Manual 874 E

MONARK
SPORTS & MEDICAL

Contents

Important

Read the manual carefully before using the cycle and save it for future use.

Monark Exercise AB

Monark has 100 years' experience of bicycle production. The Monark tradition has yielded know-how, experience, and a real feel for the product and quality. Since the early 1900s, Monark's cycles have been living proof of precision, reliability, strength and service. These are the reasons why we are now the world leader in cycle ergometers and the market leader in Scandinavia in transport cycles.

We manufacture, develop and market ergometers, exercise bikes, transport bikes and specialized bicycles. Our largest customer groups are within health care, sports medicine, public authorities, industry and postal services.

For more information: www.monarkexercise.se

Product Information

Congratulations on your new Ergometer!

The Monark Ergometer model 874 E is a safe, easy-to-use bike for fitness testing and work tests. It has a braking system, of which workload can be set by weights in a weight basket. The patented weight basket system does not require calibration. The precision of the weights ensures that the workload is correct.

NOTE!
Use of the product may involve considerable physical stress. It is therefore recommended people who are not accustomed to cardio or do not feel completely healthy to first consult a physician for advice before use.

Facts

- Large, well-balanced flywheel 20 kg (44 lbs)
- Adjustable seat height
- Adjustable handlebar with quick release lever
- Stable frame, solid steel tube
- Powder painted
- Wheels for easy transport
- Electronic display with heart rate

Width
517 mm (20,3”) at handlebar
640 mm (25”) at support tubes

Length
1120 mm (44”)

Height
945-1295 mm (37,2-51”) at handlebar
780-1105 mm (30,7-43,6”) at seat

Weight
57 kg (127 lbs) (without weights)
Max user weight 250 kg (551 lbs)

Included
- Chestbelt
- Weight kit consisting of:
  4 pc. 0,1 kg
  1 pc. 0,5 kg
  4 pc. 1,0 kg

Serial number

The serial number of your Ergometer is placed according to *fig: Serial number.*

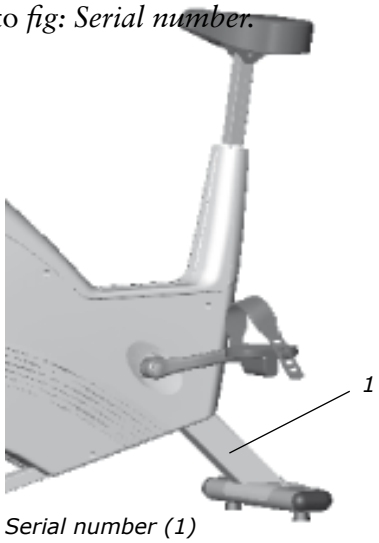


Fig: Serial number (1)

Operating Instruction

Workload device

Through cycling supplies the test person kinetic energy to the flywheel. The flywheel is then braked by means of a brake belt/cord which runs around the flywheel. The workload is changed either by using other pedalling speed or by increasing or decreasing the tension of the brake belt/cord against the flywheel by place weights in the weight basket. The weights are in sizes 1 kg, 0.5 kg and 0.1 kg. This makes it possible to vary the workload from 1 kp up to maximum 11 kp in steps of 0.1 kp.

NOTE: 1 kg is the lowest work load that can be set as this is the weight of the basket itself. A weight basket that only weighs 0.5 kg is available as an option.

Fig: Workload device
1) Weight basket with weights

Power measurement

The cycle is designed to measure the power on the flywheel, because tests/protocols are made for it (for example Åstrand's and YMCA).

Cycle adjustments

Seat height should be adjusted to a comfortable position. The appropriate height can be to have the knee slightly bent when the sole of the foot is centred over the pedal axle with the pedal to the bottom position. To adjust the seat height loosen the lever(1) on the seat tube. See *fig: Adjustments*.

The handlebar setting shall give a comfortable position when cycling. During longer exercise sessions it is recommended to occasionally change the handlebar position. To adjust the handlebar loosen the quick release lever(2). See *fig: Adjustments*.

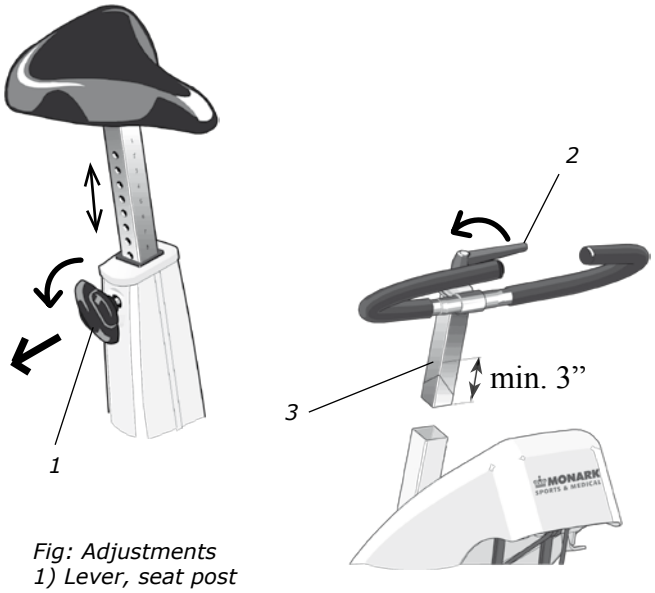


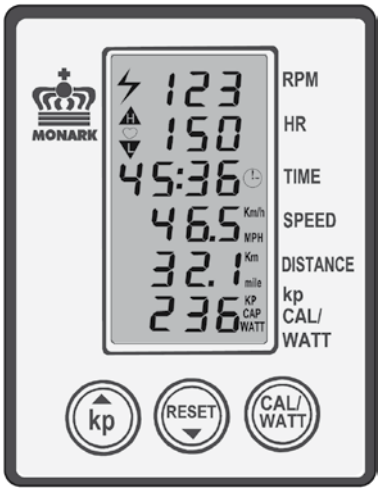
Fig: Adjustments
1) Lever, seat post
2) Lever, handlebar
3) Inserted min. 3”

NOTE! The handlebar stem should be inserted into the frame tube at least 3 inches (about 8 cm). This measure is marked with “MAX” on the stem(3).

Computer specifications

Display		
RPM	0 - 250	rev./min
HR	50 - 240	bpm
TIME	0:00-99:59	min:sec
SPEED	0 - 99	km/h or mph
DISTANCE	0.0 - 99.9	km or mile
FORCE	0.0 - 7.0	kp
CALORIES	0 - 999	kcal
WATT	0 - 7 x rpm	watt

Batteries: 1.5 V x 2, R6 (AA)
Storing temperature: -10° C - +60° C
Operating temperature: 0° C - 50° C



Computer Instruction

The ergometer is equipped with a Fitness computer showing pedal revolutions per minute (RPM), heart rate in bpm (HR), exercise time in minutes and seconds (TIME), cycling speed in km per hour or miles per hour (SPEED), covered distance in km or mile (DISTANCE). Furthermore the workload (kp = weight basket + weights in kg) can be set which gives a reading of burned calories (CAL) as well as power (WATT) on the computer display. The energy is usually expressed in kJ (kilojoule) or cal (kilocalorie, kcal). One kcal is approx. 4.2 kJ. The power is depending on the pedalling speed which makes it possible to adjust the workload/power by increasing or decreasing the pedalling speed.

Press any button or move the pedal to turn on the meter. At the display for heart rate (HR) a heart symbol is lit which means that the meter is trying to find a pulse signal from an external source (chestbelt with electrodes, Art. No: 9339-98). If the meter can not find such a signal this HR function is automatically turned off after 30 seconds. When the function is turned off the heart symbol is not lit any more. The heart rate function can be turned on again by pressing a button.

The timer starts automatically when the pedals are moved. Meter values for Time, Distance and Calories can be set to zero by pressing the RESET button for more than two seconds.

To get correct readings for calories and watts the kp value on the electronic meter has to be set to the same value as the workload that is the weight of the basket including the weights in it. The rubber plates are included in the calibrated weight of the 1 kg weight basket.

Example: The workload is 3 kg (weight basket 1 kg + 2 x 1 kg weight). Press the kp button to the left on the meter. The lower display window is now flashing and showing figures in kp. Increase or decrease in steps of 0.1 kp by pressing the kp button (arrow up) or the RESET button (arrow down) until the reading is corresponding with the actual or desired kp values (workload) from the weight basket. After that press the CAL/WATT button to either show the CAL or WATT figures. The watt reading on the display depends on the pedalling speed. The watts can be adjusted accordingly by increasing or decreasing the pedalling speed.

Km/Miles
Km and km/h is the default setting from the factory. If you want to make a setting in miles take the meter out of the panel. Turn off the meter by taking out one battery. On the back side is a switch with two settings – 1 and ON. See *fig: Switch km/miles*. 1 is equal to km and km/h and is the default setting. ON is equal to mile and mph. Choose position and install the battery again. Put the meter back again into the panel.

Do not expose the fitness computer to direct sunlight or extremely high temperature. Do not use any dissolvents when cleaning. Use only dry cloth.

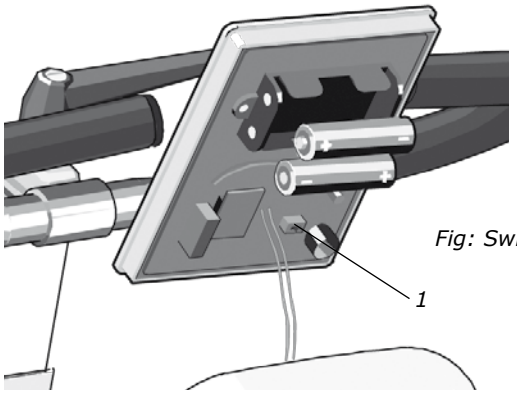


Fig: Switch km/miles (1)

Adjusting the brake cord/belt tension

Check at first that the brake belt is lying correctly on the flywheel brake surface. See *fig: Brake cord* and *Brake device*.

Put 4 kg in the weight basket(4). Rotate the flywheel by hand. The basket shall now lift up so the distance to the flywheel is at least 40 mm and maximum 60 mm. If this is not the case the brake belt has to be loosened or tightened a little at the tension center. If the basket is too low, shorten the belt somewhat. If the basket is too high, lengthen the cord somewhat.

Loosen the cord bracket(2) somewhat so that the cord length can be adjusted. Turn the tension center (3) approximately 45 degrees and after that tighten the bracket again. Release the basket and check if the measurements above are OK when the flywheel is rotated by hand. Repeat the above if necessary.

NOTE!
To receive correct workload it is important to place the weight basket according to the description above. If the basket hangs too low it may touch the flywheel. If the basket is too high, wrong workload may obtains.

Fig: Brake cord

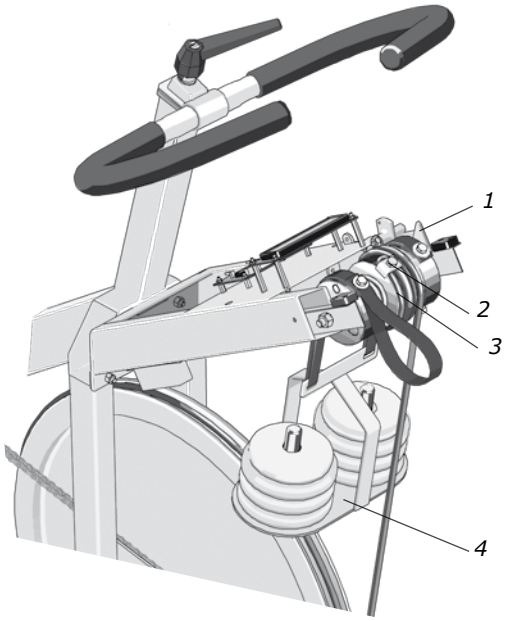


Fig: Brake device
1) Stop
2) Cord bracket
3) Tension center
4) Weight basket

Heart Rate

A person's heart rate can be measured with a chest belt that senses the electronic output of the heart. The chest belt is standard equipment.

Fuss-free HR measurement requires that the belt is correctly placed. When it is correctly fitted the logo on the belt will be central and readable, outward and upright, by another person. Before putting on the belt, clean the skin where the belt is to be placed. The chest belt should be secured at a comfortable tension around the mid section, just below the breast muscle, see *Fig: Placement of the chest belt*. Moisten the electrodes before use, see *Fig: Electrodes on the back of the chest belt*. To make contact with the HR receiver on the bike, the distance should not be more than 100 cm. It is especially important when first used to identify the chest belt with the sensor, by standing close to get the HR (maximum 60 cm).

NOTE!
Electromagnetic waves can interfere with the telemetry system. Cellular phones are not allowed to be used near the bike during test.

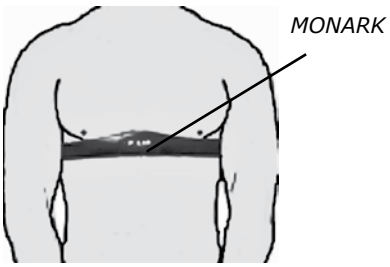


Fig: Placement of the chest belt

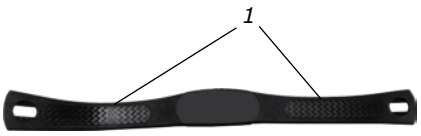


Fig: Electrodes on the back of the chest belt (1)

Trouble shooting guide

Symptom	Probable Cause/Corrective Action
The display is not working.	Check that the batteries are OK.
No heart rate.	Check the chestbelt (battery). Wet the thumbs and place them on the electrodes. A low clicking sound will appear near battery lid while you click on the electrodes with one thumb. Use another external HR monitor to check the belt. Check that the chestbelt is positioned correctly on test person and tight enough. Check that the electrodes are wet, in hard cases it is necessary to use a contact gel or a mixture of water with a few drops of washing-up liquid. The level for HR signal can vary from person to person. Put chestbelt on another known person who has a good pulse rendering.
Uneven heart rate.	Use an external unit, for example a pulse watch, to check if it also indicates irregular pulse. If this is the case, there is probably disturbance in the room. Magnetic fields from high voltage cables, elevators, fluorescent tube etc can cause the disturbance. Other electronic equipment could be placed too close. If irregular pulse remains we recommend measuring HR manually. If HR still remains irregular at workload test person's health need to be examined.
There is a click noise with every pedal revolution (increases with the weight).	The pedals are not tight. Tighten them or change pedals. The crank is loose. Check, tighten. The base bearing is loose. Contact your dealer for service.
Scratching sound is heard when pedalling.	Check that the carriage block is taken off and that none of the covers is scratching.
There is a click noise and a squeak noise when pedalling.	Loosen the chain.

Service

Note that the text about service and maintenance is universal and that all parts may not be relevant to your bike.

Warning

Make sure the voltage indicated on the appliance corresponds to the local mains voltage before making connections.

Warranty

EU countries - Private use
If you are a consumer living in the EU you will have a minimum level of protection against defects in accordance with EC Directive 1999/44/EC. In short, the directive states for that your Monark Dealer will be liable for any defects, which existed at the time of delivery. In case of defects, you will be entitled to have the defect remedied within a reasonable time, free of charge, by repair or replacement.

EU countries - Professional use
Monark Exercise products and parts are guaranteed against defects in materials and workmanship for a period of one year from the initial date of purchase of the unit. In the event of a defect in material or workmanship during that period, Monark Exercise will repair or replace the product. Monark Exercise will not, however, refund costs for labour or shipping.

Other countries
Monark Exercise products and parts are guaranteed against defects in materials and workmanship for a period of one year from the initial date of purchase of the unit. In the event of a defect in material or workmanship during that period above, Monark Exercise will repair or replace (at its option) the product. Monark Exercise will as above for labour or shipping.

Service check and maintenance

It is important to carry out a regular service on your ergometer, to ensure it is kept in good condition.

Service action:

- We recommend isopropyl alcohol to disinfect the surface of the bike. Use a damp, but not wet cloth to clean the surface you wish to disinfect.
- Clean and lubricate your Ergometer weekly.
- Periodically wipe the surface with a rust preventative, especially when it has been cleaned and the surface is dry. This is done to protect the chrome and zinc parts as well as the painted parts (4 times per year).
- Check that pedals are firmly tightened. If not, the threading in the pedal arms will be damaged. Also check that the pedal arms are firmly tightened on the crank axle, tighten if necessary. When the Ergometer is new it is important to tighten the pedals after 5 hours of pedalling (4 times per year).
- Check that the pedal crank is secure to the crank axle (4 times per year).
- Be sure that the pedals are moving smoothly, and that the pedal axle is clear of dirt and fibres (4 times per year).
- When cleaning and lubricating be sure to check that all screws and nuts are properly tightened (twice a year).
- Check that the chain is snug and there is no play in the pedal crank (twice a year).
- Check that pedals, chain and freewheel sprocket are lubricated (2 times per year).
- Be sure that the brake belt does not show significant signs of wear (twice a year).
- Check that the handlebars and seat adjustment screws are lubricated (twice a year).
- Be sure that all moving parts, crank and flywheel are working normal and that no abnormal play or sound excsists. I.e. play in bearings causes fast wearing and with that follows a highly reduced lifetime.
- Check that the flywheel is placed in the center and with plane rotation.

Batteries

If the meter is battery-operated, the batteries are in a separate package at delivery. If the storing time has been long the battery power can be too low to make the computer act correctly. Batteries must be changed.

Crank bearing

The crank bearing is greased and normally requires no supplementary lubrication. If a problem arises, please contact your Monark dealer.

Flywheel bearing

The bearings in the flywheel are greased and do not normally require maintenance. If a problem arises, please contact your Monark dealer.

Transport

At transport the brake belt should be tightened to prevent it from falling off the flywheel.

Replacement of brake belt

To replace the brake belt remove covers if necessary. Make sure that the belt is loose.

Alt. 1: To loosen the belt on pendulum bikes with a motor, turn the power on and move the pendulum to 4 kp. Hold it there until the brake belt is loose. Observe how the belt is connected. Take it apart and remove it from the bike. Attach the new brake belt and assemble the bike in reverse order.

Alt. 2: To loosen the brake cord on cycles with a weight basket set the basket to its upper position. Loosen the lock washer that is holding the cord and remove it from the tension center. Loosen or cut off the knot on the other end of the cord and then remove the whole cord from the bike. When assembling a new brake cord, first enter one end into the hole in the tension center, tie a knot and let the knot fall into the bigger part of the hole. Lock the end of the cord with the lock washer.

Alt. 3: To loosen the belt on other bikes remove all possible tension. Observe how the belt is connected. Take it apart and remove it from the bike. Attach the new brake belt and assemble the bike in reverse order.

NOTE: When replacing the brake belt it is recommended to clean the brake surface. See ”Brake belt contact surface”.

Brake belt contact surface

Deposits of dirt on the brake belt and on the contact surface may cause the unit to operate unevenly and will also wear down the brake belt. The contact surface of the flywheel should be smoothed with fine sandpaper and any dust removed with a clean dry cloth.

Remove any covers and loosen the tension on the brake belt. Smoothe with fine sandpaper. This is easier to perform if a second individual cautiously and carefully pedals the cycle.

Irregularities on the brake belt contact surface are removed by means of a fine sandpaper or an abrasive cloth. Otherwise unnecessary wear on the brake belt may occur and the unit can become noisy.

Always keep the brake belt contact surface clean and dry. No lubricant should be used. We recommend replacing the brake belt when cleaning the contact surface. In regard to assembly and adjustment of the brake belt, see ”Replacement of brake belt”.

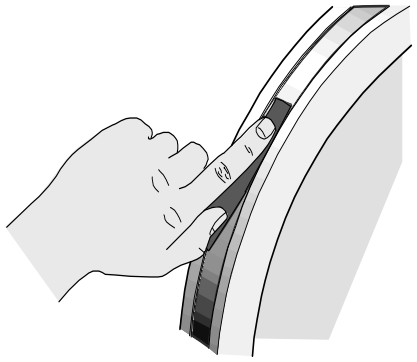


Fig: Brake belt contact surface

Chain 1/2" x 1/8"

It is strongly recommended to keep the chain clean. Dirt build-up on the chain will cause excess wear. A chain lubricant and solvent for normal road bikes may be used.

Check the lubrication and tension of the chain at regular intervals. In the middle of its free length the chain should have a minimum play(3) of 10 mm (1/4 inch). See *fig: Chain adjustments*. When the play in the chain is about 20 mm (3/4 inch) it must be tightened otherwise it will cause abnormal wear of the chain and chainwheels. Because of this it is always recommended to keep the chain play as little as possible. Loosen the hub nut(2) on both sides and tense the chain with the chain adjuster(1) when needed.

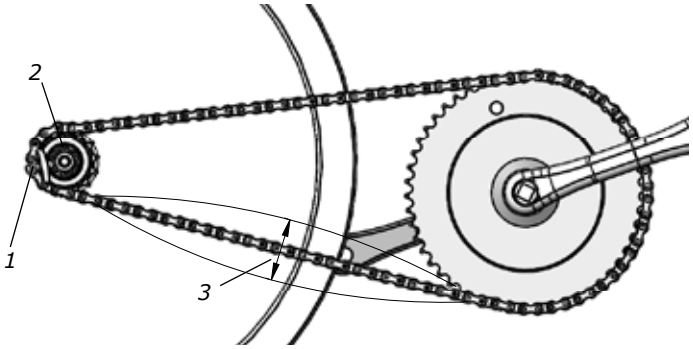


Fig: Chain adjustments
1) Chain adjuster
2) Hub nut
3) Chain play

When the chain has become so long that it can no longer be tightened with the chain adjusters it is worn out and should be replaced with a new one.

To adjust or replace the chain remove frame covers if necessary.

To adjust the chain the hub nuts(2) should be loosened. Loosening or tightening the nuts on the chain adjusters(1) will then move the hub and axle forward or backward. Adjust according to above recommendation. Then tighten the nuts on the hub axle again. See *fig: Chain adjustments*.

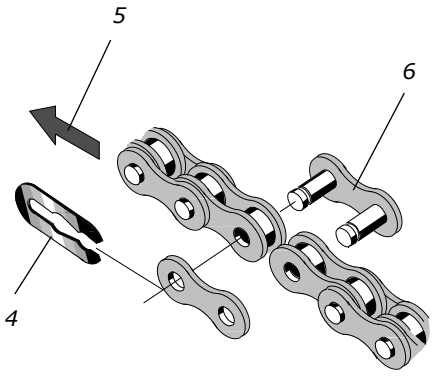


Fig: Chain replacement
4) Lock spring
5) Movement direction
6) Chain lock

To replace the chain, loosen the chain adjuster as much as possible. Dismantle the chain lock(6) and remove the chain. Put on a new chain and assemble the chain lock. The spring of the chain lock should be assembled with the closed end in the movement direction(5) of the chain. Use a pair of tongs for dismantling and assembling the spring(4). See *fig: Chain replacement*.

NOTE: At assembly, the flywheel has to be parallel with the centerline of the frame otherwise the chain and chain wheels make a lot of noise and wear out rapidly.

Adjust chain adjusters to allow chain play according to above. Tighten hub nuts firmly. Replace frame covers.

Freewheel sprocket

When replacing the freewheel sprocket remove frame covers if necessary. Dismantle the chain as described in part ”Chain 1/2” x 1/8” ”.

Loosen the axle nuts and lift off the flywheel. Remove the axle nut, washer, chain adjuster and spacer on the freewheel side. Place the special remover (Art. No: 9100-14) in the adaptor and place the spacer and axle nut outside. See *fig: Special remover.* Replace sprocket-adaptor and assemble the new parts in reverse order according to the above.

NOTE: Do not tighten the axle nut completely. It must be possible to loosen the adaptor-sprocket half a turn.

The sprocket should be lubricated with a few drops of oil once a year. Tilt the cycle to make it easier for the oil to reach the bearing. See *fig: Lubrication.*

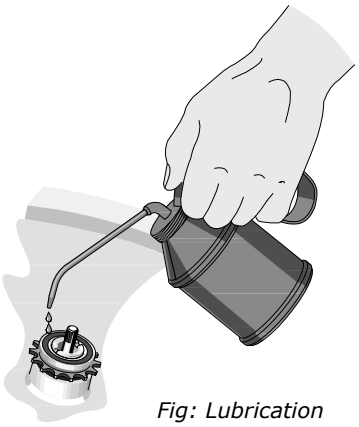


Fig: Lubrication

Fig: Special remover (Art. No: 9100-14)

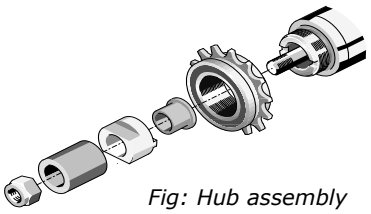
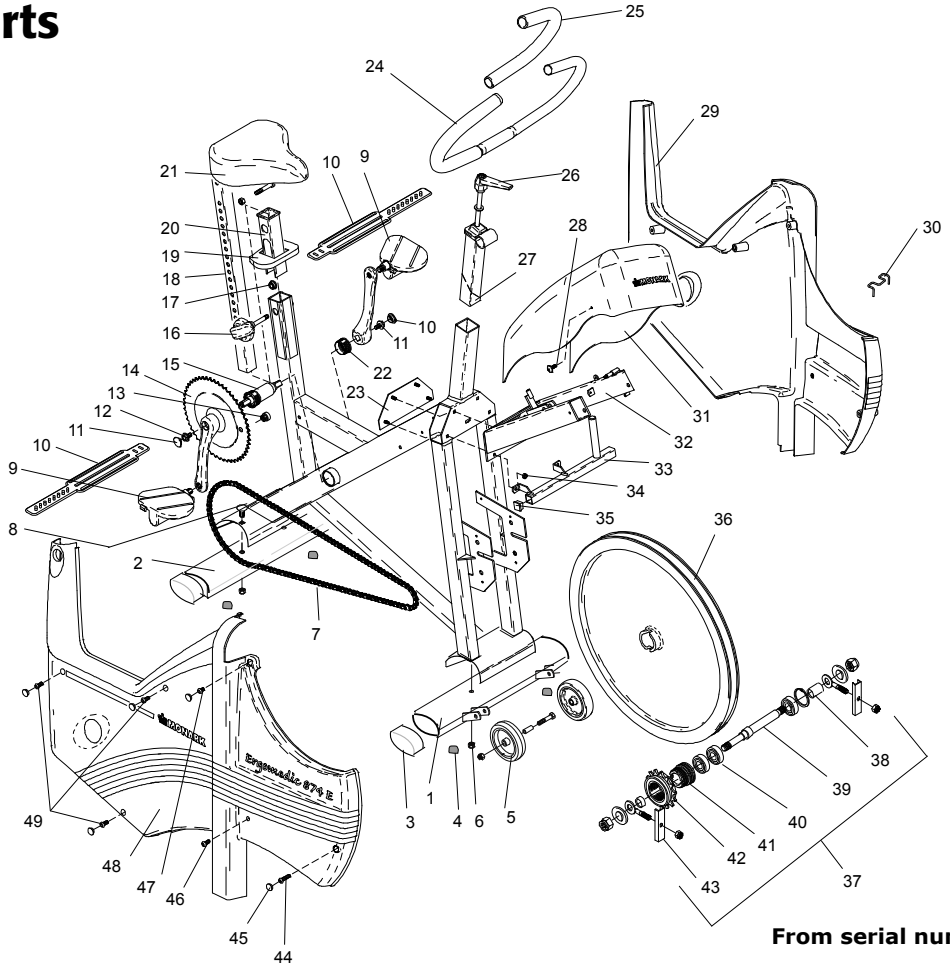


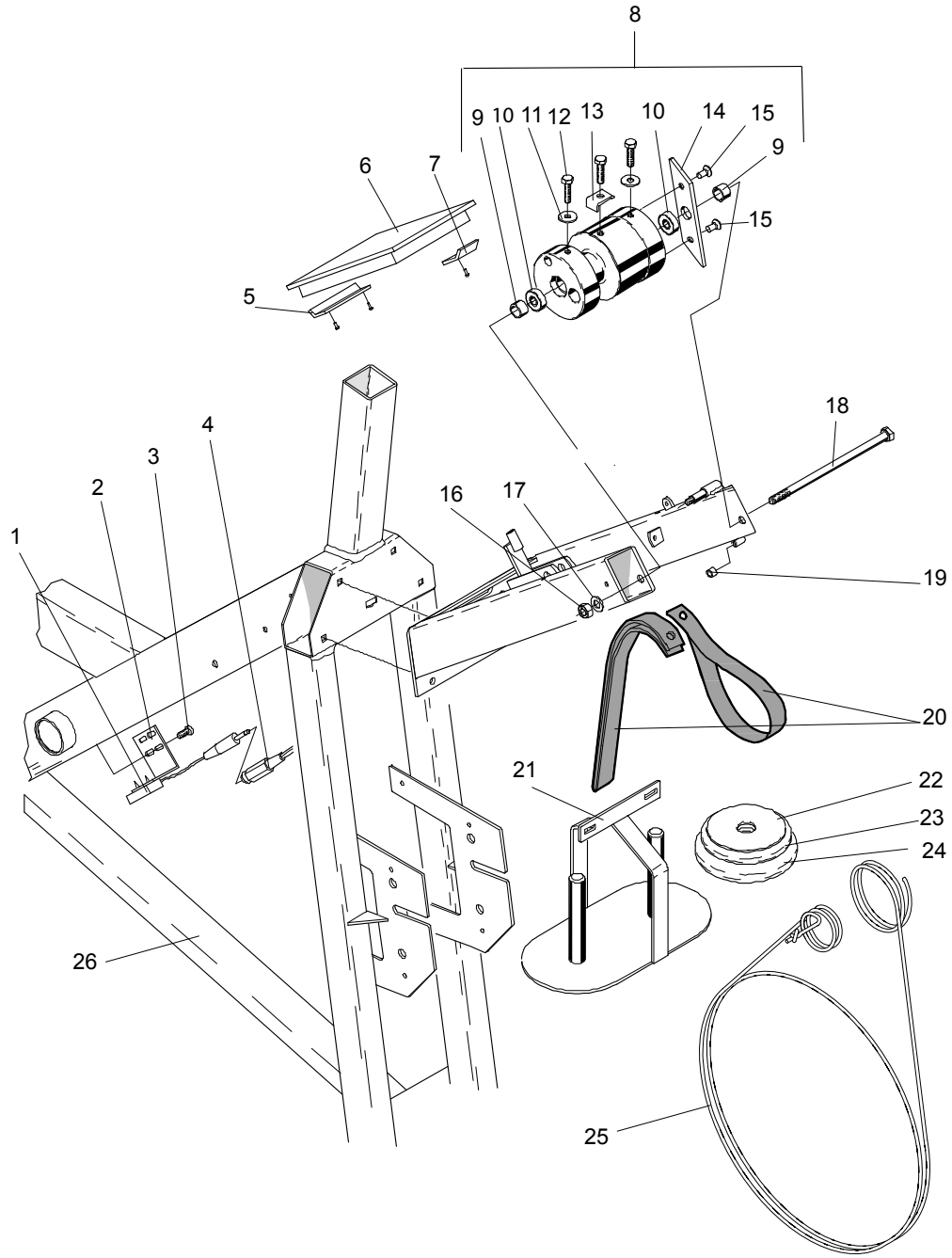
Fig: Hub assembly

Spare parts



From serial number: WBK 265820 C

Pos.	Qty.	Art. No.	Description	Pos.	Qty.	Art. No.	Description
1	**1**	**9301-15**	**Support tube, front**	**25**	**1**	**9126-72**	-Handgrip (pair)
2	**1**	**9301-16**	**Support tube, rear**	**26**	**1**	**9100-180**	**-**Lever M8
3	**4**	**9328-51**	**Plastic cap, blue**	**27**	**1**	**9300-291**	-Expander wedge
4	**4**	**9328-26**	**Rubber foot**	**28**	**2**	**5675-9**	**Screw**
5	**1**	**9328-37**	**Transport wheel compl. (pair)**	**29**	**1**	**9394-71**	**Frame cover, left**
6	**4**	**5845**	**Locking nut M8**	**30**	**1**	**9384-45**	**Belt control**
7	**1**	**9300-55**	**Chain 1/2" x 1/8", 116 l**	**31**	**1**	**9374-41**	**Instrument cover**
8	**2**	**9300-12**	**Screw MVBF M8x16 mm**	**32**	**1**	**9374-9**	**Front frame**
9	**1**	**9300-220**	**Pedal, pair**	**33**	**1**	**9374-29**	**Weight holder**
10	**1**	**9300-207**	**Pedal strap, pair**	**34**	**1**	**5843-9**	**Nut M6**
11	**2**	**8523-2**	**Dust cover**	**35**	**1**	**9302-28**	**Plastic plug**
12	**2**	**8523-115**	**Screw M6S 8.8 M8 x 20 FZB**	**36**	**1**	**9300-3**	**Brake wheel, complete**
13	**1**	**9326-164**	**Magnet**	**37**	**1**	**9300-24**	**Wheel suspension compl. set**
14	**1**	**9300-430**	**Steel crank set, complete**	**38**	**1**	**9300-17**	-Bush, 23 mm
15	**1**	**8966-175**	**BB cartridge bearing, complete**	**39**	**1**	**9300-18**	-Axle
	1	**9300-133**	**Locking screw, complete set**	**40**	**3**	**91001-6**	-Bearing 6001-2z
16	**1**	**9300-122**	-Locking knob	**41**	**1**	**9106-14**	-Connection
17	**2**	**9300-134**	-Pressure washer	**42**	**1**	**9106-13**	-Sprocket
18	**1**	**9300-138**	**Saddle post**	**43**	**1**	**9000-12**	**-**Chain adjuster (pair)
19	**1**	**9300-123**	**Top cover**	**44**	**1**	**5683**	**Screw M5x75 mm**
20	**1**	**9300-115**	**Bushing for saddle post**	**45**	**10**	**9306-12**	**Plastic plug**
21	**1**	**4994-5**	**Saddle**	**46**	**2**	**5673-9**	**Screw M5x12 mm**
	1	**9300-114**	**-**Saddle bracket	**47**	**1**	**5681**	**Screw M5**
22	**1**	**8966-176**	**Support casing for BB-bracket**	**48**	**1**	**9374-70**	**Frame cover, right**
23	**1**	**9374-60**	**Bracket for frame**	**49**	**3**	**5671-19**	**Screw M5x20 mm**
24	**1**	**9300-280**	**Handlebar, complete**				



From serial number: WBK 265820 C

Pos.	Qty.	Art. No.	Description	Pos.	Qty.	Art. No.	Description
1	**1**	**9326-162**	**Sensor**	**15**	**2**	**14379**	-Screw M6 x 16 mm
2	**1**	**9326-166**	**Sensor holder**	**16**	**1**	**5844**	**Nut M8**
3	**2**	**9326-59**	**Screw**	**17**	**1**	**5864**	**Washer M8**
4	**1**	**9326-263**	**Cable**	**18**	**1**	**14374**	**Screw M8 x 160 mm**
5	**1**	**9374-172**	**Holder for meter 70x16 mm**	**19**	**1**	**9374-12**	**PVC cover**
6	**1**	**9374-170**	**Electronic meter**	**20**	**1**	**9324-26**	**Belt**
7	**1**	**9374-171**	**Holder for meter 16x16 mm**	**21**	**1**	**9374-29**	**Weight holder, 1 kg**
8	**1**	**9374-20**	**Tension device, complete**	**22**	**4**	**9102-30**	**Weight, 0,1 kg**
9	**2**	**9127-37**	-Spacer 8.5 x 12 x 13	**23**	**1**	**9102-27**	**Weight, 0,5 kg**
10	**2**	**19088-6**	-Bearing 608-2z	**24**	**4**	**9102-26**	**Weight, 1 kg**
11	**2**	**5862**	-Washer	**25**	**1**	**9384-47**	**Belt set**
12	**3**	**14323-9**	-Screw M6 x 16 mm	**26**	**1**	**9301-5**	**Frame**
13	**1**	**9324-70**	-Lock washer		**1**	**9339-98**	**Chestbelt**
14	**1**	**9374-21**	-Stop		**1**	**9300-365**	**Software**

MONARK EXERCISE AB

Version 1206
Art. No: 7950-306

CE 0402

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