U.S. Fish and Wildlife Service
Marquette Biological Station
3090 Wright Street
Marquette, Michigan 49855
U.S.A.

and

U.S. Fish and Wildlife Service
Ludington Biological Station
5050 Commerce Drive
Ludington, Michigan 49431
U.S.A.

and

Fisheries and Oceans Canada
Sea Lamprey Control Centre
1219 Queen Street East
Sault Ste. Marie, Ontario P6A 2E5
Canada

INSTRUMENT OPERATING PROCEDURE

INSTRUMENT:

Spectrophotometer

MODEL:

Genesys 30

MANUFACTURER:

Thermo Electron Corporation

PRECAUTIONS:

POTENTIAL INTERFERENCES

Suspended particulate matter in a sample produces an increased absorbance value.

SAFETY

No special safety procedures are required.

PROCEDURE:

I. Installation

A. Place unit on a flat, even surface away from sources of electrical interference.

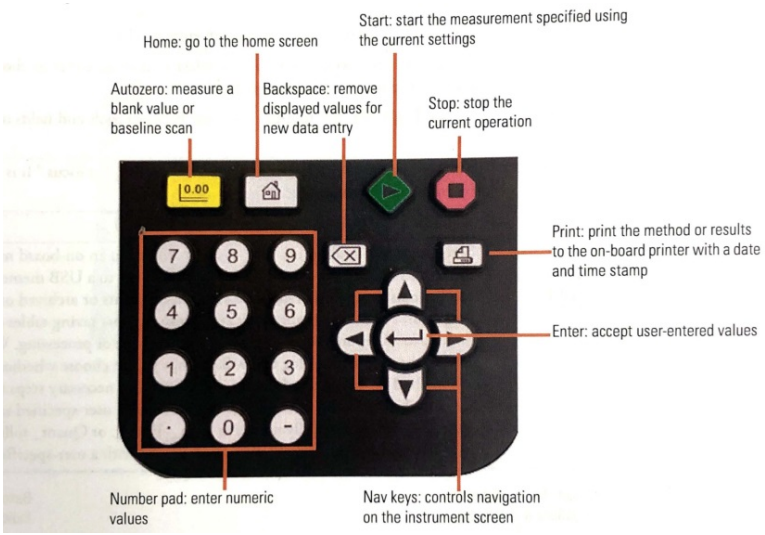
B. Connect the female end of the power cord into the A/C power connector on the right side of the instrument, and then plug the power cord into a power outlet.

C. *Check that the cell holder is empty before turning on the instrument*. Turn the *power* switch to **ON** (located next to the A/C power connector).

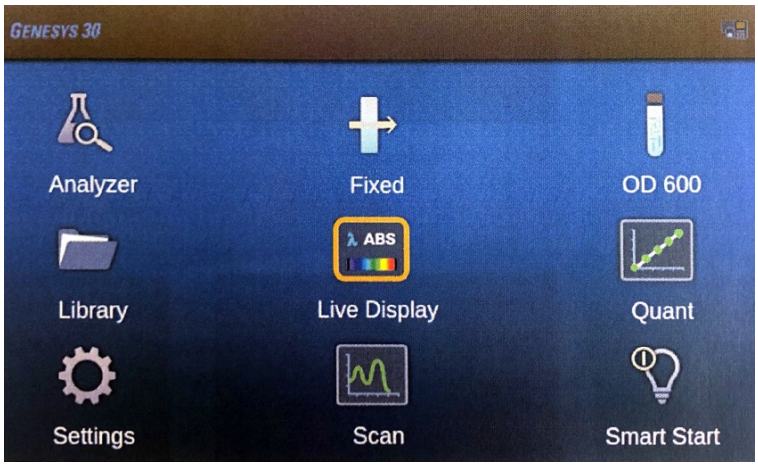
D. A power-on, self-check sequence begins automatically. The sequence takes about one minute to complete. The instrument must be allowed 30 minutes to warm up before use.

II. Keypad /Home Screen/Live Display

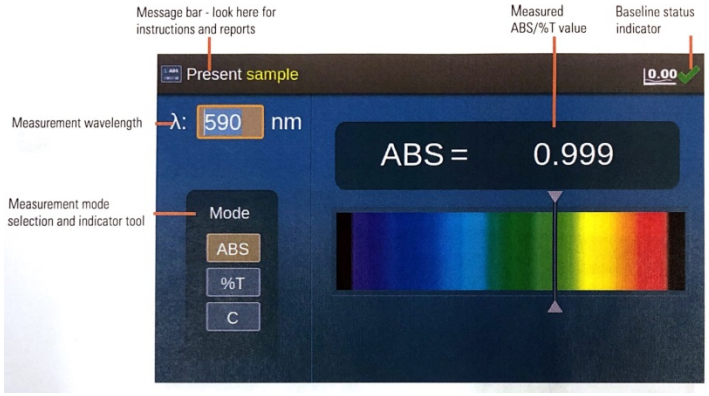
Keypad



Home Screen



Live Display



III. Operation

A. Use the Nav arrow keys to select Live Display; press the enter key.

B. Set wavelength to 395 nm using numeric keypad. Set mode to ABS using the Nav keys.

C. Insert a blank and close the sample door. Position the cuvette so a clear wall is facing the direction of the light path, frosted side facing forward.

D. Press the yellow Autozero 0.00 button to set the blank to 0 A.

E. Match cuvettes that will be used in analysis. Fill a second cuvette with deionized water, wipe dry, and place in the cuvette holder. Close the sample compartment.

F. The display will indicate the sample absorbance. If the display is $\pm \leq 0.002$ units the cuvettes are matched suitably for analysis. If the difference is ≥ 0.002 units, repeat the process with additional cuvettes until a suitable match is found.

G. Reinsert the blank and press **Autozero 0.0.** The message bar at the top of the screen will show Present sample at the top left and 0.00√ at the top right. The message bar will show

Present blank and press 0.00 and 0.00 **X** when it is not zeroed.

H. Fill the matched cuvette with filtered, buffered standard and replace the blank cuvette in the cuvette holder.

I. The absorbance of the standard will be displayed on the LCD. The instrument takes a new measurement every two (2) seconds. The value on the screen flashes to indicate the measurement is complete.

J. Conduct analyses for TFM according to TOP:018.x.

IV. Documentation

A. An instrument log book is assigned to each spectrophotometer (Attachment).

B. Each day of operation of the spectrophotometer is documented in the book.

1. Record the date, time, operator identity, and stream treatment during which the analyses will be conducted.

2. Record the identity of the set of pre-packaged TFM standards.

3. Absorbencies of the standards used for analysis are recorded.

4. The slope of the response curve is calculated and recorded.

5. The absorbance of a check standard is measured periodically during the day to confirm that instrument response has not changed this measurement is recorded.

MAINTENANCE:

I. Routine care

A. Do not use or store the instrument in a corrosive environment.

B. Gently wipe the outside of the instrument with a soft cloth to remove any dust or spills. Water, isopropyl alcohol and other common laboratory cleaning agents may be used if necessary.

C. Clean up spills immediately to prevent or minimize damage to the instrument.

D. Use water, isopropyl alcohol or other common laboratory cleaning agents to clean the keyboard. It is recommended that you clean spills off the keyboard as soon as they occur.

II. Changing the Halogen lamp.

A. Follow instructions on page 38 of the operating instruction/maintenance manual to change the lamp.

B. The lamp source lifetime is approximately 1000 hours. .

C. Lamp hour information obtained by pressing Settings on the Home Screen and selecting

About (i). Reset the counter to zero after changing lamp.

REFERENCES:

Genesys 30 spectrophotometer instruction/maintenance manual.

This procedure has been reviewed and approved by the undersigned representatives of the U.S. Fish and Wildlife Service and Fisheries and Oceans Canada.

REVIEWED/APPROVED Jessica M. Barber Digitally signed by JESSICA BARBER Date: 2020.03.10 11:12:57 -04'00' DATE_____

Field Supervisor (U.S.)

REVIEWED/APPROVED Luke Shivers DATE 05MAR2020

Program Manager (Canada)