I-20153
25 SHEETS

21

AIRCRAFT INCANDESCENT LAMPS

Specifications

ТУ 16-535.641.78

CONTROLLERATE OF INSPECTION
(INFANTRY COMBAT VEHICLES)
SECUNDERABAD

1/I-20153

These Specifications cover the aircraft incandescent lamps (hereinafter referred to as lamps).

The lamps are used for mounting in DC and 50-Hz AC circuits. They are also allowed to be used at a frequency of 400 Hz.

The lamps in new modifications are not applicable.

The climatic versions of lamps CM 3-0.2 and CM 28-0.05-2 УХЛ are placed in arrangement categories 4 and 2 ГОСТ 15150-69, other lamps В, in category 3 ГОСТ 15150-69.

The indices of the technical level established by these Specifications are related to the first quality category.

The documents to which the references are made in these Specifications are listed in Appendix 1.

The letters and numbers, the lamp designation is composed of, denote the following:

CM - aircraft lamp;

3 - reflector lamp;

К - red;

Ч - black;

the number after the letters - the rated voltage in volts;

the number after dash - the rated power in watts or rated current intensity in amperes;

- the number after sign "+" - the rated power in watts of the additional luminous element;

- the number after the second dash - the characteristic of the lamp distinctive from the basic model.

For example, the aircraft incandescent lamp in a red bulb, rated at a voltage of 28 V and current intensity of 0.05 A, with distinctive characteristic 1, should be designated as

Lamp СМК 28-0.05-1 ТУ 16-535.641-78.

1. TECHNICAL REQUIREMENTS

1.1. The lamps should meet the requirements of these Specifications and conform to the sets of documents approved in the established order. The equipment codes are given in Table 1.

Table 1

Type of lamp	Code
CM 3-0.2	34 6627 1102 08
CM 26-70	34 6627 3102 00
CM 28-0.05-1	34 6627 3106 07
CM 28-0.05-2	34 6627 3107 06
CM 28-20	34 6627 3119 02
CM 28-20-1	34 6627 3120 09
CM 115-6	34 6627 4101 08
CM3 28-38+38	34 6627 3126 03
CMK 28-0.05-1	34 6627 3105 08
CM4 28-59	34 6627 3130 07

1.2. Basic Parameters and Dimensions

1.2.1. The basic initial parameters of the lamps should be in compliance with those indicated in Table 2.

1.2.2. The overall and mounting dimensions of the lamps, as well as the lamp base type and lamp mass should conform to those shown in Figs 1 thru 10 of Appendix 2.

1.3. Characteristics

1.3.1. The rated values of climatic factors should be in accordance with ГОСТ 15150-69 and ГОСТ 15543-70. In this case, for all types of lamps, except for CM 3-0.2 and CM 28-0.05-2, the following requirements should be fulfilled:

- the maximum ambient air temperature is +60 °C;
- the minimum ambient air temperature is -60 °C;
- the maximum air relative humidity is within 95 to 98 per cent at a temperature of (40±2) °C;
- the reduced atmospheric pressure is 5466 Pa (41 mm Hg).

1.3.2. The bulb glass should be clean and without defects that may affect the normal operation of the lamps.

1.3.3. The red coating of lamps CMK 28-0.05-1 should not be broken for the lighting time specified in Table 6.

Table 2

Type of lamp	Rated values					Limiting values			
	Voltage, V	Power, W	Current intensity, A	Luminous flux, lm	Luminous efficiency, lm/W	Power, W	Current intensity, A	Luminous flux, lm	Luminous efficiency, lm/W
						maximum		minimum	
CM 3-0.2	3	-	0.2	-	-	-	0.22	-	-
CM 26-70	26	70	-	1000	14.3	74.8	-	850	12.6
CM 28-0.05-1	28	-	0.05	-	-	-	0.062	5.0	-
CM 28-0.05-2	28	-	0.05	-	-	-	0.062	5.0	-
CM 28-20	28	20	-	264	13.2	21.4	-	224	11.6
CM 28-20-1	28	20	-	264	13.2	21.4	-	224	11.6
CM 115-6	115	6	-	-	-	-	-	-	-
CM3 28-38+38	28+38	38+38	-	480+480	12.6+12.6	40.6+40.6	-	385+385	10.7+10.7
CMK 28-0.05-1	28	-	0.05	-	-	-	0.062	0.8	-
CM4 28-59	28	59	-	850	14.4	62	-	680	12.7

Note. The power and current intensity below the rated values, as well as the luminous flux and luminous efficiency above the rated values are not limited.

1.3.4. The current leads-in of the lamps should be soldered (or welded) to the base contacts so that there are no bulged metal which may hamper the lamp insertion into the appropriate gauge according to ГОСТ 17100-79 or into the holder.

1.3.5. The base should be securely fastened to the bulb of the lamp, and should not separate therefrom when the torque, gradually increasing up to the values indicated in Table 3, is applied.

1.3.5a. The special bases should conform in appearance to the requirements of Section 1 of ГОСТ 17100-79.

Table 3

Type of lamp	Torque, N·m, minimum	
	before testing lamps for lighting time	after testing lamps for lighting time
CM 115-6	0.1	0.07
CM 26-70		
CM 28-20		
CM 28-20-1	1.5	1.05
CM3 28-38+38		
CM4 28-59		

1.3.6. The lamps should withstand, without occurrence of damage, the short (for 10 s) connection of the voltages equal to those shown in Table 4.

Table 4

Type of lamp	Voltage, per cent of rated value
CM 26-70, CM 28-20, CM 28-20-1, CM4 28-59	120
CM3 28-38+38, CM 28-0.05-1	115
CM 3-0.2, CM 28-0.05-2, CM 115-6, CMK 28-0.05-1	105

1.3.7. The resistance of the luminous element of lamps CM 115-6 in cold state (at a temperature of +20 °C) should be within 210 ohms±10 per cent.

1.3.8. The spectrum radiant intensity of lamps CMK 28-0.05-1 should be within the limits specified in Table 5.

Table 5

Wavelength, nm	Spectrum radiant intensity relative to radiation with wavelength of 700 nm, %
560	1.3 - 0
580	4.0 - 0
600	30 - 0
620	57 - 19
640	68 - 43
660	80 - 62
680	90 - 80
700	100

1.3.9. The minimum lighting time of the lamps at a rated voltage, and the light parameters of each lamp measured after the lighting time testing, should not be less than the values given in Table 6.

Lamps CM 115-6 should withstand as much as 5000 switchings of 4-s duration each at a current intensity of 50 mA.

Table 6

Type of lamp	Minimum lighting time, h	Final luminous flux, lm
CM 3-0.2	100	-
CM 26-70	50	700
CM 28-0.05-1	200	2.4
CM 28-0.05-2	200	2.4
CM 28-20	100	160
CM 28-20-1	100	160
CM3 28-38+38	90+90	280+280
CMK 28-0.05-1	100	0.058
CM4 28-59	25	530

1.3.10. The lamps with the exception of lamps CM 3-0.2 and CM 28-0.05-2 should withstand the following mechanical actions:

(a) the vibratory loads at a frequency of 50 Hz with an acceleration of 15 m/s^2 (1.5g) for lamps CM 28-0.05-1, CMK 28-0.05-1 and CM 115-6, and with an acceleration of 60 m/s^2 (6g) for the lamps of other types;

(b) the long vibration at a frequency of 50 Hz with an acceleration of 25 m/s^2 (2.5g) for lamps CM 26-70, CM 28-20, CM 28-20-1, CM3 28-38+38 and CM4 28-59; and with an acceleration of 15 m/s^2 (1.5g) for lamps CM 28-0.05-1 and CMK 28-0.05-1;

(c) the impact loads with a frequency of 80 impacts per minute and acceleration of 40 m/s^2 (4g) for lamps CM 26-70, CM 28-0.05-1, CM 28-20, CM 28-20-1, CM 115-6, CM3 28-38+38, CMK 28-0.05-1 and CM4 28-59.

1.3.11. Lamps CM 3-0.2 and CM 28-0.05-2 should be in compliance with operating conditions group M1 according to ГОСТ 17516-72.

1.3.12. The specific materials consumption of the lamps should be in compliance with the appropriate data of Table 6a.

1.3.13. The specific power consumption economy factor of the lamps should be in compliance with the appropriate data of Table 6a.

Table 6a

Type of lamp	Specific materials consumption	Specific power consumption economy factor
	maximum	minimum
CM 3-0.2	$1 \cdot 10^{-2}$ g /h	$2.2 \cdot 10^{-3}$ A/h[x]
CM 26-70	$6.1 \cdot 10^{-4}$ g/lm·h	2.6 lm/W
CM 28-0.05-1	$3.1 \cdot 10^{-3}$ g/lm·h	2.8 lm/W
CM 28-0.05-2	$3.1 \cdot 10^{-3}$ g/lm·h	2.8 lm/W
CM 28-20	$6.3 \cdot 10^{-4}$ g/lm·h	11.6 lm/W
CM 28-20-1	$6.3 \cdot 10^{-4}$ g/lm·h	11.6 lm/W
CM 115-6	$2.0 \cdot 10^{-3}$ g/switching	$1.2\ 10^{-3}$ W/ switching[x]
CM3 28-38+38	$6.0 \cdot 10^{-4}$ g/lm·h	10.7 lm/W

Table 6a, continued

Type of lamp	Specific materials consumption	Specific power consumption economy factor
	maximum	minimum
CMK 28-0.05-1	$5.3 \cdot 10^{-1}$ g/lm·h	0.46 lm/W
CMЧ 28-59	$1.1 \cdot 10^{-3}$ g/lm·h	12.7 lm/W

*Specific power consumption economy factor, maximum.

1.3.14. The lamps should be manufactured so that the reliable electrical contact be provided between the contacts of the base and the holder when the lamps are inserted into the appropriate holders.

1.4. Marking

1.4.1. Lamps CM 28-0.05-1 and CMK 28-0.05-1 should be provided with the marking that indicates the following:

- Manufacturer's trademark;
- rated voltage in volts.

The lamps of the other types, except for CM 3-0.2 and CM 28-0.05-2, should have the marking indicating the following:

- Manufacturer's trademark;
- rated voltage in volts;
- rated power in watts;
- year and quarter of manufacture.

The marking should be clearly applied to the lamp base by method of etching or stamping out.

As for lamps CM 3-0.2 and CM 28-0.05-2, all the data necessary are indicated in the packing box label.

1.4.2. The shipment marking should be in accordance with ГОСТ 14192-77.

1.5. Packing

1.5.1. The lamps are stowed in the group packing boxes made of corrugated board of type T according to ГОСТ 7376-77, or box board according to ГОСТ 7933-75 with box board grate according to ГОСТ 7933-75, or corrugated board of type П according to ГОСТ 7376-77, or board according to ГОСТ 7420-78, 80, 100 or 200 pieces in each box.

When packed, the lamps are not allowed to touch one another and shift in the packing box.

The gross and net masses of a box should not exceed 2.5 and 1.5 kg, respectively.

The box containing the packed lamps should be glued around with Scotch tape according to ГОСТ 18251-72, or with paper tape, at least 70 mm wide.

Other types of packing are allowed, if this has been agreed between the Manufacturer and the Customer.

1.5.2. The box with packed lamps should be provided with a label according to ГОСТ 2.601-68, with the indication of the following data:

- Manufacturer's trademark;
- description and designation of type of lamps;
- rated voltage in volts;
- rated power in watts or rated current intensity in amperes;
- type of base (except for lamps CM 3-0.2 and CM 28-0.05-2);
- number of these Specifications;

- quantity of lamps in a package;
- date of packing;
- technical inspection stamp.

Besides, the packing box should be provided with its handling marks necessary according to ГОСТ 14192-77.

2. ACCEPTANCE RULES

2.1. The lamps should be subjected to the acceptance, periodical and type tests. In this case, the checkout plans should be according to ГОСТ 18242-72.

2.2. The acceptance tests should be carried out for each lot of lamps. In this case, the lamps of one type simultaneously presented for acceptance in the amount of not more than 10,000 pieces should be considered as a lot.

The scope and procedure of the acceptance tests are specified in Table 7.

The results of the tests are considered to be satisfactory if the amount of defective lamps in sample n_1 is less than or equal to acceptance number c_1, and unsatisfactory if the amount of defective lamps in the sample is greater than or equal to rejection number c_2.

If the amount of the defective lamps in the first sample is greater than acceptance number c_1 but less than rejection number c_2, other sample n_2 is taken.

The results of the tests are considered to be satisfactory if the amount of defective lamps in two samples is less than or equal to acceptance number c_3, and unsatisfactory if the amount of defective lamps in two samples is greater than acceptance number c_3.

The check of the packing for conformity with the requirements of Items 1.5.1 and 1.5.2 should be performed for the entire lot of lamps by the procedure described in Item 3.1.14(a).

If the requirements for correct and complete packing are not satisfied, the lamps should be repacked.

Table 7

Description of checks and tests	Items of Specifications		Amount of samples		Acceptance and rejection numbers		
	Requirements	Methods	n_1	n_2	c_1	c_2	c_3
			pieces				
1. Checking for appearance, proper soldering of leads-in and correct marking	1.3.2 1.3.4 1.3.5a 1.4.1	3.5	50	50	3	7	8
2. Checking of overall and mounting dimensions	1.2.2	3.3					
	1.2.2	3.3					
3. Checking of base for secure fastening	1.3.5	3.6					
4. Checking for resistance to overvoltage	1.3.6	3.7					
5. Checking of light and electrical parameters	1.2.1 1.3.7	3.2 3.8					

2.3. The periodical tests should be performed at least once a quarter according to Item 1.3.3, 1.3.5 (after testing for lighting time), 1.3.9, 1.3.10 (a); and at least once a year according to Items 1.3.1, 1.3.8, 1.3.10 (b), 1.3.10 (c).

Subject to the periodical tests should be the lamps of various dates and shifts of manufacture, which have withstood the acceptance tests. The samples of the lamps should be taken uniformly within the quarter in the amount necessary to carry out the first and repeated tests.

The procedure of the tests and the checkout plan are specified in Table 8.

The results of the periodical tests are considered to be satisfactory if the amount of defective lamps does not exceed acceptance number c_1 indicated in Table 8, and unsatisfactory if the amount of defective lamps is greater than or equal to rejection number c_2.

If the quantity of defective lamps in one sample is greater than acceptance number c_1 but less than rejection number c_2, the second sample is taken to be tested.

The results of the tests of the second sample are considered to be satisfactory if the quantity of defective lamps in two samples is less than or equal to acceptance number c_3, and unsatisfactory if the quantity of defective lamps in two samples is greater than acceptance number c_3.

If the results of the periodical tests are turned out to be unsatisfactory, the acceptance and shipment of the lamps should be stopped until the parameters and characteristics of the lamps are brought in compliance with the requirements of these Specifications and the satisfactory results of the periodical tests are obtained.

The acceptance and shipment of the earlier manufactured lamps may be resumed, provided the Manufacturing Plant puts forward the methods of rejecting defective lamps.

The records of the periodical tests should be forwarded to the Customer by his request.

Table 8

Description of checks and tests	Items of Specifications		Amount of samples		Acceptance and rejection numbers		
	Requirements	Methods	n_1	n_2	c_1	c_2	c_3
			pieces				
1. Testing for lighting time and red coat life	1.3.9 1.3.3	3.10 3.5	20	20	1	4	4
2. Test of base for secure fastening after testing lamp for lighting time	1.3.5	3.6					
3. Testing for resistance to effects of climatic factors	1.3.1	3.4	20	20	1	4	4
4. Checking of spectrum radiant intensity	1.3.8	3.9	20	20	1	4	4
5. Testing for mechanical actions	1.3.10 (a)	3.11 (a)	20	20	1	4	4
	1.3.10 (b)	3.11 (b)	20	20	1	4	4
	1.3.10 (c)	3.11 (c)	20	20	1	4	4
5a. Checking for reliable contact between base and holder	1.3.14	3.17	20	20	1	4	4

Table 8, continued

Description of checks and tests	Items of Specifications		Amount of samples		Acceptance and rejection numbers		
	Requirements	Methods	n_1	n_2	c_1	c_2	c_3
			pieces				
6. Checking of lamp mass[*]	1.2.2	3.3	20	20	1	4	4
7. Checking of mass of packed lamps[*]	1.5.1	3.14 (c)	5[**]	5[**]	0[**]	2[**]	1[**]
8. Checking of packing quality[*]	1.5.1	3.14 (b)	1[**]		0[**]		

[*]The check is performed during the type tests.

[**]Quality of packages

2.4. The type tests for compliance with the requirements of these Specifications should be carried out in practising the lamp production process, as well as in changing the construction and production process of materials and replacing them, if such changes may affect the quality of the lamps.

The testing program and checkout plan should be established by the Manufacturing Plant and coordinated with the development engineer and the Customer.

The records of the type tests should be forwarded to the Customer by his request.

2.5. The Customer is entitled to perform the receiving inspection of the lamps he receives, within the full scope of the present Specifications, using the checkout plan and testing methods described in the Specifications.

In this case, the amount of lamps received by the Customer according to one and the same accompanying document is taken as a lot.

2.6. When analyzing the test results, one should not take into account the lamps that became defective by chance.

In order to replace the lamps which have become defective rather by chance than by test itself, it is recommended to take the samples of lamps in the amount exceeding the sampling requirements by 20 per cent.

3. TESTING METHODS

3.1. All the tests, unless otherwise specified, should be carried out under normal climatic conditions according to ГОСТ 16962-71, the low value of humidity being unlimited.

3.2. The changes in electrical and luminous parameters (Item 1.2.1) should be made at a direct or alternating current in accordance with ГОСТ 17616-82, with the rated voltage applied to the lamp contacts.

The equipment required to check and test the lamps is listed in Appendix 3.

3.3. The check of overall and mounting dimensions (Item 1.2.2) should be performed by any measuring instrument or gauges available, with an accuracy up to 0.1 mm.

The mass of the lamp (Item 1.2.2) should be determined by weighing it by means of the balance with an accuracy up to 0.1 g.

3.4. In order to check the lamps for resistance to climatic effects (Item 1.3.1), carry out the following tests:

- test the lamps for resistance to cold by method 203-1 ГОСТ 16962-71 under the conditions specified in Item 1.3.1. The testing time is 2 h;

- test the lamps for resistance to heat by method 201-1 ГОСТ 16962-71 under the conditions specified in Item 1.3.1. The testing time is 2 h;

- test the lamps for resistance to moisture by method 208-2 ГОСТ 16962-71. The testing time is 2 days.

After each of the aforesaid tests is over, the lamps should be turned on and checked for glowing at a rated voltage for at least 10 min.

To test the lamps for effects of the reduced atmospheric pressure, the lamps should be placed in a pressure chamber at a pressure of 5466 Pa (41 mm Hg). In this case, the lamps should be tested at a rated voltage. The testing time is 30 min. During the test the glass of the lamp bulb should not break.

3.5. The appearance of the lamp (Items 1.3.2 and 1.3.5a), proper soldering of leads (Item 1.3.4) and correct marking (Item 1.4.1) should be checked by external inspection. In addition, the proper soldering of leads is checked by way of inserting the lamps into the appropriate gauge according to ГОСТ 17100-79, or into the holder.

3.6. To check the base for securely fastening to the bulb (Item 1.3.5), use should be made of a testing instrument that ensures gradually increasing torque the value of which is specified in Item 1.3.5.

3.7. The resistance of the lamps to the high voltage (Item 1.3.6) should be checked by way of turning on the lamps at a voltage specified in Item 1.3.6 for a time of at least 10 s.

3.8. The resistance of the luminous element of the type CM 115-6 lamp (Item 1.3.7) should be measured by the bridge method, with a current, not exceeding 500 μA, flowing through the luminous element of the lamp.

3.9. The spectrum radiant intensity (Item 1.3.8) should be checked by means of the objective spectrophotometer, with the rated voltage applied to the lamp under check.

3.10. The lighting time of the lamps (Item 1.3.9) should be checked by applying the direct current or alternating current at a frequency of 50 Hz.

The voltage across the contacts of the lamp should be maintained constant and equal to the rated one.

The voltage fluctuation is allowed within ±2 per cent and for a short period of time.

During this test the position of lamps CM 26-70 should be vertical, with the base upward, the position of lamps CM3 28-38+38 and CM4 28-59 horizontal, and the position of other lamps optional.

The lighting time test is considered to be completed upon the expiration of the time specified in Item 1.3.9.

When testing lamps CM3 28-38+38 for lighting time, either of their two spirals should be tested.

The red coating of lamps, type CMK 28-0.05-1, should be checked for condition by external inspection.

The lamps of type CM 115-6 should be tested under the conditions specified in Item 1.3.9 for the time corresponding to 5000 switchings.

3.11. The mechanical strength of the lamps (Item 1.3.10) should be tested as follows:

(a) the strength test (Item 1.3.10a) should be performed by method 103-2.3 ГОСТ 16962-71 at a frequency and accelerations specified in Item 1.3.10 (a). The testing time is 7 hours including 6 hours of testing at the rated voltage applied to the lamps, and one hour, with the lamps switched off.

The position of the lamps during the test is optional;

(b) the vibration survival test (Item 1.3.10b) should be performed by method 103-2.3 ГОСТ 16962-71 under the conditions specified in Item 1.3.10 (b). for 56 hours.

In this case, the lamps of type CM 26-70 should be tested for 15 h at a rated voltage and for 41 h in the switched off position, the lamps of type CM4 28-59 for 8 h at a rated voltage and for 48 h in the switched off position, the lamps of type CM3 28-38+38 for 20 h at a rated voltage and for 36 h in the switched off position, the lamps of other types for 50 h at a rated voltage and 6 h in the switched off position.

After the tests according to Items 3.11(a) and 3.11(b) have been completed, the lamps should be switched on and checked for glowing at a rated voltage for at least 5 min;

(c) the impact test (Item 1.3.10c) should be performed by method 104-1 ГОСТ 16962-71 at a rated voltage applied to the lamps and under the conditions specified in Item 1.3.10 (c). The quantity of impacts during the test is 10,000.

3.12. Lamps CM 3-0.2 and CM 28-0.05-2 being in compliance with the requirements of Item 1.3.11 are ensured by their construction and guaranteed by the Manufacturer.

3.13. The shipment marking being in compliance with the requirements of Item 1.4.2 is guaranteed by the Manufacturer.

3.14. The conformity of the packing to the requirements of Items 1.5.1 and 1.5.2 should be checked in the following way:

(a) by external inspection;

(b) by transporting the packed lamps over paved and dirt roads at a speed of 35 - 40 km/h for a distance of at least 50 km. In this case, one of the packages transported is subjected to the test. The package is considered having withstood the strength test, if damaged lamps are not found after such a test;

(c) the mass of the packed lamps is measured by weighing them with the aid of the balance, with an accuracy up to 10.0 g.

3.15. The specific materials consumption (Item 1.3.12) is determined by making calculations with the use of the following formula

$$K_{s.m.c} = \frac{M}{\Phi_{min} \cdot t}$$

where $K_{s.m.c}$ is the specific materials consumption factor, $\frac{g}{lm \cdot h}$;
M is the mass of a lamp, g;
Φ_{min} is the limiting initial luminous flux, lm;
t is the minimum lighting time, h.

For lamps CM 3-0.2, $K_{s.m.c} = \frac{M}{t}$, and for lamps CM 115-6, $K_{s.m.c} = \frac{M}{n}$ where n is the number of switchings.

3.16. The specific power consumption economy factor (Item 1.3.13) is determined by making calculations with the use of the following formula

$$K_{s.p.c} = \frac{\Phi_{min}}{P_{min}}$$

where P is the limiting initial power, W.

The specific power consumption economy factor for lamps CM 3-0.2 is determined by formula $K_{s.p.c} = \frac{\Phi_{min}}{t}$, and for lamps CM 115-6 by formula $K_{s.p.c} = \frac{P}{n}$.

3.17. The reliable electrical contact between the base and holder should be checked (Item 1.3.17) in accordance with ГОСТ 19190-73.

4. SHIPMENT AND STORAGE

4.1. The shipment conditions for the lamps are in accordance with group Л of ГОСТ 23216-78, and as far as climatic effects are concerned, in accordance with group 5 /ОЖ4/ of ГОСТ 15150-69.

4.2. The storage conditions for the lamps should be in compliance with group I of ГОСТ 15150-69.

5. HANDLING INSTRUCTIONS

5.1. Lamps CM 3-0.2 and CM 28-0.05-2, which are free of the base, require a particular care to be taken during their handling, in order to prevent broken leads-in and cracked glass.

The leads-in are not allowed to be bent as far as 5 mm from the bulb and to be subjected to any mechanical forces.

SAFETY REQUIREMENTS

6.1. The safety requirements should be in compliance with Section 2 of ГОСТ 12.2.007.13-75.

APPENDIX 1

LIST

OF DOCUMENTS TO WHICH REFERENCES ARE MADE IN PRESENT SPECIFICATIONS

Designation of document	Description of document
ГОСТ 2.601-68	Unified System of Design Documentation. Service Documents
ГОСТ 12.2.007.13-75	Lighting Engineering Items. Safety Requirements
ГОСТ 166-80	Slide Calipers. Specifications
ГОСТ 7376-77	Corrugated Board. Specifications
ГОСТ 7420-78	Board for Making Smooth Layers in Corrugated Board
ГОСТ 7933-75	Box Board
ГОСТ 14192-77	Cargo Marking
ГОСТ 15150-69	Machinery, Instrumentation and Other Technical Items. Versions for Various Climatic Zones. Categories and Conditions of Operation, Storage and Shipment as far as Effects of Environmental Climatic Factors Are Concerned
ГОСТ 15543-70	Electric Engineering Items. Versions for Various Climatic Zones. General Specifications as far as Effects of Environmental Climatic Factors Are Concerned
ГОСТ 16962-71	Electronic and Electric Engineering Items. Mechanical and Climatic Effects. Technical Requirements and Testing Methods
ГОСТ 17100-79	Bases for Light Sources. Specifications
ГОСТ 17516-72	Electric Engineering Items. Operating Conditions as far as Environmental Mechanical Factors Are Concerned
ГОСТ 17616-82	Electric Lamps. Methods of Measuring Luminous and Electrical Parameters
ГОСТ 18242-72	Statistical Acceptance Inspection by Random Check. Checkout Plans
ГОСТ 18251-72	Paper-Based Scotch Tape
ГОСТ 19190-73	Incandescent Lamps. General Specifications
ГОСТ 23216-78	Electric Engineering Items. Storage, Shipment, Preservation, Packing. General Requirements and Testing Methods
ГОСТ 24104-80	General-Purpose and Reference Laboratory Balances. General Specifications

APPENDIX 2

OVERALL AND MOUNTING DIMENSIONS, TYPE OF BASES AND MASS OF LAMPS

(1) Mass of lamp, g, 1, max.

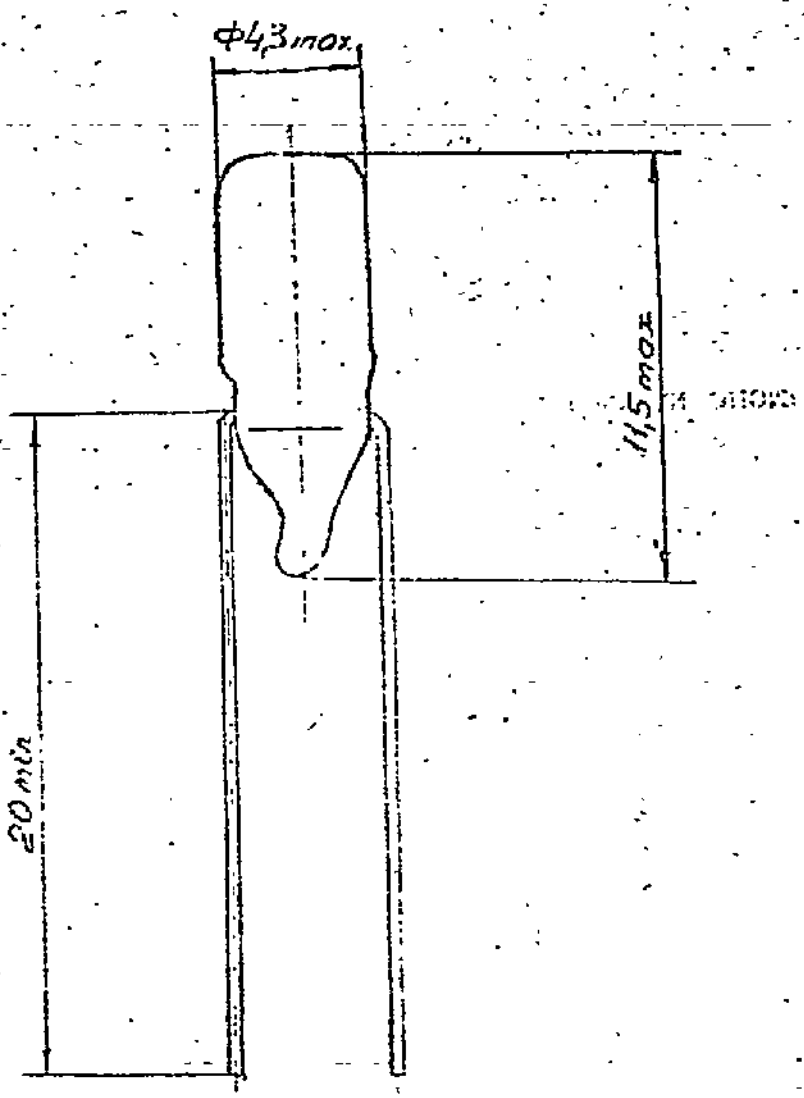

FIG. 1. LAMP, TYPE CM 3-0.2

(1) Base B15S/18 FOCT 17100-79
Mass of lamp, g, 15, max.

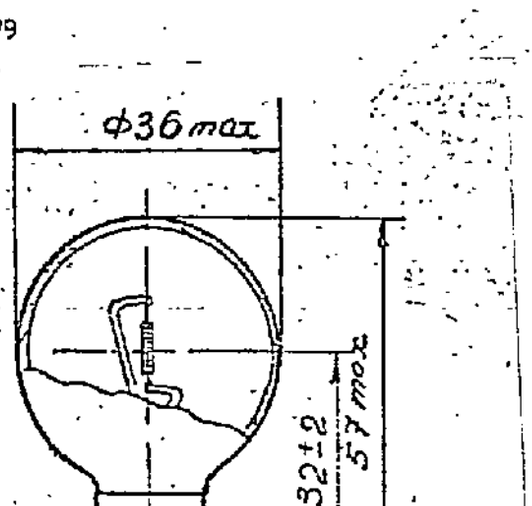

FIG. 2. LAMP, TYPE CM 26-70

16/I-2015

(1) Base S6S/10 ГОСТ 17100-79
Mass of lamp, g, 1.5, max.

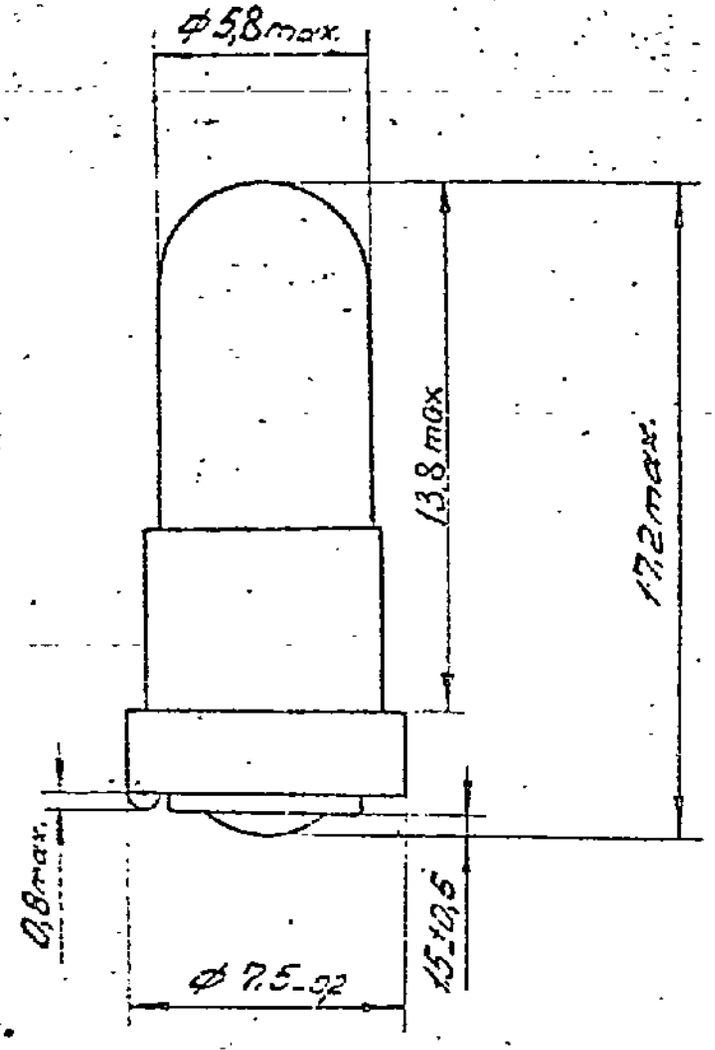

FIG. 3. LAMP, TYPE CM 28-0-05-1

17/I-20153

(1) Mass of lamp, G, 1.5, max.

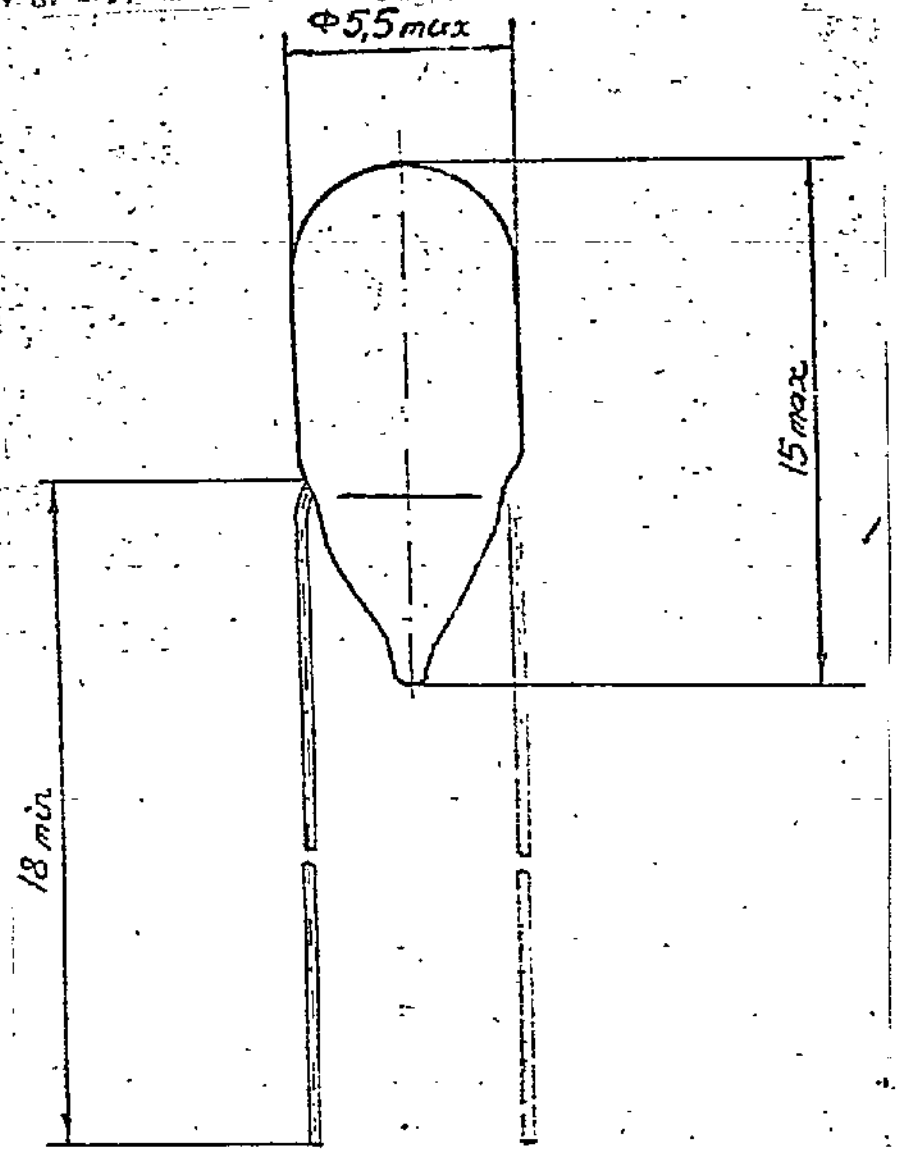

FIG. 4. LAMP, TYPE GM 28-0.05-2

(1) Base B15d/18 ГОСТ 17100-79
Mass of lamp, g, 10, max.

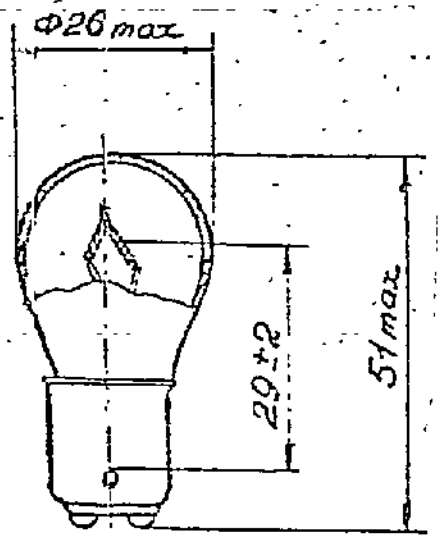

FIG. 5. LAMP, TYPE CM 28-20

(1) Base B15S/18 ГОСТ 17100-79
Mass of lamp, g, 10, max.

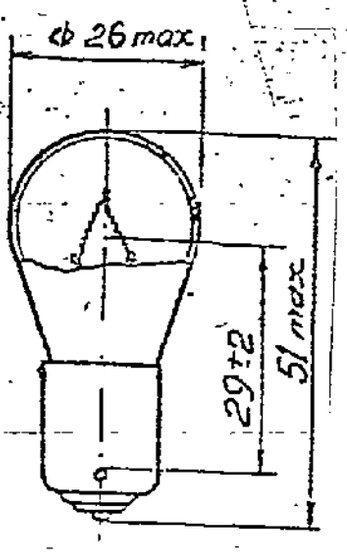

FIG. 6. LAMP, TYPE 28-20-1

Special base

Mass of lamp, g, 10, max.

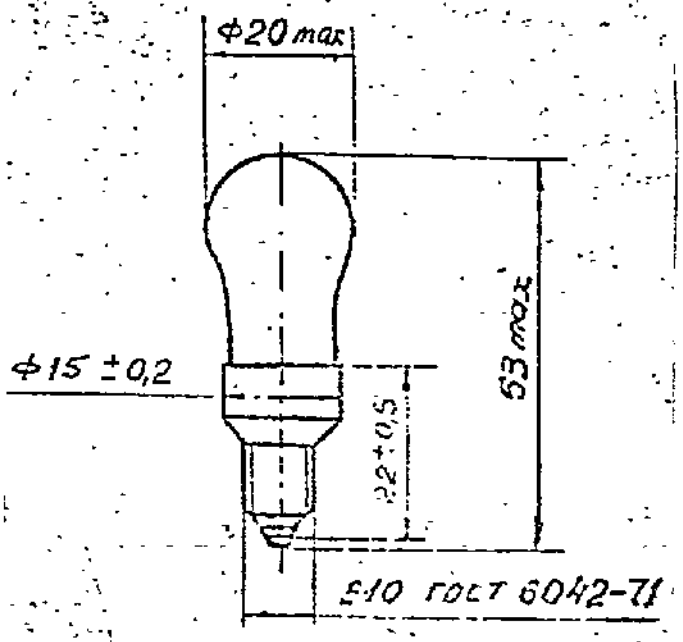

FIG. 7- LAMP, TYPE CM 115-6

21/I.20153

1) Reflecting coat
(2) Base B15d/18 ГОСТ 17100-79
Mass of lamp, g, 15, max.

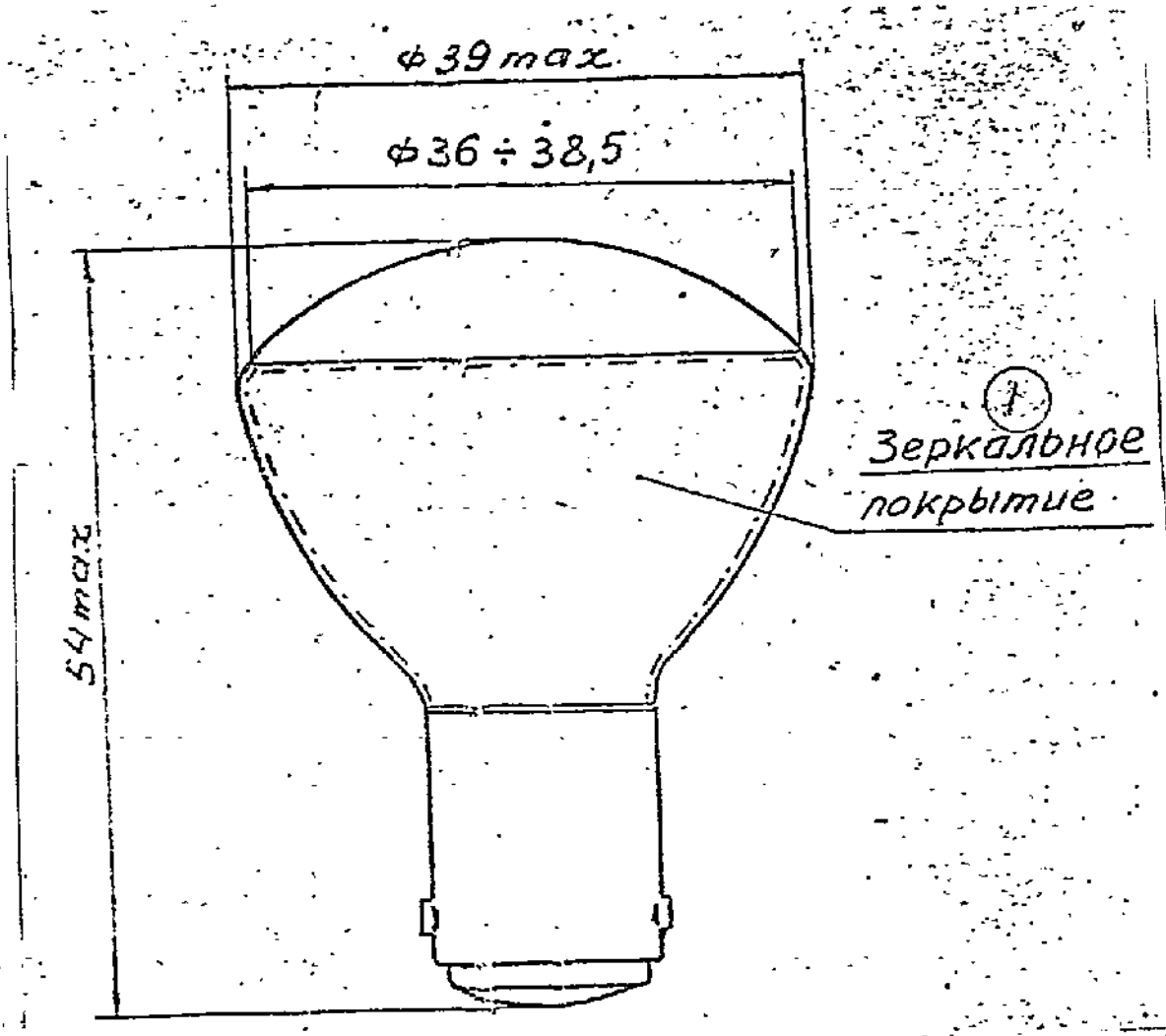

FIG. 8. LAMP, TYPE СМЗ 28-38+38

22/I-20158

(1) Base S6S/10 ГОСТ 17100-79
Mass of lamp, g, 1.5, max.

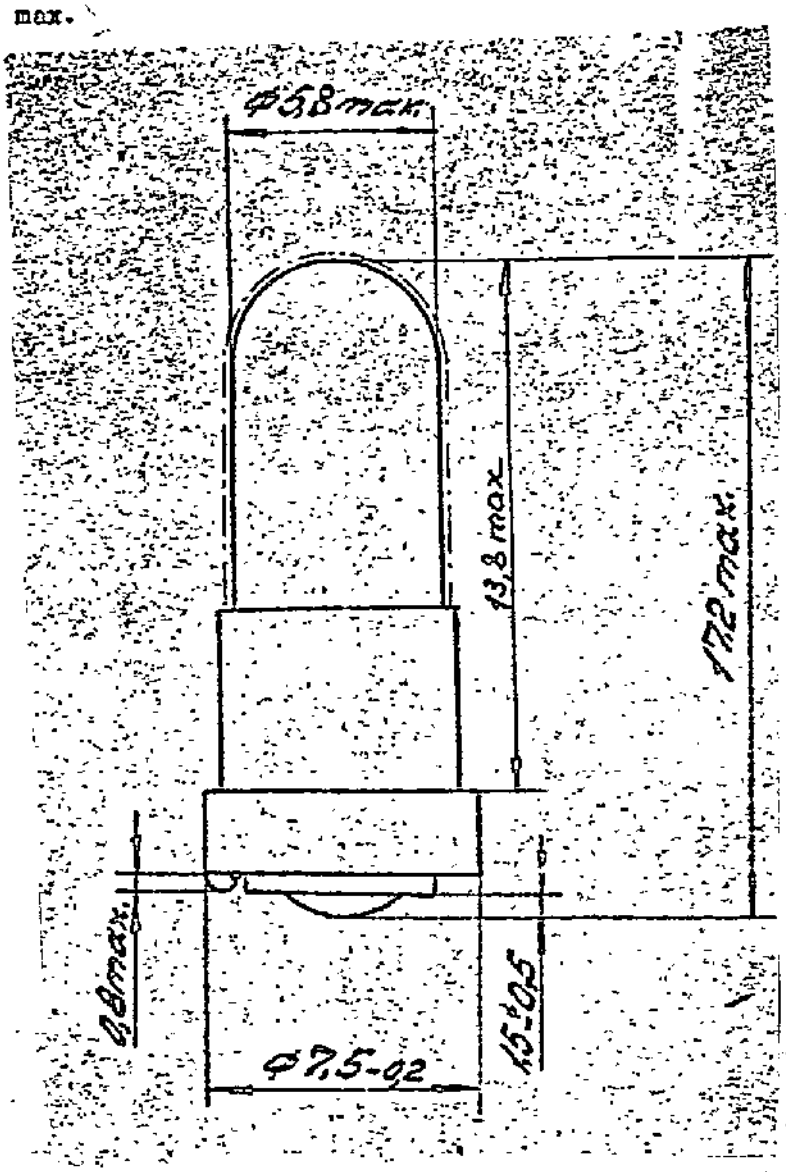

FIG. 9. LAMP, TYPE CMK 28-0.05-1

23/I-2015

(1) Black coat

(2) Base B15S/18 ГОСТ 17100-79

Mass of lamp, g, 15, max.

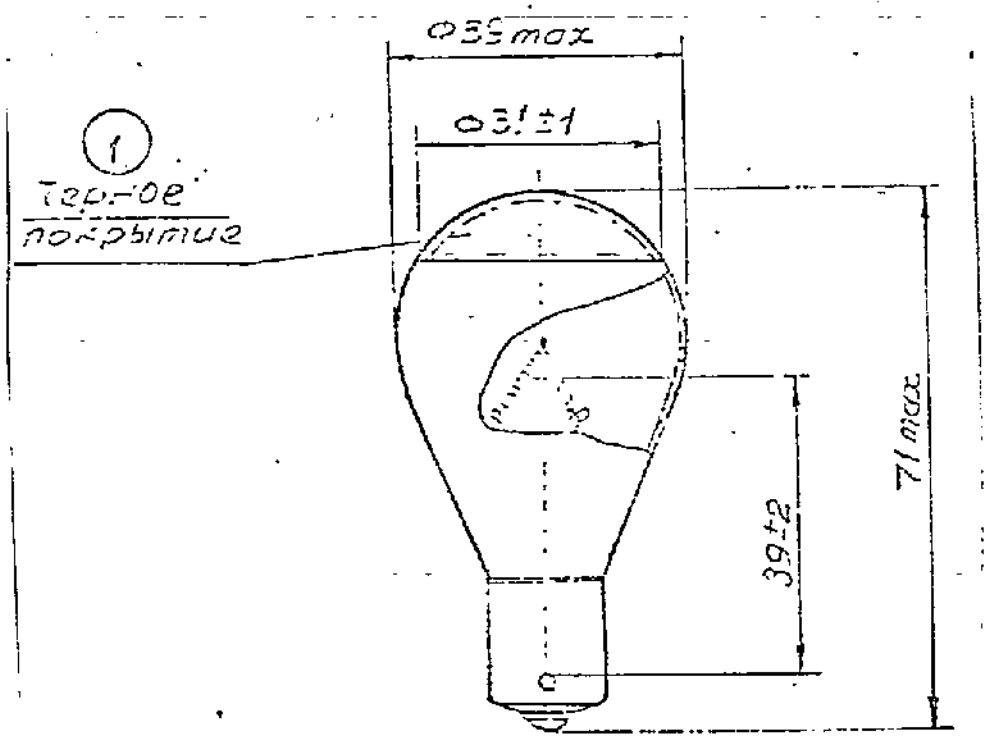

FIG. 10. LAMP, TYPE CM4 28-59

24/I-2015

APPENDIX 3

LIST

OF EQUIPMENT RECOMMENDED FOR CHECKING AND TESTING LAMPS

Description of equipment, materials and reagents	Accuracy class	Designation of standards, Specifications and other documents	Remarks
Test set for checking electrical and luminous parameters		ГОСТ 17616-82	
Slide calipers		ГОСТ 166-80	
Balance		ГОСТ 24104-80	
Device for testing base for securely fastening		To be recommended according to Dwg 3-КП-84 5-КП-14	
Device for checking height of lamp luminescence centre		To be recommended according to Dwg 5-01	