K400W, K400WV, K500W Series

Electric Bicycle

Operation Manual

Preface

Distinguished Users:

Thank you for using **K400W, K400WV, K500W Series Electric Bicycle.**

For the sake of bringing your favorite bicycle into full play and extending it service life as well as for your safe and comfortable driving, be sure to read this operation manual carefully and get familiar with the performance of your bicycle before using. Do not lend your bicycle to the persons who are unable to drive electric bicycles.

Important Precautions

These electric bicycle series adopt the advanced rare-earth permanent-magnetic brushless DC motor and intelligent controller. When you are riding the bicycle or drive it downhill, please do not turn off the power, so as to prevent damage of the controller.

Please read carefully the content of the operation manual and observe strictly all the regulations or descriptions. Phrases of "warning", "caution" and "attention" are used to denote the degree of seriousness in precaution. Please be aware of the meaning of different phrases.

Warning—It involves safety of the rider. Neglect of it may give rise to occurrence of accident.

Caution—It involves the problems to which particular attention shall be paid in respect of operation of the bicycle and charging in order to prevent the bicycle of any damage or personal danger.

Attention—It refers to special explanation to clarify maintenance and important matters description.

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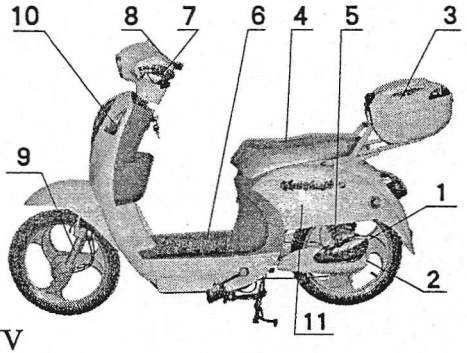
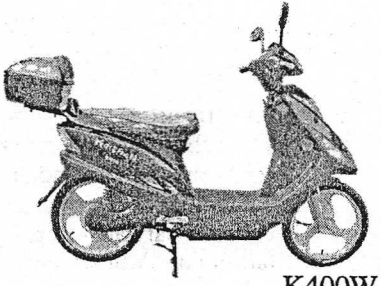
I Structure and Picture of the Electric Bicycle

1. Structure of the electric bicycle

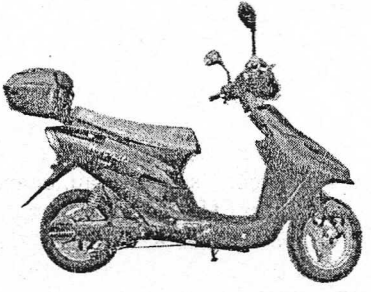
It is composed of wheel hub motor, controller, battery, charger, operation system, damping system, braking system and the vehicle body. See the following picture:



K400WV



K400W



K500W

1. chain
2. hub motor
3. tool box
4. seat saddle
5. central damper
6. battery box
7. handle bar
8. instrument board
9. front damper
10. front plate
11. standby battery (optional)

II. Chief Specifications

1. Chief technical parameters of the whole vehicle

Para / Model	Size (mm)	Distance between the centers of rear wheel and front wheel	Weight of the whole vehicle	Loading capacity	Endurance range (within one year)	Maximum speed
K400W	1680*680*1080	1080mm	80kg	85kg	25~50km	28~30km/h
K400WV	1650*650*1150	1150mm	80kg	85kg	25~50km	28~30km/h
K500W	1600*600*1100	1100mm	80kg	85kg	25~50km	30~38km/h

2. Chief technical parameters of the battery

(1) Type of the battery: sealing lead-acid battery free of maintenance

(2) Capacity: 14Ah/16 Ah/ 22Ah

(3) Rated voltage: 48V

3. Chief technical parameters of the motor

(1) Type: rare-earth permanent-magnetic brushless DC motor

(2) Rated output: 400W/500W

(3) Rated speed: 380±10rpm/480±10rpm

(4) Rated voltage: 110V

(5) Rated output torque: 10N • m

4. Chief technical parameters of the controller and the charger

(1) Under-voltage protection value: 41.5V±0.5V

(2) Over-current protection value: 15A±1A

(3) Type of the charger: electric intelligent

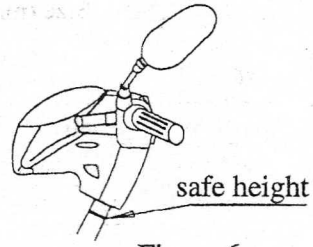
(4) Input voltage: 110V

(5) Maximal output power: 100W

III. Installation and Adjustment

1. Installation Requirement:

1.1 The mark of "MAX" and other height mark lines on the handle bar are safe insert marks, which mean the minimum insert depth (see Figure 6).



see Figure 6

1.2 Screwing torque of fasteners on key parts (see Table 2)

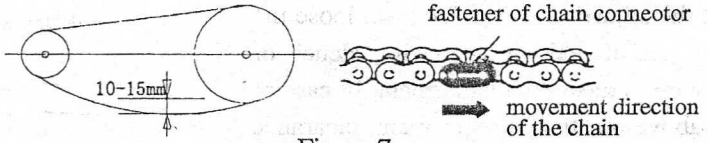
Serial No.	Item	Screwing torque
1	Screw mandrel on the center of the handle bar	>18 N • m
2	Bolt on the joint of the handle bar	>18 N • m
3	Rea riser and saddle pipe	>18 N • m
4	Mean axis lock	>30 N • m
5	Front wheel	>18 N • m
6	Rear wheel	>30 N • m

2. Adjustment of the whole vehicle

2.1 Adjustment of Chain

Loose the nuts on the both sizes of the rear wheel, remove the rear wheel, adjust the chain to the appropriate degree of tightness (the distance between the free dropping status and the tightness is about 10-15mm) then screw the nuts on the rear wheel. (see Figure 7).

The movement direction of the chain



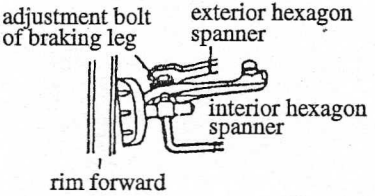
see Figure 7

Caution:
The flexible shackles on the joint of the chain should be installed against the movement direction of the chain.

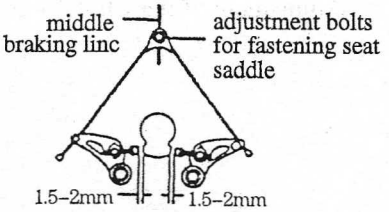
2.2 Adjustment of Front Cantilever Brake:

Loose the bolts on the fixed seat of braking steel wire, clench or loose the braking wire, making the average distance between the braking circular rims on both sides around 1.5-2mm, then tighten the

screws. If the distances of the both sides are not equal, the spring adjusting bolt on the brake arm can be adjusted. (see Figure 8)

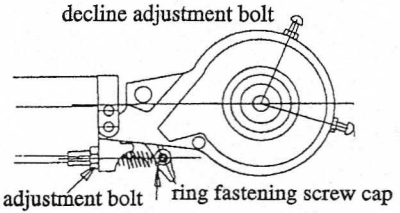


see Figure 8



2.3 Adjustment of Rear Band Brake

First of all, adjust the adjusting bolt; otherwise, loose the bolts on the fixed seat of braking steel wire, clench or loose the braking wire to meet the requirement. In case of the failure to the above-mentioned adjustment, clearance adjustment bolt can be adjusted at the same time to ensure the equal distance of the two sides of internal brake blocks. (see Figure 9)



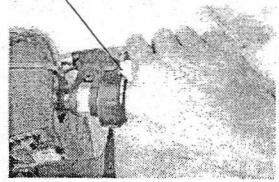
see Figure 9

Attention:
Brake rubber with 2/3-abrasion-status should be replaced in time.

Warning:
Application oil to front brake rubber, rear brake (brand brake) and tires are strongly prohibited.

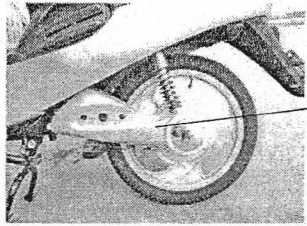
Adjustment of front brake lever:

刹手把图案



When pulling front brake lever, the gap between the brake shoe and rim is about 5mm. Before each riding, it's better to check the gap and if necessary please adjust as follows:

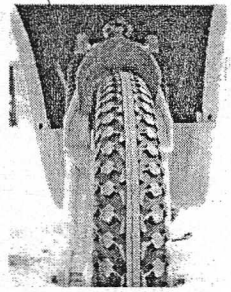
1.Loosen locking screw
2.Turn adjusting screw
3.Adjust brake to make the gap reach 5mm
4.Tighten locking screw



后轮抱闸图案

To loosen or tighten the adjusting screw can get the optimum brake condition.

前悬臂闸图案

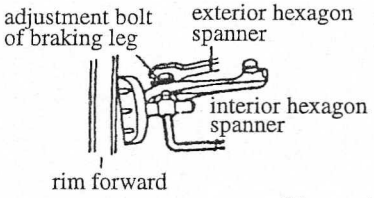


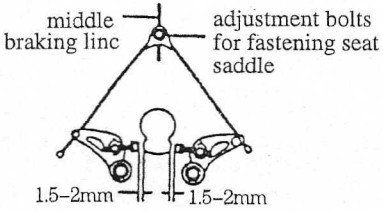
Suggestion:

When the shoe of the band-type brake has been worn to 1/3 of original thickness, it should be replaced.

when adjusting the chain, loosen the take-up screw, and adjust the chain so that there is a slacking of 10-15mm. In the meantime front and rear chain wheel also must keep in one line.

screws. If the distances of the both sides are not equal, the spring adjusting bolt on the brake arm can be adjusted. (see Figure 8)

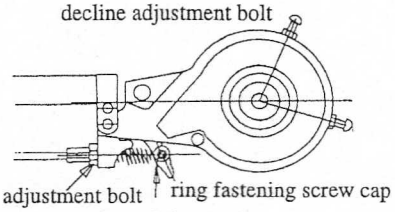




see Figure 8

2.3 Adjustment of Rear Band Brake

First of all, adjust the adjusting bolt; otherwise, loose the bolts on the fixed seat of braking steel wire, clench or loose the braking wire to meet the requirement. In case of the failure to the above-mentioned adjustment, clearance adjustment bolt can be adjusted at the same time to ensure the equal distance of the two sides of internal brake blocks. (see Figure 9)



see Figure 9

Attention:
Brake rubber with 2/3-abrasion-status should be replaced in time.

Warning:
Application oil to front brake rubber, rear brake (brand brake) and tires are strongly prohibited.

2.4 Adjustment of the Height of Seat Saddle

In light of the height of the user, the height of the seat can be adjusted. When the user seat on the saddle, his or her two feet touch the floor naturally, on which the appropriate height of the seat saddle can be fixed.

IV. Precautions

1. Strictly observe the traffic codes and drive on the slow vehicle lane.
2. The electric bicycle is suitable for only one rider. Do not carry other people.
3. Do not hang any objects on the hand lever. Otherwise the bicycle may be out of control and accident occurs.
4. Wear rain cloak when riding in rain. Do not use umbrella. Do not ride the vehicle with only one hand.
5. Application of oil to braking parts are strongly prohibited to prevent the failure of the brake.
6.Downhill riding in exceeding the speed limit is strictly forbidden. In riding at high speed, do not brake with only the front brake or brake abruptly with the front brake to prevent the center of gravity from shifting forward against any danger.
7. Dismantling the vehicle at will may bring hidden danger to both your electric bicycle and yourself.
8. Make sure that all the fastenings such as seal saddle, axle and wheels are safe and reliable to avoid accident.
9. Do not ride the bicycle on uneven, or muddy, or pebbled, or stepped road against tire explosion and deformation of the wheel rim.

Warning: Children under 12 years old are forbidden to ride the electric bicycle.

Attention: Increase the braking distance when riding on raining or snowing days and brake at least 15 meters in advance.

V. Correct Use and Maintenance

Warning: In order to guarantee your safety, please make trial riding at open and wide place for your first riding. Ride on the road only after you command the basic requirements. Please observe the traffic rules consciously. Do not lend the electric bicycle to the person who is unable to operate it.

Attention:
This electric bicycle can be driven with feet, electricity or both the

feet and the electricity.

1. Correct use of parts

(1) Key: Two keys of the same kind are supplied with the bicycle. Keep one key in good storage for standby use. The key can open three locks on the vehicle: power switch, battery box and rear cargo box. The functions of these locks and the methods to open them are as follows:

A. Power switch lock (see figure 10)

"OFF" position: all the circuits are cut off.

"ON" position: The electric circuit is made. The motor can be started any time.

The key can't be pulled out at this time.

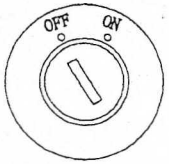


Figure 10

Caution: Before riding see to it that the battery power source is well connected, that the battery is fitted to its position and that there is no bad contact on the electric contact points.

B. Battery box and rear cargo box locks (see figure 11 and 12)

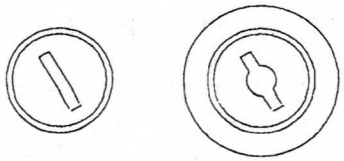


Figure 11 and 12

(2) Controller instrument indication and voltmeter indication (see figure 13)

1. Speed indication

To indicate the instantaneous riding speed in km/h.

2. Mileage indication

To record the complete running mileage after this electric bicycle is put into use.

3. Electric quantity indication

To indicate the present voltage of the battery in V.

4. Power indication

Turn on the power switch, the power indication green light is on.

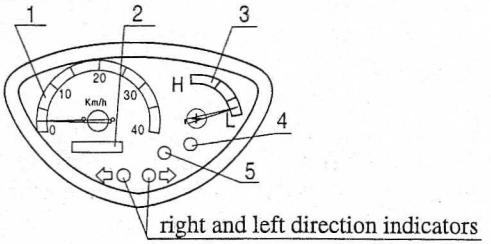


Figure 13

5. Low voltage indication

If the electric quantity indication is below 35V, the red light is on, reminding the use to charge the battery in time. Riding in low voltage will damage the battery.

(3) Charger socket (see figure 14)

Upon charging, put the charger plug into the battery charging socket.

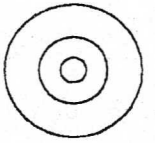


Figure 14

2. Correct use and maintenance of the whole vehicle

(1) Insert the bicycle key into the power switch and turn it on clockwise. Power is made when the voltmeter rises to the highest voltage.

(2) After starting, turn the speed regulation hand lever backward slowly with your right hand. You can ride now if the vehicle begins accelerating. By loosening the speed regulation hand lever, the speed will slow down until the power of the motor is cut.

(3) The vehicle possesses cut-off protection device upon braking. In running, either the left braking hand lever or the right one will cut off the power of the motor to ensure safety.

(4) After stopping, if it is necessary to start the motor again, return the speed regulation hand lever to zero and then turn it slowly for gradual acceleration.

3. Correct use and maintenance of the motor and the controller

(1) When riding uphill or against the wind, do not accelerate abruptly. Acceleration shall be made gradually and evenly to prevent the motor and the battery from loading heavily.

(2) In rainy season, do not ride the vehicle in deep water, the level of which is higher than the central line of the rear wheel. Otherwise, the motor will be wet and burn out.

(3) In riding, do not use the direction changing hand lever and the braking hand lever at the same time to prevent the motor from overloading, which may damage the parts.

(4) The electric bicycle is not suitable to ride on uneven or steep road. Excessive vibration will result in bad contact of various electric devices. If you meet road of this kind, it's better to reduce the speed or to get down the vehicle and walk along with it.

Caution:

1. When safety is secured, minimize frequency of braking operation and avoid frequent starting.

2. When riding on uneven or muddy road, or in busy traffic, slow down the speed as much as possible.

Warning: Do not make an instantaneous sharp turn of the speed regulating hand lever for acceleration so as to ensure safety in riding and to protect the motor and the battery.

4. Correct use and maintenance of the battery

(1) The battery should not contact with fire, heat source and basic materials and should not be exposed in the direct sunbeam. Otherwise, the service life of the battery will be reduced.

(2) Use the special charger to charge the battery to avoid damage of it.

(3) In summer it is not recommended to charge the battery right after each riding because the temperature of the battery is high. In winter, under 0℃, the battery is at low temperature. Please charge it indoors.

(4) The used battery, if laid aside for a comparatively long period, shall be stored under full charge. And charge it every week to prolong its service life.

(5) When working under 15℃, the effective discharge rate of the battery will be reduced.

(6) The charging period for the battery is 4 to 8 hours.

Attention: with the declining of the temperature, the capacity of the batter is reducing, leading the smaller endurance range. Vice versa.

Attention:

1. When the voltage indication pointer turns to the red area, please charge the battery in time.

1. After riding each day, no matter whether the distance is long or short, the good habit to charge the battery shall be cultivated. Then, the battery will always be under full charge to prevent the polar plates from polarizing and to prolong the service life of the battery.
2. For the first two times of the charging for a new battery, two more hours can be added to the normal charging period. But the charging period had better not be more than 8 hours at usual time.

5. Correct use and maintenance of the charger

(1) Upon charging, insert the battery charging plug and then insert the 110V AC power source. At this time, the red lamp on the charger's panel shall light up. When charging comes to an end, 2 hours after the green lamp on the charger lights up, pull off AC power source plug at first and then pull off the battery charging plug.

(2) Upon charging, do not wash the battery-carried vehicle body with water.

(3) Charging shall be made in dry and well-ventilated environment, avoiding moisture and keeping away from combustible and explosive objects.

(4) Upon charging, the charger and the battery shall not be covered by any objects.

(5) When inserting and pulling off plugs, your hands shall be dry.

(6) The place for charging shall be far from children.

(7) The electrification can be made with the battery on the vehicle or being taken off from the box.

(8) Upon charging, open the seat saddle first, turn the seat saddle forward, pull down the power connector and then take off the battery.

Warning:

The battery of this electric bicycle shall be charged with the special electronic intelligent charger supplied together with the vehicle by our company.

Our special charger cannot be used on other brand electric bicycles and prevent putting the charger into the rear cargo box.

Caution: Before charging, insert the battery charging plug at first, and then connect with AC power

source. After charging, pull off AC power source plug at first, and then pull off the charging plug. Sparking between the charger's plug and the battery charging socket shall be avoided against burning out the socket.

6. Inspection, Repair and Maintenance

Inspection ● Adjustment◆ Replace▲ Lubrication■

Inspection items	Every day	Every 60 days	Every 180 days
1. Whether the hand lever's turning and direction-changing parts become loose and worn out.		●■	●■
2. Whether the foot treadle is worn out and the rotation is flexible		●■	●■
3. Whether tire pressure is adequate and whether the outer cover of a tire is worn out.	●		
4. Whether the wheel rim is deflected and deformed.		●	●■
5. Whether the brake is in good condition.			▲
6. Whether the circular rim is distorted and swept		●	●
7. Whether the frame is deformed.		●	●
8. Whether the spoke is loose and broken		●	●
9. Whether the brake is good enough	●	●◆	●◆
10. Whether the horn sounds loudly.	●		
11. Whether the charger and the power wire are worn out.	●		

Recommended lubricating oil:
(1) Hydraulic fluid HL68# and (2) 2# calcium grease (consistent grease)
Notes:

- ✧ Clean and lubricate the front axle, the rear axle, damper and rotating parts once every 6—12 months according the using conditions. Users shall not clean and lubricate the transmission parts inside the motor hub because they have been applied with special lubricant.
- ✧ Maintenance and repair of the motor hub and electronic components, such as controller and display, shall be carried out at the designated maintenance department. Any trouble and damage resulting from unauthorized dismantling do not fall into the scope of our company's repair guarantee free of charge.

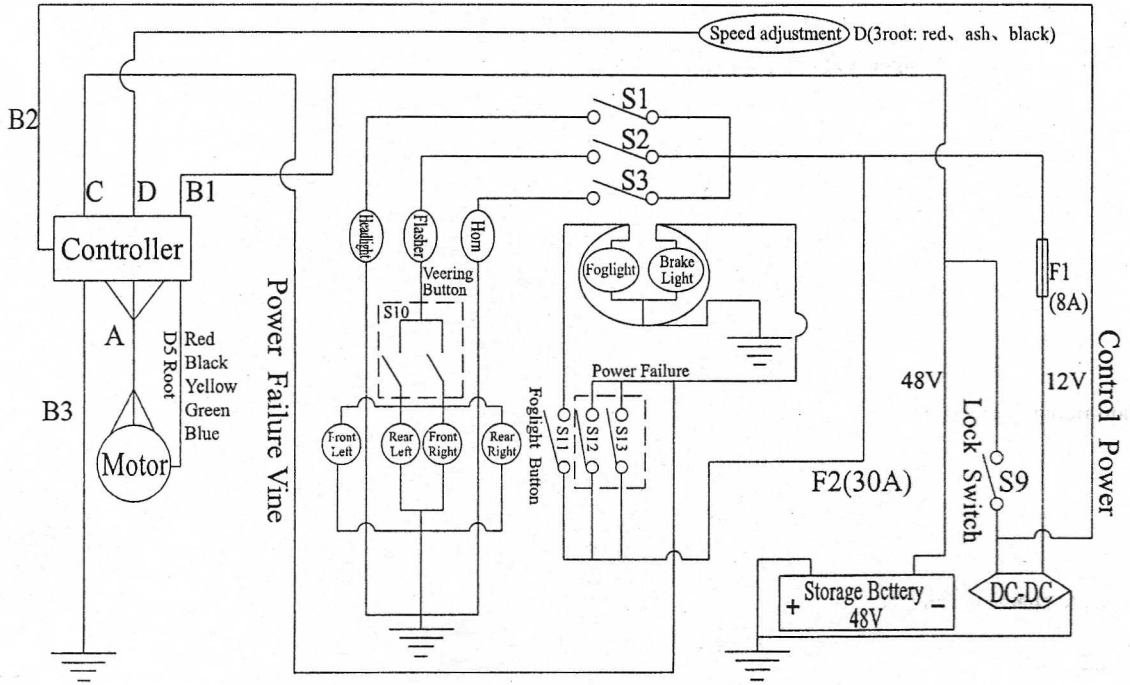
VI. Common Troubles and their Remedies

Attention: Please contact the special maintenance department of the supplier if the motor and the controller work abnormally in daily use.

Common troubles	Remedies
No indication on the instrument when power is turned on.	1. Whether the switch has been unlocked by the key. 2. Whether the power plug is inserted perfectly. 3. Whether the blown fuse on the battery box is burnt out (ask the maintenance man to repair).

When power is on, the controller works normally, but the motor does not rotate upon turning the hand lever.	1. Whether the speed regulating wire of the right hand lever drops off and whether the joint of controller or motor drops off. 2. The preliminary speed is not enough and it needs external aid. 3. Whether power for the left and right brake hand levers have been cut off.
Hard riding, with low speed.	1. Inspect the brake. See whether it bites on. 2. Whether the air pressure of the inner tube of the tire is adequate. 3. Whether the battery voltage is sufficient. Charge it if not sufficient. 4. Whether the limited slope is exceeded or running against the wind.
Short riding distance.	1. The battery has stored up for a long time. Please charge it first. 2. Whether the air pressure of the tire is sufficient. 3. Whether the brake is too tight. 4. Whether the battery is sufficiently charged. 5. Whether riding uphill or against the wind. 6. Whether the temperature is too low. (lower than 15℃)
Failure to charge the battery	1. Whether the connection of battery with the charger and the power source is perfectly reliable. 2. Whether the external power source is active and its voltage is normal.

VII. Electric Circuit Diagram of the Electric Bicycle



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All the data, explanation, figures, pictures and specifications in the Operation Manual are taken from the latest product upon publication. Because of improvement or other alternation, description in this Operation Manual may be somewhat not in conformity with the actual vehicle. Our company reserves the right to amend this Operation Manual at any time.

The interpretation right to the Manual belong to Our company.

Electric Bicycle Chief Technical Parameters and Performance Index

A1 Chief Technical Parameters of the Whole Vehicle

Para / Model	Size (mm)	Distance between the centers of rear wheel and front wheel	Weight of the whole vehicle	Loading capacity	Endurance range (within one year)	Maximum speed
K400W	1680*680*1080	1080mm	80kg	85kg	25~50km	28~30km/h
K400WV	1650*650*1150	1150mm	80kg	85kg	25~50km	28~30km/h
K500W	1600*600*1100	1100mm	80kg	85kg	25~50km	30~38km/h

A2 Chief technical parameters of the battery

A2.1 Type of the battery

Sealing lead-acid battery free of maintenance

A2.2 Capacity----------14/16/22 A.h

A2.3 Rated voltage----------48 V

A3 Chief technical parameters of the motor

A3.1 Type rare-earth permanent-magnetic brushless DC motor

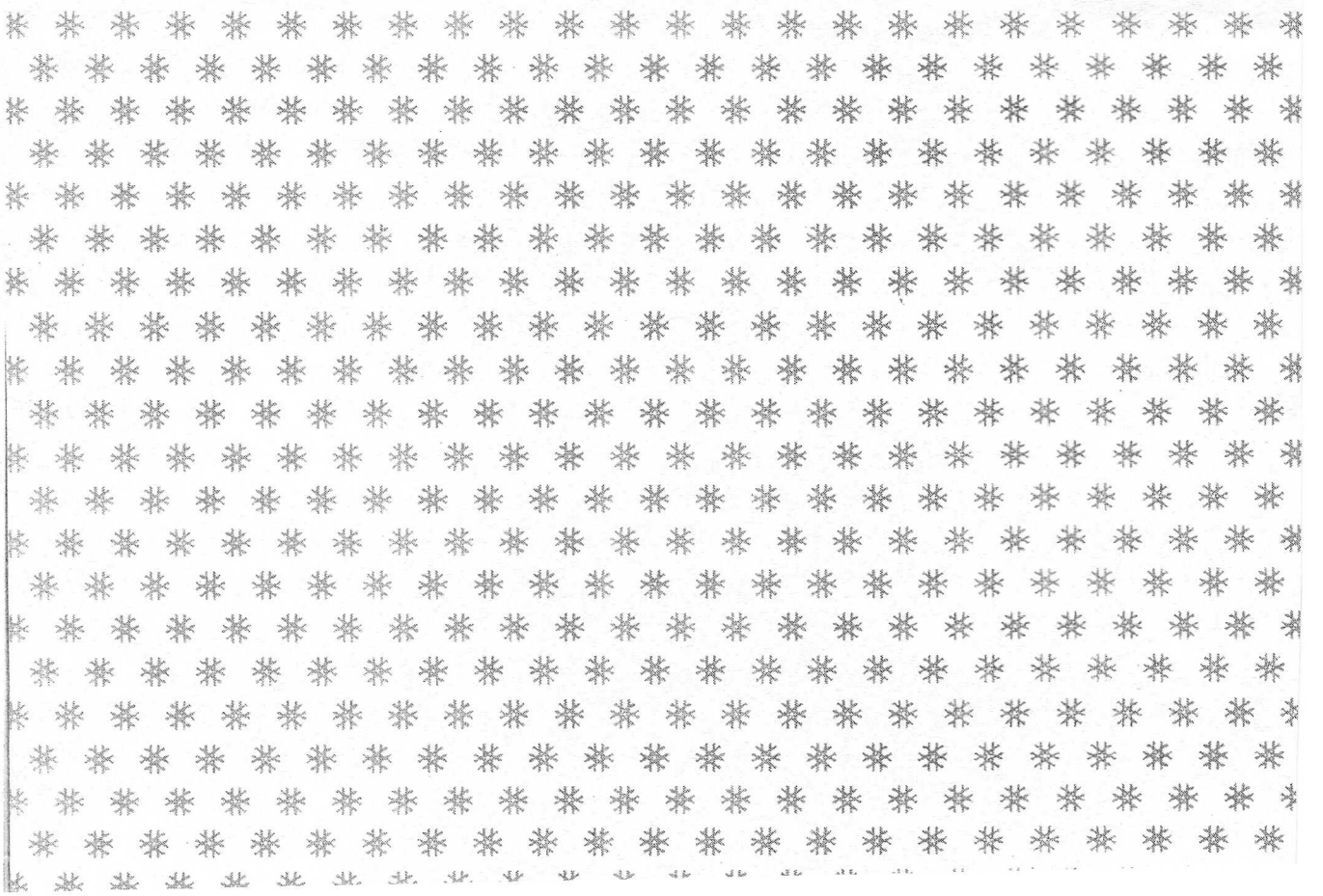
A3.2 Rated continuous output----------400/500 W

A3.3 Rated speed----------380±10/480±10 rpm

A3.4 Rated voltage----------110 V

A3.5 Rated output torque----------10 N • m

A4 Chief technical parameters of the controller and the charger

A4.1 Under-voltage protection value----------41.5±0.1V

A4.2 Over-current protection value----------15±1 A