

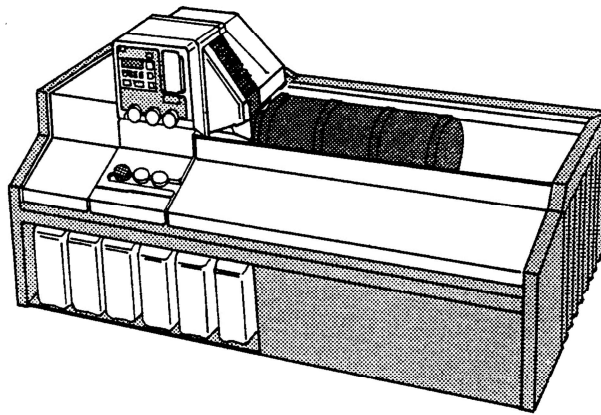


AutoLab ATL 2 plus

Operating instructions

Introduction

Autolab ATL-2 plus



Features:

Quality

fully automatic by microprocessor control
constant results from process to process
every process step precise to the second

Economy

good use of the chemicals
built-in temperature control of the complete system
built-in solution collecting device

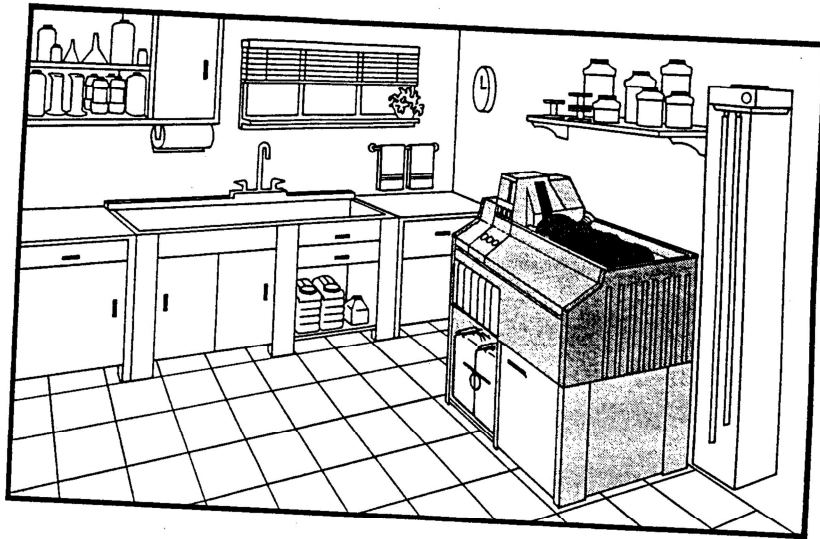
Versatility

direct changing between different processes
all processes are possible: e.g. C-41, E-6, Ciba/TM, B/W, R-3,
RA-4, Litho, EP-2...
any size: e.g. roll film, miniature film, disk, sheet film
from 6x9 to 21x30 cm, larger sizes on request
print sizes from 7x10 to 50x60

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We introduce: The JOBO System

JOBO - that means more than 60 years of experience in darkroom and film processing technology.

The Autolab ATL-2 plus is the smallest freely programmable, fully automatic processing unit in JOBO's product range. With the very many tanks and drums available, the Autolab is perfectly suited for jobs of various sizes. As it is fully user-programmable, you can store processing times and temperatures for up to thirteen different processes and be ready for development within a few minutes. Combined with extra, temperature-controlled solution bottles, you can adapt the ATL to your special requirements. All functions needed for photographic development, except for stabilizing and drying, are fully automatic in the ATL-2 plus. The temperature control system of the water jacket reacts to deviations of 1/10th of a degree. The bottles with the solutions to be processed as well as the rotating drum are kept at process temperature by the water jacket. The rotary movement is controlled by the microprocessor and has four speeds with change of direction as well as special adjustment possibilities for disk film and Cibachrome. Pre-warmed solutions are pumped from the storage containers into the developing drum by means of a compressed-air system. The built-in computer shows how much solution is left in the storage containers. Consequently, your ATL-2 plus will not permit the starting of a process if there is not enough prewarmed solution. The microprocessor also controls the timing of each developing and rinsing step. Besides, the ATL-2 plus permits you the recovery of each used solution, because all chemicals are collected separately. The recovery and reprocessing of used chemicals makes processing with your ATL-2 even more profitable and permits a non-polluting, economically priced waste disposal.

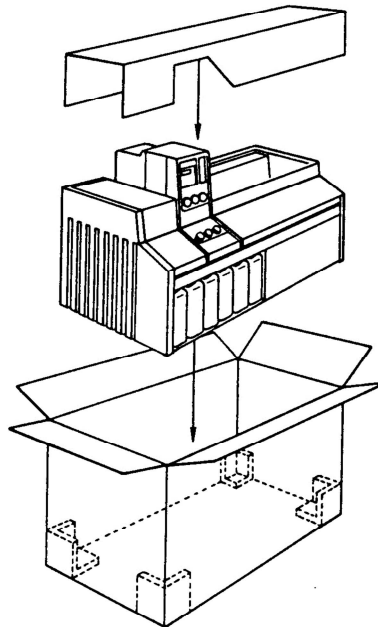
Technical information

Height	61 cm (24 in.)
Height with biggest drum in emptying position	116 cm (45½ in.)
Length	117 cm (46 in.)
Width	51 cm (20 in.)
Weight (empty)	30 kgs (66 lbs)
Voltage	220 V, 50 Hz
Connected load	1300 Watt
Min. water pressure	1 bar (15 p.s.i.)
Max. water pressure	6 bar (90 p.s.i.)
Water jacket volume	16 ltrs (4¼ gal.)
Temperature range	18 - 49.9°C (64.4 - 121.8°F)

Unpacking

1.1 Removing the cardboard box

The unit is delivered in a cardboard box (total weight approx. 37 kgs/82 lbs). For unpacking the ATL-2 plus, 2 persons are required. Cut the adhesive tape on the top and open the box. Remove the upper support of corrugated cardboard and the foamed plastic padding (see drawing below). With 1 person at each end of the box, carefully lift the processor out of the box. Then take the screwdriver for recessed-head screws included in the supply and the two corresponding screws and with them fasten the cover of the solution distributor.



1.2 Possible damages

Check the processor for possible damages and, if you find any, immediately inform the forwarder who delivered the unit or the dealer from whom you bought it.

1.3 Packing

We recommend to keep the cardboard box and the packing material for possible later transports of your ATL-2 plus to prevent any transport damages then.

Scope of supply

Item	Quantity
Bottle with scale, 1000 ml black	4
Bottle with scale, 1000 ml white	8
Processor-Clean	1
Rear bottle cover	1
Magnetic film card	1
Lid 1	1
Roller	2
Roller support	2
Sealing ring	3
Hose removing tool	1
Spirit level No. 688	1
Fuse T 800 mA	1
Fuse T 1.6 A	1
Pinion shaft	1
Screwdriver for recessed-head screws	1
Recessed-head screws	
Special Allen key	1
Soft PVC hose 13x2 with connecting plug	1
Soft PVC hose 25x3 with connecting plug	1
Branch piece 40 mm 67.5 degrees	1

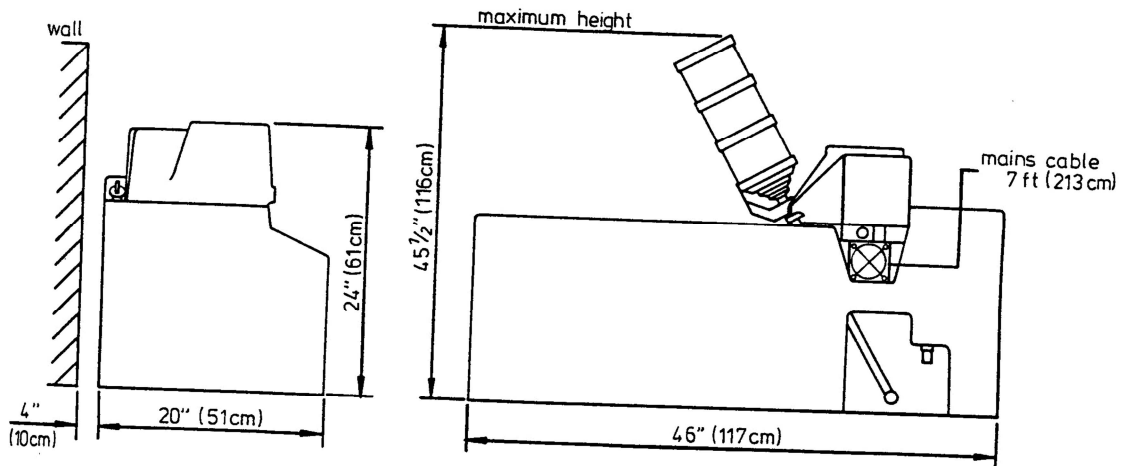
Preparations for installation

3.1 Location

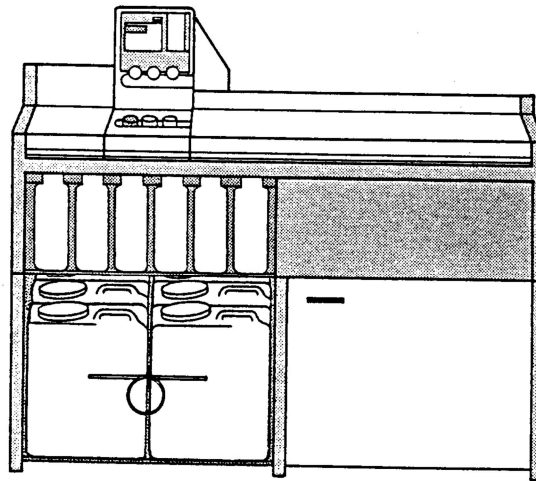
The ATL-2 plus does not need to be installed in a darkroom, because all JOBO tanks and drums are light-tight.

The ATL-2 plus should be installed near a suitable drain water installation, a cold water supply and a mains connection. Please in any case read Section 4.4 about Water connection before you determine the location for the processor.

The ATL-2 plus should be installed on a level surface, with a load carrying capacity of at least 68 kgs (150 lbs). The surface should be waterproof. Also, it must be higher than the drain water installation for the processor.



The ATL-2 plus can either be installed on a table, in a laboratory trough or on the work table (Item No. 4221). This table provides a convenient working height for the processor and space to store tanks or drums. The work table No. 4221 can be combined with the solution collecting trolley No. 4225 and in this way provide additional storage capacity for used chemicals. When the ATL-2 plus is installed on the work table, the used chemicals can be collected in the solution collecting trolley in 15 l containers.



3.2 Power supply

A grounded mains connection is required. (It is important to point out that your mains circuit may have a capacity above the demands of the ATL-2 plus, but if other appliances are connected to the same circuit, the total connected load may exceed the capacity of this electric circuit. If you have any questions regarding this point, we recommend you to contact your local electrician.)

The length of the mains connecting cable is about 2 m (7 ft.). Make sure that a sufficiently fuse-protected socket is within 2 m (7 ft.) of the location of your ATL-2 plus.

Do not start your ATL-2 plus if it is connected to an extension cable with a too small cross section or to overloaded electric circuits.

3.3 Water pressure

A water pressure between 1 and 6 bar (15 and 90 p.s.i.) is required to operate the processor. A pressure of less than 1 bar may cause an unusually long filling time for the water jacket or insufficient rinsings. A water pressure of more than 6 bar may damage the processor. With water pressures over 6 bar we recommend the use of the pressure reducer Item No. 4177. The ATL-2 plus requires two water connecting hoses, which are included in the scope of supply.

Warning: To avoid the possibility of damages caused by leaking water hoses, the taps should be within reach. Always turn them off when the processor is not in use!

3.4 Water temperature

The ATL-2 plus requires one cold and one warm water connection each. The warm water connection should be set to the processing temperature with a precision of $\pm 1^{\circ}\text{C}$ ($\pm 1.8^{\circ}\text{F}$). If there is no warm water supply, we recommend the warm water pressure tank with special mixing tap Item No. 4167. The cold water connection serves for filling the water jacket and at the same time for cooling the ATL-2 plus.

If processes are run that are below the ambient room temperature (e.g. 20°C for B/W), the temperature of the supplied water must be lower than the lowest developing temperature of the process. If the temperature of the supplied water is too high, the water can be cooled with an external cooling device. Ask your photo dealer or JOBO for further information.

3.5 Drain water installation

The ATL-2 plus has two separate drain outlets; one water jacket drain and one common water drain connection for rinsing and overflow of the water jacket. (see illustration in Section 4.3) The ATL-2 plus can be placed directly into a laboratory trough. In this case, no further connection of the two outlets is required.

The ATL-2 plus can be installed on a plate or on the specially designed work table from JOBO (Item No. 4221). In each case both outlets must be connected to a drain water installation, which is lower than the processor. For this purpose please use the hoses included in the scope of supply.

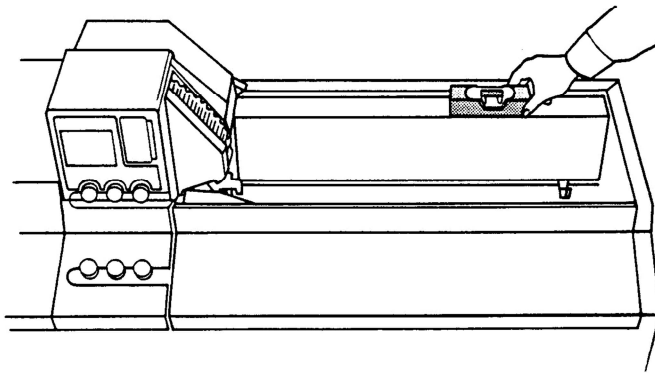
3.6 Room temperature

Since the processor always keeps the temperatures of the water jacket within the permissible limits, a normal variation of the room temperature will not affect the precise temperature control by the processor. It is recommended not to install the processor in the immediate neighbourhood of air conditioners or radiators.

Instructions for installation

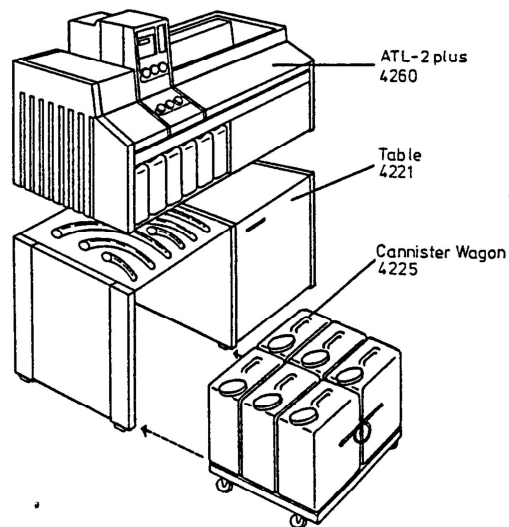
4.1 Location of the processor

Position the ATL-2 plus and use the enclosed spirit level, as shown in the illustration below, to adjust the appliance in a level position. This prevents developing faults due to uneven wetting.



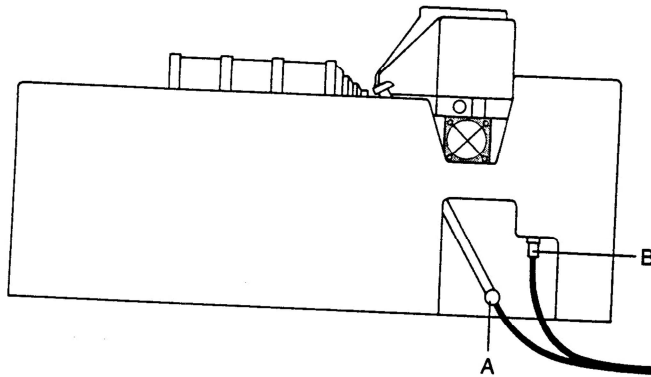
4.2 Solution collecting device

The ATL-2 plus collects the used chemicals in bottles or 15 l containers (solution collecting trolley No. 4225)



4.3 Drain water connection

On the back side of the ATL-2 plus there are two drain water connections, the main trough outlet (A) on the left and the overflow/rinsing water connection (B) on the right (see drawing below).



If the ATL-2 plus is placed on a plate, both drain water outlets must be led to a suitable drain with hoses. To install the hoses (1/2" PVC hose = main trough connection, 1" hose = overflow connection) push one end of the thinner hose on connector A. Push the thicker hose on connector B. Both hoses can be joined with the connecting element.

4.4 Water connection

The ATL-2 plus requires two water connections with 3/4" standard thread. If you stand at the back of the appliance, the connector marked with a red dot, on the left, is connected with the warm water, the connector marked with a blue dot, on the right, with the cold water. Set the warm water connection within $\pm 1^{\circ}\text{C}$ ($\pm 1.8^{\circ}\text{F}$) of the developing temperature.

If the connecting hoses are used, please make sure that the valve threads are not damaged. Hand-tighten the hoses. Do not overturn the connector, because this might damage the threads. The pressure of the water supply must be between 1 to 6 bar. Pressure under 1 bar may cause insufficient rinsing, and pressure over 6 bar may damage the ATL-2 plus. If necessary, use a pressure reducer No. 4177.

Note: If the water contains particles, we recommend the installation of a water filter to avoid damaging the films.

4.5 Electrical connection

****Observe the VDE regulations!****

A grounded, fuse-protected mains connection is required. Read the technical specification at the beginning of these operating instructions.

IMPORTANT SAFETY INSTRUCTIONS

Warning: To avoid unnecessary risk of fire, electrical shock or personal injury, the electrical connection and the grounding must be properly installed. It is the personal responsibility of the processor owner to ensure sufficient safety of the power supply. Your processor must be connected to a proper grounding, because in case of any operating trouble or appliance defect this reduces the risk of an electric shock.

The processor is equipped with a connecting cable, which has a ground conductor and a plug with an earthing contact. Plug the mains plug into a socket which is properly installed and grounded.

Do not under any circumstances modify the plug of the mains cable. If the mains plug included in the supply does not fit in your socket, have a suitable socket installed by an authorized electrician.

Emergency power supply

If you have purchased an ATL-2 plus with connecting facility for an emergency power supply, the marked additional mains cable of the processor is plugged into the emergency power supply, the standard mains cable into the mains outlet.

4.6 Installation check list

- The processor is connected to a correctly installed socket.
- The water supply is turned on and has been checked for leaks on the tap and the valves.
- Drain water outlets are connected and installed.
- The processor has been adjusted with the spirit level.

Preparations for starting

NOTE: The numbers in brackets refer to the explanations in the annex of these operating instructions.

5.1 To start with

- Open the cold water supply
- Open the warm water supply (if applicable)

5.2 Filling the water jacket

- Make sure that the water drain outlet (35) is closed
- Switch on the mains switch (23)
- Set the Set/Run switch (20) to "RUN"
- Press the Reset button (13)

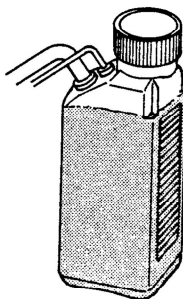
The unit begins to fill automatically and maintains the correct water level.

5.3 Adjusting the water temperature

The temperature of the warm water must be adjusted with an external mixing tap and a thermometer. (If not available, please use the warm water pressure container with mixing tap, specially offered for this purpose under Item No. 4167). For reasons of safety the ATL-2 plus has a heat exchanger which adapts temperature variations in the range of $\pm 2^{\circ}\text{C}$ of the incoming rinsing water.

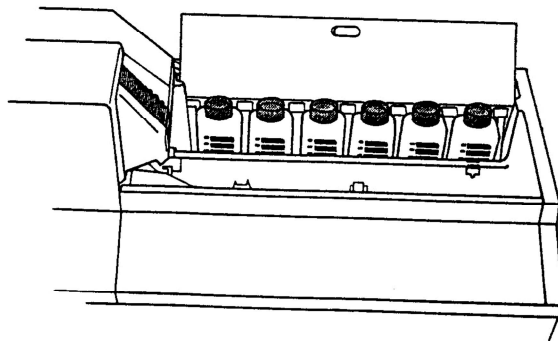
5.4 Filling the solution bottles

Open the front bottle cover (28), unscrew the bottle caps and fill the bottles with the desired solution quantity. The maximum filling quantity is 1 litre. Do not overfill the bottles, because otherwise chemicals might penetrate into the unit through the air hoses. The filled-in quantity is stored in the microprocessor as per the instructions in Section 7.2. The bottle caps are put back onto the bottles and screwed tight. Insufficient closing causes developing faults. Make sure that the hoses leading to each bottle are properly fixed.



5.5 Filling the rear storage bottles

The ATL-2 plus contains 6 1-litre-bottles for pre-heating, which are placed in holders in the processor. To take the bottles out, first lift the back cover and place it in the support. Mark the bottles with a permanent pen and then fill the 1-litre-bottles with the chemicals you want to pre-heat. Return the bottles and put the bottle cover back in place. It is important to close the bottle cover to avoid a floating of the bottles and to reduce the loss of moisture from the water jacket.

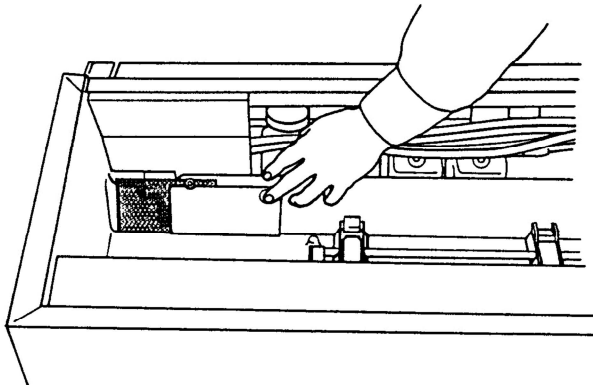


5.6 Adjusting the water level

On the front right-hand side of the rotation trough there is a slide (27) on a metal screen. Pushing this slide to the left makes the water level in the rotation trough sink. Pushing it to the right makes the water level rise. Set the slide so that a maximum water level is reached without making the tank or drum float and lose contact with the rollers.

Note: This setting must be made every time a different tank or drum system is used. If the water level is adjusted too high and the tank or the drum float, the chemicals collect at one end. Uneven and streaky developments, especially with prints, are the consequence. A too low water level causes an insufficient temperature control of the tank or drum, and the results of your developments are not properly reproducible.

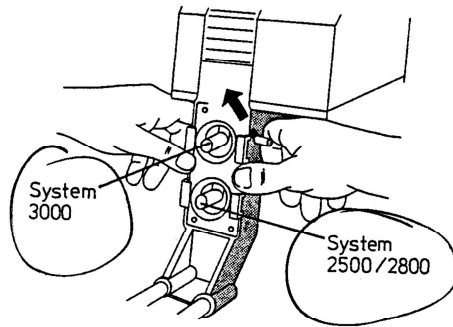
Note: Please make sure that the water jacket screen is cleaned at regular intervals, because the water level is also influenced by a choked screen.



5.7 Tank system adaptation

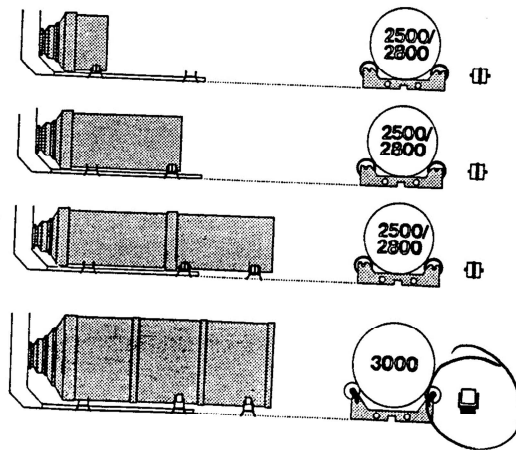
JOBO manufacture a multitude of tanks and drums to meet almost any requirement. To permit all tanks and drums being used, the coupling flange has two pivots. An adaptation to the respective system is necessary. If you use the Systems 2500 and 2800, press the lever on both sides of the arm down. If the System 3000 is used, pull the levers up. The levers must be fully engaged, because otherwise there might be leakages that affect your process and contaminate the water jacket. (see drawing below)

Note: The lever may be hard to move. This is normal and no reason to worry.



5.8 Adjustment of the roller brackets

Because of the multitude of tank and drum systems available, the roller brackets in the rotation trough must be adapted each time. Push the two black roller brackets in the right position (see drawing) and use the two extensions according to the tank system used (pointing inward or outward). Rollers, roller brackets and extensions are part of the accessories.



5.9 Automatic cooling

The water jacket is automatically cooled until the right developing temperature is reached. When the water jacket temperature rises higher than the selected developing temperature, the automatic cooling system is activated. The cold water valve opens about 30 seconds after the water jacket temperature has risen above the selected temperature.

Note: If your cold water connection is not cold enough to reduce the developing temperature of the process you have selected, you may have to use a cooler. For this purpose please contact JOBO.

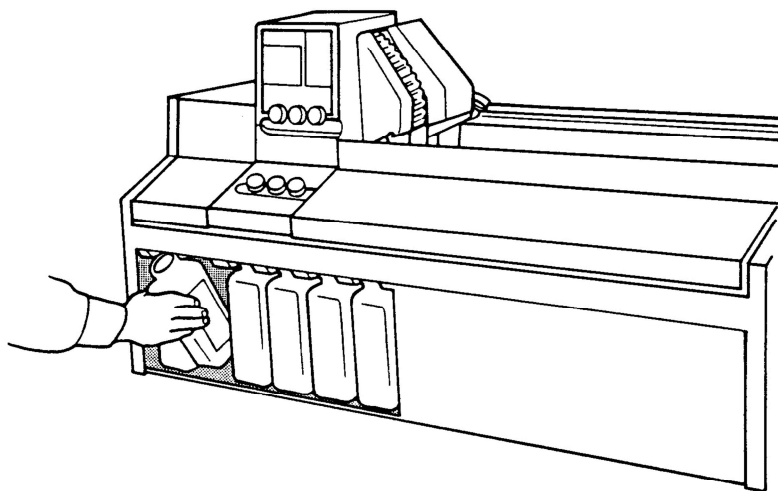
Useful advice: If you want to change from a high temperature, e.g. 39°C, to a low temperature, e.g. 20°C, this is done quickest by using the following method:

- Switch the appliance off (23)
- Open the drain valve (35) and empty the water jacket completely
- Close the drain valve
- Select the program with the new, lower temperature
- Switch the unit on again
- Press RESET (13)

The water jacket begins to fill. This method saves you a considerable amount of time and water.

5.10 Collecting used chemicals

The ATL-2 plus is designed so that all chemicals are collected in 1-litre-bottles.



If the cabinet (Jobo Item No. 4221) is used together with the solution collecting trolley No. 4225, the used chemicals can optionally also be led into the 15-litre-containers on the trolley.

Programming

NOTE: Numbers in brackets refer to the explanations in the annex of these operating instructions.

6.1 Preparations for programming

Enclosed with the ATL-2 plus are five double-sided magnetic program memo cards to be used for reference purposes. These cards should be completed when you store the programs in your ATL-2 plus for the first time or change them resp.. The drawing below shows how to complete the cards.

(NOTE: We programmed each channel of your ATL-2 plus with our recommended developing times for various common processes. The processes stored by us are listed in chapter 9. Since the ATL-2 plus is user-programmable, the programs can of course be changed at any time. Read sections 6.2 to 6.6 if you want to change a program.)

Process: E-6	No.	
temp.	38.0	
prewarm	5:00	
pref. rinse		
chemistry 1	6:30	First developer
rinse	2:30	
chemistry 2	2:00	Reversal bath
rinse		
re-exposure		
chemistry 3	4:30	Colour developer
rinse		
chemistry 4	2:00	conditioner
rinse		
chemistry 5	6:00	Bleach bath
rinse		
chemistry 6	4:00	Fix bath
rinse	4:00	
end		

Note: To avoid mistakes, determine now which solutions are to be filled into which bottle and make sure that the program card no. corresponds to your choice.

6.2 Programming

Left of the memo cards there is a row of LEDs. As you are now proceeding through the program step by step, an LED will light up at the step that is just being shown in the digital display. Enter the corresponding data for this step and continue by pressing the step button (7). Special details for each step are explained in Sections 6.3 to 6.6.

Pressing the "Reset" button (13) during programming brings you back to the first step of the program. If you find an error in a previous step, you must press "Reset" (13) and then go forward step by step with the step button (17) to make the required correction.

The program is entered in the following order:

- solution quantity (in ltrs);
- temperature (in ° centigrade)
- pre-heating and pre-rinsing times;
- six solution steps with the rinsing time following each step

You will find more information about programming each individual step in the following sections.

6.3 Start of programming

- Switch on the mains switch (23) and put the completed process card into the white recess on the control head.
- Set the program selecting button (21) to the channel corresponding to the number of your program card and press the "Reset" button (13). (See Section 11.2 for explanations of the cleaning programs on the program selecting button.)
- Set the "Set/Run" selecting button (20) to "Set".

For each entry, numerical values are given by pressing the entry buttons (3, 4, 5, and 6). To increase a value, press the button below that value. If a smaller value is desired, keep the button pressed; when the maximum value is reached, the display returns to zero. Press the "Set 0" button (15) to make the indicated value zero. (Program steps with an entry of 0.00 are skipped during a process.)

6.4 Entry of the solution quantity

The first programming step is the entry of the solution quantity that you have filled into the bottles. If you have followed the instructions in Section 6.3, three digits with a decimal point between the first and second digit will appear in the display. The figure shows the volume of the solutions in litres.

If you have filled the bottles to be used for this program with 1.0 l, press the "Set Full" button (14) and keep it pressed for two seconds. The LED-display will change to "1.00" and so show the solution quantity in litres; an acoustic signal confirms that an entry has been made. (see section 8.1 for further information.)

If you have filled the bottles with a solution quantity of less than 1.0 l, use the entry buttons (4, 5 and 6) to enter the solution quantity (Note: Only possible in SET). When a process is run, the quantity of used solution is automatically subtracted from the total quantity (see below and Section 8.7 for variations of this system).

Note: A display of

0.07 means	70 ml
0.15 means	150 ml
1.00 means	1000 ml (or 1 l).

6.5 Entry of the developing temperature

The second step in the program of the ATL-2 plus is the entry of the temperature at which the process is to be run.

When the solution quantity is indicated, you press the step button (17) once to get to the temperature entry step. The top right LED (12) will light up. As you can see, the LED corresponds to the word "Temperature" on the program card. The temperature is indicated with three digits, with a decimal point between the second and third digit. The display is in centigrade. The highest temperature that can be entered is 49.9°C (121.8°F), the lowest 18.0°C (64.4°F). Within this range the developing temperature is kept constant within $\pm 0.1^\circ\text{C}$ (0.18°F). With the entry buttons (3, 4 and 5) enter the temperature you want to have for the process noted on your card.

Note: At this point a "quick temperature control" function can also be entered. The quick temperature control reduces the time that is needed to bring cold chemicals to process temperature. To activate this function, press the right entry button (6) so that a "U" shows in the display above it.

38.0U



To cancel the quick temperature control again, press the key once more and the "U" will disappear. (See Section 8.5 for further information.)

When the quick temperature control function is on, the "Temp.-C" LED (8) blinks (if the "Set/Run" switch is set to "Run") to remind you that this function is active.

Note: This function permits to save about 80% of the required heating time. You should, however, consider that with such a quick heating up, the temperature can only be kept precise within $\pm 0.3^\circ$. With quantities less than 800 ml, U cannot be used, because otherwise temperature layers will form in the bottle.

6.6 Entry of the individual developing times

All further steps that have to be entered are time values. Four digits appear. The length of the time that you need for each step is entered in minutes and seconds. Two minutes and thirty seconds are for instance shown as "02:30", forty seconds as "00:40" and nineteen minutes and ninety five seconds as "19:59".

The first time step is "Pre-heating" (red LED). This is the time during which the tank, not yet filled with water or chemicals, runs in the water jacket. The pre-heating permits the tank and its contents to adapt to the pre-selected developing temperature.

The second time step is "Pre-rinsing" (green LED). This brings the tank and the material to be developed to the exact developing temperature by filling in temperature-controlled water.

Enter the times by using the entry buttons (3, 4, 5 and 6). The use of the "Pre-"steps depends on the requirements of the respective process. If you want to skip a certain step, press "Set 0" and the step will be skipped when the program runs.

The solution step times are entered in the same way. Use the step button (17) to go through the program, and enter the desired times for each step.

The ATL-2 plus allows for the time needed for emptying out the used chemicals, so no additional time for emptying has to be added.

In a rinsing step the water is changed every thirty to forty seconds.

When all values have been entered, you can return, check the program and - if required - change it.

Press "Reset" (13) and then go through the program with the step button (17), comparing each step with the values entered on the magnet card. Then press "Reset" again to return to the start. When all entered values are correct, set the "Set/Run" switch (20) back to "Run". Now, entries cannot be changed anymore, unless you return to the "Set" mode.

An internal battery protects your programs even if the unit is switched off for several months.

Note: The "Set/Run" switch must be in the "Run" position and Reset must have been pressed for the processor to work.

Running a process

NOTE: Numbers in brackets refer to the explanations in the annex of these operating instructions.

7.1 Start

- Switch on the mains switch (23)
- Set the "Set/Run" switch (20) to "Run"

7.2 Selecting the filling quantity

Read the label on the used tank or drum or calculate the required solution quantity by means of the information supplied with the tank (EXPERT). If you use a tank with a module, please make sure that you add the solution quantity of both labels. Now bring the "Filling quantity switch" (22) to the right position. If the required filling quantity is not shown on the selecting button, take the next higher quantity.

Note: If you use the 2500 tank system with the 2502 Duo-Set spools, you can use the switch "Automatical filling quantity selection" (25). For this purpose please read Section 8.6.

7.3 Selecting the speed of rotation

The "Motor switch" (24) has six different settings. Four of them - 25, 50, 75 and 100 - are standard speeds with change of direction and correspond to the number of revolutions per minute. The other two settings - "Quick start" and "Disc" - are for special processes.

Note: The rpm's of the motor are calculated as if the drum always rotated in one direction. Since the motor slows down before changing its direction and then speeds up again, the actual rpm's are less than indicated. This is perfectly normal.

7.4 Final check list

After having coupled the tank to the processor, please go through the following check list:

1. Is the right program selected?
2. Is the right filling quantity selected?
3. Is the right motor speed set?
4. Is there enough solution in the storage bottles?
5. Is the solution quantity shown in the display the same as in the bottles to be used?
6. Are the bottle caps screwed on tight?
7. Are the rollers adjusted properly corresponding to the tank series?
8. Is the level of the water jacket high enough to control the tank temperature without making the tank float?
9. Is the cold and/or warm water supply turned on?
10. Are the solution collecting bottles in position and do they have enough free space left to take up the solutions from this process?
11. Is the "Set/Run" switch in the "Run" position?

7.5 Starting the process

The display must show at least the amount of solution in the temperature-controlled bottles that you have set for the used tank.

- Press the start button once.
The display will show the filling quantity selected by you.
- Press the start button again.
If the filling quantity selected with the filling quantity switch (22) is greater than the solution quantity left in the bottles (that is the quantity shown after pressing the RESET button (13) then the ATL-2 plus will not permit you to continue the process. To continue the process, press "Reset" (13), refill the bottles - if required - and enter the new quantity.

Note: If you use the automatic filling quantity switch (25), an "A" will be shown in the far left display field, followed by the quantity of solution to be filled in. (See Section 8.6 for further details.)

If the entered solution quantity is sufficient to comply with the indication on the filling quantity switch, this is indicated by the selected program channel.

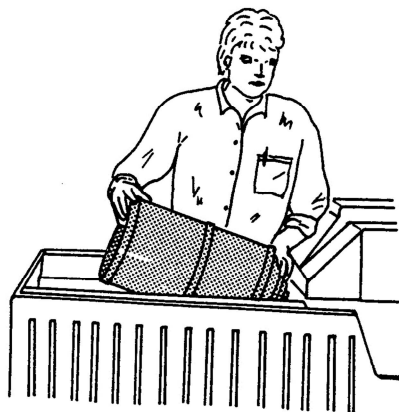
- Press the start button a third a time. The entered temperature at which you want to run the process is shown and the tank begins to rotate slowly. When the water jacket and the chemicals have the right temperature, there is an acoustic signal and the process starts.
- If the correct temperature is not yet reached, the red temperature LED (16) will light up and the tank will continue to rotate slowly. When the entered temperature is reached in the solution bottles as well as in the water jacket, the temperature LED will go out and the developing process begin. Read the instructions for skipping the temperature delay in Section 8.4.

Note: Once the program has started, pressing the program switch will not change the program.

The row of LEDs left of the program cards lights up in the right order and shows which step is just being carried out. The display now works as a timer and shows the running time for each step.

At the end of the process there is an acoustic signal, until the "Reset" button is pressed. The display shows the solution quantity left in the bottles.

Remove the tank from the processor. There will be a clicking sound when it is removed from the lifting arm. This is normal.



Special functions

8.1 Filling the front bottles

To make it easier to bring the indication of the solution quantity in the front bottles to 1 l, press the "Set Full" button (14) for two seconds after having filled the solution bottles. The temperature-controlled solution quantity for this program has now been set to "1.00". The entry has an influence only on the program selected with the program switch (21). (See exception in Section 8.7.)

If smaller quantities are filled in, proceed as described in Chapter 6.4.

8.3 Manual operation

The program entry buttons 3, 4, 5, 6, and 15 can also be used for manual operation. To carry out these additional functions, press the "Set 0" button (15) and one of the other entry buttons (3, 4, 5 or 6) at the same time. Pressing the buttons in this way causes the performance of the manual functions described below.

- Press the buttons (15) and (3) simultaneously to lift the lifting arm.
- Press the buttons (15) and (4) simultaneously to lower the lifting arm.
- Press the buttons (15) and (5) simultaneously to pump chemicals from the bottles into the tank. The ATL assumes that you want to pump chemicals from the bottle used last. About 100 ml of solution per second are pumped. (Note: This function works only during a program run. Press the buttons (15) and (6) simultaneously to fill temperature-controlled rinsing water into the tank.)

8.4 Skipping the temperature control

When you have pressed the "Start" button three times - as described in Section 7.5 - the temperature with which you want to start the process is shown and the tank begins to rotate. If the temperature of the water jacket and the solutions correspond to the program temperature, the process will start. If the required temperature is not yet reached, you can if you like skip this waiting time with a less exact temperature and start the process. Proceed as follows:

- Press the button for the bottle temperature (1) and the "Start" button (19) simultaneously, until the red LED (16) above the bottle temperature goes out and the acoustic signal of the processor sounds. The process will start and the temperature LED (16) will blink during the process run.

8.5 Quick temperature control

If the front solution bottles were refilled with chemicals that have a lower than process temperature, a temperature adaptation is necessary before the process can be continued. To accelerate this process, the "Quick temperature control" function can be used. If this has been activated, the ATL-2 records the temperature difference between the new chemicals and the water jacket. Now the water jacket is "overheated" to speed up the warming of the solutions in the bottles. When the temperature in the bottles approaches that of the water jacket, this is cooled back to normal process temperature.

Note: When using the quick temperature control, it should be taken into consideration that the precision of the temperature control during this process is reduced ($\pm 0.3^\circ$).

Read the second note in Section 6.5 for further details about programming this function.

8.6 Automatic filling quantity function

As mentioned in Section 7.2, the solution quantity needed for a certain process is selected with the "Filling quantity" switch (22). Another method to select the filling quantity can be used if you work with the 2500 tank series and the 2502 Duo-Set spools.

To activate the automatic filling quantity function set the "Filling quantity" switch (22) to "A" (for automatic).

You see that on one side of the "Automatic filling quantity" switch the list of the tanks is illustrated with a half-full and on the other side with a full tank. The illustration with the full tank is for double-loaded 120, single-loaded 220 or 35 mm films; the one with the half-full tank is for single-loaded 120 films that are only loaded in the outer part of the spool.

Set the "Automatic filling quantity" switch to the corresponding position, and the solution and rinsing quantities are automatically calculated. When the start button was pressed for the first time at the beginning of the process, an "A" will show in the far left display, followed by the indication of the solution quantity to be pumped.

Using the "Automatic filling quantity" ensures a particularly thorough rinsing by filling the tank completely with water although only small solution quantities are used.
Finding and eliminating troubles

Troubles

Trouble	Cause	Remedy
1. Water jacket does not heat up	"Reset" was not pressed after programming	Press "Reset" (13)
2. Water jacket does not heat up	"Set/Run" switch is in "Set" position	Set switch (20) to "Run", press "Reset" (13)
3. Unit does not react when start button is pressed	Solution quantity in bottles is not sufficient	Refill bottles enter new quantity in display
4. Beep sounds and LED red triangle lights	Rinsing water is turned off, bottles are empty, caps not screwed	Turn water on, refill bottles up, screw caps tight and press start button
5. Triangle lights up and step button blinks	Insufficient solution quantity in the respective bottle	Refill bottle before next process
6. Blinking red triangle	Temporary power failure on the unit during process	Can be ignored, process is not affected, because failure was only a few seconds. Triangle will go out when next process starts. Note: The triangle of the ATL-2 always blinks when the unit is first switched on.
7. Yellow LED	Unit has internal problem with the micro-processor	Corrects itself automatically. If problem continues, service is required

8.	A "2" shows in the display and a beep is heard	Drum motor stands still	The motor should change its direction in less than 5 secs. If it does not start, inform service
9.	Motor turns at 50 rpm in spite of speed setting	Motor is overloaded	Should work properly again after cooling for some time. If problem occurs often, inform service
10.	A "3" shows in the display and a beep is heard	Air distributor problem	Inform service
11.	A "4" shows in the display and	ATL cannot lift the lifting arm	Empty drum manually, connect to processor and press start button. Finish process and inform service
12.	A "5" shows in the display and a beep is heard	Defective water temperature probe	Inform service
13.	A "6" shows in the display and a beep is heard. See instruction 3 below	Pumped solution quantity sufficient	Press buttons (15) + (5) simultaneously to pump more solution. 1 sec. = 100 ml
14.	A "7" shows in the display and a beep is heard	Defective solution temperature probe	Switch off quick temperature contro. (See note 2 in Section 6.5) Unit can be used with "Skipping the temperature" (see Sect. 8.4)
15.	An "8" shows in the display and a beep is heard	Not enough water in the lower trough	Make sure that cold water is connected and turned on, then press "Reset" (13)

Notes on filling

Note 1: When the volume set with the "Filling quantity" switch (22) is greater than the indicated volume in the display, the program will not start.

Remedy: Refill the bottles and program the ATL-2 plus with the new solution quantity.

Note 2: If, with a filling quantity setting of more than 140 ml, the ATL-2 plus gets considerably less solution than indicated, there will be a continuous acoustic warning signal, the yellow triangle (18) will light up and the program will stop.

Remedy: Check whether there is solution in the respective bottle or if the hose for the bottle is buckled or loose or if the bottle cap is not tight or if the rubber snouts in the bottle are damaged. When the problem has been found and remedied, press the start button and the unit will try again to pump chemicals.

Note 3: If, with a filling quantity setting of more than 140 ml, the ATL-2 plus does not get 100% of the indicated solution quantity, the alarm will sound, the yellow triangle (18) will light up and a "6" in the display will blink. The program will continue if nothing is done. The "6" will stop blinking and the alarm is switched off when the program proceeds to the next step. The yellow LED at the corresponding step will continue to blink to remind you of the problem in the respective step. Pressing the Reset button after the process will stop the LED blinking.

Remedy: Follow the instructions in Note No. 2.

Special instructions for developing

10.1 Introduction to development

This section describes the steps that are necessary for running a development process. JOBO tries to make sure that the mentioned notes on processing and the processing times are up-to-date. However, it may happen that the various manufacturers change their instructions for developing processes. You should always read the instructions supplied with the chemicals.

We very much recommend that you make yourself familiar with a new material before processing it and that you make test developments.

The mentioned developing times are recommended start values with which we have obtained good results in tests. Because of the great number of variable values in each developing process, first tests should be made with these times. To adapt the process to your own taste or the given tolerances, practice will sometimes require a change of the processing times.

Note: Stabilizer bath must always be used outside the processor to prevent a contamination of tanks and spools. Always use a separate container for stabilizing the film and remove the film from the spool for stabilizing. It is very difficult to remove stabilizer completely from spools and tanks. If it is carried over into the next developing step, the results will be affected.

Deviations in E-6 films

Colour characteristics and contrast vary between films of different manufacturers. There are even slight differences between emulsion batches of the same film. If possible, test each film batch to see how the film reacts to the respective processing chemicals. In case of constant colour deviations with different emulsions a pre-filtering of the photo may be helpful.

E-6 dimming and pushing

Change the first developing time to influence the film sensitivity (ASA, DIN, ISO).

A 30% change of the first developing time corresponds to about one aperture. An increase of 30% brings a higher sensitivity of 3 DIN (double ASA value). This process is known as "pushing". To reduce the sensitivity by about 1 aperture, reduce the first developing time by 30%. This process is known as "dimming" or "holding".

Greater changes in the first developing time will cause greater deviations in film sensitivity. The exact degree of change of the first developing time depends on the combination of the respective film and the chemicals used.

When processing Kodak Ektachrome P800/1600 film the exact instructions by Kodak should be observed. Further information is available from Kodak.

Note: Any change of the first developing time should be tested. The results will show a certain drop in quality, which might not be acceptable for critical jobs.

Speeds of rotation

<u>System 2500/2800</u>	<u>75 rpm</u>
<u>System 3000</u>	<u>50 rpm</u>

Cleaning and maintenance

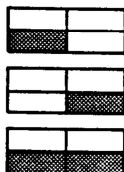
11.1 Cleaning between process runs

At the end of each process, the ATL-2 plus automatically carries out a thorough cleaning of the internal solution pumping system.

A cleaning of the solution hoses is only necessary if you intend to use different chemicals in the same bottles or if you do not use the unit for a longer period. Please read the instructions in the following section regarding correct cleaning of the bottles and the solution ways.

11.2 Cleaning programs

A cleaning of the storage bottles and solution hoses is only necessary if you want to use a set of chemicals in bottles or bottle positions that contained other chemicals before. To facilitate this process, three programs for cleaning the storage bottles and the solution pumping hoses are available. These programs are selected with the program selecting switch (21). Below you find a drawing of each switch setting and the bottles that are cleaned with the respective setting.



bottles 1-3

bottles 4-6

bottles 1-6

To run a cleaning program, couple an empty 2553, 2563, 2830 or 2840 drum or tank to the processor and set the program selecting switch (21) to the cleaning program you want to run. The programs works so that all selected bottles are completely emptied. (About 5 ml remain in the bottle, that is normal and will in no way affect the subsequent processes.)

It is not necessary to set the filling quantity with the filling quantity switch (22). Start the program. After emptying the remaining chemicals from the bottles in the first run, fill the bottles with water and start the program anew to wash any remainders from the bottles and hoses. If chemicals of a different process are to be used, the process has to be repeated three times.

11.3 Long-time stops

If you expect not to use the unit for more than a month, empty the water out of the trough, run a complete cleaning program (see Section 11.2) and empty all solution bottles.

11.4 Storage at temperatures below zero

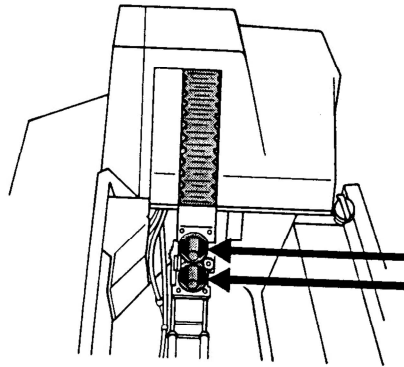
If the ATL-2 plus is stored at temperatures possibly below freezing point, the following precautions must be taken:

1. Empty the water jacket by opening the drain tap.
2. Turn the water supply off; remove and empty the water supply hoses.
3. Remove and empty all drain hoses.
4. Empty all rinsing hoses and the heat exchanger coil.

11.5 Lubrication

The cog wheels and rollers must occasionally be lubricated. A processor that is used every day should be lubricated about every 3 months. For lubrication please follow the instructions with the grease gun No. 95465.

If a squeaking occurs, put some vaseline on the connecting points for tanks and drums (see drawing).



11.6 Cleaning the appliance

All outer surface of the ATL-2 plus are of plastic. Regular cleaning with a damp cloth and a mild rinsing liquid is recommended.

To remove any soilings in the water jacket and furrings on the heaters, use Processor-Clean (4181).

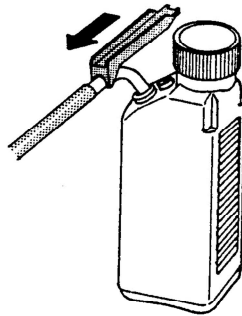
Do not use any chloric or solvent-containing cleaning agents.

11.7 Preventing the formation of algae

Do not add any bleaching solution or chloric chemicals to the water jacket to prevent the formation of algae. The best way to prevent the formation of algae is a regular change of the water jacket.

11.8 Removing the hoses

For exchanging the storage bottles it is necessary to remove the pressure and solution hoses. To facilitate the removal of the hoses from the bottles please use the tool that is included with the accessories. Push the pressure hose from the grey riser pipe, as shown in the drawing.



11.9 Remarks on the filling quantities

The filling quantities are laid out so that even with a filling quantity deviation of -5 to +10% there are no noticeable development faults. Deviations from your set value within this range are normal and no reason to worry. You should not use the electronic head to put things on, to pour chemicals or other liquids, because the electronic unit is damaged by penetrating moisture.

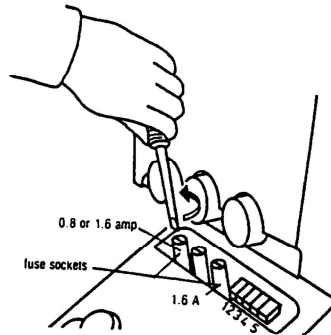
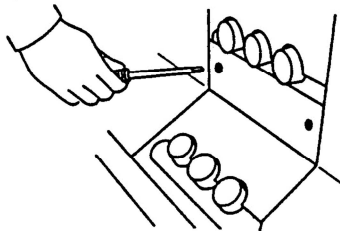
Service

12.1 Changing the fuses

The AutoLab ATL-2 plus has two fuses; one protects the entire appliance, the other protects all 5-Volt components.

ATTENTION! Always pull the appliance plug from the socket before exchanging a fuse.

To exchange one of the fuses, first remove the two recessed-head screws holding the cover. Now you have access to the fuse holders. Fuse No. 1 has 0.8 A for 220 V appliances and 1.6A for 110V appliances. Fuse No. 2 is not used and Fuse No. 3 has 1.6 A in all appliances. Fuse No. 1 protects the entire appliance, while Fuse No. 3 is an additional protection for the 5-Volt lines (microprocessor and display).



12.2 Drive pinion

This pinion is a wear part and should be replaced every six months. A spare pinion is included with the supply. If the pinion is not replaced regularly, it might break and like this ruin the development (No. 95200).

12.2 JOBO trouble service

For all other service questions please contact your authorized JOBO Autolab dealer or call JOBO's service department. (for service points see Annex)
We recommend an inspection every 1 1/2 years or after about 3000 hours of operation.

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Caption

No.	Description
1	Solution temperature
2	Water jacket temperature
3	Set and lift drum
4	Set and lower drum
5	Set and pump solutions
6	Set and rinse
7	Display
8	Temperature indication
9	Litre indication
11	Min./sec indication
12	Process step LEDs
13	Reset button
14	Set Full button
15	Set 0 and manual functions button
16	Wait LED
17	Step button
18	Warning triangle
19	Start Stop button
19a	Start Stop LED
20	Set Run switch
21	Program selecting switch
22	Filling quantity switch
23	Mains switch On/Off
24	Motor switch
25	"A" filling quantity switch
26	Rear bottle cover
27	Water jacket level slide
28	Front bottle cover
29	Water outlet valve button
31	Fuse cover
32	
33	Chemical collection cover
34	Button panel
35	Water drain valve
36	Connectors for cold and temperature-controlled water
37	Water jacket overflow
38	Coupling flange

