

ROWPERFECT MANUAL

including

CARE/DOS MANUAL

Table of Contents

1. Introduction.....	3
2. Safety.....	4
2.1. Physical.....	4
2.2. Mechanical.....	4
3. Assembly of the base unit.....	5
4. Placing the Interface (Optional).....	7
5. Maintenance.....	8
5.1. Main bar and sliding flywheel assembly.....	8
Before and after each training session.....	8
Weekly, or every 50 hrs of use, whichever is the longest.....	8
Every 200 hrs of use or every 4 weeks, whichever is the longest.....	9
5.2. Chain.....	9
Weekly or every 50 hrs of use, whichever is the longest.....	9
Every 200 hrs of use or every 4 weeks, whichever is the longest.....	9
6. Levelling the unit.....	10
7. Adjusting the boat simulating characteristics.....	11
8. Interface and software.....	12
8.1. Actions prior to start-up.....	12
8.2. Start-up.....	12
8.3. User menu.....	12
User identification.....	13
Type of training.....	13
Displays.....	14
Performance graph.....	14
8.4. Evaluate menu.....	14
Exporting files.....	14
8.5. Strokes Menu.....	14
8.6. The work screen.....	15
8.7. Software step-by-step.....	16
1. Opening screen.....	16
2. Insert disk.....	16
3. *.ini file screen.....	17

4. User menu.....	17
5. Colour settings.....	17
6. Press a key to continue.....	18
7. Work screen.....	18
8. Evaluation menu.....	18
9. Set X-axis.....	19
10. Set Y-axis.....	19
11. Set Z-axis.....	19
12. Load session file, warning.....	20
13. Select *.ses file.....	20
14. Evaluation of a session.....	20
15. Export data as ASCII text file.....	21
16. Display menu.....	21
17. Strokes menu.....	21
18. Browse strokes.....	22
19. Create, save and set reference strokes, make template curves.....	22
9. Parts list.....	23
10. WARRANTY.....	26

1. Introduction

The ROWPERFECT rowing simulator is the world's only rowing machine that truly simulates the dynamics of a light racing shell, freely floating on the water. The main frame with its flywheel, stretcher and seat are the boat simulating parts, and the main bar simulates the water. In its patented design**, the flywheel assembly weighs about 17.5 kgs, which closely approximates the weight per person of most racing shells.

The seat is labile, as a boat would be, forcing the rower to sit and pull symmetrically.

The elasticity of the total system of main bar and flywheel assembly, is designed to match closely the elasticity of the combination of oar, boat and rigger.

It is however not a boat in all its aspects.

The technique of handling the oar is not required. Therefore deteriorating technique of handling the oar due to fatigue, will not serve as an automatic safeguard for the oarsman against over-exertion, as would be the case in a boat.

- Because the oarsman does not have to push the oar away at the beginning of the recovery, but instead is pulled back, there is a tendency to row at a slightly higher stroke rate than in the boat.

- Other than the water, the main bar is not of infinite length. Therefore, to stabilise the position of the rower within this finite length, there is a slight downward bend in the main bar, with its lowest point at approx. 40 centimetres from the hind leg. In order to influence the dynamics of the system as little as possible, the curvature of this bend is kept at a minimum. Due to the elasticity of the main bar, and the sag resulting from the weight of the oarsman, the exact position of the lowest point of the main bar is weight dependant; of course this position also depends on the slope of the floor the unit is placed on. The unit should be levelled in such a way, that when rowing, neither of the two support legs are touched by the main frame or the seat. For levelling the unit the front leg is provided with a level adjustment bolt. Turning the bolt clockwise lowers the front end, turning it anti-clockwise raises the front end.

** Patents: U.S. Patent 5,382,210
European Patent 0 376 403 B1

2. Safety

2.1. Physical

- Ensure that it is not dangerous for you to undertake a strenuous exercise. Consult your physician !
- Always warm up properly rowing easily for 5 to 10 minutes at a pulse frequency of 120 to 130 strokes per minute.
- Although the unit easily permits it, do not row at a higher stroke rate than you would be capable of, rowing in a boat.

2.2. Mechanical

- Properly install the rowing simulator with the main bar at the correct inclination. Adjust the inclination when front or hind leg are being touched by the main frame or the seat, by raising slightly the side that is being touched.
- The ROWPERFECT machine has not been designed for use in the vicinity of children. Keep children away when exercising.
- Allow for 1 m of clear space around the machine when in use.
- Keep spectators at more than an arms length from the rotating flywheel and the moving main frame.
- Never touch the rotating flywheel, and do not touch the main frame when in use.
- Always pull the handle with two hands, and do not bend, twist or kink the chain. Any abuse of the chain may result in injury.
- Always place the handle into the handle hooks or against the cage before letting go. Never let the handle fly into the cage.
- Avoid ties, shawls or other clothing from being sucked into the cage by the rotating flywheel.
- Prevent objects from falling or being thrown into the rotating fan.
- Wear tight clothing and keep clothing free from the seat rollers.
- Maintain your machine properly as recommended in section Maintenance.
- Replace worn or defective parts before using the unit.

In general: Treat your ROWPERFECT rowing simulator with the same loving care as you would your single scull.

3. Assembly of the base unit

The ROWPERFECT rowing simulator comes pre-assembled into 8 separate parts:

- Flywheel
- Cage
- Main frame assembly
- Handle
- Main bar
- Seat
- Legs
- Foot stretcher

Tools needed

- 1 clothes peg (spring loaded type)
- 1 spanner size 8 for M5 nuts
- 2 spanners size 10 for M6 nuts
- 1 socket size 17 for M10 nuts
- 1 spanner size 19 for M12 nuts

Assembly procedure

The main bar has one straight and one upward curved end.

This upward curved end is the back end. Similarly, one of the legs has its upper part at a 90 degree angle (front leg), the upper part of the other leg is at downward inclination (hind leg).

Lay the main bar on the floor with the curved back end of the main bar pointing upwards.

Push the hind leg into the back end of the main bar, with its vertical bar perpendicular to the central section of the main bar. Insert one 6 mm bolt from top to bottom, place a M6 Nyloc nut and tighten.

Meticulously clean the main bar.

Slide the seat onto the main bar with the double curved side of the seat pointing towards the hind leg.

Subsequently slide the main frame assembly onto the main bar with the shaft side pointing away from the seat. Place the front leg, 6 mm bolt and M6 Nyloc nut, and tighten.

The stretcher boards have two straps, both of them provided with a buckle. The stretcher boards should be attached to the stretcher bars in such a way that the buckles point away from the main frame.

Put the two stretcher bars through the corresponding holes in the main frame and put the stretcher bolts through the corresponding holes in the stretcher bars. Place the nuts, align both boards parallel to the main frame and tighten the nuts.

Remove the cover from the flywheel cage by removing the 4 domed cap M5 nuts with spanner size 8. Remove the flywheel from the cage and put it aside for later use.

Unscrew the two M6x16 bolts next to the main shaft on the right side of the main frame assembly. Take the flywheel cage and align the four 6 mm holes with the four 6 mm holes in the main frame assembly. Provide the two M6x16 mm bolts each with a drop of super glue and put them into their original position, do not yet tighten. Provide the two M6x20 bolts also with a

drop of super glue and insert them into the other two mounting positions of the cage. Position the cage symmetrically around the main shaft, and tighten all four bolts. Check that the main shaft does not touch the central ring of the cage.

Pull the chain out for approx. 60 centimetres, and lead it through the chain guard of the cage. Put a clothes peg onto the chain close to the main bearing block to prevent it from recoiling. Take the 6 mm U-bolt and put it through the slot in the chain-handle connector. Put the U-bolt through the handle, place a 6 mm washer on both ends, each followed by a M6 Nyloc nut. Tighten the nuts until the bolt ends are flush with the rim of the nuts. Do not over tighten.

Place the handle behind the handle hook.

Take the flywheel and remove the plastic dust protection cap from the hub. Clean the main shaft meticulously. Carefully align the flywheel hub with the main shaft, and gently slide the flywheel onto the shaft.

Place the M10 Nyloc nut onto the shaft and tighten with the size 17 socket, securing the shaft with the size 19 spanner on the opposite side. After tightening the tension on the main shaft due to this M10 nut subsequently has to be released. To release this tension, hold the flywheel by the vanes to keep it from rotating, and untighten the M10 nut by turning it counter-clockwise over approximately 5 degrees (about 1/10th of the distance between two subsequent vanes). Replace the cover and place the domed cap M5 nuts. To facilitate positioning and tightening of the domed cap nuts the rim of the cage should be slightly pushed outward during this operation. After tightening, the nuts are thus secured by the outer wire of the cover of the cage. Do not over tighten !

The clearance between the main bar and the rollers of the main frame has been adjusted in the factory.

However, prior to using the unit please check the clearance as per section 5 - Maintenance on page 8 and adjust if necessary.

4. Placing the Interface (Optional)

The interface is a small black box (75x57x25 mm) with a small white cylinder protruding from it (the sensor). The sensor is sensitive towards magnetic fields. Its active spot is very small, and is situated in the centre of the extremity of the sensor. For proper functioning of the interface it is essential that the active spot of the sensor is positioned on exactly the same circle as the magnets in the flywheel that activate the sensor. The distance between sensor and flywheel should be between 1 and 2 mm.

The interface comes with two mounting brackets, and a spanner like object called "positioner". The positioner is a tool to help the user to position the sensor of the interface on exactly the correct circle.

To correctly place the sensor and interface into the right position proceed as follows:

Lay the rowing simulator gently on its flywheel side.

Lay the positioner on the flywheel with its hollow side resting firmly against the main shaft.

Unscrew the screws in both brackets until flush with the inside of the bracket. Hook the two brackets with their bent rims pointing towards each other, under the lower rims of the main frame. Take the interface, put it with the sensor side pointing towards the flywheel and to the main shaft, and insert the interface between the two brackets. Pushing both brackets firmly around the interface, slide the interface into position until the side of the sensor rests against the end of the positioner, which in its turn should rest firmly against the main shaft. Make sure the distance between the top of the sensor and the flywheel surface is between 1 and 2 mm, and the interface body is parallel to the flywheel. Then tighten gently the four screws to fix the brackets, and thus the interface, in the proper position. Put the rowing simulator upright again.

5. Maintenance

To get the most satisfaction from your ROWPERFECT rowing simulator, treat her with the same loving care as you would your single scull.

The actual level of maintenance required can vary strongly depending upon the type and frequency of use, and the environment the machine is used in.

The following paragraphs can serve as a guideline to keep your ROWPERFECT in good shape.

5.1. Main bar and sliding flywheel assembly

To really simulate the dynamics of a racing shell, freely floating on the water, it is essential that the flywheel assembly slides over the main bar with zero clearance between rollers and main bar, and with very low resistance. Build-up of any dirt on the surface of the main bar will not only increase the resistance and negatively influence the dynamic simulation, but also will induce extremely high compressive strains in the main bar when the rollers are forced over it when rowing.

These compressive strains will eventually cause failure of the main bar due to fatigue cracks on its' corners.

The following maintenance schedule can serve as a general guideline for main frame and main bar:

Before and after each training session

Wipe the main bar clean with an oil soaked cloth to remove dust and sweat and to lubricate the contact between rollers and main bar. (Oil: Standard SAE 20 W or 20 W 40 motor oil)

Weekly, or every 50 hrs of use, whichever is the longest

Check the clearance between the rollers of the flywheel assembly and the main bar. The clearance of the top rollers on the stretcher side, and the bottom rollers on the flywheel side should be such that one is not able to make the roller slip over the surface of the main bar, by retaining the roller by pressing a thumb firmly to the surface of the roller, and moving the flywheel assembly to and fro over the main bar. If a particular roller can be made to slip, adjustment of the clearance of that roller is necessary.

All adjustments should be done in small steps to avoid over tensioning.

Proceed according to the following sequence. Of the adjustment bolt adjacent to the roller that should be adjusted, untighten the top nut by turning 15 degrees (counter clock wise seen from top), and subsequently tighten the bottom nut by turning 15 degrees. After adjustment, the main frame should still slide lightly over the main bar.

Note: When the clearance for a particular roller is adjusted, this can affect the clearance for the other rollers. One should be able to make the other rollers slip when their corresponding bottom nut is loosened by a 15 degree turn. If not, turn corresponding top nut slightly down to adjust,

and then re-tighten bottom nut.

Every 200 hrs of use or every 4 weeks, whichever is the longest

Check that the following bolts and nuts are not loose:

- The four M6 bolts holding the main bearing block (and two of them also the cage) to the main frame.
- The two additional M6 bolts holding the cage to the main frame.
- The four capped M5 nuts holding the cage cover to the cage
- The four M6 bolts and nuts that hold the stretcher boards.
- The bolts and nuts holding the front and hind leg to the main bar.

5.2. Chain

To get the longest life from your chain and sprockets, keep the chain clean and properly lubricated at all times. Do not use too much lubricant for the chain, as this may affect the life of the elastic cord in a negative way.

The following schedule can serve as a guideline for chain maintenance:

Weekly or every 50 hrs of use, whichever is the longest

- Soak a clean rag or paper towel with approximately 5 ml of SAE 20 or 20 W 40 motor oil.
- Pull the chain gently all the way out, until it stops.
- Wipe the oil soaked rag or paper towel along the full length of the chain repeatedly, to lubricate the chain and at the same time remove accumulated dirt and lubricant residue.
- Finally wipe the chain clean of any excess oil with a clean dry rag or dry paper towel.

Every 200 hrs of use or every 4 weeks, whichever is the longest

- Inspect the chain handle connection. Check the connector piece and the U-bolt that connect the chain to the handle. The connector piece is attached to the chain in the factory. When new, the hole in the connector piece is elongated, and the width of the rim of the connector piece pointing towards the rower is 5.5 millimeters. The chain and the connector piece should be replaced if the remaining width of the rim of the connector piece has become less than 3 mm. The U-bolt should be replaced if it is nearly half worn.
- Inspect the chain for stiff links. Stiff links can cause the chain to skip over the sprocket. This can lead to injury and causes excessive wear of both chain and sprockets. Stiff links can be caused by lack of lubrication, build-up of dirt, or mechanical abuse of the chain.

Generally repeated cleaning and lubrication, as in weekly maintenance, will loosen up the links. If this is not the case and the chain skips over the sprocket, the unit should not be used. Contact your ROWPERFECT agent for a replacement chain and sprockets.

6. Levelling the unit

Before starting to row, the unit should be levelled correctly, in order to allow gravity to stabilize the position of the rower at the correct place. For levelling the unit, the height of the front leg is adjustable by means of a M12 bolt, spanner size 19. Turning the adjustment bolt clockwise shortens the front leg, and thus lowers the front, turning it anti-clockwise raises the front end.

To level the unit correctly, proceed as follows:

Put the unit in its proper place where it is going to be used. Sit down on the seat and place your feet on the stretcher. Then, without using the handle, sit in catch position, and push to and fro with the legs quickly over a distance of approx 10 cm a couple of times. Gravity then causes the rower to arrive at the lowest point of the bar. Properly levelled, the position of the center of the seat is then at approx. 30 cm from the rear of the main bar.

Your ROWPERFECT base unit now is ready for use.

When, while rowing, the main frame touches the front leg repeatedly, raise the front by turning the adjustment bolt anti-clockwise. When, on the contrary, the seat repeatedly touches the rear leg, lower the front leg by turning the adjustment bolt clockwise.

7. Adjusting the boat simulating characteristics

The "feel" of a racing shell depends upon a mixture of inertial forces and friction forces during the stroke and recovery cycle, the type of oar and the inboard/outboard ratio used.

The flywheel assembly of the ROWPERFECT rowing simulator weighs 17.8 kgs, which is close to the average weight per person of most racing shells, including the oars.

To adjust inertial forces one can choose between two sprockets; the left (small) one and the right (large) one. The left one generally is used for simulation of 1x, 2-, 2+ and 4+ the right one for the other boats.

To adjust the level of friction, the central part of the fan is covered by disks of different size.

Four different disks come with the machine.

With the combination of these disks and the two sprockets generally the ROWPERFECT can be made to give the same "feel" as a boat. Choose that combination that simulates your boat closest.

If required, bigger or smaller disks can be cut by the user from similar material to fine tune.

Always use full disks for adjustment of the level of friction, do not use louvres to throttle the fan at the inlet, as this will change the friction characteristics of the fan. This then will lead to erroneous readings for power and all related parameters.

8. Interface and software

The ROWPERFECT interface and software will operate on any PC operating under DOS and with a processor 386 or higher.

Chances are that the programme will not run correctly under Windows, as Windows can interfere with the programme's interrupt routines. The programme can be loaded from the diskette drive. Files are preferentially stored on diskette, with each user having his or her personal diskette.

The programme uses different files:

- .ini files. These files identify the user, the type of training that is going to be performed, the allocation of the numerical displays, the choice of parameters in the work screen, and the colours of the screens.
- .ses files. These files record the information of a training session.
- .str files. These files record the information of certain strokes.
- Text files. .ses files and .str files can be converted to ASCII text files for export to other programmes such as Excell or Lotus.

8.1. Actions prior to start-up

Connect the interface with the interface cable to one of the COM ports of the computer. (Optionally connect the pulse sensor to the interface plug.)

Note: The interface derives its energy from the COM port, no batteries are needed. The ROWPERFECT software assigns the voltage on some of the COM port contacts at the appropriate value for the interface. Existing programmes (e.g. Windows) may interfere with this procedure. If this is the case, erratic graphs will show on the screen at low power output. This problem can be bypassed by rebooting the system from the A: drive with the ROWPERFECT diskette. In that case the programme starts automatically.

8.2. Start-up

The programme diskette is a system diskette. If the computer is started with this diskette, the DOS system including the DOS GRAPHICS command, necessary to make screen prints, and the ROWPERFECT programme are automatically started. If the computer is already operating, activate the MS-DOS prompt. If prints of the screens and graphs have to be made load DOS GRAPHICS.

Insert the diskette into drive a:, activate drive a: and type CARE

The system starts-up and the opening screen (I) is presented. The right COM port is automatically selected, and the screen changes to (II), on which a list of .ini files is presented. Type the name of the required file and press ENTER. If one of the existing files is chosen, the system will present the work screen (III) and the training can commence. If a new file is typed in, the text " Unable to find the file" is presented (IV). In that case choose "Quit" to go to the USER MENU (V) to make a new .ini file.

8.3. User menu

The USER MENU is meant for loading existing .ini files, or for making new .ini files by identification of the user, selecting the type and duration of training, to allocate certain

parameters to displays and to the axes of the performance graphs, to change the colours of the screens, and to save the selected settings as a new .ini file for future repeated use. Normally all the files are stored onto the a: drive automatically, to protect the hard disk against pollution. The PASSWORD OPTION allows the user to save files to the c: drive. The initial password is CARE.

All selections on the screen are made by moving the cursor to the required position and pressing ENTER, followed by typing the relevant information into the answering box, followed again by ENTER. In doing so, the information from the previous work-out still in the memory is destroyed. If this information is still to be saved, answer NO and go to the EVALUATION SCREEN by pressing F1 twice, pressing F8 and naming the file and pressing ENTER. To return to the USER SCREEN then press Esc followed by F6.

User identification

To introduce a new user to the system move the cursor to "User identification" and press ENTER followed by typing the user name and ENTER.

The weight, gender, boat and sprocket data are used to calculate a weight- and gender- corrected time and boat speed. These times are close to the real times made in the chosen type of boat under ideal conditions with technique in the boat near to perfect.

The small sprocket of the rowing simulator is the left one, the big sprocket is the right one, nearest to the fan.

Type of training

The type of training to be performed by the oarsman can be chosen by giving a certain amount of work to do or by indicating a certain intensity. The amount of work can be expressed in terms of STROKES, ENERGY, DISTANCE or TIME. The chosen parameter then is counted down from the limitation value down to zero. At the end of the session the results are presented in DISTANCE, TIME, total ENERGY dissipated, and POWER (average over the total session in Watts).

If the option INTERVALS is chosen, the number of intervals, and the units in which the intervals are going to be counted down, the required POWER during the interval, POWER during the rest period, as well as an incremental value per interval can be selected. Note: Always choose the number of intervals one higher than the number to be rowed.

The CONCONI option for the display automatically selects a special display arrangement for this type of test.

When USER IDENTIFICATION and TYPE OF TRAINING have been selected press F1 select to go to the WORK SCREEN (III), to select display settings and the parameters to be shown in the performance graph on the right side of this screen.

Displays and performance graph parameters.

Displays

Check if the information on the 8 numerical display fields is the information that is required. If not, the setting can be changed by pressing F2 DISPLAYS , and by using the cursor keys, selecting the display number and the parameter to be shown on that display. Set by pressing the SPACE BAR if more than one display has to be changed, or else set and return to the WORK SCREEN by pressing ENTER.

Performance graph

For selecting the variables for the axes of the performance graph press F1 EVALUATE and select for each axis the relevant variable by using the cursor keys. On the graph, the name of the selected variable and the grid value should be visible. If the proper selection is made return to the WORK SCREEN. Note: If a black and white screen is used, it is possible that one or more variables do not show on the screen. If this the case, after selection press ENTER to return to the WORK SCREEN followed by pressing F6 to go to the USER SCREEN. Subsequently press F6 COLOR and make selection for Graph left and right. The result of the selection is shown at the bottom of the screen.

Then return to the WORK SCREEN by pressing ENTER and F1 ACCEPT subsequently, to check the results. If not satisfied, repeat the procedure and choose a different colour, if satisfied, press F6 USER to return to the USER MENU. In this menu then the .ini file , thus composed, can be saved by pressing F8 SAVE and allocating a name to it. This action then saves the user identification, the training menu and the screen settings that have been selected. By pressing F1 ACCEPT, the WORK SCREEN is reactivated and the training can start.

8.4. Evaluate menu

The evaluate menu can be used to evaluate a session just performed, by choosing the appropriate variables for the axes of the evaluate graph. If before start-up of the system DOS GRAPHICS has been loaded, prints of the graph can be made by pressing PRINT SCREEN.

A session file can be saved by pressing F8 SAVE and allocating a name to the file. The file is then saved on disk.

A file on disk can be evaluated from this menu, by pressing F9 LOAD . In doing so a list of .ses files under the actual .ini file is presented, from which list a selection can be made. For session files connected to other .ini files please first load the relevant .ini file in the user menu.

Exporting files

In the Evaluate Menu, session files can partially or wholly be converted to ASCII files via F4 TEXT. These files then can be imported into other programmes such as Excel or Lotus for further processing.

8.5. Strokes Menu

The stroke profiles of up to 200 strokes are stored in the memory during a session. As soon as more than 200 strokes are being made, the programme starts at the beginning of the session skipping 19 strokes out of every twenty, Thus storing every twentieth stroke of the first part of the session and, as long as possible, every stroke of the last part of the session.

One can enter into the STROKE MENU starting from the WORK SCREEN by pressing F3 STROKES. By using the cursor keys one can browse through all the stroke profiles of the

session at hand, which have been stored in the memory.

Pressing the SPACE BAR will set the selected stroke as a reference stroke in the WORK SCREEN, as well as on the STROKE MENU SCREEN. On the WORK SCREEN however the reference stroke will only show after a new stroke has been made.

Pressing F8 SAVE will save the selected stroke to a .str file under the name given.

Pressing F9 Load will present a list of .str files which can be loaded from the disk to serve as a reference curve.

When the correct reference curve has been selected, press ENTER to return to the WORK SCREEN.

8.6. The work screen

The work screen presents a visual display of the performance of the oarsman or oarswoman in comparison to selected target values, and therefore is a very valuable tool for improving technique and for synchronising crews during the winter time or at great distances.

As the internal memory of the computer allocated for storing information under DOS is limited, the system tends to run out of storage after approx. 50 to 55 minutes, depending upon the stroke rate. If that occurs, the programme jams and the computer has to be switched off to be restarted. In doing so, all the session information is lost. Therefore, if longer sessions are going to be made, it is advised to save a session file on diskette after approx. 45 minutes and then reset the system by pressing F4 RESET. If for some time a training session is interrupted, use the SPACE BAR to pause the system to prevent the system storing zero's unnecessarily.

8.7. Software step-by-step

This paragraph leads you through the ROWPERFECT software in 20 steps.

1. Opening screen

After start-up, this screen is presented. At start-up the software will detect to which COM-port te interface is connected. Automatically the right COM-port is selected. If the interface is not properly connected, a warning message appears in left-hand top corner.



2. Insert disk

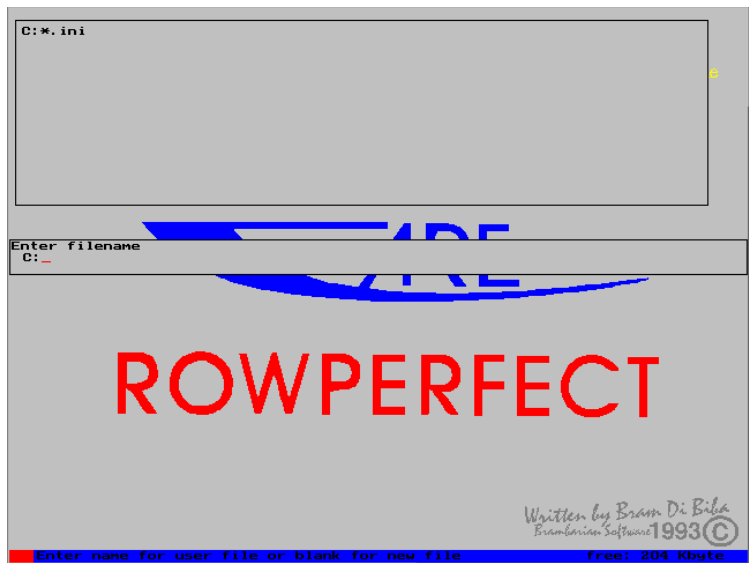
Select the default drive for loading and saving files.



3. *.ini file screen

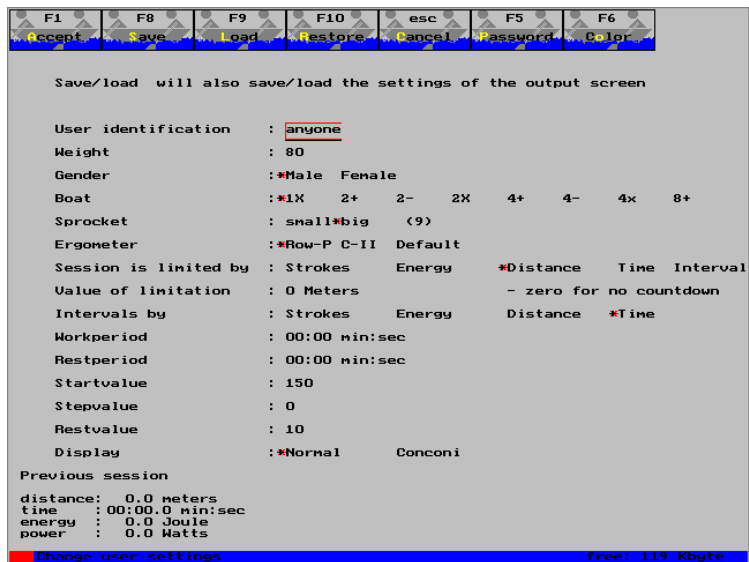
*.ini files identify the user, the type of training that is going to be performed, the allocation of numerical displays, the choice of parameters in the work screen and the colours of the screens.

*.ini files can be loaded from a disk-drive or can be entered manually in the user menu. To load a *.ini file from disk, enter its' filename. To create a new file, press [Escape] to go to the user menu.



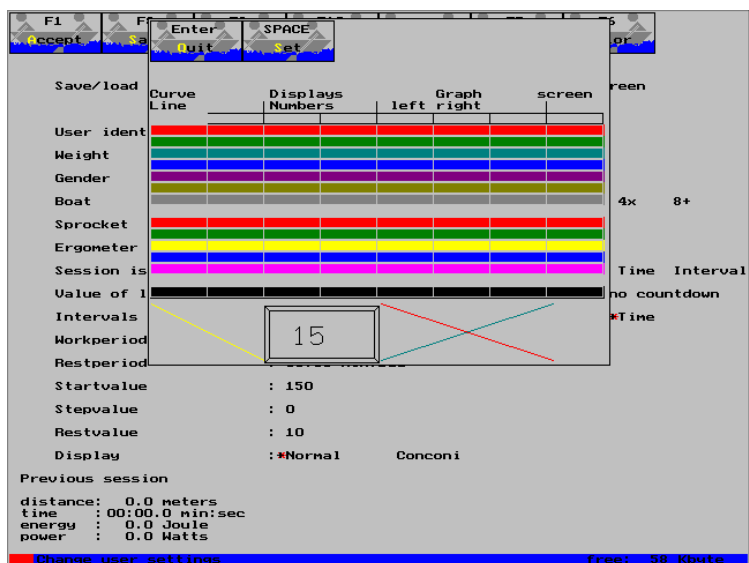
4. User menu

Make selections on the screen by moving the cursor to the required position and pressing [Enter], followed by typing the relevant information in the answering box, followed again by [Enter]. For further details: see manual, paragraph "User menu".



5. Colour settings

Changing colour settings may be necessary when using a computer with a black and white screen. For further details: see manual, paragraph "Performance graph".



6. Press a key to continue

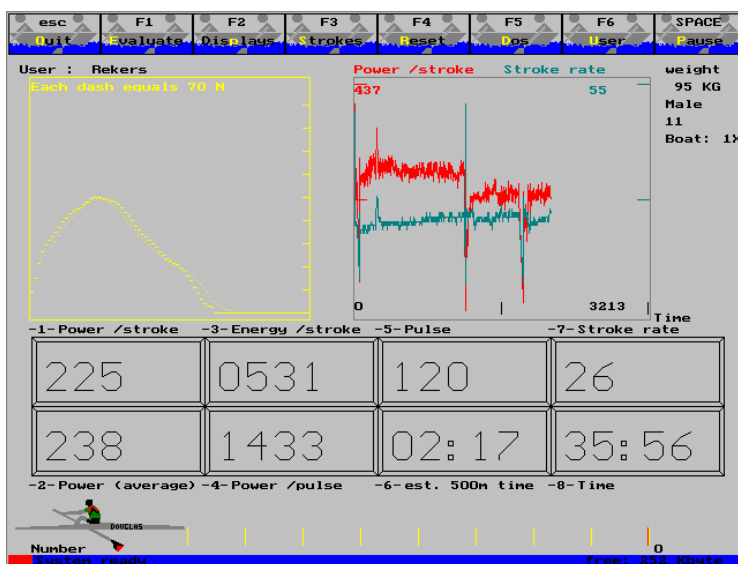
When this screen shows, the interface is operating correctly and with the flywheel at a stand still, a beep is produced approximately once per second.

If the flywheel is turned slowly manually, an additional beep should be produced when a magnet passes the sensor, indicating that the sensor is aligned correctly.



7. Work screen

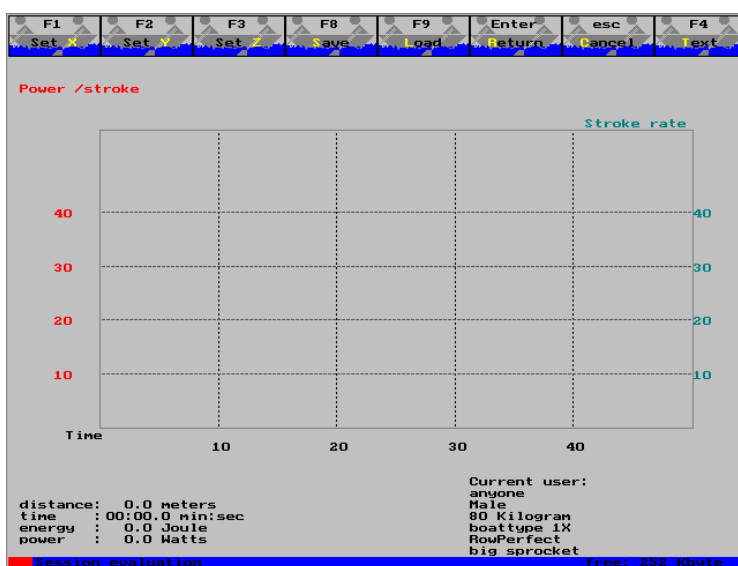
The work screen provides the user with a real-time force/length stroke profile for every stroke rowed, together with a template curve, eight numerical displays with a selection of performance parameters and an evaluation graph.



8. Evaluation menu

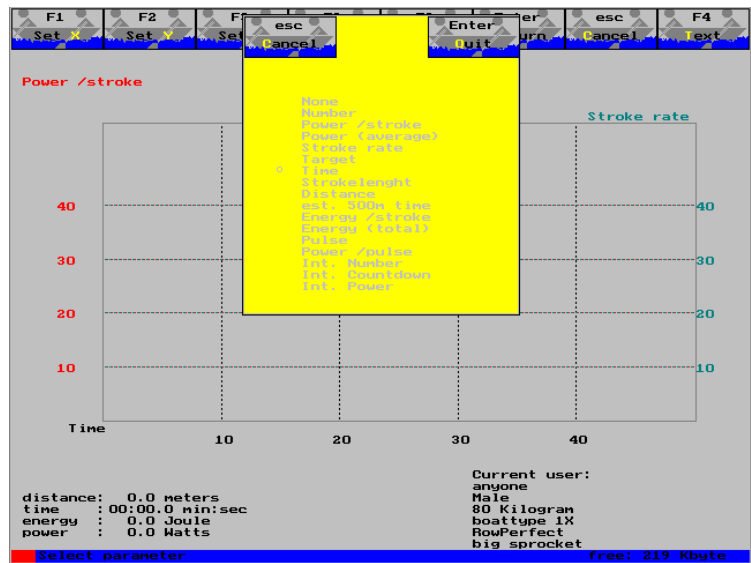
The evaluation menu is used to evaluate, save or load sessions.

The screen shows a graph of two user defineable parameters as a function of either time, distance or number of strokes rowed.



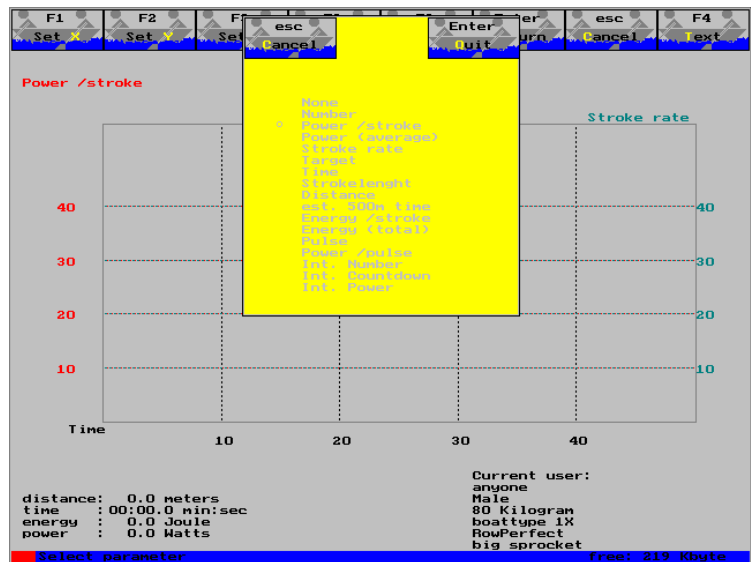
9. Set X-axis

The X-axis is the horizontal axis in the evaluation graph. Preferably, either time, distance or number is used as a parameter for this axis.



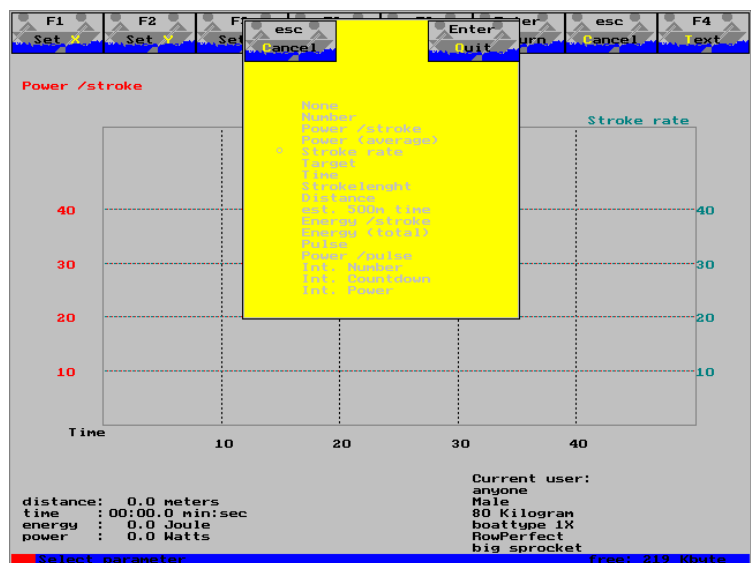
10. Set Y-axis

The Y-axis is the left vertical axis in the evaluation graph. A free selection from either parameter from the list can be made.



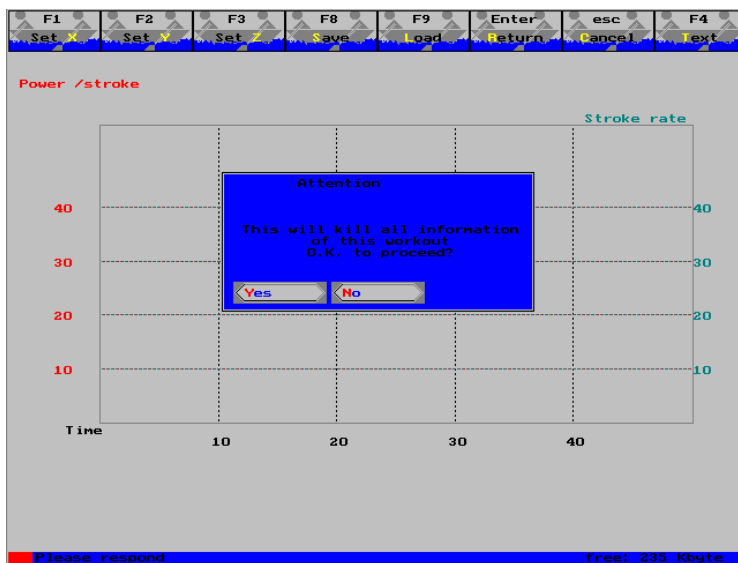
11. Set Z-axis

The Z-axis is the right vertical axis in the evaluation graph. A free selection from either parameter from the list can be made.



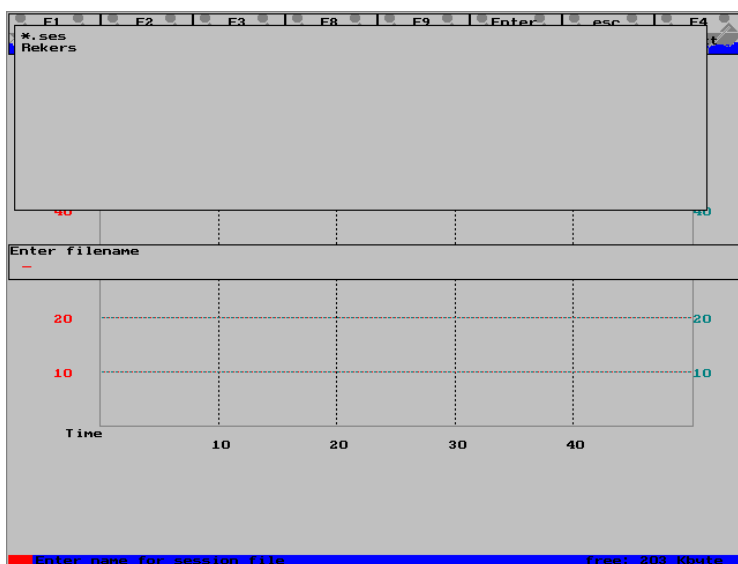
12. Load session file, warning

Session files can be loaded from disk. Doing so, will erase the current session file from the memory.



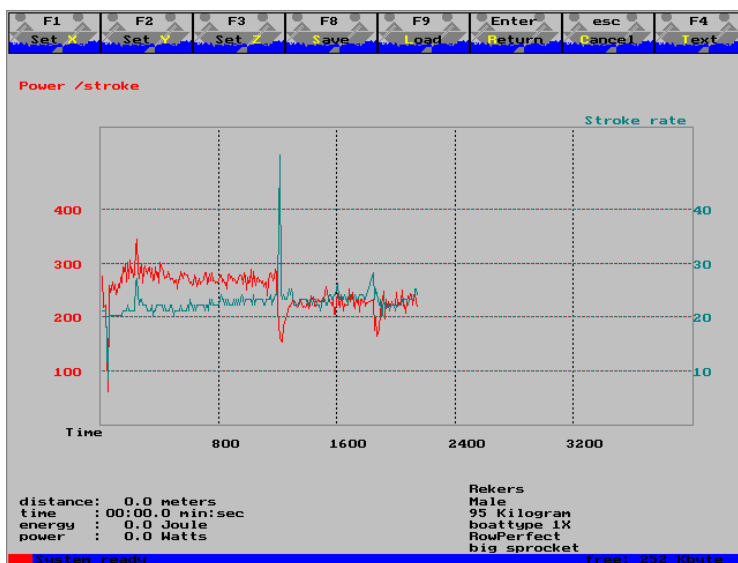
13. Select *.ses file

In the top of the screen a list of session files, with the extension ".ses", in the current drive/directory is presented. Select and load a file by retying its' name into the answering box. Pressing [Enter] will load this session into the memory.



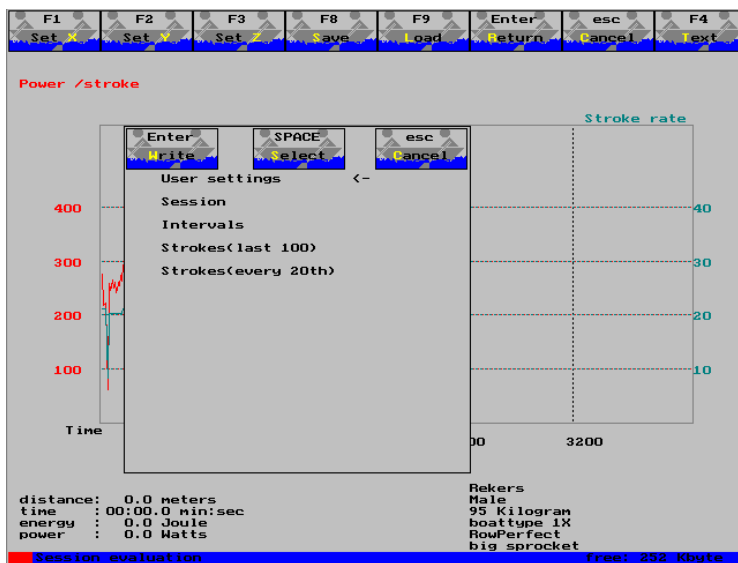
14. Evaluation of a session

While evaluating a session, one can change the axis parameters.



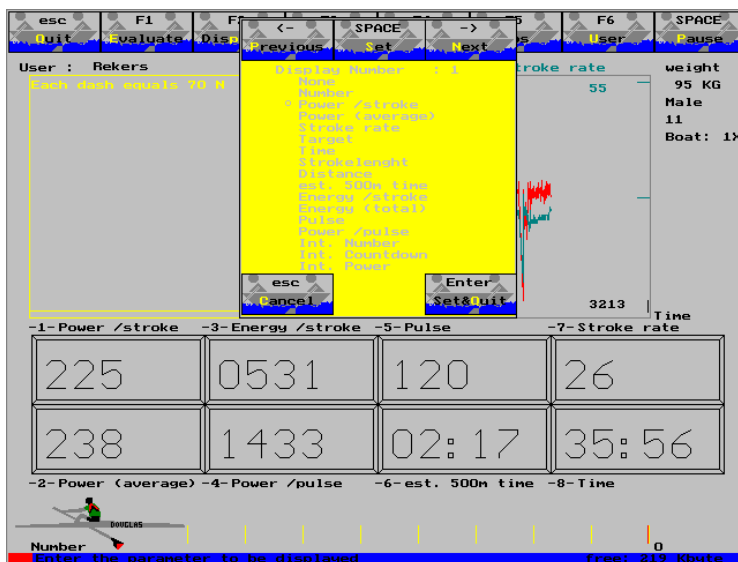
15. Export data as ASCII text file

In this menu Rowperfect files can be converted to tab-delimited, ASCII format files, with the extension ".brm". These can then be loaded into spreadsheets, such as Lotus 123, Quattro Pro or Microsoft Excel.



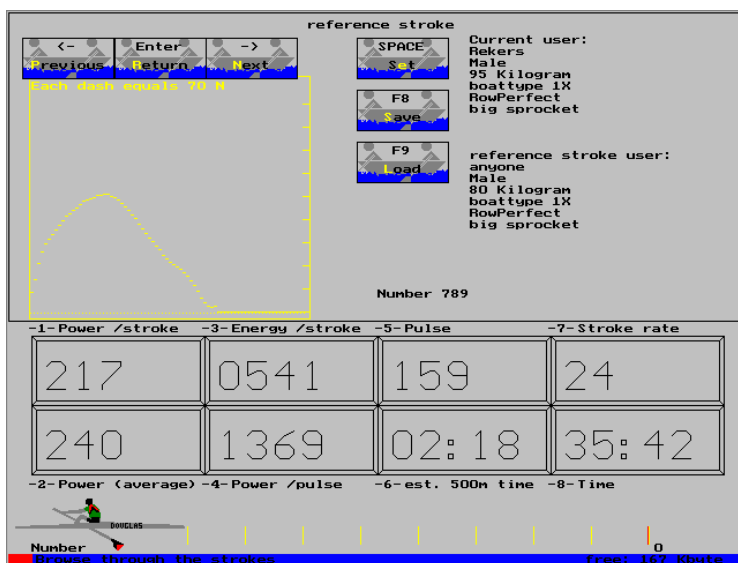
16. Display menu

The display menu is used to allocate parameters to the numerical displays.



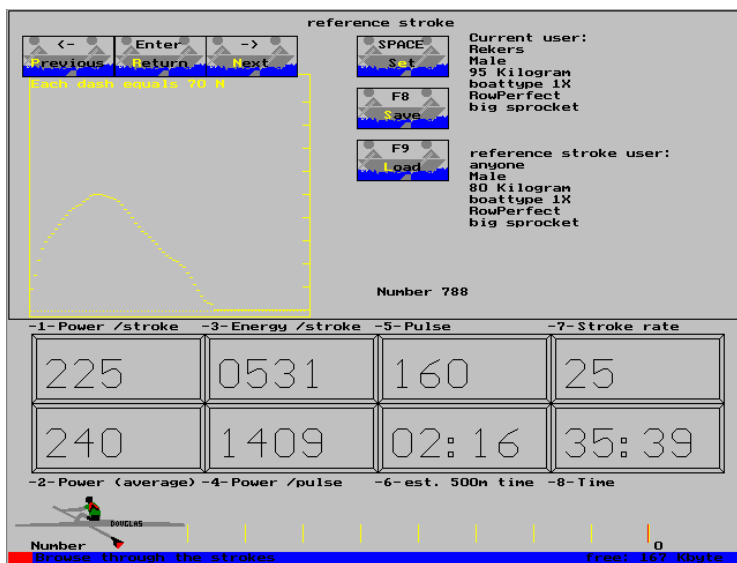
17. Strokes menu

The strokes menu is used for analysis of stroke profiles during a session and to select, save or load reference strokes. A selected reference stroke profile will show as a template curve in the work screen.



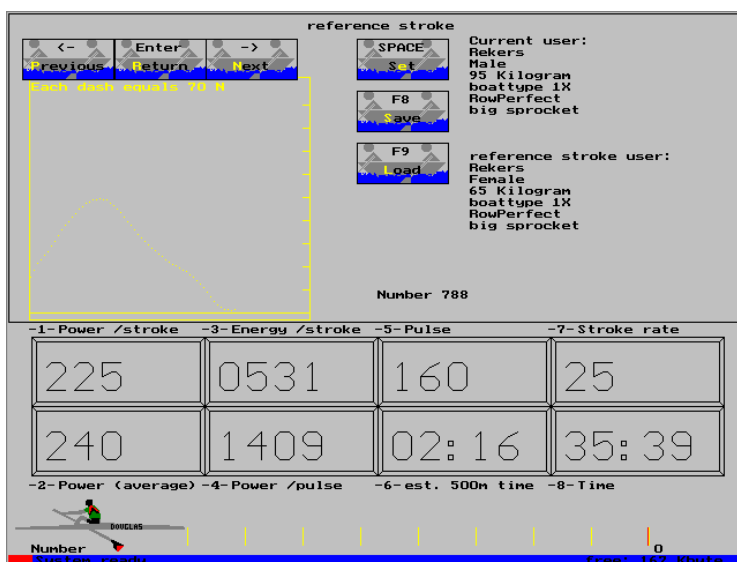
18. Browse strokes

By using the cursor keys, one can browse through the stroke profiles of the session at hand, which have been stored in the memory.



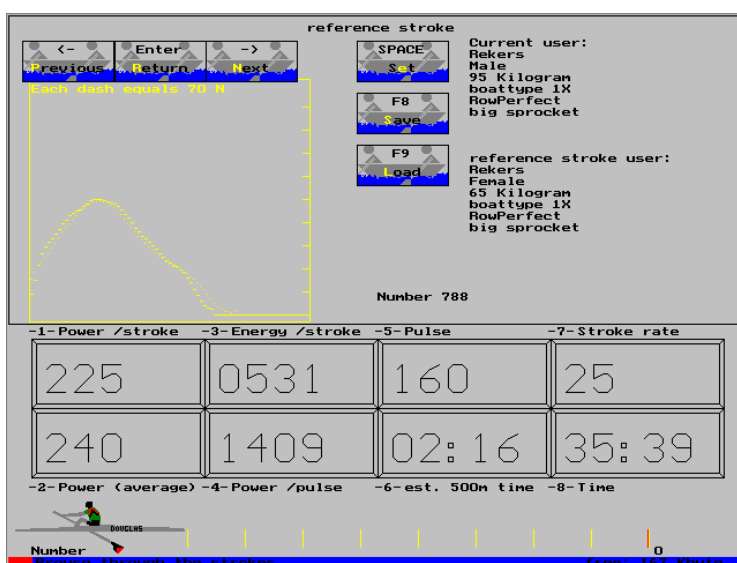
19. Create/set reference strokes

Reference strokes can either be loaded from disk by pressing F9 or an actual stroke can be saved on disk as a reference stroke. An actual stroke can be converted to a reference stroke by pressing the [Space Bar]. After having loaded a reference stroke from disk or having selected an actual stroke as reference stroke, the reference stroke will show as a template curve on the Work screen.



20. Compare session strokes

After selecting a reference stroke, actual strokes can be compared thereto, by browsing through the strokes using the cursor keys.



9. Parts list

The ROWPERFECT rowing simulator consists of the following sub- assemblies:

1. Main frame upper part
2. Main frame bottom part
3. Flywheel cage
4. Flywheel
5. Seat
6. Main bar
7. Support legs

1. Main frame upper part sub-assembly.

Part nr.	Number	Description
1.0	1	Main frame Mk II
1.1.0	1	Bearing block
1.1.1.	1	Left main bearing 6011 2Z
1.1.2.	1	Right main bearing 6004 2Z
1.1.3.1	2	Bolt M6x10, galvanised
1.1.3.2	2	Bolt M6x16, galvanised
1.1.4.	1	Main shaft
1.1.4.1.	1	Sprocket 8 mm DIN 8187 10 teeth
1.1.4.2.	1	Sprocket 8 mm DIN 8187 11 teeth
1.1.4.3.	1	Nyloc nut M10, galvanised
1.1.4.4.	1	Nyloc nut M12, galvanised
1.2.1.	5	Axle 5 mm L= 61 mm
1.2.2.	14	Starlock washer 5 mm with cap, galvanised
1.2.3.	4	Elastic pulley, Delrin
1.2.4.	4	Ferrule 5.2x10x10, nylon
1.2.5.	1	Ferrule 5.2x10x20, nylon
1.2.6.	2	Chain pulley, Delrin
1.2.7.	1	Chain wheel, Delrin
1.2.8.	1	Axle 5 mm L= 43 mm
1.2.9.	1	Axle 5 mm L= 27 mm
1.2.10.	1	Axle 6 mm L= 31 mm
1.2.11.	2	Washer M6, galvanised
1.2.12.	2	Starlock washer 6 mm with cap, galvanised
1.2.13.	2	Axle 10 mm L= 66 mm
1.2.14.	2	Ferrule 10,3x15x20, nylon
1.2.15.	4	Starlock washer 10 mm with cap, galvanised
1.2.16.	4	Bearings 6300 2Z
1.2.17.	4	Bearings 608 2Z
1.2.18.	4	Nyloc nut M8, galvanised
1.2.19.	4	Nut M8, galvanised
1.2.20	1	Chain carriage frame
1.2.21.	1	Elastic 8 mm L= 2500 mm

1.3.1.	1	Chain ISO 05B1 8 mm, 335 shackles
1.3.2.	1	Connecting shackle 8 mm
1.3.3.	1	Chain-handle connector
1.3.4.	1	Chain-frame connector
1.3.5.	1	U-bolt for handle
1.3.6.	2	Nyloc nuts M6, galvanised
1.3.7.	2	Washers M6. galvanised
1.3.8.	1	Handle diameter 39mm L= 550 mm
1.3.9.	1	Handle protector
1.3.10	1	Take CARE sticker

2. Main frame, bottom part sub- assembly

2.0.	1	Main frame bottom part
2.1.	2	Axle 10 mm L= 66 mm
2.2.	4	Bearings 6300 2Z
2.3.	2	Ferrule 10,3x15x20, nylon
2.4.	4	Starlock washer 10 mm with cap, galvanised
2.5.0.	2	Stretcher boards, plywood 330x135x18 mm, varnished
2.5.1.	2	Brackets for foot straps
2.5.2.	4	Mushroom head square neck bolts M6 L= 45
2.5.3.	4	Nuts M6 galvanised
2.5.4.	2	Foot straps with buckle L= 550 mm
2.5.5.	2	Foot heel straps L= 800 mm
2.5.6.	2	Stretcher bar 19x2,5 L=310 mm, galvanised
2.5.7.	4	Pan head tapping screws 5,5x19, galvanised

3. Flywheel cage sub-assembly

3.0.	1	Cage
3.1.	1	Cage cover
3.2.	1	Disk retainer disk D= 100 mm d= 2 mm
3.3.	1	Disk knob M5 plastic
3.4.	4	Domed cap nut M5
3.5.	2	Bolts M6 L= 16 mm galvanised
3.6.1.	1	Disk D= 258 mm
3.6.2.	1	Disk D= 232 mm
3.6.3.	1	Disk D= 210 mm
3.6.4.	1	Disk D= 183 mm

4. Flwywheel sub-assembly

4.0.	1	Flywheel
4.1.	1	Hub
4.2.	3	Bolt M8 L=16 mm, galvanised
4.3.	1	One-way clutch HFL 2026
4.4.	1	Bearing 6000 ZZ
4.5.	4	Samarium-cobalt magnets 2x4 mm

5. Seat sub-assembly

5.0.	1	Seat main frame
5.1.	2	Axle 10 mm L= 66 mm
5.3.	2	Ferrule 10,3x15x20, nylon
5.4.	4	Bearing 6300 2Z
5.5.	4	Starlock washer 10 mm with cap, galvanised
5.6.	4	Bearing 608 2Z
5.7.	4	Washers M8, galvanised
5.9.	1	Bottom plate
5.10.	1	Seat top
5.11.	4	Philips screws 2,9x9,5 galvanised

6. Main bar

6.0	1	Main bar 40x40x2 L= 1990 mm AISI 304, curved at one end.
-----	---	--

7. Support

7.1.	1	Adjustable front leg
7.2.	1	Hind leg
7.3.	2	Bolt M6 L= 45 mm, galvanised
7.4.	2	Nyloc nuts M6, galvanised

8. Interface and options.

8.0	1	CARE ROWPERFECT software diskette for DOS
8.8	1	Interface MK III
8.9	1	9-P-4 Computer cable
8.10	1	Polar heart rate sensor with P4 cable
8.11	1	Polar heart rate transmitter
8.12	1	Polar belt for heart rate transmitter

Subject to change without notice.

Man 3.2.99

10. WARRANTY

Your ROWPERFECT rowing simulator is warranted against all defects in materials and workmanship for a period of one year after shipment.

Normal wear and tear, and damage due to poor maintenance, are excluded from this warranty.

If parts are found defective, contact your nearest ROWPERFECT agent , or our office directly
Tel. +(61) 2 9939 9777 Fax +(61) 2 9938 3726

To be considered for warranty replacement or repair, the defective parts must be returned, postage paid, to ROWPERFECT Pty Ltd, together with a description of how the piece failed. The customer is responsible for all shipping costs.

The foregoing obligation is ROWPERFECT Pty Ltd's sole liability under this warranty, express or implied, and excludes any liability for consequential damages.

For more information on ROWPERFECT write or call your local ROWPERFECT agent. See the website www.rowperfect.com for details.