

BULLETIN # B013

HOW TO ACCESS AND REPLACE THE CAM WITH MAGNET

You will need:

- Standard blade screwdriver
- Phillips® #1 head screwdriver
- Needle nose pliers
- For the ATL-2+, 2000, and 2X00's the 3mm hex ball head driver or 3mm Allen key supplied with your processor (*JOBO Part #16227*)
- For ATL-2000's the 4mm hex call head driver or 4mm Allen key supplied with your processor(*JOBO Part #16159*)
- Petroleum jelly or better yet the JOBO Grease Syringe (*JOBO Part #95465*)

JOBO spare parts you will need for this procedure are:

- CAM with magnet (*JOBO Part #95199*)
- ATL-2+, 2000, and ATL-2X00's only: Seal Tape for electronics head top (*JOBO Part #70238*)

This bulletin has nine (9) parts:

If you own an ATL-1, direct your attention to parts #1, 2, and 9

If you own an ATL-2, direct your attention to parts #1, 2, 5, and 9

If you own an ALT-2+, direct your attention to parts #1, 3, 5, and 9

If you own an ATL-3, direct your attention to parts #1, 4, 5, 7, and 9

If you own an ATL-2000, direct your attention to parts #1, 3, 6, and 9

If you own an ATL-3000, direct your attention to parts #1, 4, 6, and 9

If you own an ATL-2X00, direct your attention to parts #1, 3, 6, 8, and 9

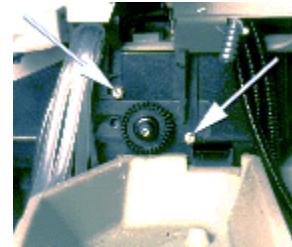
PART ONE

Part one applies to all processors.

1) Raise the Lift Arm up at least half way by using the keypad on your processor.

2) **Disconnect the main power cord from the electrical outlet!**

- 3) Remove the two (2) large standard screws located on the left hand side and the right hand side of the main cog gear.



NOTE: There are a series of washers and O-rings or just an O-ring (depending upon the age and ATL model) located under the heads of the screws and/or behind the lift arm supports (the plastic piece behind the heads of the screws). Use caution when removing the screws so the O-rings will be become torn. Also use caution when removing the screws so you do not lose the O-rings or washers by dropping them into the bottom of the trough.

- 4) Disconnect the first four (4) chemical hoses at the gray tubes in the bottles.



NOTE: If you own an ATL-3, 3000, 2300, 2400, or 2500 disconnect the first four (4) hoses from the front and rear chemical bottles.

- 5) Disconnect the first four (4) air lines from the bottles, keeping the black plastic 90° angle elbows attached to the hoses.



NOTE: If you own an ATL-3, 3000, 2300, 2400, or 2500 there is no need to disconnect the air lines.

PART TWO

Part two explains the removal of the ATL-1 and the ATL-2 chemical reclamation unit.

- 1) Remove the chemical reclamation unit by unscrewing the two thumb nuts located at the top of the reclaim unit. Slide the reclamation unit away from the processor and set it aside.
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PART THREE

Part three explains how to remove the ATL-2+, 2000, and 2X00's chemical reclamation plate unit.

1) Lift off and remove the cover for the chemical reclamation area and set it aside. Note: For some ATL-2 Pluses, you will have to remove four (4) Phillips® head screws before lifting off the cover.



2) Remove the screws that hold the reclamation plate in place.

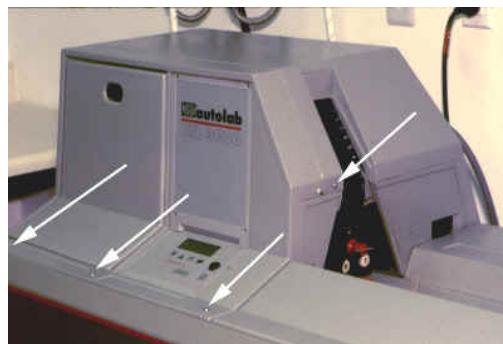
NOTE: There may be some washers located below the plate where the screws are inserted as well as below the head of the screw.

3) Push the chemical drain arm all the way back and lift up on the chemical reclamation plate just enough to prop it on the chemical drain arm. This will give you access to the bracket discussed in Part 7.

PART FOUR

Part four explains the removal of the gray cover (shroud) and the chemical reclamation unit on the ATL-3 and ATL-3000.

1) Remove the large gray cover (shroud) by removing the six (6) screws located around the perimeter of the cover. Three (3) are located along the front, two (2) in the rear near the plumbing, and one (1) located on the right side near the lift arm. Lift the cover off, being careful not to drag any hoses or wiring.



2) There are two types of chemical reclamation units for the ATL-3 and ATL-3000.

3) If you have a tabletop processor (model 4172 or 4272) or are not reclaiming chemistry in the 15 liter bottles, hold the chemical drain arm all the way back and lift the hinged reclamation unit up and out. Remove the reclamation bottles.

4) If you have a floor standing processor (model 4170, 4270, 4171, or 4271) and are reclaiming chemistry in the 15 liter bottles, remove each hose in the sink area by pulling or lifting it off of its receptacle. Hold the chemical drain arm toward the rear of the processor and at the same time, remove the reclamation unit by sliding it or lifting it upward off of its mounting bracket.

PART FIVE

Part five explains how to remove the ATL-2, 2+, and 3 fuse access panel and how to disconnect the electronic cables.

- 1) Remove the two (2) Phillips® screws located just below the display and keypad panel. If you own an ATL-2 Plus, remove the front bottle cover as well as the 3mm cap head screw and washer located near the left cover hinge.

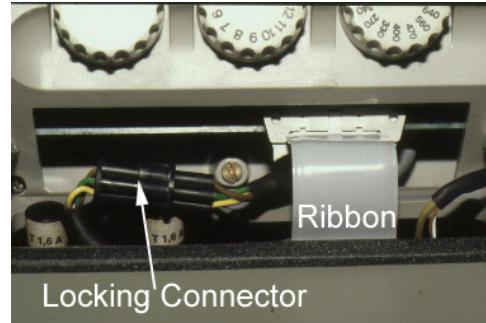


- 2) Pull the access panel forward being careful not to lose the rubber grommet(s) located on the right side of the panel.

- 3) Located behind the fuse access panel, you will find two (2) cables; one gray ribbon cable, and one round gray cable with a black locking connector.

- 4) Located at the top of the ribbon cable, you will see a hinge or tab on both sides of the connector. Simultaneously move both hinges out and to the side and slightly upward. This action will push the ribbon cable connector downward out of its receptacle.

- 5) Located on the round gray cable you will find a black locking connector. Pull the cable apart at the connector.



NOTE: This connection can be difficult to open! Do not use any tools to pry this connector apart!

PART SIX

Part six explains how to remove the ATL-2000, 3000, and 2X00's front electronics head cover and how to disconnect the electronic cables.

- **ATL-2000 owners begin at STEP A.**
- **ATL-3000 and 2X00 owners begin at STEP 1.**

A) Remove the front bottle cover by first removing the 4mm cap head screw located at the right side hinge point.

B) Slide the front bottle cover toward the right so you disengage the cover from the hinge pin (a holding-pin is protruding directly out of the right hand side of the front electronics head cover).

C) Remove the 3mm cap head screw and washer located near the left cover hinge.

- 1) Remove the four (4) Phillips® screws located on the front of the electronics head.

Please note the two upper screws are longer than the two lower screws.

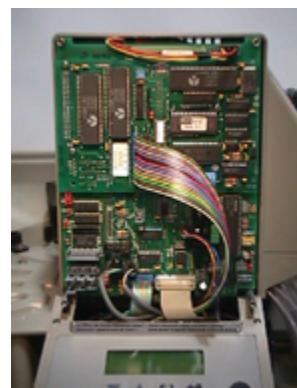
- 2) Remove the gray colored sealing tape (JOBO Part #70238) and remove the front cover of the electronics head.



WARNING! It is critical this tape is replaced before using your processor. If liquids are spilled on the top of the electronics head and the seal tape is not present, then severe damage to the electronic circuit boards will occur!

- 3) **IMPORTANT!** Label the location of the all wires plugged directly into the electronics head.

- 4) Disconnect all of the wires or cables from the front of the circuit boards. Some of the connectors are locking connectors and you must GENTLY press down on the release tabs.



The largest cable is a round gray cable on which you will find a black locking connector. It is located toward the bottom of the electronics and enters the lower motor unit. Find the black locking connector and pull the cable apart at the connector.

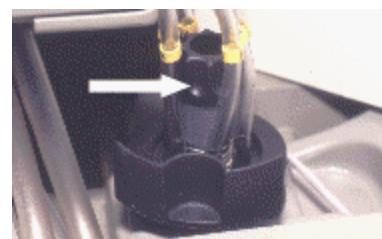
NOTE: This connection can be difficult to open! Do not use any tools to pry this connector apart!.

PART SEVEN

This section explains the removal of the ATL-3 and ATL-3000 front/back bottle air switch.

- 1) Located to the left of the #1 rear bottle, you will find the *front/back bottle air switch*. At the top of the front/back bottle air switch, you will see a large black thumb nut surrounded by 6 clear air hoses.

- 2) Disconnect the top half of the front/back bottle (air) switch by unscrewing the black thumb nut and lifting it upward to remove it.



NOTE1: The screw is approximately 1 1/2 inches long (so don't give up!).

NOTE2: A stainless steel washer is located inside of the top half of the front/back bottle (air) switch. *Be careful not to lose it!*

WARNING! Six (6) small rubber O-rings are located on the bottom of the top half of the front/back bottle (air) switch. *The stainless steel washer and rubber O-rings are critical to the operation of your processor!* Use care when removing the top half of the switch by not scraping the O-rings loose while removing it. We suggest you remove the O-rings and put them in a safe place (*The JOBO Part number for this O-ring is 34022*).

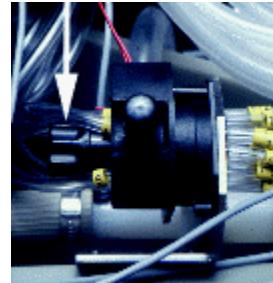
DO NOT remove the air hoses from the top half of the front/back bottle (air) switch!

NOTE3: When installing the top half of the front/back bottle (air) switch, lightly lubricate the O-rings to insure a good air seal. We recommend using our grease syringe (JOBO Part #95465).

PART EIGHT

This section explains the removal of the ATL-2300, 2400, and 2500 front/back bottle air switch.

- 1) Located to the left of the #1 front bottle, you will find the *front/back bottle air switch*. On the left hand side of the front/back bottle air switch, you will see a large black thumb nut surrounded by 6 clear air hoses.

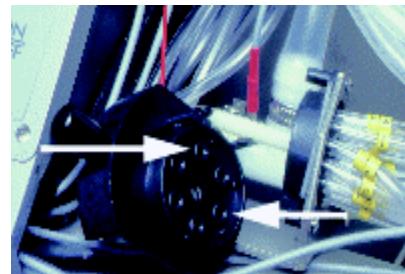


- 2) Disconnect the left half of the front/back bottle (air) switch by unscrewing the black thumb nut and sliding it leftward to remove.

NOTE1: The screw is approximately 1 1/2 inches long (so don't give up!).

NOTE2: A stainless steel washer is located inside of the left half of the front/back bottle (air) switch. *Be careful not to lose it!*

WARNING! Six (6) small rubber O-rings are located on the right side of the left half of the front/back bottle (air) switch. *The stainless steel washer and rubber O-rings are critical to the operation of your processor!* Use care when removing the left half of the switch by not scraping the O-rings loose while removing it. We suggest you remove the O-rings and put them in a safe place (*The JOBO Part number for this O-ring is 34022*).



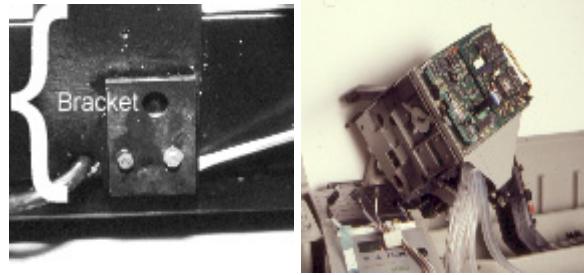
DO NOT remove the air hoses from the left half of the front/back bottle (air) switch!

NOTE3: When installing the left half of the front/back bottle (air) switch, lightly lubricate the O-rings to insure a good air seal. We recommend using our grease syringe (JOBO Part #95465).

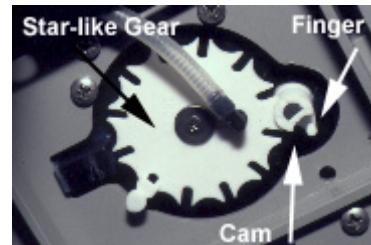
PART NINE

This section applies to all processors.

1) Located on the left side of the lower motor unit you will observe a bracket that wraps around the power cord and grips the motor unit. Pull the bracket away from the motor unit using your standard blade screwdriver to assist. Then lift the upper head upward and toward the right. Rest it in the trough.



2) Looking at the bottom surface of the upper head, you should observe a star-like gear. Located just above the star-like gear is the CAM. The CAM is press-fitted onto the shaft of the air distributor motor. You may observe the end of the air distributor motor shaft at the bottom center of the CAM. If you look more closely at the CAM, you should observe a 90° angle finger (or a protrusion on the side of the CAM).



OPERATIONAL POINT: As the air distributor motor shaft rotates, the CAM's 90° angle finger engages the indexed star-like gear which results in the turning of the star-like gear. The movement of the star-like gear yields two results. It directs the air flow from the air pump to the appropriate bottle being pumped and it moves the chemical drain arm to the appropriate bottle position for chemical reclamation. If the CAM's 90° angle finger is broken off, the star-like gear will not move. Therefore you have to replace the CAM.

3) Remove the broken CAM by prying it partially off the shaft by inserting a small screwdriver at the top of the CAM and pushing away from the unit. Then grip the CAM using needle nose pliers and pull it off the shaft the rest of the way.



4) Observe the hole in the CAM is D-shaped.

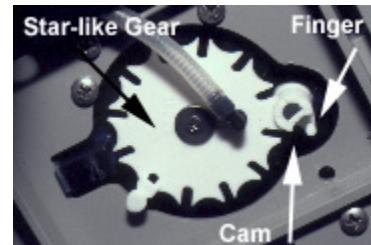
5) When installing the new CAM, be sure to line up the flat side of the "D" hole with the flat side of the motor shaft and press the CAM onto the shaft of the air distributor motor.

NOTE: The 90° angle CAM finger should be pointing out or toward you.

HINT: You may have to tap on the bottom of the CAM with a plastic hammer or the handle of your screwdriver to get it to slide into place.

6) Place the upper head onto the lower motor unit.

NOTE: Make sure the hose connecting to the indexed star-like gear will not get pinched!



7) Connect all of the ribbon cables and wires to the front of the upper head assembly that were disconnected earlier in this procedure.

Connect the main power cord.

8) Switch the processor ON.

For ATL-1, 2, 2+, and 3 processors, press RESET.

For ATL-2000, 3000, and 2X00 processors, allow the processor to complete its testing. **For all processors:** When your processor has completed resetting, the chemical drain arm should be resting over bottle #1's position of the reclamation device.

NOTE1: ATL-1's RESET position is between bottles #1 and #6.

NOTE2: If the drain arm is not in the correct position as described in STEP #8, then it is necessary to realign the chemical drain arm. To align the drain arm, please follow the procedure STEPS #9, #10, and #11. Otherwise, skip to STEP #12.

9) Locate the #1 Phillips® screw in the center of the rear portion of the chemical drain arm. The screw may be seen underneath the black ribbed hose.

10) Loosen the #1 Phillips® screw a few turns. Then lift the large gear (located just below the drain arm) off of the small gear (located just below large gear and to the rear) to enable you to reposition the large gear so the drain arm is located over bottle #1's position on the reclamation device.

NOTE: If you have an ATL-1, the drain arm should be positioned between bottles #1 and #6.

11) Tighten the screw so it is just snug.

WARNING! DO NOT OVER TIGHTEN THIS SCREW! IF YOU OVER TIGHTEN THIS SCREW, YOU WILL STRIP THE PLASTIC IN THE AIR DISTRIBUTOR PLATE!

After tightening the screw, loosen the screw approximately 1/8 to 1/4 turn. Then pull or push the drain arm back toward the rear of the processor and quickly let go. The drain arm should freely spring forward. If it does not freely spring forward, loosen the screw a little bit more.

12) Please enter the follow "**zero test program**" into your ATL:

Program Step	Time
LITER	1.00 See NOTE below
TEMP	Your Choice
PREWARM	0:00
PREL.RINSE	0:00
CHEMISTRY 1	0:00
RINSE 1	0:00
CHEMISTRY 2	0:00
RINSE 2	0:00
CHEMISTRY 3	0:00
RINSE 3	0:00

CHEMISTRY 4	0:00
RINSE 4	0:00
CHEMISTRY 5	0:00
RINSE 5	0:00
CHEMISTRY 6	0:00
RINSE 6	0:00

NOTE: In ATL-1, 2, 2+, and 3 processors, enter a "FULL" available chemical quantity amount into the LITER step of the program. In ATL-2000, 3000, and 2X00 processors, enter a "FULL" available chemical quantity amount into the REST: position in the operational LC Display. For example 1.00L, 1.50L, or 1.80L depending upon the ATL model.

13) Set the processor to pump 60ml.

In ATL-1, 2, 2+, and 3 processors, this is accomplished by setting the ml knob on the front display/keypad panel, then pressing RESET.

In ATL-2000, 3000, and 2X00 processors, this is accomplished by entering 60ml into the TRANSPORT VOL: position in the operational LC Display.

14) **For ATL-1, 2, 2+, and 3 processors:** Set the SET/RUN knob to RUN.

For all processors: START the program.

OPERATIONAL POINT: You should observe the chemical drain arm advancing through each chemical step 1-6 then return back to bottle #1 position and rest.

If your processor's drain arm moves as described above, then run a "wet test" as outlined in steps #15 through 21. If not, go to step 22.

15) Completely fill the chemical bottles with rinse water.

Then measure the temperature of the water currently in the bottles and ENTER this temperature value into the following step.

IMPORTANT! It is critical that the temperature of the water inside the bottles matches the temperature programmed into the processor.

16) Please enter the follow "**wet test program**" into your ATL:

Program Step	Time
LITER	1.00 See NOTE below
TEMP	Match this value to the temperature of the water inside the bottles.

PREWARM	0:00
PREL.RINSE	0:30
CHEMISTRY 1	0:10
RINSE 1	0:00
CHEMISTRY 2	0:10
RINSE 2	0:00
CHEMISTRY 3	0:10
RINSE 3	0:00
CHEMISTRY 4	0:10
RINSE 4	0:00
CHEMISTRY 5	0:10
RINSE 5	0:00
CHEMISTRY 6	0:10
RINSE 6	0:00

NOTE: In ATL-1, 2, 2+, and 3 processors, enter a "FULL" available chemical quantity amount into the LITER step of the program. In ATL-2000, 3000, and 2X00 processors, enter a "FULL" available chemical quantity amount into the REST: position in the operational LC Display. For example 1.00L, 1.50L, or 1.80L depending upon the ATL model.

17) Set the processor to pump 730ml.

In ATL-1, 2, 2+, and 3 processors, this is accomplished by setting the ml knob on the front display/keypad panel, then pressing RESET.

In ATL-2000, 3000, and 2X00 processors, this is accomplished by entering 60ml into the TRANSPORT VOL: position in the operational LC Display.

18) Place an empty processing tank onto the lift arm of the processor. The tank should be large enough to contain at least 2.5L of liquid.

19) **For ATL-1, 2, 2+, and 3 processors:** Set the SET/RUN knob to RUN.

For all processors: START the program.

OPERATIONAL POINT 1: After starting the program, allow the processor to "auto-start" by allowing the chemical and water bath temperature to equalize.

OPERATIONAL POINT 2: After the "wet test program" has started individually collect or reclaim all chemical and rinse water.

20) Using a 1L graduate, measure the collected quantities.

OPERATIONAL POINT 1: If the collected *chemical* amount is **between** -5% to +10% of the volume requested (694ml to 803ml for pumping 730ml), then the pumping quantities are within the acceptable pumping tolerance.

OPERATIONAL POINT 2: If the collected *chemical* amount is **lower or higher** than -5% to +10% of the volume requested, then an adjustment must be made.

In ATL-1, 2, 2+, and 3 processors, adjust the Pumping Quantity Diode PCB. See the appropriate Service Manual for details.

In the ATL-2000, 3000, and 2X00 processors, adjust the Pumping Quantity percentage in the SERVICE MENU. See the appropriate Service Manual for details.

OPERATIONAL POINT 3: If your collected *rinse* amount is **greater than** 1L or 1000ml, then the rinse water quantity is sufficient.

21) If your processor does not pass both the "zero test program" or the "wet test program", then please contact our Service Department for assistance.

22) If your processor does pass both the "zero test program" or the "wet test program", then please reassemble your processor.