



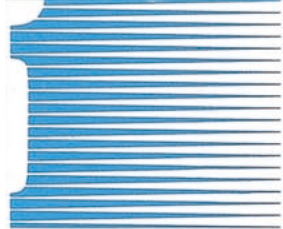
CATEYE CYCLOSIMULATOR Model CS-1000

OPERATING INSTRUCTIONS

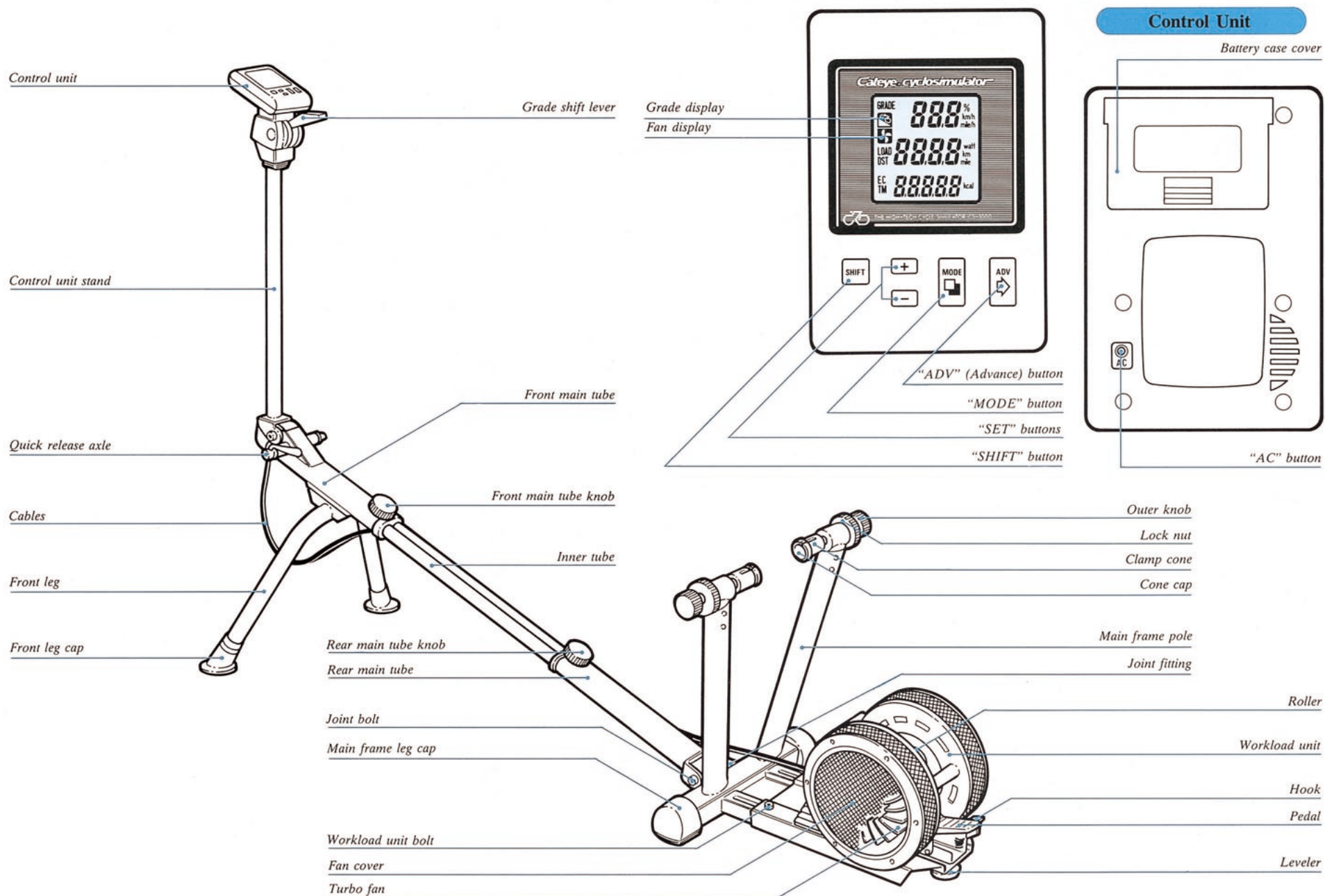
Cateye CycloSimulator

INDEX

	<i>Page</i>
INTRODUCTION ADVANTAGES OF THE CS-1000	2
PARTS OF THE CS-1000	1
LET'S ASSEMBLE	3~4
HOW TO MOUNT/ DISMOUNT YOUR BIKE	5~6
PREPARATION OF THE CONTROL UNIT	7
REMOVING/ ATTACHING THE TURBO FAN	8
RIDE YOUR BIKE	9~10
SETTING THE TARGET EXERCISE TIME/ TARGET TRIP DISTANCE	11
DISPLAYS ON THE CONTROL UNIT SCREEN	12
BUTTON FUNCTIONS	13
PRECAUTIONS/MAINTENANCE	14
TRAINING PROGRAM	15~16
TROUBLE SHOOTING	17
SPECIFICATIONS	18
LIMITED WARRANTY	19



PARTS OF THE CS-1000



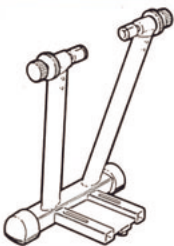

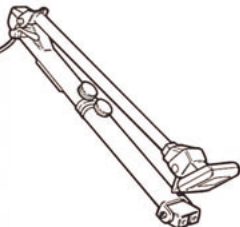
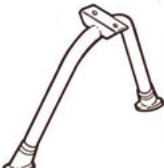



INTRODUCTION

Thank you very much for purchasing the "CATEYE CYCLOSIMULATOR™" Model CS-1000. The CS-1000 is a newly developed computerized cycle trainer, designed to reproduce actual road conditions while training indoors. In order to fully enjoy this unit, please read these Operating Instructions thoroughly, and keep it handy for future reference.

ADVANTAGES OF THE CS-1000

- Measures, calculates and displays six kinds of data – Speed, Distance, Time, Percent Grade, Work Rate and Calorie Consumption.
- The turbo fan and the magnetic brake simulate both wind resistance and hill climbing resistance similar to actual riding.
- If the noise of the turbo fan is objectionable, you can remove the fan and you can still simulate actual running resistance by adjusting the workload of the magnetic brake.
- You have the option of either exercise time or distance as training target.
- The unit is disassembled easily, when not in use.

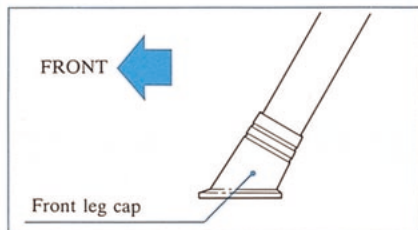
Check all the following parts are included in the package

			
Main frame set	Workload unit set	Control unit Main tube set	Front leg set
			
Batteries (AA×2)	Hexagon wrench	Operating instructions	

LET'S ASSEMBLE

1 Attaching the front leg

Fasten the front leg under the front main tube with two bolts, observing the direction of the front leg cap. The bolts should be fastened tightly.

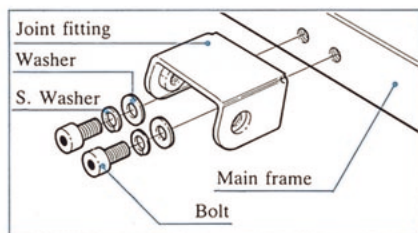


2 Control unit stand

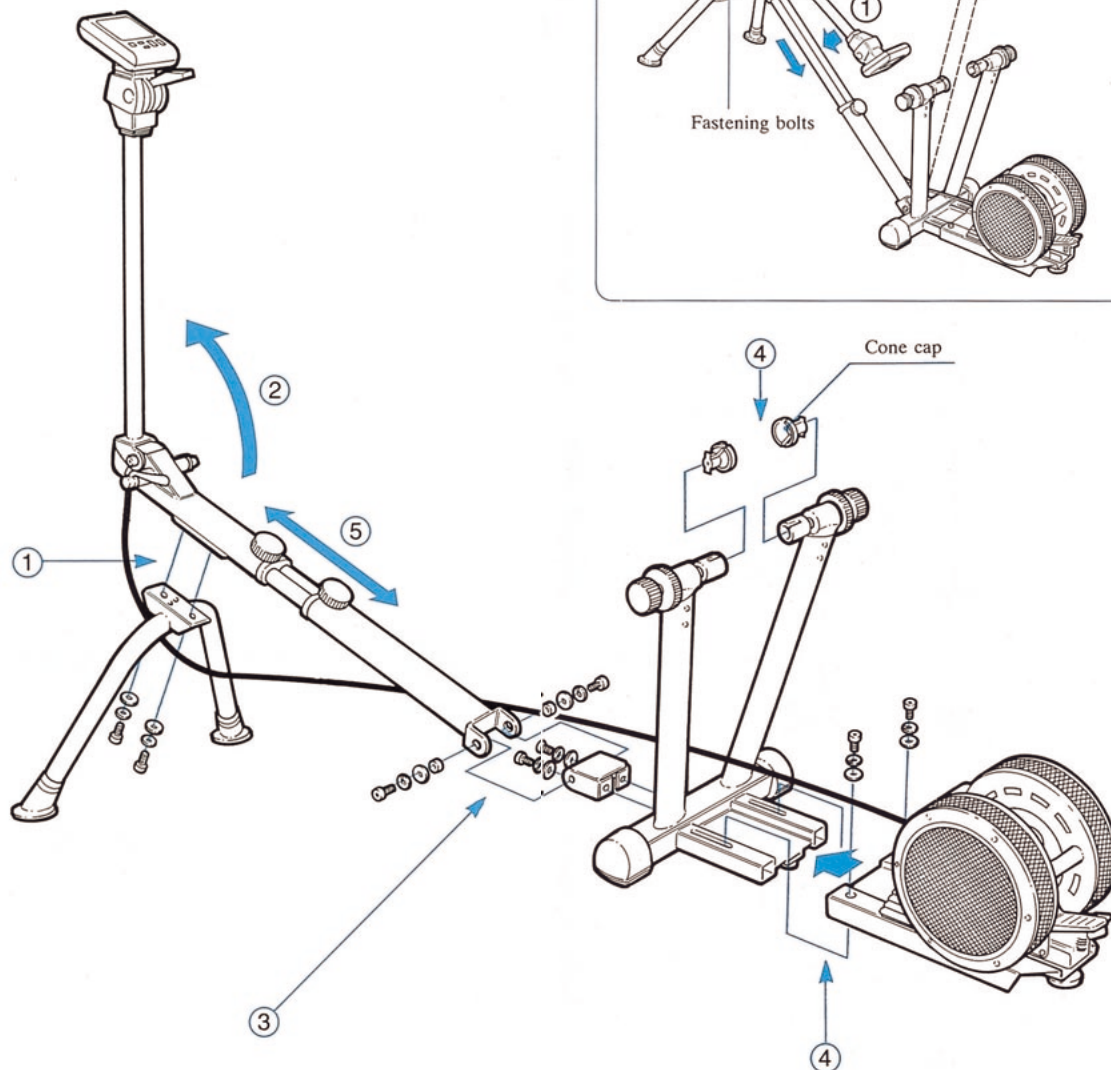
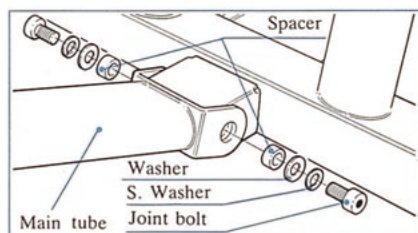
Erect the control unit stand vertically until it is supported by the stopper projection at the bottom.

3 Connecting the main tube

1. Remove the joint fitting from the end of the rear main tube.
2. Attach the joint fitting with two bolts to the main frame.



3. Connect the main tube to the joint fitting and fasten the joint bolts with the spacer and washers in between at both sides.



How to disassemble

1. Lay down the control unit stand as indicated by arrow ①, until supported by the stopper projection.
 2. Lift up the front main tube as shown ②, until supported by the stopper projection.
- * To make it more compact, first loosen the main tube knob and shorten the inner tube, then disassemble the unit as in 1. and 2. above.

CAUTION: Do not loosen the fastening bolts.

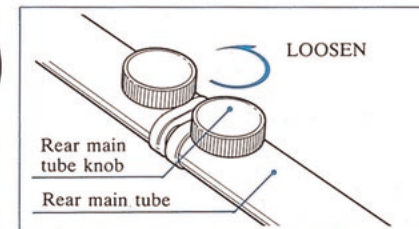
4 Attaching the workload unit

1. Remove the workload unit bolts from the main frame.
2. Slide the workload unit into the main frame, and loosely fasten the workload unit bolts. The cable should run through as illustrated.

3. Attach the cone cap to the clamp cone.

5 Lengthen the main tube

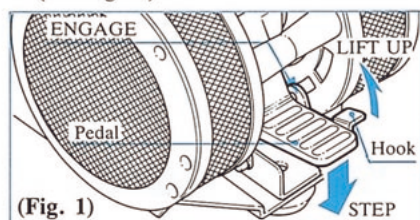
1. Loosen the rear main tube knob and slide the inner tube out to lengthen the main tube to the maximum.
2. Fasten the rear main tube knob securely.



HOW TO MOUNT/ DISMOUNT YOUR BIKE

How to mount

- 1 Confirm that the air pressure of the rear wheel of your bike is according to the recommendation. (See Table 1.)
- 2 Loosen the front main tube knob.
- 3 Loosen the workload unit bolt and slide the workload unit backward to the end.
- 4 Screw down the leveler until it contacts the floor.
- 5 Step on the pedal, and engage the hook with the pedal shaft to lock the roller. (See Fig. 1.)

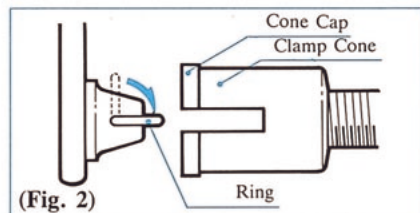


(Fig. 1)

- 6 Loosen both outer knobs to the end.
- 7 Remove the front wheel of your bike. Place the rear wheel between the main frame poles, and fix the front fork on the quick release axle.
- 8 Loosen the front main tube knob and adjust the length of the inner tube according to the wheelbase of your bike, so that the position of the rear wheel axle matches the clamp cone.
- 9 Tighten the outer knobs at both sides, keeping the tire at the center of the roller, to fix the rear wheel axle.

Note 1. Do not overtighten the outer knobs. Turn each outer knob about one and a half revolutions after the bike wheel axle begins to fit into the clamp cones.

Note 2. If the quick release axle has a ring, place the ring into the cone cap groove as shown in Fig. 2.



(Fig. 2)

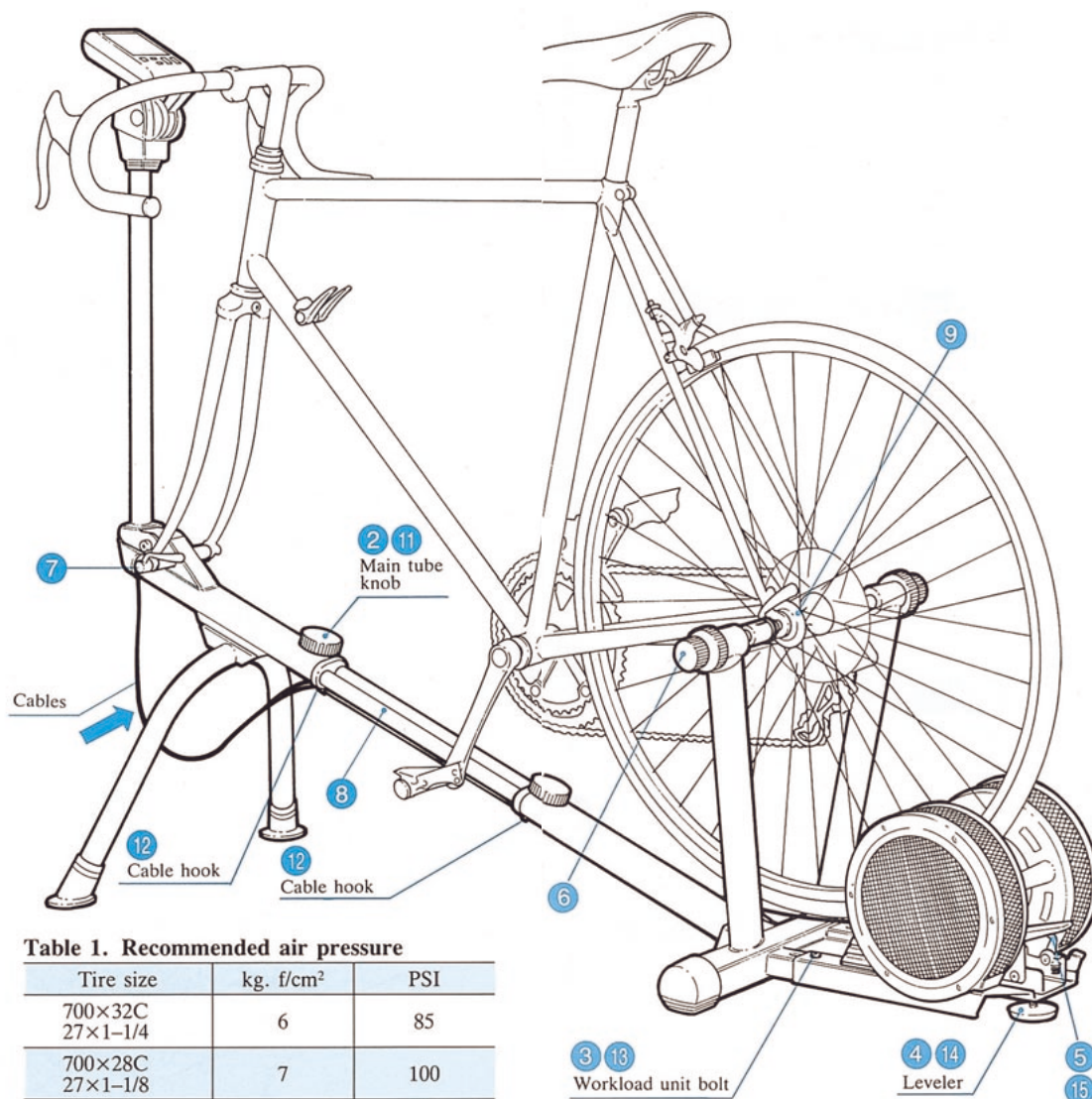
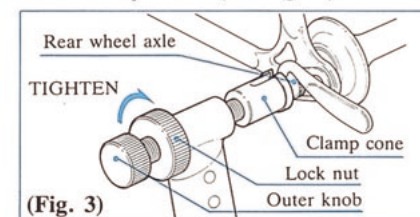


Table 1. Recommended air pressure

Tire size	kg. f/cm ²	PSI
700×32C 27×1-1/4	6	85
700×28C 27×1-1/8	7	100
700×25C	7	100
700×20C	8	115
A.T.B. tire 26"	3~6	45~85

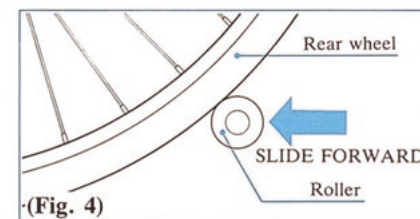
Note: If the air pressure is indicated on the tire itself, follow those instructions.

- 10 Fasten both lock nuts to fix position of the clamp cones. (See Fig. 3.)



(Fig. 3)

- 11 Fasten the front main tube knob.
- 12 Put the cables through the cable hooks under the main tube, and then adjust cable slackness as illustrated.
- 13 Slide the workload unit forward until the roller contacts the tire of your bike, and fasten the two workload unit bolts with hexagon wrench. (See Fig. 4.)



(Fig. 4)

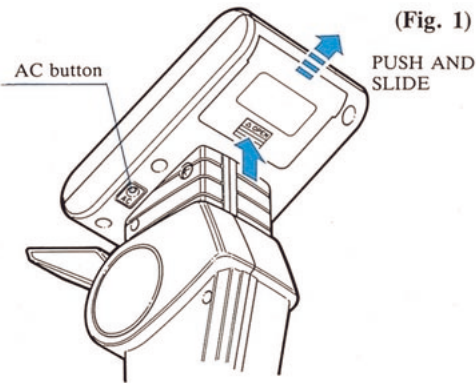
- 14 Readjust leveler so that it contacts the floor properly.
- 15 Step on the pedal and unfasten the hook to unlock roller, and slowly release the pedal. Confirm that the roller is pressed to the tire by the spring.

* If you always use the same bike, proceed as 1 5 7 9 10 15

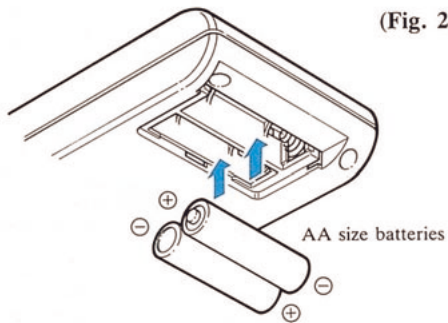
How to dismount

- 1 Step on the pedal and engage the hook with the pedal shaft to lock the roller. (See Fig. 1.)
 - 2 Loosen the lock nuts, then loosen the outer knobs and detach the rear wheel axle of your bike.
 - 3 Loosen the quick release axle to detach the front fork of your bike.
 - 4 Step on the pedal to unlock the roller, and release the pedal slowly.
- * While not in use, be sure to keep the roller unlocked.

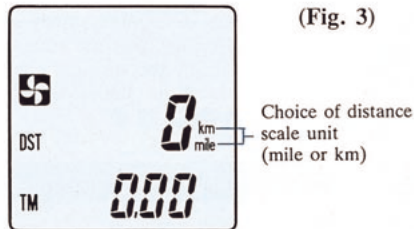
PREPARATION OF THE CONTROL UNIT



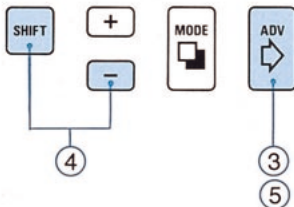
(Fig. 1)



(Fig. 2)



(Fig. 3)



1 Battery Installation (Two 1.5V AA required)

1. Slide the battery case cover in the direction of arrow to remove. (Fig. 1.)
 2. Place batteries in the battery case. Make sure the polarity \oplus or \ominus is correct. (Fig. 2.)
 3. Replace the battery case cover.
- * For longer battery life, alkaline batteries are recommended.

2 To set the "All Clear"

Press the "AC" button at the rear of the control unit with a ball-point pen or something similar. The screen will display all readings for one second and then return to a "No-Display" state.

Note: Make "All Clear" setting whenever you install or replace batteries.

3 To set the display

Press the "ADV" button to put the screen into the "Set-Display" state.

4 Set the distance scale unit

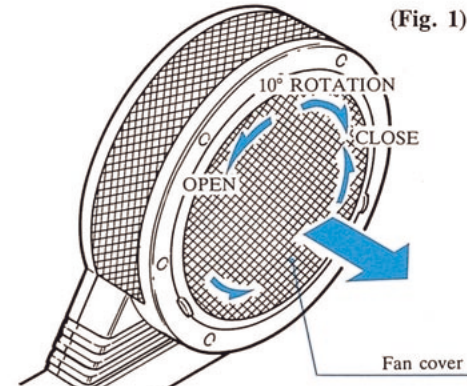
While pressing the "SHIFT" button, press the \boxplus button to choose your desired distance mode, "km" or "mile". (Fig. 3.)

Note: The distance mode set in the memory is cancelled when the control unit is set in the "All Clear" state.

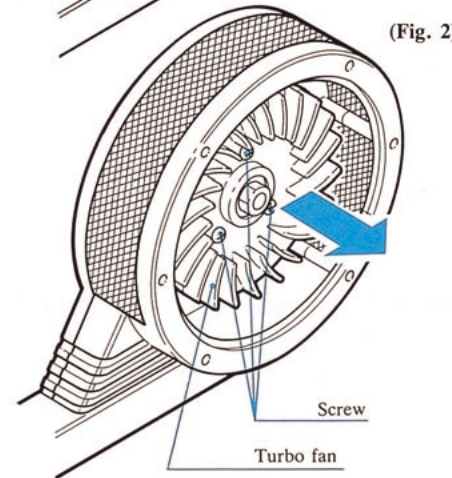
5 Turn the screen to the "No-Display" state

Press the "ADV" button 4 times, to set the screen into the "No-Display" state.

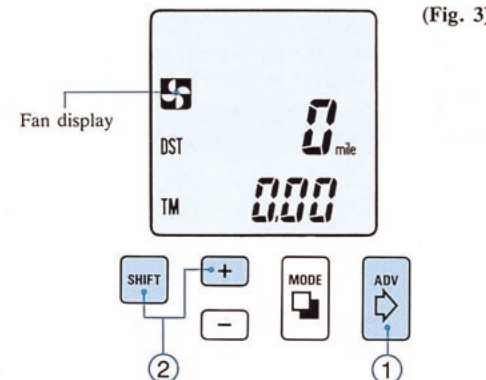
REMOVING/ATTACHING THE TURBO FAN



(Fig. 1)



(Fig. 2)



(Fig. 3)

Removing the turbo fan

1. Turn the fan cover in the direction of "OPEN" by 10° to remove forward. (Fig. 1.)
2. Unscrew the three screws from the turbo fan, and remove the turbo fan. (Fig. 2.) (Store the screws and turbo fan together.)
3. Replace the fan cover, and turn it to the direction of "CLOSE" to lock. (Fig. 1.)
4. Press the "ADV" button, and operate the "SHIFT" button and the set button \boxplus to switch off the display on the screen. (See below "Setting the fan function".)

Warning: Don't remove the fan cover while unit is in use.

Attaching the turbo fan








1. Remove the fan cover. (Fig. 1.)
2. Replace the turbo fan so that it lines up with the points on the flywheel.
3. Fasten the turbo fan with three screws securely. (Fig. 2.)
4. Replace the fan cover and turn it to lock. (Fig. 1.)
5. Press the "ADV" button, and operate the "SHIFT" button and the set button \boxplus to switch off the display on the screen. (See below "Setting the fan function".)

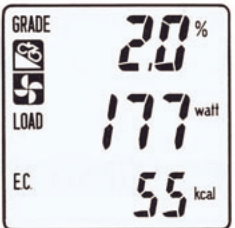



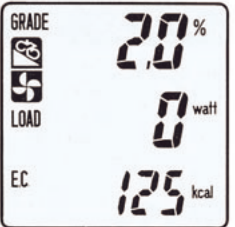





Warning: Don't remove the fan cover while unit is in use.

Setting the fan function

- ① Press the "ADV" button, to set the screen in the "Set-Display" state.
 - ② Holding down the "SHIFT" button, press the set button \boxplus to switch on or off to light the fan display. (Fig. 3.)
- When the turbo fan is removed from the unit, switch off to light the fan display.
 - When the turbo fan is attached to the unit, light up the fan display.

RIDE YOUR BIKE

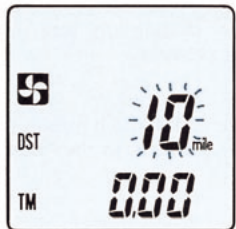
DISPLAY	BUTTON OPERATION	EXPLANATION
 (No-Display)		Make sure the display screen is in the "No-Display" state.
 (Set-Display)		Operation starts If the "ADV" button is pressed, the "Set-Display" appears on the screen.
 (Display-A)		When the "ADV" button is pressed again, the screen changes to "Display-A" state. Now, you are ready for training with the CS-1000.
 (Display-A)		Display-A (From top) <ul style="list-style-type: none">• Current Speed mile/h (km/h)• Trip Distance mile (km)• Exercise Time (Timer) When the "ADV" button is pressed again, the timer starts counting. Start your pedaling.
		Simulation starts

DISPLAY	BUTTON OPERATION	EXPLANATION
 (Display-B)		When the "MODE" button is pressed, the screen changes to the "Display-B" state. You can look and check your training data.
 (Display-A)		Display-B (From top) <ul style="list-style-type: none">• Percent Grade %• Work Rate watt• Carorie Consumption kcal By moving the grade shift lever, you can change percent grade. You can feel hill climbing resistance from 0% to 10% grade by shifting the lever up to 8 different position.
 (Display-B)		When the "MODE" button is pressed, the screen returns to the "Display-A" state.
		When the "ADV" button is pressed, the timer stops. Stop your pedaling.
		Simulation finishes See and check your performance data displayed on the screen.
		Press the "MODE" button, and change the screen to the "Display-B" state. See and check your performance data displayed on the screen.
		Press the "ADV" button to turn to "No-Display" state.
		Operation finishes

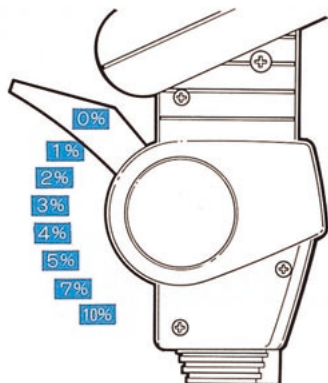
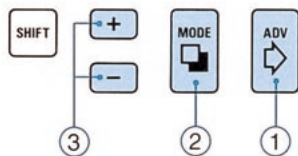
SETTING THE TARGET EXERCISE TIME/TARGET TRIP DISTANCE



Example: Target Exercise Time 20 minutes



Example: Target Trip Distance 10 miles



Setting the target exercise time/target trip distance

- 1 Press the "ADV" button to put the screen into the "Set-Display" state.
- 2 Press the "MODE" button to choose setting of either "Target Exercise Time" or "Target Trip Distance". The numerical value flickers.
- 3 Enter the desired target exercise time or trip distance by operating the set button \oplus or \ominus .

Setting range

- Target Exercise Time: 0~199 minutes
- Target Trip Distance: 0~199 miles (km)

Note

- Either "Target Exercise Time" or "Target Trip Distance" can be set. Remember, if you set one, the other is automatically cancelled.
- If it is set "0.00" for "TM", and "0" for "DST", it keeps measuring unless the "ADV" button is pressed.
- The target exercise time or trip distance set in memory is cancelled when the control unit is set to the "All Clear" state.

How to use grade shift lever

- Percent grade (Hill climbing resistance) can be obtained by operating the grade shift lever.
- Percent grade is 0% at the highest position of the grade shift lever, and it becomes higher in proportion to down shifting the lever. Percent grade can be selected from 0% to 10% at 8 levels. The selected percent grade can be identified by the display on the "Display-B" screen.
- In proportion to change of position of the grade shift lever, work rate (watt) and calorie consumption (kcal) are computed automatically, and are displayed on the screen.

DISPLAYS ON THE CONTROL UNIT SCREEN

Set-Display

When the screen is in the "Set-Display" state, the distance scale unit, fan function, target exercise time, or target trip distance can be set.

- A. Distance Scale Unit: The desired distance scale, unit, mile or km can be set.
- B. Fan Display: When the turbo fan is in use, this display must be lit up.
- C. Target Exercise Time: The desired exercise time can be set, and displayed. When you have reached the target exercise time, the beeper signals and computing the trip distance stops.
- D. Target Trip Distance: The desired trip distance can be set, and displayed. When you have reached the target trip distance, the beeper signals and the timer stops.

Display-A

- A. Current Speed: The current speed is displayed in 0.1 mile/h (km/h) increment, and is updated every second. Minimum speed display: 4 miles/h (km/h).
- B. Trip Distance: The trip distance is displayed while the timer is counting. It is displayed in 0.01 mile (km) increments up to 100 miles (km), and in 0.1 mile (km) increments over 100 miles (km) up to 999.9 miles (km).
- C. Exercise Time (Timer): It counts the elapsed time after the timer starts. It is displayed in 1/10 second increments up to 1 hour, and in one second increments over 1 hour up to 9 hours 59 minutes and 59 seconds.

* In case the target trip distance is set, the timer stops counting elapsed time when it has reached the set trip distance.

Display-B

- A. Percent Grade: It is linked to the grade shift lever, and displays the percent grade of a hill climb.
- B. Work Rate: It displays work rate in watts by computing the current speed and the percent grade. It computes and displays up to 9999 watts.
- C. Calorie Consumption: It accumulates consumed calorie in kcal after the screen is in the "Display-A" or "Display-B" state, regardless of the timer and displays. It computes and displays up to 9999 kcal.

Note

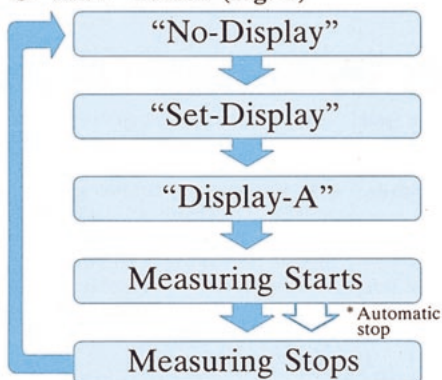
- When the percent grade is 0%, the fan display is off.
- The control unit automatically turns to the "No-Display" state, if no pulse is detected in 10 minutes.

9 BUTTON FUNCTIONS

● Buttons (Fig. 1)



● “ADV” Button (Fig. 2)



● “MODE” Button (Fig. 3)

● In the “Set-Display” state

Target Exercise Time setting



Target Trip Distance setting

● In “Display-A” or “Display-B” state

“Display-A”



“Display-B”

“ADV” Button

This button has two functions. One is to advance the program, and the other is to stop/start operation. Each time this button is pressed, the display advances in the order shown in Fig. 2.

- * When the target exercise time or target trip distance is set, it serves to stop operation automatically when it has reached the target exercise time or trip distance set. If this button is pressed at the stop state, the screen turns to the “No-Display” state.

“MODE” Button

This button has two functions. (See Fig. 3)

● In the “Set-Display” state:

- Each time this button is pressed, it serves to select settings of either target exercise time or target trip distance, and makes the numerical value of “TM” or “DST” blink.

When the numerical value is blinking, each time the set button of \boxplus or \boxminus is pressed, it serves to enter the desired numerical value. When the set button of \boxplus or \boxminus is held down, it will increase or decrease rapidly.

● In the “Display-A” or “Display-B” state:

- This button serves to alternate the display screen.

“SHIFT” Button

This button has two functions.

● In the “Set-Display” state:

- When this button is held down, if the set button \boxplus is pressed each time, the fan display is switched on or off to be lit up.
- When this button is held down, if the set button \boxminus is pressed each time, the distance scale units of mile and km alternate each other.

● In the “Display-A” or “Display-B” state:

- If this button is held down, the screen changes to the “Set-Display” state, and the set numerical value in memory can be recalled for confirmation.

“AC” Button

(At the rear of the control unit.)

When new batteries are installed, or when abnormal signals are received due to electrostatic trouble, etc., the screen may show abnormal displays. In such a case, press this button. The screen displays all readings for one second. And then, it turns to the “No-Display” state.

10 PRECAUTIONS/ MAINTENANCE

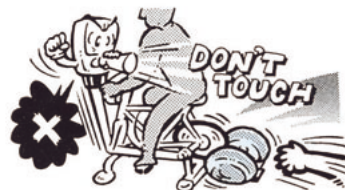
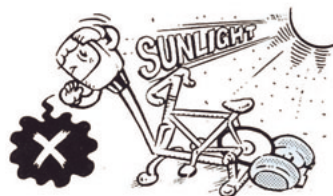
Operating Precautions

For longer use, observe the following precautions.

- Do not disassemble the workload unit, control unit or the grade shift lever. Consult the dealer you purchased the unit from, in case of trouble.
- Avoid using this unit where it may be exposed to water or where there is high temperature level or humidity.
- When the unit is not in use, release the lock at the load pedal.
- Tighten the outer knob securely.
- Do not use the unit in the direct sun light.
- Do not touch the workload unit or the rear wheel, when the unit is in use. Do not adjust or operate the load pedal while the unit is in use.
- Do not cover the vents of the workload unit. If it is covered, the air resistance is changed and precise data may not be obtained.
- Do not step on the center tube.
- Do not bend the cable.

Maintenance

- Wipe sweat from the unit and bike after training.
- Wipe the unit clean with a cloth and mild cleanser. Do not wipe the unit with organic solvents such as thinner, kerosene, gasoline or alcohol.
- Wipe the roller clean with a cloth and benzene.
- Use a vacuum cleaner to clean dust from the vents at the workload unit.

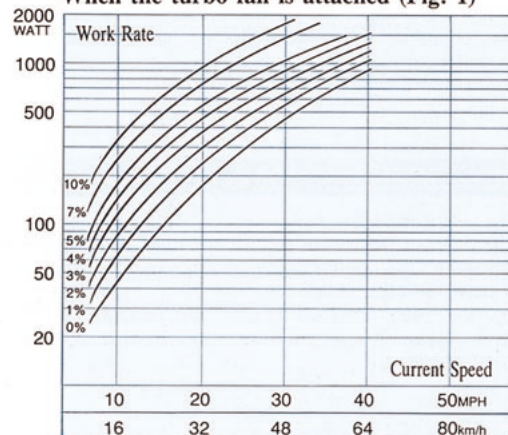


TRAINING PROGRAM

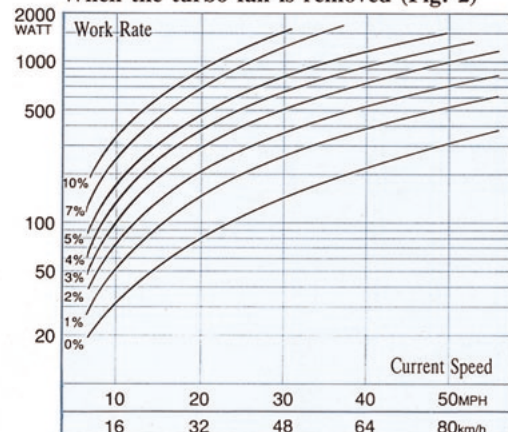
When the turbo fan is attached to the main unit, the CS-1000 simulates resistance that a cyclist may feel in actual riding. Work rate in watts changes in proportion to the speed and the hill climbing grade. When the turbo fan is removed, work rate becomes less since the air resistance is omitted.

If you want to simulate riding conditions without the turbo fan, you can adjust the percent grade in accordance with the following table. You can simulate the actual riding conditions including the air resistance, even without the turbo fan.

When the turbo fan is attached (Fig. 1)



When the turbo fan is removed (Fig. 2)



Grade Shift Lever Adjustment(%)

Current Speed MPH (km/h)	Simulated Road Condition		
	Flat	1% Grade	2% Grade
12 (20)	1%	2%	2%
16 (25)	1%	2%	3%
19 (30)	1%	2%	3%
22 (35)	2%	2%	3%
25 (40)	2%	3%	4%
28 (45)	2%	3%	4%
31 (50)	3%	3%	4%
34 (55)	3%	4%	4%
37 (60)	3%	4%	5%

- The training program shown here is for a beginner. If your physical strength is improved, adjust the speed, time and percent grade level accordingly for effective training.

Training for general physical strength

A program to improve your general physical strength for a triathlon or road race.



Percent Grade	Speed	Time	Gear Ratio
W/out Fan	W/Fan	MPH (km/h)	
1%	0%	Over 12 (20)	5 42-17, 18
1%	0%	Over 19 (30)	10 52-17, 18
2%	1%	Over 19 (30)	5 52-17, 18
1%	0%	Over 19 (30)	5 42-15, 16
1%	0%	Over 12 (20)	5 42-17, 18

(Select the gear ratio which is the most comfortable for you.)

Training for developing speed

Interval training is the best for developing speed.



Percent Grade	Speed	Time	Gear Ratio
W/out Fan	W/Fan	MPH (km/h)	
1%	0%	Over 12 (20)	5 42-17, 18
(Warming up)		Over 19 (30)	10 52-17, 18
2%	0%	Over 27 (43)	15sec. 52-17, 18
Interval		Over 12 (20)	45sec. 52-17, 18
		(Repeat 8-15 times)	
1%	0%	Over 19 (30)	5 42-15, 16
(Cooling down)		Over 12 (20)	5 42-17, 18

(Select the gear ratio which is the most comfortable for you.)

Training for developing power

It is best for developing power to train for 3 minutes at your best efforts.



Percent Grade	Speed	Time	Gear Ratio
W/out Fan	W/Fan	MPH (km/h)	
1%	0%	Over 12 (20)	5 42-17, 18
(Warming up)		Over 19 (30)	10 52-17, 18
2%	0%	Over 22 (35)	3 52-17, 18
Interval		Over 12 (20)	3 52-17, 18
		(Repeat 3-6 times)	
1%	0%	Over 19 (30)	5 42-15, 16
(Cooling down)		Over 12 (20)	5 42-17, 18

(Select the gear ratio which is the most comfortable for you.)

CAUTION: For safe and proper training, it is recommended that you should consult a training specialist.

TROUBLE SHOOTING

Trouble	Check Item	Suggested Remedy
No display appears.	Check to see if the batteries are dead or not.	If the batteries are dead, replace them with two new batteries. (See page 7.)
Abnormal readings are displayed.		Press the "AC" Button to set the "All Clear". (See page 7.)
The reading for the speed, work rate and calorie consumption is "0" and does not change.	Check to see if the workload unit is exposed to direct sun light.	Move the main unit into the shade.
The distance scale unit is wrong.	Did you set the desired distance scale unit properly?	Set the desired distance scale unit. (See ④ in page 7.)
It displays larger values in watt and in calorie than your actual workout.	Check if the fan display is switched on even though the turbo fan is removed.	Switch off the fan display. (See page 8.)
It displays smaller values in watt and in calorie than your actual workout.	Check to see if the fan display is switched off even though the turbo fan is attached.	Switch on the fan display (See page 8.)
No resistance can be felt.	Did you unlock the roller?	Step on the workload pedal to unlock the roller. (See ⑤ in page 6.)
	Did you position the workload unit properly?	Follow direction shown in page 5 and 6, and mount your bike properly.
	Did you fasten the workload unit bolt securely?	
The air resistance is weak even though the turbo fan is attached.	Are the vents at the workload unit covered by dust or any obstacles?	Clean dust or obstacles.

SPECIFICATIONS

Load:	Eddy current system utilizing permanent magnet & Turbo fan	
Hill Climb Resistance:	Manual adjustment by the shift lever 1~8 level	
Control System:	4-bit micro-computer	
Display System:	Liquid Crystal Display	
Sensor System:	Photo-sensor by photo-transister	
Display Function:	Function	Range
	Current Speed	0 (4)~99.9 miles/h (km/h)
	Trip Distance	0~999.9 miles (km)
	Exercise Time	00'00"0~9:59'59" (Accuracy 0.003%)
	Percent Grade	0%, 1%, 2%, 3%, 4%, 5%, 7%, 10%
	Work Rate	0~9999 watts
	Calorie Consumption	0~9999 kcal
Power Supply:	AA (R6) size battery×2	
Battery Life:	Approx. 200 hours for regular battery	
	Approx. 300 hours for alkaline battery	
Applicable Bicycle:	26 inch~28 inch bicycle (Wheelbase: 900mm~1200mm)	
Dimension:	42-1/2"×67-5/16"×18-1/8" (1080mm×1710mm×460mm)	
Net Weight:	33 lbs (15 kg.)	

*Specifications and design are subject to change without notice.
Pat. & Design Pat. Pending