

PRODUCT UPDATES

NewLife® 5L and 10L Main Circuit Board Retrofit Instructions

This instruction is intended to guide technicians through replacing circuit board item CB154 / CB160 (or older circuit boards) with circuit board CB200. Other modifications will be required to install CB200 on previous design units, including updated wiring harness, alarm buzzer, and O2 monitor board (for units originally equipped with the O2 monitor option). There are two procedures listed below for you to upgrade the NewLife with the 60601 compliant board. Procedure A specifies how to upgrade the board and components with one LED light or non-oxygen monitor concentrators. Procedure B will instruct the operator how to upgrade the concentrator to the current 60601 compliant standard for the 3-LED oxygen monitor concentrators.

Kit Part Number	Main Board	Model
	Included in Kit	
KI608-4	CB200-4	NewLife 5L (230 V, 50 Hz)
KI608-3	CB200-3	NewLife 5L (120 V, 60 Hz)
KI608-2	CB200-2	NewLife 10L (230 V, 50 Hz)
KI608-1	CB200-1	NewLife 10L (120 V, 60 Hz)

Please refer to Service Bulletin PN 21329212.

Companion 5[™] Top Intake Filter Removal

As a part of CAIRE's commitment to the continuous improvement of our products, based on feedback from our customers, Companion 5 concentrators built after January 21, 2020, will no longer be manufactured with the optional secondary intake filter inside of the carrying handle. The removal of this optional filter is designed to allow better access to the carry handle for maneuverability of the Companion 5.

Refer to Companion 5 Technical Manual, PN 14940837, for complete preventative maintenance procedures and operating specifications.



Figure 1. Previous design with optional top intake filter





Figure 2. Current design without optional intake filter.

Please refer to Service Bulletin PN 21494442 and Service Bulletin 21145161 for more information on Companion 5 filters and maintenance.

Companion 5[™] Bottom Intake Filter Replacement

For optimal performance of the Companion 5 stationary oxygen concentrator, please remember to replace the bottom gross particle filter and bottom intake filter (cartridge). If you are receiving low oxygen concentration, about 80-87%, replace the air intake cartridge and replace the bottom gross particle filter to see if that resolves the issue. Replace both the cartridge filter and bottom gross particle every 2 years, as needed or if the concentration is about 80-87%. There is no change from the previous maintenance schedule.



Figure 1. Air Intake Filter (cartridge). Located under filter cover.

Please refer to Service Bulletin 21494708 for more information on the bottom intake filter replacement.



New Ejector Assembly Rod

Starting 1 February, 2020, the Ejector Assembly Rod will be manufactured from an anodized (blue, figure 3) to an un-anodized rod (silver, figure 4). The item number will not change: B-775112-00 ROD QC RELEASE ASSY or part number B-775106-SV ASSY, QC RELEASE, C-21/31/41 if you need the assembly of quick release.

Note: White cap item number B-775113-00 is not included; please order it separately if needed.



Figure 3. Previous blue rod's color.

Figure 4. Current silver rod's color.

HELiOS[™] Standard 36 and 46 Reservoirs (H36 and H46) Liquid Withdrawal

Tube Seal

As of April 2019, new production of the H36 Japan and H46 Japan HELiOS reservoirs, items B-702034-00 and B-702033-00 respectively, will have improved sealing of the liquid withdrawal tube. Parts replaced will be the brass ferrule (B-701590-00) and O-ring (B-701739-00) with the HELiOS Universal configuration which consists of a compression spacer (B-702128-00) and two O-rings (B-702127-00). This change does not impact HELiOS Universal style reservoirs, as those models are already equipped with this seal mechanism.

Current compression spacer (B-702128-00) and two O-rings (B-702127-00) used on the liquid withdrawal tube with the HELiOS Universal configuration. See figure 5.



Figure 5. Current configuration.

Please refer to Service Bulletin PN 21494420.



VisionAire[™] With New Black Cross Fitting

Starting August 2019 cross fitting (PN F0634-1, figure 6) on the VisionAire has been replaced with a new black cross fitting (PN 21391123, figure 7). The black fitting is a better fit due to the design without the parting on the barb and it reduce leak issues. The SN of the VisionAire's installed with the black cross fitting (PN 21391123) start with GPB0119340051.



Figure 6. Previous cross fitting.

Figure 7. Current cross fitting.

Helpful Hints & FAQs

Eclipse[®] Battery Capacity Test

The below procedure should be used to test the full capacity of the Eclipse power cartridge:

- 1. Install the power cartridge in the Eclipse and remove any AC or DC power cords.
- 2. Turn the Eclipse on and let it run on a continuous flow setting.
- 3. Allow the Eclipse to run until the unit completely shuts down. Do not turn the Eclipse off when it begins to alarm for a low battery. Let it continue to run until the battery is completely drained and the unit shuts off.
- 4. Remove the power cartridge (battery) from the Eclipse and allow it to cool for approximately two hours.
- 5. Fully recharge the battery using either an Eclipse connected to AC power or a desktop charger.
- 6. Install the fully-charged power cartridge into an Eclipse and remove any external power cords.
- 7. Turn the Eclipse on and let it run at the desired continuous (LPM) flow rate for testing.
- 8. Using a stopwatch or timer, record the time it takes for the Eclipse to completely shut down.



9. Take this time recorded in Step 8 and compare it to the full capacity operating time of a new power cartridge in table 1 below. If this time is less than 80% of the full capacity of a new power cartridge, it is recommended that the battery be taken out of service.

CONTINUOUS FLOW SETTING	NEW BATTERY FULL CAPACITY OPERATING TIME	MINIMUM OPERATING TIME (80% OF NEW BATTERY)
0.5 LPM	4.4 HOURS (4:24)	3.5 HOURS (3:30)
1.0 LPM	3.7 HOURS (3:42)	3.0 HOURS (3:00)
2.0 LPM	2.0 HOURS (2:00)	1.6 HOURS (1:36)
3.0 LPM	1.3 HOURS (1:18)	1.0 HOURS (1:00)

Table 1 – operating times.

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Please consult the applicable product instructions for use for product indications, contraindications, warnings, precautions, and detailed safety information.



RELEASE DATE: October 3, 2018

REVISION DATE(S): May 30, 2019 (rev B)

MODEL: NewLife 5L and 10L Models

ISSUE: NewLife 5L and 10L Main Circuit Board Retrofit Instructions

NOTES: This instruction is intended to guide technicians through replacing circuit board item CB154 / CB160 (or older circuit boards) with circuit board CB200. Other modifications will be required to install CB200 on previous design units, including updated wiring harness, alarm buzzer, and O2 monitor board (for units originally equipped with the O2 monitor option). There are two procedures listed below for you to upgrade the NewLife with the 60601 compliant board. Procedure A specifies how to upgrade the board and components with one LED light or non- oxygen monitor concentrators. Procedure B will instruct the operator how to upgrade the concentrator to current standards that are compliant with IEC 60601, which are the 3-LED oxygen monitor concentrators.

Kit Part Number	Main Board Model	
	Included in Kit	
KI608-4	CB200-4	NewLife 5L (230V, 50Hz)
KI608-3	CB200-3	NewLife 5L (120V, 60Hz)
KI608-2	CB200-2	NewLife 10L (230V, 50Hz)
KI608-1	CB200-1	NewLife 10L (120V, 60Hz)

Tools Required:

- Flat-Head Screwdriver
- Phillips-Head Screwdriver
- ESD Electrostatic Protection
- Wire Cutters
- Power Drill with a 3/32" (2.4 mm) and 1/4" (6.35 mm) Drill Bit
- Heat Gun (Procedure B)

Part Number	Description	Qty
AL022-1	Alarm with Wire Harness	1
CB200-*	200-* Main Circuit Board, programmed	
	(*see Table 1 for details)	
CB196-1	O2 Board	1
WH145-2	LED Wire Harness	1
WH146-1	Power Switch Wire Harness	1
WH147-1	Main Wire Harness	1
SC177-1	Screws for Buzzer and O2 Board	4
HA006-1	Nylon Spacers for O2 Board	2
TU055-040	O2 Board Tubing, 1/4" OD, 4" Long	1
TW001-4	4.0" Tie Wrap	6
TW004-1	14.5" Tie Wrap	1
IL070-1	LED Housing	3
HA087-1	Lamp Retainers	6
21329212	Instruction Bulletin for Board Retrofit	1
LA439-1	O2 Label	1
LA190-1	Label Operating Pictogram	1
LA452-1	O2 Label w/ Operating Pictogram	1
	for Dual Flow / Air Outlet Units Only	
WH107-1	O2 Board Wire Harness	1
MI450-1	Heat Shrink 1.5" for Circuit Board and Power Switch	2
MI449-1	Heat Shrink 2" for Hour Meter	1

 Table 2. Parts Included with KI608

Procedure A

- 1. Switch off the unit and disconnect the power cord.
- 2. Remove the side panels with the flat head screwdriver.
- 3. Disconnect the main power 10-pin connector from the circuit board. See Figure 1

Note: If working on the NewLife 10L 230V unit, the 2-pin compressor connector will need to be disconnected as well. This is located directly to the right of the main power 10-pin connector.



Figure 1. Main Wire Harness

4. Disconnect the alarm 6-pin connector from the circuit board. See Figure 2



Figure 2. Alarm Wire Harness

5. Cut the tie-wrap at the circuit board pressure transducer and disconnect the green tube from the transducer.

See Figure 3



Figure 3. Pressure Transducer Zip Tie

6. Push in on the circuit board support tabs while you lift each area of the circuit board to remove the circuit board from the control panel. See Figure 4



Figure 4. Board Supports

- 7. Remove main wire harness and O2 wire harness from hour meter, terminal block, valve black, EQ valve, and fan board. Discard the wire harness.
- 8. Remove and discard buzzer, 9V battery, and 9V battery holder.
- 9. Remove and discard buzzer harness from the power switch.
- 10. Cut zip tie and move compressor capacitor out of the way and allow drilling of the new alarm buzzer mounting holes.
- 11. Install alarm buzzer (AL022-1) with one mounting screw (SC177-1) in location 1. This screw will be aligned with one of the existing holes used for the 9V battery holder.

See Figure 5



Figure 5. Alarm Mounting Hole

12. Drill a second mounting hole in the case with a 3/32" (2.4 mm) drill bit. See Figure 6



Figure 6. Second Mounting Hole Location

- 13. Install second alarm buzzer mounting screw (SC177-2) in the new mounting hole that was drilled in Step 12.
- 14. Re-attach the capacitor with a new zip tie (TW004-1).

Note: For non-oxygen monitor units, skip steps 15-22 and proceed to Step 23. For oxygen monitoring units, complete Steps 15-35.

- 15. Remove installed O2 monitor board and discard.
- 16. Attach wire harness (WH107-1) to new O2 board (CB196-1) at J1C1. Attach tubing to nozzle on O2 board located closest to wire harness. See Figure 7



Figure 7. Connected Wire Harness and Tubing

17. Hold EQ valve out of the way and drill two holes with a 3/32" (2.4 mm) bit for the new O2 monitor board (CB196-1). The holes should be 2 3/8" (6 cm) apart and in line with the existing mounting holes. See Figure 8



Figure 8. New Board Mounting Holes

 Install O2 board (CB196-1) onto superstructure with two screws (SC177-1) and two nylon spacers (HA006-1). Use ESD protection when handling boards.

See Figure 9



Figure 9. Attached O2 Monitoring Board

19. Install LED housing (IL070-1) and retainer (HA087-1) into the control panel O2 monitor hole. Add retainer (HA087-1) with the beveled side opposite of the front panel.

See Figure 10



Figure 10. Installed LED Housing

- 20. Install the top LED wire harness, which is the O2 monitor light (WH145-2), into the hole and tuck the other lights behind the control panel. The O2 monitor light will have red and purple wiring. See Figure 11
- 21. Add a retainer (HA087-1), with the beveled side facing the front panel, onto the lens while holding LED into the housing. Pressing the two retainers together will lock them in place. The beveled sides of both retainers should be facing each other.

See Figure 11



Figure 11. Installed O2 Monitor Light

22. Cut zip tie off the new harnesses (WH147-1 and WH146-1). You will now have two harnesses.

See Figure 12



Figure 12. Separated Wire Harnesses

23. Install main harness by first installing the 6-pin and purple/gray harness, route through center hole by fan board up to the EQ Valve.





Figure 13. Harness Routed Through Center Hole

24. Install bottom of harness to valve block. See Table 3 and Figure 14

 Table 3. Wire Harness Color

	Left	Right
Тор	Orange, Gray	Yellow, Gray
Bottom	Brown, Gray	Blue, Gray



Figure 14. Valve Block

25. Install the three pins (white terminal) through the center hole by the fan board to the main board.

26. Install the small terminals (black and white terminals) to the fan (Elite) or fan board (Intensity). See Figure 15.A Elite units. See Figure 15.B Intensity 10 units.





Figure 15.A. Installed Terminals to Fan

Figure 15.B. Installed Terminals to Fan Board

27. Install the terminals into the terminal block. See Table 4.1 and Figure 16.A for Intensity 10 120V units. See Table 4.2 and Figure 16.B for Intensity 10 220V units. See Table 4.3 and Figure 16.C for Elite 120V units.

See Table 4.4 and Figure 16.D for Elite 230V units.

Table 4.1.	Intensity 10 1	20V Terminal	Wires	s and Colo	rs	
	Left - Neutral			Right - Positive		
Тор	Single White	Single White		ngle ack	Single Black	
Bottom	Single Blue	Double White		ngle rown	Double Black	



Figure 16.A. Intensity 10 120V Terminal Wires

	Left – Neutral		Right - Positive	
Тор	Single Blue	Single White	Single Black	Single Black
Bottom	N/A	Double White	N/A	Double Black

Table 4.2. Intensity 10 230V Terminal Wires and Colors



Figure 17.6. Intensity 10 230V Terminal Wires

	Left - Neutral		Right - Positive	
Тор	SingleSingleWhiteWhite		Single Black	Single Black
Bottom	Single Blue	Double White	Single Brown	Double Black



Figure 17.6. Elite 120V Terminal Wires

 Table 4.4. Elite 230V Terminal Wires and Colors

			Right - Positive		
Тор				Single Black	Single Black
Bottom	Single Blue	Double White		Single Brown	Double Black



Figure 17.6. Elite 230V Terminal Wires

28. Install main circuit board by inserting tube onto the pressure sensor and attach with zip tie.

See Figure 17



Figure 17. Attached Tubing to Pressure Sensor

29. Insert standoffs back on the board and connect to the front cabinet.

30. Install 6-pin and 3-pin from harness onto the board. See Figure 18.A

Note: If working on the NewLife 10L 230V unit, the 2-pin compressor connector will need to be installed as well. This is located directly to the left of the main power 3-pin connector. See Figure 18.B



Figure 18.A. Main Board



Figure 18.B. Intensity 10 230V1 Board with Compressor Conne

31. Attach O2 harness to J10, LED harness to J11, power switch harness to J8, and buzzer J7 to the board.

See Figure 19



Figure 19. Main Board with Attached Harnesses

32. For non-oxygen monitor units attach the alarm LEDs to the main board but leave them tucked inside the front case panel (they do not need to be installed in the front case panel if the unit was not originally equipped with the oxygen monitor feature). 33. Attach the power switch jumper wire from the circuit breaker to the terminal block.See Table 5 and Figure 20

Left - PositiveRight - NeutralTopSingle Red. Wire from
circuit board location J8.Single Black. Wire from
circuit breaker.BottomSingle Red. Wire from
circuit board location J8.Single Black. Wire from
terminal block.

Table 5.	Power	Switch	Wiring
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Figure 20. Attached Power Switch Wire

34. Re-attach case panels and test to ensure O2 monitor light works (if equipped) and purity / flow meets manufacturing specifications.

Procedure B

- 1. Follow instructions 1-19 from Procedure A.
- 2. Apply O2 label and instruction label to the front cabinet.

Note:

- For a Single Flow unit use LA439-1 and LA190-1 only. •
- For a Dual Flow or Air Outlet unit use LA452-1 only. ٠

See Figure 21.A for applied labels to a Single Flow unit. See Figure 21.B for applied labels to a Dual Flow or Air Outlet unit.



Figure 21.A. Single Flow Front Panel with Labels

Figure 21.B. Dual Flow Front Panel with Label

() +O2

(i) -=!

3. Drill additional holes for the other LED lights using a 1/4" (6.35 mm) drill bit.

4. Add retainers (HA087-1), with the bevel side facing the front panel, onto each lens while holding LED into the housing. Pressing the two retainers together will lock them in place. The beveled sides of both retainers should be facing each other.

See Figure 23



Figure 22. Three LED Housing

5. Install LED wire harness (WH145-2) into the holes. See Figure 24



Figure 23. Installed LED Lights

- 6. Complete Steps 22-23 from Procedure A.
- 7. Apply heat shrink to the hour meter, circuit breaker, and power switch.

8. Combine power switch and control board into one heat shrink. See Figure 24.



Figure 24. Combined Power Switch and Control Board

9. Ensure connections are correct and then use the heat gun to complete the heat shrink starting closest to the cabinet, then move backwards to the terminals.

See Figure 25



Figure 25. Heat Shrink on Connectors

10. Re-attach the panels and test to ensure the top light illuminates for low O2, middle light illuminates when there is a power failure, and the bottom light illuminates when there is a high or low pressure. Also, ensure the purity / flow meets manufacturing specifications. See Figure 26



Figure 26. Illuminated Monitoring Lights

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CA	IRE®	SERVICE BULLETIN PN: 21494442
RELEASE DATE:	Feburary 1, 2020	
MODEL:	Companion 5 [™]	
ISSUE:	Companion 5 Top Intake Filter Re	emoval
NOTE:	As a part of Caire's commitment to the continuous improvement of our products, based on feedback from our customers, Companion 5 concentrators built after January 20, 2020, starting with serial number CBB6920040033, will no longer be manufactured with the optional top intake filter. The removal of this optional filter is designed to allow better access to the carry handle for maneuverability of the Companion 5. The bottom gross particle filter is not effected by this change and will remain on the unit. <i>Note:</i> Refer to Companion 5 Technical Manual, PN 14940837, for complete preventative maintenance procedures and operating specifications.	



Figure 1. Unit with optional top intake.

Current design without optional intake filter. See Figure 2.



Figure 2. Unit without optional top intake filter.

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RELEASE DATE: May 1, 2017

REVISION DATE(S): January 21, 2019 (rev B)

MODEL: Companion 5

ISSUE: Intake Filter Change

NOTES: Effective May 1st, 2017 all newly manufactured Companion 5 oxygen concentrators will feature a new multi-position airflow system as shown below.



Figure 1. Companion 5 Air Flow.

The cooling air will continue to enter through the vents on the back, and the compressor air will now enter in 2 locations - the bottom of the concentrator adjacent to the filter door, and the top of the concentrator through the handle. This airflow with multiple intake locations and levels of filtration minimizes the airflow into any single location on the concentrator. This further helps to reduce the risk of clogging the intake or damaging the major components. In addition to the airflow change, to further improve the efficiency of the Companion 5 airflow, gross particle filters have also been added to the 2 compressor intake locations.

The new handle filter is **optional**. You may remove and discard it upon receipt. A screen within the handle serves as an additional level of filtration that is sufficient if the gross particle filter is removed. The gross particle filter is simply an optional added layer of protection you may choose to utilize for harsh environments.



Figure 2: Handle Gross Particle Filter (left) and Bottom Gross Particle Filter (right).

Previous Companion 5 units manufactured prior to this update do not require the new filters be installed. Refer to Companion 5 Technical Manual, PN 14940837, for complete preventative maintenance procedures and operating specifications.

Below are the new maintenance requirements for the Companion 5 with these updates:

- Air Intake Filter (Cartridge): Replace every 2 years or as needed (no change from the current maintenance schedule).
- Handle Gross Particle Filter (Optional): Clean weekly by patient if installed.
- Bottom Gross Particle Filter: Replace every 2 years or as needed.

Preventative Maintenance Procedures for Companion 5 Filters

1. Air Intake Filter (Cartridge)

Replace every 2 years or as needed. There is no change from the current maintenance schedule.



Figure 3. Air Intake Filter (cartridge). Located under filter cover.

2. Handle Gross Particle Filter (Optional)

The patient should clean the handle gross particle filter weekly if installed. Replace filter as needed. The filter may require more frequent cleaning in harsh environments. This filter can be equipped on units producted May 2017 and later.



Figure 4. Optional Gross Particle Filter. Located in the top handle.

Maintenance Procedure (for user) :

- 1. Remove dirty filter from inside unit handle.
- 2. Wash dirty filter in warm soapy water and rinse thoroughly.
- 3. Use a soft, absorbent towel to remove excess water.
- 4. Ensure filter is completely dry before reinstalling in the unit.
- 5. Reinstall clean filter in handle. Replace with new filter as needed.

3. Bottom Gross Particle Filter

The bottom gross particle filter should be replaced at least every 2 years or as needed. The frequency of the maintenance should be based on the environment in which the Companion 5 is used. Harsh environments may require air intake filter replacement more frequently than every 2 years. This filter is equipped on units produced May 2017 and later.

Maintenance Procdure (for provider only) :

- 1. Remove dirty gross particle filter from bottom of unit.
- 2. Install new, clean filter.



Figure 5. Required Bottom Gross Particle Filter. Located in front of compressor intake on bottom of unit.

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SERVICE BULLETIN PN: 21494708

RELEASE DATE: 2/3/2020

MODEL: Companion 5^{TM}

ISSUE: Companion 5 bottom intake filter replacement.

NOTE: For optimal performance of the Companion 5 stationary oxygen concentrator, please remember to replace the bottom gross particle filter and bottom intake filter (cartridge). If you are receiving low oxygen concentration, about 80-87%, replace the air intake cartridge and replace the bottom gross particle filter to see if that resolves the issue. Replace both the cartridge filter and bottom gross particle every 2 years, as needed or if the concentration is about 80-87%. There is no change from the previous maintenance schedule.



Figure 1. Air Intake Filter (cartridge). Located under filter cover.

Customers may follow this procedure if experiencing O2 concentration between 80-87%, particularly when the bottom filters are visibly occluded:

- 1. Turn on device and allow 15 minutes to warm-up.
- 2. Measure O2 concentration with a calibrated O2 analyzer.
- 3. If unit is producing O2 concentration below 87%, replace intake filter cartridge with clean filter. A device producing below ~80% O2 likely will not be improved by a filter change. For units producing <80%, contact CAIRE for an RMA to return the device for service at an authorized repair facility.

- 4. Allow another several minutes to see if O2 improves. If the O2 does improve, the intake filter cartridge was the cause.
- 5. If the O2 does not improve, contact CAIRE for an RMA to return the device for service at an authorized repair facility.

Note: It is recommended to replace filter the Bottom Gross Particle Filter when replacing the Air Intake Filter Cartridge.



Figure 2. Bottom Gross Particle Filter. Located in front of compressor intake on bottom of unit.

Refer to the Companion 5 Technical Manual, PN 14940837, for complete preventative maintenance procedures and operating specifications.

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CAIRE®	SERVICE BULLETIN PN: 21494420
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RELEASE DATE:	January 20, 2020

MODEL: HELIOS ™

ISSUE:

HELiOS Standard 36 and 46 Reservoirs (H36 and H46) Liquid Withdrawal Tube Seal

As of April 2019, all new production of the H36 Japan and H46 JapanNOTES:HELiOS reservoirs, items B-702034-00 and B-702033-00 respectively, will
have improved sealing of the liquid withdrawal tube. Parts replaced will be
the brass ferrule (B-701590-00) and O-ring (B-701739-00) with the HELiOS
Universal configuration which consists of a compression spacer (B-702128-
00) and two O-rings (B-702127-00.)

This change does not impact HELiOS Universal style reservoirs, as those models are already equipped with this seal mechanism.

Previous ferrule (B-701590-00) and O-ring (B-701739-00) used on the liquid withdrawal tube. See Figure 1.



Figure 1. Shows the previous ferrule and O-ring that will be replaced with the new Universal configuration. Note that the tee joint and spring are not changing.

Current compression spacer (B-702128-00) and two O-rings (B-702127-00) used on the liquid withdrawal tube with the HELiOS Universal configuration. See Figure 2.



Figure 2. Shows the compression spacer (B-702128-00) and the two O-rings (B-702127-00) that replaced the brass ferrule and O-ring shown in Figure 1.

If any of the below HELiOS models come in for repair, this change is not a mandatory update and only needs to be updated if the existing seal on the tank is damaged and needs to be replaced during the normal course of repairs. Only items B-702128-00 and B-702127-00 will be available for service going forward, once stock of the previous design parts are depleted.

B-701653-00 H36 (USA)	
B-701652-00 H46 (USA)	
B-700846-00 H36 TPED (Europe)	
B-700847-00 H46 TPED (Europe)	
B-702034-00 H36 Japan (older than April of 2019)	
B-702033-00 H46 Japan (older than April of 2019)	

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