DBW INSTALLATION GUIDE FOR BF115J - BF250D

HONDA MARINE | ENGINEERING FOR *Life*

DBW RIGGING

Multi-Engine Numbering

The Drive by Wire system (DBW) uses two communication lines to control the engines. The main system is the Honda specific system (H-CAN) the other uses the NMEA2000 network. Please keep in mind the following requirements.

1. An NMEA2000 network must be fitted to the boat and comply with NMEA2000 regulations for the system to function

2. The DBW system cannot use analogue gauges

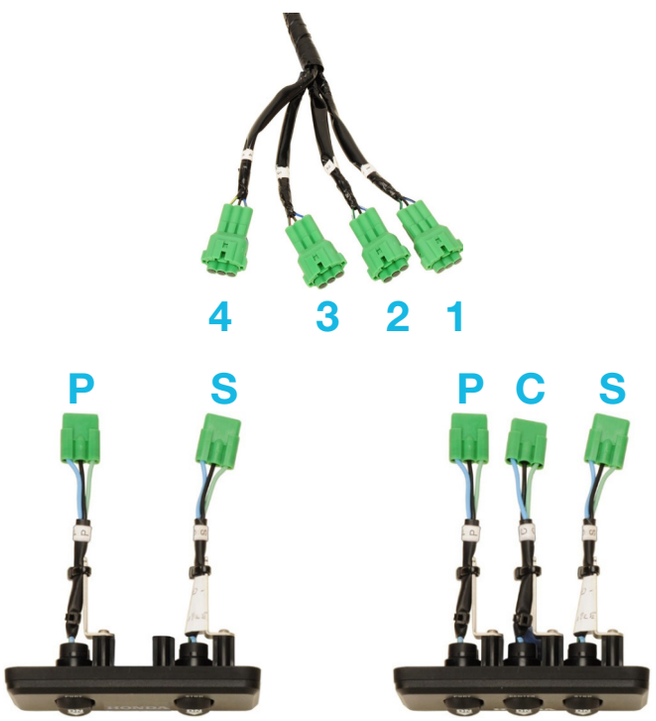
3. Each engine on the NMEA2000 network requires a different instance number assigned to it using Dr H. A single engine must have the number 0 instance. All engines are coded at the factory with instance number 0. When installing a single engine this instance number does not need to be changed. However, in multi engine installations the port engine must be instance 0 then working towards the starboard side the next engine fitted should be increased in number by 1. For example, in a triple installation the port engine would be 0 the center 1 the starboard 2. Please see page 46 and 47 for more information.

Push-Button Start and Power Trim/Tilt Panels
The connectors for the push-button start panel, power trim/tilt panel and main harness are labeled where multi-engine configurations are available. Panel harnesses are labeled with letters and the Control ECU harnesses are labeled with numbers. To correctly connect the panels to the correct engine, follow the instructions below and the rigging diagrams on the following pages.

Twin Engine
Port (**P**) connects to engine **1** connector.
Starboard (**S**) connects to engine **2** connector.

Triple-Engine
Port (**P**) connects to engine **1** connector.
Center (**C**) connects to engine **2** connector.
Starboard (**S**) connects to engine **3** connector.

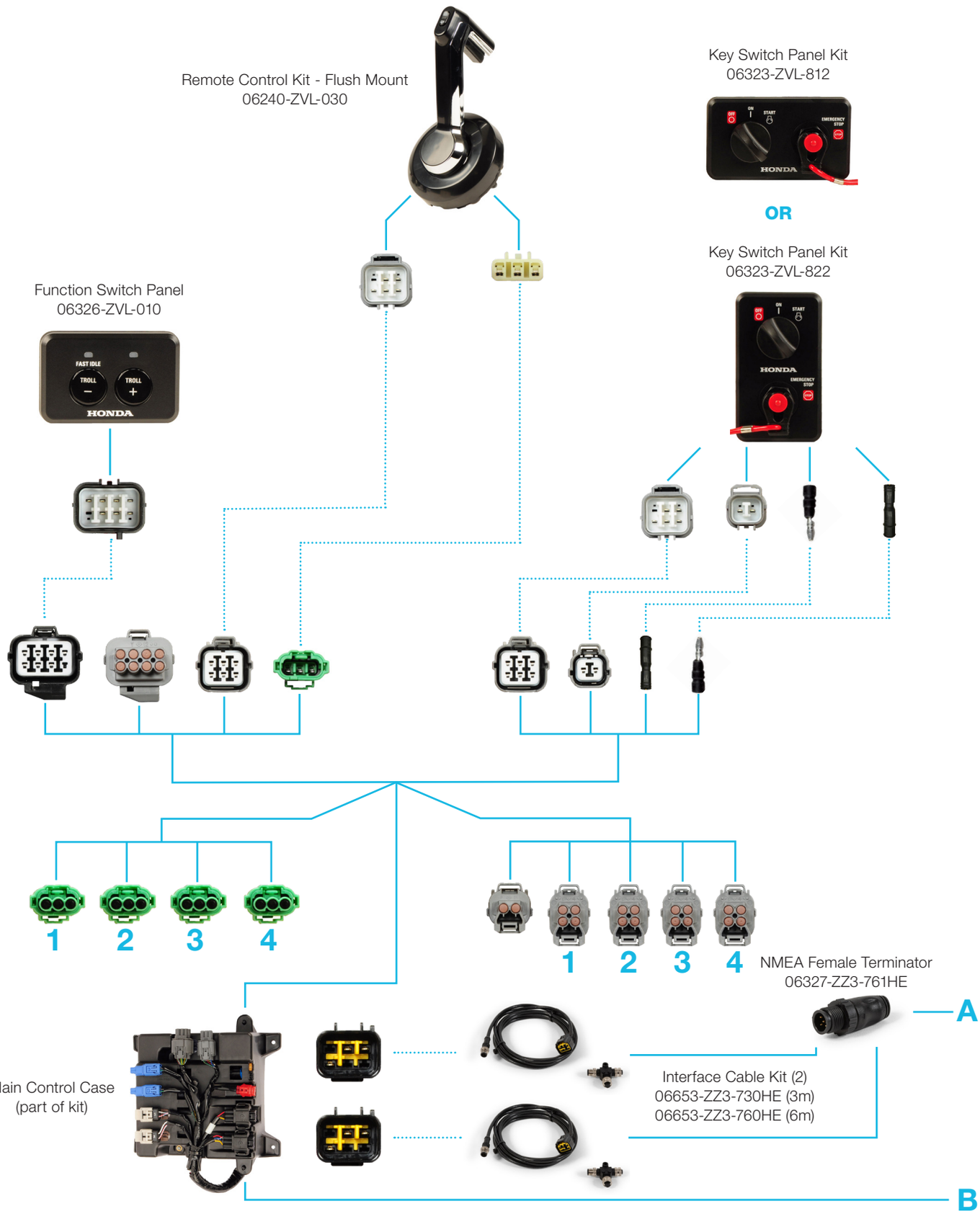
Quad-Engine
Port (**P**) on left panel connects to engine **1** connector.
Starboard (**S**) on left panel connects to engine **2** connector.
Port (**P**) on right panel connects to engine **3** connector.
Starboard (**S**) on right panel connects to engine **4** connector.



* The pictures used are for illustration purposes only. The rigging components may differ from those supplied.

PRE RIGGING

Single Engine, Flush-Mount Control



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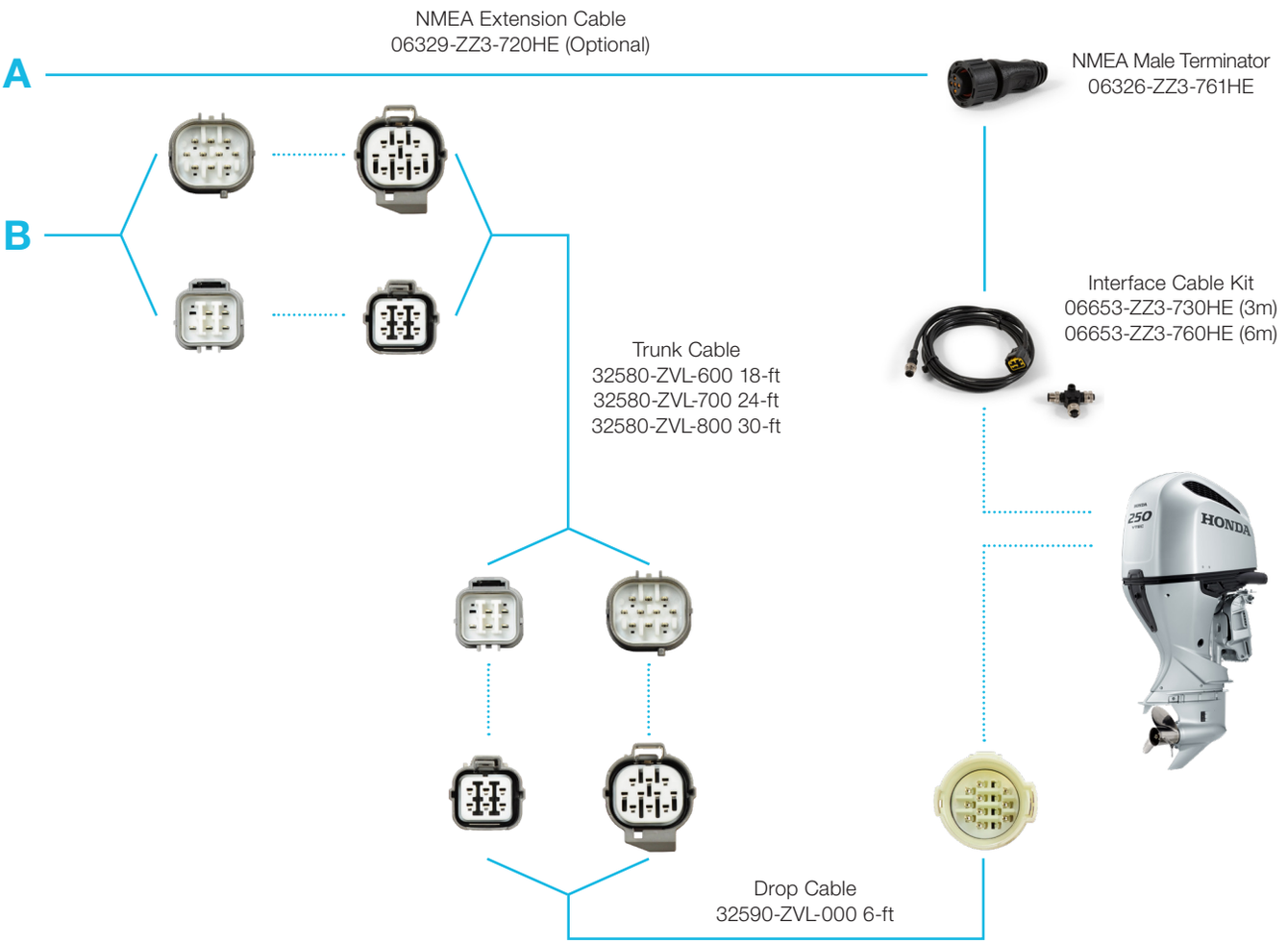
PRE RIGGING

Single Engine, Flush-Mount Control



Single Engine, Flush-Mount Control

Description	Remarks	Part Number	Quantity Required
Cable Assy, Interface - **SELECT LENGTH**	3M NMEA2000 Control Unit Cable	**06653-ZZ3-730HE**	2
	6M NMEA2000 Control Unit Cable	**06653-ZZ3-760HE**	
Cable Assy, Network - **SELECT LENGTH**	3M NMEA2000 Engine Cable	**06653-ZZ3-730HE**	1
	6M NMEA2000 Engine Cable	**06653-ZZ3-760HE**	
Cable Assy, Trunk DBW - **SELECT LENGTH**	18FT Engine Control Cable	**32580-ZVL-600**	1
	24FT Engine Control Cable	**32580-ZVL-700**	
	30FT Engine Control Cable	**32580-ZVL-800**	
Cable Assy Engine Drop Single (6FT)	6FT Drop Cable for Single Engine Installation	**32590-ZVL-000**	1
T-Connector	NMEA2000 T-Connector for Display	**06325-ZZ3-760HE**	1
Terminator Connectors	NMEA2000 Terminator Male	**06326-ZZ3-761HE**	1
	NMEA2000 Terminator Female	**06327-ZZ3-761HE**	
Box Kit, Remote Control (Flush Mount)	Flush Mount R/C	**06240-ZVL-030**	1
Panel Kit, Key Switch (Start) - **SELECT TYPE**	Single, Horizontal (ON-OFF-START)	**06323-ZVL-812**	1
	Single, Vertical (ON-OFF-START)	**06323-ZVL-822**	
Panel Kit, Function Switch	Required for Flush Mount R/C box **Only**	**06326-ZVL-010**	1
Display Kit	Display Kit, Cover, Fitting Kit	**06371-ZY6-040**	1
Cable For Display Kit - **SELECT LENGTH**	NMEA2000 Extension 0.3M	**06329-ZZ3-703HE**	1
	NMEA2000 Extension 2M	**06329-ZZ3-720HE**	

Refer to the NMEA2000 standards for correct connection of the display to the NMEA network.

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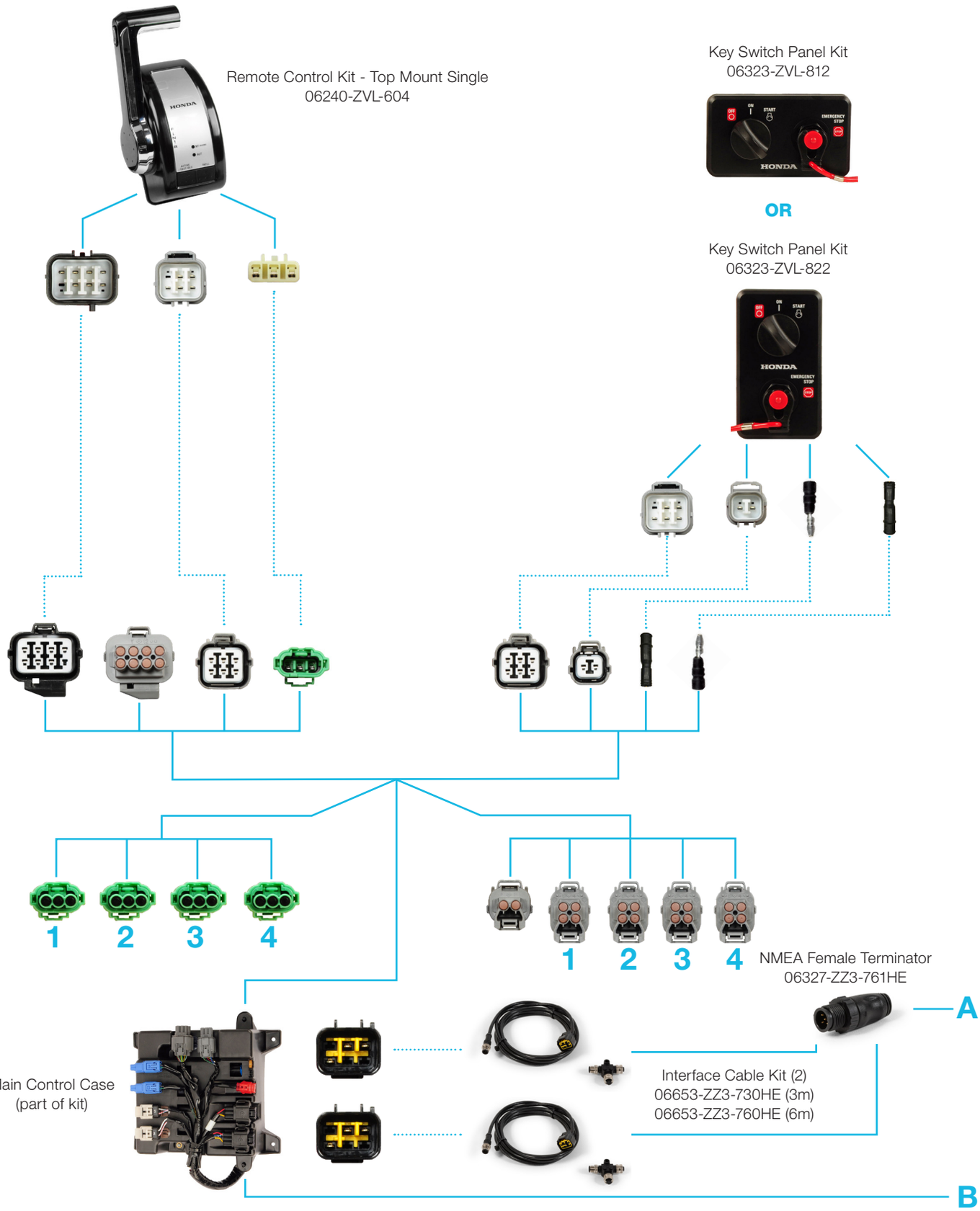
PRE RIGGING

Single Engine, Top-Mount Control



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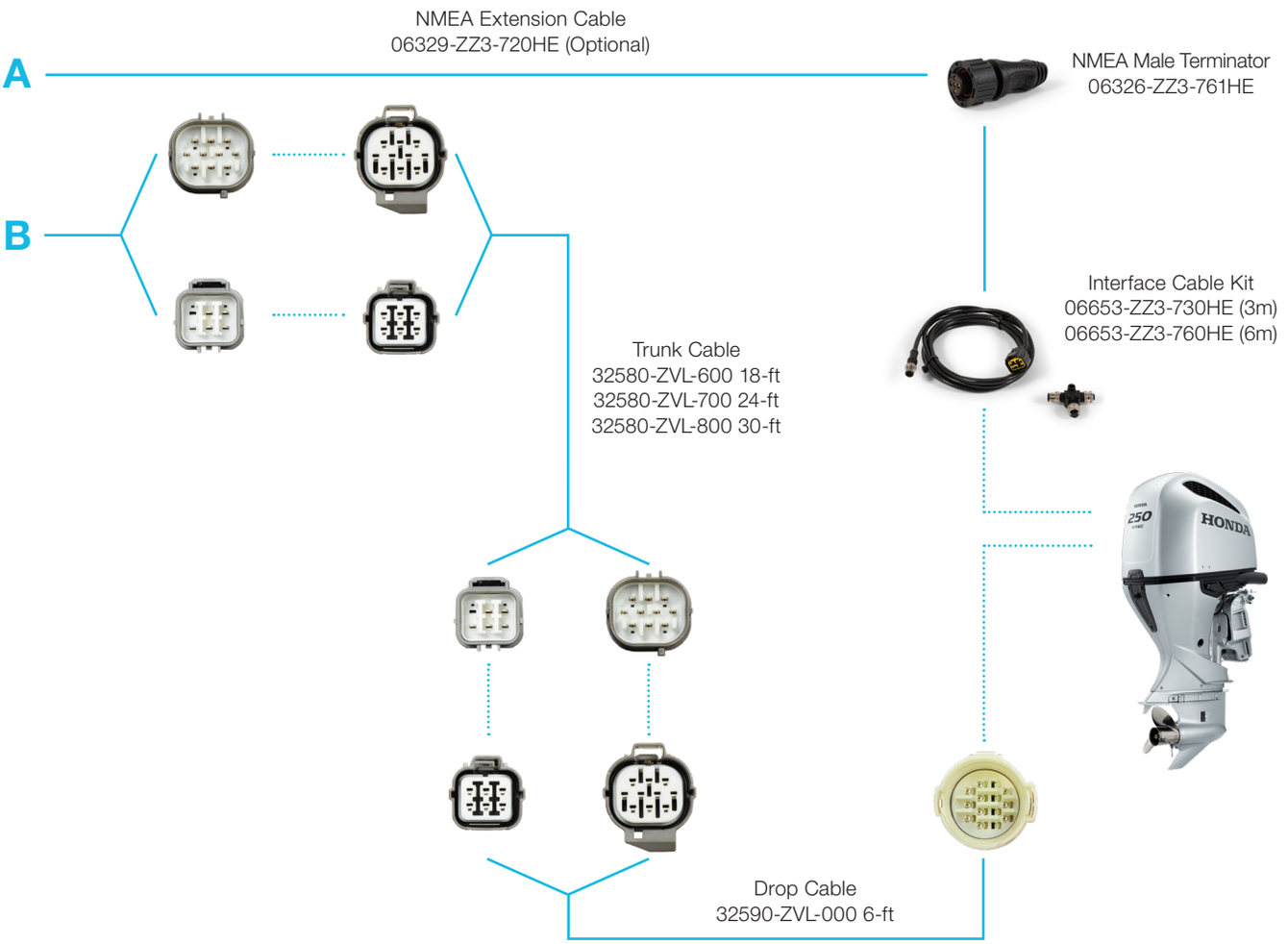
PRE RIGGING

Single Engine, Top-Mount Control



Single Engine, Top-Mount Control

Description	Remarks	Part Number	Quantity Required
Cable Assy, Interface - **SELECT LENGTH**	3M NMEA2000 Control Unit Cable	**06653-ZZ3-730HE**	2
	6M NMEA2000 Control Unit Cable	**06653-ZZ3-760HE**	
Cable Assy, Network - **SELECT LENGTH**	3M NMEA2000 Engine Cable	**06653-ZZ3-730HE**	1
	6M NMEA2000 Engine Cable	**06653-ZZ3-760HE**	
Cable Assy, Trunk DBW - **SELECT LENGTH**	18FT Engine Control Cable	**32580-ZVL-600**	1
	24FT Engine Control Cable	**32580-ZVL-700**	
	30FT Engine Control Cable	**32580-ZVL-800**	
Cable Assy Engine Drop Single (6FT)	6FT Drop Cable for Single Engine Installation	**32590-ZVL-000**	1
T-Connector	NMEA2000 T-Connector for Display	**06325-ZZ3-760HE**	1
Terminator Connectors	NMEA2000 Terminator Male	**06326-ZZ3-761HE**	1
	NMEA2000 Terminator Female	**06327-ZZ3-761HE**	
Box Kit, Remote Control (Top Mount Single)	Top Mount R/C	**06240-ZVL-604**	1
Panel Kit, Key Switch (Start) - **SELECT TYPE**	Single, Horizontal (ON-OFF-START)	**06323-ZVL-812**	1
	Single, Vertical (ON-OFF-START)	**06323-ZVL-822**	
Display Kit	Display Kit, Cover, Fitting Kit	**06371-ZY6-040**	1
Cable For Display Kit - **SELECT LENGTH**	NMEA2000 Extension 0.3M	**06329-ZZ3-703HE**	1
	NMEA2000 Extension 2M	**06329-ZZ3-720HE**	

Refer to the NMEA2000 standards for correct connection of the display to the NMEA network.

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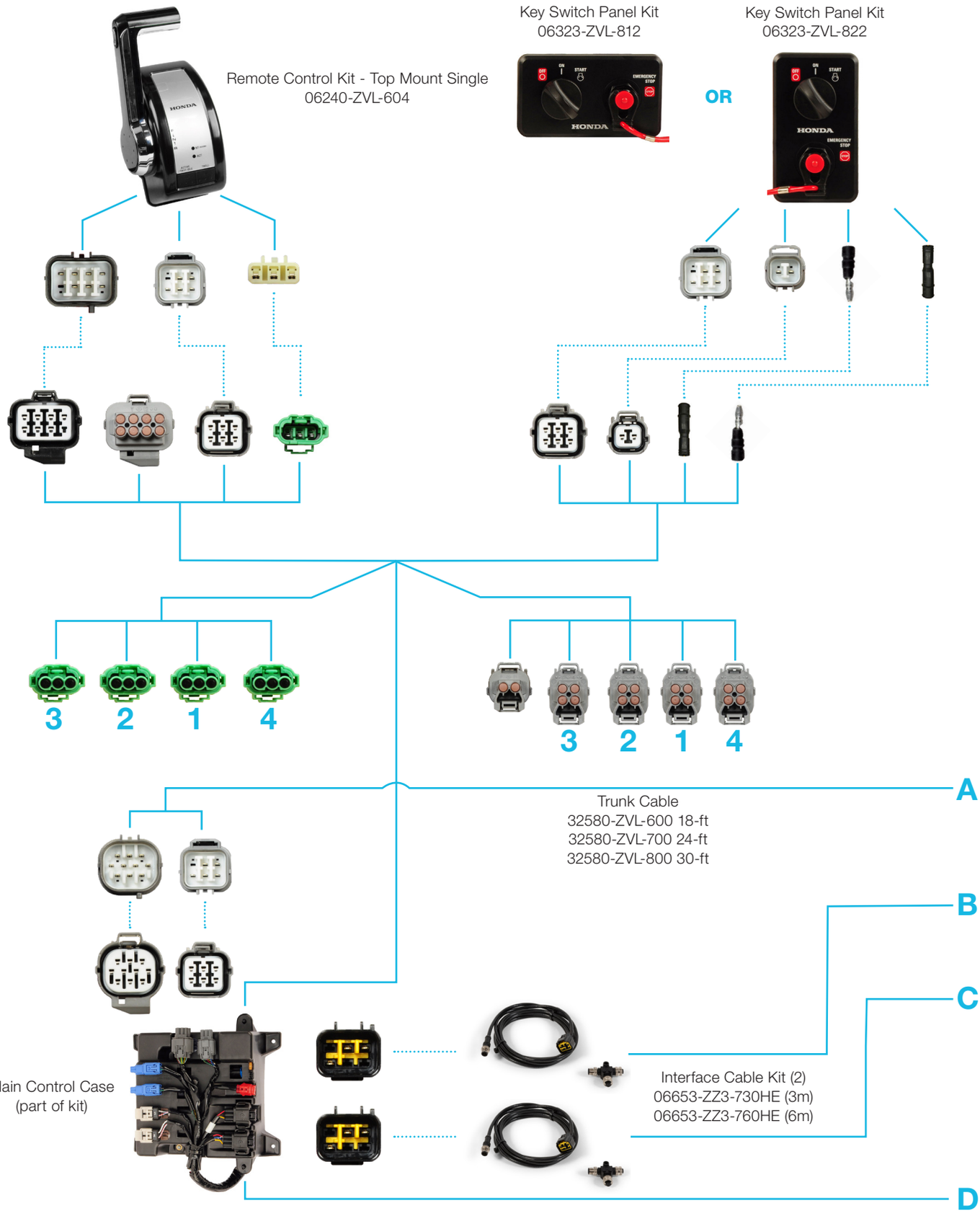
PRE RIGGING

Single Engine, Top-Mount Control With Second Station



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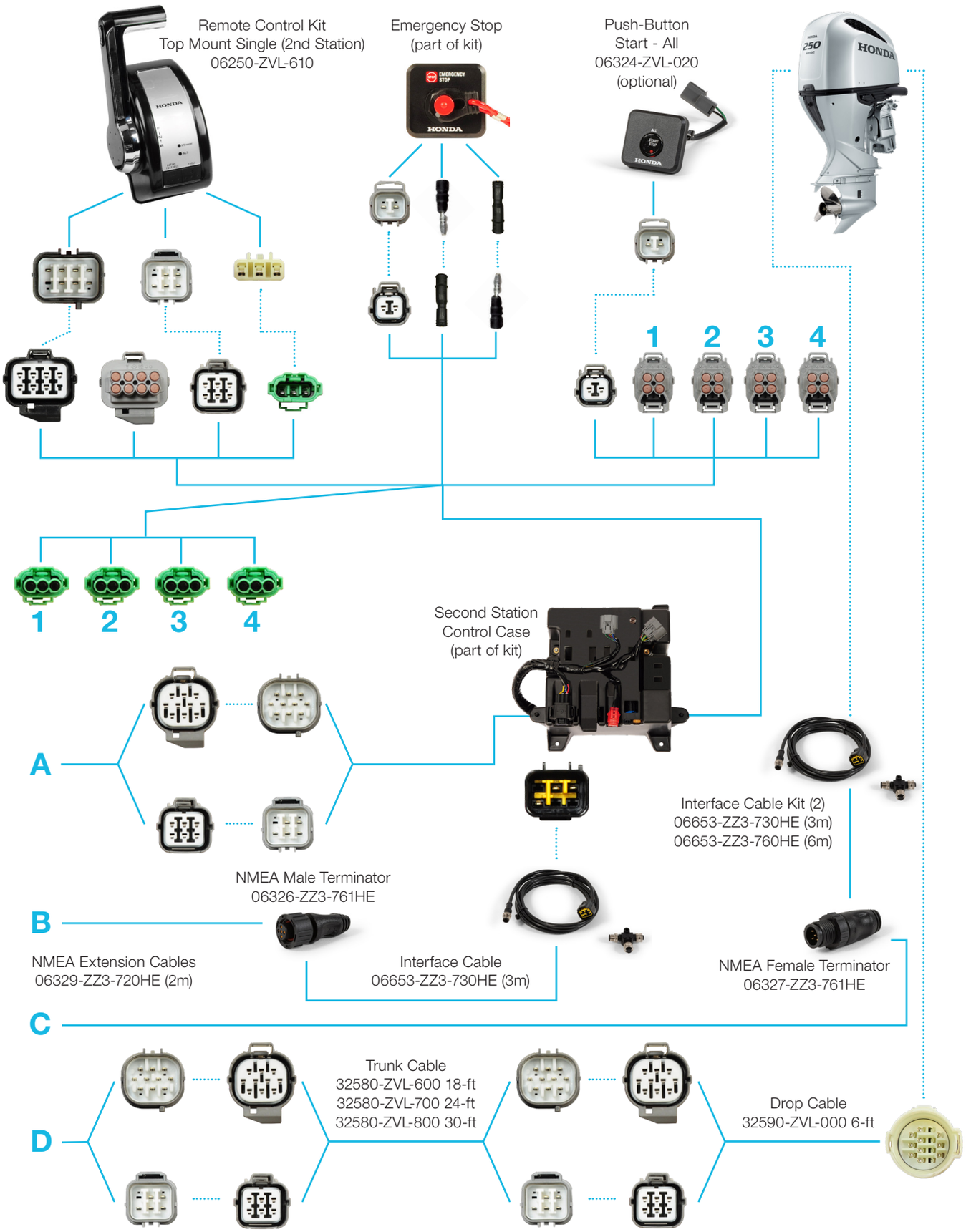
PRE RIGGING

Single Engine, Top-Mount Control With Second Station



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PRE RIGGING

Single Engine, Top-Mount Control With Second Station

Components required in addition to Single Engine Top Mount Control

Description	Remarks	Part Number	Quantity Required
Cable Assy, Network - **SELECT LENGTH**	3M NMEA2000 Engine Cable	**06653-ZZ3-730HE**	1
	6M NMEA2000 Engine Cable	**06653-ZZ3-760HE**	
Cable Assy, Trunk DBW - **SELECT LENGTH**	18FT Engine Control Cable	**32580-ZVL-600**	1
	24FT Engine Control Cable	**32580-ZVL-700**	
	30FT Engine Control Cable	**32580-ZVL-800**	
Panel Kit, Start Stop Switch (All)	Push Start All Engines	**06324-ZVL-020**	1
Box Kit, Remote Control (Top Mount Single) (2ND)	Top Mount R/C 2nd Station	**06250-ZVL-610**	1
Network Cable Extention	2M NMEA2000 Extension Cable	**06329-ZZ3-720HE**	2

Refer to the NMEA2000 standards for correct connection of the display to the NMEA network.

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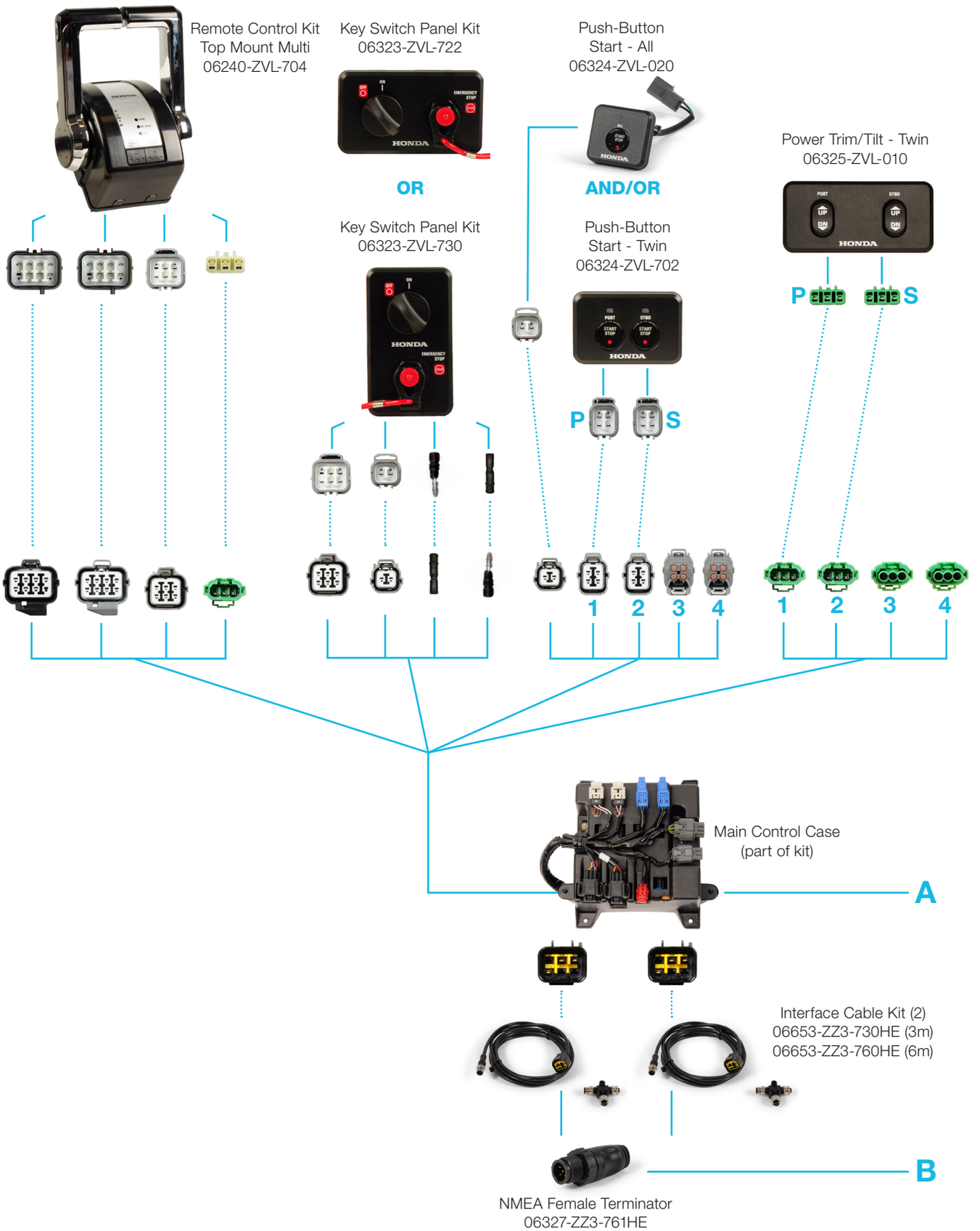
PRE RIGGING

Twin Engine, Top-Mount Control



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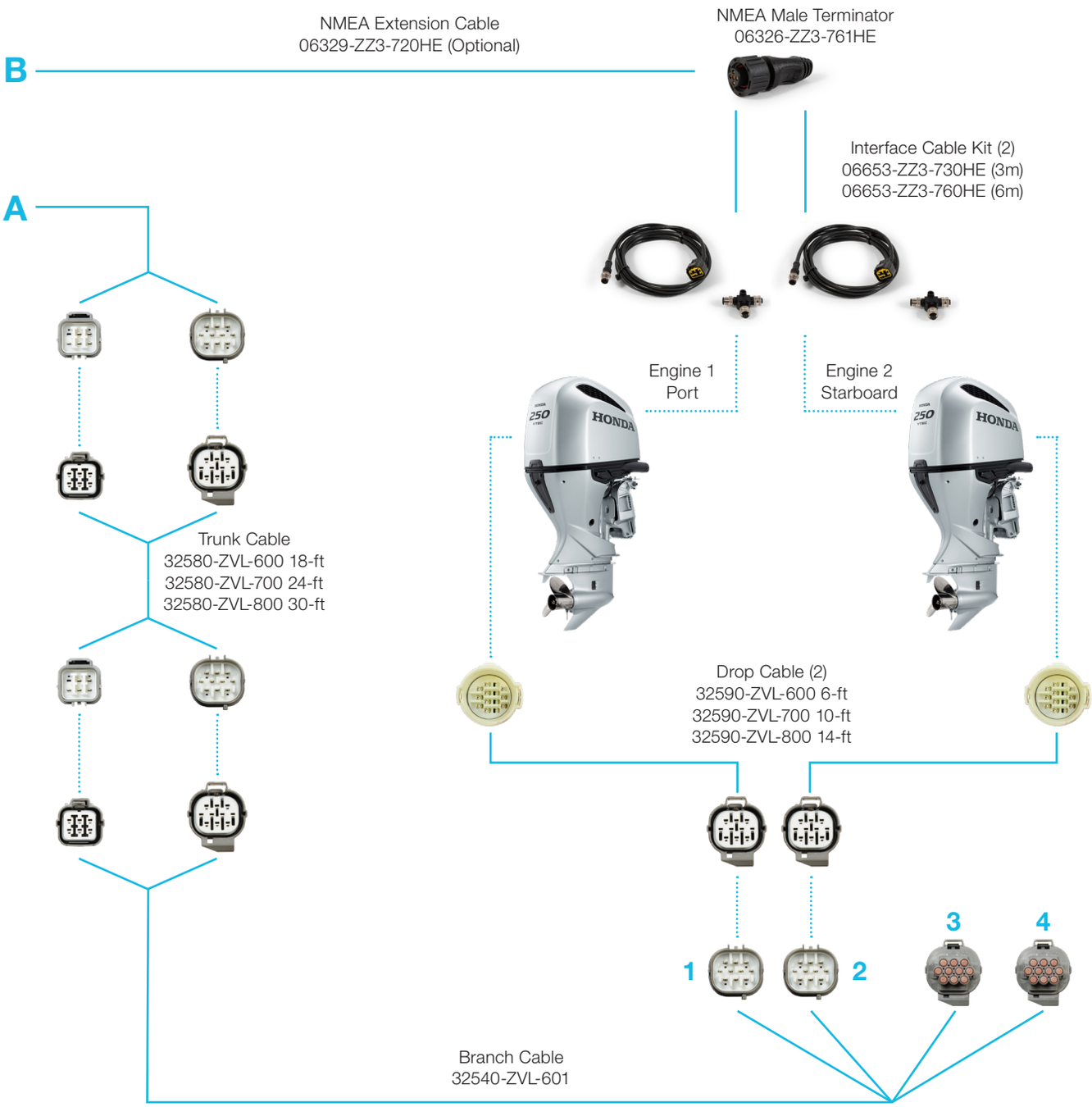
PRE RIGGING

Twin Engine, Top-Mount Control



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PRE RIGGING

Twin Engine, Top-Mount Control

Description	Remarks	Part Number	Quantity Required
Cable Assy, Interface - **SELECT LENGTH**	3M NMEA2000 Control Unit Cable	**06653-ZZ3-730HE**	2
	6M NMEA2000 Control Unit Cable	**06653-ZZ3-760HE**	
Cable Assy, Network - **SELECT LENGTH**	3M NMEA2000 Engine Cable	**06653-ZZ3-730HE**	2
	6M NMEA2000 Engine Cable	**06653-ZZ3-760HE**	
Cable Assy, Trunk DBW - **SELECT LENGTH**	18FT Engine Control Cable	**32580-ZVL-600**	1
	24FT Engine Control Cable	**32580-ZVL-700**	
	30FT Engine Control Cable	**32580-ZVL-800**	
Drop Cable - **SELECT LENGTH**	6FT Drop Cable for Multi Engine Installation	**32590-ZVL-600**	2
	10FT Drop Cable for Multi Engine Installation	**32590-ZVL-700**	
	14FT Drop Cable for Multi Engine Installation	**32590-ZVL-800**	
Cable Assy, Branch	Branch Cable for Multiple Engine Installation	**32540-ZVL-601**	1
Panel Kit, Key Switch (Start) - **SELECT TYPE**	Single, Horizontal (ON-OFF)	**06323-ZVL-722**	1
	Single, Vertical (ON-OFF)	**06323-ZVL-732**	
Box Kit, Remote Control (Top Mount Dual) (Main)	Top Mount R/C (Dual)	**06240-ZVL-704**	1
Panel Kit, Start Stop Switch (All)	Multiple Installation, Push Start All Engines	**06324-ZVL-020**	1
Panel Kit, Start Stop Switch (Twin)	Twin Installation, Push Start Engines Separately	**06324-ZVL-702**	1
Panel Kit, Power Trim Tilt Switch (Twin)	Twin Installation, Operate PTT's Separately	**06325-ZVL-010**	1
Dummy Water Proof Connector	For Multiple Installation H-CAN Termination	**32108-ZVL-003**	1
T-Connector	NMEA2000 T-Connector for Display	**06325-ZZ3-760HE**	1
Terminator Connectors	NMEA2000 Terminator Male	**06326-ZZ3-761HE**	1
	NMEA2000 Terminator Female	**06327-ZZ3-761HE**	
Display Kit	Display Kit, Cover, Fitting Kit	**06371-ZY6-040**	1
Cable For Display Kit - **SELECT LENGTH**	NMEA2000 Extension 0.3M	**06329-ZZ3-703HE**	1
	NMEA2000 Extension 2M	**06329-ZZ3-720HE**	1

Refer to the NMEA2000 standards for correct connection of the display to the NMEA network.

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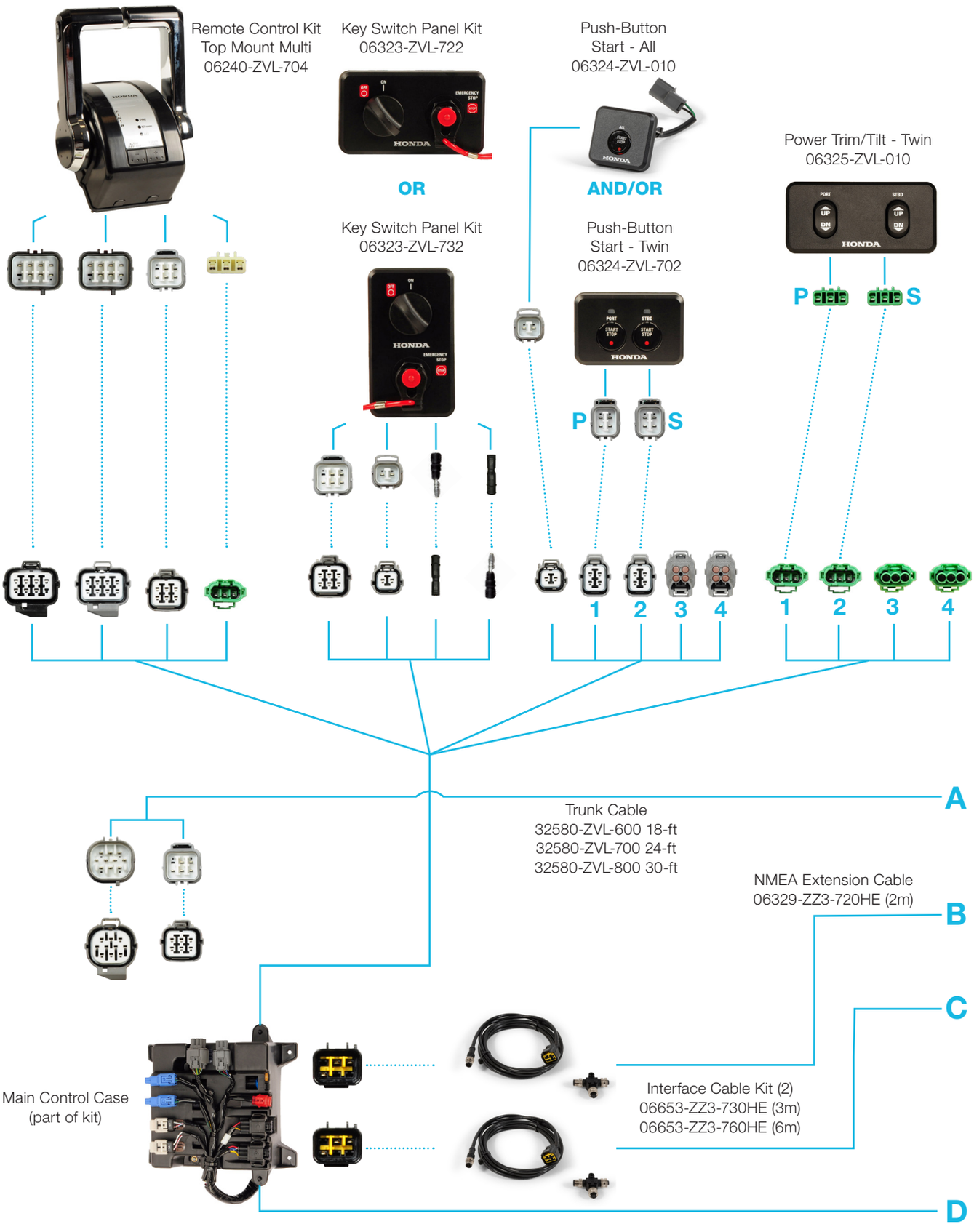
PRE RIGGING

Twin Engine, Top-Mount Control With Second Station



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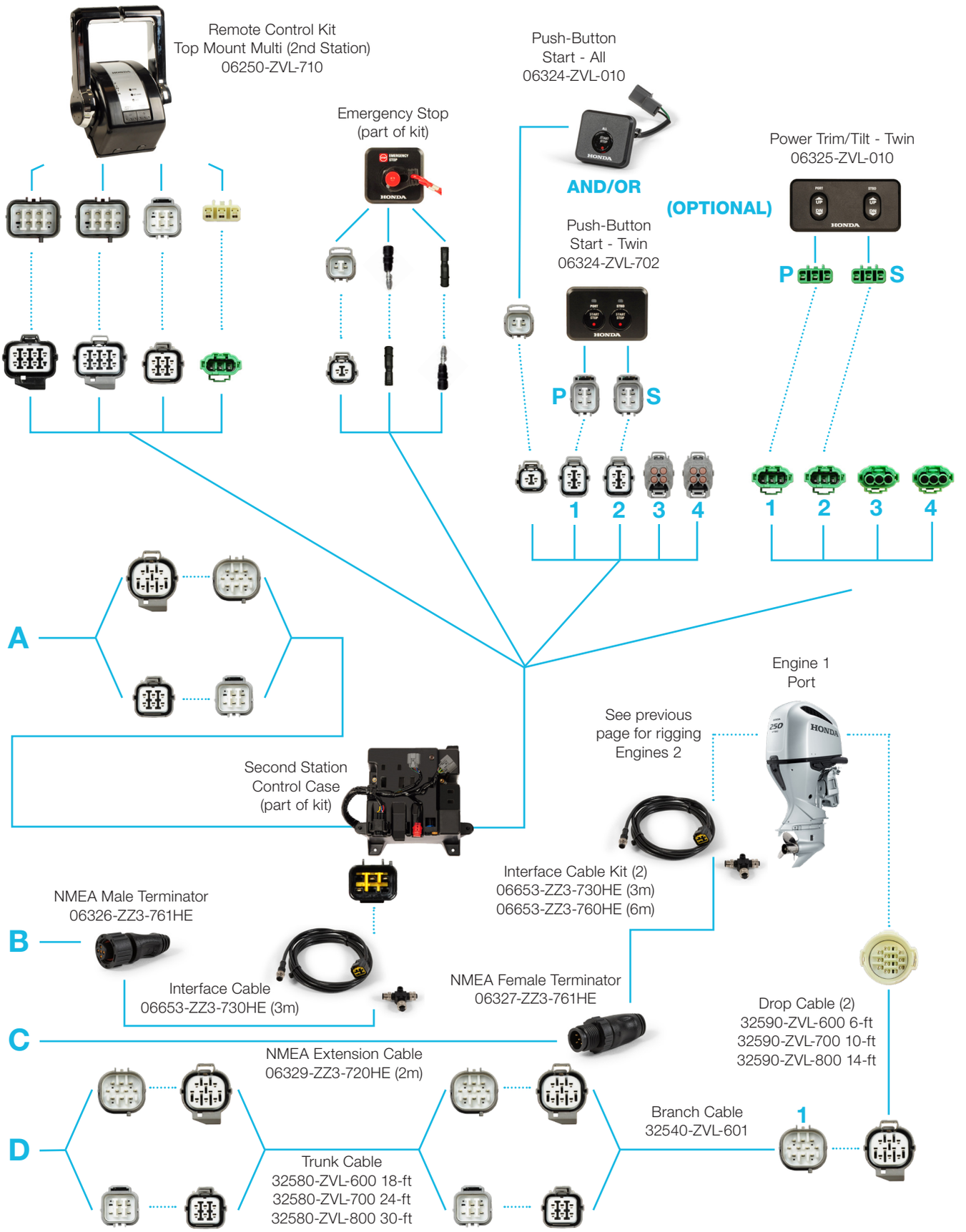
PRE RIGGING

Twin Engine, Top-Mount Control With Second Station



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Twin Engine, Top-Mount Control With Second Station

Components required in addition to Twin Engine Top Mount Control

Description	Remarks	Part Number	Quantity Required
Cable Assy, Network - **SELECT LENGTH**	3M NMEA2000 Engine Cable	**06653-ZZ3-730HE**	1
	6M NMEA2000 Engine Cable	**06653-ZZ3-760HE**	
Cable Assy, Trunk DBW - **SELECT LENGTH**	18FT Engine Control Cable	**32580-ZVL-600**	1
	24FT Engine Control Cable	**32580-ZVL-700**	
	30FT Engine Control Cable	**32580-ZVL-800**	
Panel Kit, Start Stop Switch (All)	Push Start All Engines	**06324-ZVL-010**	1
Box Kit, Remote Control (Mount Dual) (2ND)	Top Mount R/C 2nd Station	**06250-ZVL-710**	1
Network Cable Extension	2m NMEA2000 Extension Cable	**06329-ZZ3-720HE**	2

Refer to the NMEA2000 standards for correct connection of the display to the NMEA network.

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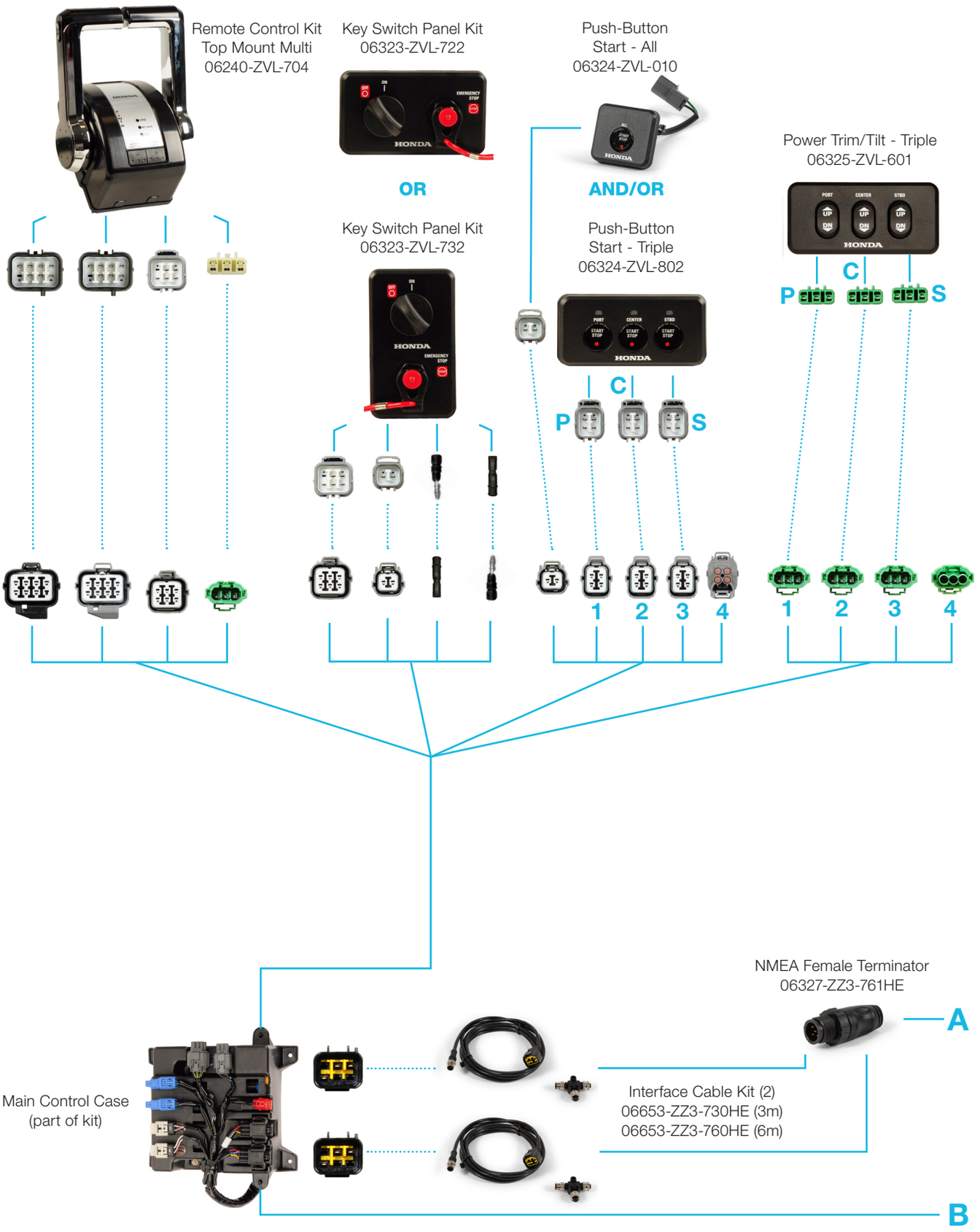
PRE RIGGING

Triple Engine, Top-Mount Control



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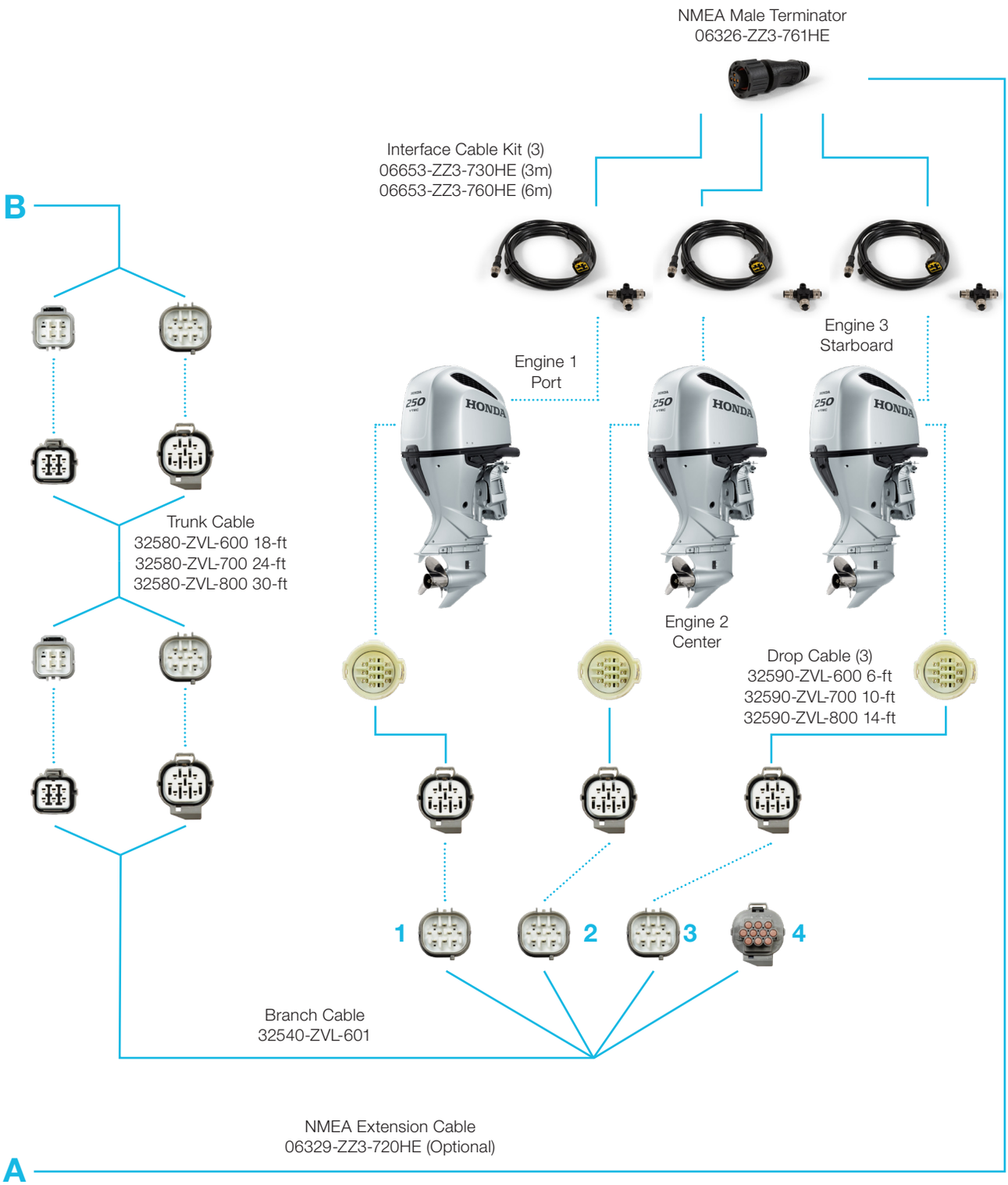
PRE RIGGING

Triple Engine, Top-Mount Control



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Triple Engine, Top-Mount Control

Description	Remarks	Part Number	Quantity Required
Cable Assy, Interface - **SELECT LENGTH**	3M NMEA2000 Control Unit Cable	**06653-ZZ3-730HE**	2
	6M NMEA2000 Control Unit Cable	**06653-ZZ3-760HE**	
	3M NMEA2000 Engine Cable	**06653-ZZ3-730HE**	3
	6M NMEA2000 Engine Cable	**06653-ZZ3-760HE**	
Cable Assy, Trunk DBW - **SELECT LENGTH**	18FT Engine Control Cable	**32580-ZVL-600**	1
	24FT Engine Control Cable	**32580-ZVL-700**	
	30FT Engine Control Cable	**32580-ZVL-800**	
Drop Cable - **SELECT LENGTH**	6FT Drop Cable for Multi Engine Installation	**32590-ZVL-600**	3
	10FT Drop Cable for Multi Engine Installation	**32590-ZVL-700**	
	14FT Drop Cable for Multi Engine Installation	**32590-ZVL-800**	
Cable Assy, Branch	Branch Cable for Multiple Engine Installation	**32540-ZVL-601**	1
Panel Kit, Key Switch (Start) - **SELECT TYPE**	Single, Horizontal (ON-OFF)	**06323-ZVL-722**	1
	Single, Vertical (ON-OFF)	**06323-ZVL-732**	
Box Kit, Remote Control (Top Mount Dual) (MAIN)	Top Mount R/C (Dual)	**06240-ZVL-704**	1
Panel Kit, Start Stop Switch (All)	Multiple Installation, Push Start All Engines	**06324-ZVL-010**	1
Panel Kit, Start Stop Switch (Triple)	Triple Installation, Push Start Engines Separately	**06324-ZVL-802**	1
Panel Kit, Power Trim Tilt Switch (Triple)	Triple Installation, Operate PTT's Separately	**06325-ZVL-601**	1
Dummy Water Proof Connector	For Multiple Installation H-CAN Termination	**32108-ZVL-003**	2
T-Connector	NMEA2000 T-Connector for Display	**06325-ZZ3-760HE**	1
Terminator Connectors	NMEA2000 Terminator Male	**06326-ZZ3-761HE**	1
	NMEA2000 Terminator Female	**06327-ZZ3-761HE**	
Display Kit	Display Kit, Cover, Fitting Kit	**06371-ZY6-040**	1
Cable For Display Kit - **SELECT LENGTH**	NMEA2000 Extension 0.3M	**06329-ZZ3-703HE**	1
	NMEA2000 Extension 2M	**06329-ZZ3-720HE**	1

Refer to the NMEA2000 standards for correct connection of the display to the NMEA network.

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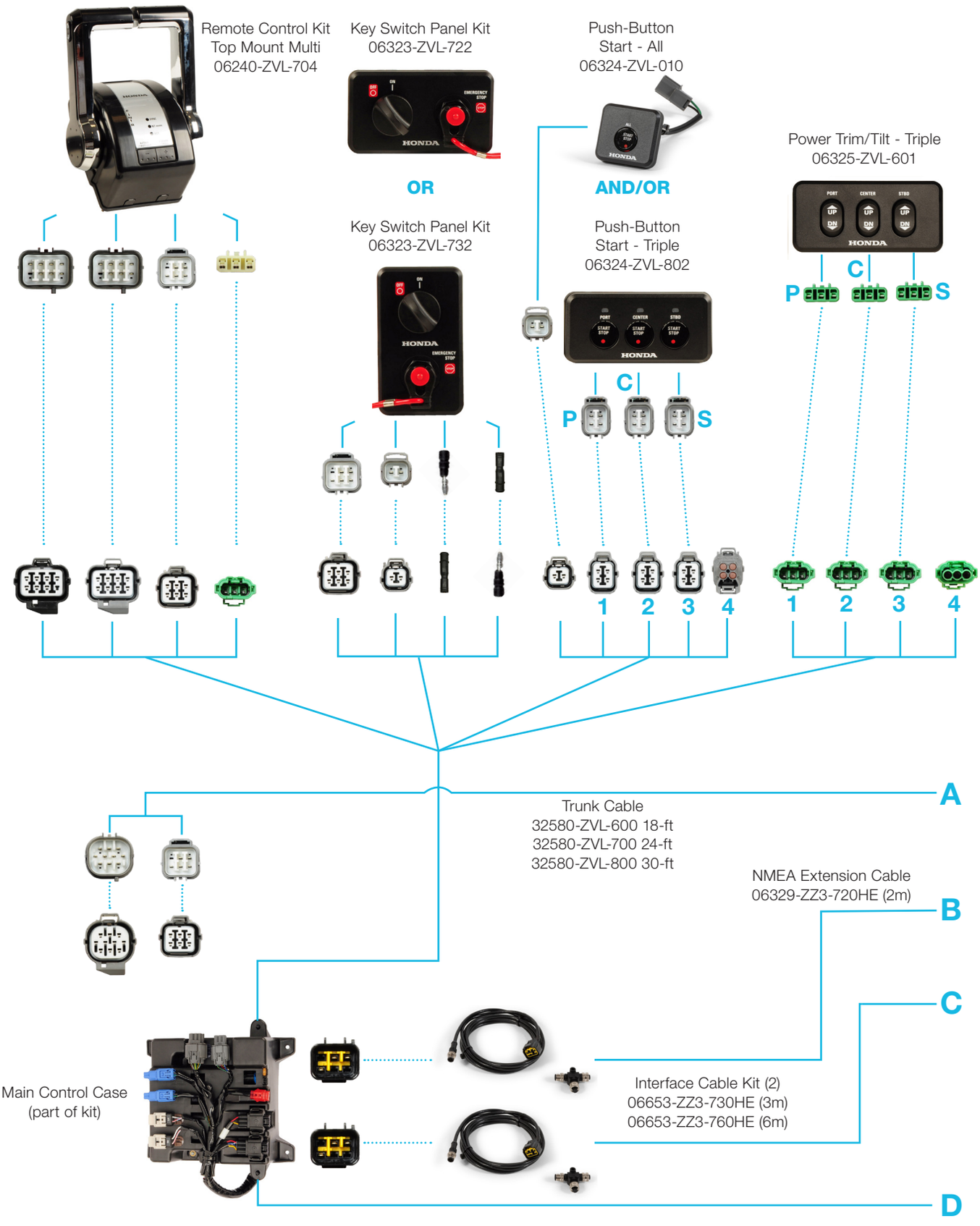
PRE RIGGING

Triple Engine, Top-Mount Control With Second Station



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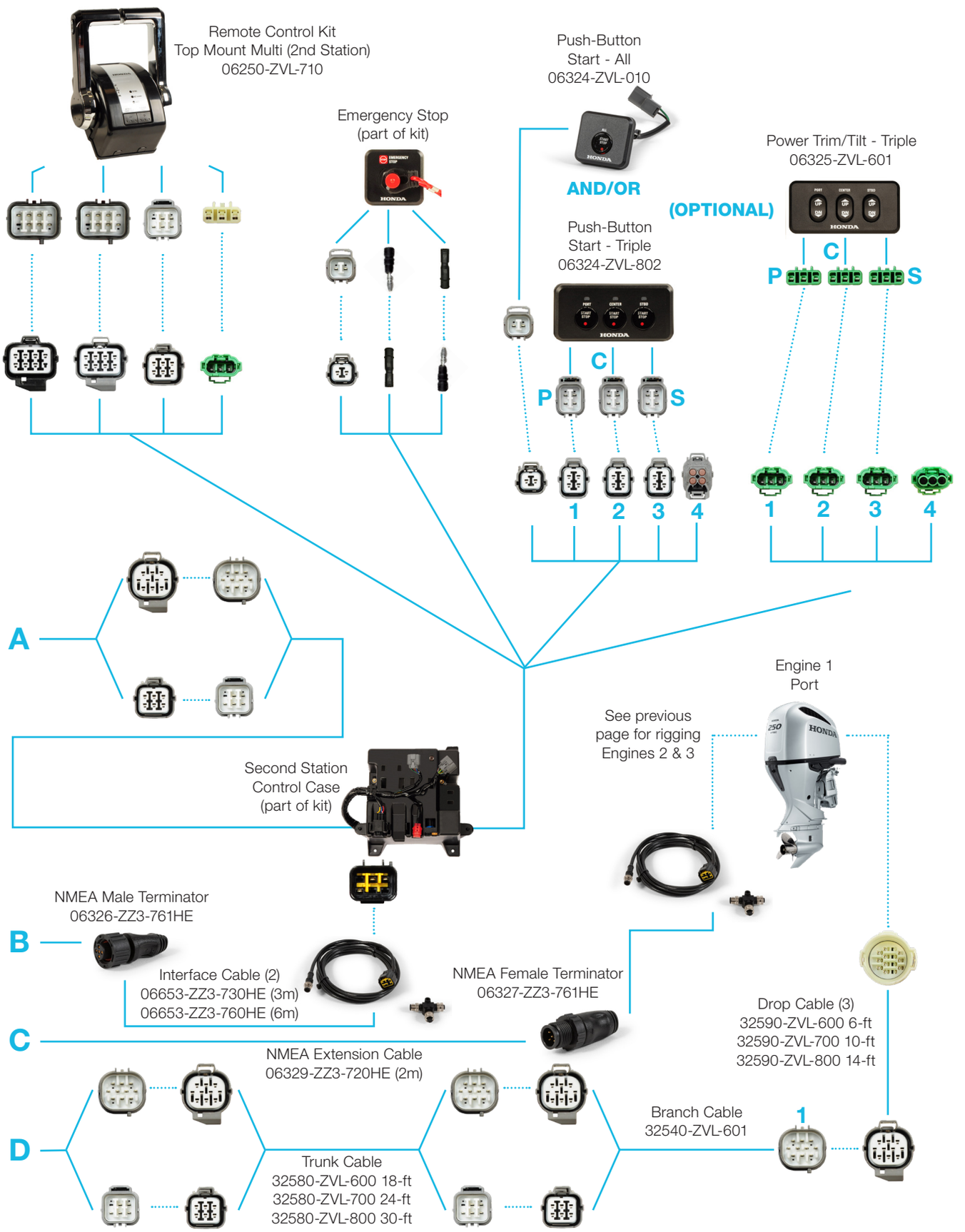
Triple Engine, Top-Mount Control With Second Station



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Triple Engine, Top-Mount Control With Second Station

Components required in addition to Twin Engine Top Mount Control

Description	Remarks	Part Number	Quantity Required
Cable Assy, Network - **SELECT LENGTH**	3M NMEA2000 Engine Cable	**06653-ZZ3-730HE**	1
	6M NMEA2000 Engine Cable	**06653-ZZ3-760HE**	
Cable Assy, Trunk DBW - **SELECT LENGTH**	18FT Engine Control Cable	**32580-ZVL-601**	1
	24FT Engine Control Cable	**32580-ZVL-700**	
	30FT Engine Control Cable	**32580-ZVL-800**	
Panel Kit, Start Stop Switch (All)	Push Start All Engines	**06324-ZVL-000**	1
Box Kit, Remote Control (Top Mount Dual) (2ND)	Top Mount R/C 2nd Station	**06250-ZVL-710**	1
Network Cable Extension	2m NMEA2000 Extension Cable	**06329-ZZ3-720HE**	2

Refer to the NMEA2000 standards for correct connection of the display to the NMEA network.

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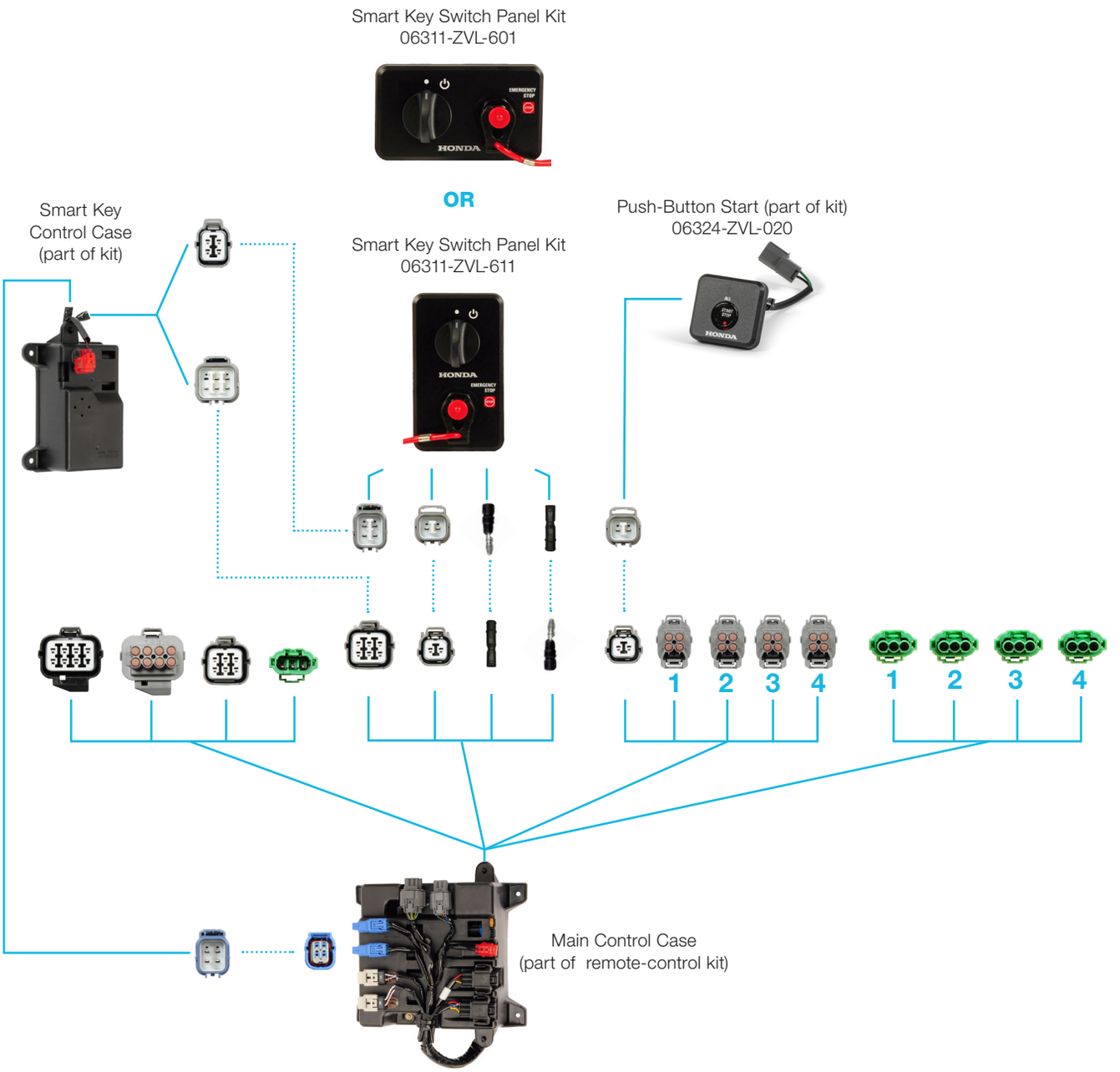
PRE RIGGING

Smart Key Installation (DBW engine only)



Description	Remarks	Part Number	Quantity Required
Panel Kit, Key Switch (Start) - **SELECT TYPE**	Single, Horizontal (ON-OFF)	**06311-ZVL-601**	1
	Single, Vertical (ON-OFF)	**06311-ZVL-611**	

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PRE RIGGING

Key Switch Start & Stop

06323-ZVL-812
For DBW type Single ENG

06323-ZVL-722
For DBW type Twin or more ENG

06323-ZVL-822
For DBW type Single ENG

06323-ZVL-730
For DBW type Twin or more ENG

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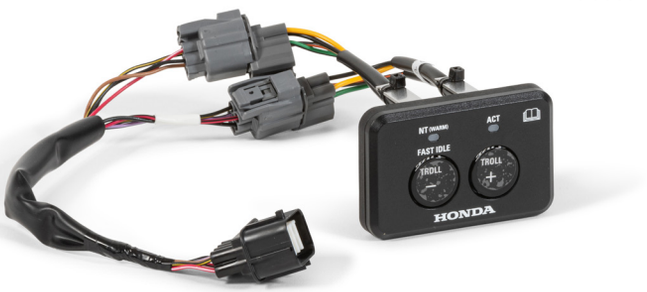
PRE RIGGING

Smart Key Switch, Start/Stop & PTT Switches

06311-ZVL-601
For Smart Key
Included in Smart Key Kit

06311-ZVL-611
For Smart Key
Included in Smart Key Kit

06324-ZVL-020
Start/Stop push button
For Smart Key System



06326-ZVL-010
Function Panel for Flush type
R/C box

06325-ZVL-010
PTT SW for Twin Eng

06324-ZVL-020
Start/Stop push button

06324-ZVL-702
Start/Stop push button

06325-ZVL-601
PTT SW for Triple Eng

06324-ZVL-802
Start/Stop push button

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PRE RIGGING

Engine Start & Stop Switches

Single ENG Installation

Engine can be started using main key switch panel

SINGLE ENGINE

Multi ENG Installation

MUST HAVE EITHER

Main system turned on by mechanical key.

OR BOTH

Then, Engine start using push buttons

TWIN ENGINES

MUST HAVE EITHER

Main system turned on by mechanical key.

OR BOTH

Then, Engine start using push buttons

TRIPLE ENGINES

MUST HAVE EITHER

Main system turned on by mechanical key.

OR BOTH

Then, Engine start using push buttons

QUAD ENGINES

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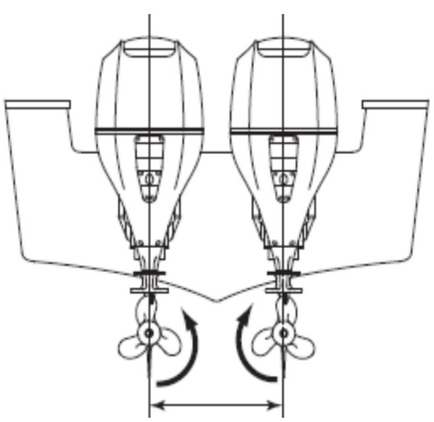
PRE RIGGING

Twin Engine Set-up

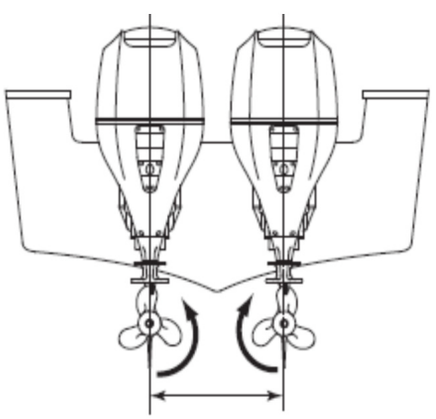
Minimum Engine Centre Distance

CURRENT V6 ENGINES



660mm (26in) MINIMUM

NEW V6 ENGINES



711mm (28in) MINIMUM

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PRE RIGGING

Battery Cable Extension

Applicable Model	Temperature	Battery	Max total extention length				
			AWG4 20mm²	AWG2 30mm²	AWG1/0 50mm²	AWG2/0 60mm²	AWG4/0 100mm²
BF175/200/225/250 DBW model AND BF200/225/250 Mechanical model	Air Temperature 0°C or more	12V-110Ah/20HR	5.5m (18ft)	8.3m (28ft)	13.8m (48ft)	16.6m (55ft)	26.0m (85ft)
	Air Temperature 0°C ~ -15°C or less	12V-110Ah/20HR	2.3m (8ft)	3.5m (12ft)	5.8m (19ft)	7m (23ft)	12.5m (41ft)

When extending the battery cables use the table above to select the correct gauge of cable for the **combined length** of all the cables.

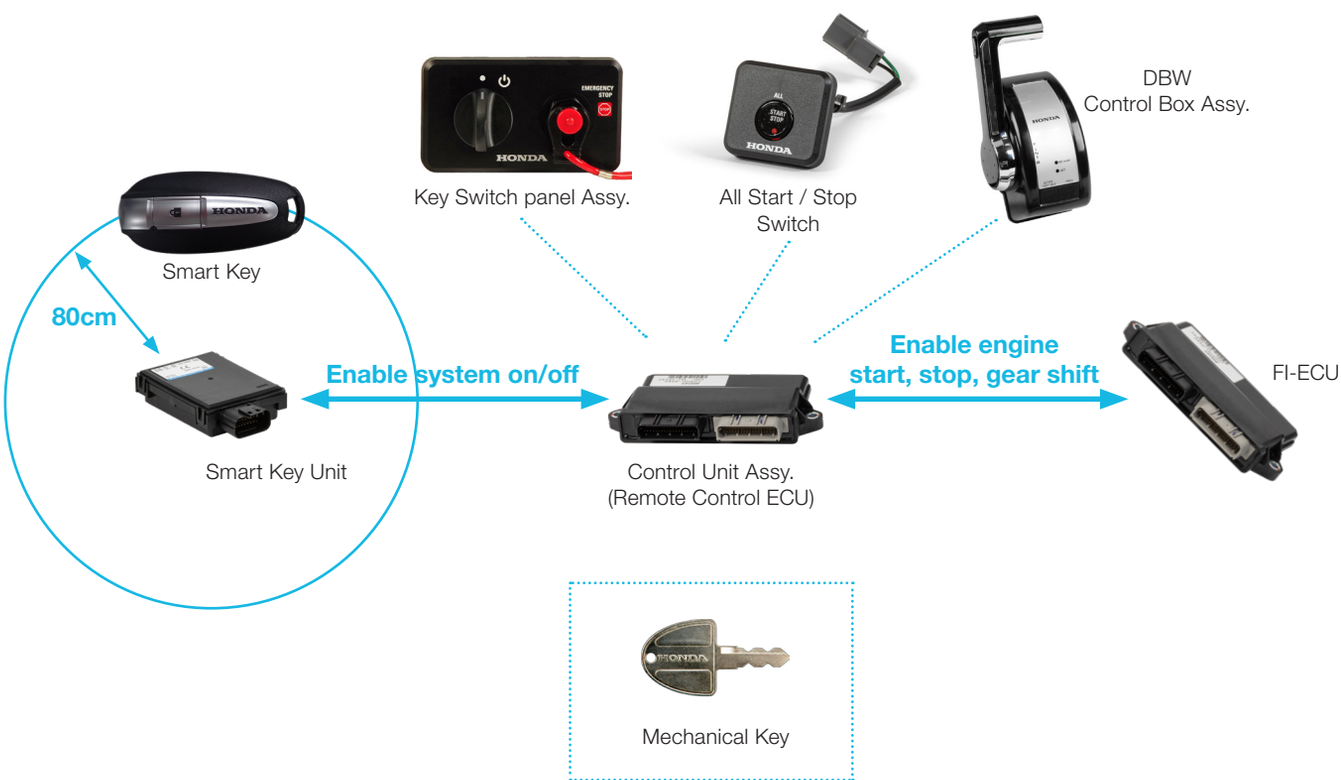
When fitting a battery isolator the switch must be capable of carrying a **minimum** current of 300 amps.

Each battery must be 110Ah/20HR (CCA799) minimum. One battery is required for each installed engine.

The cable lenghts stated in the above table are combined lengths including all live and ground cables.

Smart Key System

A **mechanical key** is supplied with the smart key system. The ignition switch (IG/SW) can be operated using the supplied mechanical key if the smart key is misplaced. However, when the engine is started using the mechanical key there will be a 3000rpm limit on engine speed. The engine speed restriction can be overridden using the PIN code, please see instruction or shop manual.



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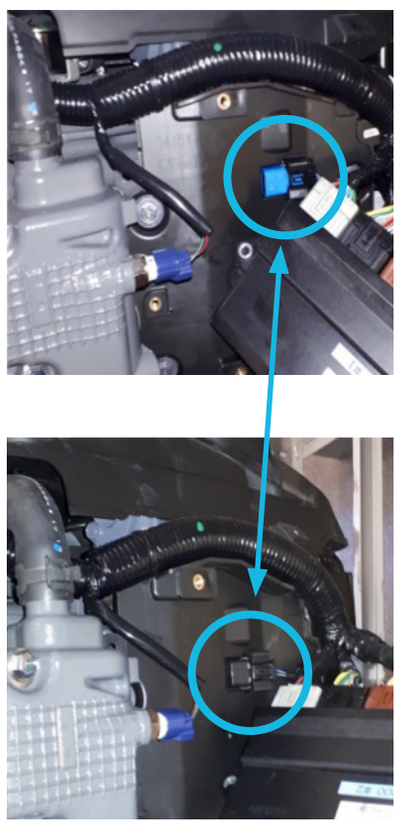
PRE RIGGING

Engine Control Set-up

ENGINE INSTANCE NUMBER USING DR H

Use Dr H to set the correct engine instance number and which engine responds to which lever when using dual top mount remote control.

APPLICATION OF THE "DUMMY" CONNECTOR TO TERMINATE THE H-CAN



On multi engine installations: Replace the blue terminator under ECU, with the "DUMMY" connector on all engines except the engine with the highest instance number.

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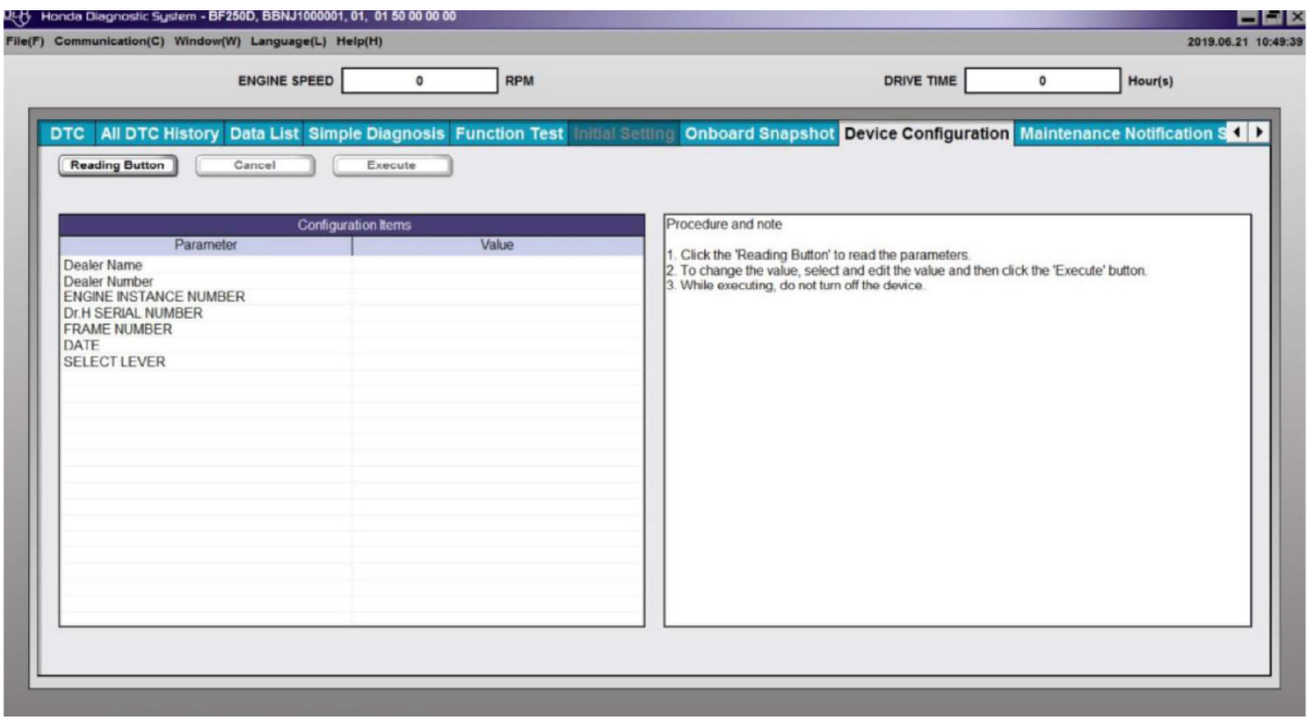
PRE RIGGING

Engine Control Set-up

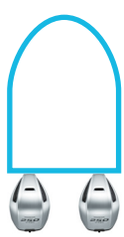
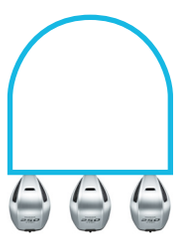
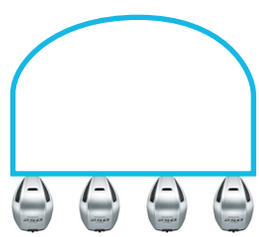
Use the Dr H “Device Configuration” tab to assign each of the engines an instance number and which **remote-control** lever will control which engine.

NOTE: This procedure is not required for single engine installations. However, in multiple engine configurations connect Dr H to and configure each engine in the installation.



Engine Control Set-up

Below are examples of different configurations with each engine having a different incidence number and remote-control lever assigned to it.

Number of engines	2		3			4			
Position	PORT	STB	PORT	CENTER	STB	PORT	C.PORT	C.STB	STB
									
Engine instance number	0	1	0	1	2	0	1	2	3
Lever left / right	L	R	L	L or R	R	L	L	R	R

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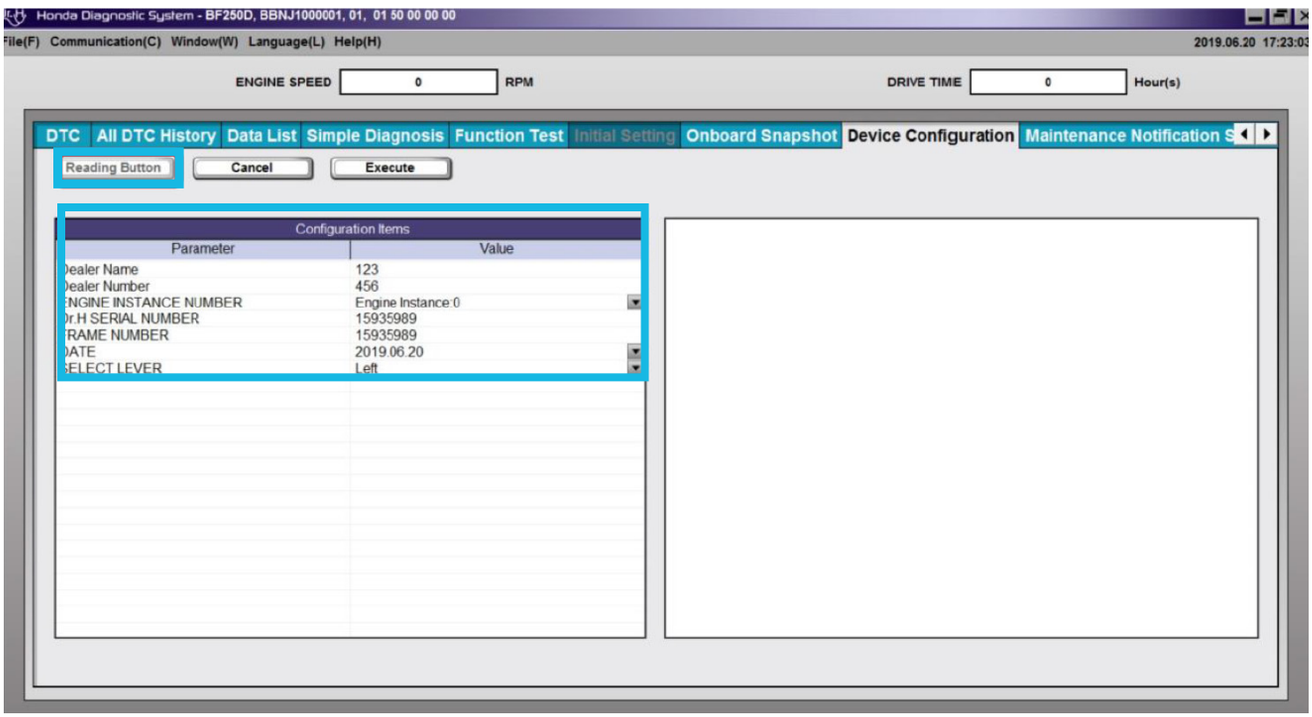
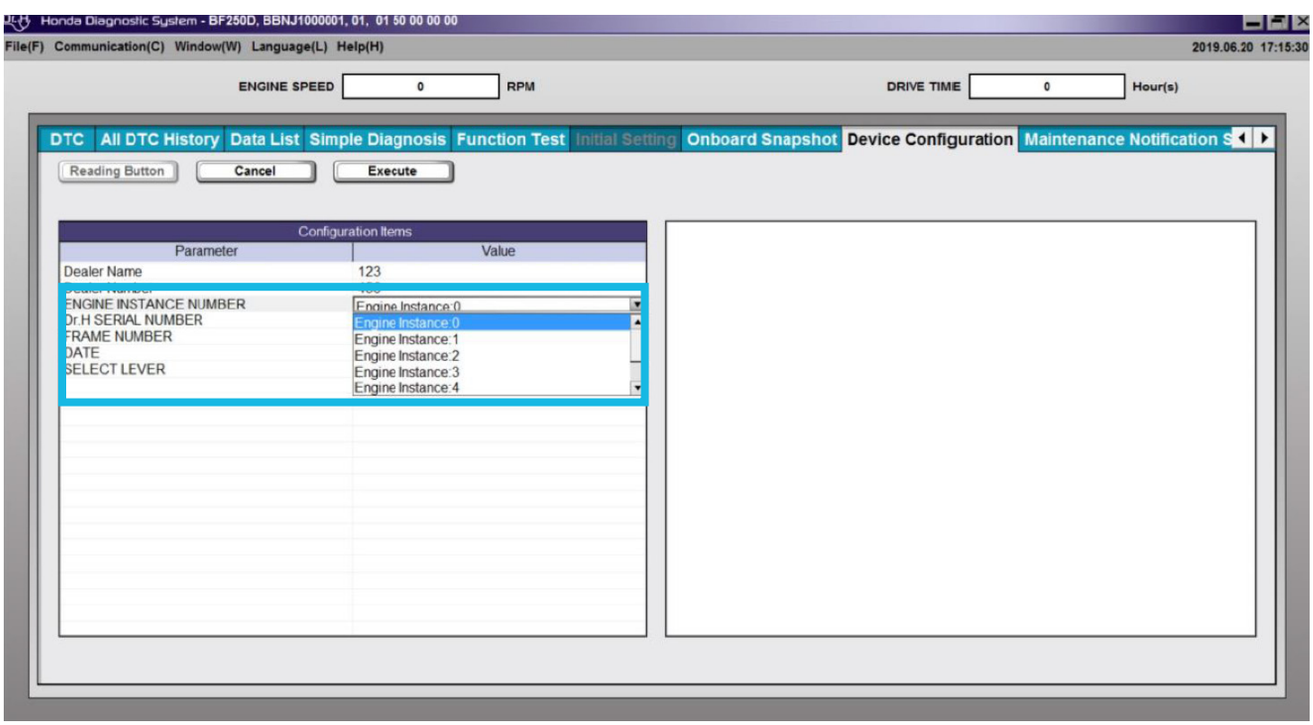
PRE RIGGING

Engine Control Set-up

Connect the Dr H unit to the engine in the normal way. Select the “Device Configuration” tab and then press the “Reading Button”. Information on the current configuration of the engine will be displayed as shown below.



Select the relevant instance number from the drop-down menu for the engine you are configuring.
(Refer to the chart on the previous page)



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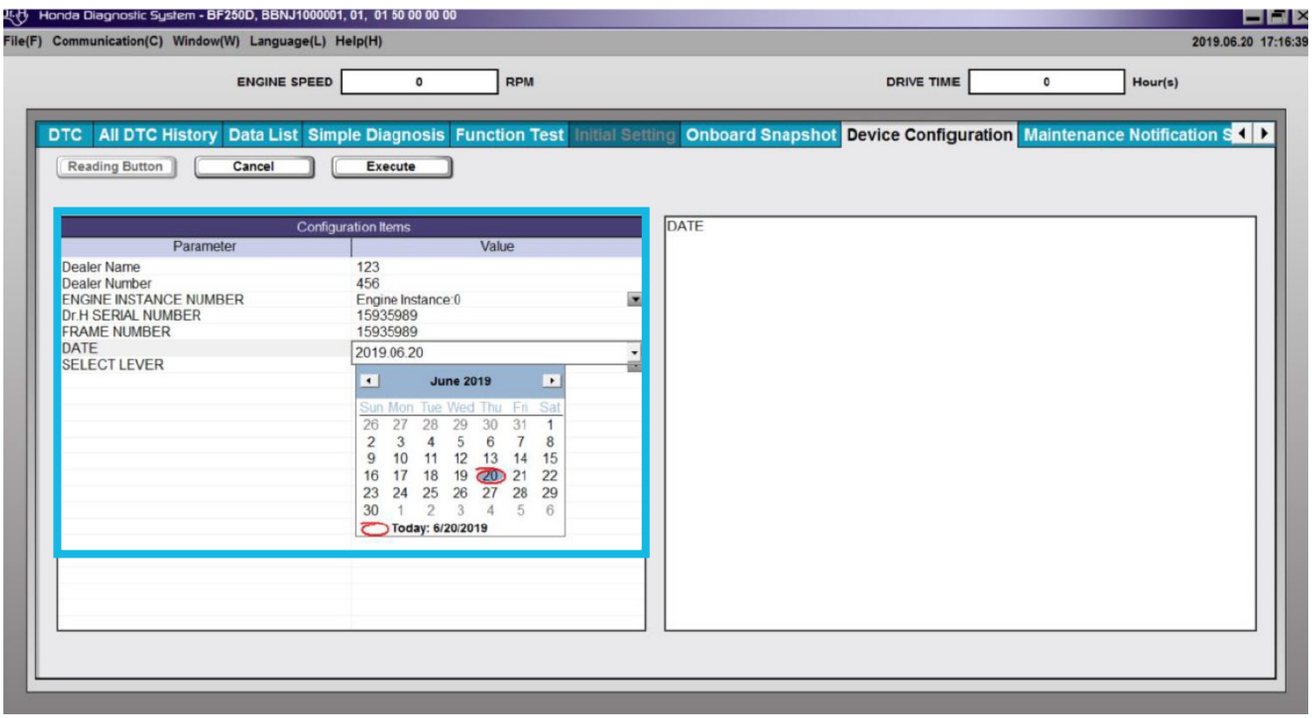
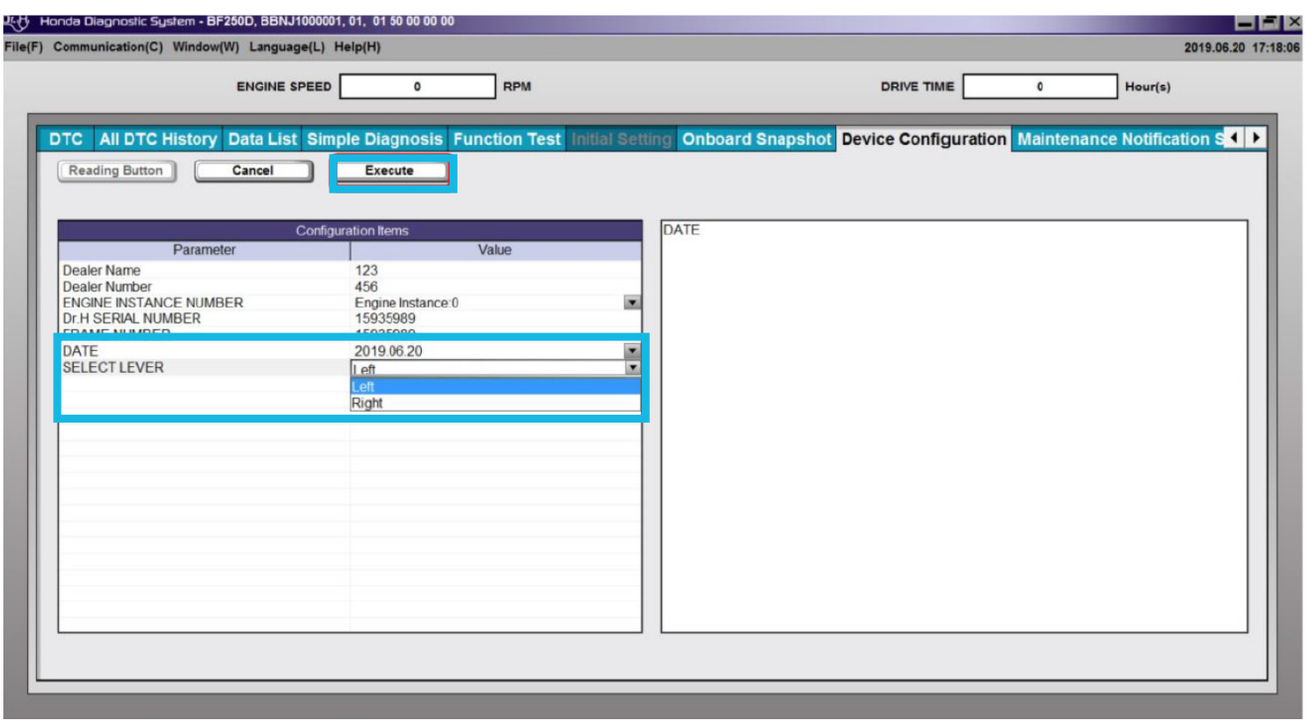
PRE RIGGING

Engine Control Set-up

Enter the serial number for the Dr H you are using and the engines frame number. Then select the current date from the calendar drop down menu.



Select which remote control lever the engine will be controlled by. The “Execute” button should now become active. Press the “Execute” button to write the information to the engine. **NOTE**: Do not turn off the ignition whilst the configuration is in progress.



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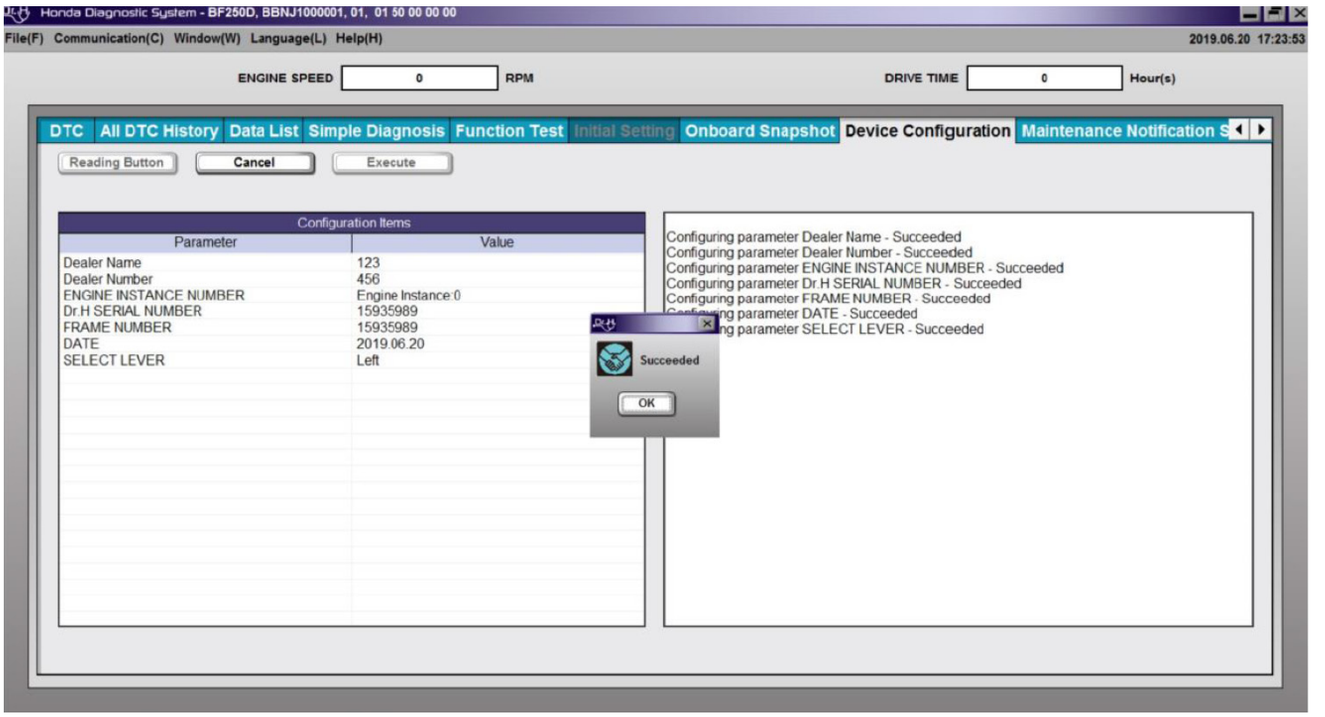
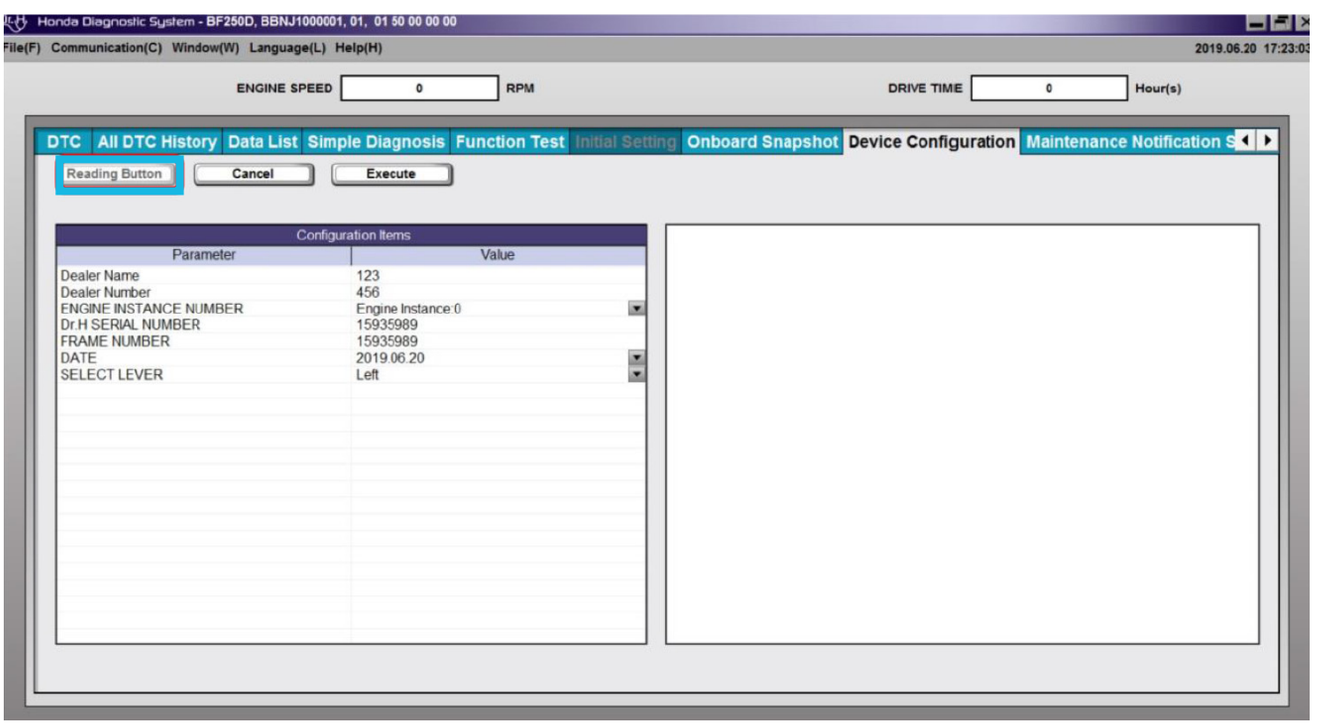
PRE RIGGING

Engine Control Set-up

When the page below is displayed the engine configuration procedure has been successful.



After the configuration is complete press the “Reading Button” once again to confirm that the configuration settings are correct. Finally turn the ignition off then back on and check that the engine functions correctly.



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