

SYSTEMS CHECK

A) COLLECT ALL “MUST HAVE” ITEMS

Following tests CANNOT be performed properly without following MUST HAVE items:

- Known good Recharger.
- Known good Battery Pack.
- Known good Heat Sock.
- Calibrated Infrared Thermometer.

NOTE: Using INFRARED THERMOMETER is a more accurate and consistent method of detecting heat than fingertips. However, temperature readings are significantly impacted by surrounding materials and ambient temperatures. Therefore, temperature readings may or may not be representative of temperatures attained in standardized testing conditions used to determine published temperature ranges.

B) COLLECT ALL COMPONENTS

To perform Systems Check of complete Heat Socks XLP, ALL components of same Heat Socks MUST be available at the same time (2 Battery Packs XLP, 1 Recharger XLP, and 2 Heat Socks XLP).

C) INSPECT ALL COMPONENTS

- Visually inspect Recharger casing, Adapter Plug(s), Power Cords, and Charging Cradles.
- Visually inspect Battery Pack casing, Power Button, and 3 Snap Connector.
- Visually inspect Heat Sock and double cuff, 3 Snap Connector, and complete length of Heating Element from inside double cuff to ball of foot and toe area.
- **Are all visual inspection points in proper physical condition?**

NOTE:

If, at any of the following steps, a failure in any given item is found, it is not necessary to complete any of the remaining steps pertaining to that given item.

1) RECHARGER: POWER TEST

- Without Battery Packs attached, plug Recharger into known, good, live, wall outlet.
- **Does Recharger small orange LED turn on?**
- Plug Recharger into outlet several times to confirm properly functioning Recharger. Watch Recharger LED closely.

2) RECHARGER: POWER CORDS TEST

- With positive Recharger orange LED confirmed and Recharger still plugged into wall outlet, attach known good Battery Pack to each Charging Cradle.
- **Does recharging process begin after all Heat Setting LEDs flash semi-quickly for 2 seconds?**
- See 3rd bullet and chart under point 4.

3) BATTERY PACK: POWER BUTTON TEST

- Briefly press-and-release Power Button several times.
- **Does Power Button PHYSICALLY function properly?**
- Power Button should compare similarly in physical function to Power Button on known good Battery Pack.

4) BATTERY PACK: RECHARGING PROCESS TEST

- With known good Recharger plugged into outlet, attach each Battery Pack to Charging Cradles.
- **Does recharging process begin after all Heat Setting LEDs flash semi-quickly for 2 seconds?**
- Recharging process begins when any one of following LED scenarios (see chart below) is displayed after all Heat Setting LEDs flash semi-quickly for 2 seconds.
- If all Heat Setting LEDs continue to flash semi-quickly after 2 seconds, see “MALFUNCTIONS AND SPECIAL FUNCTIONS”.

Charge Status	LED Status
0 – 25 % charged	1 st LED slowly flashes red
25 – 50 % charged	1 st LED lights up red, 2 nd LED slowly flashes red
50 – 75 % charged	1 st and 2 nd LEDs light up red, 3 rd LED slowly flashes red
75 – 99 % charged	1 st , 2 nd and 3 rd LEDs light up red, 4 th LED slowly flashes red
100 % charged	4 th LED lights up green

5) BATTERY PACK: SETTINGS TEST

- With known good Recharger still plugged into outlet and Battery Pack still attached to Charging Cradle, recharge Battery Pack minimally for 2 minutes uninterrupted to ensure accurate test.
- After minimum 2 minute recharge, remove Battery Pack from Charging Cradle. With all LEDs off, turn Battery Pack ON to Setting 1, 2, 3, and 4 and then OFF by pressing-and-holding Power Button until all LEDs are off.
- **Does Battery Pack Setting function properly?**
- Battery Pack MUST be recharged minimally for 2 minutes uninterrupted for best test results.
- Battery Pack MUST be removed from Charging Cradle during Settings Test.

6) BATTERY PACK: HEAT TEST

- With positive tests confirmed for Recharger and Battery Pack, and after minimum 10 minute recharge or longer, remove Battery Pack from Charging Cradle, connect known good Heat Sock onto Battery Pack, turn Battery Pack to Setting 3, and then wait for several minutes.
- **Does Battery Pack generate heat in Heating Element located in toe area of Heat Sock?**
- Use Infrared Thermometer to detect generated heat in toe area of Heat Sock.
- Battery Pack MUST be recharged minimally for 10 minutes uninterrupted when using known good Heat Sock.

7) HEATING ELEMENT: HEAT TEST

- Connect Heat Sock to known, good, fully recharged Battery Pack, turn Battery Pack to Setting 3, and then wait several minutes.
- **Does Heating Element located in toe area of Heat Sock generate heat?**

8) BATTERY PACK: DURATION TEST

- Recharge Battery Pack to 100% full charge (green LED light), remove from Recharger, let rest for minimally 1 hour, turn to Setting 3, connect to known good Heat Sock, and set external timer for minimum published duration of Battery Pack XLP.
- Reset external timer for subsequent 15 minute intervals as needed.

- **Does Battery Pack duration fall within model's published duration range for Setting 3?**
- See chart below for Battery Pack XLP duration ranges.
- Set external timer for minimum duration of Battery Pack XLP being tested. (See following chart.)
- When minimum duration is reached, check to confirm Battery Pack Setting 3 is still on and Heating Element located in toe area of Heat Sock is still generating heat. Record results in chart below.
- When minimum duration is reached, also set timer for first 15 minute interval.
- When first 15 minute interval is reached, again check to confirm Battery Pack Setting 3 is still on. Record results.
- Continue using subsequent 15 minute intervals until Setting 3 is no longer On and Heating Element is no longer generating heat.

XLP Series Model →	XLP ONE	XLP 1P	XLP 2P	Results
Duration Range (Setting 3) →	210 - 300	180 - 270	390 - 570	<input checked="" type="checkbox"/> #1 <input checked="" type="checkbox"/> #2
Minimum Duration →	210 min	180 min	390 min	<input type="checkbox"/> <input type="checkbox"/>
+15 minute interval	225	195	405	<input type="checkbox"/> <input type="checkbox"/>
+15 minute interval	240	210	420	<input type="checkbox"/> <input type="checkbox"/>
+15 minute interval	255	225	435	<input type="checkbox"/> <input type="checkbox"/>
+15 minute interval	270	240	450	<input type="checkbox"/> <input type="checkbox"/>
+15 minute interval	285	255	465	<input type="checkbox"/> <input type="checkbox"/>
+15 minute interval	300	270	480	<input type="checkbox"/> <input type="checkbox"/>

9) BATTERY PACK: MAINTENANCE MODE

- Maintenance mode can be used with XLP 1P BT and 2P BT Battery Packs to quickly determine the battery health.
- Open the Hotronic Heat App and be sure that the Battery Pack in question is connected to the App via Bluetooth.
- Select the 'Settings' button in the top left of the screen.
- Choose Heat Socks under the 'Your Product' area.
- Tap six (6) times on the Battery Pack you wish to test.
- Enter password: Ho!tronic8364 to access Maintenance Mode
- If the 'Age' value has dropped below 80%, contact Hotronic for further information. Please have the Cycles information from Maintenance Mode as well as the Production Year Identifier from the back of the Battery Pack when you call or email.

SYSTEMS EXPLAINED

BATTERY PACK: VOLTAGE CUT-OFF SYSTEM

- To reduce potential of low to excessively low charge levels, Battery Pack XLP ONE includes two Voltage Cut Off Systems.
- Battery Pack XLP automatically shuts OFF when Voltage Cut Off System detects electrical current at or below 2.8V.
- When Voltage Cut Off System detects electrical current at 2.3V, all electronic functions stop until Battery Pack XLP is connected to Recharger XLP.
- Nominal Voltage in Battery Pack XLP is 3.6V.

MALFUNCTIONS AND SPECIAL FUNCTIONS

Trickle charging at low discharge level

- When the Battery Pack XLP is allowed to discharge too low (voltage lower than 2.7 V), trickle charging is activated. In this process, all of the Heat Setting LEDs flash semi-quickly (every 0.3 seconds) for a maximum of 30 minutes.
- If the trickle charging process is successful, it switches back to normal charging process. If there are any persistent problems after 30 minutes, then all the LEDs start to flash quickly (every 0.1 seconds) and indicate the charging process will not work. Remove the Battery Pack XLP from the Charging Cradle.

High level short circuit protection

- The Battery Pack XLP switches off in the event of a high level, external short circuit. Once the short circuit is eliminated, the Battery Pack XLP must be reset by connecting it to the Recharger XLP.

Low level (HICCUP) short circuit protection

- In the event of a low level, external short circuit (HICCUP) short circuit, all the LEDs flash quickly (every 0.1 seconds) for five seconds followed by an internal check to identify whether there is still a short circuit. If the short circuit remains, the LEDs continue to flash quickly (every 0.1 seconds) followed again by an internal check. This process remains until the short circuit is remedied. Once the short circuit has been solved, the Heat Setting being used is reactivated.

Charging temperature

- In case of inappropriate temperature of the Battery Pack XLP (Temperature range when charging: +10°C to +30°C or +50°F to +86°F), the charging process is aborted and all the LEDs flash quickly (every 0.1 seconds) until the Battery Pack XLP is removed from the Charging Cradle or the Recharger XLP is disconnected from the plug socket.

Charging time monitoring

- If the charging process takes an unusually long time, this may lead to a safety shutdown. The charging process is aborted and all the LEDs flash quickly (every 0.1 seconds).

For further information, please feel free to contact us at:

United States

802-862-7403
info@hotronic.com

Canada

450-663-7800
info@canada.wintersteiger.com

****Please see Warranty Claims & Return Procedures section for RA and return shipping information****