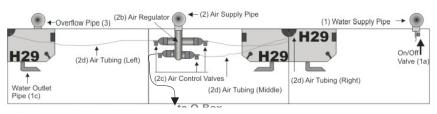
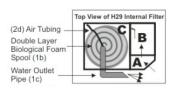
F2000 FRESHWATER FISH UNIT





F2000 Filter Operation

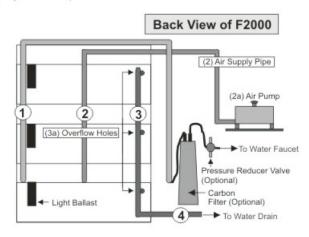
Air is supplied by an air pump (2a) or blower which is centrally located. Air goes through the air supply pipe (2) and into the air regulator (2b) (one per row of 3 tanks). The water flow is adjusted using the air control valves (2c). The air flows through the air tubing (2d) into the water outlet pipe thereby forcing water into the filter from all levels of the aquarium. Water first enters the heater chamber (A). A heater can be housed here providing optimal water contact for a stable temperature. The water then enters the media chamber (B) near the top, traveling downward. In this chamber carbon or other media may be placed. Always use a carbon box (optional) or nylon filter bags to hold the media used. The water then exits at the bottom of the media chamber into the bio-filter (C). This chamber houses a double layer biological foam spool(1b). Bacteria grows here to remove the waste. The water is then returned into the tank through the water outlet pipe (1c).

Cleaning

The DAS filters are designed to keep maintenance to an absolute minimum. This enables the microbial flora to mature and develop to their full potential. Every 6 months check the **foam spool (1b)** for excessive waste. Remove the **water outlet pipe set (1c)** (no need to turn off the Air Pump) and pull the **spool (1b)** out of the filter box. Place the spools into a bucket with water from the aquarium. Never use chlorine water! Squeeze the spool and rub off any layer of debris. Never over clean, you may lose important bacteria! Replace spool and put the **water outlet pipe set (1c)** back in place.

F2000 Fill System

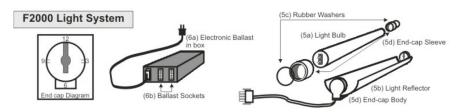
Due to evaporation and fish sales, the addition of water is always needed. The Shop Units are equipped with a water supply pipe (1). Each row is filled by using an adjustable on/off valve (1a see top view of F2000 above). When a tank fills completely, it will automatically overflow through the overflow holes (3a) into the overflow (3) and drain pipes (4) and into a drain. When all tanks are filled, shut off water supply. We recommend hooking up a carbon filter to your water supply. A pressure reducer valve is needed to ensure the water pressure is set between 10-20 psi.



*_Warning before working on light fixtures, always unplug from power source. F2000 Shop Unit Light

The F2000 Light System consists of 2 light bulbs (5a), 2 reflectors with end-caps (5b), and an electronic plug-in ballast (6a). The reflector with the waterproof end-caps mounted to it, protects the bulbs from humidity and splashing of water. When sealed properly, the 2 rubber washers (5c) prevent moisture from damaging the light. The light ballast is electronic, running cooler and more efficient than most other ballasts. The ballasts hang on the back of the unit. To run simply plug light cord into the ballast socket (6b) and plug ballast into an electric outlet or timer. (Timers are recommended)

To change light bulb (5a), unscrew end-cap sleeves (5d) and slide them towards the middle of the bulb, rotate bulb to 12 o'clock position (see end cap diagram above) and lift out. Put the end caps back around the middle of the new bulb, slide the new bulb into the end cap bodies. Turn the bulb to either 3 or 9 o'clock position (see end cap diagram) Screw end caps back onto the end cap body. Make sure rubber washers (5c) are in place in the end-cap body(5d).



MAINTENANCE SCHEDULE

D.A.S. Recommends the following maintenance schedule for optimum operation of our units:

F2000 FRESHWATER FISH UNITS

DAILY:

Feed fish 3 times a day using floating pellets which will sink after a few seconds.

Remove dead fish if any and or free floating plant leaves.

Verify that all filters are operating.

WEEKLY:

Remove algae from interiors of tanks. ONLY use glass approved cleaning pads, any other products may scratch the glass.

Wipe down exterior of units with water and vinegar mixture.

Never use razor blades when cleaning as this may cause leaks or scratch the glass.

MONTHLY:

Clean gravel by gently stirring it in each tank, the floating debris will be collected by the filter. Check fill and air valves for clogging. If clogging occurs simply clean it with a toothpick.

F2000 Freshwater **FILL DRAIN AIR** TO CENTRAL AIRPUMP ТЪ **DLF Filter Spool** Heater (6) Locations in Filter Boxes Χ F2000 Χ Χ **PIPESET**

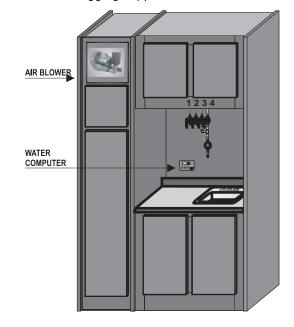
CONTROL STATION

The D.A.S. **Control Station** houses the **Air Blower**, it provides access to the **Water Supply** and doubles as a **Customer Service** area for bagging with **Storage** areas for the bagging supplies.



AIR BLOWER MAINTENANCE

Air Blowers are simple to operate. They contain only one moving part: a dynamically balanced impeller that is attached directly to the motor shaft. The rotating impeller doesn't touch a thing, so there's no wear, no vibration, no seals, no lubrication, and no annual maintenance. Just wash the inlet air filters as needed by "swishing" it with some soapy water. Gently rinse and shake out excess water. DO NOT scrub or use high pressure air. Filter may be re-installed when wet. Motor bearings should be replaced after three years.





WATER COMPUTER / TIMER

See instruction page # () for operating instructions

EXAMPLE of 3 UNIT SET-UP:

CONTROL	FRESH	FRESH	FRESH
STATION	1	2	3

WATER SUPPLY VALVE OPERATION:

Valve 1 - FRESH 1 Valve 2 - FRESH 2 Valve 3 - FRESH 3



Q - BOX

Fish will be treated in D.A.S. Q-Boxes (Quarantine Box). The Q-Box is designed to hang on the front of the Fish Unit to quarantine the fish that need treatment on the spot. The boxes are filled with water from the units, either 2, 4, or 6 gallons are needed depending on the amount and size of the fish needing treatment. The filters are not affected by the water removed plus the water will be replaced by the auto-fill system. The Q-Box has indicators for the 3 levels making it easy to dose the right amount of medicine. If needed, the box may then be taken to an area out of the public eye and hung on holders on a wall provided by D.A.S. with air-hoses and air-stones supplying the oxygen. The fish are then left in the boxes 12 to 24 hours or until treatment is completed. After treatment the Q-Box may be taken back to the units where the fish are removed with a fish net and returned to their tanks, the medicated water needs to be discarded.



WATER COMPUTER / TIMER INSTRUCTIONS

Install the Batteries

The Timer requires two AA batteries to maintain the time, date, and programs in case of AC power loss. In a typical installation, fully charged batteries should provide sufficient power for approximately three years of operation. Remove the terminal cover. Insert two AA batteries into the battery compartment. Return the terminal cover to its closed position. Weak or missing batteries can cause the time and date to be erased after a power failure.

Set the Time of Day and Date

If this is the first time the Timer has been programmed, you should press the small recessed button labeled RESET. Pressing RESET does not affect the factory installed fail-safe program. Turn the rotary dial to the TIME/DATE position.12:00 AM will appear in the display with three arrows pointing tothe year, month, and day. Use the + and - keys to set the correct time of day. When the correct time of day is reached, press the ENTER key to lock in the time. To increase or decrease more rapidly, hold down either the + or -keys until the display goes into rapid advance mode. A blinking cursor will appear below the arrow for the year, month, and date when programming. Use the + and - keys to set the correct year, then press ENTER. Use the + and - keys to set the correct date, then press ENTER. Caution: If a watering schedule is not entered into the Timer, the factory installed fail-safe program will turn on each station every day for 10 minutes. To avoid accidental valve activation, either turn the rotary dial to OFF or enter a watering schedule.

Programming

The Timer has two programs you can setup to control a variety of watering schedules. Depending on your needs, you can use either orboth programs.

Enter Watering Schedule in Any Order

You have the option of entering your watering schedule in whatever order you like. This feature makes it very easy to review and change your watering schedule. Your settings can be changed at any time while you're setting up the initial schedule or even after years of operation.

Start Times for Program A or B

Note: A start time is the time of day that the program begins watering the first station, and all other stations in the program will then follow in sequence. There are not separate start times for each station. Start times do not correspond to specificstations, but to programs (A or B). If you enter more than one start time, all stations in the specified program will water again (in sequence). The way you set the cycle start time is the same for both programs. Turn the rotary dial to the cycle start times position in the program that you want to set. The display will show an A or B depending on which program you have selected. The display will show — : — and a blinking cursor in cycle start 1 location. Set the time you want to begin watering for start time 1 using the+ or – keys, then press the ENTER. Rey. The display will advance to START 2. For additional start times, simply repeat this procedure by using the + and – keys to enter the time and then press ENTER. Remember, Each start time will activate all stations that are set to water in the specified program. There are not separate start times for each station. Start times do not correspond to specific stations. Up to four start times can be entered per program (A or B).

Water Duration for Program A or B

Note: Both programs require watering durations to be programmed. Turn the rotary dial to **zone duration** position in either the A or B program. The display will show which program you have selected with an "A" or "B" and the - - cursor blinking at station "1". You can set the watering duration from 1 to 99 minutes. Press and hold the + key to advance the number of minutes, or use the - key to go in reverse, then press **enter**. When the minutes are set, "A" or "B" will appear over station 1 and the cursor will advance to station 2 and begin blinking. Simply repeat these steps to set watering durations for all zones on this program To skip a station, press the **next** key. To erase previously programmed watering durations, press the **clear** key.

Assigning Watering Days for Program A

Turn the rotary dial to DAY OF WEEK in program A. The display will show an "A" and the cursor will blink under the days of week Monday, Tuesday, Wednesday, etc.

Press enter to activate watering on Monday. An arrow appears under M and the cursor will advance to Tuesday ("T"), press enter to activate watering on this day.

Repeat these steps for all days of the week. To skip a day, press NEXT. To delete a previously entered day, press clear If you want to water every second day, press the NEXT key to advance the cursor to "2nd", then press enter. Note: If you choose to water every 2nd day, you cannot set specific days of the week for watering

Assigning Watering Intervals for Program B

Program B is used to water at specific intervals between days (1 to 28), or on odd or even calender dates. The Timer has a leap-year compensator and will ensure conformance to the odd and even schedule through the year 2100. Turn the rotary dial to watering interval. The cursor will blink to the left of the word interval. Press and hold the + or - keys to select the number of days between watering. *Example:* If you want to water once every 10 days, set the interval at 10. To activate the watering interval, press enter. *Note:* If an interval of "3" is entered today, the Timer will water for the first time today, and then again every "3" days. To select odd or even day watering, press next. The cursor will move to either the odd or even setting, then press enter. To erase a schedule, press clear. To enter a new schedule, press next.

Reviewing and Changing Your Program

The Timer lets you easily review a complete watering plan. For example, to review Program-A watering start times, simply turn the rotary dial to the CYCLE START TIMES position in Program-A and check the times that have been entered. Using the NEXT key, you can advance through the schedule without fear of disturbing any programming. If you want to change the start times, watering days, or interval, simply follow the directions for that program. After reviewing or changing a watering schedule, remember to turn the rotary dial back to AUTO.

Ready for Automatic Operation

After programming is complete, turn the rotary dial to Auto The Timer is now fully programmed and ready to use in the automatic mode. In automatic mode, each program will operate sequentially, starting with Program-A.

Semi-Automatic & Manual Operation

The Timer has the ability to override the automatic program without disturbing the preset program.

Using the Semi-Automatic Mode

(All stations cycle once both A & B programs) Turn the rotary dial to Auto, then press the MANUAL key. The display will show "AB", "MANUAL", and "ALL" will be blinking This indicates all stations will semi-automatically water for their assigned durations in sequence. To activate the assigned water durations in the A and B programs for each station, press enter. Note: Water durations assigned to station 1 in program A will water first, then move to station 1 in program B before advancing to the second station and will continue alternating. Only those stations assigned a watering duration will water when using the manual or semi-automatic mode (All stations cycle once, A program only) To activate stations assigned watering duration for the A program only, press the MANUAL key, followed by the Next key. This will activate stations with assigned watering durations for the B program only, press the MANUAL key, followed by pressing the Next key two distinct times. This will activate only those stations with assigned watering durations in the B program only. To initiate this semi-automatic watering, press enter.

Using Manual Operation

The manual operation mode allows you to set durations in any of the stations from 1 to 99 minutes. Turn the rotary dial to Auto. Press the MANUAL key. Then press NEXT three times. The display will show a blinking cursor on station 1 along with To set the number of minutes for watering duration, press and hold the + key to advance to desired number of watering minutes. Use the - key to go in reverse. Press enter to begin watering. To skip a station, press NEXT until the cursor is blinking over the station number you wish to program. Example: To set station 3 for five minutes, press the MANUAL key; then press the NEXT key five times to select the manual operation mode and advance to watering for station 3; using the + or - key, set the manual watering duration to five minutes; then press enter Note: After the MANUAL key has been pushed, if a selection is not made within 60 seconds the display returns to the time of day. To halt or discontinue semi-automatic or manual watering, press the CLEAR key once. The Timer will revert to your original automatic watering plan.

Complete System Shut Down

To shut the system down, turn the rotary dial to the off position. The Timer remains programmed but will not water.