Film-Tech

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luminosity and good colouration.

Changeover between two units is semiautomatic.

Inside the cylindrical shutter, mounted two centrifugal fireproof blades. When the projector is stopped for some reasons, the blades would be closed automatically, thus intercepting the projection light so as to ensure the film form burning out. The most of accessories are interchangeable with the modle 103-A ones.

A Standard Set Consists of

Projector	2	Tripod (pair)	2	Amplifier	1
Rectifier	1	Tools & cable (set)	1	Loudspeaker (group)	1
Rewinder	1				

CONSTRUCTION AND ADJUSTMENT

1. Drive Mechanism

The projector is driven by a motor drive pulley (1) and the main driving

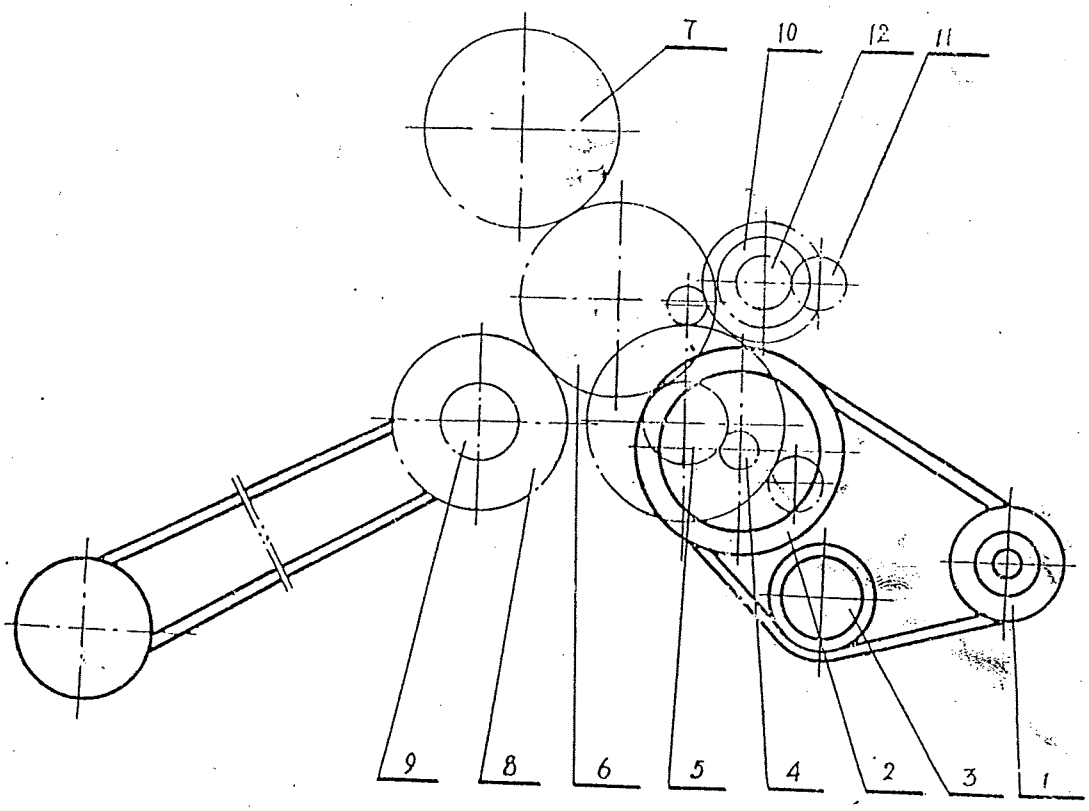


Fig. 1

1. Motor Drive Pulley
2. Main Driving Pulley
3. Tension Roller
4. 15-tooth Gear
5. 31-tooth Connecting Gear
6. 94-tooth Gear
7. 75-tooth Feed Gear
8. 75-tooth Take up Gear
9. Convey Belt-pulley
10. 31-tooth Connecting Gear
11. Sync-gear
12. 23-tooth Shutter Gear

pulley(2) with a speed ratio of 2:1. Pressing against the belt is a tension roller (3) for maintaining suitable friction between the pulleys and the belt. The main ariving pulley is directly mounted on the cam shaft. Its rotation turns the maltese cross and the intermittent sprocket to transport the film. A 15-tooth gear(4) mounted on the main driving pulley shaft meshes with a 31-tooth connecting gear(5) while it gears with the 94-tooth gear(6). In the front of the 94-tooth gear, it engages with two 75-tooth driving gears (7)(8). The ratio of the rotary speed of them to the rotary speed of 15-tooth gear is 1/5. The 75-tooth gears drive the feed and take-up sprockets via a driving shaft. A convey belt-pulley (9) fixed on the lower 75-tooth gear turns the friction disc via a delt to take film up. On the rear of the 94-tooth gear meshes with 31-tooth connecting gear (10) for rotating the thutter via a sync-gear(11), which consists of the 15-tooth and 23-tooth shutter gears(12). The ratio of the rotary speed of the 23-tooth shutter gear to the rotary speed of 15-tooth gear is 1/1.

2. Intermittent Mechanism

The intermittent mechanism is consists of the Maltese cross, the cam disc and the oil tank. The process of transmission is driven by the main driving pulley, the pin(2) on the cam(1) moves the Maltese cross(3) intermittently which transmits the intermittent movement to the 16-tooth sprocket(4) for film transporting. The cam and Maltese cross are sealed together in an oil tank. On the front cover is an oil hole with a screw and ansight window, so as to oil or observing the oil level. The whole mechanism is fastened on the main chasis with three "T" shaped clamping plates. Turn the knob of adjusting frame, the oil tank can be turned larger than 90°, so as to eliminate the misframe.

The bearing(5) of the Maltese cross is an eccentric one. Turning the eccentric bearing with a special spanner, the clearance between Maltese cross and the cam can be adjusted. When in operation, press the sprocket with your thumb along its running direction, there should be no evident "clamping". But the rotation should be smooth and mobile. Tighten the nut until the bearing of the Maltese cross unblae to turn freely. Over tighteness will damage the accentric bearing. The pin on the cam is tightened with a hexagonal nut. When adjusting, loosen the nut slightly, turn the pin until it engages with every slot of the Maltese cross without any bumping. As a result of wear & tear, the mechancal noise may be larger as time goes on. We must timely adjust it or change the piece parts of it. The intermittent sprocket(4) mounted with a screw(6) on the shaft can be moved slightly along the shaft by loosening the screw, so as to ensure the rectilinearity of film transporting.

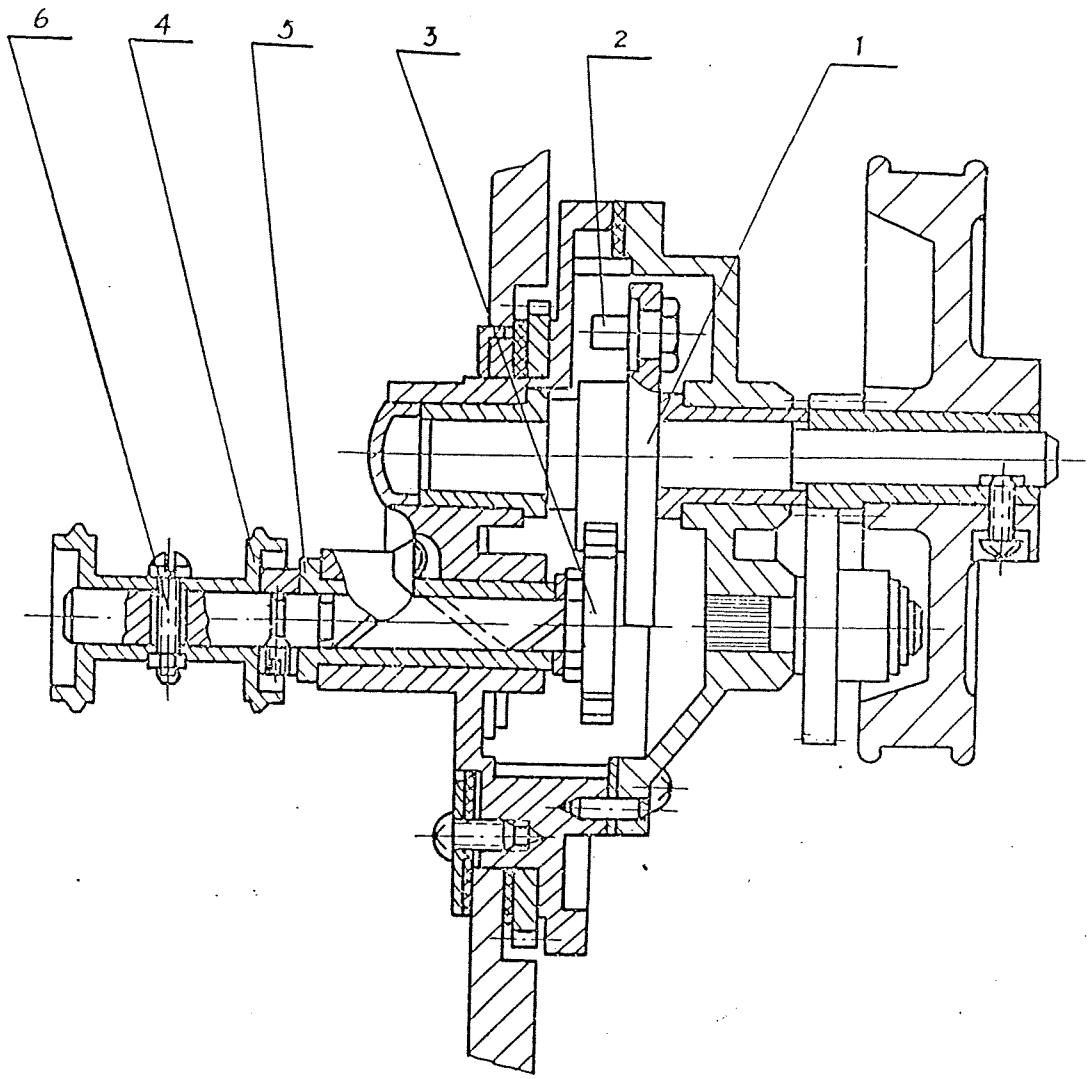


Fig. 2

1. Cam	2. Pin	3. Maltese Cross
4. 16-tooth Sprocket	5. Sleeve Bearing	6. Screw

3. Film Transportation Sprockets

There are three kinds of transporting sprocket, i. e. feed, take-up and intermittent sprockets. To ensure smooth engagement and disengagement between film perforation and sprocket teeth, the operating outer diameter of the feed sprocket is 0.2mm larger than it of the take-up sprocket. On the feed sprocket is marked with "103" (or # 22101) while on the take-up one marked with "103" (or # 22120) for identification. Do not interchange them otherwise damage will occur to film perforations.

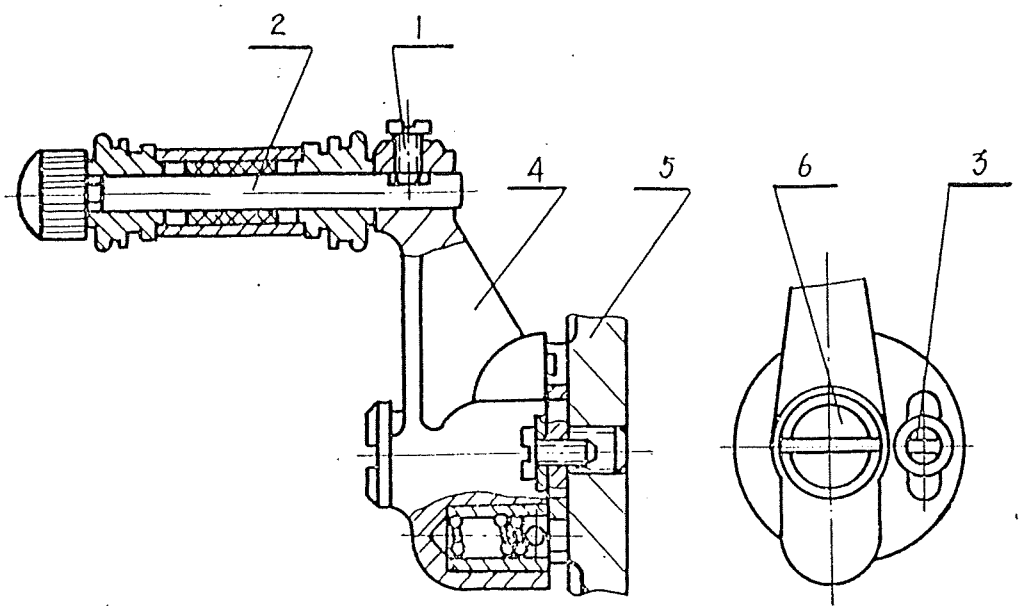


Fig. 3

1. Screw
2. Pad Roller Ass'y
3. Screw for Snap Spacer
4. Pad Roller Arm Ass'y
5. Main Chassis
6. Fastening Screw

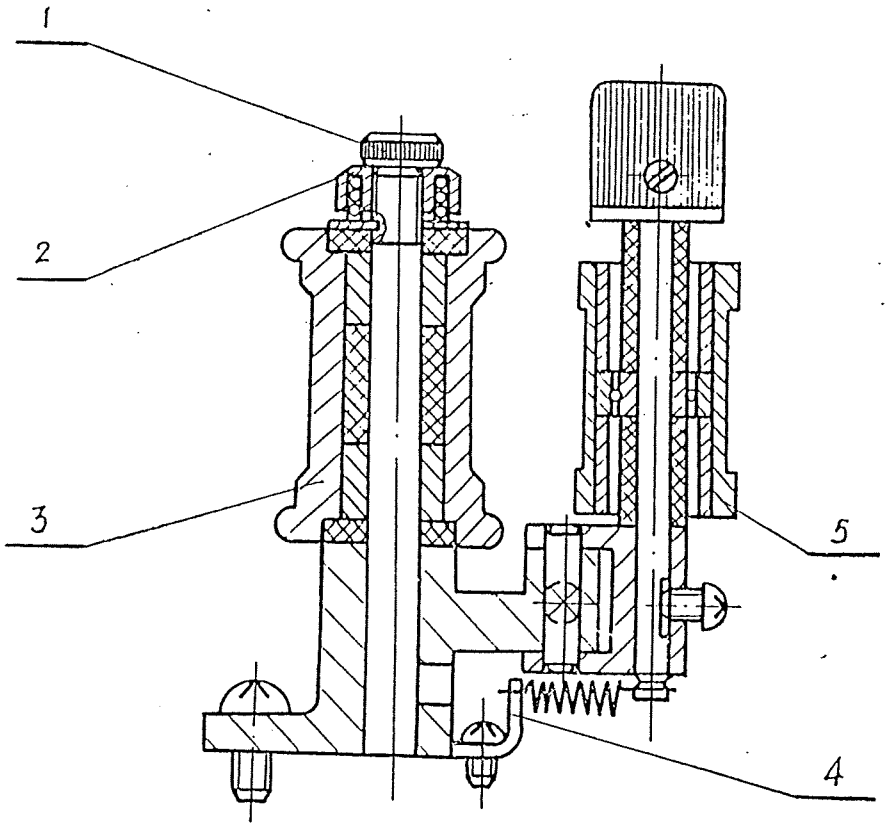


Fig. 4

1. Screw 2. Nut 3. Roller 4. Spring Plate 5. Pressure Roleler

4. Rollers

The rollers are classified as the pad roller, damper roller, shock-absorbing roller, sound drum pad roller guide roller and etc. according to the function of them.

PAD ROLLER

The pad rollers are press close type. Please do not pull close obstinately, so as to keep the shaft axis rectilinearty. The adjustment of the pad roller: Loosen screw(3), move the roller arm(4) to adjust the clearance (generally 0.3mm) between the pad roller and transporting sprocket.

DAMPER ROLLER

The damper roller construction is showed as Fig 4. Loosen screw(1), turn nut(2), the friction of the roller(3) can be adjusted. The pressure of the pressure roller(5) is adjusted by turning the spring plate(4) angle to change the damper.

SHOCK-ABSORBING ROLLER

Adjusting shock-absorbing roller should be cooperated with the damper roller. Turn the spring plate angle, so as to change the pulling force of the roller. When the film speed is normal, the shock-absorbing roller shaft should remain in the middle of its moving range about the front and the back. See Fig 5.

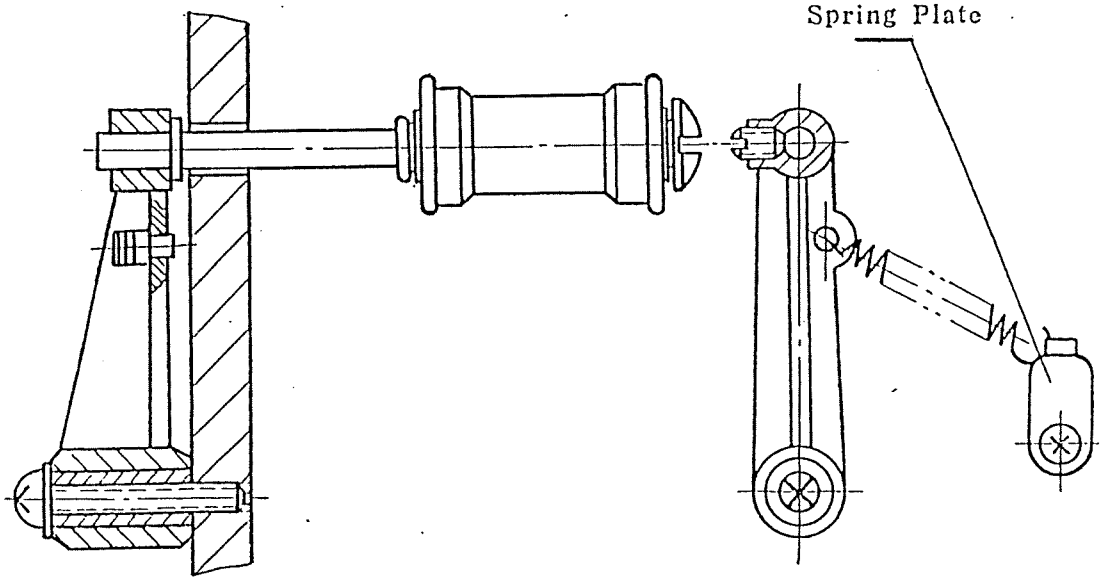


Fig. 5

5

SOUND DRUM PAD ROLLER

The action of the sound drum pad roller cdsld ensure the sound track aiming at the light spot. When making adjustment, turning a adjusting screw, the roller can be moved inwards or outwards until it is corrected. See Fig 6.

5. Framing Device

The framing device is used to eliminate the appearance of frame line on the

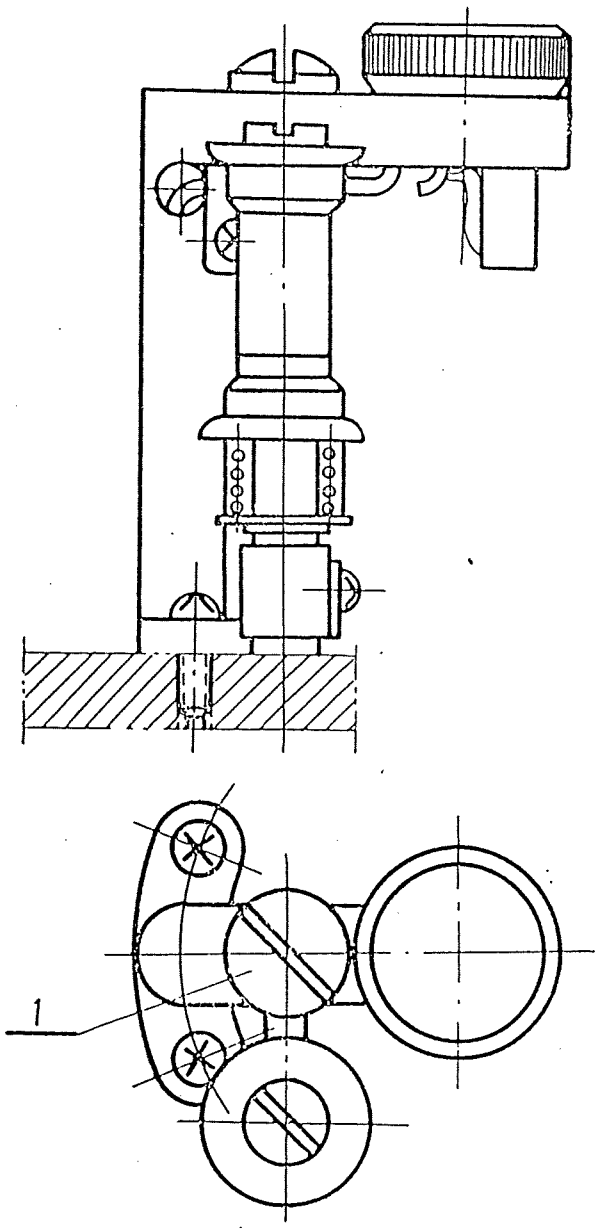


Fig. 6

screen, i. e., "stagger frame". When turning the Knob towards the right or left, the intermittent mechanism is rotateds 90 at same time. Thus a picture-frame is moved up or down on the jilm gate, so that no travelling ghost will appear during the adjusting process.

The adjustment of the shutter: Aim with a pointed object at any tooth of the inter-mittent sprocket. Then, keep the pointed object still, rotate the main drive pulley slowly by hand until the third tooth of the intermittent sprocket faces at the pointed object. Move the shutter till the center line of the shutter blade is in line with the center line of the film gate. When done, tighten it up. (See Fig. 7) In case the defect is beyond such correcting method, dismantle the sync-gear, adjust the shutter with the method stated above, mount the gear afterwards. If the shutter is still out of alignment, readjust it again according to the stated method.

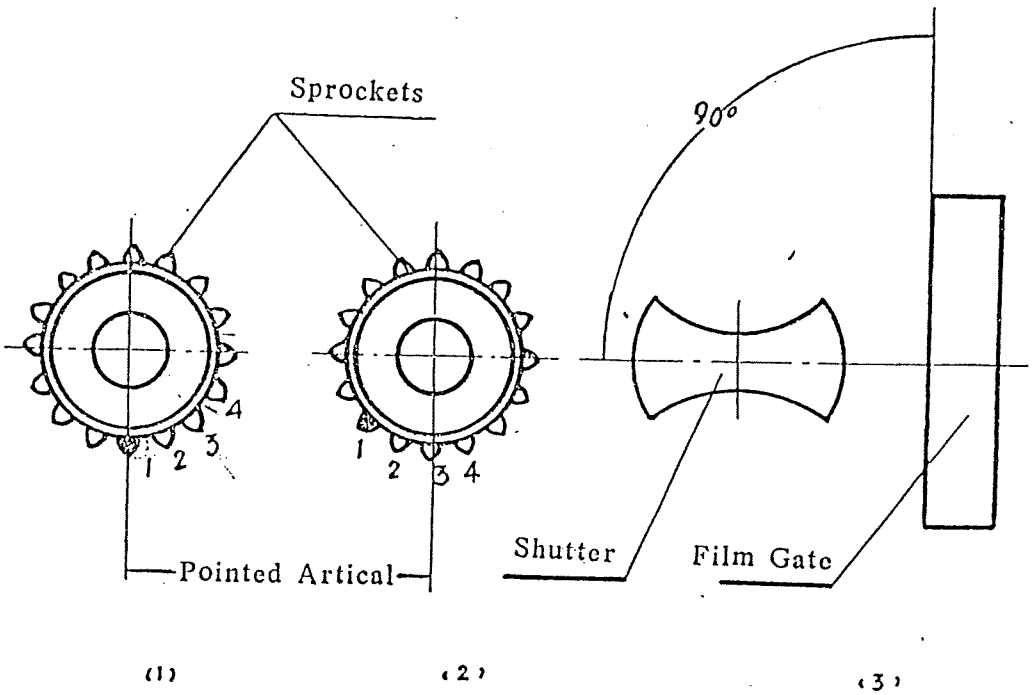


Fig. 7

6. Film Gate

The construction of the Film gate stand & cover is in serting type, easy for dismantling and clearing. When adjusting the tension of film gate, turn the nut(3) till the film tension is about 120-150 grams. A guide roller over the film gate is shown as Fig. 8, the roller could lead the film through the path correctly. Adjust the pressure of the tension shoe by turning the nut. If the tension

shoe is not in place or its plessure is unsuitable, the film jumping will occur during operation, so the working arces of the tension shoe should be tightly pressed against the working edges of the intermittent sprocket, meantime the side of the shoe should be in line with the side of the sprocket.

7. Projetion Light Source

It was fitted 750 W spherical xenon lamp as the projection light source, Lighted horizontally, the reflector was coated. The light beam can be adjusted via a reflector holder and a reflector adjusting stand. Method as follows:

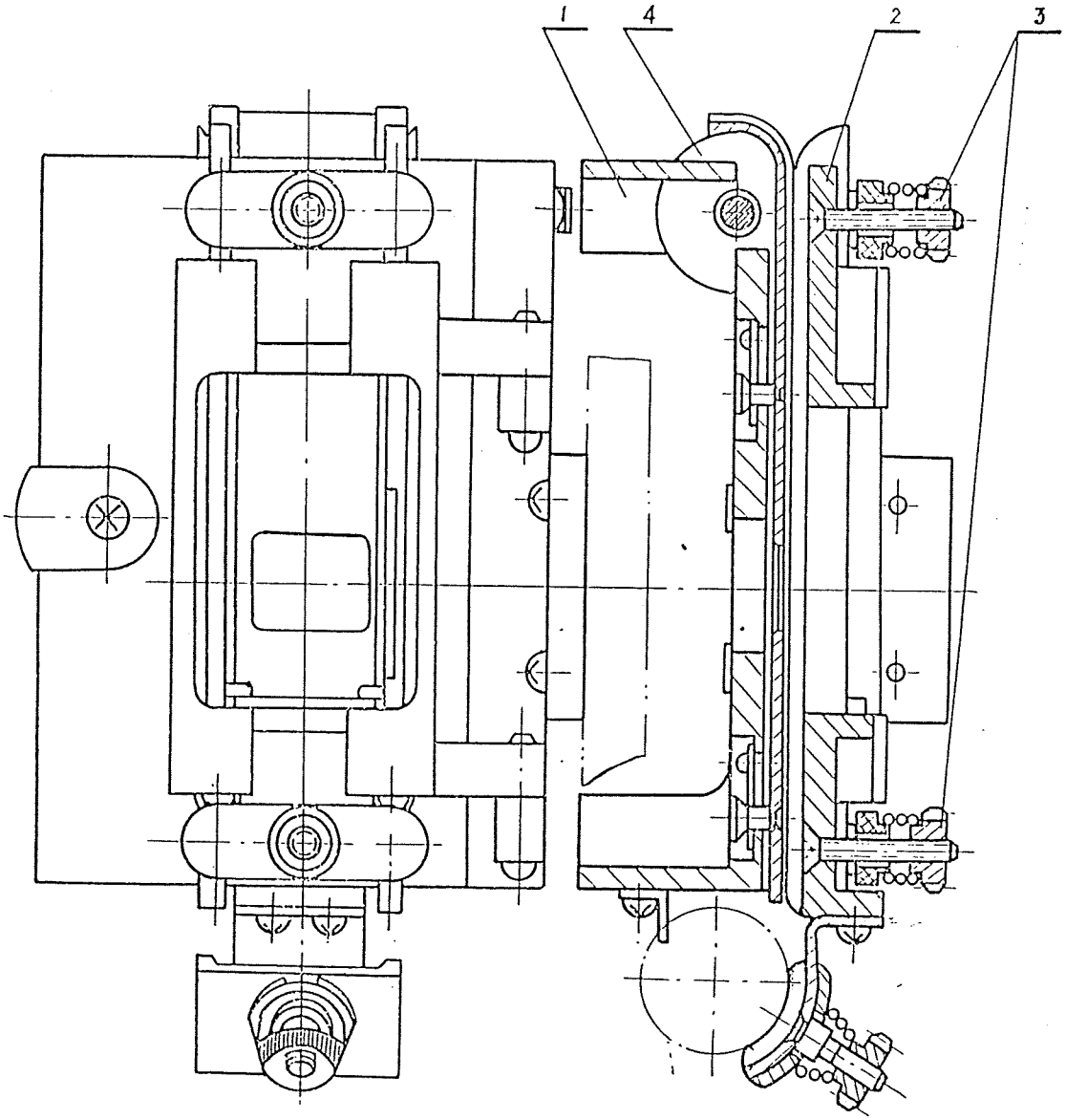


Fig. 8

1. Film Gate Stand
2. Film Gate Cover
3. Nut
4. Guide Roller

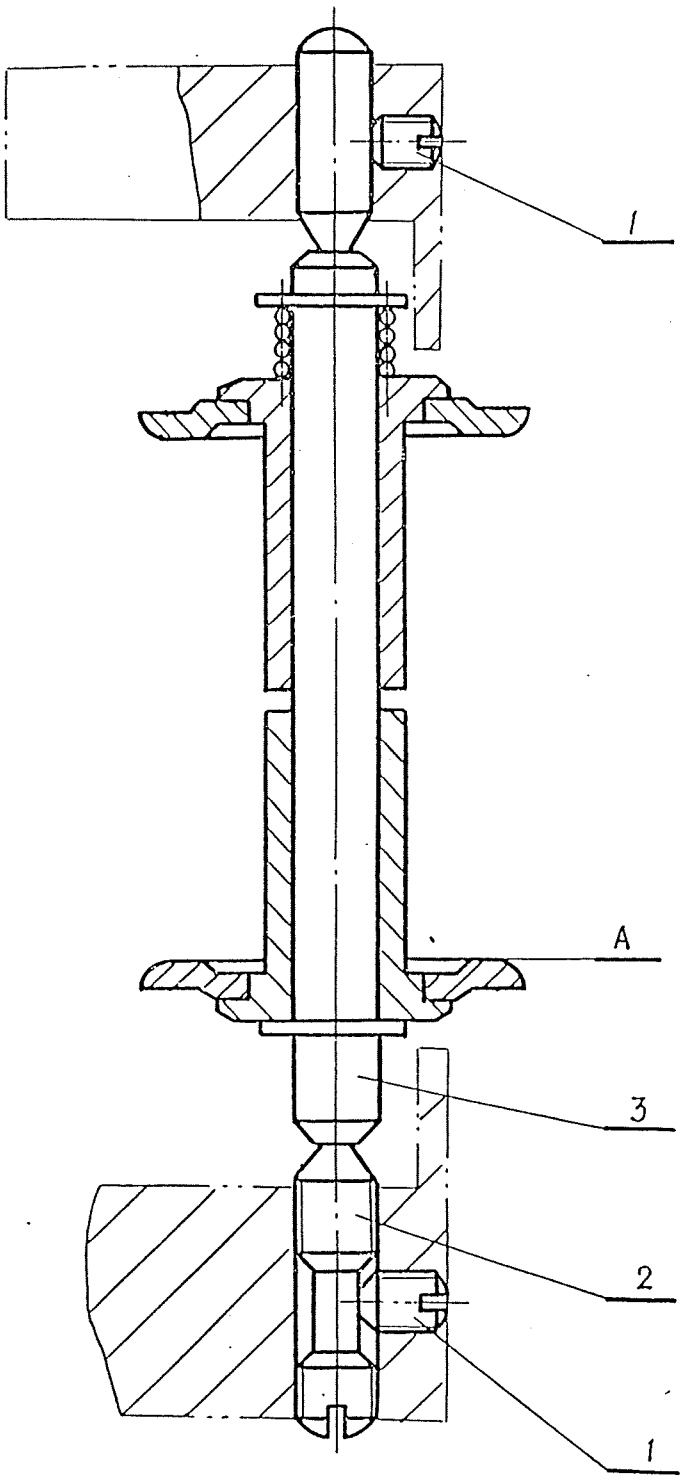


Fig. 9

1. Screw 2. Centre 3. Roller Shaft

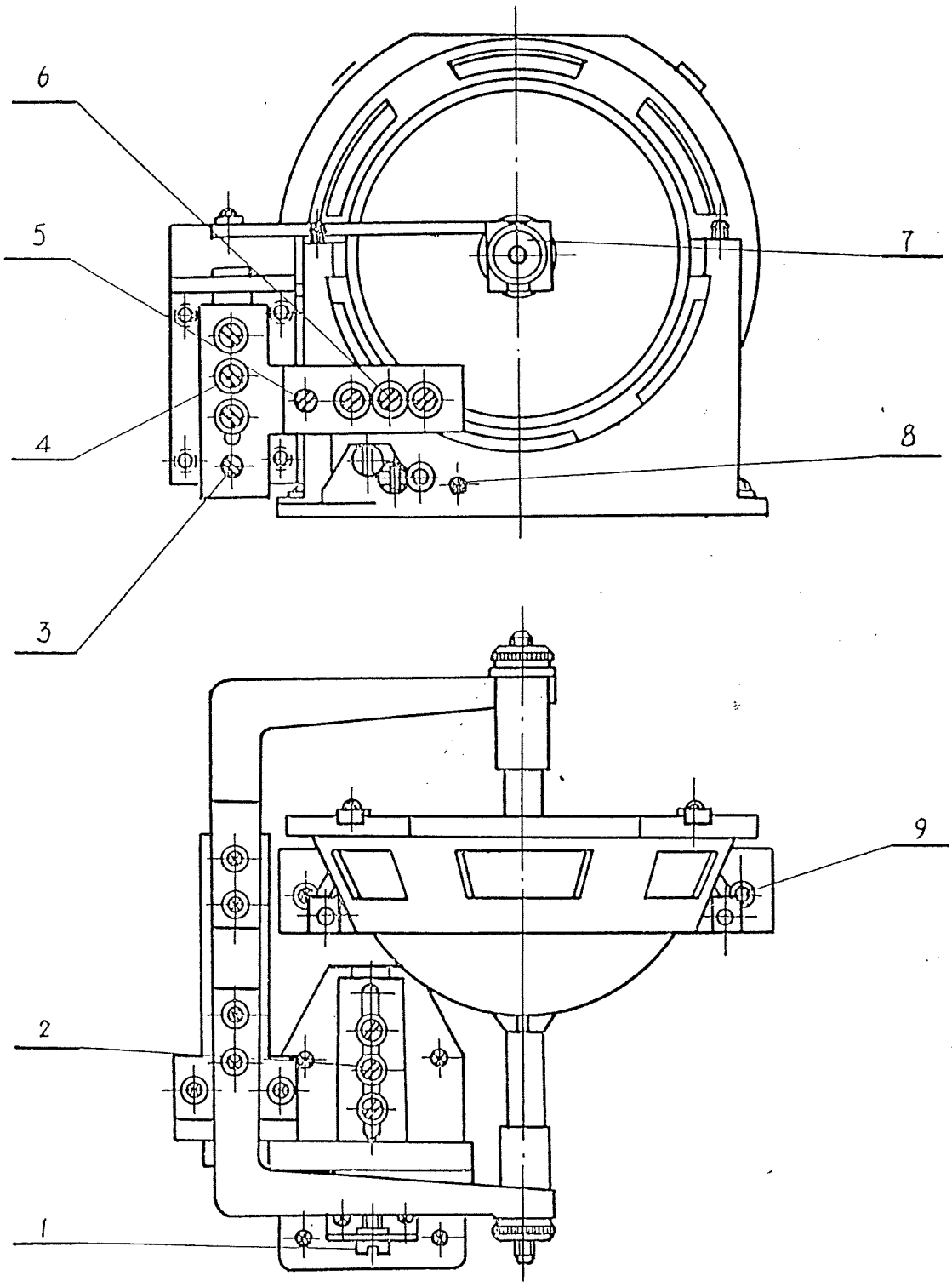


Fig. 10

1. Screw 2. Screw 3. Eccentric Pin 4. Screw
5. Eccentric pin 6. Screw 7. Knurled Nut 8. Screw 9. Screw

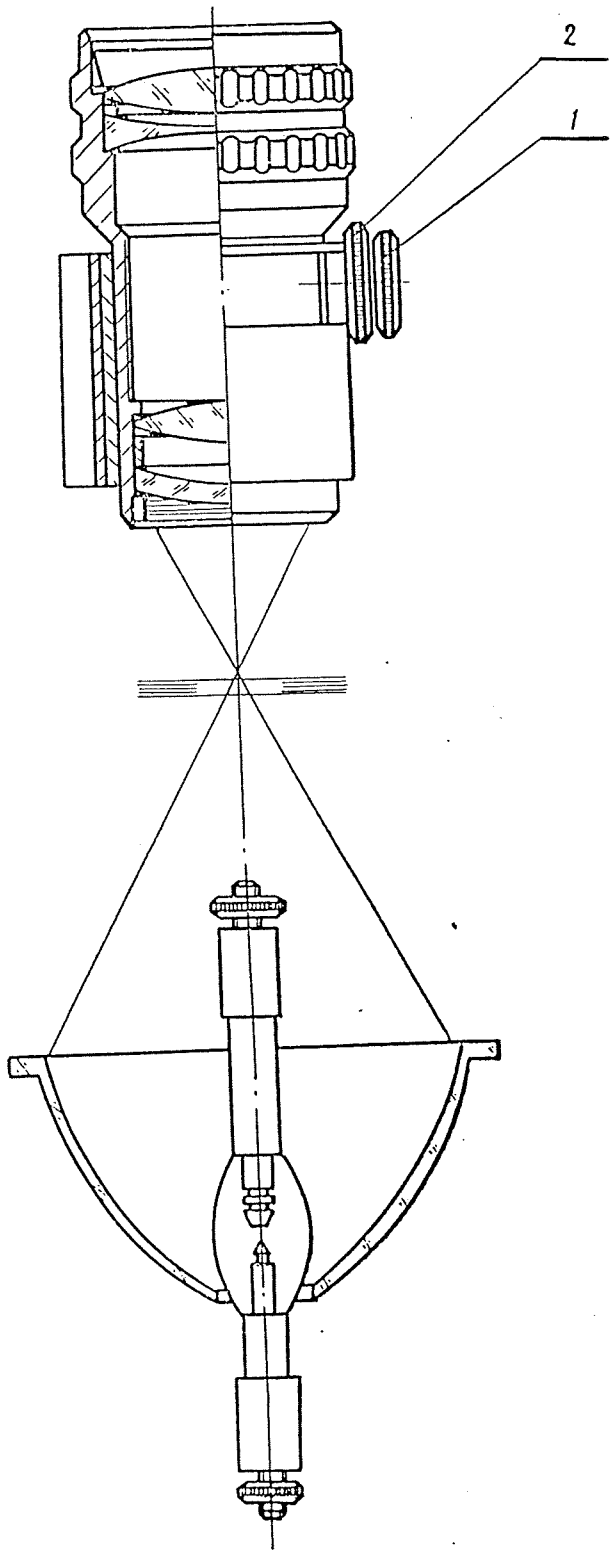


Fig. 11

1. Focusing Knob 2. Fastening Knob

11

Loosening the screw(2), adjusting the screw(1), the stand could be moved forward or backward.

Loosening the screw(4), adjusting the eccentric pin(3), the lamp could be moved inside or outside.

Loosening the screw(6), adjusting the eccentric pin(5), the lamp could be moved up or down.

Adjusting the screw(8), or (9), the reflector can be tilted or be level for adjustment, so that, it can get the optimum brightness and the even light distribution on the screen. Lastly, locking the screw No. (2)(4)(6).

8. Projection Lens

The projection lens is composed of fourpieces of the achromatic spherical lenses which were coated. Ordinarily, it should be kept cleanliness. When cleaning, first wipe it with soft camel hair brush, then carefully clean them

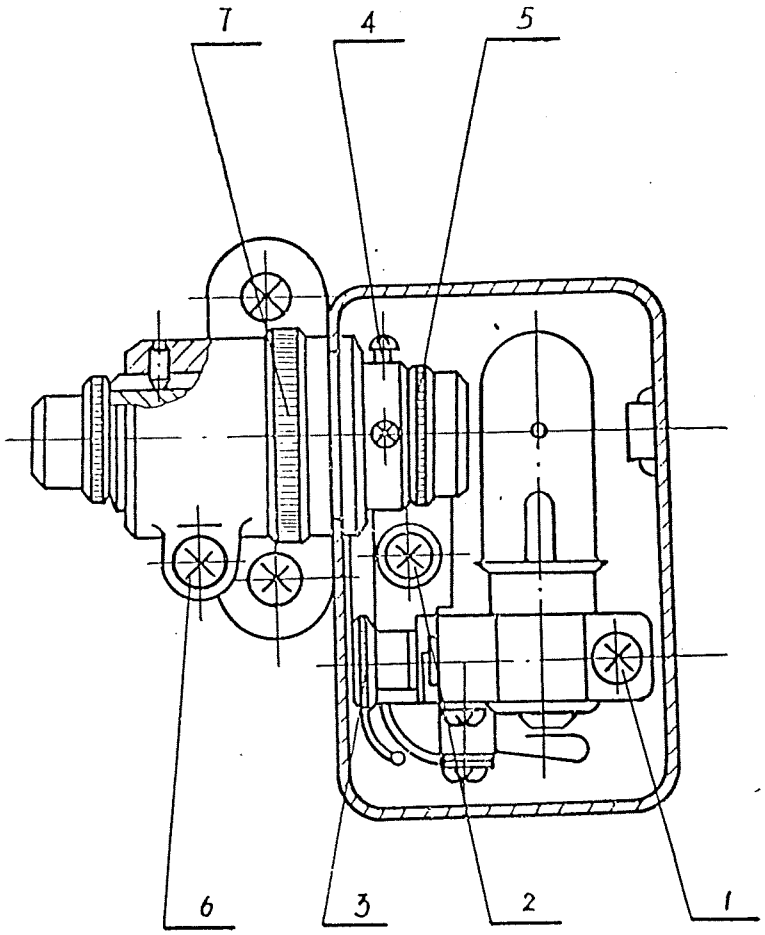
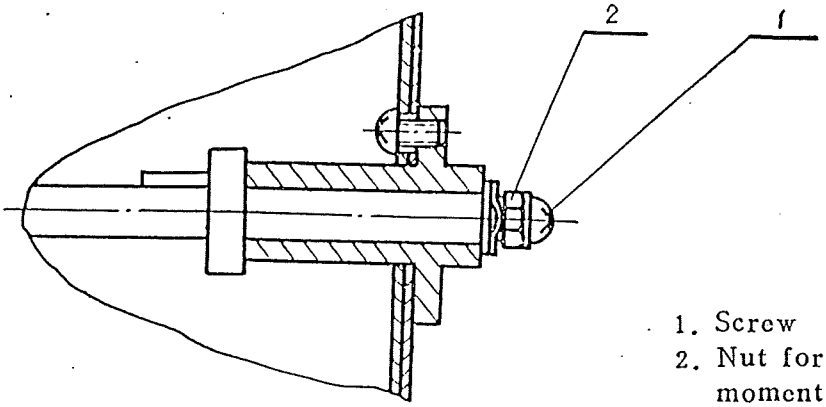


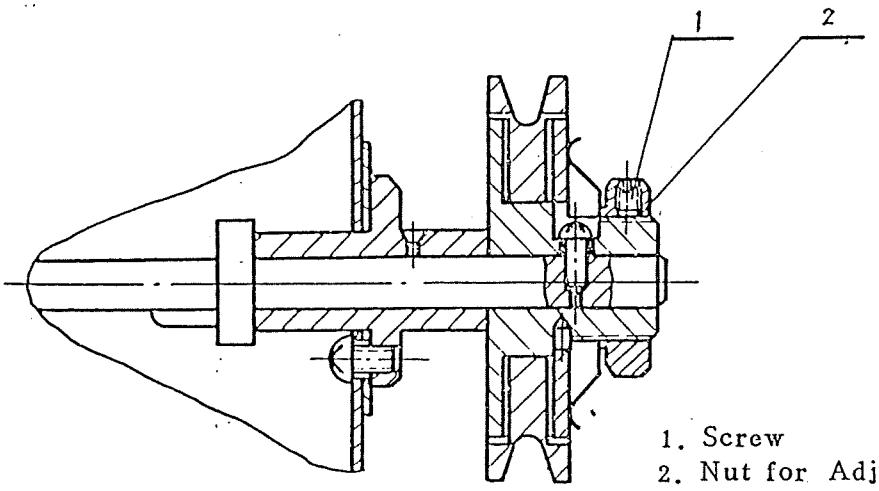
Fig. 12

1. Screw 2. Screw 3. Screw of Knurled Head 4. Screw
5. Convergent Lens-barrel 6. Screw 7. Focusing Nut



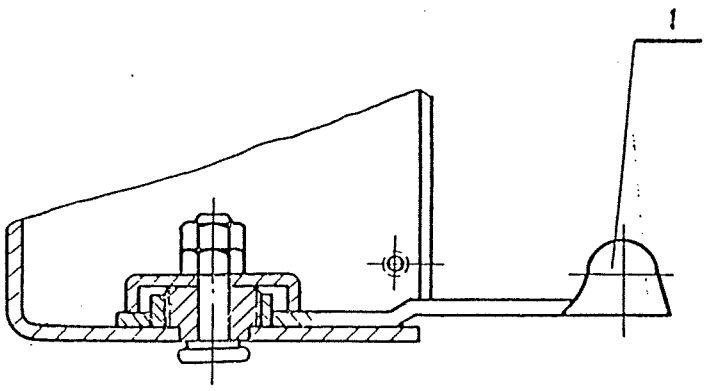
1. Screw
2. Nut for Adjusting moment

Fig. 13



1. Screw
2. Nut for Adjusting Moment

Fig. 14



1. Fastening Bar

Fig. 15

with absorbent gauze dabbled with the mixture liquid of 50% alcohol & 50% ether.

9. Optical Sound Reproduction System

The exciter lens is made up with the spherical achromatic lens elements. See Fig. 12. Loosening the screw(1), the exciter lamp can be turn. Loosening the

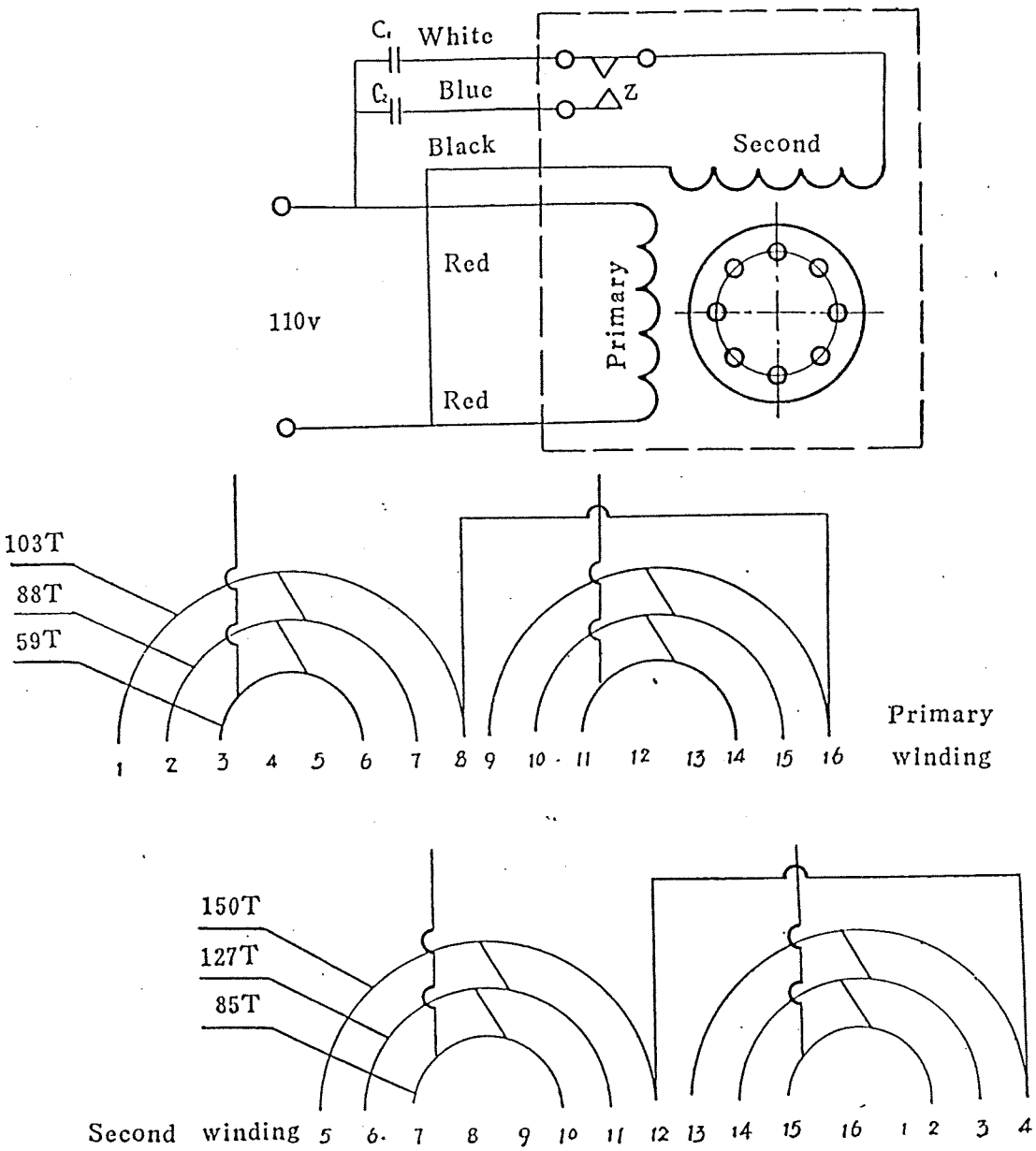


Fig. 16

C1—Running capacitance CZJJ-2-250V-10uF
C2—Starting capacitance CDJ-110V-50uF
Primary winding—Ø0.49 MM HS enamel-polyester wire
Second winding—Ø0.41 MM HS enamel-polyester wire
z—Eccentric switch

screw(2) or (3), the position of exciter lamp can be adjusted separately inside & out side or in up & down directions. Loosening the screw(4), turning the Convergent lens-barrel(5), the horizontal position of the mechanical slit can be adjusted. Loosening the screw(6), and turning the focusing nut(7), the focus of the exciter lens can be adjusted on the film, so as to obtain the well volume & the best tone quality. The focus of the exciter lens is accurately adjusted with 7000 Hz-test film before delivery from the factory and therefore needn't adjustment unless absolutely necessary.

10. Magazine

The feed film tension can be adjusted, so as to ensure the stabilitr & evenness of the feed film. The less tension, the better, in case the freely feed film does not occur. See Fig. 13.

The take-up system employed in this projector is a finely constant friction torque mechanism. See Fig. 14. The take-up tension can be adjusted by loosening screw(1) and turning the nut(2), in order to avoid the damage to film.

The feed & take-up magazines can be fastened & locked with a special designed device in the bottom of them, see Fig. 15. So that the magazines are stable in projecting process.

11. Motor

The motor is of sqnirrel-cage induction type, 16 winding grooves (stator), single phrase and two-pole one, mounted a ecc-entric start switch inside, equipped with a start condenser (50 uF) thus increasing the start torque. The condenser of run-ning is 10 uF. The wiring diagram is showsd as Fig. 16. The colour of the leads are defferent. After wiring, if the motor turn inversely, please exchange the two pieces of the red wire, then wiring them again.

OPERATION AND MAINTENANCE

To ensure satety and excellent performance as in well as in avoiding failures and prolonging the lives of the films and the projector, the projector must be properly operated and maintained. This is an important job of the projectionist to perform and must be carried out carefully.

(1) Preparation before Performance

If the performance is to be carried out in open air, choose an open and flat ground which is far away from any brooks and any places in danger of fire hazard, so as to ensure safety, besides, should ascertain the condition of the power source supply, When hanging up the screen, take note that it is easily visible to the audience and not interfered by stray lights.

The projector should face the screen. A distance of about 1.2 meter should be kept between the two projectors, so as to perform easily. The relationship

between width of projectable image area(W), projection distance(L), and focus of lens(F) is given by:

$$W = \frac{A \cdot L}{F}$$

The A means wicth of aperture (Standard: 20.9 mm).

When are you going to set up the projector, first set up the tripod, then mound the projector on it. After fixing the take-up belt, you can take out the upper and lower magazines and set them up accordingly.

(2) Inspection & Cleaning before Projection

Check whether every tension & pressure of the projector.

Check whether the transmittant parts, the film path elements and screws get loose.

Check sound drum and all rollers to see whether they turn freely.

Clean the dust and the dirt from the elements of the film path and the optical parts.

Check the oil tank to watch the oil level.

Lubricate the parts with lubricating oil as specified and wipe off any overflow.

Connect the machine to the electricity supply and start the motor, check whether the driving mechanism is normal.

Switch on the projector lamp, check the luminosity aud evenness of light.

Turn the total volume knob toa suitable position, then take a piece of paper and move about it in front of the exciter lens to cut or open the light ray, at this time, the loudspeaker should sound the "popping" noise. Otherwise, it means that sound reproduction system have to inspect, adjust and fix the breakdown.

(3) Threading and Projection

Thred film according to the film path of the projector after loading a reel of film in the upper magazine. The emulsion side of film should be faced to the projection light source and the sound-track on the outer edge. Leave a proper loop between the take-up sprocket and the film gate. Leave another film loop between the intermittent sprocket and the middle guide roller. When threading is done, turn the driving mechanism with a crank to chech the proper threading.

Before projection starts, keep the volume of the amplifier down to the minimum and then turn on the motor and the projection lamp in sequence. The exciter lamp is also switched on at the same time. Raise the volume until it attains a suitable level. At the same time, watch for proper framing and focusing. Make adjustment if necessary.

Before each change-over, remind the other projection ist to have every-

thing ready prior to the first change-over cue. When the first cue appears, start the motor of the second projector and change-over on the second cue. Stop the motor when the film runs out from the first projector, then load another reel for the next projection.

(4) Maintenance of Machine

In case the projector is not in use, store it in a dry, ventilated and safe place. Do not keep it in any place exposed to wind, rain or direct sun shine. and prevent the corrosion of the acid & alkali. In case it has to be stored without using for a long time for some reasons, apply an antirust grease coating on all unpainted parts and periodically connect cnrrent to the projector, specially the amplifier and xenon power source. It should be dampproof and shockproof during transportation.

The machine should be inspected periodically. Generally, the following inspection and adjustment should be carried out after every 30 performances:

Check the tension &pressure of film path elements to see whether they are proper. Check the clearance among the mechanism units whether proper, sound drum and rollers turn whether free.

Inspect the whole film transporting mechanism. Adjust it until all parts (with the exception of the sound drum pad roller) are not directly in contact with the sound track and picture areas.

Check whether the driving mechanism is worn or loose. Tighten the screws on all parts if they are loose.

Observe whether the illumination on the screen is even, listen in the sound quality effect whether better.

Check whether the position of the shutter is correct, and the automatic fire shutter is reliable.

Check the contacts on all cable plugs, sockets and switches.

After all the adjustments are made, use a length of new film as test lood and runpit in the projector for 130-150 times. Then check for scratches and perforation damaged.

If something is out of order, it should be adjusted and repaired in time. Prohibit performance with defect.

The machine should be kept clean. Scrap the film transporting parts with dry soft cloth and wipe the dust of the sprockets with teeth brush after projection for every while.

The optical lens should be cleaned according to the require. The reflector surface do not be scrapped but can blow it with bellows or with soft camel hair brush wipe it gently. It should be dampproof strictly so as to avoid the coating peeled off.

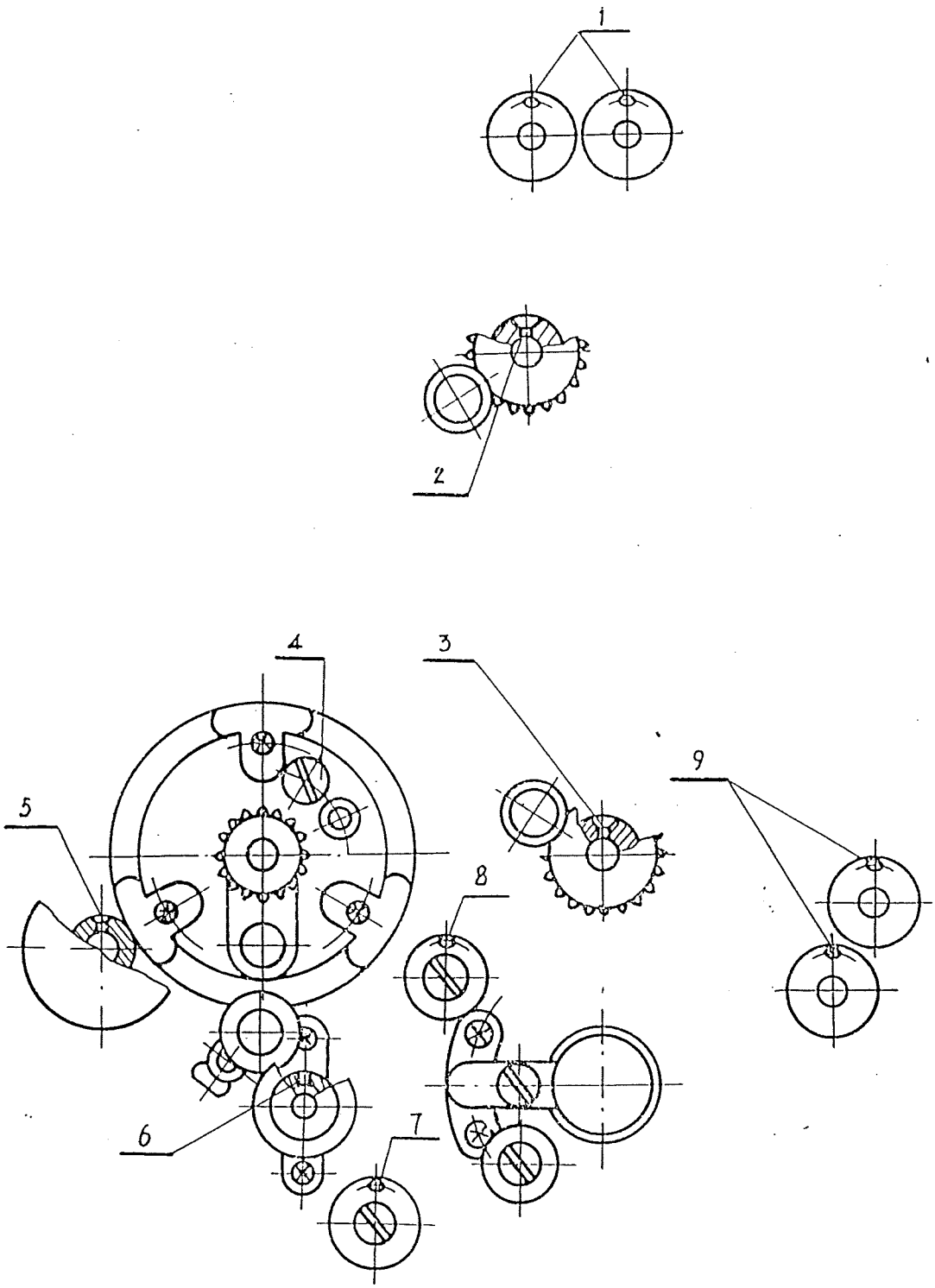


Fig. 17

Lubricating Points on the Front Partsof Projector

As the projector will be used in places of different climate, the lubricating oil used should be changed according to local temperature. Generally, machine oil No. 30 is suitable in higher and No. 10 in lower temperature. The oil holes of the projector is shown in Fig. 17. 18.

The oil tank of the Maltese cross should always be filled with lubricating oil. Maintain the oil level up to the middle of the sight window, when the sight window is located in the middle line position. The pad roller and the sound drun pad roller should be dismanted for lubricating, the driving gear needs oilling a little also.

Where it could damage the film is shown in Fig. 19, noticing inspection and maintenance in use.

(5) Installation of Xenon lamp

Fastened the one terminal of lamp (cathode), and not to do for another one (anode) with which could be support the lamp only.

In this way, it could avoid explode if it was uncoaxial or deformed by being

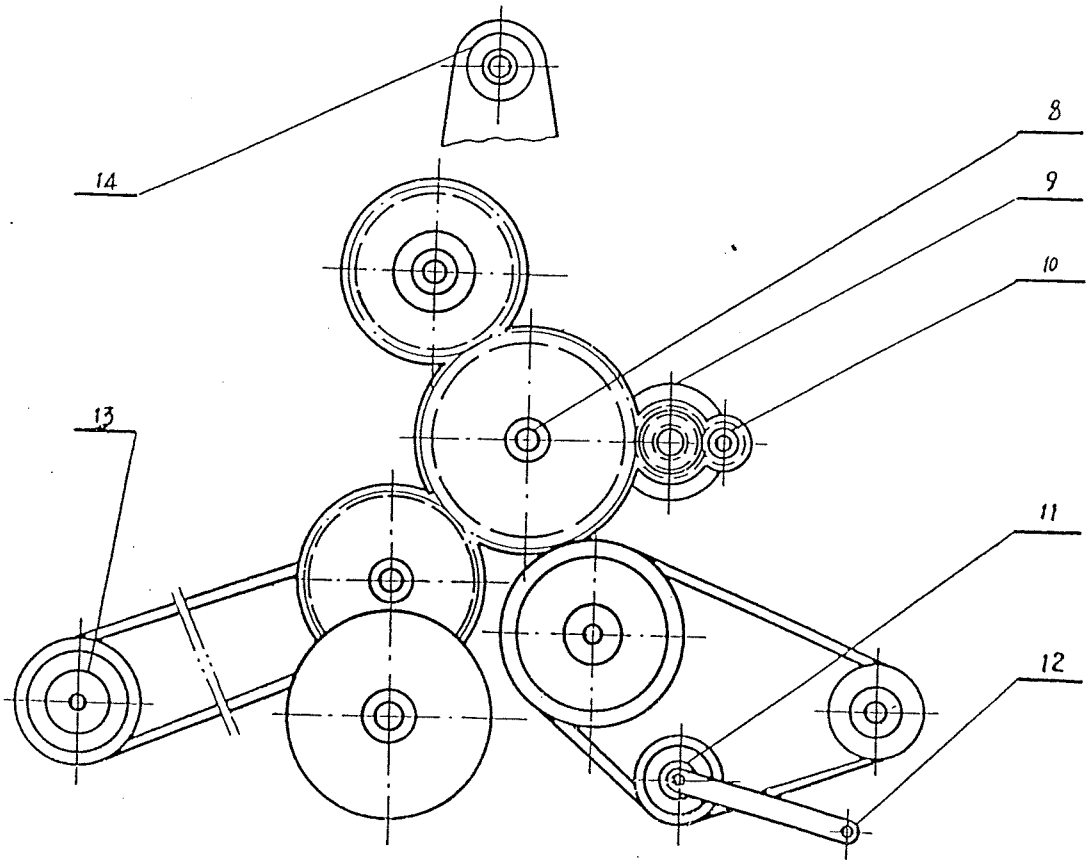


Fig. 18

Lubricating Points on she Rear Part of the Projector

heated. So as to prolong the life of the lamp.

Generally, after projecting motion picture for 30 to 50 hours, the lamp should be turned 5°～15° degrees. Thus it could prolong the life of the lamp.

(6) Installation of the blower

Remove 4 pcs of nut M4, 4 pcs of screw M4×8 from the blower. Twist 4 pcs of pin into the screw hole on the top of the lamp-house, then install ate the axial-flow blower MZ 30. For the cover of the blower, fasten it with 4 pcs of screw M 4×8. If connected the blower turn reverse, exchange the position of any two of blower please.

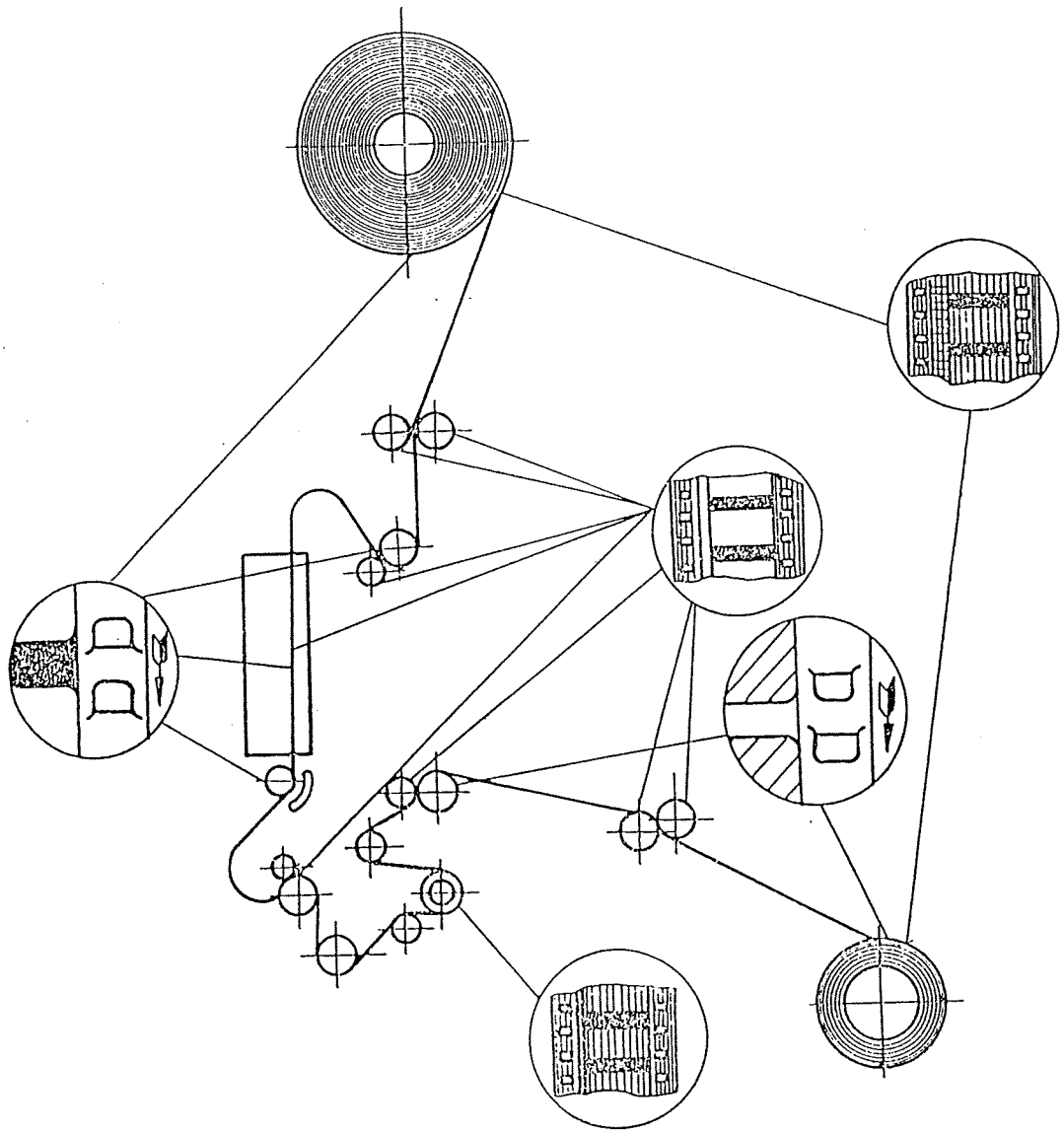


Fig. 19

OUTLINE

Xenon lamp power supply, modle XD 1000-3 is a power supply equipment for 16mm model 163-x projector or 35mm model 104-x projector. It uses thyristor for rectification, arithmetic amplifier for steady current and indirect-control trigger circuit for igniting xenon lamp. Its automatic-manual logic circuit for projector exchange is an indirect-control circuit with steady current ability, and the projector exchange does well. This xenon lamp power supply and its control circuit power supply provide their output a short-circuit protection and use safely.

The indirect-control trigger circuit for igniting xenon lamp and the automatic-manual logic circuit for projector exchange are loaded on two print current boards separatly. There provide testing board and spare current P.C.B. and it is convenient to fix. The entire equipment is light, compact and well-designed.

* Read in detail the operation manual before use the xenon lamp power supply model XD 1000-3.

Notice:

. Put the power supply case in a dry ventilated place. Keep a distance of 0.5m or more between the back of the power supply case and the wall. Don't open the cover of the cast in order to ensnre the ventilating device run normally.

. Chose power input socket with single-phase-three-wire system and connect the 3rd lead of the socket with ground safyly. Connect zero line with the 3rd lead of the socket is absolutely forbidden. The right way is given in the figure below. The cover of the power supply connect with the sooket. If connect 3rd lead with the 2nd lead by mistake, then the cover of the power supply will be electrified. It is very dangorous to human being, to be careful.

. Put the trigger button of projector untill xenon lamp is light completely. When main voltage lower than 220V and xenon lamp voltage largen then 22V, then the xenon lamp current shoud be decreased in order to decrease power consumption.

MAIN TECHNICAL DATA

1. enviroment condition

. Temperature: -10℃~40℃

. Relative moisture: lower than 80%

. Working load class first class, continue working

. Resistance in electrified wire netting: lower than 0.2Ω after starting work, the decrease voltage of the network lower than 10V.

2. Technical data

. Power requirement: frequency 50Hz

voltage 220V ±10%

20%

current equal or lower than 10A

power about 2KVA

. Voltage output: 22V

. Unloaded voltage: about 110V

. current output: 45A, manual adjustment range from 31.5 to 49.5A

. Safety and responsibility: Both Xenon lamp power supply and control circuit power supply have a short-circuit protection.

. Projector motor: 110V, 50Hz

. Impelling lamp: 10V, 50Hz(DC)

. Volume: 400×180×460(unit: mm)

. Weight: 37Kg

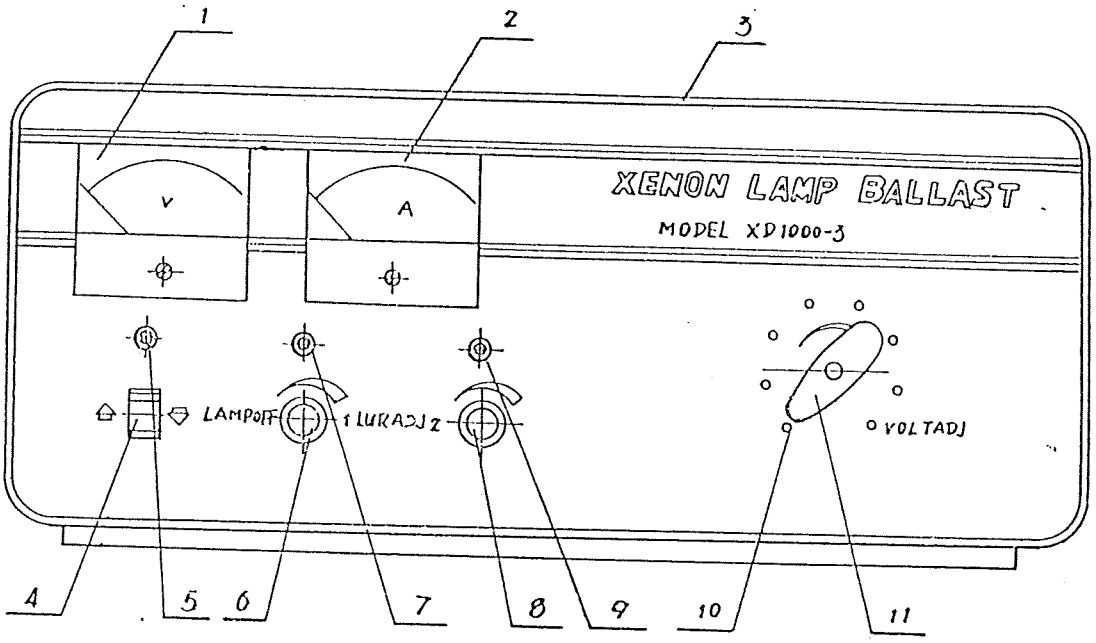
FRONT SIDE

1. Alternative current voltmeter
2. Direct current voltmeter
3. Case cover
4. Xenon lamp trigger control switch
5. Xenon lamp trigger control indication lamp
6. Xenon lamp current adjustment knob
7. Logic indication lamp 1
8. Xenon lamp current adjustment knob
9. Logic indication lamp 2
10. Voltage scale
11. Voltage adjustment knob

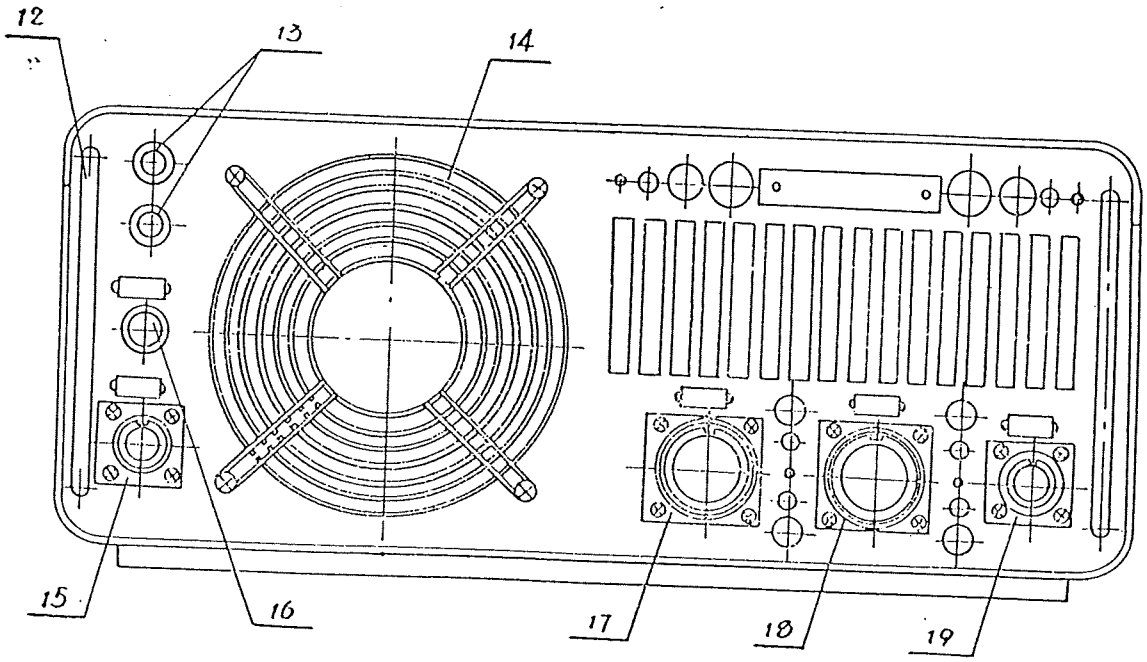
Back side

12. Handle
13. Auxiliary power fuse
14. Discharge fan
15. 220V AC linein socket
16. Main power fuse
17. Profector1 socket
18. Projector 2 socket
19. 220V AC auxiliary socket

Front side



Back side



OPERATION

1. Cable connect

By using 12-lead cable, connect projector 1 to power supply through socket 17 and connect projector 2 to power supply through socket 18. By using three-lead cable, connect the power supply to 220V, 50Hz electrified wire netting through socket 15.

2. Adjustment switch knob 11:

Turn voltage adjustment knob clockwise and make the voltmeter to 220V. When turn away the voltage adjustment knob 11 from Point 10-the first point on the bottom of left side, the discharge fans for projector 1 and projector 2 will run too.

3. Xenon lamp trigger control switch 4:

After being prepared for working, turn Xenon lamp trigger control switch up and make control indication lamp 5 light and all parts of the projectors get ready for working. Xenon lamp trigger control switch 4 is an emergency switch. During running process, if something appear unusually inside the power supply case, then turn switch 4 down instantly to cut off control circuit and to stop suppling power and make sure power supply be in safety state.

4. Xenon lamp current adjustment

Suppose projector 1 is working. Turn on motor switch of projector 1 and film transfer parts begin to work. Put down tripper button, the Xenon lamp and the impelling lamp of projector 1 light in step, and the indication lamp 7 light on the control panel of power supply case. Adjust Xenon lamp current adjustment knob 6 and make current meter for Xenon lamp current to 45A. knob 8 is the same with knob 7. When turn the knob clockwise, then the current increase gradually, and decrease if turn the knob reverse.

Formula for Xenon lamp adjustment

$$I=\frac{P}{V}$$

I-value of Xenon lamp current(indicated by current meter 2)

P-power consumption (suppose it is 1000W)

V-value of Xenon lamp(the standard value of a new lamp is 22V±2V. But the old one can not be certain)

See the equality above, I varise directly as V. Remember when V=22V, then I=45A, and when V increase, then I decrease correspondingly to keep P=IV. Generally, in order to enlarge the life-span of Xenon lamp, make power consumption lower than 1000W.

Under the condition of AC voltmeter indicating 220V, Xenon lamp voltage being 22V, the Xenon lamp current indicating meter 2 can be adjusted under 45A. After adjusting voltage adjustment switch 11, the working voltage cannot get to 220V, then decrease Xenon lamp working current to protect over consume power and to ensure the responsibility of triggering Xenon lamp. The lower the voltage, the more the current decrease. But the lowest current value must not lower than 35A.

5. Twin-projector exchange

Twin-projector exchange is controled directly by motor switch and Xenon lamp trigger button load on the projectors. If projector 1 is working, and the film in projector 1 has nearly finished, then projector 2 should get ready for working turn on motor switch of projector 2 to run it, and put down the button of projector 2. By starting logic control circuit, Xenon lamp and impelling lamp of projector 1 turn off automatically. In the same time, Xenon lamp and impelling lamp of projector 2 turn on, and now, automatic-manual twin projector exchange has been completed.

Turn Xenon lamp off

When the film has finished or there is a stopping need halfway then turn off Xenon lamp as follow:

. turn off the switch for projector motor, then the xenon lamp die out at once.

. turn xenon lamp trigger control switch down on power supply case, then the xenon lamp die out at once.

. if the projector is model 163-x, then switch the projector off, the xenon lamp die out at once.

. turn voltage adjus tment knob from scale 11 to scale 10 on the left corner to switch power supplyoff, then the xenon lamp die out at once.

Notice:

Use the first three methods will be good for xenon lamp and power supply, for they can keep the discharge fans of the projector lamp and the power supply running.

SECURITY ITEMS

1. Power supply requirement: $220V \pm \frac{10\%}{20\%}$, 50Hz Electrified wire netting resistance: lower than 0.2Ω

2. Make sure ground well to avoid the shell being electrifide.

3. Check all kinds of power cables, connectors of cables and make sure there are no loose contact.

4. When igniting, put the xenon lamp trigger button down completely and make sure the lamp is light before letting go.

5. When the power supply lower than 220V or some other reasons, like ageing of xenon lamp or the increase of tube voltage, then decrease the consumption of xenon lamp to run the projectors.

6. The discharge fans in projector lamp case and power case are use to cool the air. When they stop by false, the temperature inside the cases will be go up sharp and such as to destroy electric parts and shorten the life period of xenon lamp and reflector mirror.

7. This power supply provide two spare print circuit boards for emergency, and don't make wrong one when need.

8. Get ground well when use electric soldering iron to check and repair the projector. When check and do some repairments, depart power cable from electrified wire netting or the ground line of soldering iron and the phase line may get short circuit and destory the key parts. Please take care of it.

DISORDER INSPECTION

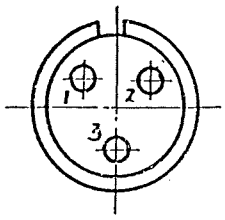
1. No indicating on AC voltmeter
. check fuse for distribution device or check circuit breaker
. check power supply connector
. check main fuse of power supply
2. Stoppage of discharge fan
. check the fan wire
. check the discharge fan
3. No indication on xenon trigger control indication lamp
. check trigger switch
. check every group voltage of control power
. check the indication lamp
4. No indication on logic indication lamp
. check projector switch
. check the door of lamp case
. check 12-lead connector
. check the indication lamp
. check logic circuit
5. No igniting
. check addition power fuse 13
. check xenon cartridge
6. No lighting, only strike sparks between the two plate of the xenon lamp
. check xenon lamp
7. Steading current quality of xenon lamp descent
. check xenon lamp are starting
. check the xenon lamp ageing extent
. check the consumption power of xenon lamp
. check current output
. check line in voltage
8. Difficulty of twin-projector exchange
. check xenon lamp consumption power
. check inlet line voltage

ADDITIONAL REMARK

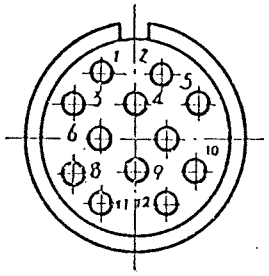
1. Electric circuit diagram; main circuit drawing 030000 and circuit drawing 060000

2. Arrangement of socket-lead

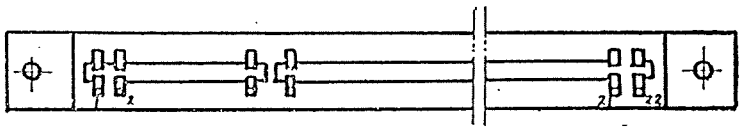
Y_1 Y_2



Y_{A1} Y_{B1}



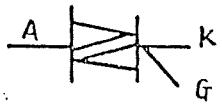
socket of printed circuit



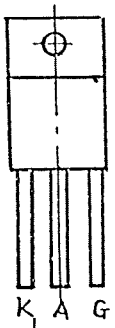
3. Transistor outlet leads

. double-action

electric symbol

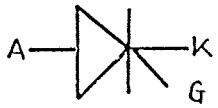


figue

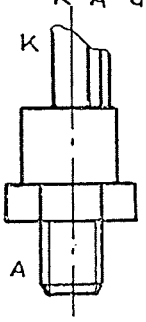


. thyristor; 3CT

electric symbol

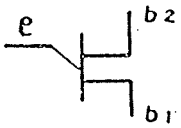


figue

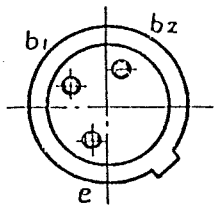


. double-base transistor; BT(Q1)

electric symbol

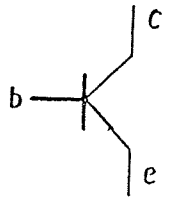


figue

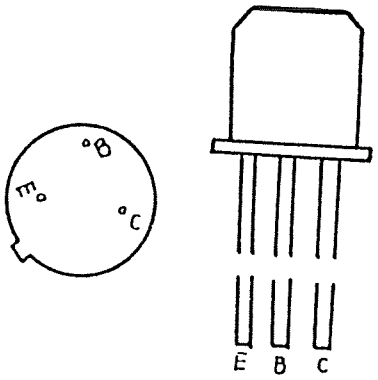


4. transistor(NPN)Q

electric symbol

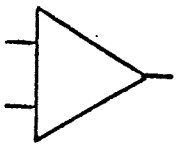


figue



5. arthimetic amplifier: IC

electric symbol



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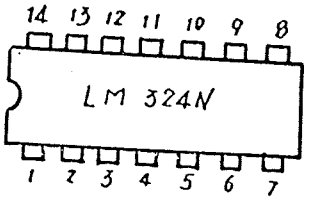
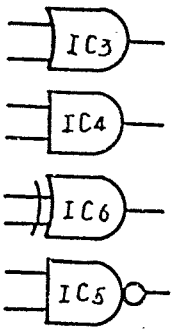


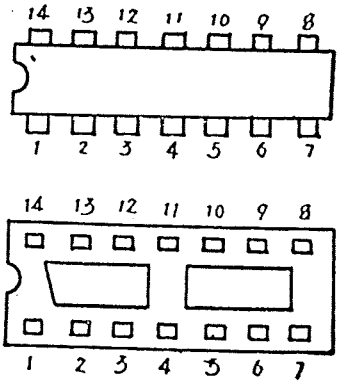
6. logic circuit

electric symbol



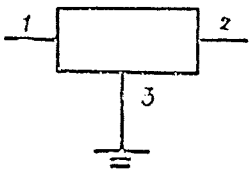
figue

socket

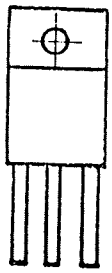


7. three-lead stabilizer: SW

electric symbol

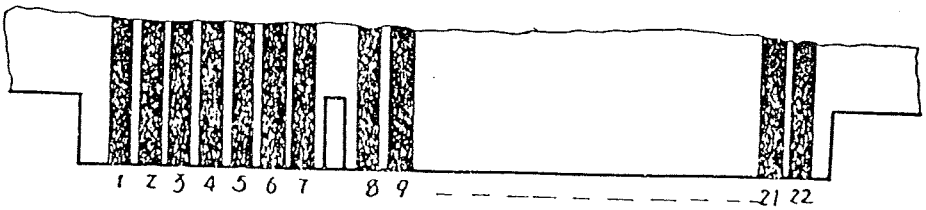


figue



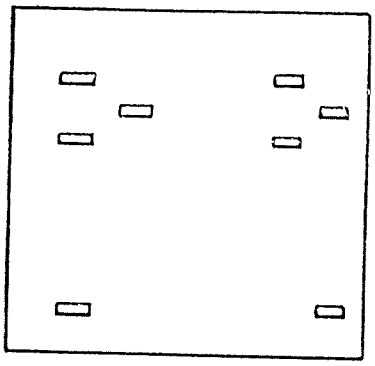
30

8. arrangement for P.C.B. outlet leads

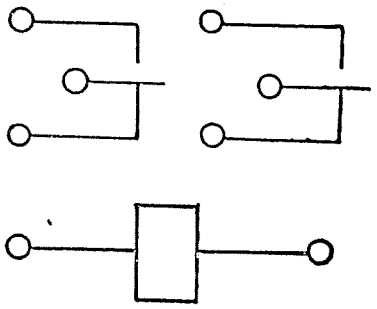


9. relay

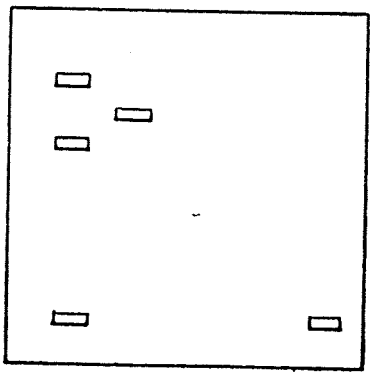
(a) J_1



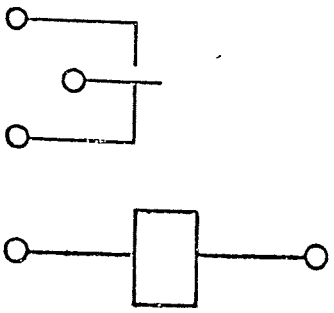
J_{1-1} J_{1-2}

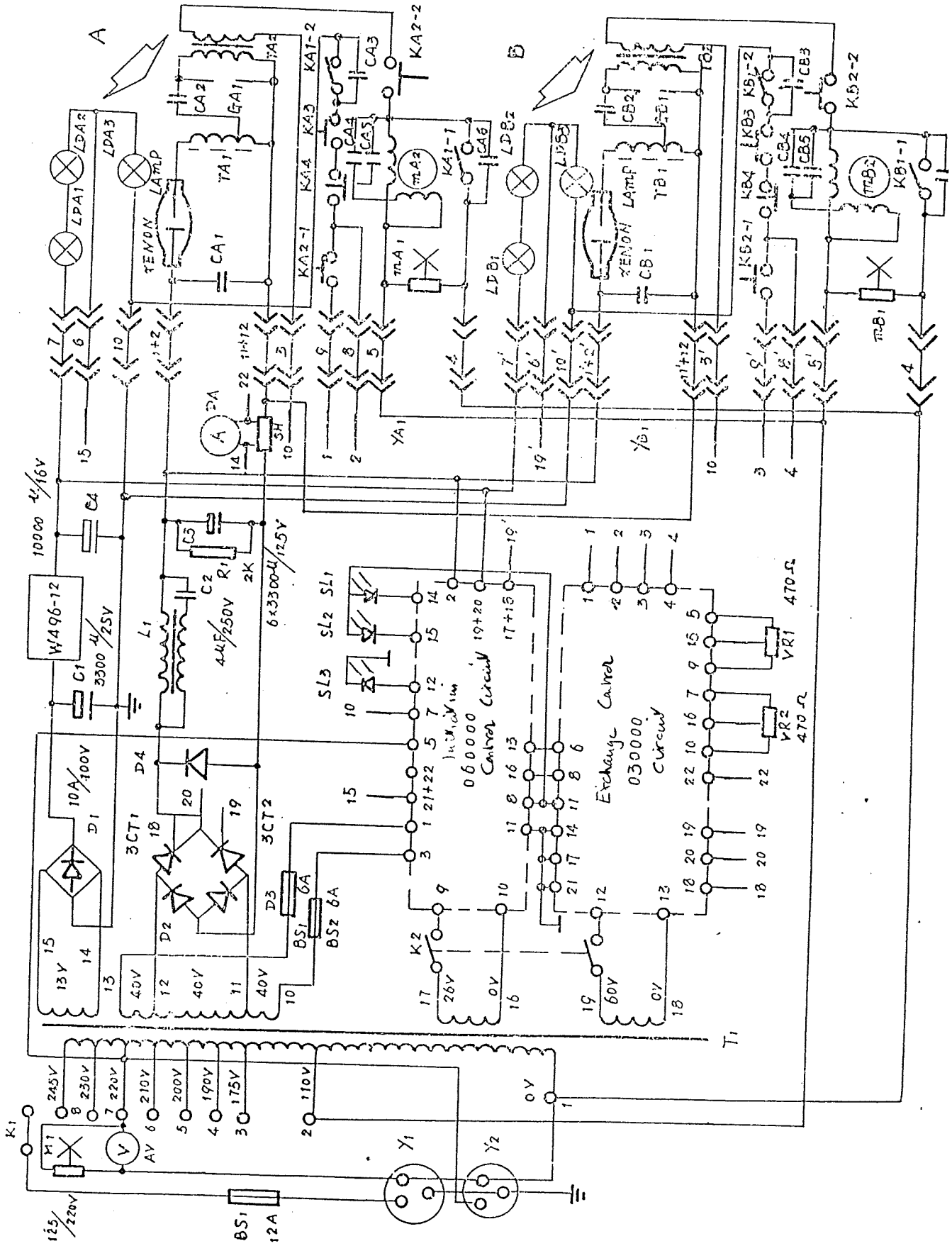


(b) J_2 (J_3, J_4)

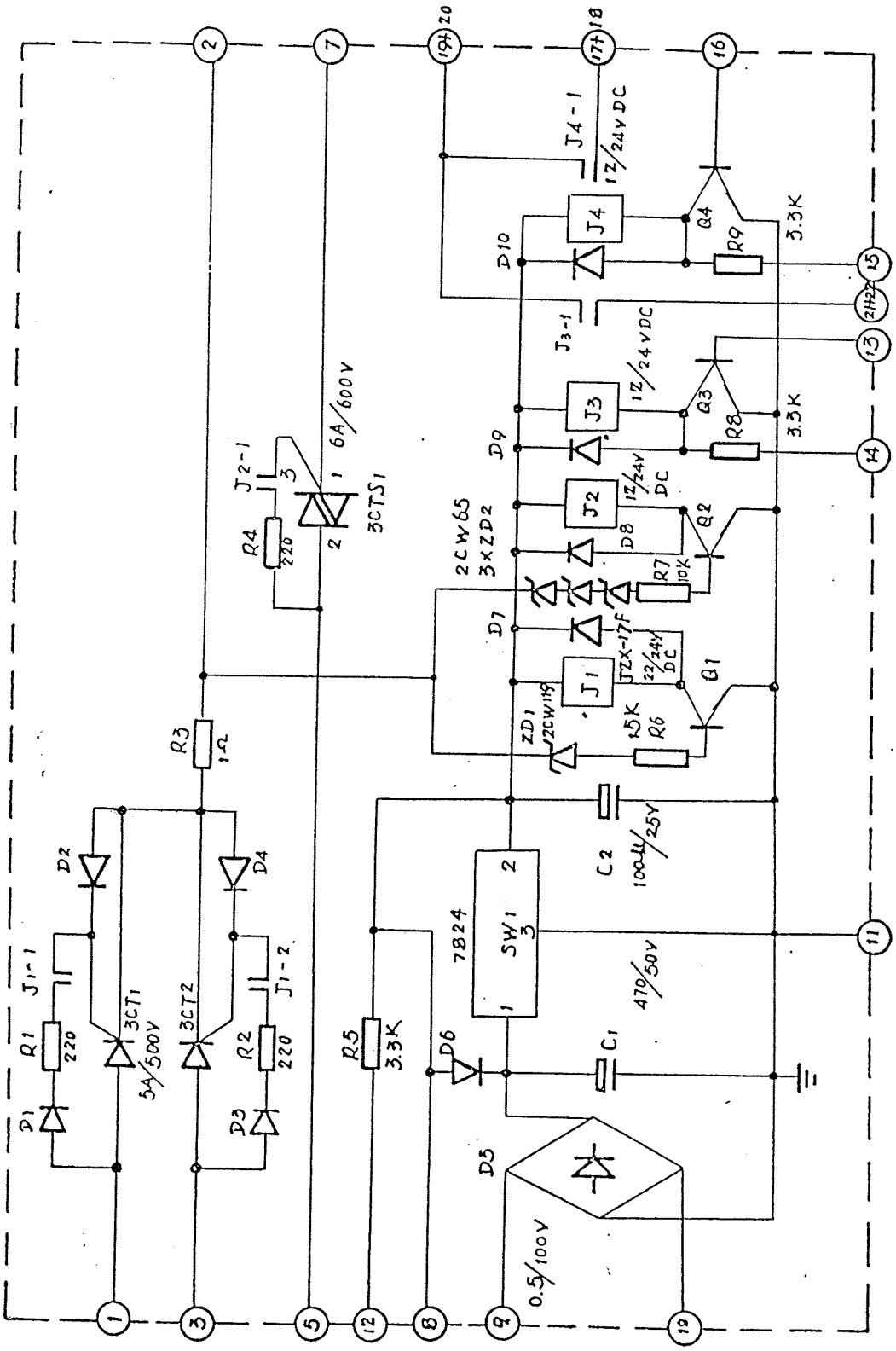


J_{2-1} (J_{3-1}, J_{4-1})



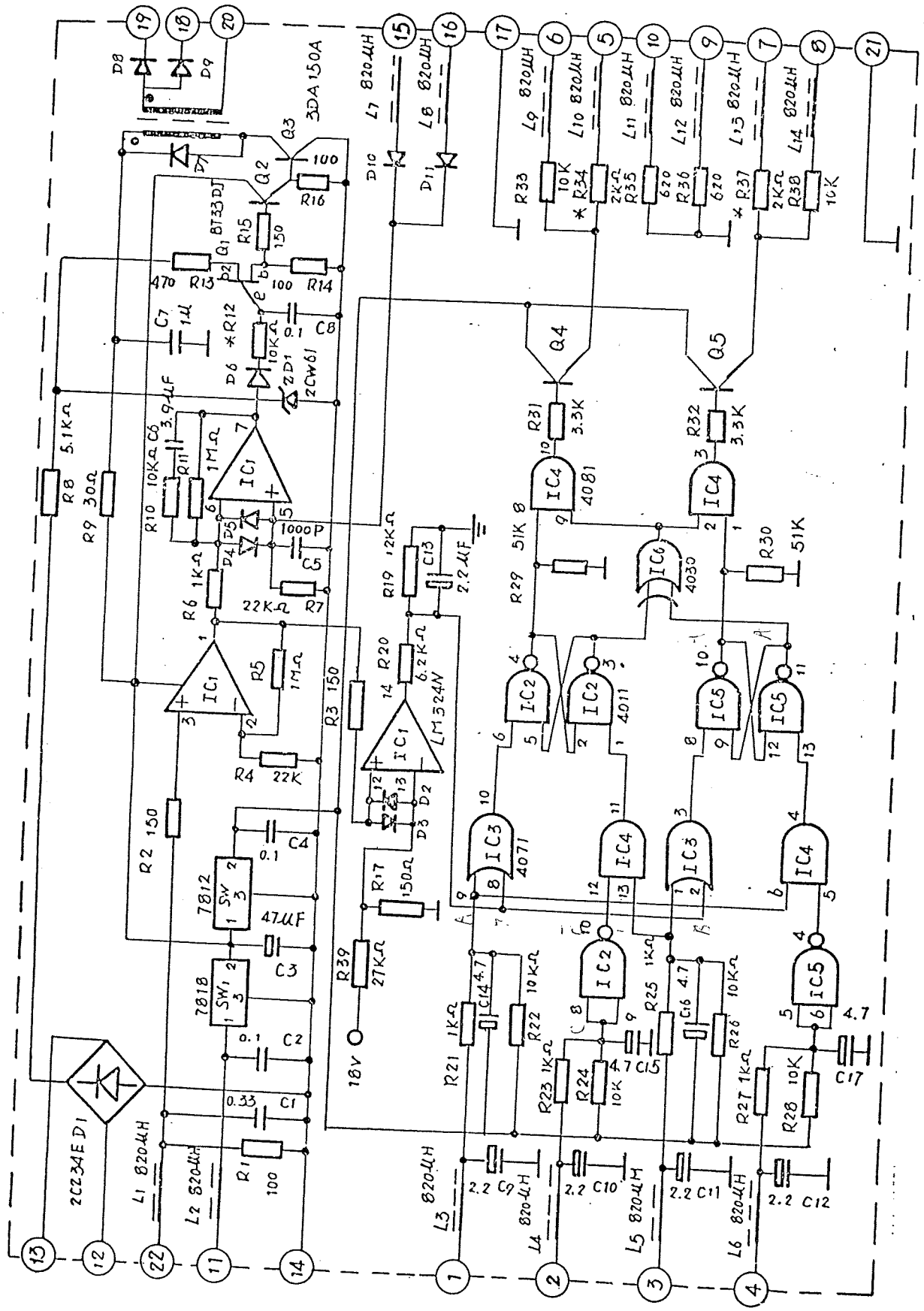


XENON LAMP POWER CIRCUIT



INITIATION CONTROL CIRCUIT

33



EXCHANG CONTROL CIRCUIT

APPLICATION AND FEATURE

Jing Gang Shan film track sound reproduction amplifier model FK 40-5, is a well-designed apparatus which, with several kinds of signal-convertion jacks, can reproduce sound for 16mm and 35mm projectors. It can amplify the sounds of transistor gramophone, cassette and disc recorders, microphone, etc., and it can also monitor the sound reproduction process with the aids of a monitor speaker. In the same time, it can be made recordings of sound-reproduced programs by connecting recorders with aids of its circuit output jack. Also, it can be used as sound reproduction apparatus for all kinds of silicon electric cell 16 mm and 35 mm projectors, or as sound amplifer in theatres, hotels and auditoriums.

MAIN PERFORMANCES

1. power out put: rated power--40W(8Ω), highest power--60W(8Ω). notice: speaker resistance must lower then 8 ohms.
2. resistance out put: out put--8
   monitor--8
3. frenquency scope: 40Hz~8Hz ± 1dB(line in)
4. harmonics distortion coefficient:
   40W ZOHz ZKHz lower than 3%
   60W 1000Hz lower than 3%
5. connectors feature:
   silicon electric cell input: 10mv(for 35mm projector)
   3mv(for 16mm projector)
   microphone input: 10mv
   pickup input: 380mv
   circuit output: 0dB
   circuit input: 100mv
6. C/N: 16m/m larger than 46dB, 35m/m larger than 54dB
7. tone control: high tone--10KHz ± 10dB
   low tone--70Hz ± 10dB

power requirement:
AC220V, 50/60Hz, 100VA(ated output)
Dims. 350(long)× 270(wide)× 110(high)mm
weight: 5kg

OPERATION

1. Power: AC220v, 50/60Hz.

2. Before operation, check the fuse of power(1.5 A) and fuse of speaker (5A) inside.

3. Connect the speaker and monitor well, check the corresponding switches and make sure they are in right positions.

4. Before connecting power, turn the sound and other switches in the lowest position. In case of electric impulse and then, connect power and turn the sound and the voice switches to make sure the output value lower than 0dB.

5. Microphone and sound reproduction can be used in the same time. When sound reproduction be used, the microphone output value will decrease by 6dB.

Projector input plug: 3 cord

other plugs: 2 cord

6. When sound pickup and circuit input be used, make sure the correspounding switches in cirouit position. When 35mm projector is used, put the switch in 35mm position, when 16mm projector is used, put the switch in 16mm position.

MAINTENANCE

1. Put this apparatus in a dry, ventilate place. Keep it from direct sunlighting, moisture and hotness.

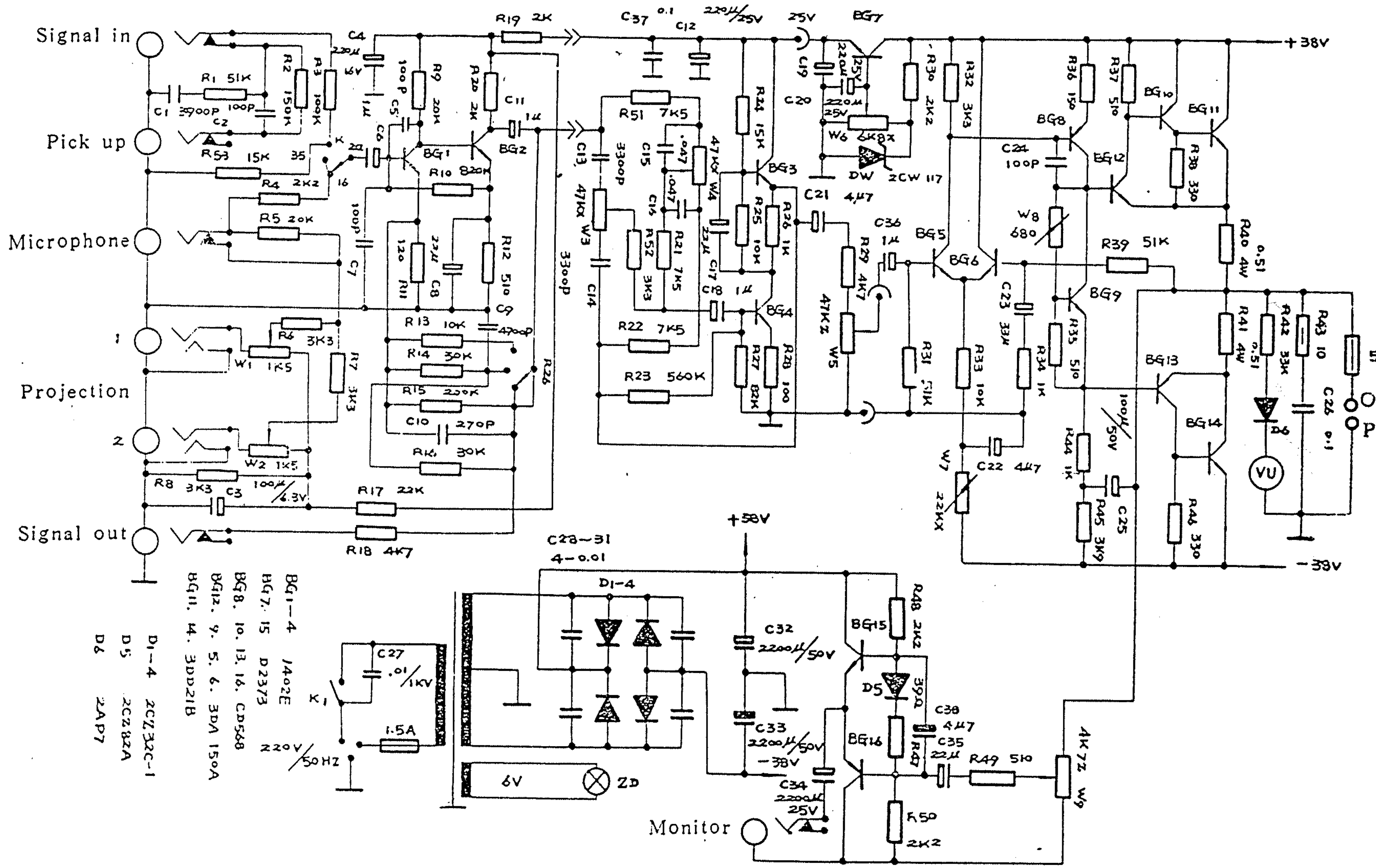
2. Before operation, read the manual carefully, do not unpack the apparatus without permission.

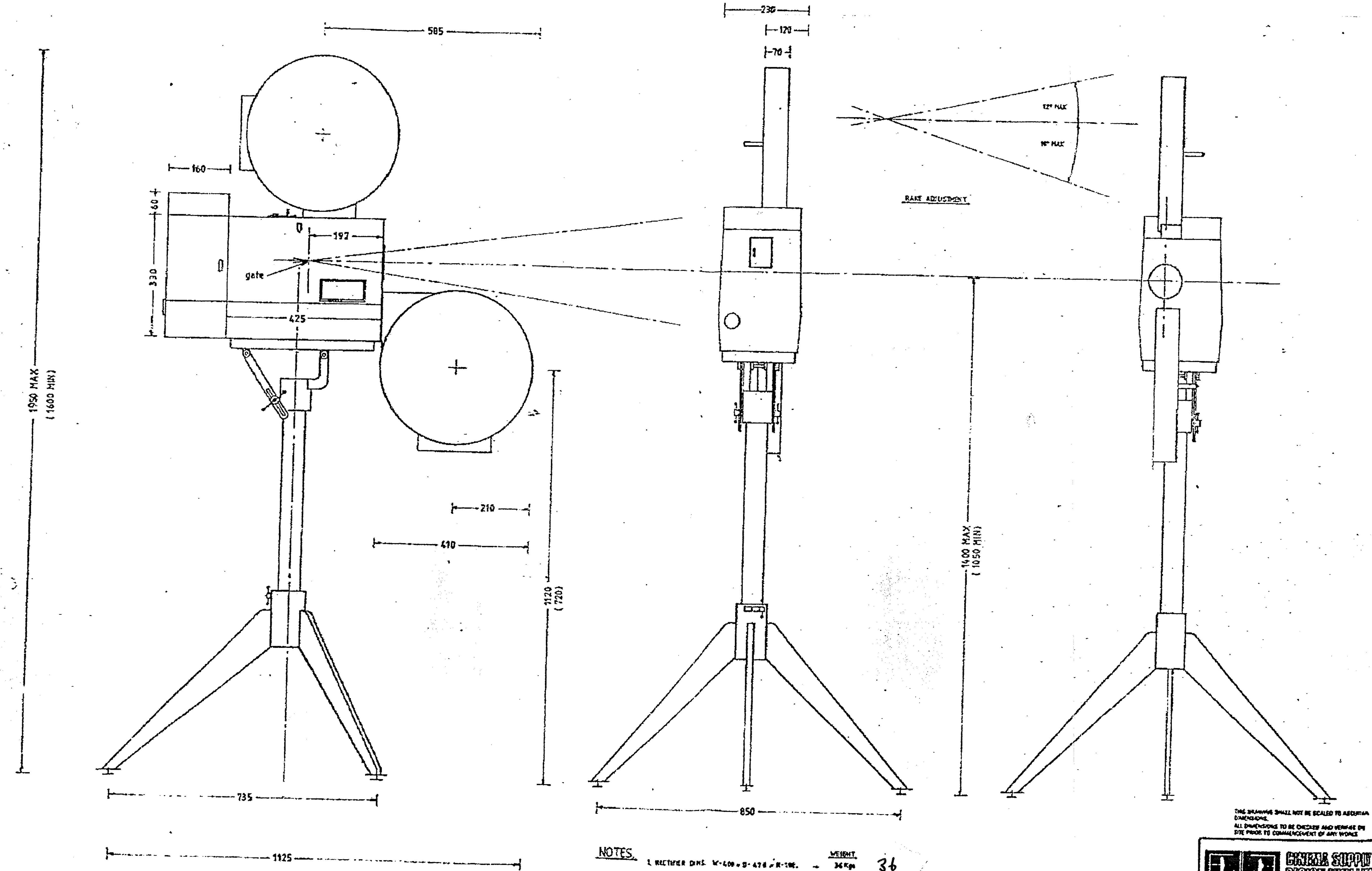
3. Power fuse size: 1.5 A

Speaker fuse size: 5 A

When substituting, pay attention to the fuse size and cut off power.

4. Connect the power once permonth when the apparatus have not been operated for a long time.


Signal in
Pick up
Microphone
Projection
Signal out
Monitor
Out
Put
+38V
-38V
+58V
25V
6V
220V/50HZ
BG1-4 1402E
BG7. 15 D2373
BG8. 10. 13. 16. CD568
BG12. 9. 5. 6. 3DA 150A
BG11. 14. 3DD21B
D1-4 2CZ32C-1
D5 2CZ82A
D6 2AP7



NOTES.

1. RECTIFIER DIMS. W-400 x D-470 x H-300.	–	36 Kgs	36
2. PROJECTOR ASSEMBLY DIMS. AS DRAWING	–	47 Kgs x 2	27 x 2
3. SPEAKER UNIT	–	15 Kgs	7.5 ?
4. CABLES ETC.	–	20 Kgs	24 ?
	TOTAL	165 Kgs	165

THIS DRAWING SHALL NOT BE SCALED TO ASCERTAIN DIMENSIONS.

ALL DIMENSIONS TO BE CHECKED AND VERIFIED ON SITE PRIOR TO COMMENCEMENT OF ANY WORKS

CINEMA SUPPLY AND DESIGN (UK) LIMITED

CLIENT: CINEMA SUPPLY & DESIGN

SITE/PROJECT: SPECTRA 90-B
PORTABLE PROJECTOR 35mm

DATE	DRAWN BY	SCALE
20-03-91	P MORT	1-10

DRAWING NO. CE-SP-B1 | REVISIONS