



































## Pump Installation

Refer to your pump manual for pump installation. (See **Related Manuals** on page 2.)

Verify that the fuses are removed before attaching pump wires. See **Fuse Diagrams** on page 9.



Connect the positive pump wires to terminal 7, and negative pump wires to terminal 8. (See **Terminal Block and Wiring** on page 8.)

## Battery Installation

				
<p>To reduce the risk of fire and explosion, keep battery terminal covers in place at all times, except for when necessary during battery maintenance.</p> <p>Unexpected activation could occur when power is applied to the controller. Power to the controller comes from the battery and solar panel. To reduce the risk of serious injury, including skin injection, do not wire the battery or solar panel until all fluid lines are connected.</p>				

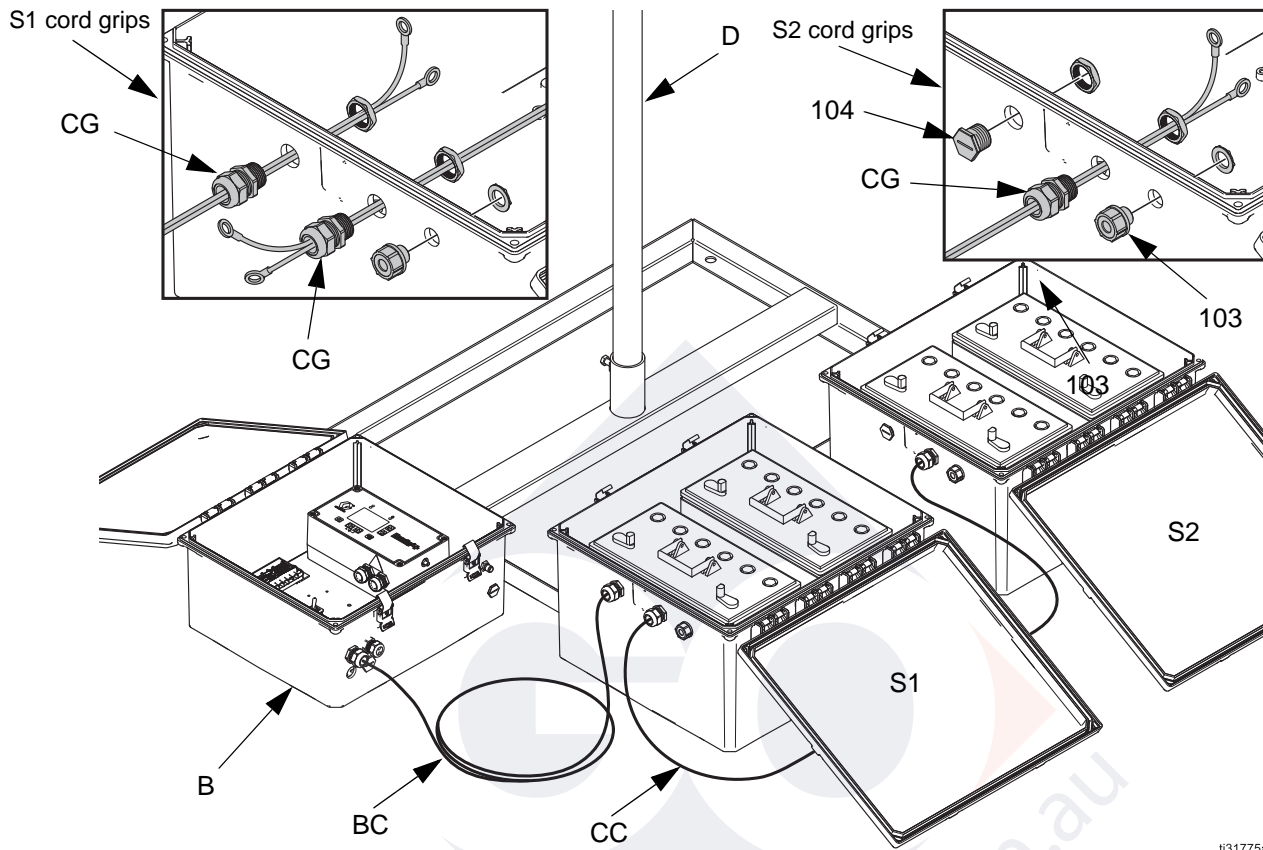
**NOTE:** Batteries are provided by customer. See **Technical Specifications** on page 25 for recommended battery size.

1. Ensure all fuses are removed. See **Fuse Diagrams** on page 9.
2. Leave the battery terminal covers installed, if included from the battery manufacturer, until the battery is in place and ready to be wired.
3. Carefully lift the batteries up and into the control box (1).

				
<p>Battery acid could leak out if the system tips over. To reduce the risk of injury, handle the system with care and wear appropriate Personal Protective Equipment.</p>				

4. Connect battery wires per **Battery Diagrams** on page 10. Make sure to wire the system to the correct voltage. See **Box Configuration Number Matrix**, page 3, for system voltage identification.

## Connect Multiple Battery Boxes (NEMA 4X Boxes only)



**FIG. 14 Multiple NEMA 4X battery boxes**

1. Set the first NEMA 4X battery box (S1) on the ground near the base the stand unit (D). The battery box (S1) should be oriented so the lid opens up.
2. Remove the cord grip (CG) nuts from both cord grips (CG) on the connecting cable (CC) included in the second NEMA 4X battery box (S2).

**NOTE:** When connecting cables to the batteries, treat each NEMA 4X battery box as a two-battery unit. See **Battery Diagrams** on page 10.

3. Feed the cord from outside the second battery box (S2) through one of holes in the battery box (S2). Slide the cord grip (CG) nut over the ring terminals on the battery cable (BC) and onto the cord grip (CG). Tighten the cord grip (CG) nut.
4. Feed the other cord grip (CG) into the remaining hole on the first battery box (S1). Slide the cord grip (CG) nut over the ring terminals on the battery cable (BC) and onto the cord grip (CG). Tighten the cord grip (CG) nut.

5. On the ends inside the second battery box (S2), install the red terminal cover over the ring terminal on the red wire of the connecting cable (CC), and the black terminal cover over the right terminal on the black wire of the connecting cable (CC).
6. Install the included breather (103) into the hole on the second battery box (S2).
7. Install the plug (104) that was included with first battery box (S1) into the remaining hole on the second battery box (S2).

## Controller Installation and Operation

Refer to your controller manual for controller installation and operation. (See **Related Manuals** on page 2.)



# Maintenance

## Pump Maintenance

Refer to your manual (see **Related Manuals** on page 2) for pump maintenance.

## Solar Panel and Charge Controller Maintenance

Refer to the manuals supplied with the solar panel and charge controller.

## Replacing the Fuses

See **Fuse Diagrams** on page 9 for fuse location.

### NOTICE

Fuses are supplied, and are required on all models. To avoid equipment damage:

- Never operate the pump or system without a fuse installed.
- A fuse of the correct voltage and amperage must be installed in line with the power entry to the system.
- See , on page 9, for current ratings.

Replacement fuses are available from Graco.

- Voltage Rating: 32 VDC
- Current Rating: See on page 9
- Style: Automotive Mini (ATM); UL 248 approved

## Troubleshooting



Problem	Cause	Solution
System stops running	Battery charge too low	Charge battery. Replace if problem persists.
	Fuse blown	Replace fuse with like kind. Find short if problem persists.

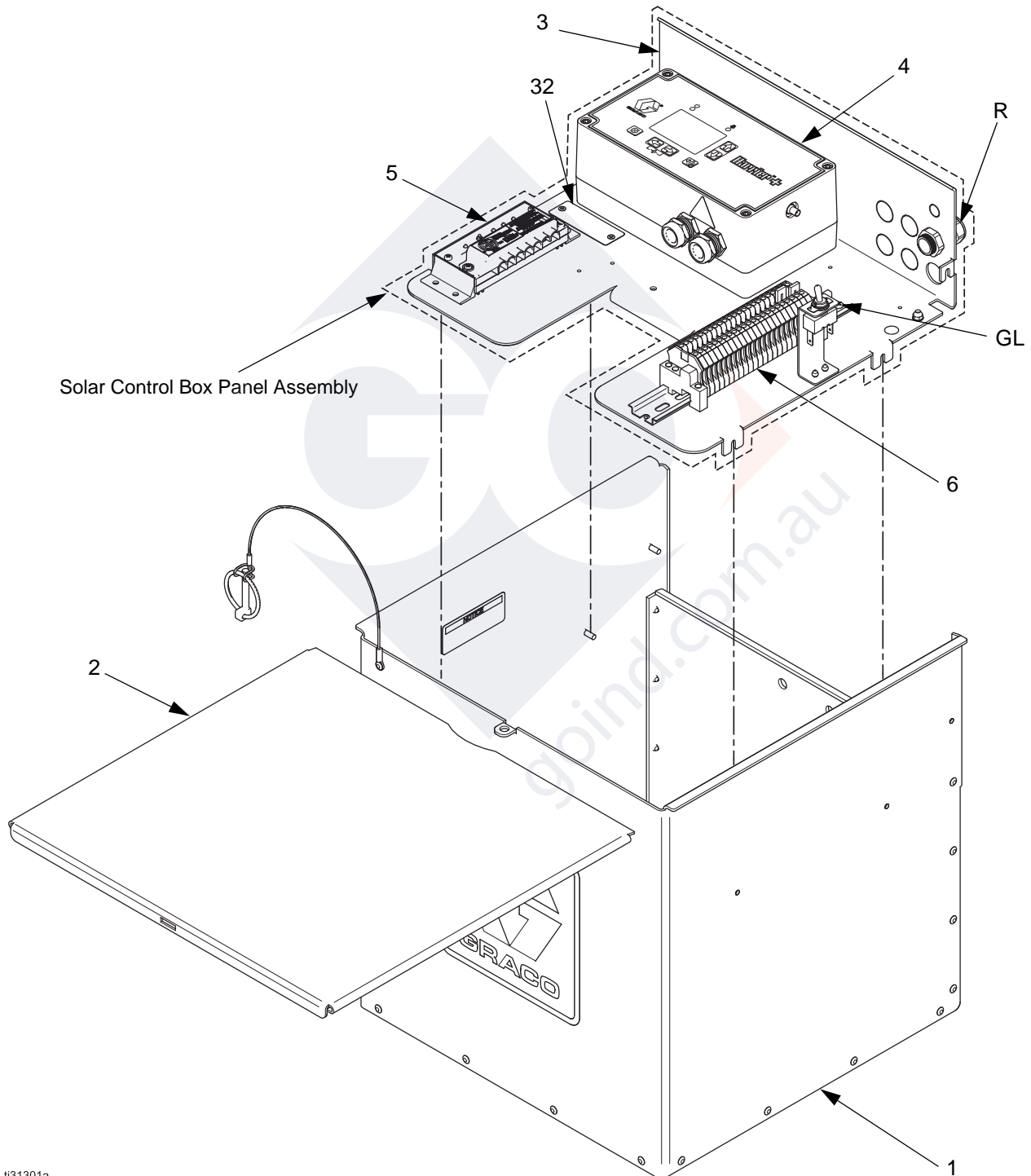
### NOTES:

- Refer to your pump manual (see **Related Manuals** on page 2) for troubleshooting specific to the pump.
- Refer to your controller manual (see **Related Manuals** on page 2) for troubleshooting specific to the controller.
- Refer to the stand manual (see **Related Manuals** on page 2) for troubleshooting specific to the stand.
- Refer to the included charge controller manual for troubleshooting specific to the charge controller.

# Parts

## 2-Battery Aluminum Solar Control Box

Part No. B52213 is shown



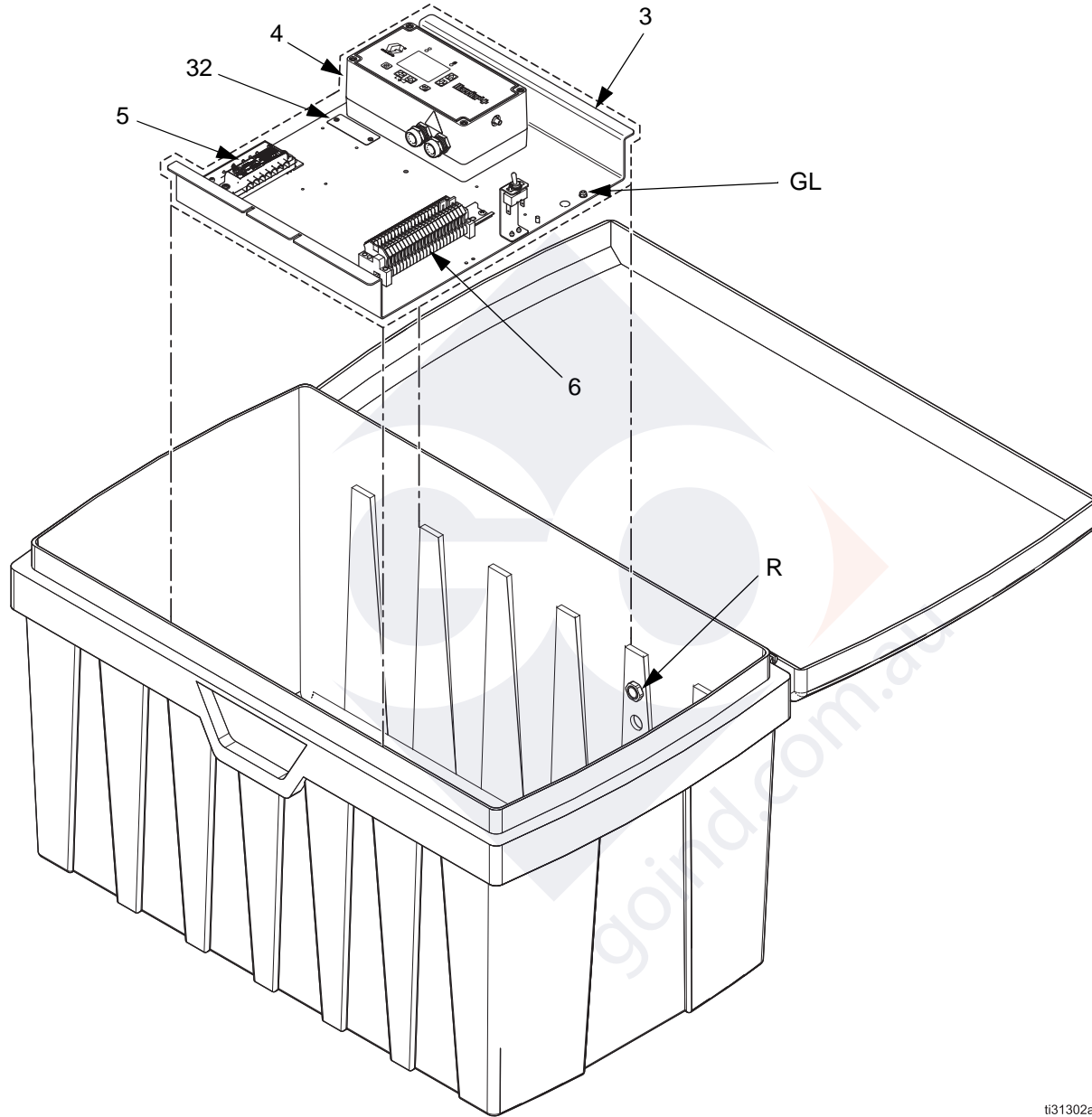
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## Two-Battery Aluminum Solar Control Box Parts List

Ref.	Part	Description	Qty
1	--	Control Box	1
2	--	Box Lid	1
3	--	Back Panel	1
4		Controller;	
	B32110	Harrier EZ	1
	B32001	Harrier	1
	B32631	Harrier+ SCADA	1
	B32627	Harrier+ GSM USA	1
	B32629	Harrier+ International	1
	B32643	Harrier+ CDMA	1
5		Battery Charge Control;	
	B32010	ASC 12/8 (12 V, C1D2, no LVD)	1
	B32012	ASC 12/12 (12 V, C1D2, no LVD)	1
	B32749	ASC 12/16 (12 V, C1D2, no LVD)	1
	B32747	ASC 24/16 (12 V, C1D2, no LVD)	1
	B32744	Morningstar SS20L-12V (12 V, C1D2, LVD)	1
	B32748	Morningstar SS20L-24V (24 V, C1D2, LVD)	1
	B32745	ProStar 30 (12/24 V, LVD, ordinary location)	1
	B32746	ProStar 30M (12/24 V, LVD, ordinary location, screen)	1
6	--	DIN Rail Assembly	1
25	B32614	Solar Cable w/MC4 Connectors (not shown; extends through the back panel at R)	1
32	--	Designation Plate	1

# Four-Battery Back Panel

Part No. B52413 is shown



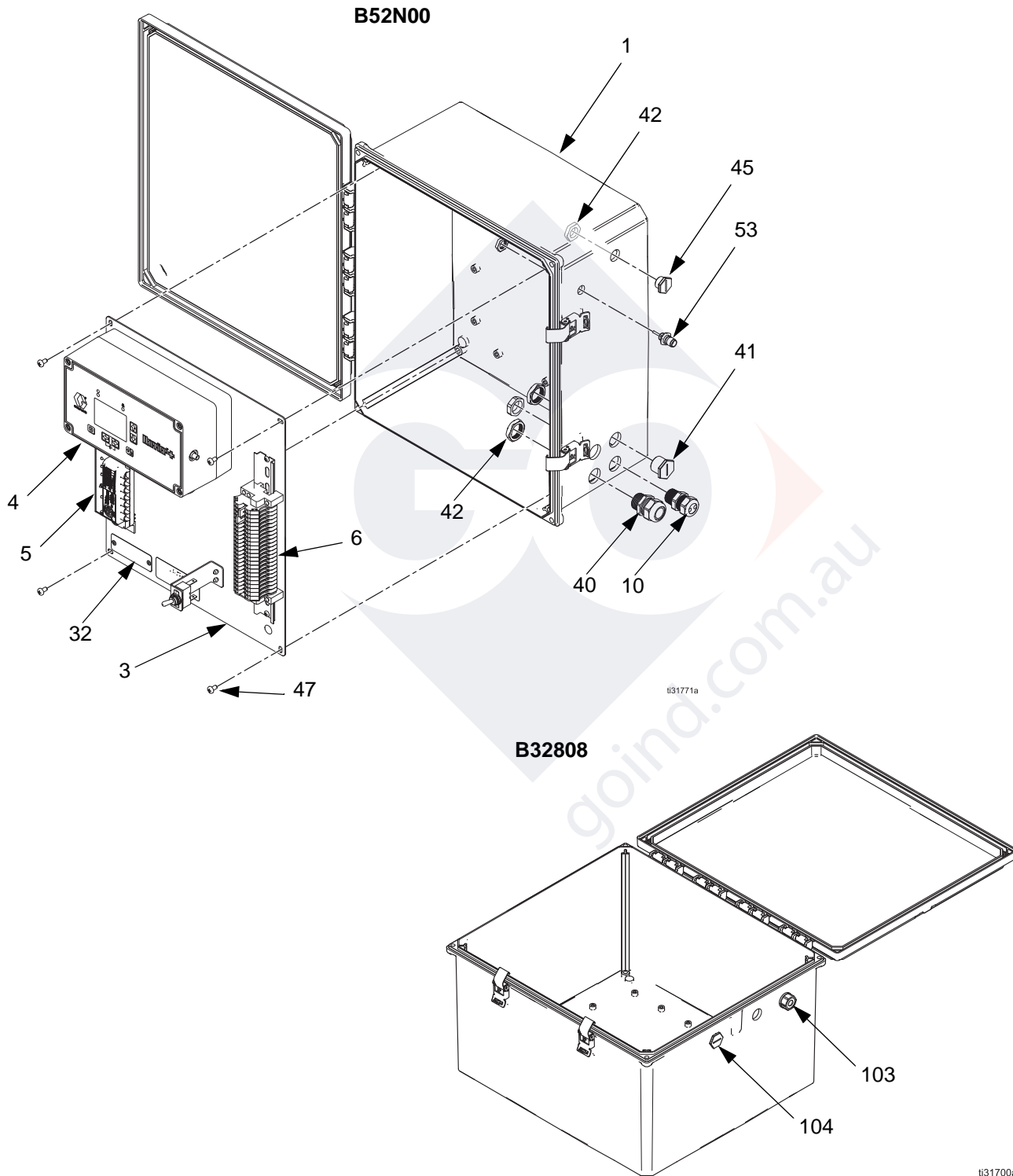
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## Four-Battery Back Panel Parts List

Ref.	Part	Description	Qty
3	--	Back Panel	1
4		Controller;	
	B32110	Harrier EZ	1
	B32001	Harrier	1
	B32631	Harrier+ SCADA	1
	B32627	Harrier+ GSM USA	1
	B32629	Harrier+ International	1
	B32643	Harrier+ CDMA	1
5		Battery Charge Control;	
	B32010	ASC 12/8 (12 V, C1D2, no LVD)	1
	B32012	ASC 12/12 (12 V, C1D2, no LVD)	1
	B32749	ASC 12/16 (12 V, C1D2, no LVD)	1
	B32747	ASC 24/16 (12 V, C1D2, no LVD)	1
	B32744	Morningstar SS20L-12V (12 V, C1D2, LVD)	1
	B32748	Morningstar SS20L-24V (24 V, C1D2, LVD)	1
	B32745	ProStar 30 (12/24 V, LVD, ordinary location)	1
	B32746	ProStar 30M (12/24 V, LVD, ordinary location, screen)	1
6	--	DIN Rail Assembly	1
25	B32614	Solar Cable w/MC4 Connectors (not shown)	1
32	--	Designation Plate	1

# NEMA Control and 4X Two-Battery Boxes

Part No. B52N00 and B32808 are shown



## NEMA Control and 4X Two-Battery Boxes Parts List

Ref.	Part	Description	Qty
1	--	Control Box	1
3	--	Back Panel	1
4		Controller;	
	B32110	Harrier EZ	1
	B32001	Harrier	1
	B32631	Harrier+ SCADA	1
	B32627	Harrier+ GSM USA	1
	B32629	Harrier+ International	1
	B32643	Harrier+ CDMA	1
5		Battery Charge Control;	
	B32010	ASC 12/8 (12 V, C1D2, no LVD)	1
	B32012	ASC 12/12 (12 V, C1D2, no LVD)	1
	B32749	ASC 12/16 (12 V, C1D2, no LVD)	1
	B32747	ASC 24/16 (12 V, C1D2, no LVD)	1
	B32744	Morningstar SS20L-12V (12 V, C1D2, LVD)	1
	B32748	Morningstar SS20L-24V (24 V, C1D2, LVD)	1
	B32745	ProStar 30 (12/24 V, LVD, ordinary location)	1
	B32746	ProStar 30M (12/24 V, LVD, ordinary location, screen)	1
6	--	DIN Rail Assembly	1
10	--	Cable, Solar; 10 AWG, 5 ft.	1
32	--	Designation Plate	1
40	--	Strain Relief Bushing	1
41	--	Plug, 1/2 in.	1
42	--	Strain Relief Nut	3
45	--	Plug, M16	1
46	--	Nut, M16	1
47	--	Screw, Machine	4
53	--	Cable, SMA-male to TNC-female	1
103	--	Breather	1
104	--	Plug	1
105	--	Strain Relief Nut (not shown)	1

## Kits and Accessories

Part No.	Description
<b>B32014</b>	100 W Solar Panel, 12 V, ordinary location
<b>B32021</b>	180 W Solar Panel, 12 V, ordinary location
<b>B32752</b>	265 W Solar Panel, 24 V, ordinary location
<b>B32017</b>	90 W Solar Panel, 12 V, C1D2
<b>B32751</b>	150 W Solar Panel, 12 V, C1D2
<b>B32753</b>	120 W Solar Panel, 24 V, C1D2
<b>B32073</b>	Stand Anchoring Post
<b>B32790</b>	1-Panel Stand, 3 ft., for 90 W - 180 W panel
<b>B32791</b>	1-Panel Stand, 3 ft., for 265 W panel
<b>B32793</b>	1-Panel Stand, 6 ft., for 90 W - 180 W panel
<b>B32794</b>	1-Panel Stand, 3 ft., for 265 W panel
<b>B32796</b>	3-Panel Stand, 3 ft., for 90 W - 180 W panels
<b>B32797</b>	3-Panel Stand, 6 ft., for 90 W - 180 W panels
<b>B32739</b>	A-Frame Stand, for 100 W panel
<b>B32020</b>	Battery, Lead-Acid
<b>B32019</b>	Battery, AGM
<b>B32755</b>	MC4 Branch Connector Set, male & female for connecting panels in parallel, 30 A
<b>B32756</b>	16 in. Extension Cable, MC4 to MC4, 10 AWG, two cables for positive and negative leads
<b>B32757</b>	5 ft. Extension Cable, MC4 to MC4, 10 AWG, two cables for positive and negative leads
<b>B32758</b>	10 ft. Extension Cable, MC4 to MC4, 10 AWG, two cables for positive and negative leads
<b>B32759</b>	15 ft. Extension Cable, MC4 to MC4, 10 AWG, two cables for positive and negative leads
<b>B32106</b>	Temperature Switch Kit
<b>B32074</b>	10 A Mini Fuse (10 pack)
<b>B32070</b>	15 A Mini Fuse (10 pack)
<b>B32071</b>	20 A Mini Fuse (10 pack)
<b>B32769</b>	25 A Mini Fuse (10 pack)
<b>B32768</b>	30 A Mini Fuse (10 pack)
<b>B32072</b>	Pressure Sensor
<b>B32805</b>	4-Battery Box

<b>B32808</b>	NEMA 4X 2-Battery Box
<b>B32809</b>	NEMA 4X Battery Add-on Kit
<b>B32771</b>	Tank Level Monitor Kit



# Technical Specifications

Solar-Powered Chemical Injection Systems		
	US	Metric
Nominal Voltage	Varies, see <b>Box Configuration Number Matrix</b> , page 3.	
Maximum Solar Input Current		
ASC 12/12	12 A	
Morningstar SS20L-12V	20 A	
Morningstar ProStar 30	30 A	
Morningstar ProStar 30M	30 A	
ASC 24/16	16 A	
Morningstar SS20L-24V	20 A	
ASC 12/16	16 A	
Maximum Load Current	Varies by pump controller:	
Harrier EZ	16 A	
Harrier	16 A	
Harrier+ (all variations)	25 A	
(none)	Do not exceed fuse F3 rating. See , page 17.	
Battery Size		
Two-Battery Aluminum Box	Designed for a maximum of two 12 V, Group 31 batteries.	
Four-Battery Back Panel	Will fit a maximum of four 12 V, Group 31 batteries when using recommended Contica <sup>®</sup> box.	
Two-Battery NEMA 4X Box	Designed for a maximum of two 12 V, Group 31 batteries.	
Operating Temperature Range	-40 - 131°F	-40 - 55°C
Overall Dimensions (L x W x H)		
Two-Battery Aluminum Box	15.20" x 16.32" x 16.28"	38.6 cm x 41.5 cm x 41.4 cm
Four-Battery Back Panel	37.0" x 23.0" x 21.0"	94.0 cm x 58.4 cm x 53.3 cm
NEMA 4X Control Box	16.75" x 16.0" x 8.5"	42.5 cm x 40.6 cm x 21.6 cm
Two-Battery NEMA 4X Box	19.0" x 18.25" x 11.25"	48.3 cm x 46.4 cm x 28.6 cm
<b>Weight</b>		
2-Battery Aluminum Box (without battery)	21.5 lbs	9.75 kg
4-Battery Back Panel	8.0 lbs	3.6 kg
NEMA 4X Control Box	16.9 lbs	7.7 kg
Two-Battery NEMA 4X Box	14.0 lbs	6.4 kg

## California Proposition 65

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 **WARNING:** Cancer and reproductive harm – [www.P65warnings.ca.gov](http://www.P65warnings.ca.gov).

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