Model: NAVpilot-700/711/711C

Yamaha Helm Master Interface

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1. Yamaha Helm Master

1-1　What is Yamaha Helm Master?

Yamaha Helm Master is a steering and throttle control system co-developed with Volvo Penta.　It is designed to steer middle- to large-sized outboard boats with twin to triple 4-stroke (225 to 350 HP) outboard engines.

All steering actions are controlled electronically. Shifting and rotational vessel motion can be controlled with a joystick as shown at right.

For more details, visit the following website.

http://yamahaoutboards.com/rigging/helm-master/overview
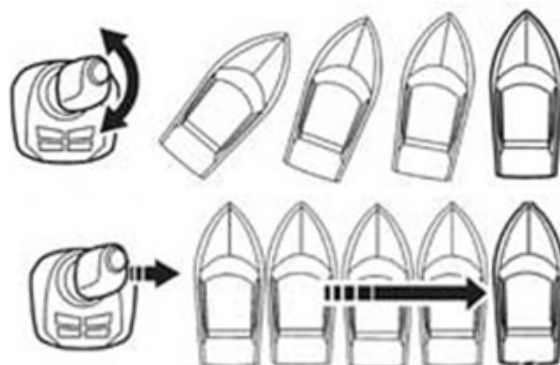
1-2　Helm Master Network via Helm Master IF Kit Model FAP-6310

Helm Master consists of a proprietary CAN network called **EVC** (Electric Vessel Control), and the system is controlled electronically. The NAVpilot-700/711/711C interfaces with the EVC via two units: an Autopilot Gateway and the Helm Master Interface Unit. These units are supplied as part of the **Helm Master IF Kit:** Furuno Model **FAP-6310**.
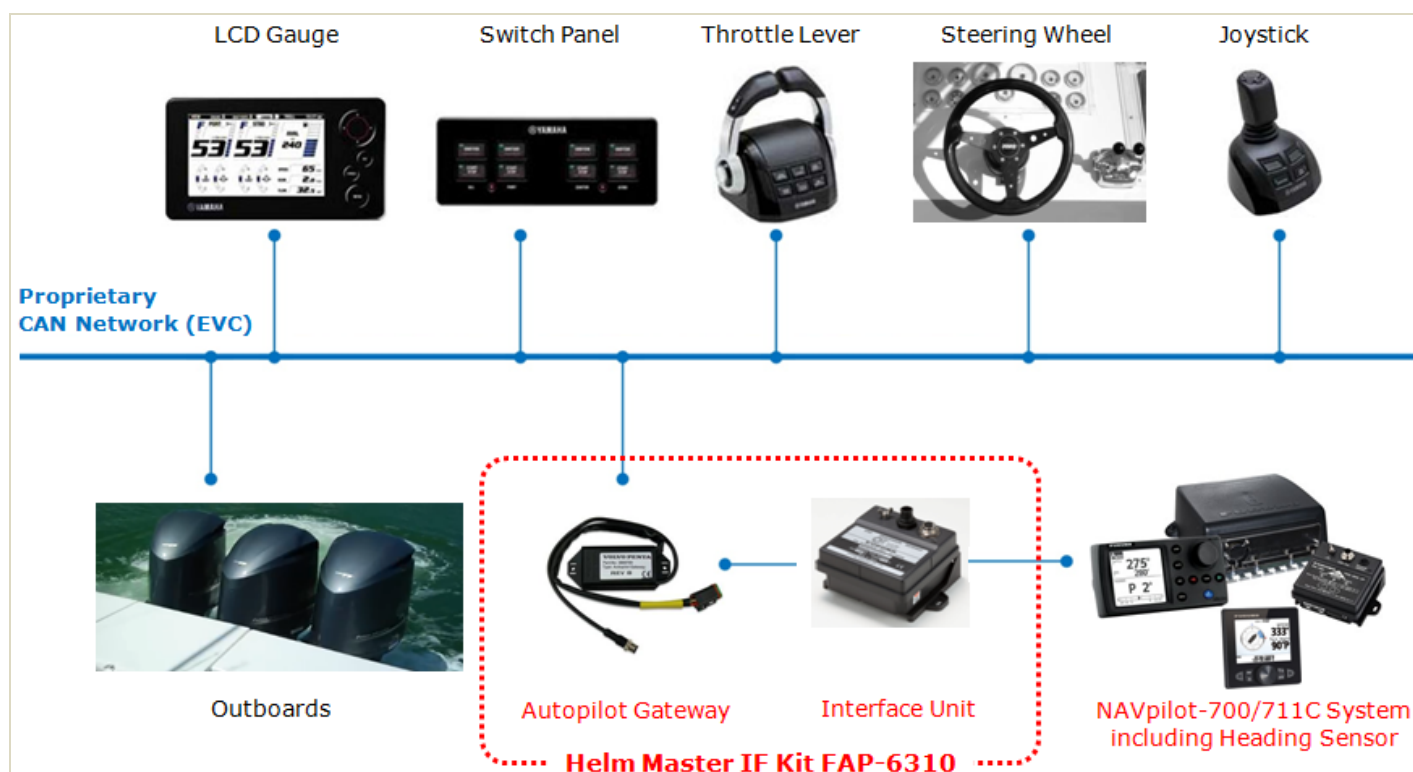
2. Yamaha Helm Master IF Kit Model FAP-6310

The Yamaha Helm Master IF Kit FAP-6310 consists of several components.

No	Name	Type	Part No	Qty	Remarks
-	**YAMAHA HM IF KIT**	**FAP-6310**	**00002716000**	**1**	

Comprising of:

1	Interface Unit	IF-700IPS	1	
2	Yamaha HM Gateway	AUTOPILOT-GATEWAY for FURUNO Autopilot	1	w/ 1 x cable for EVC 1 x cable for IF-700IPS
3	Cable Assembly	MJ-A7SPF0005-020C	1	2m, IF-700IPS – FAP-7002
4	Self-tapping Screw	4X16 SUS304	4	
5	Fuse	FGMB 125V 1A PBF	1	For spare

Measurement: M3   —   W240 X L480 X H120

Weight —   1.5kg

Some Photo Images

IF-700IPS	AUTOPILOT-GATEWAY for Furuno Autopilot	Y-split cable to connect the Gateway and Helm Master EVC unit

Y-split cable to be connected to the Autopilot Gateway at installation

To IF-700IPS

3. Basic Installation

While the gateway is connected to the Helm Master EVC, the interface is connected to the NAVpilot-700/711/711C processor FAP-7002 as shown in the illustration at right.

Interface

Ground Wire
(IV-1.25sq.)

Gateway

Cable - 2 m
MJ-A7SPF0005-020C

To Processor FAP-7002 TB1 & TB7
(**Section 3-2**)
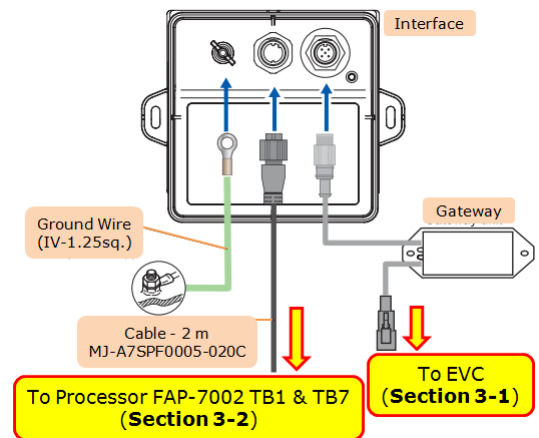
To EVC
(**Section 3-1**)

3-1   Wiring Model FAP-6310 (Gateway) to EVC

(1) Locate the EVC black box control unit and the associated EVC Bus wiring on the Helm Master boat.

(2) Locate the multi link bus cable or find an open port on an EVC bus connector to make the Helm Master gateway connection. The bus cable connections and hub (if installed) will be located close to the EVC unit.

(3) Disconnect the multi link cable connector and install the Y-split cable for multi link cable installation or if there is a hub simply plug the Helm Master gateway into the open port on the hub and disregard the Y-Split Cable.   NOTE: There will be several similar style bus connectors but only the correct ones will fit properly.
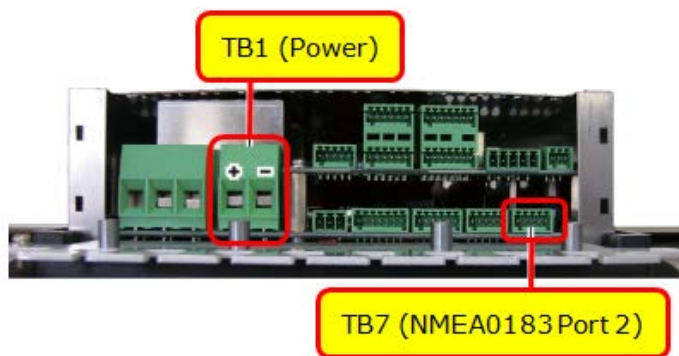

(4) Check that all cables are re-connected.

3-2 Wiring Model FAP-6310 (Interface) to Model NAVpilot-700/711/711C

The FAP-6310 includes a 2 m cable **MJ-A7SPF0005-020C** for the interface. Connect the MJ-A7SPF0005-020C to the processor FAP-7002: **TB1 (Power)** and **TB7 (NMEA0183 Port 2)** ports as shown at right.

Here is the procedure:

(1) Open the processor case, remove the cable clamp/fan assembly from the shield cover, and disconnect the fan connector to access the TB1 and TB7 ports.

(2) Connect the 2 m cable MJ-A7SPF0005-020C to the connector blocks **TB1** and **TB7** as follows.

Connections with TB1 (Power)

Crimp the power lines of the cable assy. and power cable of processor unit using crimp connectors, and then connect the + line (red) and - line (black) to the TB1 of the processor unit.

Use the insulated section of the crimping tool to make the crimp, it will have rounded terminals.

Notes:

* Do not twist cores.

* The + line (red) has a fuse holder. To prevent the detachment of the fuse, make a loop in the cable and then cable tie the wiring as shown at right.
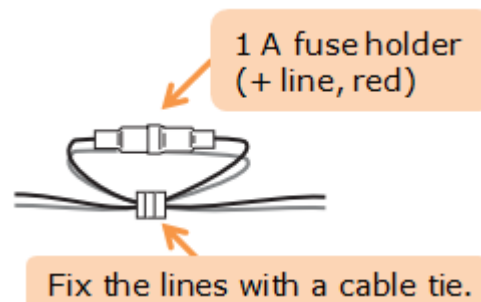
Connections with TB7 (NMEA port 2)

Connect the signal lines of the cable to TB7 with the following this color assignment at right.

Pin No.	Signal	Color
1	TD_A	Yellow
2	TD_B	Green
3	RD_H	White
4	RD_C	Blue
5	Shielded	Drain
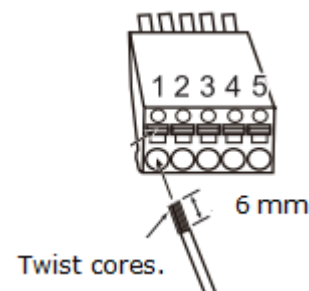
(3) Fix the cable to the cable clamp with a cable tie (supplied with processor unit).

(4) Reconnect the fan connector and re-attach the cable clamp/fan assembly and the processor case.

## 3-2 Compatible Software Versions of the NAVpilot-700/711/711C

The NAVpilot-700/711/711C is compatible with Yamaha Helm Master starting with the following software versions. Note that both the processor and control units have been updated since the release of the following versions. Make sure to install the latest programs for processor and control units using the latest versions for both Control and Processor.

| Items	Versions
Processor Unit FAP-7002	**01.18** or later
Control Unit FAP-7001/7011 (Monochrome)	**01.11** or later
Control Unit FAP-7011C (Color)	**01.02** or later

3-3 Initial Settings on Model NAVpilot-700/711/711C

(1) From the Navpilot 700/711 Installation Mode* select [Installation] – [SHIP'S CHARACTERISTICS] – [BOAT TYPE], select [**EVCS BOAT**].

Selecting the [EVCS BOAT] will allow the NAVpilot-700/711C system to communicate with the Helm Master gateway and IF-700IPS.
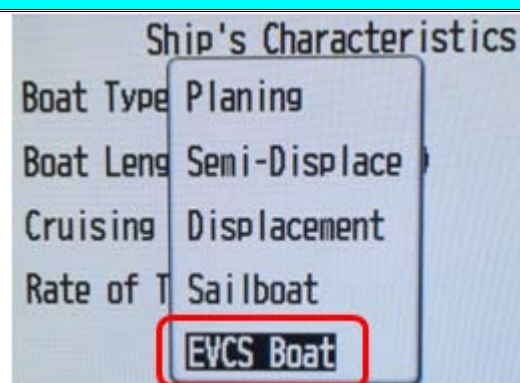
(2) Set the [Boat Length], [Cruising Speed], and [Rate of Turn] to fit the customer's boat characteristics.

You do not need to carry out the rudder limit setup and rudder test because those values are already fixed by the Helm Master system.
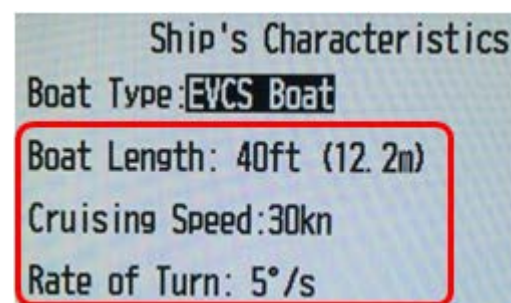
*Navpilot 700/711 Installation Mode – From the STBY Display, press <u>and hold</u> the "Menu" or "Wrench" button then, quickly press the roto-key/course knob three times to open the Navpilot 700/711 Installation Mode.

3-4 Tips on Operation

The Helm Master system automatically incorporates features like Safe Helm called "**Override**". When a user touches a steering wheel or joystick, an override signal coming from Helm Master EVC unit automatically sets the boat in STBY, just like the Safe Helm mode. When this happens, the NAVpilot-700/711/711C will display the [**OVRD**] icon on the top of the screen.

4. Photo Gallery

Here are some photos of an installation
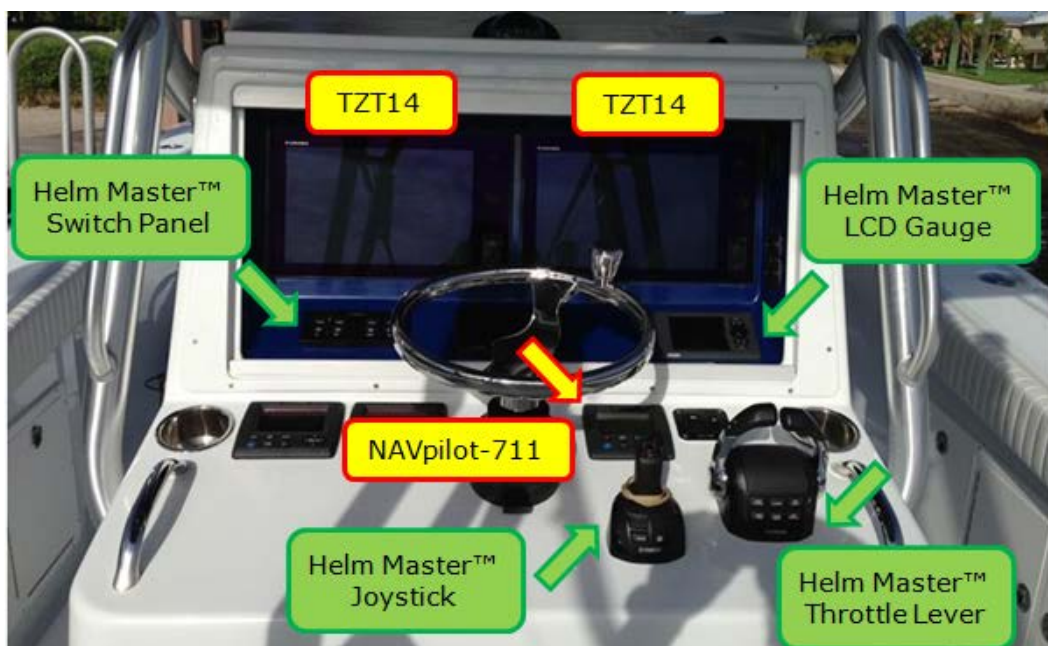
Boat
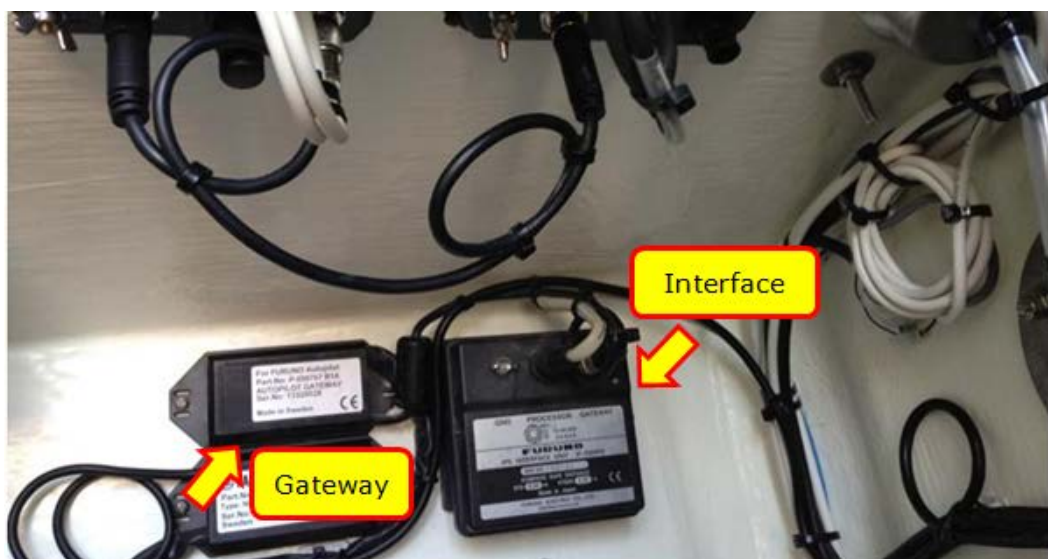
Yellowfin

36 feet

Triple outboards

Bridge

NAVpilot-711 interfaced
with Helm Master

Console

Interface IF-700IPS and
gateway installed

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