

Instruction to

MKQ-2A, MKQ-3A , MKQ-6A

CERVICAL AND LUMBAR VERTEBRAE TRACTION BED

Made by Jiangsu Meikang Medical Equipment Co., Ltd.

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1. ABSTRACT

Thank you very much for choosing to use the cervical and lumbar vertebra treatment traction bed produced by Jiangsu Meikang Medical Equipment Co., Ltd.! The mechanism of the cervical and lumbar traction bed is to simulate the traditional Chinese massage, and transfer the traction force or traction Angle set by the operator to the patient through the motion mechanism, so as to realize the cervical and lumbar traction for the patient. It is our company combined with rich clinical experience carefully developed cervical lumbar traction bed treatment. It has the advantages of beautiful shape, energy saving, simple maintenance, safety and durability. In order to familiarize you with this product as soon as possible, please read this instruction manual in detail.

2. MAIN TECHNICAL FEATURES

- (1). Integrated cervical and lumbar traction, which can be performed separately or simultaneously for two patients;
- (2). Cervical traction is controlled by microcomputer, and lumbar traction is controlled by microcomputer
- (3). Memory eight different traction mode (continuous, intermittent, stepped)
- (4). 20 case parameters were stored and read;
- (5). Automatic traction compensation function
- (6). The set value is monitored synchronously with the actual traction value
- (7). A variety of safety design (patient emergency retreat switch; Medical staff operate the emergency retreat button; When the traction force of cervical traction is adjusted above the limit value, a warning is issued to require operator confirmation. When cervical and lumbar traction is strained or relaxed by external force, the device automatically restores the preset value.)

3. MAIN TECHNICAL PARAMETERS

	Item	Model		
		MKQ-2A	MKQ-3A	MKQ-6A
Basic Parameters	Power	300VA	220VA	300VA
	Traction force	0~999N (adjustable) Lumbar		
	Traction force	0~250N (adjustable) Cervical vertebra		
	Total traction time	0~60min		
	Intermittent time	0~9min		
	Traction time	0~9min		
	Progressive time	The maximum deviation is no more than 2S		
	Receding time	The maximum deviation is no more than 2S		
	Traction journey	Lumbar 0~200mm		
	Traction journey	Cervical vertebra 0~300mm		
	Angular angle	---	-20° ~+20°	---
	Sway angle	---	-35° ~+35°	---
	Bed Size	251×60×70cm		230×60×60cm
	Side baffle size	150×31cm	138×36cm	---
	Rear sealing plate size	59×31cm	60×36cm	---
	Traction speed	Lumbar traction: 6.5mm/s		cervical traction: 6.0mm/s
		---	Angular angle: 1.3° /s Sway angle: 7° /s	---

4. WORKING CONDITION

- (1) Ambient temperature: 5 °C to 40 °C
- (2) Relative humidity: less than 80%
- (3) Atmospheric pressure: 50Kpa ~ 106Kpa
- (4) Power supply voltage: A.C. 220V ±22V
- (5) Power frequency: 50Hz ±1Hz.

5. WORKABLE DOMAIN

MKQ-2A, MKQ-3A , MKQ-6A traction system is using for lumbar traction and cervical vertebra traction.

6. INSTALLATION AND DEBUGGING

- (1). Open the packing box and place the traction bed on the flat ground;
- (2). The traction bed with casters shall be locked with the locking device of casters to prevent the bed from moving;
- (3). Switch on the power supply and follow the operation method.

7. OPERATIONAL METHOD

1. After the patient lies on his back or prone at the appropriate position on the bed surface according to his condition, tie the patient's abdomen and disc bone respectively with bandages (fasten them properly, otherwise the treatment effect will be directly affected). You can choose to tie the traction belt at the ankle joint.

2. Set the total traction time, traction force, traction time and intermittent time according to the patient's situation.

3. Setting method

3.1. Power on: Switch on the power and turn on the power switch, the traction bed will reset automatically. If it does not close, please press the "emergency back button", the bed surface will continue to reset.

3.2. Window parameter setting:

Press the "Select" key to select function window parameters. Each time you press the "Select" key, a parameter window blinks, indicating that the parameter value of the window can be set. "Total traction time", "traction time", "intermittent time" and "traction force" can be set successively.

3.3. Window number setting method:

When the traction bed is turned on, the default traction is lumbar traction. Press the "cervical and lumbar key" and the lumbar traction indicator lights up.

Press the "select" key, when the corresponding window number flashing, press "+" "-" key until the required value, set the parameters you need (when the lumbar traction indicator is on, only the lumbar traction parameters can be set, when the cervical traction indicator is on, only the cervical traction parameters can be set). Press the "Select key" to set the left and right rotation Angle of mkQ-3a traction bed. When "L" is displayed in the "Intermittent time" window, the value of left rotation Angle is displayed in the "Traction Force" window, press the "+" and "-" keys until the required value of Angle is displayed. When "R" is displayed in the "intermittent Time" window, the value of right rotation Angle is displayed in the "traction Force" window. Press the "+" "-" key until the desired Angle value, and press the "Select key" again to return to the working interface. Manually press UP△, DOWN▽ Angle UP or DOWN to the desired Angle.

3.4 MKQ-3A, MKQ-2A, MKQ-6A cervical traction setting, press "cervical lumbar key", cervical traction indicator light on; Press the select key, when the corresponding window number flashing, press the "+" "-" key until the required value, set the cervical spine parameters you need.

Note: When the cervical spine is set to 200N, if you want to set the traction force higher than 200N, press "Select" and "+", the window displays 210N, and the traction bed gives an alarm sound to remind the operator to pay attention. To set 150N to 200N, do the same as above.

Warning: The base of the traction rope shall not be located in the rear side of the chair face above the rear end of the vertical traction!

3.5 When you need to store data, press the "Storage key". When "A" is displayed in the "Intermittent Time" window, the medical record number is displayed in the "Traction" window, and the medical record number flashes digitally.

Press the "+" and "-" keys to modify the medical record number (20 groups of data can be stored).

When you need to read data, press "Read key". When "A" is displayed in the "Intermittent Time" window, the medical record number is displayed in the "Traction" window, and the medical record number is flashing. Press "+" and "-" to modify (read 20 groups of data).

- 3.6 After setting, press the "Run button", the traction bed will automatically enter the working state, and the decimal point in the lower right corner of the total time will blink.
- 3.7 During operation, the traction force and traction time of the traction bed will be tracked and displayed dynamically. The specific setting values are shown in Table 1 below.
- 3.8 At the end of treatment, a beeping sound will be emitted, and the bed surface will retreat for 10s.
- 3.9 After traction, remove the traction band and let the patient rest.

Table 1 Traction state selection table

Setting status	Total time of intermittent traction (minutes)	Traction time (minutes)	Intermittent time (minutes)	Tractive force (N)
working condition				
Continuous traction	0-60min	/	/	0~999N
Intermittent traction	0-60min	0-9min	0-9min	0~999N

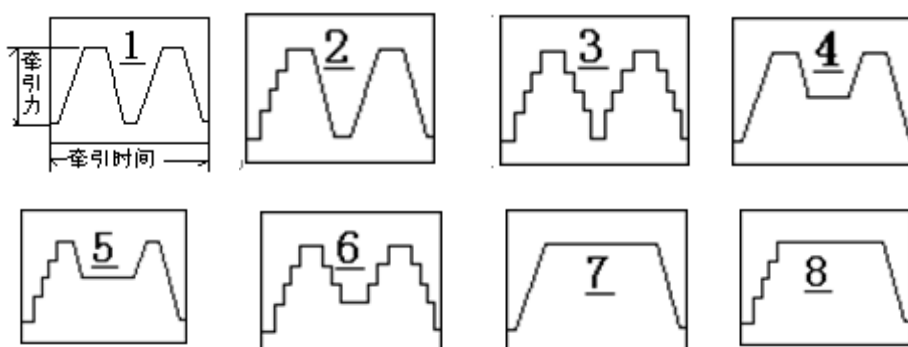
Note: when the patient is in the treatment and traction of cervical and lumbar vertebrae, the patient's emergency retreat key must be handed over to the patient before treatment!

8. INSTRUCTIONS

1. Traction mode

Keep pressing the selection key, the intermittent time window will display P, and the displayed value in the traction window is the mode serial number. Press +, - to select.

- (1) This product provides 8 different traction modes for selection. Except for the seventh mode, modes 1-6 and 8 can only be reflected when the traction force is set at 300N or above.

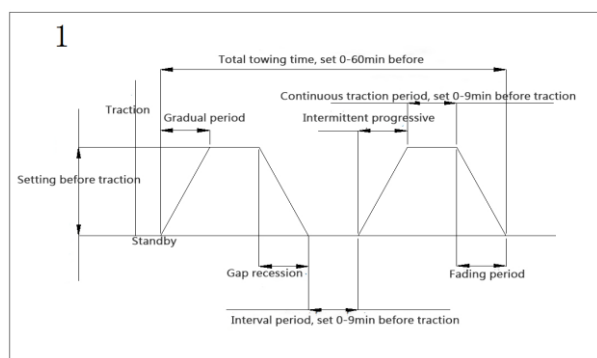


Mode 1, 2 and 3: when the continuous traction time is up, it starts to retreat until the traction force =0 and the intermittent time starts.

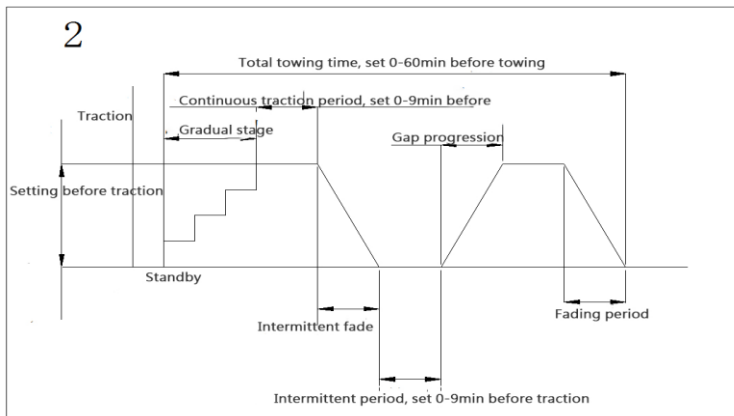
Modes 4, 5 and 6: when the continuous traction time is up, it starts to retreat for 5 seconds. When the time is up, it starts to pause.

Modes 7 and 8: continuous traction without intermission.

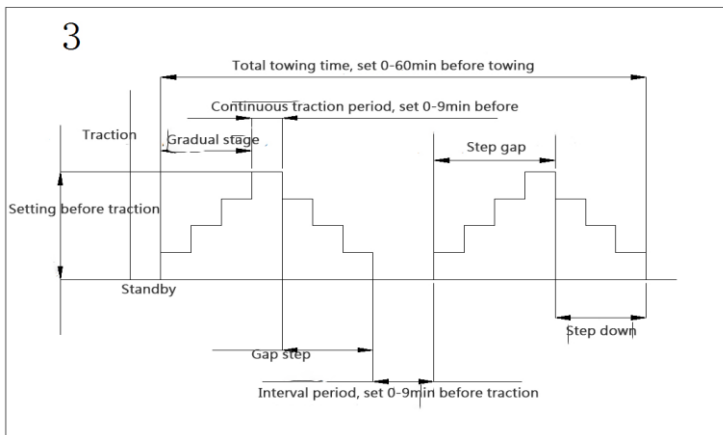
- (2) Traction mode instructions: as shown in the figure below
Intermittent traction mode



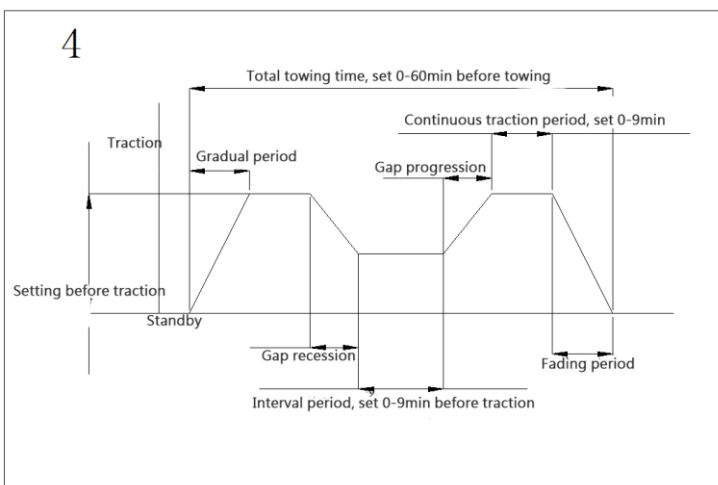
Stepwise progressive mode



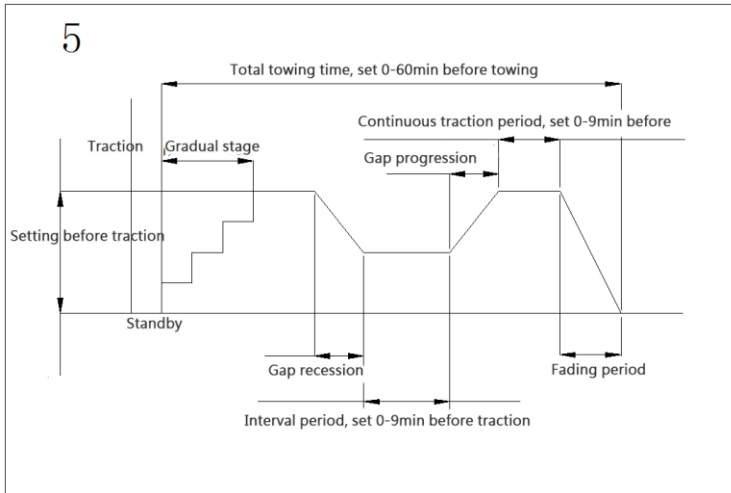
Stepwise progressive mode/Stepwise Receding mode



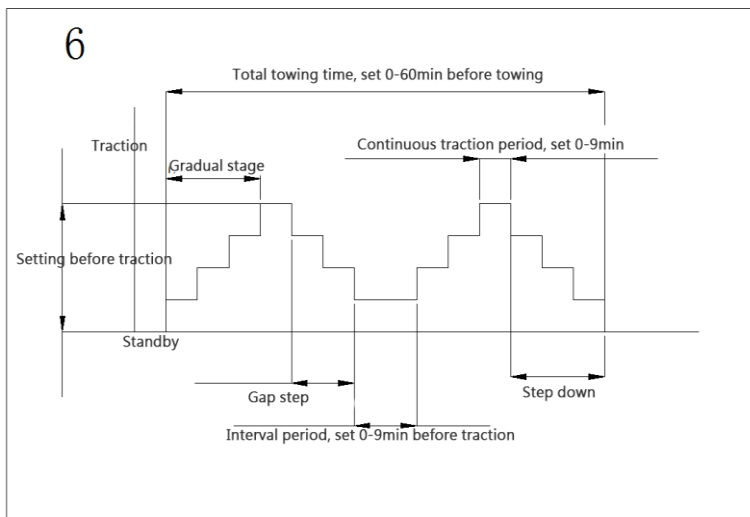
Periodic progressive mode



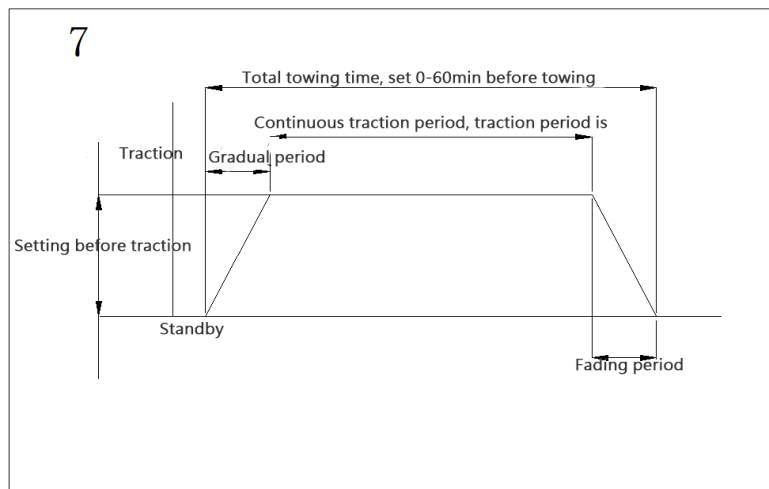
Periodic step progressive mode



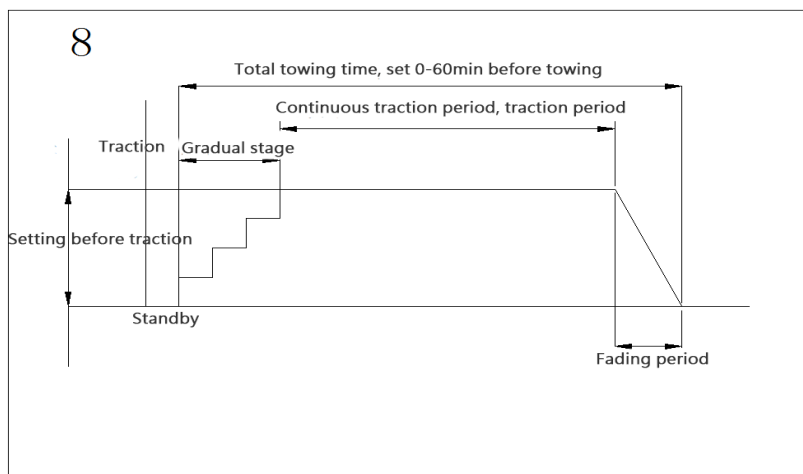
Periodic progressive Receding mode:



Continuous traction mode



Stepwise progressive continuous traction mode



- (3) When the product is used, the traction force and traction time can be dynamically monitored, and the medical staff can be clear at a glance when operating, so as to timely grasp the running status, reduce the pain of patients and achieve the purpose of treatment.

2. Angular function:

Press the "Set" key and the word "L" will appear in the "Intermittent time" window, indicating the left rotation function; The number that appears in the Traction window indicates the Angle of rotation. Press "Set" button again, "L" changes to "R" to indicate right rotation function. If the Angle forming function is not used, change L and r to 0.

3. Traction treatment:

When the total traction time, traction time, intermittent time and traction parameters are set, press the "traction" button, then the traction bed starts to perform traction treatment within the range of the set parameters.

4. Automatic compensation

The machine has the function of automatic compensation of traction force, in any traction working state, when the actual traction force exceeds $\pm 20\%$ of the set value, it will automatically detect and compensate to the set value. Taking 500N as an example, due to the fixed belt and muscle relaxation in the traction process, the traction force will be reduced in the traction process. When the traction force is reduced to a certain force, that is, when the displayed traction force is less than a certain value of the set traction force, the traction force will automatically compensate the traction until it increases to 500N.

5. In the progressive phase of traction bed, the maximum change rate of average traction force in any 1S time interval is 130N/S. This rate also applies to the progressive phase of traction caused by intermittent and other reasons (such as adding force to adapt to the patient's body movement). The maximum change rate of average traction force in any 1S time interval is 250N/S in the trailing stage. Intermittent fading periods and other tractive fading periods (such as failure, power outage, recovery after power outage and activation of emergency insurance measures) are also consistent with this rate;

6. The traction bed has real-time monitoring function, the difference between the set traction value and the displayed traction value is in the range of $-45\text{N}\sim 15\text{N}$ (see table)

Cervical	Set traction	80N	150N	200N		
	LED shows traction	70-85N	140-155N	190-205N		
Lumbar	Set traction	80N	150N	200N	500N	800N
	LED shows traction	70-85N	140-155N	190-205N	465-510N	760-810N

7. Emergency Retreat:

In the process of traction, if the patient has discomfort or a parameter needs to be modified, press the "emergency exit" button or the special emergency exit button for the patient to exit the traction state. Each time you press the "emergency back" key, the return time is 10 seconds.

9. THERAPEUTIC PRINCIPLE

1. Enlarge the lumbar intervertebral disc and intervertebral space, change the positional relationship between nerve roots and oppressors, and relieve or reduce the stimulation and compression of nerve roots and other tissues.
2. Traction to open the small joint space and remove the synovial incarceration.
3. Local braking can reduce the stimulation and friction caused by activities, and is conducive to the absorption of edema and inflammation of nerve root, spinal cord, joint capsule, muscle and other tissues.
4. Reduce the internal pressure of intervertebral disc, which is conducive to the retraction of bulging fibers.
5. Buffer the lumbar muscle spasm, loosen the adhesion of joint capsule, ligament, nerve root and other tissues.
6. Tighten the posterior longitudinal ligament to make the herniated intervertebral disc shrink, flatten the broken ligament, and reduce its pressure on the spinal cord.
7. Relieve tension and retraction of soft tissue, repair fracture and dislocation, and correct deformity.

10. APPLICABLE SYMPTOMS AND CONTRAINDICATIONS

1 Applicable Group:

Cervical and lumbar traction beds are suitable for adults and children, but not for newborns.

2 Indications: cervical and lumbar intervertebral disc herniation, cervical spondylosis of nerve root type, simple thoracic and lumbar compression fracture without nerve injury, and spinal diseases suitable for traction.

3 Contraindications: severe osteoporosis, weak physique, spinal cord injury, infectious diseases, spinal tumors and tumor-like diseases, serious cardiovascular and cerebrovascular diseases and visceral diseases, high fever and bleeding tendency, other fractures, mental diseases and those who cannot cooperate with this treatment.

11. ATTENTION ITEMS

1. All parts of the cervical and lumbar vertebrae treatment traction bed should be kept clean. Do not scrub with a wet cloth.
2. The cervical and lumbar vertebrae treatment traction bed uses a single-phase three pole power plug. During installation, carefully check the power socket to ensure its reliable grounding.
3. Turn off the power switch and unplug the power plug when stopping the work.
4. The interference caused by the use and operation of the cervical and lumbar vertebrae treatment traction bed may adversely affect the work of other medical electrical equipment.
5. When cleaning the bed, wipe the outer surface of the product with a soft cloth dipped with 75% alcohol (wiping time shall not be less than 5 minutes), and then clean it with a damp soft cloth.
6. Cleaning of parts in contact with patients: the bed surface can be wiped with a soft cloth dipped with 75% alcohol (wiping time shall not be less than 5 minutes). Please do not wait for volatile chemical solvents with gasoline.
7. The mattress of the cervical and lumbar vertebrae treatment traction bed is made of professional PVC artificial leather with flame retardant and antistatic properties, and has anti fouling and anti-corrosion functions.
8. Flammable liquid or gas anesthetic should not be used when the equipment is in use. If flammable reagent is required, the flammable reagent on the patient must be completely volatilized first. Even if a small amount of flammable liquid remains on, under or in the depression of the patient, it should also be wiped dry. Users should pay attention to it.
9. Do not put open flames and other inflammables near the bed, and do not pour water juice on the switch of the hand-held operator, so as to avoid adverse consequences.
10. At the end of the service life of the cervical and lumbar vertebrae treatment traction bed, the equipment and accessories are gradually aging, and the sensitivity and reliability are gradually reduced. As a result, the equipment enters the high incidence period of failure, and the maintenance is obviously difficult. The equipment at the end of use will have an adverse impact on the use and even pose a serious threat to the safety. At this time, it is necessary to consider replacing the equipment accessories of the same type.
11. If the equipment accessories of the same type need to be replaced, we should first consider contacting our company as the first choice for replacement. If the equipment accessories of the same type are not replaced, our company will not bear the consequences.
12. The mattress of the cervical and lumbar vertebrae treatment traction bed is made of professional medical PVC artificial leather with flame retardant and antistatic properties. If the mattress needs to be replaced, the same type of mattress must be selected. If it is selected without authorization, the consequences will be borne by itself.
13. The fault should be repaired by professional personnel. If the company needs to provide service and technical support, please contact the dealer or the after-sales service center of the company in time. Non professional maintenance personnel are not allowed to remove and repair.

14. The elderly, children, people with mental retardation and patients with mental illness must be supervised by a specially assigned person to avoid injury caused by operating the traction bed for cervical and lumbar vertebrae treatment.

12. INSPECTION, MAINTENANCE AND REPLACEMENT

1. The traction bed for cervical and lumbar therapy should always be kept clean, and visually inspect the painted surface of the traction bed for cervical and lumbar therapy without damage, scratches, paint loss and other phenomena. If yes, clean up immediately!
2. Clean the dirt in the grooves of each pulley at the cervical pole of the cervical traction bed for cervical and lumbar therapy. Turn off the power switch, unplug the power plug, relax the wire rope, turn each pulley by hand, rotation without obstruction, flexible, has the same sound, if there is immediate replacement. The cervical pulley of cervical traction bed is a stress part, and it is recommended to replace it once a year or replace it immediately when it is damaged.
3. The wire rope used for the cervical spine of the traction bed for cervical spine treatment should be kept clean and without stains, and the outer surface of the wire rope should be smooth and without damage or crack, if any, be replaced immediately. The wire rope used in the cervical vertebra of the cervical traction bed for cervical vertebra treatment is the stressed part, and it is recommended to replace it once a year or replace it immediately if it is damaged after inspection.
4. The control panel of the cervical and lumbar traction bed should be kept clean and pressed evenly to prevent damage. (It is strictly forbidden to operate the buttons on the panel with the nail part!!) In case of button failure during treatment, contact with our after-sales service immediately. The control panel of cervical and lumbar traction bed is uniform, and it is recommended to replace it every two years! (Excessive force damage is not included)
5. The traction bed for cervical and lumbar therapy pulls each motor at a uniform speed. If the motor is found to be stuck or has abnormal sound during operation, the power switch should be turned off immediately, and the power plug should be removed to contact with our after-sales service. Cervical and lumbar traction bed traction motor as the main part, it is recommended to check once every three years, if the inspection found damage immediately stop using.
6. The control board and other electrical appliances in the box of the cervical and lumbar traction bed should be kept clean to prevent water and liquid from infiltrating into it. In case of water or liquid infiltration, immediately turn off the power switch, unplug the power plug, open the case for cleaning!! During treatment, if there is peculiar smell or abnormal sound in the chassis, the power switch should be turned off immediately, and the power plug should be removed to contact our after-sales service. The circuit board in the box of the traction bed for cervical and lumbar therapy is an important electrical component of the traction bed, and it is recommended to be checked once a year. If any damage is found during operation or inspection, it should be stopped immediately.
7. When stopping work, turn off the power switch, unplug the power plug, and have grounding wire.
8. If there is a fault, there should be professional maintenance, or contact with our company after sales. Do not disassemble and repair the motor drive and circuit board at will.
9. The wearing parts such as straps should be replaced in time. The wearing parts can be selected from the original factory or purchased nearby. It is recommended to replace it once a year.

13. TRANSPORTATION AND STORAGE ENVIRONMENT

The traction bed shall be transported and stored under the following conditions

Ambient temperature range: $-10\text{ }^{\circ}\text{C} \sim 50\text{ }^{\circ}\text{C}$;

Relative humidity range: $\leq 90\%$;

Atmospheric pressure range: $50 \sim 106\text{ kPa}$;

14. AFTER SERVICE

The quality maintenance is 1 year, and we supply lifetime maintenance.

15. PACKING LIST

This traction bed is packed with plywood cases, and inside with the plastic bag for preventing the bed surface.

NO.	Description	Quantity	Units	Remarks
1	Complete traction bed	1	Set	
2	Instruction	1	Pcs	
3	Power Cord	1	Pcs	
4	Cervical Sleeve	1	Set	

16. PRODUCT STRUCTURE AND INSTALLATION INFORMATION



Figure 1 MKQ-3A CERVICAL AND LUMBAR VERTEBRAE TREATMENT TRACTION BED

1.Neck tripod	2.Star handle	3. Neck pull rod	4. Neck pull rod fixing sleeve	5. Power switch
6. Key pane	7.Rraction bed surface	8. Bandage	9. Handrail sponge	10. Armrest
11.Swing bed surface	12. Rear sealing plate	13. Castors	14. Side baffle	15. Power socket
16. Chassis	17. Chair for cervical traction	18.Cervical sleeve	19. Cervical sleeve hanger	20. Neck pulling wire rope
21.Neck pulley				

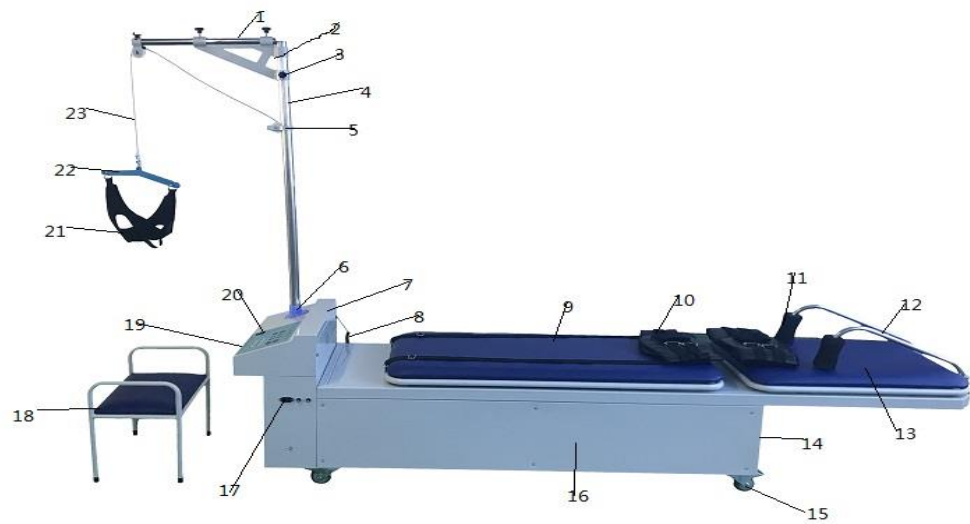


FIGURE 2 MKQ-2A CERVICAL AND LUMBAR VERTEBRAE TREATMENT TRACTION BED

1. Neck bar	2. Neck tripod	3. Star handle	4. Neck pull rod	5. Neck pulley
6. Neck pull rod fixing sleeve	7. Chassis	8. Cervical spine emergency retreat handle	9. Traction bed surface	10. Bandage
11. Handrail sponge	12. Armrest	13. Rear bed surface	14. Rear sealing plate	15. Castors
16. Side baffle	17. Power socket	18. Cervical traction chair	19. Key panel	20. Power switch
21. Cervical sleeve	22. Cervical pylon	23. Neck pulling wire rope		



FIGURE 3 MKQ-6A CERVICAL AND LUMBAR VERTEBRAE TREATMENT TRACTION BED

1.Neck cross bar	2.Neck traction tripod	3. Star handle	4. Neck pulley	5. Neck pull rod
6.Traction bed surface	7. Bandage	8. Rear bed surface	9.Foot pad	10. Drawer
11. Chassis	12. Key panel	13. Cervical spine recession	14.Cervical traction chair	15. Power socket
16. Cervical sleeve	17. Cervical pylon	18. Neck pulling wire rope		

Made by Jiangsu Meikang Medical Equipment Co., Ltd.

Tel :0512-58957553 Fax :0512-58957553 Email: info@zhiyuanteck.com

