



WALTER
Surface Technologies

BIO-CIRCLE™

Bioremediation Parts Cleaning Systems
Model IO-400



**READ CAREFULLY BEFORE USING
THIS UNIT**

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SAFETY INSTRUCTIONS

WALTER BIO-CIRCLE™ Parts Cleaning Systems are produced in accordance with applicable standards governing the manufacture, performance and safety of industrial products.

WARNING: Before using this machine, read all safety and operating instructions carefully and save this owner's manual for future reference.

When using this parts cleaning system, basic safety precautions should always be observed to reduce the risk of fire, electric shock and personal injury, including the following:

1. Read this owner's manual to familiarize yourself with the unit's operation, its particular features, applications and limitations.
2. Parts that are damaged or otherwise defective should be repaired or replaced.
3. Adequate ventilation should be provided when operating this machine. Keep work areas clean and well lit. A cluttered environment invites accidents.
4. Keep children and other persons at a safe distance from the work. Do not let unqualified persons handle this machine.
5. Do not contaminate the cleaning solution with any flammable or combustible substances such as gasoline, alcohol, mineral spirits, solvents etc. Drain parts to be cleaned of any flammable or combustible substances before placing them into cleaning sink. Even small quantities can create a dangerous fire hazard.
6. The heater and pump must always be immersed. Failure to keep the solution at the proper level can result in a burned-out pump and heater thereby creating a potential fire hazard. To help prevent this, the machine is equipped with a low liquid level sensor that will shut off both pump and heater.
7. **CAUTION:** Cleaning solutions may be irritating to skin and eyes. While working, always wear appropriate gloves and approved safety goggles.

First aid: If cleaning solution is splashed on clothing, change promptly. Thoroughly wash any body areas that have been in contact with the solution. Saturated clothing must not remain in contact with skin.

Eye contact: Flush with water for 15 minutes, lifting eyelid often. See a physician if required.

Ingestion: Rinse mouth and drink plenty of water. See a physician if required.

Please refer to WALTER MSDS No.: L-78E for complete safety data information.

8. This unit is equipped with a 3-conductor power cord and 3-prong grounding cap. It must be connected to a correspondingly grounded power outlet to prevent electric shock hazard.
9. Should you encounter any problems within the first year, contact your local distributor or Walter representative.

INTRODUCTION

Your WALTER **BIO-CIRCLE™** Parts Cleaning System is precision built to meet the highest industrial standards. For maximum performance and longest life, follow the operating instructions and maintenance procedures outlined in this manual.



This tool is CSA certified.



It is supplied with a 3-conductor power cord and a 3-prong grounded cap. It must be connected to a grounded receptacle.

To maintain safety features, do not use a drill to affix nameplates or the like. Self-adhesive labels may be used for this purpose.

VOLTAGE

Before connecting this unit, check that the voltage shown on the rating plate is the same as that of the power source. Operating this unit on a voltage other than specified on its rating plate may result in personal injury to the user and damage to the unit.

EXTENSION CORD

The use of an extension cord is not recommended, however if one must be used, use one that is heavy enough for the power requirement of the unit. Extension cords of inadequate wire size cause a serious drop in voltage and possible electrical component damage.

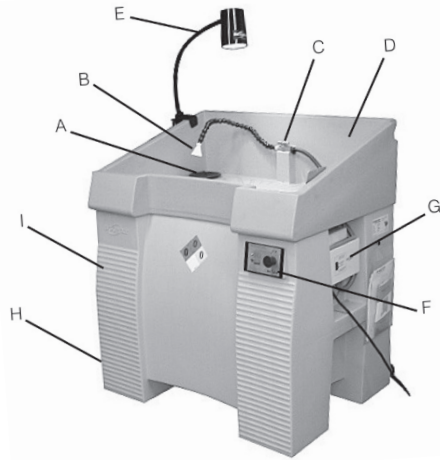
To limit line voltage drop to a safe level, refer to the following table:

Length in meters	8	15	23	30
Length in feet	25	50	75	100
Wire size AWG	14	14	12	10

Note: Extension cords that are used outdoors must be approved for outdoor use.

MODEL ILLUSTRATION

- A) Sediment trap
- B) Nozzle
- C) 3-way valve
- D) Sink
- E) Optional lamp
- F) Control panel
- G) Power switch
- H) Drain valve
- I) Filter



AERATION

The air pump should be heard at all times when the machine is under power. This built-in aeration feature is vital to the high-quality performance of the bioremediation process.

SOLUTION TEMPERATURE

The temperature control is factory set to maintain the solution at $41^{\circ}\text{C} \pm 1^{\circ}$ (106°F). At this temperature the bioremediation process is at its most efficient level, cleaning is faster and operator comfort is at its best.

START UP INSTRUCTIONS

Please be sure to read and observe, the “SAFETY INSTRUCTIONS” at the beginning of this manual.

1. Remove the **BIO-CIRCLE™** Parts Cleaning System from its box and check for any shipping damage. Should any be detected, **DO NOT** connect the machine but report the damage to the transport carrier and to J. Walter Co. Ltd. The original packaging must be retained.
2. Remove all packaging material and ensure drain (H) is closed. Place unit on a smooth level surface away from exposure to direct sunlight. Use only genuine Walter **Bio-Circle L™** cleaning solution (55-A 007, 20 litres). Fill to normal operating capacity of 100 litres (26.4 gallons US).

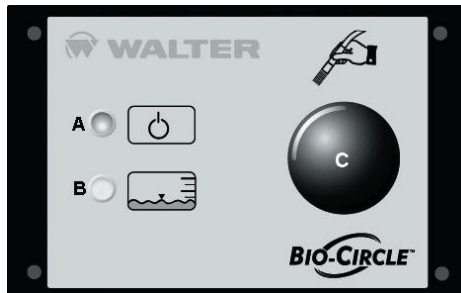
Note: Fill unit slowly to prevent splashing and excessive foaming of Bio-Circle L liquid.

3. Plug power cord into properly grounded 3-prong, 120V, 60Hz, outlet.
4. Turn power switch (G) located on control box ON.
5. Allow heater to warm **Bio-Circle L™** solution to working temperature for optimal cleaning efficiency. This will take approximately 2 hours with a liquid that is at 20°C / 68°F. Periodically the heater will turn itself ON to maintain the proper working temperature.

Note: Except for the fluid pump, the machine will restart automatically after a power interruption, provided that the power switch (G) located on the control box is in the ON position.

CONTROL PANEL (F)

- A) Main power ON indicator light
- B) Fluid level indicator light, low level when flashing
- C) Fluid pump ON/OFF switch



OPERATING INSTRUCTIONS

The **BIO-CIRCLE™** Parts Cleaning System is designed for the removal and bioremediating oil and grease from ferrous and non-ferrous parts and other washable surfaces. It is NOT recommended for cleaning glue, paint and other non-biodegradable substances.

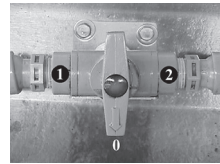
1. Place parts to be cleaned into sink (D). Maximum load capacity is 200 kg (440 lbs). Do not plug drain to fill cleaning sink. Use optional Parts Washing Basket (55-B 004) to contain small parts. **Any parts susceptible to oxidation should not be left sitting in the sink.**

2. Position Control Valve (C) toward desired direction of solution flow.

Position 0: Solution flow-through is cut off.

Position 1: Solution flow is directed to cleaning nozzle (B).

Position 2: Solution flow is directed to multijet cleaning brush.

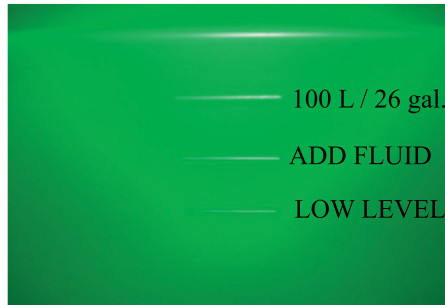


3. Turn the fluid pump ON using ON/OFF switch (G). Soak the sink, parts to be cleaned and any brushes prior to cleaning; this will prevent grease and dirt from sticking to the surfaces. The **Bio-Circle™** machine is supplied with an efficient multijet flow-through brush, which is well suited for most cleaning applications. However, for best results, when cleaning smaller or intricate parts and small openings, it is recommended to use the cleaning nozzle and brushes that conform to the part being cleaned.

Notes:

1. **A built-in, non-adjustable timer will turn off the fluid pump 30 minutes after pressing the ON/OFF switch (G). This feature will extend the service life of the fluid pump and reduce fluid loss through evaporation. To restart the fluid pump, press the ON/OFF switch (G).**
The pump can be turned off at any time by pressing switch (G).
2. **To minimize fluid loss through evaporation, turn the fluid pump OFF when no parts are being cleaned.**

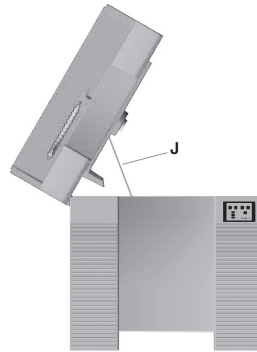
4. For optimum performance, always keep unit topped-up to the proper working level of 100 litres (26.4 gallons US). Do not allow solution level to fall below the second fill line molded in the tank wall. When solution level falls below minimum, the float switch will cut power to the heater and the fluid pump; the air pump however will continue running. Yellow LED (B) will be flashing.



5. As with all parts cleaners, excess grease, oil and fluids should be disposed of prior to washing. Do not use this machine as a waste dump.
6. The **BIO-CIRCLE™** Parts Cleaning System is designed for removing oil and grease from parts and then bioremediating the residues. Any other use of this system, such as dumping waste oil, is not recommended and will cause damage to the system.
7. For stubborn grime and other hard to clean spots, first spray or soak parts using WALTER X-Force™ (53-X 003, 500mL Trigger Spray) prior to washing with **Bio-Circle L™** solution. Do not use any other types of cleaners, as they will reduce or prevent the bioremediating process. **DO NOT INTRODUCE DISINFECTANTS, SOLVENTS, CHLORINATED, ACIDIC OR ALKALINE SOLUTIONS INTO THIS SYSTEM.**
8. The use of bleach (chlorine), household cleaners or tap water will prevent the bioremediating process from taking place as well as the solution's ability to clean itself.
9. The bioremediation process requires a favorable environment at all times, even when the machine is not in use. Always keep the solution level topped-up and the machine plugged-in to maintain proper temperature and oxygen supply through the built-in aeration feature.
10. The built-in thermostat has been factory set to maintain an ideal environment for the bioremediating process as well as preventing skin burns to the user and damage to the pump. Do not attempt to alter this machine in any way.
11. Condensation will accumulate underneath the sink top. This is normal due to the temperature of the cleaning solution.

RECOMMENDED MAINTENANCE

Lift sink (D) and hold it in place using rod (J) as illustrated.



1. Check solution level daily. Ensure fluid level is above the second fill line molded on the tank wall. To maximize cleaning efficiency, solution should be topped up with approximately 20 litres of solution every 30-40 days, or as needed, to compensate for loss resulting from evaporation, drag out and other handling loss.
2. If machine is to be idle for extended periods like overnight and weekends, it must be topped up, the machine must remain plugged in and catch basin (A) must be in place.
3. Inspect the catch basin daily. It should be emptied of accumulated solid waste and disposed of outside of the parts washer in order to extend the life of the solution. To assure proper drainage, rinse catch basin daily using and re-install it promptly.
4. The Bio-Circle parts cleaning system is equipped with an in-line filter unit, which removes non-digestible contaminants remaining in suspension inside the **Bio-Circle L™** cleaning solution. Solution is filtered each time the fluid pump is activated. The filter cartridge should be cleaned or disposed of regularly, especially if the cleaning solution's performance diminishes or if the fluid flow is weak.
Refer to the "Accessories" section for a list of cartridges available.
5. Inspect electrical cord and plug regularly. Do not use if any wear or damage is found. Damaged components should be repaired or replaced by a Walter authorized service center.
6. Ensure that float switch slides freely up and down the guide rod.

ANNUAL MAINTENANCE

Walter recommends that your IO-400 be inspected and cleaned annually to perform at optimal efficiency. Turn power switch (G) OFF and unplug machine. Drain machine of the cleaning solution using valve (H). If cleaning solution is still cleaning well, save it for re-use. Open sink (D) to visually inspect pump, heater, tubing and connections. If necessary, clean heater with soft wire brush. Clean the inside of the machine and filter (I). Replace parts that show excessive wear. If everything appears to be in good working condition, fill with **Bio-Circle L™**, plug unit in and allow solution to warm-up to its proper working temperature of 41° C (106° F).

Note: A maintenance kit is available (55-B 020) which contains the necessary items and instructions, making it easy to clean your Bio-Circle™ parts cleaning system.

WASTE DISPOSAL

Refer to WALTER Material Safety Data Sheet for Bio-Circle L™ solution, MSDS No.: L-78E.

Dispose of residual waste in compliance with Federal, Provincial, State and local environmental regulations. Check with local authorities for any special regulatory considerations.

Extensive analyses have been performed on used solution and found it to be non-hazardous. However, we strongly recommend that the above-mentioned regulatory bodies be consulted before proceeding to discard the used material. J. Walter Co. Ltd. accepts no responsibility or liability for user's failure to comply with governmental and other safety regulations.

TROUBLESHOOTING GUIDE

In case of trouble, refer to the points listed below, which will allow you to solve most issues. Should you still require assistance, please refer to the "WALTER SALES & SERVICE" section for technical support contact information.

GREEN LED (A) IS FLASHING

The control unit has detected a hardware problem. Write down the error code visible through the sight glass in the control box.

Turn off power switch (G) and unplug the power cord. Open the control box by removing the screw securing the hinged door and follow the instructions posted inside. For assistance call the technical support line (see section "WALTER SALES & SERVICE").

PUMP STOPS

Pump will stop when solution level has dropped below the minimum of 60 litres (16 gallons US). Flashing LED (B) indicates solution level is low. Top-off tank to the proper working level of 100 litres (26.4 gallons US). Ensure fluid pump switch (C) is ON.

LIQUID FLOW THROUGH NOZZLE OR BRUSH IS WEAK

The rubber hose may be pinched in between tank and sink top after opening the lid. Ensure the hose is not kinked or squeezed. Ensure that filter (I) is not blocked.

NO MORE AERATION

Aeration has stopped but air pump is still running. Make sure the air hose is well connected to the pump and not pinched somewhere along its length.

SINK FILLS UP

Sink will fill up if the catch basin is dirty or clogged. Refer to number 3 under "RECOMMENDED MAINTENANCE".

SOLUTION DOES NOT CLEAN WELL ANYMORE

If solution is dirty, refer to number 4 under "RECOMMENDED MAINTENANCE" and section "ANNUAL MAINTENANCE". The bioremediation process may have been reduced or prevented by the introduction of prohibited substances or an unfavorable environment. Depending on the situation, replace the cleaning solution or add 40L of new Bio-Circle L™ solution to re-start the system. Because substances that can alter the Bio-Circle L™ pH level can be accidentally introduced, it is important to regularly measure the pH level using Litmus paper or a pH-meter. The pH level should always be between 6 and 8.

SOLUTION ODOUR

The solution may emit a strong apple odour at start-up this is normal. As oil and grease are introduced into the cleaning solution, this odour will quickly diminish leaving only a faint, pleasant scent.

TECHNICAL DATA

MODEL:	IO-400
ORDER NO.:	55-D 400
VOLTAGE:	120V AC, 60 Hz
AMPERAGE:	9.2 Amps
HEATER:	1,000 Watts
PUMP:	200 l/hr (53 US-gal/hr) - 92 Watts
FLUID TEMPERATURE:	41° C (106° F) - Factory adjusted
OVERALL DIMENSIONS W X D X H:	1010 mm x 785 mm x 1140 mm (40" x 31" x 45")
WORKING HEIGHT:	950 mm (37")
SINK DIMENSIONS W X D:	930 mm x 545 mm (37" x 22")
MAX. LOAD CAPACITY:	200 kg (440 lbs)
MAX. FLUID LEVEL:	100 litres (26.4 gallons US)
WEIGHT (EMPTY):	55 kg (121 lbs)

WALTER SALES AND SERVICE

CANADA

MONTREAL: 5977 Trans Canada Hwy. Tel: (514) 630-2801
Pointe Claire, QC H9R 1C1 Fax: (514) 630-2825

TORONTO: 151 Superior Blvd., Unit 12 Tel: (905) 795-8555
Mississauga, ON L5T 2L1 Fax: (905) 795-8558

VANCOUVER: 1-1595 Cliveden Avenue Tel: (604) 540-4777
Delta, BC V3M 6M2 Fax: (604) 540-4778

U.S.A.

HARTFORD: J. Walter Inc. Tel: (860) 724-0321
810 Day Hill Road Fax: (860) 560-7300
Windsor CT 06095

TECHNICAL SUPPORT

In Canada CALL TOLL FREE 1-877-BIO-DRUM (1-877-246-3786).
In the USA CALL TOLL FREE 1-888-246-2725.

Visit us at our web site: www.biocircle.com

WARRANTY POLICY

All WALTER **BIO-CIRCLE™** Parts Cleaning Systems and accessories are inspected and tested before shipment and are warranted to be free from any defect in material and faulty workmanship. Should any malfunction occur within one year from the date of original purchase please call WALTER TOLL FREE at 1-888-JWALTER (1-888-592-5837). In the USA: TOLL FREE at 1-866-JWALTER (1-866-592-5837). Should a component examination reveal that the malfunction was caused by defective material or faulty workmanship, WALTER will repair (or at our option, replace) without charge. This warranty does not apply when; normal maintenance is required, repairs or replacements have been made or were attempted by anyone other than WALTER authorized service personnel, and does not cover any damage caused by accidents, modifications, use of improper solutions, accessories, abuse or misuse as well as continued use after partial failure. No other warranty, written or verbal, is authorized.

In no event shall WALTER be liable for any indirect, incidental or consequential damages from the sale of the product. This disclaimer applies both during and after the term of this warranty.

This warranty gives you specific rights. The provisions contained in this warranty are not intended to limit, modify, take away from, disclaim or exclude any warranties set forth in any provincial or state legislation. To the extent required by law, the provisions in any provincial, state or federal legislation with respect to warranties take precedence over the provisions in this warranty.

ACCESSORIES



Bio Clean Express™

Natural cleaner/degreaser, industrial cloth 7" x 14"

- Ideal to remove excess grease and kept the equipment clean.
- Order No.: 55-G 514 (35 cloths)
- Order No.: 55-G 515 (100 cloths)
- MSDS L-104



X-Force™

Cleaner/degreaser, protects against corrosion

- 500ml trigger sprayer
- Order No.: 53-X 003
- MSDS L-74



45° angled multijet flow-through brush

- Order No.: 55-B 007



Replacement multijet flow-through brush

- Order No.: 55-B 005



Side-mount filter housing

- To hold filter cartridge 55-B 011, 55-B 012 or 55-B 021
- * 350 microns filter sold separately
- Order No.: 55-B 010



Re-usable filter cartridge 350 microns

- For removing non-digested particles in suspension in Bio-Circle L
- Requires filter housing 55-B 010
- Order No.: 55-B 011



Disposable filter cartridge 100 microns

- For removing non-digested particles in suspension in Bio-Circle L
- Requires filter housing 55-B 010
- Order No.: 55-B 012



Disposable filter cartridge 200 microns

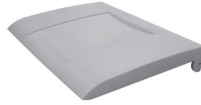
- For removing non-digested particles in suspension in Bio-Circle L
- Requires filter housing 55-B 010
- Order No.: 55-B 021

ACCESSORIES



Filter sock

- 10 microns
- For removing non-digested particles in suspension in the cleaning liquid
- Order No.: 55-B 003



Lid (BR-200 & IO-400)

- Order No.: 55-B 008



Bio-Circle work lamp

- 24" flexible arm
- Compatible with lid 55-B 008
- Fits on all Bio-Circle machines
- * *Bulb included*
- Order No.: 55-B 014



Washing basket

- 1/4" galvanized wire mesh (W 9" x H 8-1/4")
- Order No.: 55-B 004



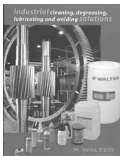
Set of casters (BR-200 & IO-400)

- Raises unit by only 1"
- Order No.: 55-B 017



Annual maintenance kit

- Contains a pump, absorbent pads, scoop, pH paper and cleaners.
- Makes sludge removal quick and easy.
- Step-by-step instructions with photos.
- Order No.: 55-B 020



For additional information on other professional products, ask for your Walter catalogue on Chemical Tools.