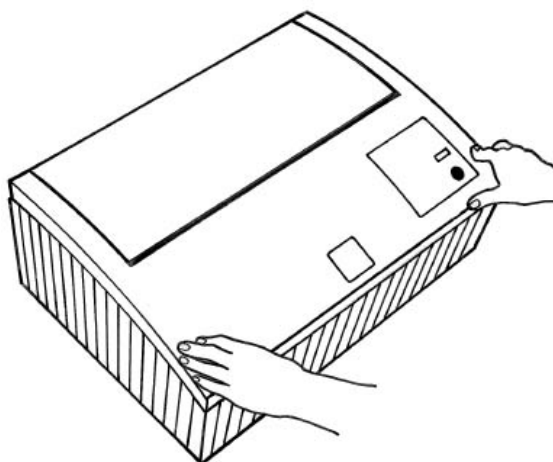


**Instructions for the
AutoLab ATL-1000 #4210
and the
AutoLab ATL 1500 #4228**



Note: All instructions apply to both the ATL-1000 and ATL-1500, except where specifically noted. Only process programming differs between the two versions of the AutoLab processor.

The AutoLab ATL-1500

Featuring:

Quality

- Fully automated via electronic control
- Consistent results batch to batch
- Each step of a process accurate to the second

Economy

- Maximum efficiency of chemistry
- Built-in tempering of complete system

Versatility

- Fully user-programmable
- Multiple processes: E-6, C-41, B/W, RA-4
- Formats including 35mm, 120, 220, 4x5" sheet film, 9x12cm sheet film
- Paper from 3½x5" - 8x10"

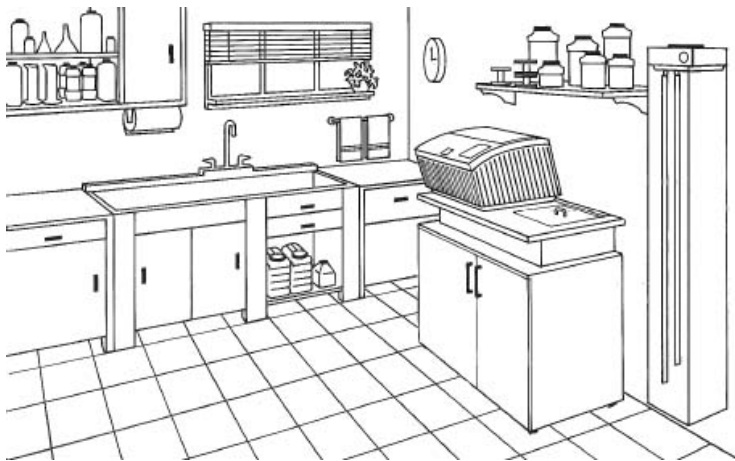
And it's so easy to use...

Technical specifications

- Height 12" (302 mm)
- Height with top cover open 25½" (640 mm)
- Depth (front to back) 19" (480 mm)
- Width 21½" (540 mm)

- Weight (empty) 24¼ lbs. (11 kg)
- Voltage 115v / 60hz (opt. 240v / 50hz)
- Power consumption 850 watts
- Amps 7.4 amps at 115v
- 3.6 amps at 220v
- Minimum / maximum water pressure 15-90 p.s.i. (1-6 bar)
- Process temperature 38.0°C for E-6/C-41 and 24.0° C for B/W
- Water jacket capacity 3.2 quarts (3.0 liters)
- Room temperature (operating range) 50-86°F (10-30°C)
- Film formats 35mm, 120, 220, 4x5"
- Prints 8x10"

Welcome to the JOBO Processing System



The AutoLab ATL-1500 is the smallest, fully automated user-programmable processing unit in the JOBO product line. It comes with 14 of the most popular processes pre-programmed. You can now process virtually any type of film and many popular paper processes easily and accurately in minutes. The ATL-1500 is versatile enough to be the main processor in your lab yet portable enough to take on location.

All the necessary functions needed in photographic processing (except drying) are fully automated in the ATL-1500. The chemical bottles and processing tanks are kept at the operating temperature with a recirculating water bath. Constant rotary agitation is maintained with a bi-directional rotation motor. Tempered chemistry is pumped from the chemical bottles to the processing drum via an air pressure system. The ATL-1500 controls the timing of each chemical and rinse step to the second (each of the times are completely adjustable, in all programs). Finally, the ATL-1500 offers you the option of reclaiming used chemistry separate from rinse water (the JOBO Chemical Separator #4220 is available to further separate the chemical steps into "developer" types and "bleach/fix" types).

Index

0. Index Page

0.1 Introduction

0.2 Technical Specifications

0.3 Diagram

0.4 Welcome

1. Unpacking

1.1 Removal from carton

1.2 Hidden damage

- 1.3 Packing material
- 1.4 Contents of carton

2. Pre-installation considerations

- 2.1 Location
- 2.2 Electrical service
- 2.3 Water pressure
- 2.4 Water temperature
- 2.5 Drain
- 2.6 Room temperature

3. Installation instructions

- 3.1 Placement of processor
- 3.2 Drain connection
- 3.3 Water inlet connections
- 3.4 Electrical connection
- 3.5 Leveling the processor
- 3.6 Installation check list

4. Preparing for operation

- 4.1 Getting started
- 4.2 Adjusting the water temperature
- 4.3 Determining the chemical amount in solution bottles
- 4.4 Filling the solution bottles
- 4.5 Chemical reclaiming
- 4.6 Selecting the program
- 4.7 Modifying program times

5. Loading tanks, drums and reels

- 5.1 Loading 35mm, 120, and 220 film
- 5.2 Loading the sheet-film reel
- 5.3 Loading paper

6. Running a process

- 6.1 Preparation check list
- 6.2 Attaching the tank
- 6.3 Warming up
- 6.4 Interrupting the process
- 6.5 Ending the process

7. Cleaning program

- 7.1 When to run a cleaning program
- 7.2 Filling the bottles with water
- 7.3 Running the cleaning program

8. Troubleshooting

9. Specific processing instructions

- 9.1 Introduction to processing
- 9.2 Processing process control strips
- 9.3 ATL-1500 programs
- 9.4 Calculating development times for B/W film

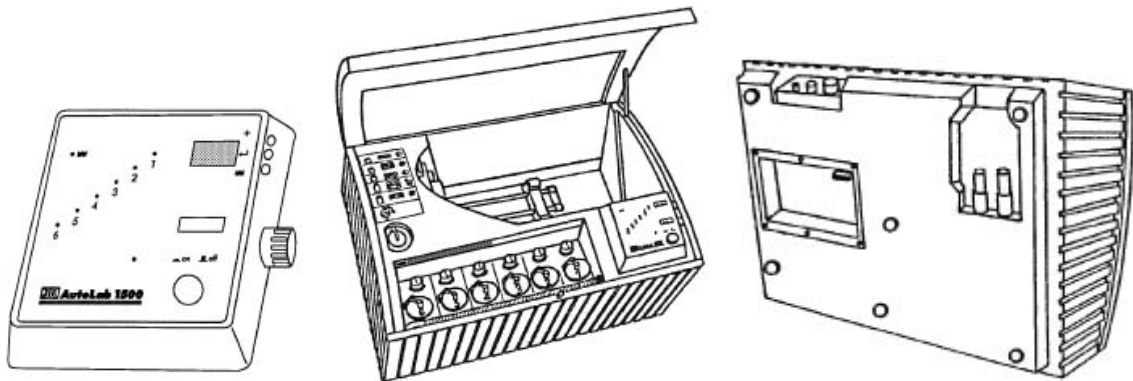
10. Cleaning & maintenance

- 10.1 Long-term storage
- 10.2 Cold-weather storage
- 10.4 Care of exterior of processor
- 10.5 Algae control

11. Service

11.1 Overload reset

(Instruction Manual #66054)



1. Set Mode LED
2. Rinse LED
3. Chemical Step LEDs
4. LCD Display
5. PLUS Button
6. ENTER Button
7. RINSE Button
8. Program Selection Display
9. Program Selection Knob
10. ON/OFF Button
11. Top Cover
12. Drain Knob
13. Battery Backup Compartment
14. Battery Backup Connector
15. External Pump Power Connection
16. External Pump Water Connection
17. Rinse-Water Solenoid
18. Chemical Bottles
19. Water Drain (rinse and bath)
20. Chemical Drain
21. Water Level Line
22. Rinse Water Hose
23. Chemical Volume Chart

1. Unpacking

1.1 Removal from carton

1.2 Hidden damage

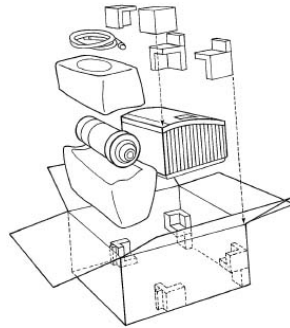
1.3 Packing material

1.4 Contents of carton

Return to Index Page

[▲ Back to Top](#)

1.1 Removal from carton



Your unit will arrive in one carton. The shipping weight is 40 pounds (18.2 kg). To unpack the ATL-1500, cut the tape sealing the carton. Take care not to stick the knife in too far. Remove the packing material, your ATL-1500, and all the accessories.

Check that all items listed in Section 1.4 are included in the package.

1.2 Hidden damage

Check the processor for any damage and, if found, immediately contact the shipping company that delivered the unit or the dealer from whom you purchased the unit. According to shipping companies, it is the responsibility of the recipient to handle damage claims.

1.3 Packing material

Make sure to keep all packing materials in the event you need to ship the processor for any reason. The packaging will help prevent shipping damage.

1.4 Contents of carton

The ATL-1500 package contains the following items:

- 1 - ATL-1500 Processor #4228
- 1 - Brass hose adapter #61003
- 1 - Center core, one roll #04043
- 2 - Center core, two roll #04044
- 1 - Center core, extension #04045
- 1 - Film tank #4218

1 - Film/print tank #4219
1 - Hose for rinse water #16171
1 - Instruction manual #66054
2 - Lids for film/paper tank #91047
5 - Reel, Roll Film (35mm,120,220) #2502
1 - Reel, 4x5" sheet film #2509N
2 - Retaining plates, 4x5" #07258
2 - Retaining plates, 9x12cm #07257
1 - Rinse water pump port cap #15024
4 - Rollers #93023
1 - Solenoid valve cap #15023
2 - Stoppers for film/print drum lid #15042
1 - Tank body, 2513 #02031

NOTE:

- The Solenoid valve cap #15023, the Rinse Water Port Cap #15024, and two Roller #93023 are already installed on the processor.
- The Tank Center Cores #04043, #04044, and #04045 are shipped inside the tanks.
- The lids #91047 are shipped on the tanks.
- The reels #2502 and #2509N are shipped inside the tanks.
- The Stoppers for tank lids #15042 and two of the Rollers #93023 are shipped inside the #4218 tank.

2. Pre-installation considerations

2.1 Location

2.2 Electrical service

2.3 Water pressure

2.4 Water temperature

2.5 Drain

2.6 Room temperature

[Back to Index Page](#)

2.1 Location

Your new AutoLab does not need to be located in a darkroom since all tanks and drums used with it are light-tight.

The ATL-1500 is most easily used when located near adequate drain facilities, hot and cold water sources, and electrical power. If normal drain facilities are not available, the chemicals and rinse water can be collected in containers for later disposal. The chemical steps and rinse steps flow out two separate drain hoses. To further separate the chemical steps use the Chemical Separator #4220. The Chemical Separator is used to split out the "developer" type steps from the "fixer" type steps.

The ATL-1500 must be located on a level surface capable of supporting 51lbs (24kg). Due to the possibility of splashing, this surface should be waterproof. The surface must be higher than the intended drain (or disposal container) for the processor. The JOBO ATL-1500 processor can be located on a counter-top or cart.

Warning: For safety reasons do not place the ATL-1500 in any location where liquid could rise above the bottom of the processor. If the ATL-1500 is found in liquid above the bottom of the unit, immediately unplug the unit from the power source. **Do not touch the liquid until all power is completely disconnected.** Contact the JOBO Service Department before plugging in the ATL-1500.

2.2 Electrical service

Observe your local electrical codes!

Your ATL-1500 should be connected to a circuit capable of bearing 10 amps. When calculating the load-bearing capacity of your circuit, make sure to include all appliances that draw from the same circuit. As with all machines that combine electricity and water, the circuit should have GFCI (ground fault circuit interrupter) protection. GFCI outlets are readily available at most hardware stores. GFCI circuits should only be installed by licensed electricians.

The length of the power cord on the ATL-1500 is approximately 5 feet (152 cm). Make sure an adequately rated electrical outlet is located within 5 feet (152 cm) of the proposed location of the ATL-1500.

Do not operate the ATL-1500 while connected to underrated extension cords or attached to overloaded circuits.

2.3 Water pressure

Water pressure between 15-90 p.s.i. (1-6 bar) is required to fill the processor to the proper level. Pressure less than 15 p.s.i. may cause an exceptionally long fill time for the tempering bath and/or inadequate rinsing. Water pressure greater than 90 p.s.i. will damage the processor. (In the USA a Pressure Reducer #61004 may be ordered directly from JOBO or your favorite photographic dealer).

The ATL-1500 requires one Rinse-water hose #16171 which is supplied with the unit. The hose has European threading so we've included a brass adapter to convert the threads to standard 3/4" "garden hose" type.

Always close the water valves on your water panel when the processor is not in use to avoid the risk of leaking.

NOTE: See [Section 3.3](#) for information on use of the Submersible pump #4212.

2.4 Water temperature

The ATL-1500 requires a tempered water supply. The tempered source should be set to within $\pm 0.5^{\circ}\text{C}$ (0.9°F) of the process temperature. JOBO has a Water Mixing Panel #4190 that was designed specifically for the ATL-1500. The water supply fills the water bath as needed and is the source of rinse water for the processes.

2.5 Drain

The ATL-1500 processor has two separate drain hoses: one for the rinse water and the tempering bath, and the other for used chemistry. The hoses are approximately 39" (100cm) long and have a diameter of .86 inches (22mm).

The ATL-1500 can be placed on a counter-top or on the specially designed support table from JOBO #4214. (***See warning in Section 2.1***) The drain must be lower than the processor. If the drain hoses are routed to canisters, it is important that the canisters have sufficient volume to handle the outflow of the processor. **The drain hoses should be placed at a level that will insure that the end of the hoses will not be submersed in the liquid in the containers. This is important to insure that siphoning does not occur.**

The largest volume of water used by one process is 2.9 gallons (11 liters) which is generated by the six-step E-6 process. If you add draining the tempering bath, the total water output is 3.7 gallons (14 liters). The largest amount of used chemicals generated in one processing run is 1.0 gallon (4.0 liters), six bottles with 660ml in each.

2.6 Room temperature

During a process, the ATL-1500 tempers the chemicals in the bottles and the tank with the film with a re-circulating water bath. The E-6 and C-41 processes operate at 38.0°C (100.4°F). The B/W film processes and the two paper processes operate at 24.0°C (75.2°F). Changes in room temperature between $10\text{-}30^{\circ}\text{C}$ ($50\text{-}86^{\circ}\text{F}$) do not affect the processor's ability to control the temperature accurately.

3. Installation instructions

3.1 Placement of processor

3.2 Drain connection

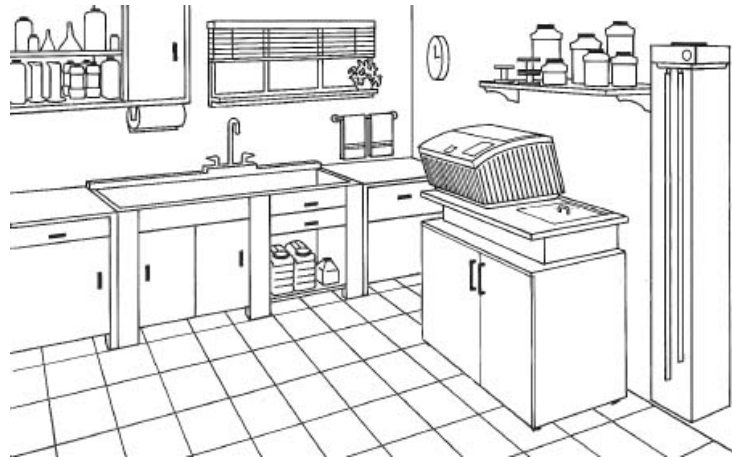
3.3 Water inlet connections

3.4 Electrical connection

3.5 Leveling the processor

3.6 Installation check list

[Return to Index Page](#)



3.1 Placement of processor

Place the ATL-1500 on the surface chosen for it (see pre-installation considerations in [Section 2](#)). The surface chosen should be as close to level as possible. The final level of the unit will be checked in [Section 3.5](#). Failure to properly level the processor will result in poor processing.

3.2 Drain connection

The ATL-1500 is shipped with two drain hoses installed. They are 39" (100cm) long and .86" (22mm) in diameter. The hose indicated with a blue sticker next to it is for all water drained from the processor. This includes water used during rinse steps as well as water drained from the tempering bath. The hose indicated with the yellow sticker is for draining used chemicals from the processes. Each

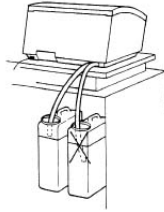
of these hoses must be routed to drains or canisters lower than the bottom of the ATL-1500 processor. (See Environmental Warning below.) **It is important that the ends of both drain hoses not be submersed in the drained liquid. This prevents siphoning and possible damage to the processor.**

If canisters are used, they must have sufficient capacity to hold the amount of effluent that will be drained (JOB0 15-Liter Bottle #3385). The largest amount of rinse water drained by one process is 3.7 gallons (14 liters). The largest amount of chemicals drained by a single process is 1.0 gallons (4.0 liters).

NOTE: Blocking the hoses in any way could cause serious damage to the ATL-1500 processor. Be sure to place the hoses where nothing could be placed on top of them. It is also important that the ends of the hoses not be submersed in liquid to prevent siphoning.

Environmental Warning: Caution should be exercised when placing used photo chemistry down the drain. Local governmental regulations may limit your right to place certain chemicals into the sewage system of your facility. Because ordinances vary from region to region, please check with local governmental authorities for more information.

Using the Chemical Separator #4220



The Chemical Separator #4220 allows you to collect used chemistry by separating acid and alkaline solutions. Place the Separator on top of the collection containers. Guide the three air hoses (S1) from the separator to the back of the ATL-1500. Unscrew the nut-ring band (P1) and remove plug (P2).

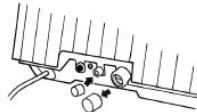
Push nut-ring band (P1) and washer (P3) on to hoses (S1) (in that order). Attach the hoses (S1) to their designated separator connectors (P4) and tighten the nut-ring band (P1). Set the switch to "A" when processing C-41, black & white, RA-4, or EP-2. Set the switch to "B" when processing E-6.

All the chemicals involved in developing (i.e. developer, first developer, color developer, and reversal) are routed into one container, and all the chemicals involved in stopping development or in retaining permanence (i.e. bleach, stop, fix, bleach-fix, and conditioner) are routed into another container. It is possible to reclaim developer for C-41 and black & white for reuse. In addition, it makes disposal of chemicals more simple, less costly, and easier to neutralize for regions where EPA regulations are strict.

Note: When using the separator with **E-6 3-bath chemicals**, an air hose must be repositioned in the ATL-1500. Please refer to the instructions included with the Separator for information on this procedure.

3.3 Water inlet connections

Connection to permanent water source



The ATL-1500 comes with a 3/4" high-pressure hose to connect the water to the processor. In order to connect this hose the cap C2 must be removed from the water input connection on the back of the processor. (The diagram indicates that cap C1 needs to be in place. If the processor has never been connected to a portable water source, it should already be installed). This cap C2 should be kept because it is needed if the processor will ever be connected to the optional External Water Pump #4212. The hose has a 90° end and a straight end. The straight end of the hose should be attached to the processor on the solenoid where you removed the cap. The 90° end should be attached to a brass adapter (included) and the brass adapter then connected to the water supply.

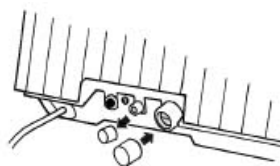
When making the connections, make sure they are all "snug." Do not over-tighten the hose connections. Using Teflon tape, which is readily available at hardware stores, will help eliminate leaks. Once the connections are properly tightened and tested to insure there are no leaks, set the tempered water supply to within $\pm 0.5^\circ \text{C}$ (0.9°F) of the process temperature.

Note: Depending on the condition of the tap water in your area, consider installing a water filtration device like that included with Water Mixing Panel III #4236. Particulate matter in the rinse water can damage your film.

Connection to a portable water source

Note: As of 1/1/2005 the #4212 External Pump is no longer available. The following information is for reference only.

If you want to take your new AutoLab "on the road" you'll need to purchase a few other items: the External Water Pump #4212, the Submersible Water Heater #4216, and two 15-Liter Bottles #3384/5. The pump is plugged into the processor at P1 and placed into a container of water. The ATL-1500 automatically draws water via the pump at any processing step that requires water. (You must manually fill the water bath with water when using the portable setup.) For color film processing use the Submersible Water Heater #4216. The heater will heat the water in the container to 38.0°C. To connect the pump to your AutoLab follow these steps:



1. Plug the electrical connector from the pump into the ATL-1500 processor at connector P1.
2. Remove the cap from the hose connection C1.
3. Attach the pump hose at connector C1.
4. Place the cap over the $\frac{3}{4}$ " solenoid valve connection C2. The ATL-1500 is shipped with this cap in place, but it may have been removed if the processor has been used with a permanent water source instead of the external pump.
5. Manually fill the tempering bath with water to the level line on the inner, back wall of the processing trough (see illustration below [section 3.5](#)).
6. Place the pump into a container with the proper amount of **tempered** water. The pump and water heater should lie on the bottom of the container horizontally. (See specific processes in section 9 for required rinse water amounts.)

3.4 Electrical connection

Observe ALL National and local Electrical Codes & Ordinances

Connection to A.C. Power

Your AutoLab must be connected to a ground-fault circuit interrupter (GFCI) protected outlet capable of bearing 10 amps. (Any appliance that is either using or near a water supply should be connected to a GFCI-protected circuit.) If you do not have a GFCI-protected circuit, please contact a licensed electrician to have one installed. When determining the current capacity of a circuit, remember to add all appliances connected to that circuit. Do not use an extension cord unless it meets all requirements as outlined for grounding, polarizing, and current capacity.

Warning: To prevent the unnecessary risk of fire, electrical shock, or personal injury, all wiring and grounding must be done properly. All wiring and grounding must be done in accordance with the National Electrical Code ANSI/NFPA, as well as local codes and ordinances. It is the personal responsibility and obligation of the processor owner to provide adequate electrical service for this processor.

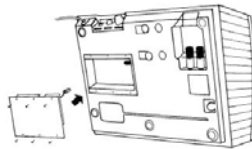
Electrical Ground is Required

Your processor must be grounded. In the event of malfunction or breakdown, grounding will reduce the risk of electrical shock by providing a path of least resistance for electrical current. The processor is equipped with a cord that has an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Do not, under any circumstances, modify the plug provided with the processor. If it will not fit the outlet, have a proper outlet installed by a qualified electrician.

Do not plug in, operate, or test the processor until proper power and ground connections have been made. Consult with your electrician if you have any questions regarding your electrical system.

Battery Back-up for Power Failure



A specially designed battery power supply #4211 should be installed in the ATL-1500 for back-up in case of power failures. This battery will complete a running process by providing power to all components except the heater. (Sufficient residual heat will remain in the water bath to finish a running process.) The battery back-up is not intended for normal running of actual processes but only as a back-up in case of power failure. The battery is automatically recharged by the ATL-1500 during normal operation. The battery back-up is plugged into the special socket on the underside of the processor and then the unit is attached with six screws (screws and screwdriver are included).

3.5 Leveling the processor



In order to insure even processing of material in the ATL-1500 it is necessary for the machine to be level. To insure the processor is level perform the following steps:

1. Turn the program selector knob to an E-6 program.
2. Close all bottles lids and close drain valve. When the drain valve is pointing to the right it is closed, when pointing to the rear it is open.
3. Close the top cover of the processor.
4. Press the ON/OFF button to turn on the machine.
5. Wait until the tempering bath of the processor is full (water filling sound will stop).
6. Press the ON/OFF button to turn off the machine.
7. Open the top cover of the processor.
8. Check that the top of the water line is parallel with the leveling line inscribed in the water trough
9. If the machine is not level place material under appropriate corners of the machine to level it.

3.6 Installation check list

- Processor is properly grounded and plugged into a correctly polarized electrical outlet.
- Water is turned on and checked for leaks at faucets and at water valves.
- Drains are properly attached and routed.
- Processor has been leveled.
- Water inlet temperature is correct.
- Level Line

4. Preparing for operation

4.1 Getting started

4.2 Adjusting the water temperature

4.3 Determining the chemical amount in solution bottles

4.4 Filling the solution bottles

4.5 Chemical reclaiming

4.6 Selecting the program

4.7 Modifying program times

NOTE: Numbers in parentheses in the text below refer to the legend found in the index page of this manual.

4.1 Getting started

1. Open the tempered water supply valve to the ATL-1500 (on your water panel).
2. Make sure the drain valve (#12) is closed.

4.2 Adjusting the water temperature

The water for the ATL-1500 is supplied by the tempered water inlet connected to the rear of the machine. The temperature of this incoming water must be adjusted with an external mixing valve. Water Mixing Panel II #4190 was made specifically for the ATL-1500. The incoming water must be within $\pm 0.5^{\circ}\text{C}$ (0.9°F) of the process temperature. To test the temperature, lift the top cover (#11), remove the tank from the trough (if loaded), lift up the rinse-water hose (#22), point the hose into the water bath, and press the RINSE button (#7). Use a thermometer to measure the temperature.

4.3 Determining the chemical amount in solution bottles

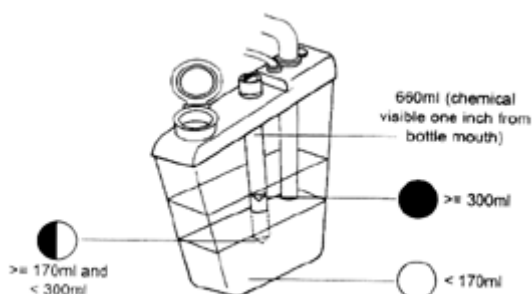
The ATL-1500 allows processing of different types and amounts of film and paper. These combinations are all processed using one of two tanks supplied with the ATL-1500. Two methods may be used to determine the proper amount of chemistry to put in the bottles.

With the first method the *actual* amount of chemistry needed for any tank/film combination is put in the bottles. The amount is determined by the following chart. The exact amount is measured with graduated and poured into the bottles before processing. This is the most economical method of developing film.

Tank	2513	4218	4219	4219	4219	4218	4219
Films	1x2502	2x2502	3x2502	4x2502	5x2502	1x2509N	2x2509N
1x35mm	170ml						
2x35mm		250ml					
3x35mm			600ml				
4x35mm				600ml			
5x35mm					650ml		
1x120		125ml					
2x120		250ml					
3x120			330ml				
4x120		600ml					
5x120			600ml				
6x120			660ml				
1x220		250ml					
2x220			600ml				

3x220			660ml				
1-6 4x5"						270ml	
7-12 4x5"							560ml
1-5x7" or 8x10" print			100ml				
1-3.5x5" or 2-4x5" print(s)						40ml	

The second method is much easier but may use a higher amount of chemicals to process a given type of material. This simpler method uses indicators built in to each of the chemical bottles. With this method only three fill quantities are used: 170ml, 300ml, or 660ml. (Please note the bottles actually hold 750ml but no process requires more than 660ml.) The amount is determined by filling the chemical bottles until an optic sensor changes views. The sensors can appear as three different values:



4.4 Filling the Solution Bottles

After the required amount of chemicals has been determined, open the top cover. Open the bottle lids on the chemical bottles and pour in the chemicals. See section 9 for information on which chemical to put in which bottle according to the process to be run. The temperature of the chemicals poured into the bottles should be less than 30°C (86°F) for E-6 and C-41 processes, and room temperature for all other chemicals.

E-6 and C-41 Processes:

If the chemistry temperature is below 36.0°C, the water bath heats to 41.0°C. When the chemistry reaches 36.5°C the water bath cools to 38.0°C and maintains that temperature. When the Chemistry goes above 37.5°C, the process starts.

It is **very important** to note that the machine will start if the chemistry is above 37.5°C. It could be 50.0°C and it would still start. It only senses that the temperature of the chemicals is above 37.5°C. Do not fill the processor with overheated chemistry. We recommend 30.0°C for the fill-in chemistry. This allows time for the chemistry to temper and also enough time to temper a tank.

B&W Film and All Print Processes:

These are processed at 24.0°C (75°F). Your processor will start these processes when it has heated the chemicals to 24.0°C. It is important to note that these programs will run at any temperature above 24.0°C.

4.5 Chemical Reclaiming

The ATL-1500 automatically separates used chemicals from rinse water. All rinse water is routed to one outlet hose indicated with a blue sticker and all used chemicals are routed to another outlet hose indicated with a yellow sticker. If the water and chemicals will not be routed to a drain, it is necessary to provide storage containers large enough to handle the output of the machine. The largest amount of liquid that would be discharged in one process run is 3.7 gallons (14 liters) of water and 1.2 gallons (4.6 liters) of used chemicals.

With the addition of the Chemical Separator #4220, you can collect used chemistry by separating acid and alkaline solutions. All the chemicals involved in developing (i.e. developer, first developer, color developer, and reversal) are routed to one container, and all the chemicals involved in stopping

development or in retaining permanence (i.e. bleach, stop, fix, bleach fix, and conditioner) are routed into another container. It makes disposal of chemicals simpler, less costly and easier to neutralize for regions where EPA regulations are strict.

WARNING: *Government regulations can affect your right to put chemistry into drains in your facility. Consult the proper authorities for regulations affecting your installation before proceeding.*

4.6 Selecting the Program

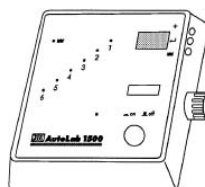
The ATL-1500 comes pre-programmed with 14 of the most popular processes and two cleaning programs. The programs are listed below. (For more detail on each process including times and descriptions see section 9.) To select a program, turn the program selector knob (#9) until the proper program appears in the window next to the knob.

Prog# Program Name and Description

1. **E-6 6B**, 6-Bath
2. **E-6 6B +1**, E-6 6-Bath, Push one stop
3. **E-6 6B -1**, E-6 6-Bath, Pull one stop
4. **E-6 3B**, E-6 3-Bath
5. **E-6 3B +1**, E-6 3-Bath, Push one stop
6. **C-41 3B**, C-41 3-Bath, Standard
7. **C-41 3B +1**, C-41 3-Bath, Push one stop
8. **C-41 2B**, C-41 2-Bath
9. **B/W 5**, B/W Film, Five minute developer
10. **B/W 7**, B/W Film, Seven minute developer
11. **B/W 9**, B/W Film, Nine minute developer
12. **B/W 11**, B/W Film, Eleven minute developer
13. **B/W 14**, B/W Film, Fourteen minute developer
14. **RA-4 Mono**, Tetenal RA-4 prints from color negatives
15. **Clean 1-3**, Cleaning program for bottles 1-3
16. **Clean 1-6**, Cleaning program for bottles 1-6

▲ [Back to Top](#)

4.7 Modifying Program Times



LCD display

Your ATL-1500 is completely programmable. This means you'll be able to change the times of any of the six chemical and rinse steps. To alter a process, you use the PLUS, ENTER, and RINSE buttons shown in the diagram on the right-hand side.

1. Open the cover
2. Select the program you want to modify with the Program selection knob
3. Turn on the processor with the ON/OFF button
4. Press ENTER and RINSE simultaneously and release. An indicator LED is now flashing red in the center of the control panel. This is to warn you that you are in "SET" mode where you can change program times.

At this point you have three choices:

1. At any point during the change press the RINSE button to exit and *save changes*.
2. Press the PLUS button to toggle between the two available temperatures (38.0°C or 24.0°C)
3. Press the ENTER button to proceed past the temperature setting to the pre-rinse step

At this point we'll assume you chose #3 and pressed the ENTER button. The display will change from showing the temperature setting to showing the time for the pre-rinse. The pre-rinse is indicated with the Rinse LED.

To change the pre-rinse time simply press the PLUS button. All rinse steps default to 30 seconds as the first value. You have the ability to set the rinse time in 5 second increments up to 10 minutes. From ten minutes on, it changes to 10 second increments. There is a maximum time of 30 minutes, at which point the time resets to 0:00. It is not possible to back up if you accidentally pass the desired time. To speed up the display, simply hold the PLUS button in and the cycle will speed up.

Press the ENTER button again to advance to the time for the first chemical step. You'll notice the Rinse LED is turned off and Chemical step LED #1 is illuminated. This is to inform you that you are changing the time for the first chemical bottle.

Note: All programs must start with the first chemical bottle -- it contains the temperature probe the AutoLab uses to determine the startup parameters.

The method of changing the time for each of the following chemical and rinse steps is identical to changing the pre-rinse step. To help you remember what step you're modifying, the LEDs will change to reflect the step being modified. If a Chemical step LED is illuminated and the Rinse LED is not, you're changing the chemical step reflected in which the LED is lit. If a Chemical step LED is illuminated and the Rinse LED is illuminated you are modifying the rinse step immediately after the Chemical step indicated by the LED.

To reset the process times to the factory defaults do the following:

1. Turn off the processor.
2. Select Program #16 Cleaning 1-6
3. Press ENTER and PLUS simultaneously and turn the processor ON.
4. The display will alternate between "SET" and "DEF" (set default).
5. Press ENTER.
6. Turn the processor OFF.

To change the brightness of the display, select program number 15 (Clean 1-3). Turn on the processor. Then simultaneously press RINSE and ENTER. This accesses the brightness display. Now press the PLUS button for low medium or high levels of illumination.

5. Loading tanks, drums and reels

5.1 Loading 35mm, 120, and 220 film

5.2 Loading the sheet-film reel

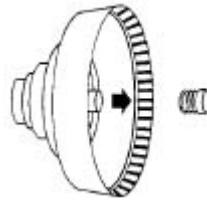
5.3 Loading paper

5.1 Loading 35mm, 120, and 220 film

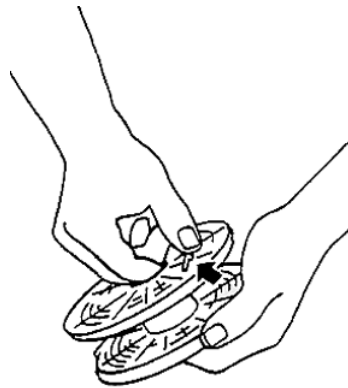
Using the chart in section 4.3 select the correct tank for the amount of film to be processed. With lights still on, open a clean, dry, tank by pulling up the red sealing ring. The best way to do this is to place the tank on a counter, position your thumbs on the cog gear and your fingers around the red ring (with palms facing each other). Then, simply lift with your fingers and the lid will come off.



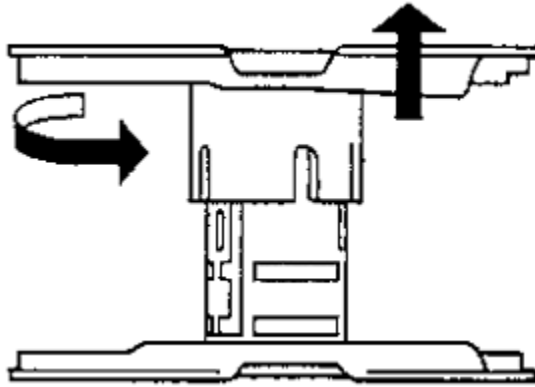
Check that the stopper used for print processing (#15042) is removed from the funnel. (If you hold the lid up to the light and look through the cog gear you should see right through.)



Take the red clip off the black reel.

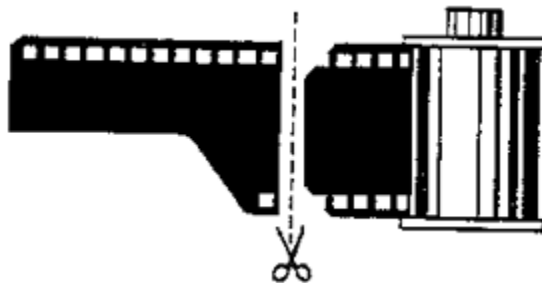


Set the reel(s) to the proper size. Rotate the upper flange counter-clockwise past a resistance and lift to the required height. Lock the reel flanges back together by rotating the reel clockwise past the resistance.



In total darkness (it help to practice these steps a few times with the lights on):

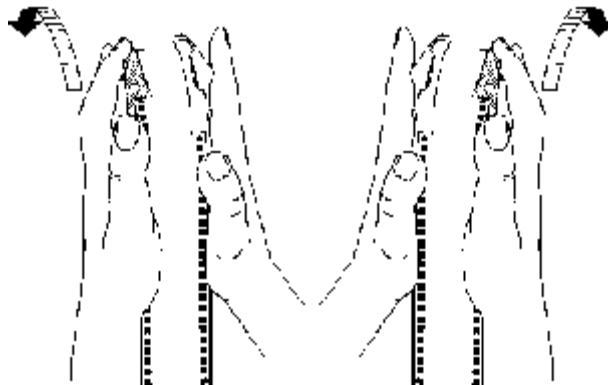
35mm Cut off 35 mm film straight and snip the corners at a 45° angle.



120/220 Remove the backing paper and snip the corners at a 45° angle.

Push the beginning of the film into the first groove of the reel.

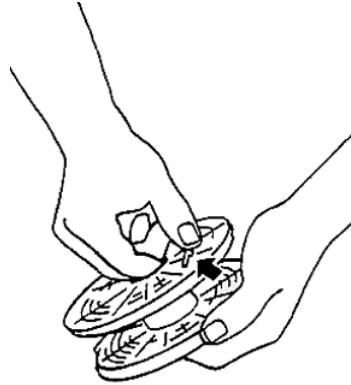
Place the right index finger on the film edge in the recess in the side of the reel. Turn the right reel flange clockwise to its stop. Lift off the right index finger and ...



... repeat with the left hand reel flange. Draw the film into the spiral groove by alternately rotating of the left and right flanges. Continue rotating until the film is drawn completely to the center of the reel.

The reel holds one 35mm film (36exp), one or two rolls of 120 film, or one 220 film. To load the second 120 film, press in the red film separator clip after loading the first film all the way to the center

of the reel. Then load a second film in the same manner as the first. For all other films except 120 ignore this step and proceed to the next step.



Still in total darkness, push the loaded reel(s) over the center core. The center core is a vital component for the light trap.



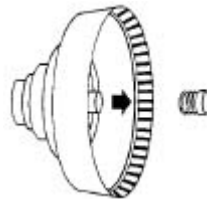
Still in the dark, place the reel(s) and center core in the tank. Push the lid down firmly with the palm of your hand, then press down sealing ring. The sealing ring will lock tightly when properly connected. Check to ensure the lid is properly connected by trying to turn it before continuing (it is possible to turn the lid even if it is closed properly -- it should not turn easily though).



5.2 Loading the sheet-film reel

Using the chart in Section 4.3 choose the proper tank for the amount of film you intend to process.

Check that the stopper used for print processing (#15042) is removed from the funnel.



With lights still on, open a clean, dry, tank by pulling up red sealing ring and removing lid.



Adjust the reel to the proper film size (4x5", 6x9cm or 9x12 cm) by holding one half in each hand and rotating the left spiral clockwise until it can be slid to the proper width for the film to be loaded.

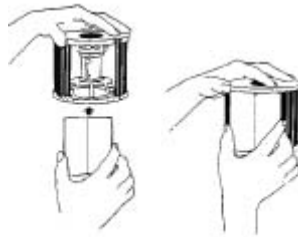


In Total Darkness:

Insert films into the grooves with the emulsion facing inward toward the center core. Film should be inserted as far as it will go. To avoid scratching film, always load the innermost grooves first, then the middle and finally the outer grooves.



After all sheets have been loaded, snap the retaining plates into each side of the reel. On each side of the reel, on both the top and bottom flanges, are three studs. The center stud is fit into the notch on the retaining plate and the two smaller studs remain behind the plate. These plates are necessary for even development of the film.



Still in total darkness, push the loaded reel(s) over the center tube. This is important to eliminate light leaks into the tank.

Still in the dark, place the reel(s) and center core in the tank. Push the lid down firmly with the palm of your hand, then press down sealing ring. The sealing ring will lock tightly when properly connected. Check to ensure the lid is properly connected by trying to turn it before continuing (it is possible to turn the lid even if it is closed properly -- it should not turn easily though).



(The #2508 loader and guide #2512 for 4x5" inch film are also available for loading the #2509N reel.)

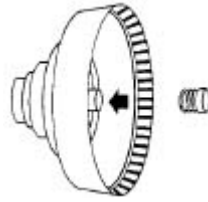
5.3 Loading paper

While the ATL-1500 is primarily a film processor, you can also use it to develop photographic paper. For 3½x5" or 4x5" paper use the small drum #4218. For 5x7" or 8x10" paper use the large drum #4219.

With lights still on, open tank by pulling up red sealing ring and removing lid.

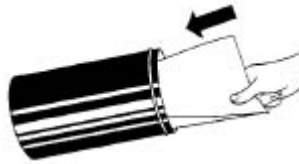


Place the Stopper #15042 into the funnel to prevent light leaks. (The center core is not used when processing prints.)



In Total Darkness:

To load the paper, place a 3½x5" or up to two 4x5" prints in the small drum with the 3½" or 4" width top to bottom. Place the 5x7" paper in the large drum with the 5" width top to bottom. Place the 8x10" paper in the large drum with the 8" width top to bottom. In each case the other dimension should be curled around the inside wall of the drum with emulsion side facing in.



Push down the lid with palm of your hand and then press down sealing ring.



6. Running a process

6.1 Preparation check list

6.2 Attaching the tank

6.3 Warming up

6.4 Interrupting the process

6.5 Ending the process

6.1 Preparation check list

The first step before running a program is to verify that all preparation items have been completed. (See Chapter 4 for preparation.) Use the following checklist as a reminder.

- Is the tempered rinse-water supply on?
- Is the incoming rinse-water temperature correct?
- Is the drain valve closed (#12)?
- Do the solution bottles (#18) contain the proper type and amount of chemistry?
- Are all the chemical bottle lids closed?
- Do the chemical and rinse-water collection containers have enough empty space?
- Is the correct program selected?
- Is the tank loaded correctly?

6.2 Attaching the tank

Snap the tank into place.



6.3 Warming up

1. Close top cover (#11) on ATL-1500.
2. Turn on the ATL-1500 by pressing the ON/OFF switch (#10).

3. The ATL-1500 will begin to fill with water automatically (unless a cleaning program selected).
4. The tank will begin to rotate immediately.
5. Once the operating temperature is reached (38°C or 24°C), the ATL-1500 will begin the program automatically. (This will take 5-25 minutes depending on chemical quantity, temperature of water bath, and temperature of chemicals.)
6. With B&W film and all print processes, the unit will **not** fill the trough with water if the temperature of the chemistry is above 24°C.

E-6 and C-41 Film Processes:

If the temperature of the chemical is below 36.0°C the water bath will heat to 41.0°C. When the chemistry reaches 36.5°C the water bath will cool to 38.0°C and maintain the temperature. This is to heat the chemicals more quickly. When the temperature of the chemicals is 37.5°C the process starts.

Note: The ATL-1500 will start if the chemistry is above 37.5°C. It could be 50.0°C and it will still start. It only senses the temperature of the chemicals is above 37.5°C. Do not fill the processor with overheated chemistry. We recommend 30.0°C for the fill-in chemistry. This allows the chemistry to temper and also enough time to temper a tank that has been placed on the machine.

B&W and All Print Processes:

These processes run at 24.0°C (75°F). Your processor will start these processes when it has heated chemicals to 24.0°C. It is important to note that these programs will run at any temperature above 24.0°C. Processing at too high a temperature may adversely effect results.

6.4 Interrupting the process

Opening the top cover of the ATL-1500 during a process will stop the process. When the top cover is closed, the process will restart where it left off. The top cover should not be opened when chemistry is being pumped or rinse water is running. (Pumping of chemistry or running of rinse water can only be determined by sound.)

6.5 Ending the process

When the process is completed the ATL-1500 will beep. At this time proceed with the following steps:

1. Turn power off with ON/OFF switch (#10).
2. Open top cover (#11).
3. Remove the tank from the processor by grasping it at the bottom and pulling up and toward you. The tank will make a snapping sound when it comes off the lift. This noise is normal.
4. Remove the tank lid by pulling up on the red ring and then lifting off the cap.
5. Remove the reel(s) and center core(s) from the tank and slide the reels off the center core(s). When processing prints, remove the print from the wall of the drum carefully.
6. When using #2509N Sheet-film reel, remove both retaining plates.
7. Remove the film from the reels by pulling the individual sheets from the reel.

8. Place the film in a stabilizer solution or wetting agent if required.
9. Hang film to dry. (JOBBO recommends the Mistral II dryer for this purpose.)
10. Refill the chemical bottles to continue processing or run a cleaning program (see section 7) if the machine will not be used again immediately.

Note: Stabilizers and wetting agents **should not be used** in the processor or on the reels. They are difficult to rinse off the tanks and reels, and they will create foaming while rotating. If you decide to use them in the processor against our recommendation, be sure to clean the processor, the tanks, and the reels thoroughly before the next run. Even a small buildup will hinder the loading of film on the reels and it may "carry over" and contaminate future

7. Cleaning program

7.1 When to run a cleaning program

7.2 Filling the bottles with water

7.3 Running the cleaning program

7.1 When to run a cleaning program

The ATL-1500 should be cleaned at the end of each processing session or when changing from one process to another. It is not necessary to run a cleaning program if you're repeating the same process you just ran (unless you've mixed new chemicals).

The cleaning program should be repeated three times when changing from one process to another to eliminate any chance of contamination.

7.2 Filling the bottles with water

The first step in running the cleaning program is filling all the bottles with water. This is accomplished by performing the following steps:

1. Remove rinse-water hose (#21) from the storage position.
2. Place nozzle of hose in bottle #1 and press the RINSE button (#7) until the bottle is full.
3. Repeat step 2 for all six bottles if you're running the 1-6 cleaning program, or for the first three bottles if you're running the 1-3 cleaning program.
4. Put the hose back into the storage position.
5. When using the portable pump #4212, the rinse-water hose does not operate. You'll need to fill the bottles with water manually.

7.3 Running the cleaning program

After filling all bottles with water perform the following steps:

1. Select one of the cleaning programs (#15 or #16) with the Program Selector Knob (#9).
2. Close all bottle lids (#18).
3. Confirm the rinse-water hose (#21) has been returned to the storage position.
4. Attach the large tank to the processor.
5. Close the top cover (#11).
6. Make sure there is sufficient space in the drain canisters to hold the water.
7. Press the ON/OFF Button (#10).
8. Wait for beep that signals the end of the process.

8. Troubleshooting

Fault Indicators

Indication - Cause - Remedy

Water bath does not heat up.

Water jacket not filled. Open water supply valve, or in case of external pump #4212, make sure pump is connected properly and placed into a container filled with water. Then manually fill the water jacket to the fill line. (See section 3.5.) The pump will not fill water jacket automatically.

Unit is running on battery backup. Check power supply and connections.

Thermal overload is tripped. See section 11.1 for reset instructions.

No LEDs lit.

ON/OFF Switch (#10) off. Press ON/OFF Button

No power to ATL-1500. Check plug, socket, and fuse or circuit breaker.

Internal PTC thrown. Turn off ATL-1500 for 5 minutes.

Bottles not empty after process is complete.

Bottle not air tight Replace bottle seal (part #07253)

Bottle was not closed before process was run. Close all bottles before closing the top cover to start a process.

Processor will not start.

Top cover is not closed. Switch off the processor, close the cover, wait 5 seconds, switch processor on.

If using the external pump the tempering bath may not be completely filled. Fill the water jacket manually with water until it reaches the level line. (See section 3.5.) The pump will not fill water jacket automatically.

Results vary between small and large tank/drums.

Tempering bath recirculation pump failure. Call JOBO Service.

Bleach remaining on print/film after process is completed.

Water not turned on. Turn on water supply to ATL-1500.

High-pitched continuous beep.

Lid not closed. Close lid.

9. Specific processing instructions

9.1 Introduction to processing

9.2 Processing process control strips

9.3 ATL-1500 programs

9.4 Calculating development times for B/W film

9.1 Introduction to processing

This chapter details the steps pre-programmed into the ATL-1500 for running specific processes. JOBO has made every reasonable effort to be sure that this information is accurate, however the various manufacturers can and do change their specifications for these processes. You should always confirm the processing procedure (and mixing instructions) by referencing the instructions packaged with the chemistry. Check for rotary-specific instructions.

Before processing valuable photo materials we strongly suggest that you become familiar and are satisfied with the quality of any process used!

The developer times listed are suggested starting points for proper processing. Due to a great many variables involved in any photo process, these times should only be considered approximately correct. For best results and personal preference, the development times may need to be adjusted. See section 4.7 for information on making adjustments.

Included with the information on the processes are bottle location numbers (from right to left). It is important to fill the proper chemical step into the properly numbered bottle for correct processing.

9.2 Processing process control strips

The use of the process control strips is not strictly necessary, however, their use is the best assurance of correct processing and is suggested for very critical commercial work.

Pre-exposed process control strips are available from Kodak and other manufacturers. Control strips can be processed in the AutoLab and compared against a strip pre-processed by the manufacturer. Variations between a control strip processed on the AutoLab, and the manufacturer's pre-processed strip will determine what adjustments (if any) need to be made to the process times or chemistry.

You must use a densitometer to make accurate evaluations of control strips. If readings are out of the chemistry manufacturer's specified range, refer to the chemistry manufacturer's process manual for corrective action(s). After adjustments are made, process another control strip.

Note 1: If you are unfamiliar with the use of a densitometer, see your local industrial photographic dealer.

Note 2: Process control strips are the most accurate system for ensuring that all the parts of the process are working to produce the expected final product. Judgment must be used, however, to ensure that the result is acceptable to the end-user. If you are processing for yourself, then you are the "judge and jury" of what is acceptable. When processing for others, having a process that is documented as standard or "in control" will alleviate potential problems with your customer and will help to determine what may have caused undesirable results in the customer's film. When the process is "in control", other non-processing related areas should be examined for possible cause.

9.3 ATL-1500 Programs

The ATL-1500 processor comes pre-programmed with 14 processes and two cleaning programs. Following are the pre-programmed times for each process:

PROGRAM #1 E-6 Standard Program

This program can be used with Tetenal E-6 6-Bath, Kodak E-6 Processing Chemistry and other compatible processes, such as Unicolor E-6 or Agfa AP44 to process E-6 compatible films.

Following is a brief description of each processing step.

Temperature: 38.0C.

Required rinse water quantity: approximately 11 liters

Process Step	Bottle	Time	Comment
---------------------	---------------	-------------	----------------

First Developer	1	6:30	
Rinse		2:00	
Reversal Bath	2	2:00	(See Note #1 at end of section.)
Color Developer	3	5:00	(See Note #2 at end of section.)
Conditioner	4	2:00	
Bleach Bath	5	6:00	(See Note #3 at end of section.)
Fix Bath	6	4:00	
Final Rinse		4:00	
Stabilizer Bath			(See Note #4 at end of section.)

PROGRAM #2 E-6 Push 1 Stop Program

This program can be used with Tetenal E-6 6-Bath, Kodak E-6 Processing Chemistry and other compatible processes, such as Unicolor E-6, Agfa AP44 to process E-6 compatible films. The times are for 1 stop "push" processing.

Following is a brief description of each processing step.

Temperature: 38.0C.

Required rinse water quantity: approximately 11 liters

Process Step	Bottle	Time	Comment
---------------------	---------------	-------------	----------------

First Developer	1	8:30	
Rinse		2:00	
Reversal Bath	2	2:00	(See Note #1 at end of section.)
Color Developer	3	5:00	(See Note #2 at end of section.)
Conditioner	4	2:00	
Bleach Bath	5	6:00	(See Note #3 at end of section.)
Fix Bath	6	4:00	
Final Rinse		4:00	
Stabilizer Bath			(See Note #4 at end of section.)

PROGRAM #3 E-6 Six Bath Pull 1 Stop Program

This program can be used with Tetenal E-6 6-Bath, Kodak E-6 Processing Chemistry, and other compatible processes, such as Unicolor E-6 or Agfa AP44 to process E-6 compatible films. The times are for 1 stop "pull" processing.

Following is a brief description of each processing step.

Temperature: 38.0C.

Required rinse water quantity: approximately 11 liters

Process Step Bottle Time Comment

First Developer	1	4:30	
Rinse		2:00	
Reversal Bath	2	2:00	(See Note #1 at end of section.)
Color Developer	3	5:00	(See Note #2 at end of section.)
Conditioner	4	2:00	
Bleach Bath	5	6:00	(See Note #3 at end of section.)
Fix Bath	6	4:00	
Final Rinse		4:00	
Stabilizer Bath			(See Note #4 at end of section.)

PROGRAM #4 E-6 Three Bath Standard Program

This program can be used with Tetenal E-6 3-Bath and other compatible products to process E-6 compatible films.

The following is a brief description of each processing step.

Temperature: 38.0C.

Required rinse water quantity: approximately 11 liters

Process Step Bottle Time Comment

First Developer	1	6:30	
Rinse		2:30	
Color Developer	2	6:00	(See Note #2 at end of section.)
Rinse		2:30	
Bleach/Fix Bath	3	6:00	(See Note #3 at end of section.)
Final Rinse		4:00	
Stabilizer Bath			(See Note #4 at end of section.)

PROGRAM #5 E-6 Three Bath Push 1 Stop Program

This program can be used with Tetenal E-6 3-Bath and other compatible products to process E-6 compatible films. The times are for 1 stop "push" processing.

The following is a brief description of each processing step.

Temperature: 38.0C.

Required rinse water quantity: approximately 11 liters

Process Step Bottle Time Comment

First Developer	1	8:30	
Rinse		2:30	
Color Developer	2	6:00	(See Note #2 at end of section.)

Rinse		2:30	
Bleach/Fix Bath	3	6:00	(See Note #3 at end of section.)
Final Rinse		4:00	
Stabilizer Bath			(See Note #4 at end of section.)

PROGRAM #6 C-41 Standard Program (Kodak Chemistry)

This program can be used with Kodak C-41 chemistry processing C-41 compatible films.

Following is a brief description of each processing step.

Temperature: 38.0C.

Required rinse water quantity: approximately 6 liters

Process Step	Bottle	Time	Comment
--------------	--------	------	---------

Color Developer	1	3:15	
Bleach Bath	2	6:00	
Rinse		1:00	
Fix Bath	3	6:00	
Final Rinse		4:00	
Stabilizer Bath			(Optional with some processes - see Note #4 at end of section.)

PROGRAM #7 C-41 Standard Program (Kodak Chemistry) 1 Stop Push

This program can be used with Kodak C-41 chemistry processing C-41 compatible films.

Following is a brief description of each processing step.

Temperature: 38.0C.

Required rinse water quantity: approximately 6 liters

Process Step	Bottle	Time	Comment
--------------	--------	------	---------

Color Developer	1	3:45	
Bleach Bath	2	6:00	
Rinse		1:00	
Fix Bath	3	6:00	
Final Rinse		4:00	
Stabilizer Bath			(Optional with some processes - see Note #4 at end of section.)

PROGRAM #8 C-41 (Two Bath Processes)

This program can be used with most Tetenal C-41 Kits, Beseler CN2, Unicolor K2 processing chemistry and other compatible two-step processes for processing C-41 compatible films.

The following is a brief description of each processing step.

Temperature: 38.0C.

Required rinse water quantity: approximately 6 liters

Process Step Bottle Time Comment

Color Developer	1	3:15	
Bleach/Fix Bath	2	8:00	
Final Rinse		4:00	
Stabilizer Bath			(Optional with some processes - see Note #4 at end of section.)

PROGRAM #9 Black and White Film 5 Minute Developer Program

This program can be used with B/W dilutions that require a developer time of 5 minutes at a 24.0°C processing temperature.

Following is a brief description of each processing step.

Temperature: 24.0°C or room temperature, whichever is higher.

Required rinse water quantity: approximately 10 liters

Process Step Bottle Time Comment

Pre-rinse		5:00	(See Note #5 at end of section.)
Developer	1	5:00	(See Note #6 at end of section.)
Stop Bath	2	1:00	
Fix Bath	3	6:00	Kodak Rapid Fixer, Tetenal SuperFix or equal
Final Rinse		4:00	

PROGRAM #10 Black and White Film 7 Minute Developer Program

This program can be used with B/W dilutions that require a developer time of 7 minutes at a 24.0°C processing temperature.

Following is a brief description of each processing step.

Temperature: 24.0°C or room temperature, whichever is higher

Required rinse water quantity: approximately 10 liters

Process Step Bottle Time Comment

Pre-rinse		5:00	(See Note #5 at end of section.)
Developer	1	7:00	(See Note #6 at end of section.)
Stop Bath	2	1:00	
Fix Bath	3	6:00	Kodak Rapid Fixer, Tetenal SuperFix or equal
Final Rinse		4:00	

PROGRAM #11 Black and White Film 9 Minute Developer Program

This program can be used with B/W dilutions that require a developer time of 9 minutes at a 24.0°C processing temperature.

Following is a brief description of each processing step.

Temperature: 24.0°C or room temperature, whichever is higher.

Required rinse water quantity: approximately 10 liters

Process Step Bottle Time Comment

Pre-rinse		5:00	(See Note #5 at end of section.)
Developer	1	9:00	(See Note #6 at end of section.)
Stop Bath	2	1:00	
Fix Bath	3	6:00	Kodak Rapid Fixer, Tetenal SuperFix or equal
Final Rinse		4:00	

PROGRAM #12 Black and White Film 11 Minute Developer Program

This program can be used with B/W dilutions that require a developer time of 11 minutes at a 24.0°C processing temperature.

Following is a brief description of each processing step.

Temperature: 24.0°C or room temperature, whichever is higher.

Required rinse water quantity: approximately 10 liters

Process Step Bottle Time Comment

Pre-rinse		5:00	(See Note #5 at end of section.)
Developer	1	11:00	(See Note #6 at end of section.)
Stop Bath	2	1:00	
Fix Bath	3	6:00	Kodak Rapid Fixer, Tetenal SuperFix or equal
Final Rinse		4:00	

PROGRAM #13 Black and White Film 14 Minute Developer Program

This program can be used with B/W dilutions that require a developer time of 14 minutes at a 24.0°C processing temperature.

The following is a brief description of each processing step.

Temperature: 24.0°C or room temperature, whichever is higher.

Required rinse water quantity: approximately 10 liters

Process Step Bottle Time Comment

Pre-rinse		5:00	(See Note #5 at end of section.)
Developer	1	14:00	(See Note #6 at end of section.)
Stop Bath	2	1:00	
Fix Bath	3	6:00	Kodak Rapid Fixer, Tetenal SuperFix or equal
Final Rinse		4:00	

PROGRAM #14 Mono RA-4

This program can be used to process RC RA-4 prints from color negatives. Tetenal Mono RA-4 or equivalent.

Following is a brief description of each processing step.

Temperature: 24.0°C

Required rinse water quantity: approximately 4 liters

Process Step Bottle Time

Developer	1	1:30
Stop bath	2	0:30
Fix Bath	3	2:00
Final Rinse		2:00

Note 1: Kodak recommends diluting their E-6 reversal bath to 60% of the working solution (i.e. 1.6 gal. for use from 1 gal. of normal working strength chemistry) when using a rotary processor.

Note 2: Hand processing of E-6 films normally would require a 6:00 minute color developer time. JOBO tests have shown that decreasing the E-6 color developer time from 6:00 to 5:00 minutes produces the best results with the ATL-1500.

Note 3: The bleach needs to be aerated to work effectively. Unlike developers which are degraded by too much oxygen, the bleach needs to be fully oxygenated. This is accomplished by making sure that air is introduced while mixing the bleach. This can be accomplished several ways, for example, mixing in a larger container than the volume of bleach and stirring or shaking (while capped) vigorously. On a large scale, air can be bubbled through the bleach with a pump.

Note 4: Stabilizer should always be used outside of the processor to avoid contaminating tanks and reels. Use a separate container for stabilizing film and remove the film from the reel before stabilizing. Stabilizer is very difficult to remove entirely from reels and tanks. If it is carried over into the next process, developing can be affected.

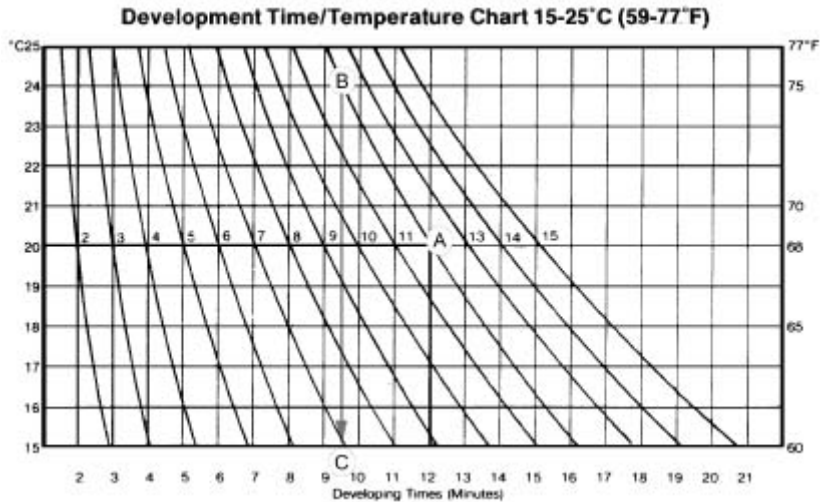
Note 5: JOBO tests have shown that B/W film processing in a rotary processor such as the ATL-1500 is most even and consistent when a 5 minute pre-wet is used.

Note 6: See Section 9.4 for information on processing B/W film at times other than those automatically programmed in the ATL-1500.

9.4 Calculating development times for B/W film

In the ATL-2300/2400/2500, the development time for black and white film processing is automatically calculated based on the actual temperatures. With the ATL-1500 you must use the following chart to determine the correct development time based on what the chemical manufacturer states. The reason you have to do this is that the ATL-1500 processes B/W at 24.0°C.

The chart below calculates the development time for the ATL-1500 assuming the chemical manufacturer states the development time at 20.0°C (vertical value) is 12:00 minutes (horizontal value). To determine the correct time at 24.0°C you first find the 24.0°C/12:00min value ("A"), then trace the nearest bent line up the chart to the left until it intersects 24.0°C (value "B"). Then, simply draw a line straight down until it intersects the minutes (value "C"). Based on this information, the correct development time is 9:30 at 24.0°C.



10. Cleaning & maintenance

10.1 Long-term storage

10.2 Cold-weather storage

10.4 Care of exterior of processor

10.5 Algae control

10.1 Long-term storage

If you don't plan to use the ATL-1500 within the next 24 hours, drain the trough completely and run a complete cleaning program (see section 7).

10.2 Cold-weather storage

If the ATL-1500 is going to be stored where it would be subject to freezing, the following precautions should be taken:

1. Drain the water bath by opening the drain valve.
 2. Close the valves on the water supply, remove and drain water inlet hoses.
 3. Remove and drain both drain hoses.
 4. Drain all rinse hoses.
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10.4 Care of exterior of processor

All exterior surfaces of the ATL-1500 processor are made of plastic. Periodic cleaning is recommended with a damp cloth and mild detergent solution (that does not contain chlorine). Do not use caustic, abrasive, or solvent cleaners.

10.5 Algae control

Do not add bleach or chlorine-based chemicals to the recirculating water bath to prevent algae build-up. Chlorine will cause the recirculating pump and heating element to deteriorate and eventually fail. The best method for preventing algae build-up is frequent changing of the water-bath water or by using Processor Clean II (Item #4135).

11. Service

11.1 Overload reset

11.1 Overload reset

The AutoLab ATL-1500 does not contain any replaceable fuses. In case of overload an internal circuit breaker will automatically switch off power to the unit. To reset the circuit breaker switch the ATL-1500 off with ON/OFF switch (#10) and wait a few minutes. The unit can then be switched back on. If the ATL-1500 continues to blow the circuit breaker, unplug the unit and contact JOBO service.