

LCD DISPLAY
MV-1901F
(Repair kit for replacing CRT in Furuno radar FR-2115/2125)
Installation Manual

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INTRODUCTION

This installation manual establishes general requirements for the set of works to be performed when installing a marine LCD display MV-1901F (hereinafter referred to as the product).

The installation manual provides the recommended order and description of assembly and installation operations.

This installation manual can be used as a guide for the training and operation of technical personnel. All existing rules and regulations for assembly and installation must be strictly observed.

1 GENERAL INFORMATION

The Product is an (unoriginal) repair kit intended to replace CRT in Furuno radar FR-2115/2125 (at malfunction or deterioration of the image quality of the latter).

2 TECHNICAL SPECIFICATIONS

Main parameters and technical specifications of the Product are represented in Table 1.

Table 1 – Technical specifications of the Product

Parameter	Value
Screen diagonal	19"
Screen resolution	1280 × 1024
Viewable area, mm	376 × 301
Viewing angle, not less than	178°
Contrast ratio	1000 : 1
Brightness, cd/m ²	300
Supported interfaces, pcs.	1 × VGA, 1 × DVI, 1 × Composite, 1 × S-Video
Supply voltage	110 / 220 VAC
Protection degree	IP22
Power consumption, W	25
Operating temperature, °C	-25...+55
Temperature limit, °C	-55...+75
Weight, kg	9.7
Dimensions, mm	440 × 370 × 75

3 INSTALLING AND CONNECTING THE DEVICE

3.1 Dismantling regular CRT display

For installation of the Product in rack, the CRT should be preliminary dismantled:

- 1) disconnect radar rack from the power supply;
- 2) remove protective guards of radar rack;
- 3) locate the sweep unit (bottom right) and disconnect it from the following cables (also see Figure 1):
 - power supply cable (connector J576) from radar power supply unit;
 - potentiometer cable of brightness control (dimmer) (connector J579);
 - RGB (VGA) signal cable (connector D-Sub);

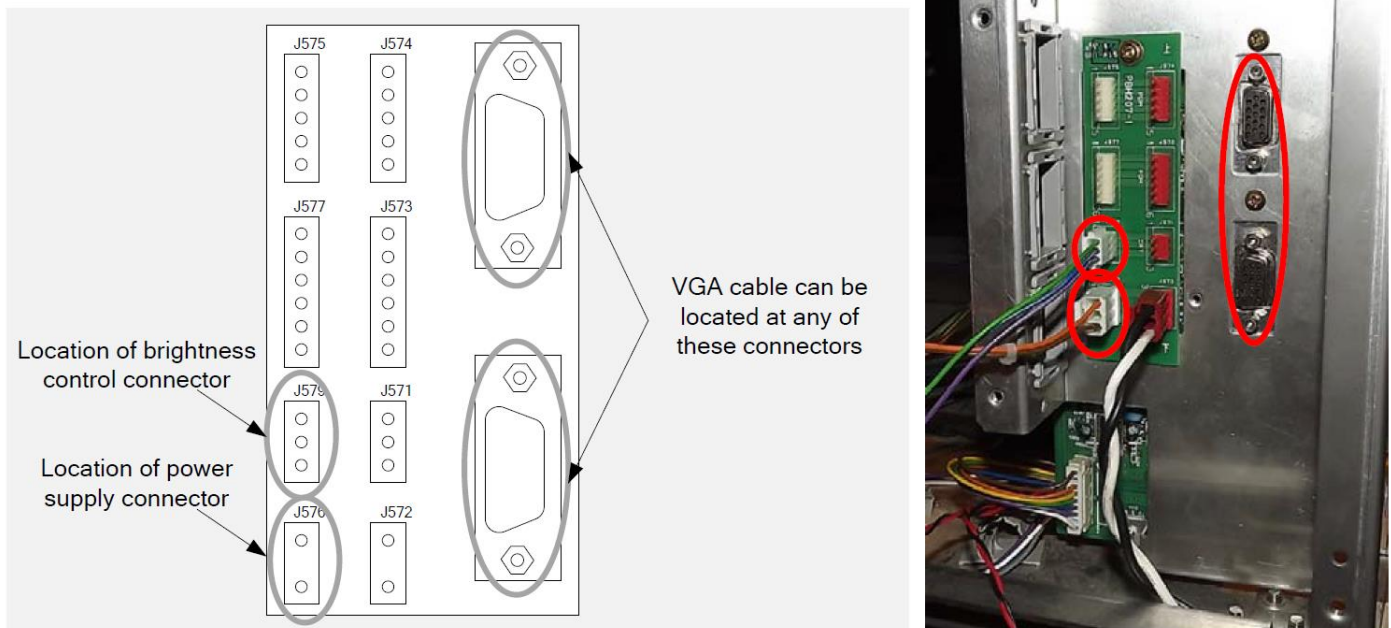


Figure 1 – Location of sweep unit connectors (on the left), general view of sweep unit with connected cables (on the right)

- 4) disconnect the rest of the cables from the sweep unit;
- 5) remove the sweep unit and other devices that provided CRT functioning from the rack (see Figure2);



Figure 2 – General view of rack with removed sweep unit and other devices

6) remove cables and cards from CRT;

7) remove mounting bolts located at 4 corners of the frame from the CRT display protective frame (see Figure3);



Figure 3 – Mounting bolts of protective frame

8) remove the frame from the radar rack (see Figure 4);



Figure 4 – CRT frame view (removed from radar rack)

9) remove CRT from radar rack (see Figure 5).

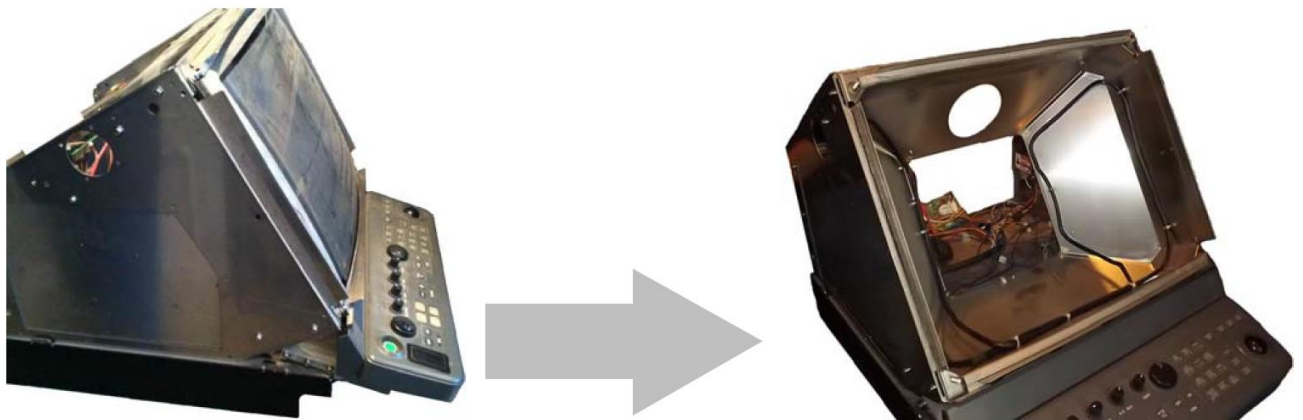


Figure 5 – Dismantling CRT from radar rack

3.2 Installing LCD display into CRT frame

3.2.1 The MV-1901F display comes partially prepared for installation into frame and looks as follows (see Figure 6).



Figure 6 – Appearance of MV-1901F display

3.2.2 Preparation of LCD display for installation into CRT frame:

- 1) remove the device and all components from the package;
- 2) using special bolts supplied complete with the display, fix mounting brackets on the frame corners of LCD display (see Figures 7, 8).



Figure 7 – Locations of mounting brackets and appearance of mounting bracket



Figure 8 – Appearance of LCD-display with mounting brackets

3.2.3 Installing LCD display into CRT frame:

- 1) disconnect mounting brackets of CRT frame (4 pcs.) from the frame chassis (see Figure 9);

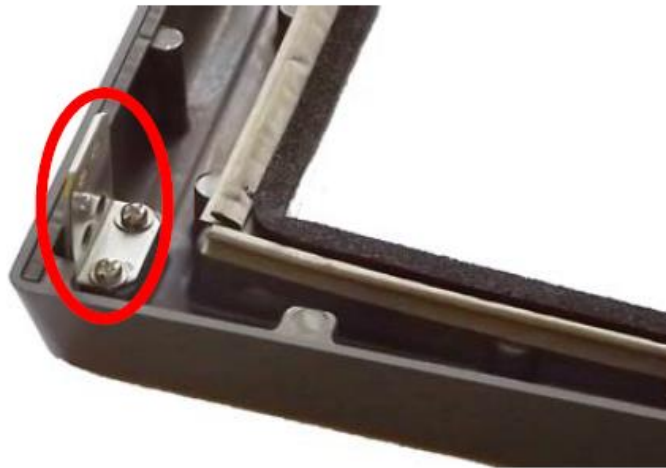


Figure 9 – Mounting points of the frame mounting brackets

- 2) insert (lay) the LCD display into the frame observing orientation of the sides (the display top side and frame top side should coincide, and display connectors should be faced to the bottom side of the frame);
- 3) fix LCD display in CRT frame so that mounting brackets of LCD display are located above the CRT mounting brackets (see Figure 10);



Figure 10 – The order of arranging brackets in the frame

4) loosen the brackets screws, turn over the frame, centering the LCD display in CRT frame, fix tight the cap screws;

IMPORTANT!

LCD display should be fixed to the brackets with regular bolts of CRT frame

5) LCD display is ready to be installed into the radar rack (see Figure 11).



Figure 11 – Appearance of LCD display prepared for installation and inserted into the frame

4 INSTALLING AND CONNECTING THE DISPLAY

4.1 The display is installed and connected in the following sequence:

1) insert the frame with LCD display into radar rack in place of CRT dismantled (see Figure 12);



Figure 12 – Mounting display into radar rack

IMPORTANT!

If necessary, shorten (cut away) fastening bolts of CRT fixing it to radar rack.

IMPORTANT!

Do not tighten the frame bolts up to the end of connecting cables to the display.

2) fix the bracket with switching card on the inner part of the left-hand side of radar rack (see Figure 13);

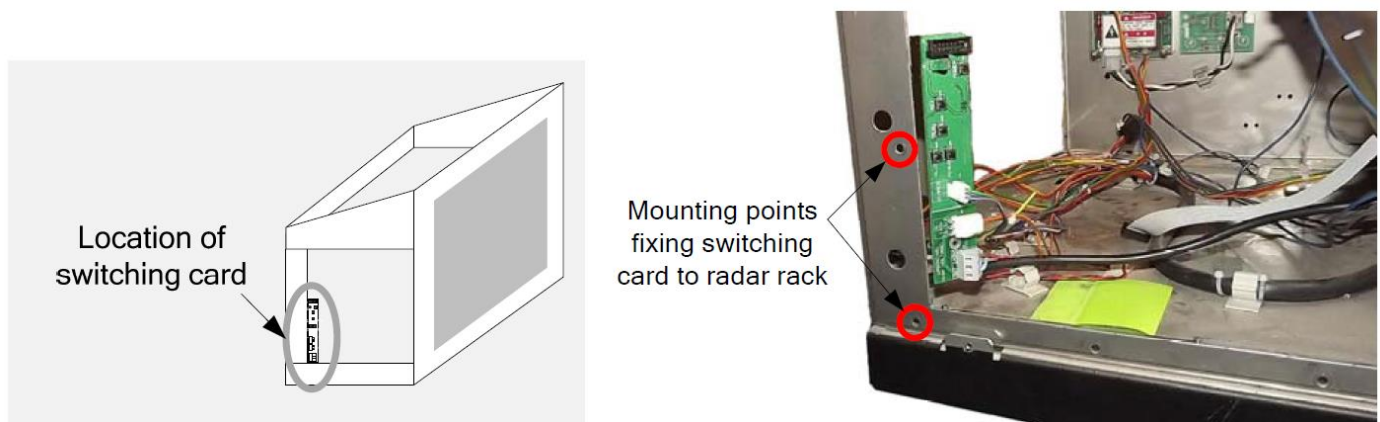


Figure 13 – The location of switching card (on the left), general view of switching card in radar rack (on the right)

4.2 Connecting LCD display:

1) LCD display is connected in the following sequence (also see Figure 14 and Table 2;

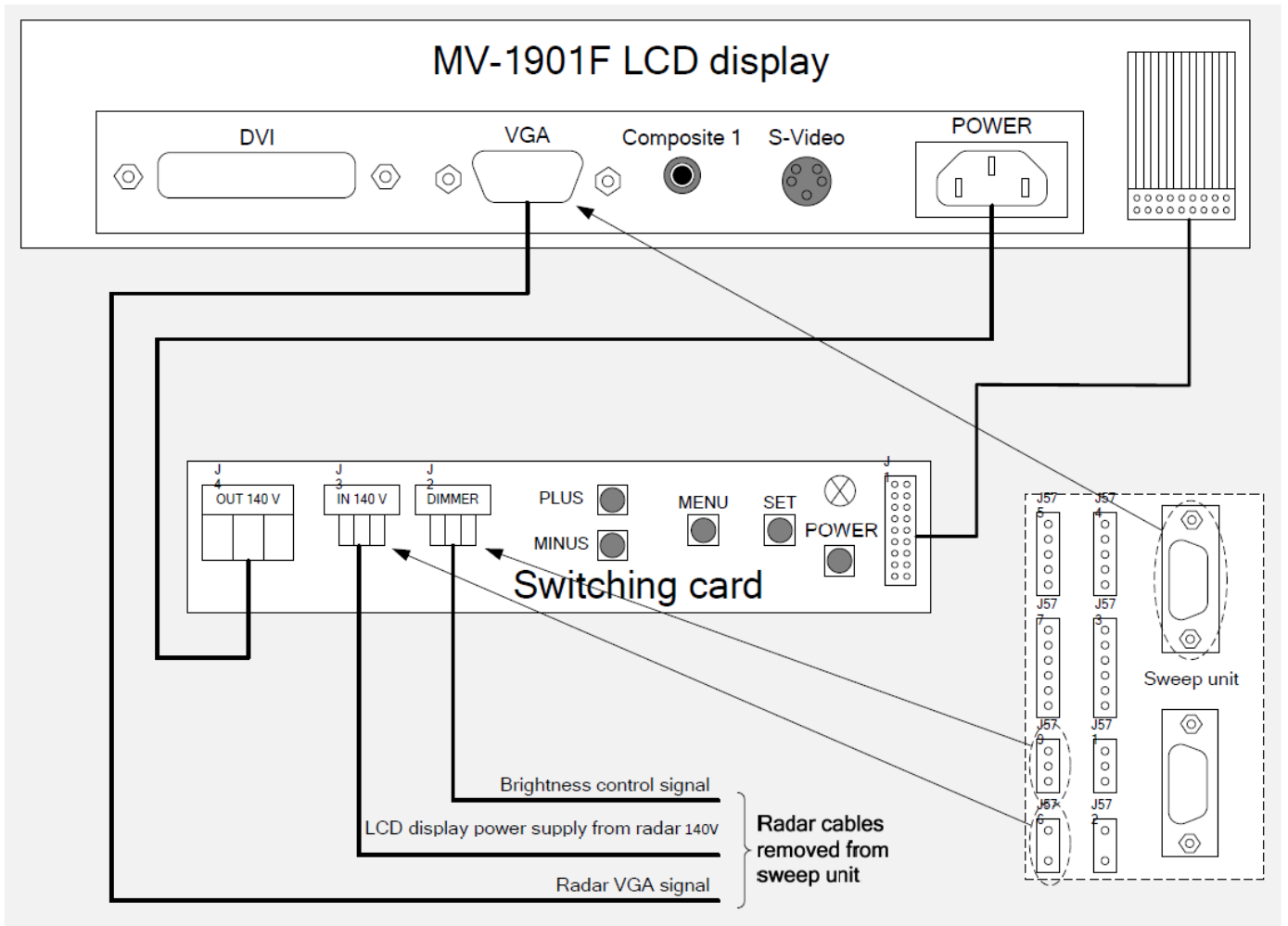


Figure 14 – Switching scheme

Table 2 – Table of cable connections

	Switching card	Switching card	Switching card
Power supply	J4	–	«Power» connector
	J3	Cable removed from J576 connector	–
Dimming	J5	Cable removed from J579 connector	–
Control signals	J1	–	14-conductor ribbon cable
Video signal	–	Cable removed from RGB connector	VGA connector

2) insert control cable (14-conductor ribbon cable) coming out from the hole (on the back side) of LCD-display housing into J1 connector of the switching card (see Figures 15, 16);



Figure 15 – Location of connectors and control cable in LCD display

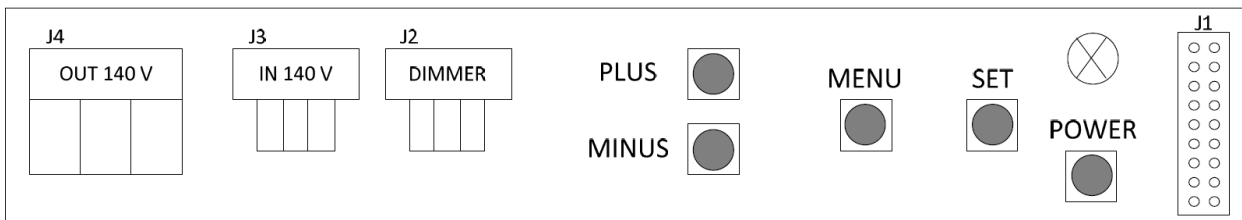


Figure 16 – Switching card

3) connect the other end of the power cable connected to J4 connector of the switching card to the power supply connector of LCD display (see Figure 15);

4) connect cables disconnected from the sweep unit (marked previously) to the corresponding connectors of the display and switching card:

- connect RGB cable (removed from D-Sub connector) to the display VGA connector (see Figure 15);

- connect power supply cable (removed from J576 connector) to J3 connector (IN 140 (V) of the switching card (see Figure 16);

- connect dimmer control cable (removed from J579 connector to J2 connector (dimmer) of the switching card (see Figure 16);

5) in termination of device connection, apply power to it and turn on the installation:

- adjust radar brightness control to maximum;
 - check the image quality reproduced by the display;
 - in case of incorrect image, enter LCD display menu and use Auto adjust menu function (automatic control), then go to menu item adjusting image vertical and horizontal displacement, and adjust the position of the image displayed;
- 6) using mounting bolts, fix the protective frame with display in radar bracket (see Figure 3).

5 CONTROLS

Controls (of LCD display access menu) are located on the switching card (see Figure 17):

- 1) «POWER» button – switching on/off display power (briefly pressing toggles display sources of video signal connected to different display ports);
- 2) «MENU» button – enter (exit) menu of display settings. This button allows you to exit from the selected settings without saving the changed value;
- 3) «SET» button – confirms the selected values;
- 4) «PLUS» и «MINUS» buttons – selecting menu items/change values of parameters. In the menu these buttons allow you to scroll through the items (setting). When changing, settings allow you to increase/decrease the value;
- 5) backlight is adjusted by panel controls;
- 6) LED indicating power supply and device operation. When the device power turned on and receiving video signal from the current video input, this LED lights green. When the power is turned off or there is no video input on the current input, the LED goes out.

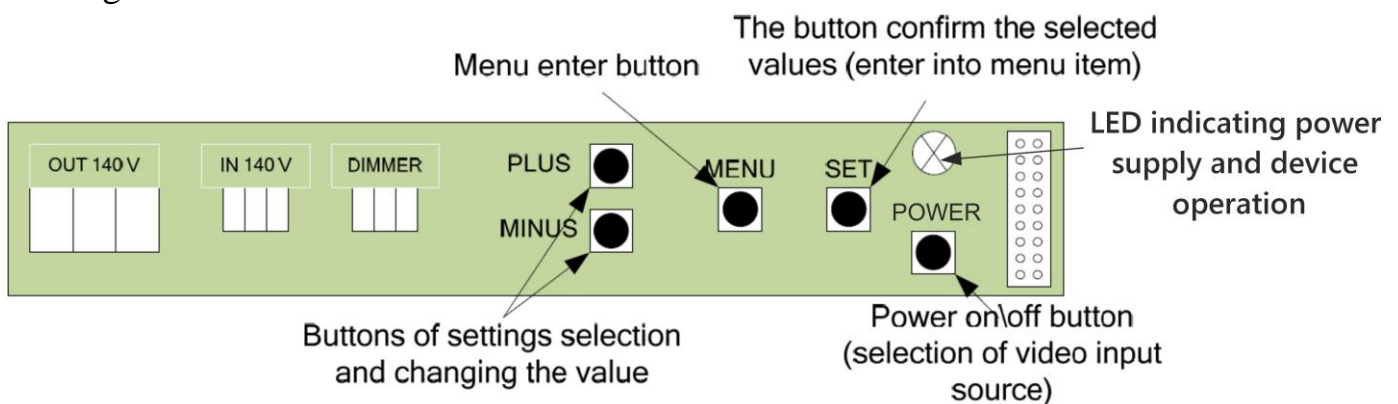


Figure 17 – Controls

IMPORTANT!

Changing brightness of power LED takes place synchronously with the change of backlight brightness. If the brightness is set to the minimum value (backlight off), the LED also goes out.

6 TRANSPORTATION

The Product must be transported in the Manufacturer's transportation package in closed means of transport.

Types of shipment:

- motor vehicle and railroad transportation in closed means of transport (covered cars, multipurpose containers);
- air transportation (in sealed and heated compartments);
- sea transportation (in dry service premises).

The Product must be transported in compliance with transportation rules applicable for each means of transport.

During loading / unloading operations and transportation, the requirements indicated on warning labels on the boxes/packaging must be observed, and no impacts are permitted since they can affect the safety and performance of the Product.

Inside the means of transport, the packed device must be firmly secured / fastened.

7 DISPOSAL

New equipment, the parts of the Product damaged during operation, and any overage equipment must not be disposed as standard household wastes, since they contain the materials suitable for re-use.

Decommissioned and non-used components of the Product must be delivered to a special waste disposal center licensed by local authorities. You can also send an overage equipment / unit to the manufacturer for its further disposal.

Proper disposal of Product components allows avoiding possible negative environmental and health impacts, and it also allows for proper restoration of components with substantial energy and resources saving.

During operation and upon completion of its service life, the equipment is not hazardous for health and environment

This unit must be disposed according to the rules applied to electronic devices (Federal Law dated 24.06.98 No. 89-FZ On Production and Consumption of Waste as amended of 30.12.2008 No.309-FZ)



Any products marked with a crossed trash bin must be disposed separately from standard house-hold wastes

8 WARRANTY

The Manufacturer is under warranty obligations in case of correct System exploitation according to the OM. In case of incorrect operation or service damage claims are not considered by the Manufacturer.

More information about warranty terms you can find on the official site of «NPK MSA» LLC, section Support.

Address and contacts of the Manufacturer's service centre:

«NPK MSA» LLC

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