

Date: June 18, 2024

Subject: TriPac 3 Heater

Location: e-Tech Library

Units: TriPac 3

Description: A change to the heater naming convention will match Espar to coincide with the upcoming launch of the new “AX3” series of heaters for TriPac 3. This bulletin will illustrate the installation and diagnostic setup processes. An updated priming harness (**P/N 2043232**) and priming harness jumper (**P/N 2043233**) is available in Aftermarket.

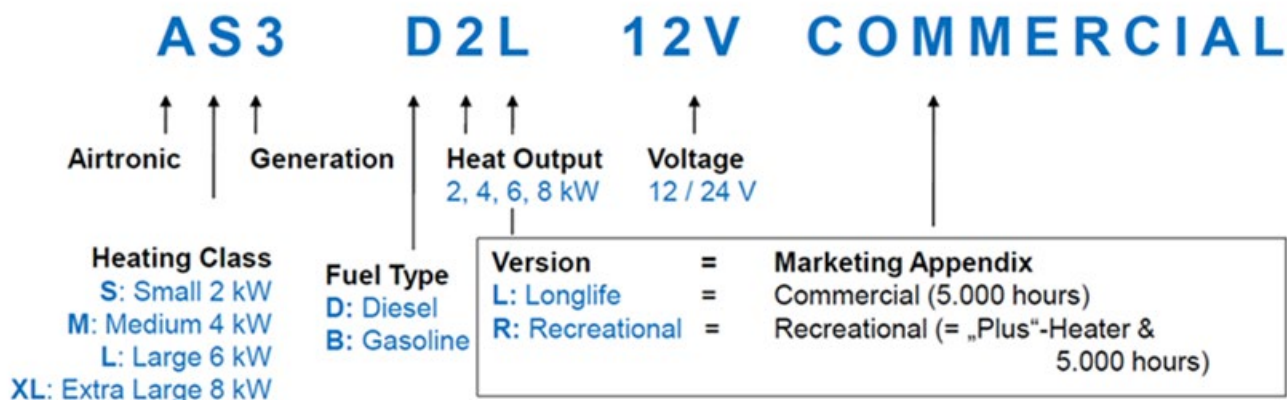
Background:

Espar’s naming convention for the new “AX3” series of heaters is “AS3 D2” and “AM3 D4”. These names are specific to heater models/series that APU will be using in the coming years. Go to page 5 to see the difference between AX1, AX2, and AX3 components.

CLIMATE CONTROL SYSTEMS



AIRTRONIC NOMENCLATURE



How to check and/or change in the HMI:

Verify that the heater is set to standard (D2) or high (D4) capacity CAN, depending on your heater size. This can be done with WinTrac under “Unit Setup” or through the Advanced Menu on the HMI.

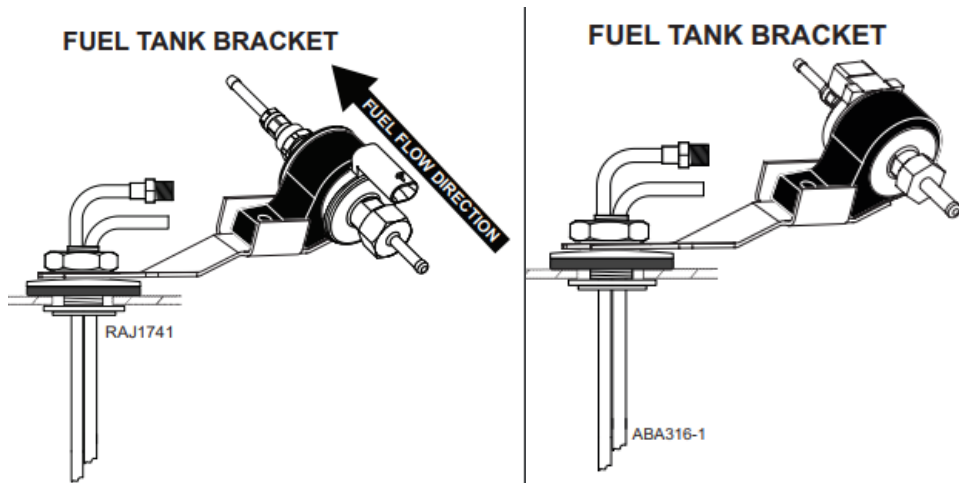
This can be viewed proceeding through the following route: Menu>Advanced Menu>System Settings>Unit Hardware>Cabin Heater Type. The first selection in Standard-Capacity should be CAN (D2 Heater). The second selection in High-Capacity should be CAN (D4 Heater).



Diagnostics:

1. Get an EasyScan tool from Aftermarket **P/N: 2043228**.
2. Check for the latest HMI software via the [Software Compatibility Matrix](#)
 - a. MAC 4.0.8
 - b. RIO 4.0.0
 - c. HMI 4.0.4
3. Verify the Standard/High-Capacity CAN is selected for heater type.

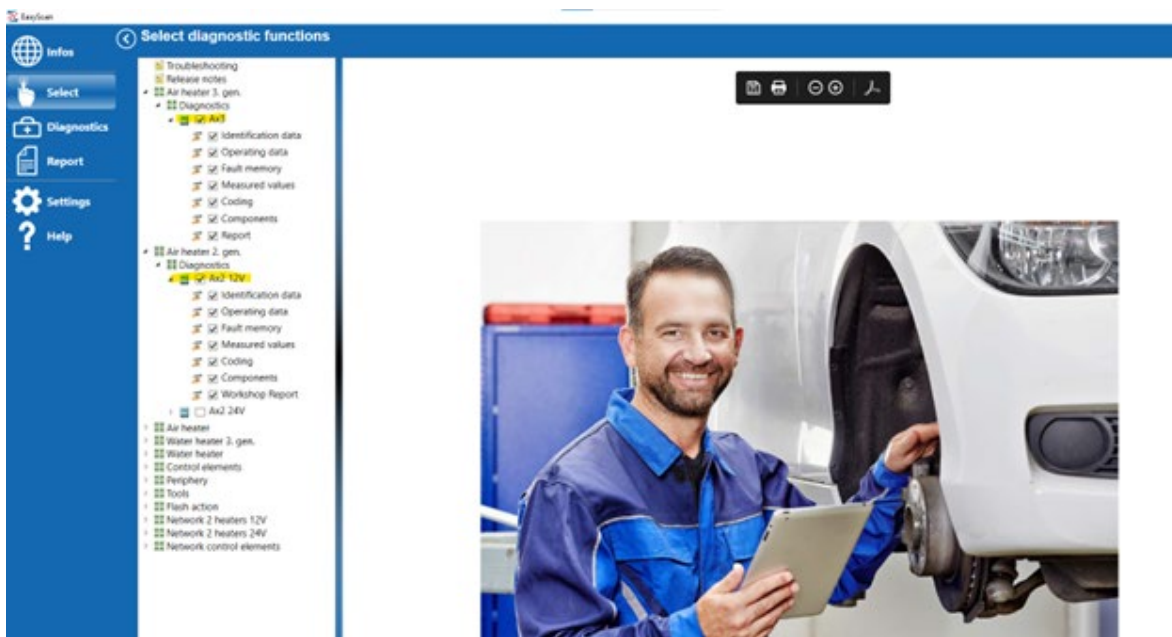
4. Ensure the fuel pump is installed correctly as the orientation of the connector, in relation to the fuel flow, has changed. The connector comes in from the top and the pump has flow arrows on the connector housing.



5. Power on yellow and red wire to the heater?
6. Verify the unit works with the EasyScan tool.

EasyScan to prime Espar fuel line procedure:

1. Install EasyScan program. Connect the EasyScan box to the appropriate connector.
2. Open the EasyScan program.
3. From the main menu, expand “Product Offerings” until AX2 or AX3 are visible with checkmarks next to them.
4. Choose the appropriate product for your application then check the box next to AX2 or AX3.



5. Click “Diagnostics” on the left-hand side of the EasyScan window.



AX2 Heater Procedure

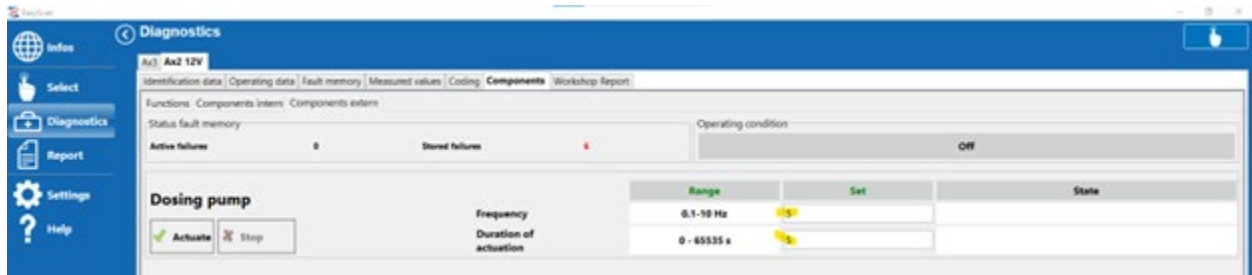
6. Two rows of selectable tabs should appear. Select the “Components” tab on the bottom row.



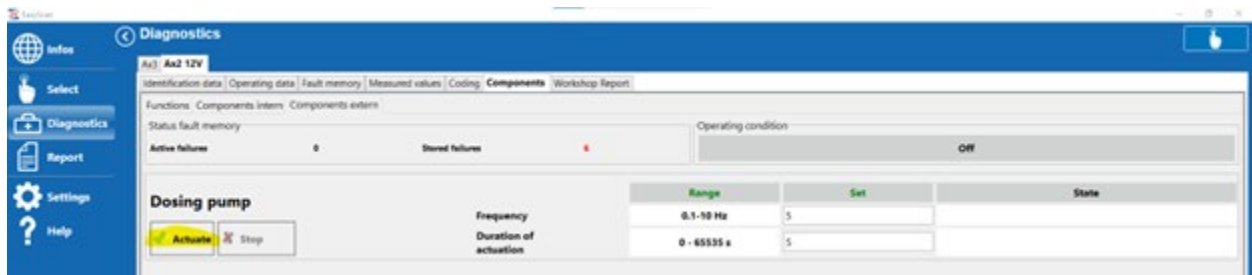
7. A third row of tabs will open. Select “Components Extern”.



8. There are two type-in options on this screen: pump frequency and pump actuation duration.
- Thermo King recommends a medium range of pump frequencies between 3 and 5Hz. This is a typical operation range for the pump while the heater is in service. Any number between .1 and 10 can be chosen, with higher numbers pumping fuel faster.
 - For duration Thermo King recommends short intervals to prevent excess raw fuel from being pumped into the combustion chamber. Use 5 second intervals and watch the fuel being advanced until it enters the heater body. This is enough to prime the line and allow the heater to start via its own pre-start priming sequence.



9. With values set in steps 8a and 8b, click “Actuate” in the bottom left corner of the screen.
- As recommended in step 8b, it is recommended to have short durations and to position yourself to observe the fuel moving through the fuel line. Do not pump excess raw fuel into the chamber as this can result in damage to the heater.



AX3 Heater Procedure

10. The Espar EasyScan interface is different between the AX2 and AX3 generations. To view and modify, select the “Ax3” tab and followed by the “Components” tab.

Diagnostics

Ax3 Ax2 12V

Identification data | Operating data | Fault memory | Measured values | Coding | **Components** | Report

Refresh Unit ECU reset

Select function 0 %

Measured value	Actual value	Unit	Measured value	Actual value	Unit
Operating mode	OFF		Current heat output	0.00	%
Operating condition	Standby		Burner motor speed	0	RPM
Status flame	Not detected flame		Dosing pump frequency	0.00	Hz
Flame sensor status	inactive		Glow plug power	0.00	W
Active failures	0		Flame sensor	24.00	°C
Stored failures	0		Water/air inlet sensor	25.60	°C
			Water/air outlet sensor	25.20	°C

Start Stop Result

Selection Select function

- ☐ Workshop heating
- ☐ Heater ON
- ☐ Self test
- ☐ Burner motor
- ☐ Glow plug (PWM)
- ☐ Dosing pump

Parameter Value

Parameter	Range and format	Value	Unit
Frequenz	[0.10-10.00]	0.10	Hz
Duration	[0-65535]	0	s

11. Select “Dosing Pump”. From here, repeat the steps listed in **Step 8** of the **AX2 Heater Procedure**.

Start Stop Result

Selection Select function

- ☒ Dosing pump

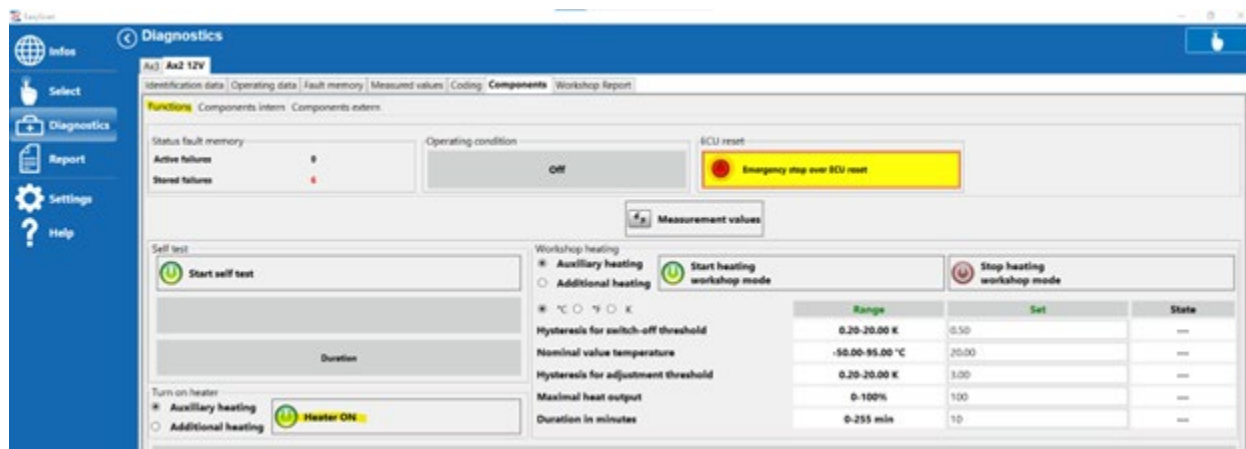
Parameter Value

Parameter	Range and format	Value	Unit
Frequenz	[0.10-10.00]	0.10	Hz
Duration	[0-65535]	0	s

Both AX2 and AX3 Heaters

12. When the system is primed, the heater can be activated on EasyScan or through the HMI by putting the system into heat mode and selecting a temperature above the current cab temperature.

a. If this step is completed via EasyScan, choose “Functions>Heater ON”.



Differences between AX1, AX2, and AX3:

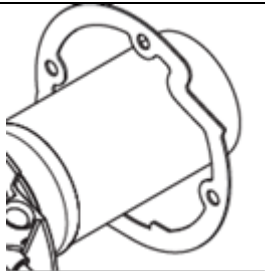
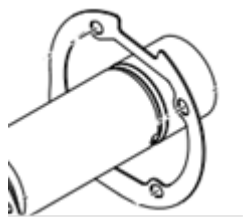
Glow Pin Screen

Series	AX1	AX2	AX3
Image			N/A
Part Number	25.2069.10.0102.2Z		N/A

Blower Gasket

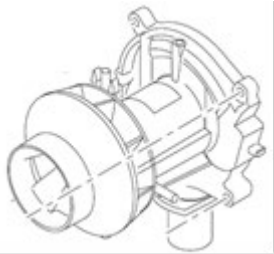
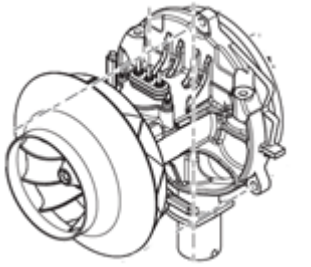
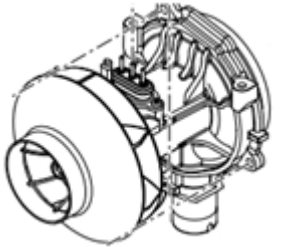
Series	AX1	AX2	AX3
Image			
Part Number	25.2069.06.0001.2Z - D2 25.2113.06.0001.2Z - D4	25.2721.01.0003.2Z - D2L 25.2720.01.0003.2Z - D4L/B4L	25.2953.99.0603.0Z - AS3 B2L/D2L Seal Kit 25.2955.99.0603.0Z - AM3 D4L/B4L Seal Kit *Note: Includes Burner Gasket

Burner Gasket

Series	AX1	AX2	AX3
Image			
Part Number	25.2069.06.0001.2Z - D2 25.211.06.0001.2Z - D4	25.2069.06.0001.2Z - D2L/B4L 25.2113.06.0001.2Z - D4L/B4L	25.2953.99.0603.0Z - D2L/B2L Seal Kit 25.2955.99.0603.0Z - D4L/B4L Seal Kit *Note Includes Blower Gasket

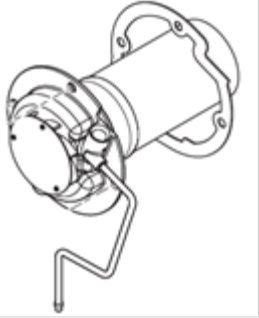
Common Replacement Parts

Blower

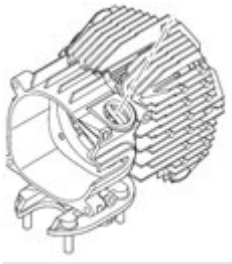
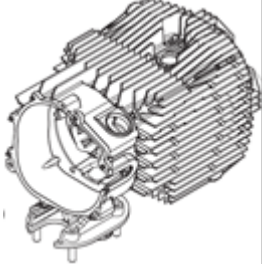
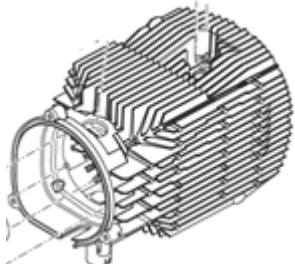
Series	AX1	AX2	AX3
Image			
Part Number	25.2069.99.2000.0Z - 12V D2 25.2070.99.2000.0Z - 24V D2 25.2113.99.2000.0Z - 12V D4 25.2114.99.2000.0Z - 24V D4	25.2721.99.1500.0Z - 12V D2L 25.2720.99.1500.0Z - 12V D4L/B4L 25.2726.99.1500.0Z - 24V D2L 25.2729.99.1500.0Z - 24V D4L	25.2953.99.1500.0Z - D2L/B2L 25.2955.99.1500.0Z - 12V D4L/B4L 25.2957.99.1500.0Z - 12V D4R 25.2954.99.1500.0Z - 24V D2L 25.2956.99.1500.0Z - 24V D4L 25.2958.99.1500.0Z - 24V D4R *Note: all AX3 blower motors come with the blower gasket

Burner Chamber

Series	AX1	AX2	AX3
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Image			
Part Number	25.2069.10.0100.2Z - D2 25.2113.10.0100.2Z - D4 20.1812.10.0100.2Z - B4	25.2720.99.1000.0Z - D2L 25.2721.99.1000.0Z - D4L 20.1987.99.1000 - B4L	20.2029.99.1000.0Z - B2L 25.2953.99.1000.0Z - D2L 25.2955.99.1000.0Z - D4L/B4L *Note: includes Blower Gasket and Burner Gasket

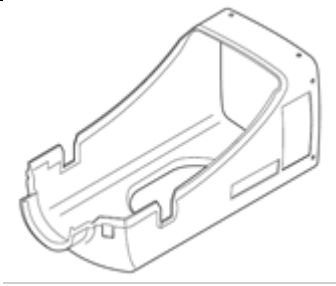
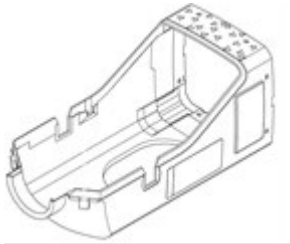
Heat Exchanger

Series	AX1	AX2	AX3
Image			
Part Number	25.2069.06.0100.2Z - D2 25.2113.06.0100.2Z - D4	25.2721.99.0601.0Z - D2L 25.2720.99.0601.0Z - D4L 20.1987.99.0601.0Z - B4L	25.2953.99.0601.0Z - D2L/B2L 25.2955.99.0601.0Z - D4L/B4L *Note: includes Blower Gasket

Upper Casing

Series	AX1	AX2	AX3
Image			
Part Number	25.2069.01.0600.0Z - D2/D2L 25.2113.01.0001.0Z - D4/B4/D4L/B4L		25.2953.01.0101.0Z - D2L/B2L 25.2955.01.0101.0Z - D4L/B4L

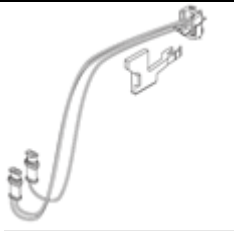
Lower Casing

Series	AX1	AX2	AX3
Image			
Part Number	25.2069.01.0100.0Z - D2/D2L 25.2113.01.0100.0Z - D4/B4/D4L/B4L		25.2953.01.0102.0Z - D2L/B2L 25.2955.01.0102.0Z - D4L/B4L

Seal

Series	AX1	AX2	AX3
Image			
Part Number	25.2069.01.0002.0Z		

Combo Sensor

Series	AX1	AX2	AX3
Image			
Part Number	25.2069.01.0200.2Z	25.2720.99.4000.0Z	25.2953.99.4000.0Z - D2L/B2L/D4L/B4L

Glow Pin

Series	AX1	AX2	AX3
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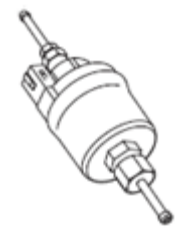
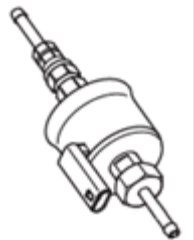
Image			
Part Number	25.2069.01.1300.2Z - 12V 25.2070.01.1100.2Z - 24V	25.2720.99.0106.0Z - 12V 25.2729.99.0106.0Z - 24V	20.2029.99.0104.0Z - 12V 25.2954.99.0104.0Z - 24V

ECU

Series	AX1	AX2	AX3
Image			
Part Number	22.5102.00.3001.2Z - 24V D2 22.5101.00.3005.2Z - 12V D4 22.5102.00.3003.2Z - 24V D4 22.5101.00.3001.2Z - 12V D2 22.5101.00.3005.2Z - 12V D4 22.5101.00.3015.2Z - B4	20.1987.99.5000.0Z - B4L 25.2721.99.5000.0Z - 12V D2L 25.2720.99.5000.0Z - 12V D4L 25.2746.99.5000.0Z - 12V D4R 25.2726.99.5000.0Z 24V D2L 25.2729.99.5000.0Z - 24V D4L	20.2029.99.5000.0Z - 12V B2L 25.2953.99.5000.0Z - 12V D2L 20.2030.99.5000.0Z - 12V B4L 20.2031.99.5000.0Z - 12V B4R 25.2955.99.5000.0Z - 12V D4L 25.2957.99.5000.0Z - 12V D4R 25.2954.99.5000.0Z - D2L 24V 25.2956.99.5000.0Z - D4L 24V 25.2958.99.5000.0Z - D4R 24V

Fuel Metering Pump

Series	AX1	AX2	AX3
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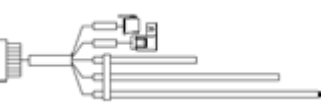
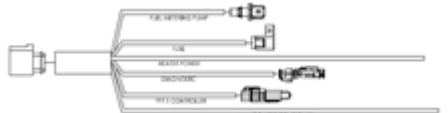
Image		
Part Number	22.4519.01.0000.0Z - 12V 22.4518.01.0000.0Z - 24V	22.4552.03.0000.2Z - 12V 22.4553.01.0000.2Z - 24V

Integrated Fuel Filter

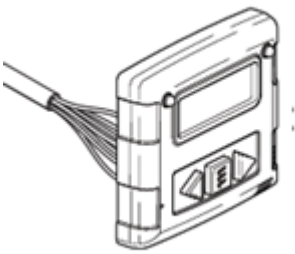
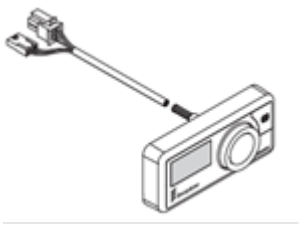
Series	AX1	AX2	AX3
Image			
Part Number	20.1312.00.0006.0Z - Fuel Filter		

RELEASED FOR PRODUCTION

Main Harness

Series	AX1	AX2	AX3
Image			
Part Number	20.2900.70.0391.0Z - Main Harness	20.2900.70.0012.0Z - Main Harness	

Recommended Controller

Series	AX1	AX2	AX3
Image			
Part Number	20.2800.70.1500.0Z - Digi-Max D1000	20.2800.70.2200.0Z - Easy Start Pro	