-2757

Conventional index: 84/38487-03-28-10037
 Album No. 2.

TECHNICAL SPECIFICATIONS FOR CONTRACTORS KM-100-B.

~~KM-200-B; KM-400-B; KM-600-B;~~

~~TOTAL NUMBER OF SHEETS - 3~~

TRANSLATED	Kaspare, A		Ordnance Factory Project Hyderabad.
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	NAME	SIGN	DATE
			APPROVED

Hydrocarbon

KM-100A-B; KM-200A-B;

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KM-400A-B; KM-600A-B

TECHNICAL SPECIFICATIONS FOR CONTACTORS KM - 100^A - B;
KM - 200^A - B; KM - 400^A - B; KM-600^A - B.

Total Number of Sheets : 34

Sheet No 1

1. DEFINITION

1. The present technical specifications refer to ~~aircraft~~ electro-magnetic contactors KM - 100 *A* - B; KM - 200 *A* - B; KM - 400 *A* - B and KM - 600 *A* - B intended for remote switching-on and switching - off of loads in aircraft electric systems rated for D.C voltage of upto 30 V.

- II. Completeness of set and relationship with drawings.
2. Set of each contactor consists of proper contactor.
3. Design, over all dimensions and electric diagram of contactors should comply with drawings.

Sl.No	Type of contactor	Nos. of Drawings		
		General view	Out line drawings	Schematic circuit diagram
1.	KM-100A-B	1141.000	1141.001	1141.002
2.	KM-200A-B	1138.000	1138.001	1141.002
3.	KM-400A-B	3005.000	3005.001	1141.002
4.	KM-600A-B	3006.001	3006.001	3006.002

III. Specifications

1. Rated values

Sl.No	Rated values	Type of contactor			
		KM-100-B	KM-200-B	KM-400-B	KM-600-B
1.	Voltage	27 V	27 V	27 V	27 V
2.	Load current	from 2.5 to 100 A	from 5 to 200 A	from 10 to 400 A	from 20 to 600 A
3.	Current consumption of winding in energized condition at rated voltage, maximum	0.45 A	0.5 A	0.6 A	0.65 A
4.	Rated current in circuit of auxiliary terminal when $t = 0.015s$, maximum	5 A	5 A	5 A	5 A
5.	Mode of operation	continuous	continuous	continuous	continuous

5. Contactors should be properly operated in the following conditions;

- a. At ambient air temperature from $+50^{\circ}C$ to $-60^{\circ}C$ - for contactors KM - 100-B, KM 400-B, KM - 600-B and from $+60^{\circ}C$ to $-60^{\circ}C$ for contactor KM - 200-B.

Note: Contactors should withstand the test at a temperature of $+80^{\circ}C$ for 2 hours in deenergized condition (not to be checked); short-time operation is allowed for contactors KM - 100-B; KM - 200-B; KM - 400-B at ambient air temperature of $+110^{\circ}C$ for 5 minutes during 2 hours of flight in whole range of altitudes. Shorttime operation is allowed for contactors KM - 100-B; KM - 200-B at ambient air temperature of $+170^{\circ}C$ and altitude of 11,000 M for 5 minutes during 2 hours of flight (Not to be checked).

Contract: Military

Product

Hyderabad

KA-100A-B, KM-200C-B

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MA-400A-B, KH-100A-B

b.

With relative air humidity of type 100%
and $t = +40^{\circ}\text{C} \pm 2^{\circ}\text{C}$.

c.

With vibration of atmospheric pressure at
frequencies from 10 to 200 Hz.

d.

With short-time jolting of attachment
points at frequency from 60 to 100 impacts per
minute, at acceleration of up to 400 g and pulse
duration of 5 to 15 ms at minimum.

e.

At linear acceleration of up to 8 g.

f.

At altitude above sea level up to 20,000 m
for KM - 600 g-B and 25000 m for KH - 100 g-B;
KN - 200 g-B, KH - 400 g-B.

6.

Power supply from vehicle mains contactors should
operate within the range of voltage from 24 to
30 V.

7.

Switching on voltage

Switching-on voltage in heated condition
at ambient air temperature of $+20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ should
not exceed 20 V; if the checking is carried out
at another temperature, then it is necessary to
carry out the recalculation with regard to
temperature coefficient of resistance of magnet
wire, and at ambient air temperature of $+50^{\circ}\text{C}$
it should not exceed 22.4 V, in this case,
resistance of wires connected in series with
winding of contactor should be equal to 1.5 ohms.

KM-400A-3, KM-600A-3

8.

Switching - off voltage

Switching - off voltage in heated condition at ambient air temperature of $+20 \pm 5^{\circ}\text{C}$ should not exceed 6 V, if checking is carried out at another temperature, then it is necessary to carry out the recalculation with regard to temperature coefficient of resistance of magnet wire, and at ambient air temperature $+50^{\circ}\text{C}$ should not exceed 6.5 V. In this case resistance of wires connected in series with winding of contactor should be equal to 1.5 ohms.

9.

Drop of voltage at contactor. Drop of voltage at the contacts, which is measured at the fixed contact bus-bars in cold and hot conditions at ambient air temperature of $+20 \pm 5^{\circ}\text{C}$, should not be more than 150 mV.

W. 100A-6, KM-100A-6, KM-100A-6, KM-100A-6

W. 100A-6, KM-100A-6, KM-100A-6, KM-100A-6

W. 100A-6, KM-100A-6, KM-100A-6, KM-100A-6

KM-100A-6, KM-100A-6, KM-100A-6, KM-100A-6

10.

Operate current.

Operate current of contactor should

not exceed 5 A, at switching - on voltage in

cold condition of winding, at ambient air

temperature of $+ 20^{\circ} \pm 5^{\circ}$, with 1.5 mm

resistance

resistor connected in series in the winding circuit winding.

11.

Winding overheating

contactors are designed for long

switching-on at voltage of 30 V across winding

and at rated current in circuit of contacts.

While conducting the above - mentioned thermal mode at ambient air temperature

of $+ 50^{\circ}$ C and at altitude of sea level,

temperature rise at steady overheating;

should not be more than $+ 105^{\circ}$ C for wind-

ings KM - 100A-B, KM - 250A-B, 110° C for

winding KM - 400A-B.

Winding heating temperature should not

exceed 160° C while conducting the thermal mode

of contactor KM - 600A-B at ambient air

temperature $+ 50^{\circ}$ C in ground conditions,

and also at ambient air temperature $+ 30^{\circ}$ C

at height of 1200m and more.

KM-40-13 KM-60-13

12.

Overload Capacity.

After the thermal mode, contactor should withstand overload of 200 percent rated current for 2 minutes without failure (every 5 hours of operation).

13.

Emergency Breaking Capacity.

Contacts of contactors should withstand 3 switchings - on and off of 300 $\frac{2}{3}$ percent current with respect to rated current at ohmic load ($\sqrt{2} = 0.0015$); in this case, 2 switchings - on and off should be performed at normal atmospheric pressure and one switching - on and off should be performed at atmospheric pressure, corresponding to altitude 2000 m above sea level.

Duration of current flow upto break should be not more than 3 s voltage at the contacts should be within the limits of 26 to 30V. ^{20/0} Interval should be maintained upto complete cooling after the break.

K14-1000-3, K14-10-2, 3

Insulation Resistance

14.

Insulation resistance (in power conditions) of separate circuits insulated from the ground measured with 100 - V megohmmeter should be not less than 20 meg ohms in cold and dry conditions, not less than 2 Megohms after rated thermal mode and not less than 1 Megohm after the test for moisture resistance.

15.

Insulation Electric Strength

Insulation of current carrying parts of contactor should withstand the break test to be performed by supplying a.c voltage of 500 V 50 Hz for 1 minute after thermal

mode and checking for moisture resistance.

Note:

1. Checking of insulation electric resistance *specimen only once* should be carried out on given at manufacturing factory. *specimen only once*
2. Acceptance tests for electric insulation strength of current - carrying circuits should be carried out only with respect to ground when the winding is determined.

Product Hydrated

44-4003-B, R17-4003-B
 44-4003-B, R17-4003-B

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15.

Service Life

Contactors should withstand 5000 switch-
 ing-on of 400 percent ohmic load ($\frac{1}{2} = 0.0013$)
 which reduces to its rated value with the lapse of
 1 s and the same number of breakings of rated current
 in inductive minimum circuit with electromagnetic
 time constant equal to :

0.0075 s	for KM - 100 A-B
0.005 s	for KM - 200 A-B
0.003 s	for KM - 400 A-B
0.002 s	for KM - 600 A-B

or 15,000 switchings-on and off of rated current at
 ohmic load. Contactors should withstand 20% of service
 life on ground, 50% at the altitude of 15,000 m,
 at ambient air temperature from - 30° C to - 60° C,
 30 % at the altitude of 20,000 m for KM - 600 A-B
 and 30 % at the altitude of 25,000 m for KM-100 A-B,
 KM - 200 A-B, KM - 400 A-B and ambient air tempera-
 ture from -30° C to - 60° C .

Note: 60 % of service life should be used at voltage 27 V,
 20 %; at voltage 29.7 V and 20%, at voltage 24.3 V
 in coil circuit.

Project: Hydrology Date: 11-2-54 Page: 3
 Location: San Diego, CA Name: W. H. H. H. Title: W. H. H. H.

Mass of Contactors

Mass of contactors should not exceed the values
 given in Table:

Serial No.	Type of Contactor	Mass, kg
1	KH - 100g - B	0.32
2	KX - 200g - B	0.5
3	KH - 400g - B	1.0
4	KH - 600g - B	1.65

Note: Mass of contactors should be checked at
 random for 3 to 5 articles once in a year.

20.

Production procedure, quality of assembly and external finishing.

Manufacturing of articles and assembly of contactors and assembly of contactors should be carried out in strict compliance with approved drawings and effective production practice.

IV MARKING

21

Marked on the body should be: type of contactor, year and quarter of manufacture, designation of moisture resistance.

Contactor should have stamp certifying that it has been accepted by TID representative.

contd. 13

V. ACCEPTANCE TESTS

Every batch of contactors submitted for acceptance is to be subjected to acceptance test. contactors are tested for compliance with requirements of technical specifications in the

following scope and procedure.

Sl.No	Description of checkings and tests	Items of technical specifications requiring monitoring	Number of contactors to be checked by customer representative
1.	visual inspection and ^{QA} dimensional measurement	3	23 5%
2.	Checking of operation at rated values and thermal mode.	4	25 batch, but not less than 2 pcs.
3.	checking of insulation strength resistance	14	26 5 % from batch at 425 V
4.	checking of electric strength	15	27 5 % from batch at 425 V

Notes:

1. Technical inspection department of manufacturing factory should test each contactor as per the programmed acceptance tests.
2. It is necessary to check the contactors for absence of ringing as per the diagram before checking of operation at rated values.
3. Technical inspection department of manufacturing factory should carry out the checking of operation at rated values and thermal mode at random for 2 % from the submitted batch, but for not less than 2 pcs. Technical inspection department checks 100% of contactors of this batch in thermal mode, if there is any non-compliance with requirements of technical specifications.
4. Checking of insulation resistance and electric insulation strength should be carried out only in cold condition during check and acceptance tests of batches of articles.

2.3

Visual Inspection

Quality of assembly, external finishing, marking and compliance of contactors with approved drawings should be checked during visual inspection.

2.5.

Checking of operation at rated values and

thermal mode.

1. Test should be carried out at ambient air temperature $+ 20^{\circ} \pm 5^{\circ}$ C and at altitude of sea level when article attachment plane is in horizontal position. Each contactor should be switched on and switched off 10 times at rated load and rated

voltage. After this drop of voltage at the contactors should be checked as per item 9. And then at winding voltage of 30 v and rated current in contactor 1 circuit the contactor should be kept under the thermal mode as per the following

Table:

Index	Thermal mode time, minimum.
KM - 100 B	60 Minutes
KM - 200 B	75 Minutes
KM - 400 B	90 Minutes
KM - 600 B	90 Minutes

This done, the following values should be measured:

- Drop of voltage at the contacts as per item 9.
- Switching on voltage as per item 7.
- Switching off voltage as per item 8.

Test results are considered to be satisfactory if switching - on voltage does not exceed 20 V, switching-off voltage does not exceed 6 V, and drop of voltage at contacts, which is measured between power bolts, does not exceed 150 M.V.

Consumption current of windings for each type of contactors should not exceed the values, specified in item 4 (3) when 1.5 ohm resistance windings are connected to circuit in series accuracy class of electric meters should be not worse than accuracy class 0.5. Ammeters of accuracy class 1.5 and voltmeters of accuracy class 1 may be used during check (acceptance) tests.

Notes: 1. Current should be supplied to contactors of each type with the help of wires and cable lugs according to the Table given below.

Size	Type of contactor	Cross-section of wires	Number of wires from contact bolt	No. of cable lugs.
1.	KM-1000 B	35 mm ²	1	6092 C-16
2.	KM-2000 B	70 mm ²	1	6092 C-28
3.	KM-4000 B	70 mm ²	2	6092 C-29
4.	KM-6000 B	95 mm ²	2	6092 C-33

2. Current supply to power and terminal screws may be carried out by buses, having holes, cross-section and contact area of contact surface, corresponding to normal lug.

3. While performing thermal mode DC, may be changed for a.c and vice versa. In the first case, checking should be carried out as per diagram BA9.361.023 OTT (fig 7).

2/6. Checking of insulation resistance.

Checking of resistance of insulation of windings and contacts and the ground should be carried out after thermal mode as per item 11 with the help of megometer, by supplying 500 V which should be applied between current - carrying circuits and the ground.

Reference Library
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RR-1021-3, VVK4-2007-03
50-1004-13, RM-5004-5
RR-1021-3, VVK4-2007-03

RR-1021-3, VVK4-2007-03
50-1004-13, RM-5004-5
RR-1021-3, VVK4-2007-03

Results of checking are considered to be satisfactory. ~~It is not less than 2 Meg ohms.~~

2/7

Checking of Electric Insulation strength.

Checking of electric insulation strength should be carried out in heated condition after the thermal mode.

Test should be carried out by supplying 50 Hz sinusoidal A.C. source should not be less than 0.5 kVA, voltage should be equal to 500 V.

One pole of test voltage should be connected to terminal of circuit to be tested, and the other one to the ground or to terminals of other circuits, which are not connected electrically.

Test should be started at the voltage not exceeding 1/3 of test voltage.

Rising of voltage up to full test voltage should be carried out smoothly.

Full test voltage should be held for 1 minute. This done, test voltage should be reduced to 1/3 of its value and disconnected.

Checking of electric insulation strength for the given sample should be carried out only once.

The Test voltage should be reduced by 15% during the repeated checking of electric insulation strength.

Results are considered to be satisfactory, if the break - down of insulation or surface flashover does not occur during the test.

KM - 400 B - 2, KM - 200 B - 2

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KM - 400 B - 2, KM - 600 B - 2

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Measurement of test voltage should be carried out by voltmeter having accuracy class not worse than 1.5.

Notes

Test may be conducted for 13 during acceptance tests, if the test voltage is increased by 25 % in this case, raise and drop of voltage may be carried out momentarily.

VI

Periodic Check Tests.

28.

Except for acceptance tests of each batch, periodic check tests should be carried out for compliance of contactors with all requirements specified upon them.

When manufacturer produces contactors of various descriptions of types KM - 100 B and KM - 400 B and KM - 200 B, KM - 400 B and KM - 400 B; KM - 600 B and uniform tests may be performed for one of the two types of contactors by agreement with customers representative.

When manufacturer produces contactors of various descriptions of types KM - 400 B, KM - 400 B - C and KM - 400 B it is allowed to carry out the uniform tests for one of 3 types of contactors by agreement with customer representative.

These tests, should be carried out once in 6 months of 6 contactors in the scope and procedure given below in this case, checking for service life should be carried out for 4 contactors.

3.

If the article withstands periodic tests, then the quality of this article, and also possibility of further manufacturing and acceptance of articles as per the same technical papers, according to which, the article, has been manufactured are considered to be approved by the present tests till the end of the next periodic tests.

Sl. No	Description of checkings and tests.	Items or technical specifications requirements	Periodicity of tests
1.	All tests given in programme "Acceptance tests" specified in item 22, except item 4.		
2.	Checking of mass	17	30
3.	Checking of operation at lower temperature - 60°C and - 30°C	5A	33; 33a
4.	Test at elevated temperature 50°C	5 A	34
5.	Checking for over load capacity.	12	32
6.	Checking for moisture resistance.	5B	35
7.	Checking for vibration resistance.	5B, A, δ	36
8.	Test for shaking	5F	37
9.	diurnal temperature acceleration test	5B	38
10.	Checking of contactor operate current.	10	39
11.	Checking for vibration strength	5B	40
12.	Test for service life	16	43
13.	Test for maximum current break	13	44

ONCE EVERY 6 MONTHS

Program: EECOM
Project: KA-100A-B, KA-200A-B,
KA-400A-B, KA-600A-B
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Notes

a. Service life test should be carried out on the samples, which have passed the checkings are per items 1 to 12 of periodic check tests, given in the table;

b. When the a contactor is subject to service life test at first it should be tested for vibration strength and then for maximum current break.

c. Number of switchings-on during periodic check tests is counted for service life test.

d. It is allowed to change the procedure of tests by agreement with customer representative.

e. It is allowed to conduct tests given in item 43 of present Technical Specifications with a circuit equal to a to 0.0015s for contactors KM - 100A-B; 0 to 0.0025s for contactors KM - 200A-B

0 to 0.0045s for contactors KM - 400A-B
0 to 0.0065s for contactors KM - 600A-B, it is allowed to conduct tests given in item 44 of present Technical Specifications with a circuit equal to 0. to 0.0025s for contactors KM - 100A-B
0. to 0.0045s for contactors KM - 200A-B, 0 to 0.005s for contactors KM - 400A-B to 0 to 0.013s for contactors KM - 600A-B.

The part of periodic check tests, which complies with content acceptance tests and procedure of, acceptance should be carried out in compliance with instructions, given in acceptance tests section. Other tests should be carried out in compliance with the instructions, given below.

30. Checking of Max Mass should be checked on counter balance with accuracy of weighing upto 10 gm.

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RM-1001-3 KM-1001-3

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It is allowed to keep the contactor in cold chamber for two hours without measuring its case temperature. This done, switching on voltage and max switching-off voltage should be checked. And then the article should be switched on and off ten times at rated voltage across winding and the contactor should be checked for proper contact at minimum current.

Test result is considered to be satisfactory, if the contactor operates properly and switching on voltage does not exceed 90% of actual values, measured at normal temperature, and switching-off voltage does not exceed 130% of actual values measured at normal temperature.

Note: Test should be carried out without removing the contactor from the cold chamber.

33a. Checking of heating temperature of winding and temperature of winding and contacts at temperature -30° at altitude 12000 M (contactor KM 600 2-B)

Contactor KM - 600 2-B should be placed in thermal pressure chamber with temperature - 30° and pressure, corresponding to altitude 12,000M above sea level.

After obtaining the temperature of -30° C on contactor surface it should be kept under temperature conditions at voltage 30 V across winding and rated current in circuit of contacts for 1.5 to 2 hours.

This done, heating temperature of winding and contacts should be checked. Test result is compared to be satisfactory, if heating temperature of winding does not exceed 160°C , and that of contacts $\approx 225^{\circ}\text{C}$.

34.

Checking operation of at elevated temperature $+ 50^{\circ}\text{C}$.

Contactors should be placed in constant temperature cabinet at temperature $+ 50^{\circ}\text{C}$ for one hour, after this, contactors should be kept in the cabinet under temperature conditions at voltage of 30 V across winding and rated current in circuit of contactor for 1.5 to 2 hours.

After this, switching-on and switching off voltages should be checked as prescribed in items 7 and 8, and winding over heating should be checked in accordance with item 11. And then contactors should be switched on and off 10 times at rated current and voltage.

Note:

Measurements of voltages should be taken in 3 positions:

- a. in horizontal position (~~with contactors up~~),
- b. in vertical position (~~with contactors down~~),
- c. in vertical position (with contactors down)

Results of tests are considered to be satisfactory, if the switching-on voltage does not exceed 22.4 V, switching-off voltage does not exceed ~~22.4~~ 6.5 V and contactor is not switched on properly without seizing.

Notes:

After checking contactor 2M - 600V-B for switching-on and switching-off voltages, should be checked for winding heating temperature which should not exceed 160° C.

35.

Checking for moisture resistance.

Contactor should be placed in constant

humidity cabinet with relative humidity of 95±0.98% at ambient temperature ^{relative} + 40°C + 2°C for 48 hours. Not later than 3 min. after removing the contactor from the constant humidity cabinet insulation resistance should be measured with 500 V megometer.

Checking for electric insulation strength as per the procedure, specified in item 27 without conducting the thermal mode should be carried out after moisture resistance test.

Test result is considered to be satisfactory if the insulation resistance is not less than 1 Meg ohm and the traces of corrosion are absent on parts of contactor.

36.

Test for vibration resistance.

Test should be carried out in vibration stand in two positions of contactor.

a. Contactor should be fastened by attachment points in vertical position of axis of core with terminal bolts up;

b. contactor should be fastened by attachment points in vertical position of axis of core with terminal bolts down.

King Signal lamp should be connected in series with contacts. By smoothly changing frequency over the entire frequency range from 10 to 200 Hz. Every 10 Hz in frequency range from 10 to 80 Hz and every 20 Hz in frequency range from 80 to 200 Hz the respective amplitude is set and also the switching-on voltage and dropout voltage, are measured. Tests should be carried out at each frequency for 4 minutes including 2 minutes when winding is de-energized and two minutes when voltage across winding is 27 V. Results of tests for vibration strength are,

Considered to be satisfactory, if the effects of resonance and spontaneous closing and opening of contacts do not occur and switching on and switching-off voltages are not changed by more than + 40 % and - 30% of actual values of adjusted contactor.

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Result of test for linear acceleration is considered to be satisfactory, when spontaneous closing and opening of contactors do not occur during the test. Time for the test should be sufficient for checking parameters, but not less than 1 minutes in each position.

Operate and dropout voltages should be measured after the tests for vibration, resistance, vibration strength, shaking (location over load) and linear accelerations. The above-mentioned voltages should comply with the requirements of General view drawing and insulation resistance should meet the requirements, given item 14.

39 Checking of Operate^c current.

Operate current of contactor should be checked in cold condition of contactor winding at ambient air temperature + 20° C and at operate voltage of not more than 14.5 V, with 1.5 ohm resistor being connected^b winding circuit in series.

Operate^c current should not exceed 5 A.

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41.

Test for vibration strength.

Test for vibration strength should be carried out on special vibration stand at frequency of 50 Hz with an amplitude of 0.4mm for 56 hours.

In this case, contactor should be

tested for 28 hours/is deemersized and for 28 hours when voltage across winding is 27 V.

Attachment of contactor should be

similar to that specified in item 36.

Tests should be combined with the tests
for service life.

Result of tests is considered to be positive, if:

- Mechanical damage and faults of wiring are not detected during the check,
- Operate voltage and dropou voltage in cold condition, which are measured after checking, have increased by not more than 5 % or decreased by not more than 10 % of the values, given in general view drawing ,
- Spontaneous closings and openings of contacts^a do not occur.

100-10000-1-1

100-10000-1-1

100-10000-1-1

100-10000-1-1

100-10000-1-1

100-10000-1-1

43.

Test for Service Life

Service life test should be carried out in compliance with requirements of item 16 at voltage of 27 V $\pm$ 10 % across winding and voltage of 27 to 30 V across open contacts.

Frequency of operation should be not more than 2 times per minute, and the time of switch-on condition should be 4 to 6 seconds.

Results of tests are considered satisfactory, if after service life test contactors meet with the requirements of item 22, except sub-item 4 and switching-on and switching-off voltages are within the values, given in items 7 and 8,

which are expanded by 10 % as per the lower limit and 5 % as per the upper limit, mechanical parameters of contactor, measured after checking, do not increase by more than 10 % or do not decrease by more than 15 % of actual values, measured before checking. Electric insulation strength test as per item 27 should be carried out by 250 V 50 Hz voltage for one minute.

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244-55A-8-1 KM-2001

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After the test for guaranteed life, continuation of tests for the same period, as per the same programme should be carried out. In this case, failure of article in operation or non-compliance with the parameters of technical specifications during these tests are not reasons for rejection of articles.

Note: 1. Service life test in ground conditions may be carried out together with checking for vibration strength.
2. Contactors, which have been subjected on the major article.

(to Service life test must not be installed)

3. Articles to be produced in full scale for more than 5 years, should not be subjected to optional tests for repeated service life, if failures have not been found during the lastest 3 checkings for repeated service life.

44.

Test for maximum current break.

Checking for maximum current break should be carried out after the requirement, specified in item 13 of present technical specifications: each pair of contacts of contactor should be able to withstand 3 switchings-on and switchings-off of current being 8-multiple with respect to rated current at ohmic load.

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KM-1000-8; KM-1000-8

KM-1000-8; KM-1000-8

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In so doing 2 switchings-on and switchings-off^{1/2}
~~and switchings-off~~ should be carried out at
normal atmospheric pressure and one switching-On
and switching-off should be done at atmospheric
pressure, corresponding to altitude 20,000m above
sea level.

Duration of current flow before the
break should be not more than 3 seconds, voltage
at the open contacts should be within the limits of
28 to 30V⁶; After the current break interval
should be maintained upto the complete cooling.

Result of tests is considered to be
satisfactory, if after these tests the contactor
remains serviceable, i.e., it can switch-on or
switch-off rated current at least 5 times.

Engineering Factory
Project
Hyderabad

KM-100 A-B; KM-200 A-B

NUMBER 1

8/10/57 17-01-16

SHEET 33A OF 43

VII. ACCEPTANCE AND STORAGE OF ACCEPTED CONTACTORS,
PACKING AND MARKING OF PACKAGES:

46

Acceptance of contactors, storage of accepted contactors untill their supply, packing and marking of packages should be carried out in compliance with general technical specifications SAo.361-023 TY.

Note: 1. Containers and packages of articles to be exported should be made in compliance with requirements of zakaz - marked.

Ordnance Factory
Project
Hyderabad.

AM-600A-B; AM-600A-B

NUMBER 1857

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VIII.

GUARANTEE LIFE, SERVICE LIFE, STORAGE LIFE.

M

Guarantee life of article upto the first
medium, overhaul repair is ----- flying
hours during the service life of ----- years,
including storage life of ----- years (year)
When packed by manufacturers.

Overhaul guarantee life is -----
flying hours during the service life of -----
years specified life is ----- flying hours
in case of ----- repairs during service
life of ----- years.

Specified guarantee life, service
life and storage life, are effective^{ive} when
consumer meets the requirements of effective
operating technical papers.

Ordnance Factory
Project
Hyderabad.

KM-100A-B KM-200A-B

KM-400A-B KM-600A-B

NUMBER 2783

34/0848771-03-4 40037kg

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IX. APPENDICES

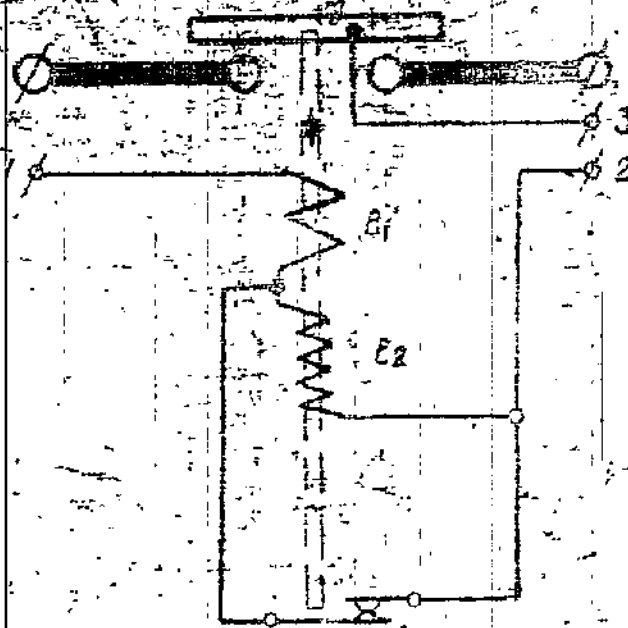
1. General view ^{drawing} KM - 600A-B No. 3006.000
2. Outline drawing. KM - 600 -A B No. 3006.001
3. Schematic circuit diagram
KM - 600A-B, No. 3006 - 002
4. Diagram for checking ^eabsence of singing and
double switching of contactors.

300 9009

E 00717

K M = 100 H

K M = 400 H



switching on winding
 E_1 - вкл. обмотка.
 E_2 - удерживающая обмотка.
 holding winding

$\Sigma 275 \pi$

37

Schematic circuit
 Схема diagram
 принципиальная

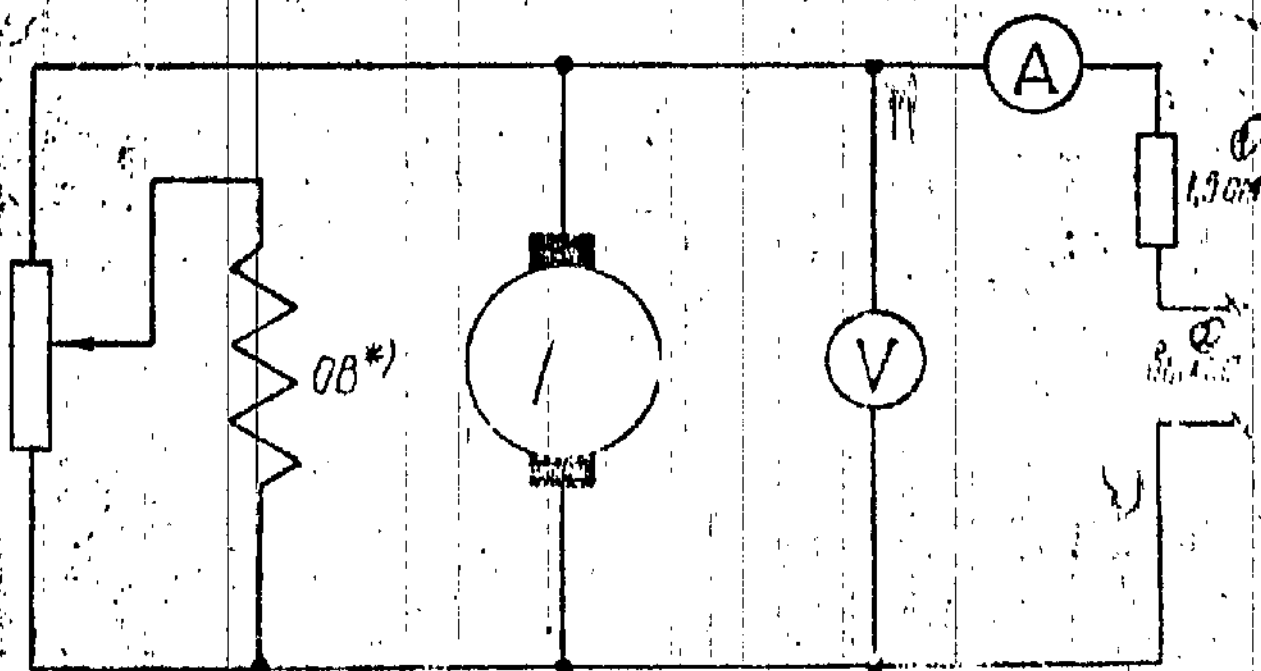
3005 9009

I 2757

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$K_M = 100 \square K_M = 200 \square$
 $K_M = 400 \square K_M = 600 \square$

CALCULATION
Diagram: n°1



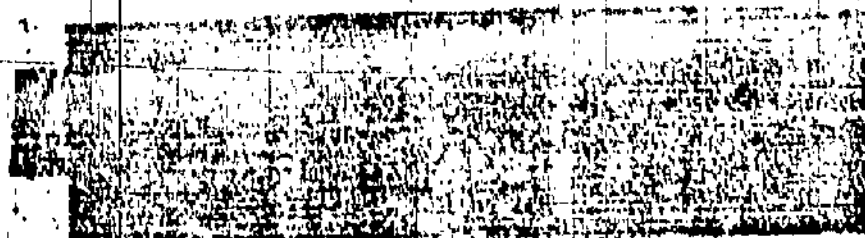
I 2757

Diagram for checking the absence of humming sound
 and double switching of contactors.
 Схема для проверки на отсутствие зуммера
 и двойного включения контакторов.

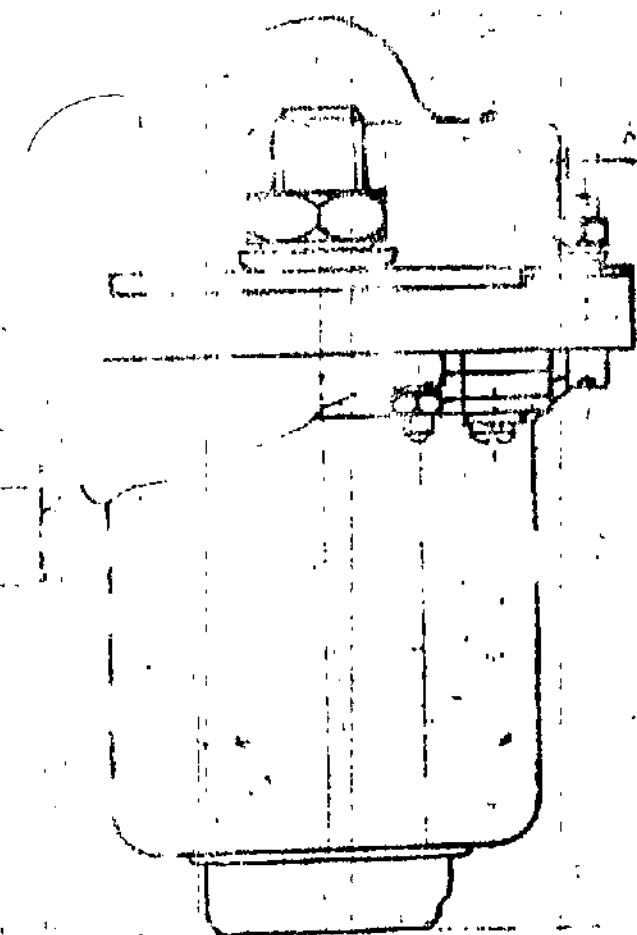
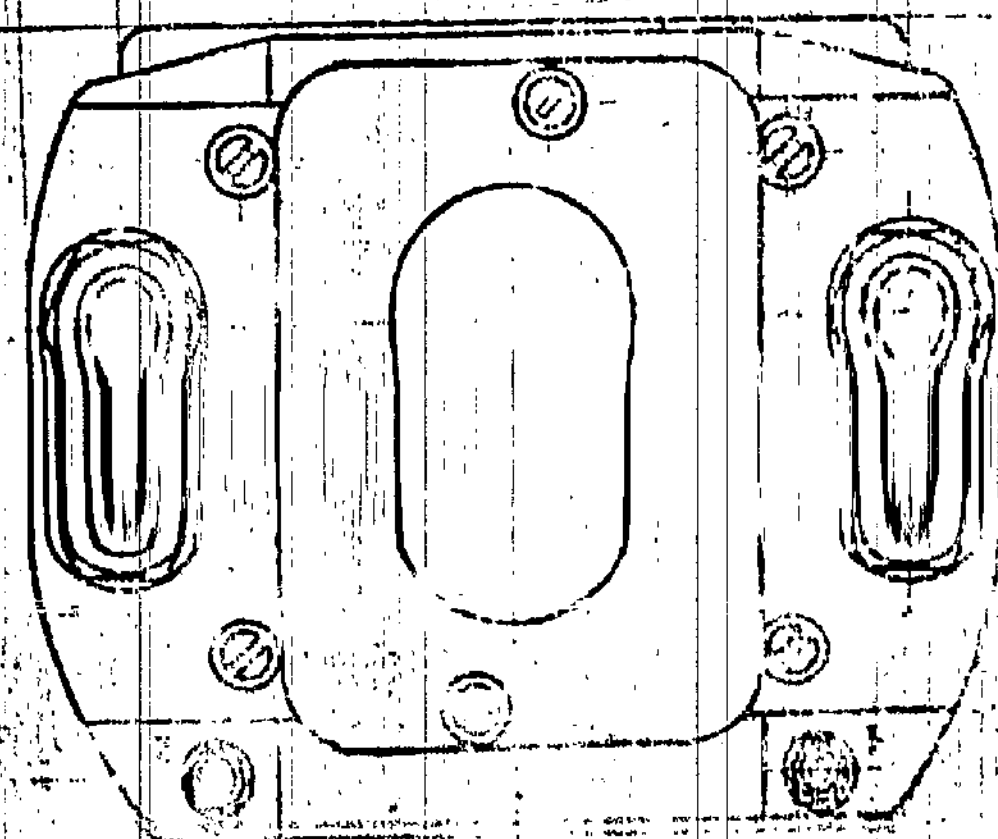
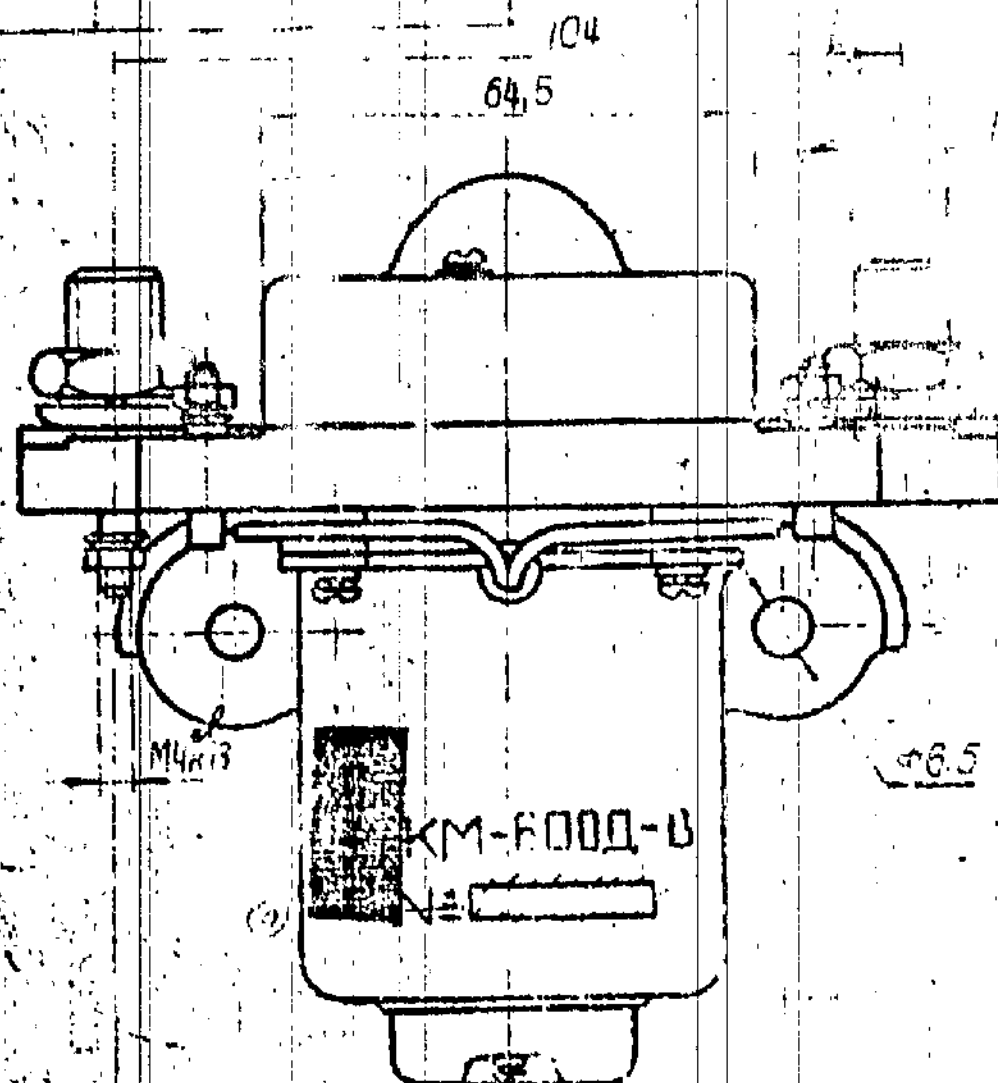
1. Generator power should be at least 15 kw.

1. Мощность генератора не менее 15 кВт

2. *Qdмотки возбуждения 2. Field winding.



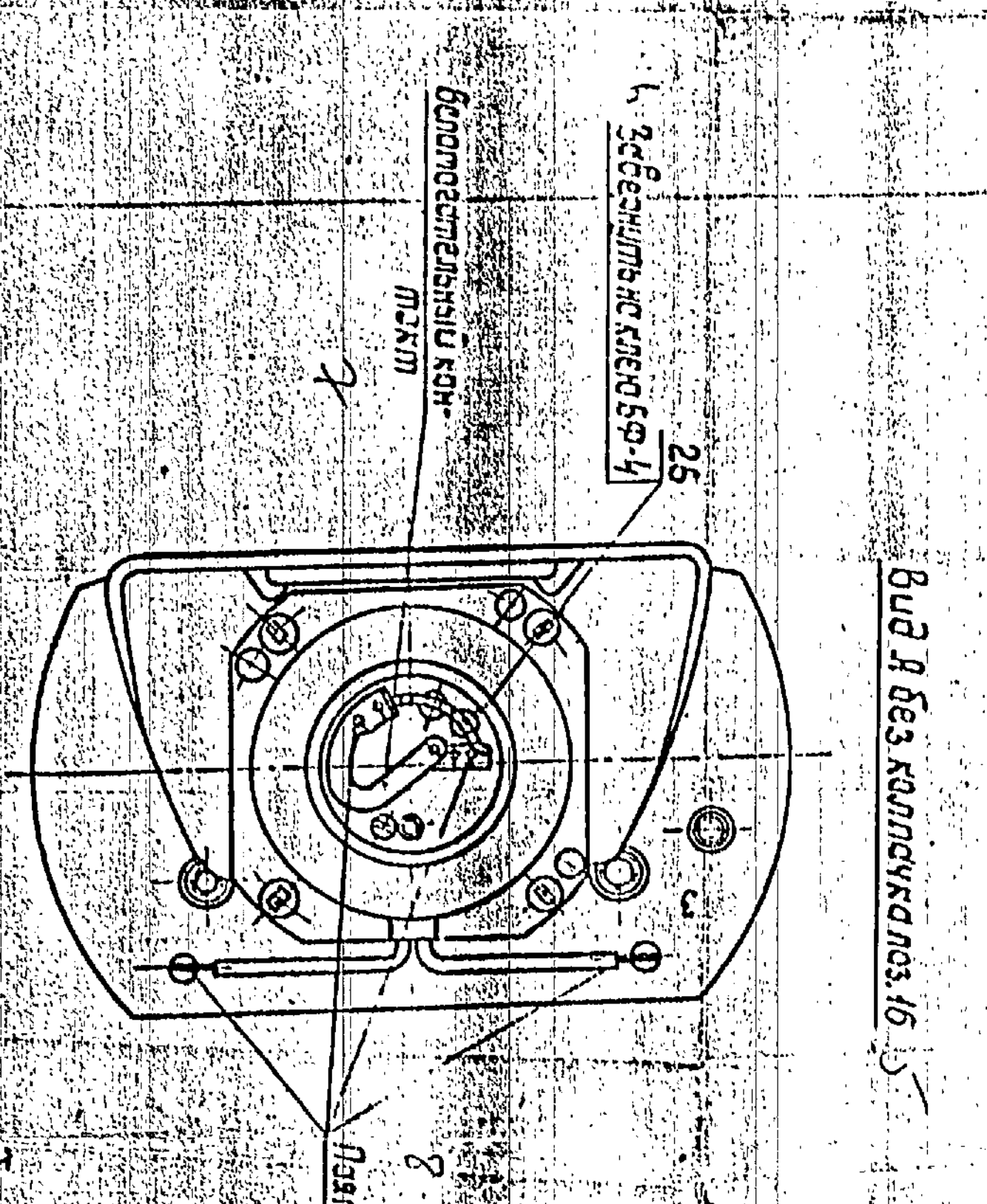
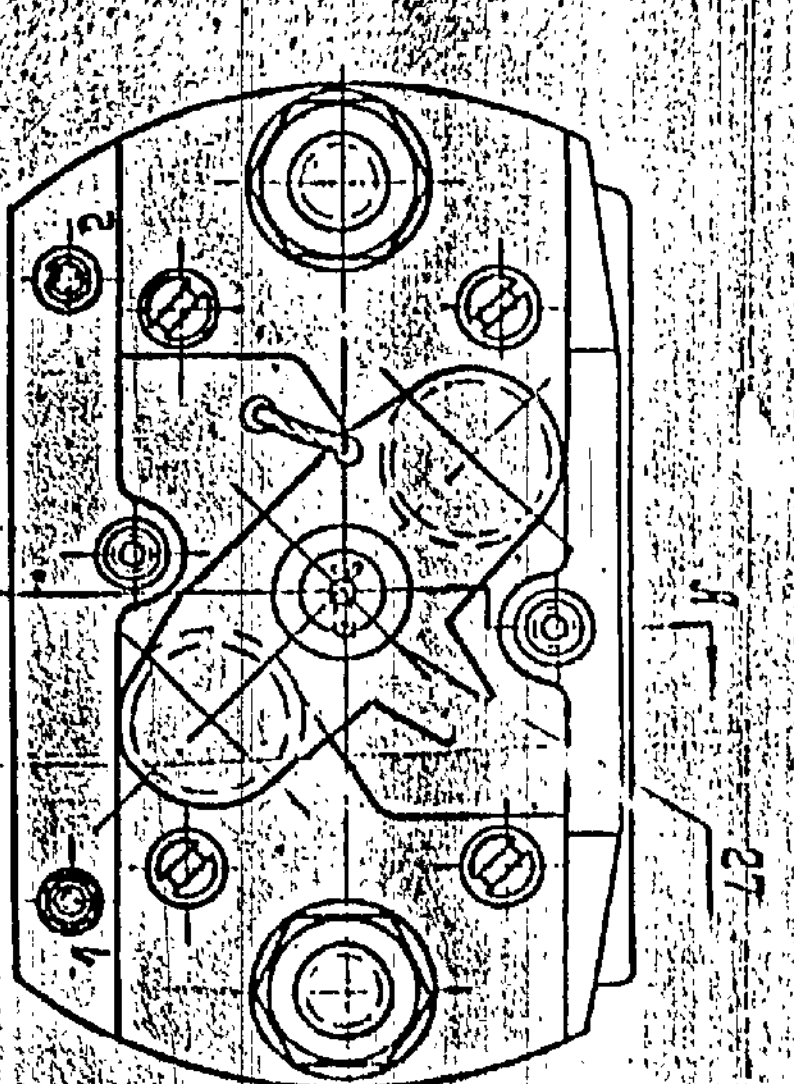
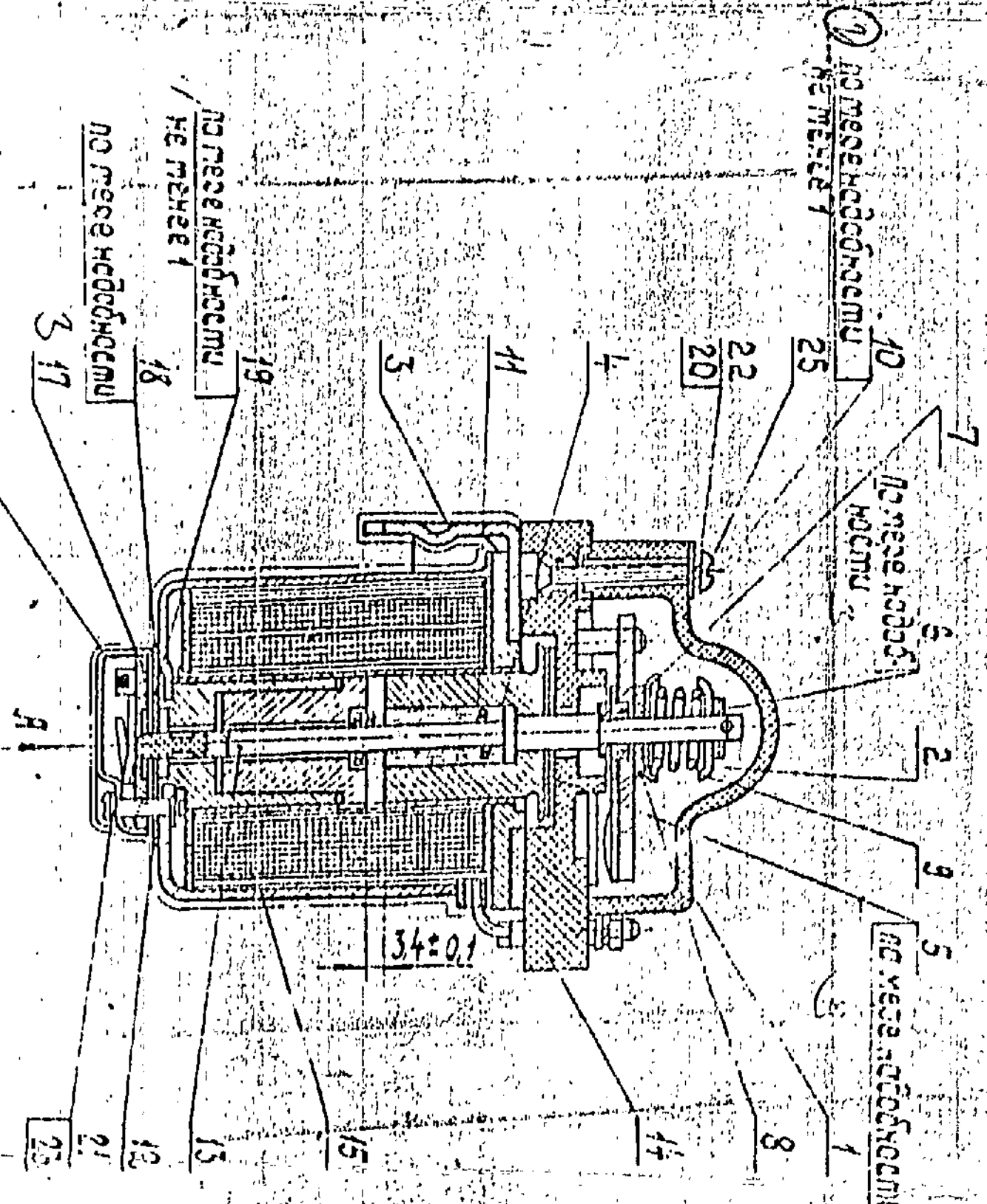
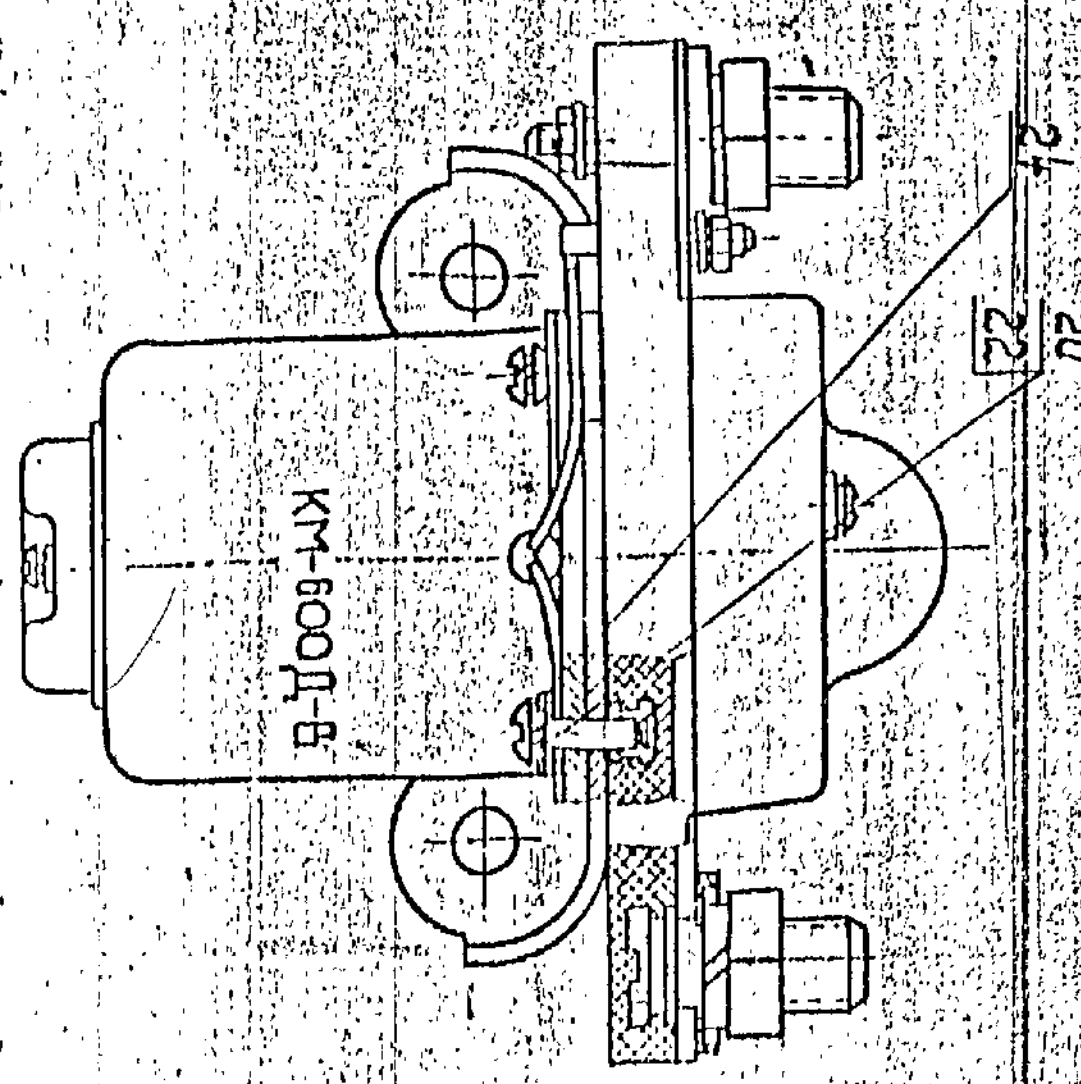
100 9000



KM-6000-B

Габаритный
чертеж

3006.001



1. Out line drawing 3006.001.
2. Schematic circuit diagram, drawing 3006.002.
3. Force opposing spring, Ref. No. 11, in instance of pickup of contact is 1.5 to 2 kg.
4. Switching-on voltage from switching winding should be not more than 14.5 V* in cold condition. When the winding is connected with 1.5 ohm resistor in series at ambient air temperature 20° C + 5° C and contactor is installed on horizontal surface with contact system upwards.
5. Switching-off voltage should be not more than 4.5 V in the same conditions.
(see Item 4)
6. Additional bending of buffer spring, Ref. No. 2 after closing the contacts should be 0.8 + 0.05 mm.
7. Clearance in auxiliary contact when contactor is switched should be 0.4 to 0.55 mm.
8. Sag should be provided when pigtail is terminated in this case. Pigtail should not come in contact with washer of buffer spring.
9. Surface marked by conventional line _____ should be coated with enamel B - 725.0 and varnish B - 725. It is allowed to apply the second layer with enamel B - 725.
10. Contact pressure to the pair of contacts at voltage 5 V should be 6.5 to 7.8 kg. Contact pressure at the contact unit should be not less than 60 gr.
11. Operate voltage in cold condition switching-on voltage and switching off voltage/at ambient air temperature of + 20° C + 5° C is adjusting parameter for manufacturer. When the article is subjected to incoming control it is not rejected as per the mentioned parameter.
12. Double tripping and dropout (double click) are allowed provided that the second tripping or first dropout occur at a voltage which does not exceed the permissible value. The second click is allowed at voltages exceeding the permissible values of tripping and dropout if after the first click the dropout voltage corresponds to the value given in the drawing.
13. It is allowed to use cotter pin 2 x 22.02.9
If the checking is carried out at another temperature, then it is necessary to carryout the recount with regard to coefficient, of resistance of Magnet wire.
14. Cap 30381.100-2, Ref. No. 28 may not be coated with enamel B - 725.
15. Plastic cap should be attached with screw 3006.019 (ref. No. 29). The screw should be secured with adhesive 304. It is allowed to heads of screws with adhesive 5 mm. Instead of securing the screws with 11.
16. Tripping and dropout voltage o specified in items 4 and 5 may be increased if they meet the requirements given in items 7 & 8 of technical specifications TV KM - 100 - B - KM - 600 - 8
17. Insufficient bending of contact spring 50 H 194 is allowed for providing the parameters of contactor.

Item	Part	Quantity	Notes
1	Panel	1	As required 1 unit
2	Washer	1	For attachment of cap 30381.100
3	Cap	1	For attachment of cap 30381.100
4	Washer	1	For attachment of cap 30381.100
5	Cap	1	For attachment of cap 30381.100
6	Washer	1	For attachment of cap 30381.100
7	Cap	1	For attachment of cap 30381.100
8	Washer	1	For attachment of cap 30381.100
9	Cap	1	For attachment of cap 30381.100
10	Washer	1	For attachment of cap 30381.100
11	Cap	1	For attachment of cap 30381.100
12	Washer	1	For attachment of cap 30381.100
13	Cap	1	For attachment of cap 30381.100
14	Washer	1	For attachment of cap 30381.100
15	Cap	1	For attachment of cap 30381.100
16	Washer	1	For attachment of cap 30381.100
17	Cap	1	For attachment of cap 30381.100
18	Washer	1	For attachment of cap 30381.100
19	Cap	1	For attachment of cap 30381.100
20	Washer	1	For attachment of cap 30381.100
21	Cap	1	For attachment of cap 30381.100
22	Washer	1	For attachment of cap 30381.100
23	Cap	1	For attachment of cap 30381.100
24	Washer	1	For attachment of cap 30381.100
25	Cap	1	For attachment of cap 30381.100
26	Washer	1	For attachment of cap 30381.100
27	Cap	1	For attachment of cap 30381.100
28	Washer	1	For attachment of cap 30381.100
29	Cap	1	For attachment of cap 30381.100
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32	Washer	1	For attachment of cap 30381.100
33	Cap	1	For attachment of cap 30381.100
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38	Washer	1	For attachment of cap 30381.100
39	Cap	1	For attachment of cap 30381.100
40	Washer	1	For attachment of cap 30381.100
41	Cap	1	For attachment of cap 30381.100
42	Washer	1	For attachment of cap 30381.100
43	Cap	1	For attachment of cap 30381.100
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100	Washer	1	For attachment of cap 30381.100