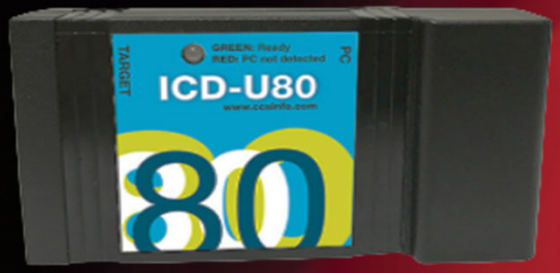
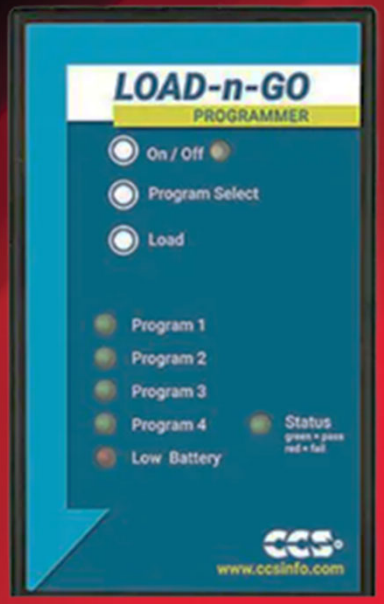
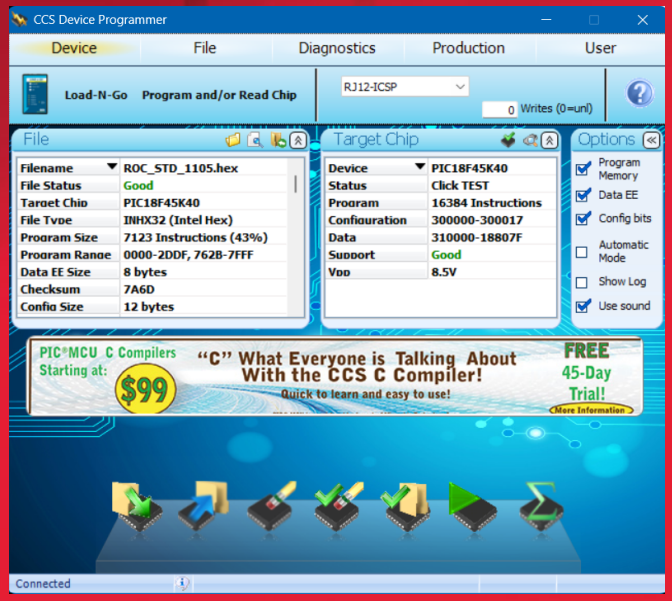
FEDERAL SIGNAL

ROCPR2 Programmer Training Guide















Last updated: May 2026 by Josh Wisniewski

www.fedsig.com

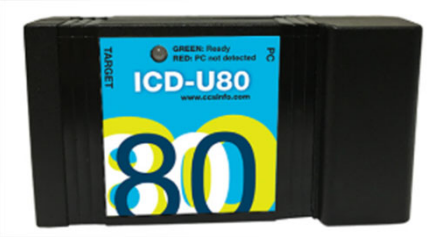
Model Overview

The ROCPR2 hardware has been updated 3 times. It can be one of the models below depending on when it was ordered.



ICD-U64

- ✓ Uses internal jumper to change voltage setting to either 3.3V or 5V



ICD-U80

- ✓ Does NOT have an internal jumper
- ✓ Senses the voltage of the chip header automatically



Load-n-Go

- ✓ Uses internal jumper to change the voltage setting to 2.5V, 3.3V, or 5V
- ✓ Has 4 memory banks to load hex files without a computer
- ✓ Can be used wirelessly (4 AA batteries not included)

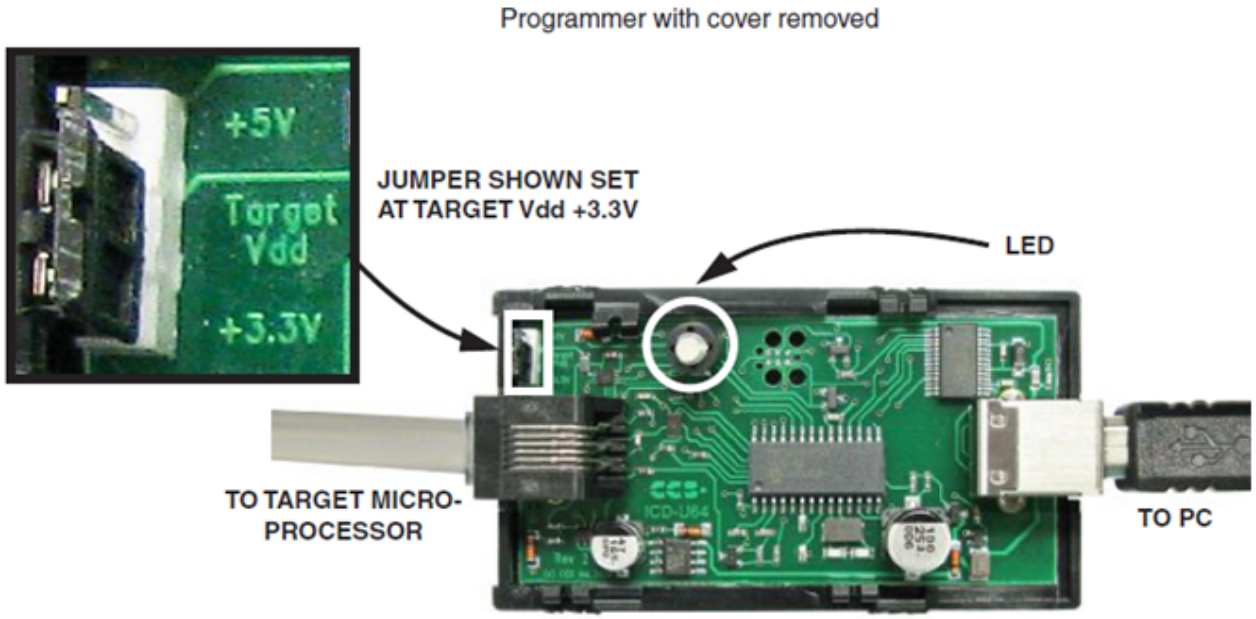
Installing ROCPR2 Software on Your PC

- ✓ **Install PC software before connecting programmer**
- ✓ **Obtain latest version from CCS's website by clicking the link below**
  - ✓ **Download the software named *'CCSLOAD Programmer Control Software for Windows'***

https://www.ccsinfo.com/downloads.php

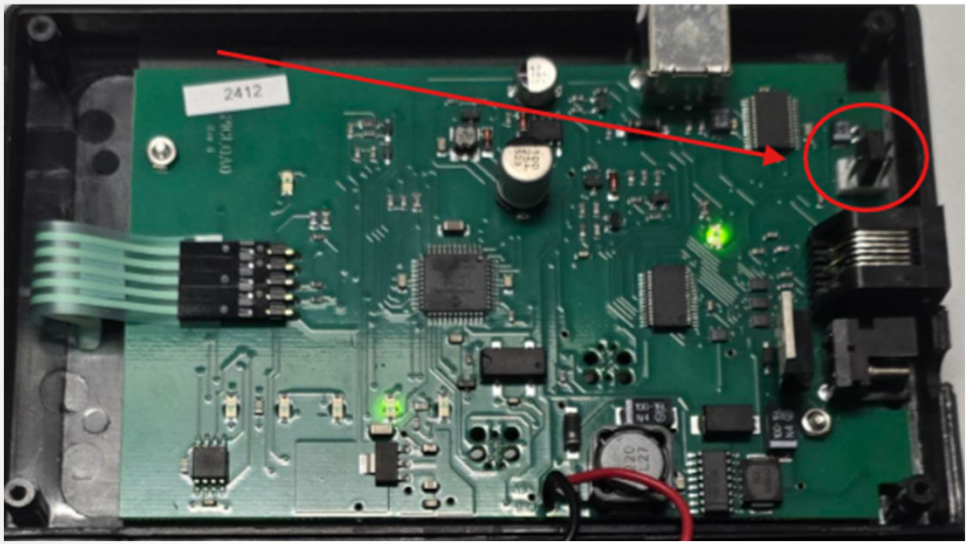


Voltage Jumper (for ICD-U64 Model)

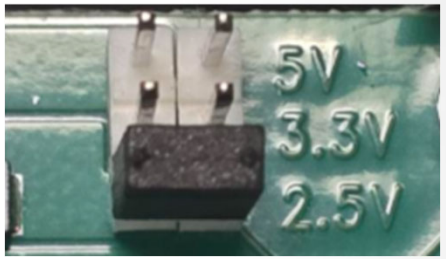


- ✓ **Remove cover from programmer by prying it open using a flat head screwdriver**
- ✓ **Install supplied jumper to 3.3V or 5V**
- ✓ **Cut out corner to create easy access to jumper**

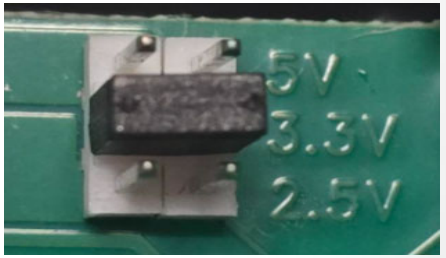
Voltage Jumper (for Load-n-Go Model)



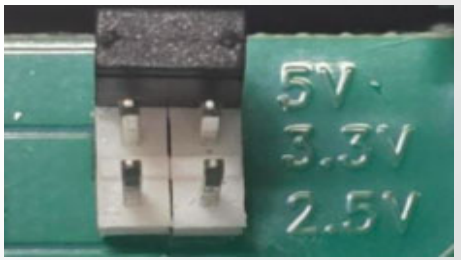
Jumper Location Inside Programmer



Jumper set at 2.5V



Jumper set at 3.3V



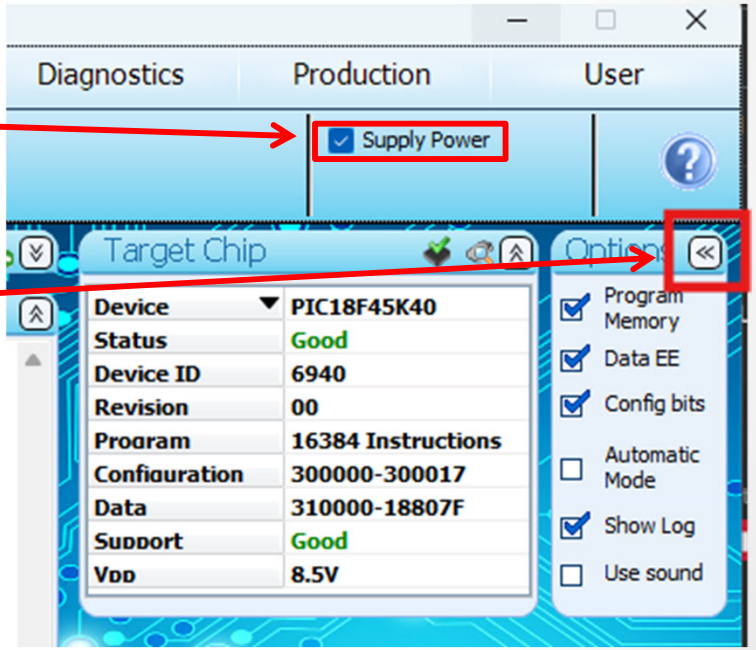
Jumper set at 5V

- ✓ **Remove cover by removing the 4 corner screws at the rear of the programmer**
  - ✓ **Uses Phillips #0 screws**
- ✓ **Install supplied jumper to 2.5V, 3.3V, or 5V**
- ✓ **Reassemble cover and screws**

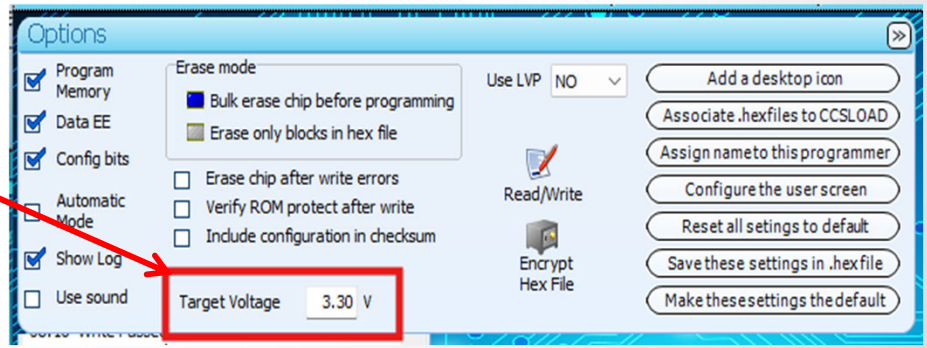
Voltage Setting (for ICD-U80 Model)

As mentioned, ICD-U80 detects voltage automatically. No need to set a jumper, but it needs to be set in the software.

- ✓ **Once the software is opened, make sure Supply Power is checked**
- ✓ **Click on the double arrow shown here**



- ✓ **In the options screen, make sure the Target Voltage is set to the desired voltage setting (in this example 3.3V)**



Re-Flash Settings for Common FS Products

Product	PCB No.	PIC File	Voltage Setting	Plug Type
Allegiant Max End ROC Board(s)	20000525A	PIC18F45K40	3.3	6 Pin Surface
Allegiant Max Inner ROC Board(s)	20000526A	PIC32MX570F512H	3.3	6 Pin Surface
Allegiant Max Center ROC Board(s)	20000527A	PIC18F45K40	3.3	6 Pin Surface
Reliant End ROC Board(s)	20000479A	PIC18F45K40	3.3	6 Pin Surface
Reliant Inner ROC Board(s)	20000480A	PIC32MX150F256H	3.3	6 Pin Surface
Reliant S2 End ROC Board(s)	20000535B	PIC18F45K40	3.3	6 Pin Surface
Reliant S2 Inner ROC Board(s)	20000536B	PIC32MX150F256H	3.3	6 Pin Surface
Allegiant Control Board	20000358E	PIC32MX150F256H	3.3	6 Pin Surface
Allegiant ROC Board(s)	Varies	PIC18F45K40	3.3	6 Pin Surface
Valor/Integrity FSJoin Control Board	20000465C	PIC32MX150F256H	3.3	6 Pin Surface
Valor/Integrity ROC Board(s)	Varies	PIC18F45K40	3.3	6 Pin Surface
SIFM and SIFZ ILS ROC Board(s)	Varies	PIC18F47K40	3.3	6 Pin Surface

Re-Flash Settings for Common FS Products

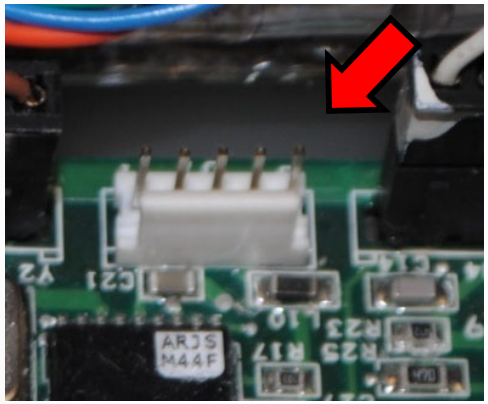
Product	PCB No.	PIC File	Voltage Setting	Plug Type
CN SignalMaster ROC Board(s)	Varies	PIC18F47K40	3.3	6 Pin Surface
SILS Front	2005751	PIC18F45K22	5	6 Pin Surface
SILS Rear	2005752	PIC18F45K22	5	6 Pin Surface
Legend/LPX Control Board	2005691	PIC18F4520	5	5 Pin Header
SSP Series B Control Head Board	20000061	PIC18F97J60	3.3	6 Pin Surface
SSP Series B Relay Board	20000053	PIC18F45K22	5	6 Pin Surface
Valor/Integrity Non-FSJoin Control Board	2005653	PIC24F16KA101	3.3	5 Pin Header
Vision SLR Control Board	2005639	PIC18F87J11	3.3	5 Pin Header
Vision SLR Pod	2005658	PIC18F4520	5	5 Pin Header
Vision SLR SignalMaster	2005678	PIC18F45K22	5	6 Pin Surface
Split Vision SLR Control Board	2005742	PIC18F87J11	3.3	5 Pin Header
EXPMOD24 (Potted)	20000435	PIC18F47K40	5	6 Pin Surface

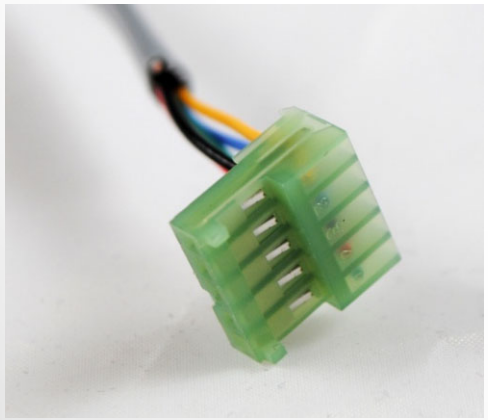
Re-Flash Settings for Common FS Products

Product	PCB No.	PIC File	Voltage Setting	Plug Type
EXPMOD32 (Potted)	20000577	PIC32MX150F256H	3.3	6 Pin Surface
Standalone/Pathfinder Keypad(s)	Varies	PIC32MX270F256B	3.3	6 Pin Surface
FSJoin Serial Interface Module	20000424	PIC32MX270F256B	3.3	6 Pin Surface
OBDMOD16 FSDirect Module	20000625	PIC32MX570F512H	3.3	6 Pin Surface

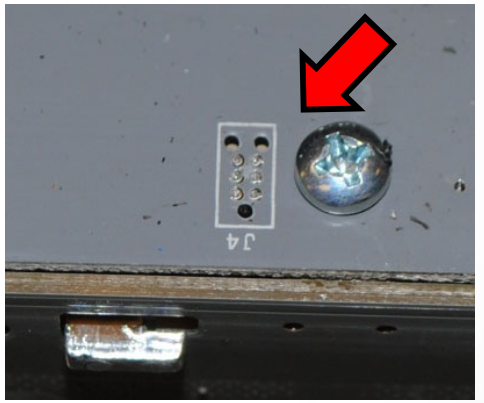
Identifying Programming Header on Board

Header Chip – *5 pins*



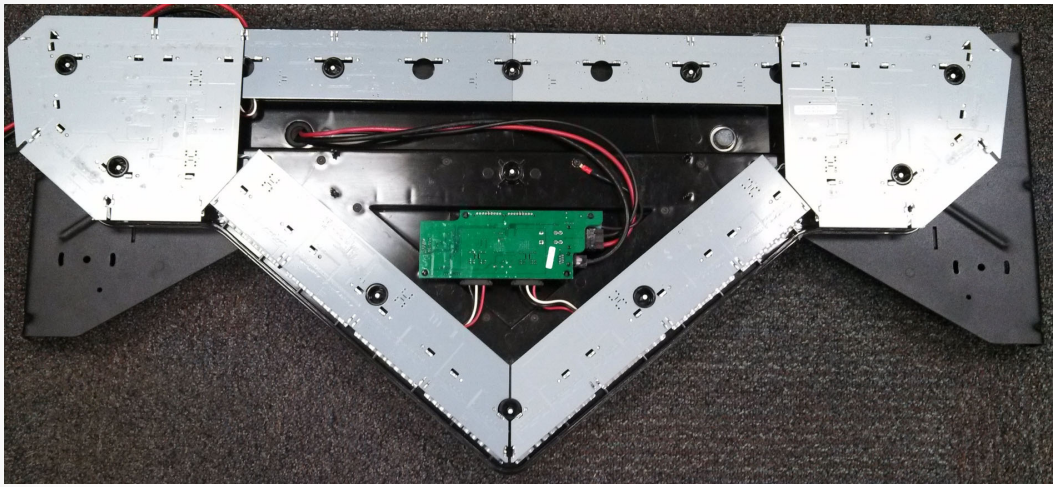


Surface Mount – *6 pins*

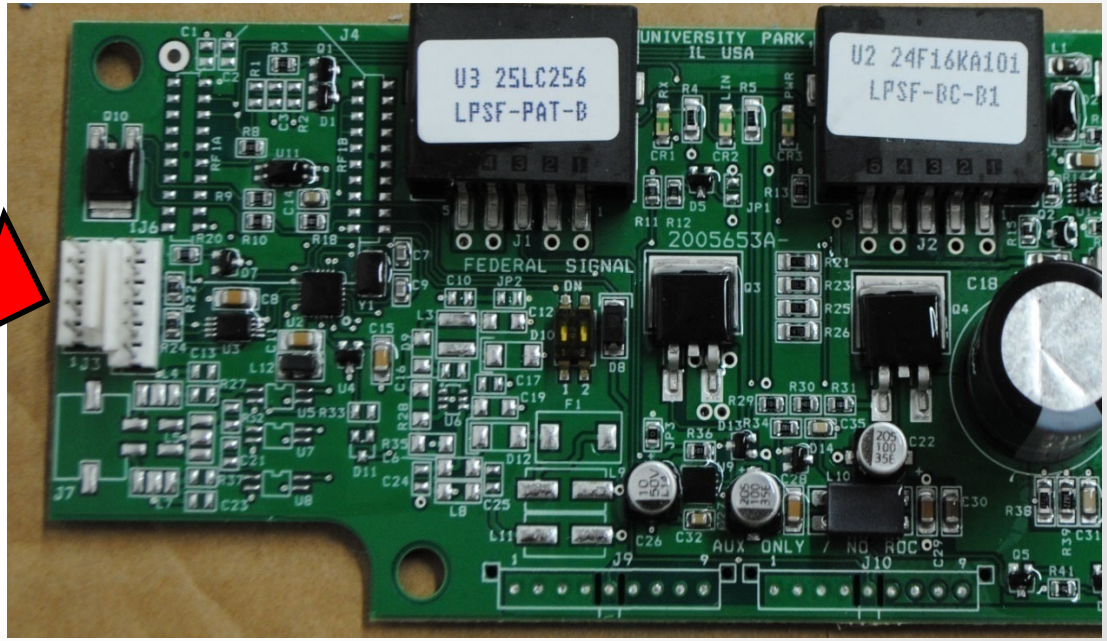




Identifying Non-FSJoin Valor Control Board Program Header

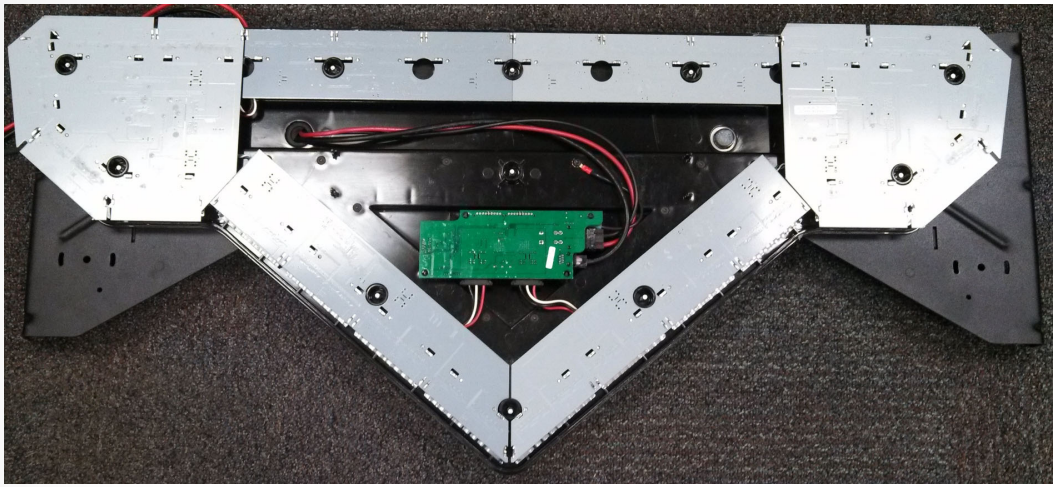


5-pin connector on far left

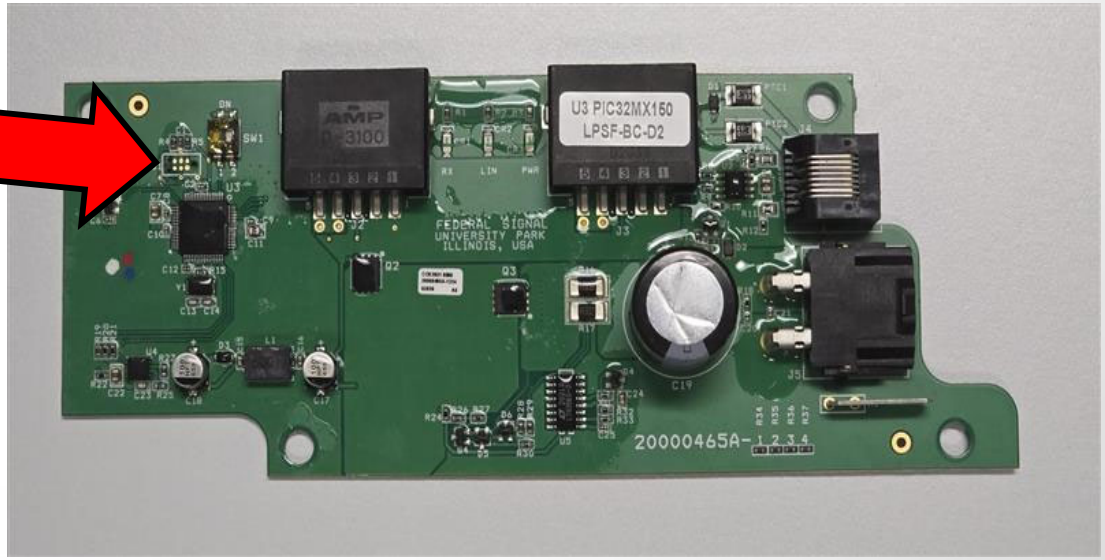


- Hex File – ***LPSF_BC_C2***
- Target Chip – ***PIC24F16KA101***

Identifying FSJoin Valor Control Board Program Header

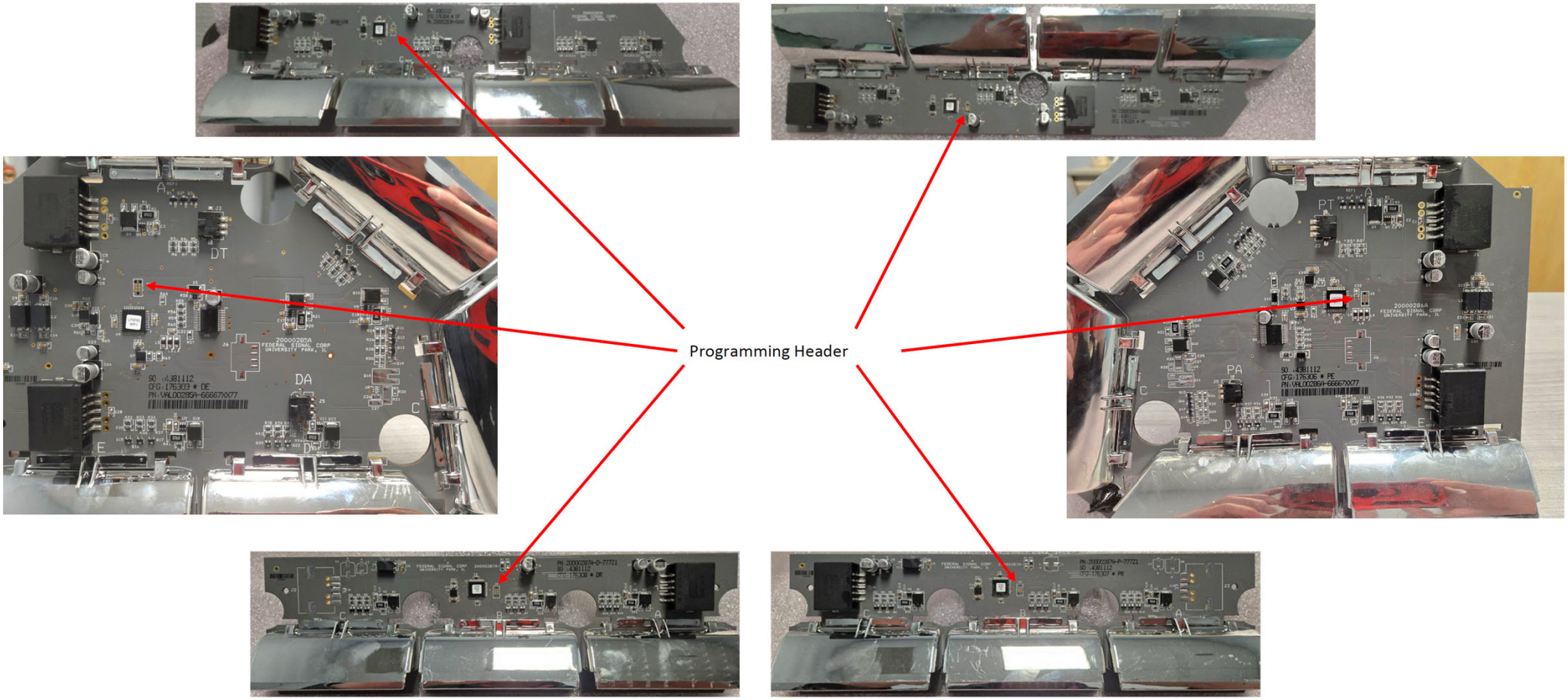


6-pin connector on left



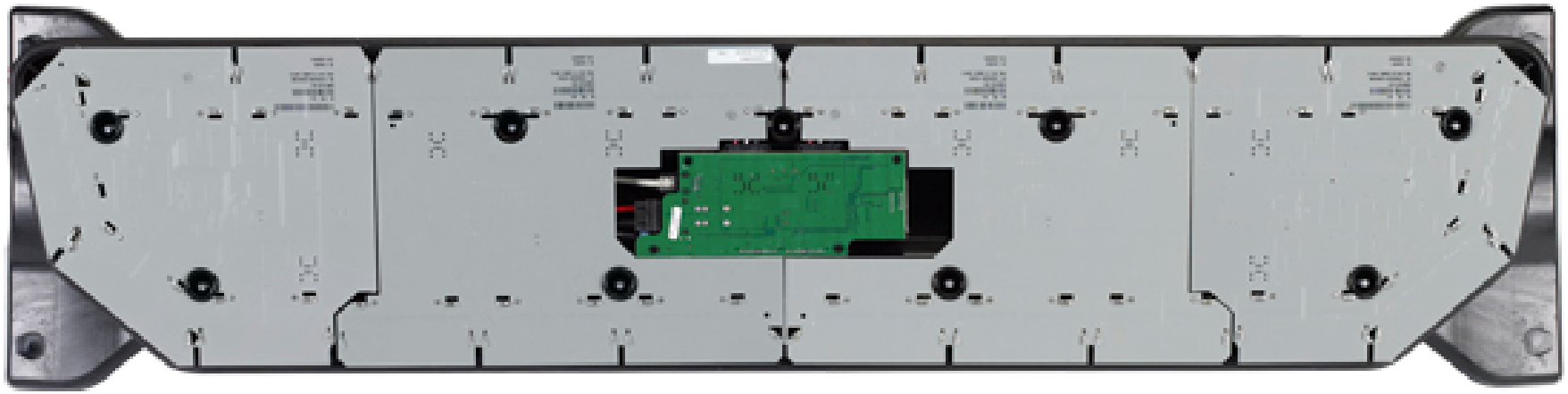
- Hex File – ***LPSF_BC_D3***
- Target Chip – ***PIC32MX150F256H***

Identifying Valor ROC Board Program Header

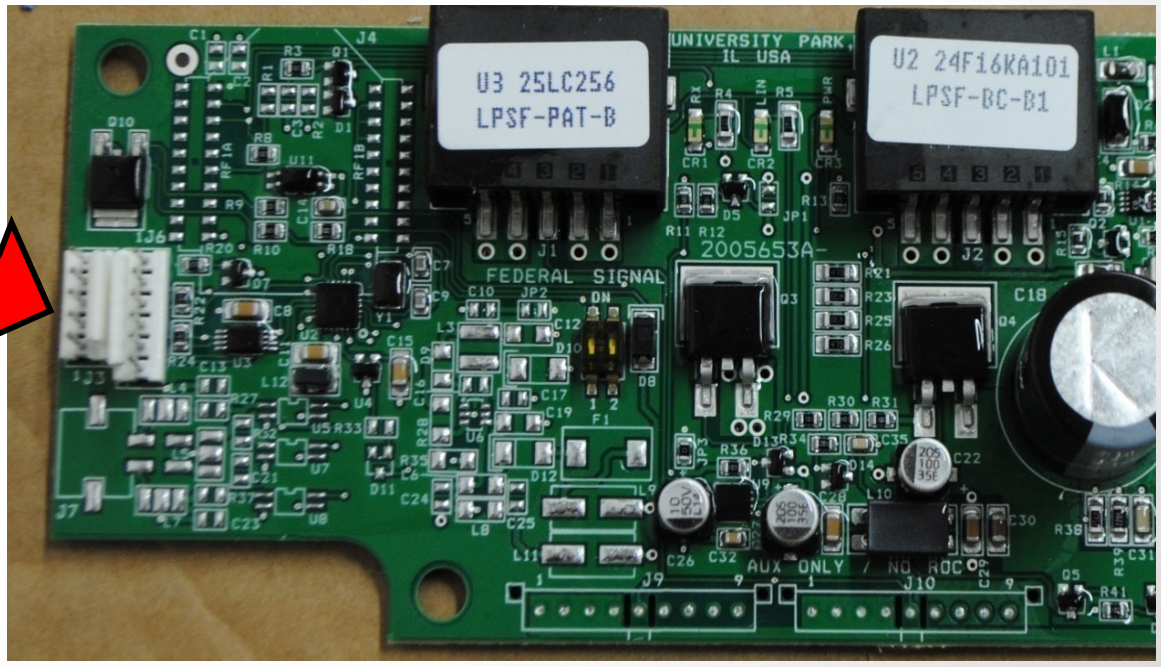


- Hex File – ***ROC_STD_1102_RBW*** **or newer (except *ROC_STD_1104*)**
- Target Chip – ***PIC18F45K40***

Identifying Non-FSJoin Integrity Control Board Program Header

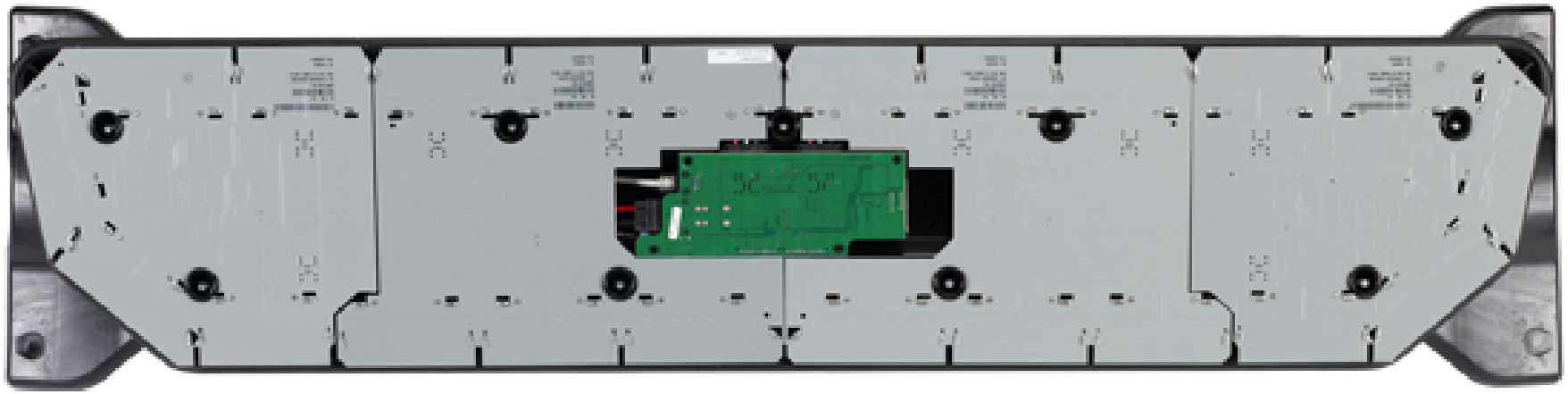


5-pin connector on far left

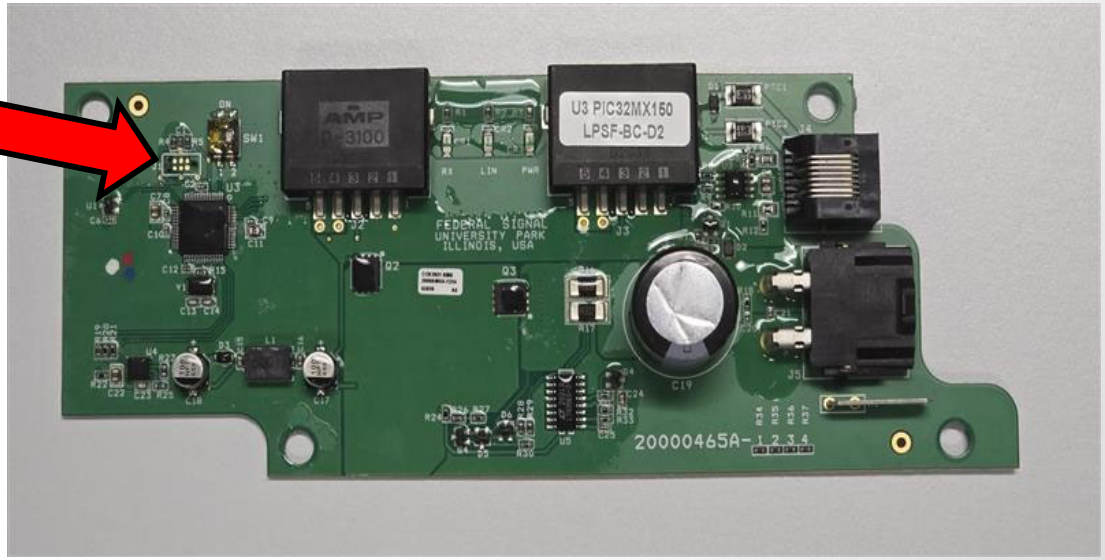


- Hex File – ***LPSF_BC_C2***
- Target Chip – ***PIC24F16KA101***

Identifying FSJoin Integrity Control Board Program Header

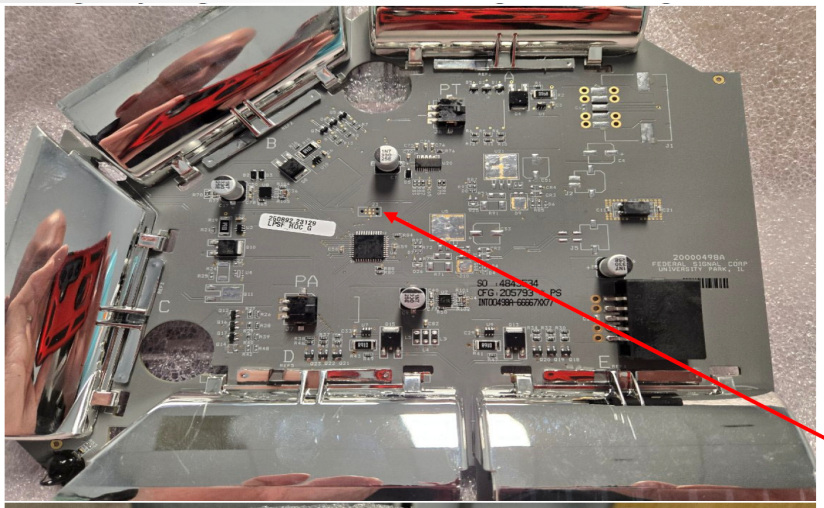


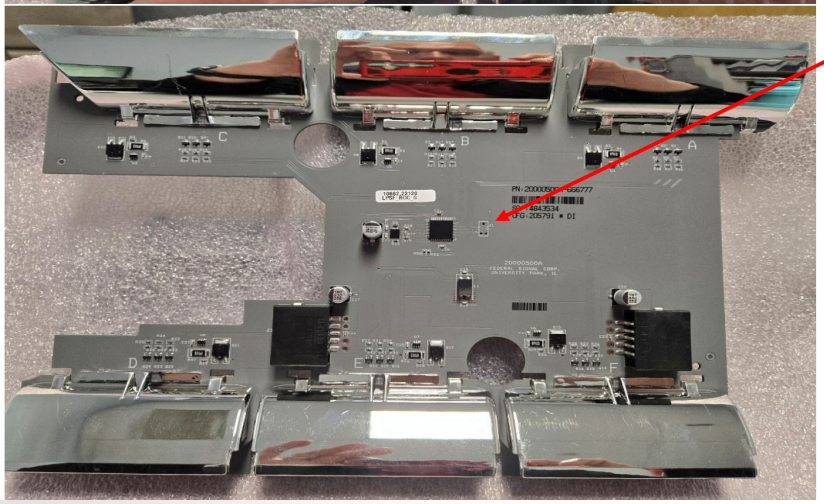
6-pin connector on left



- Hex File – ***LPSF_BC_D3***
- Target Chip – ***PIC32MX150F256H***

Identifying Integrity ROC Board Program Header



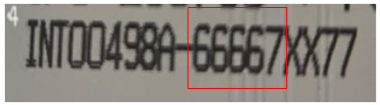


Programming Header

- **See Asterisk Below *(for end ROC boards only)***

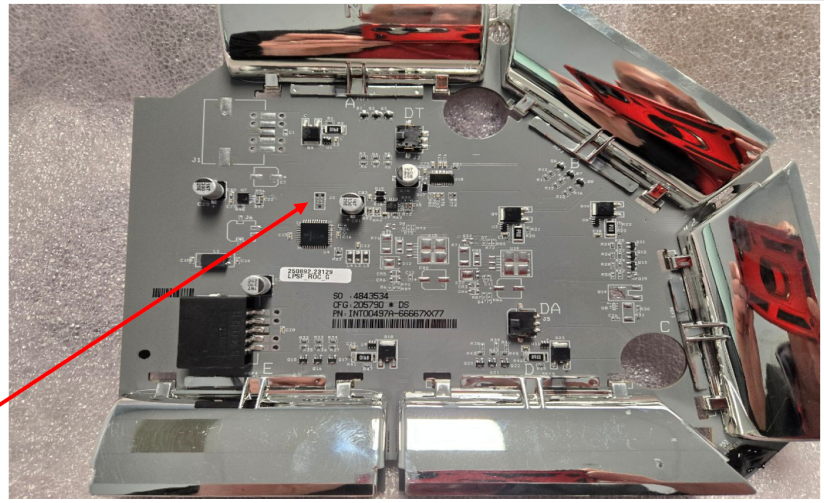
-44" – Third Digit
-51" – Fourth Digit

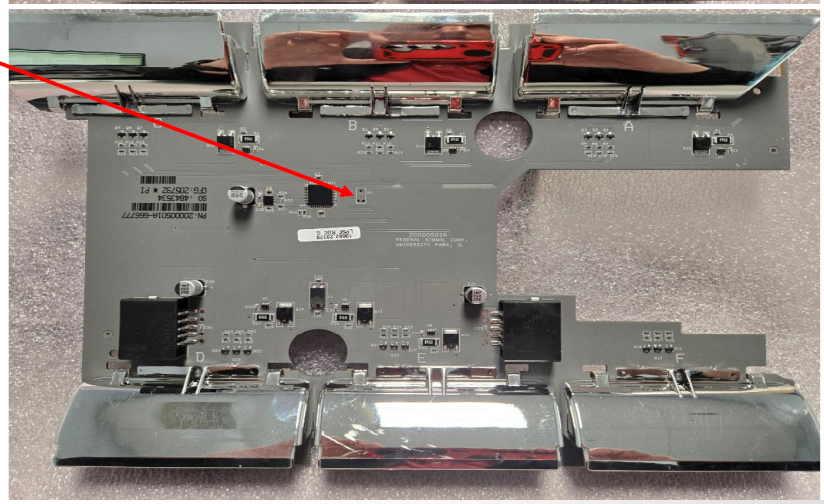
44" Integrity End Board



51" Integrity End Board

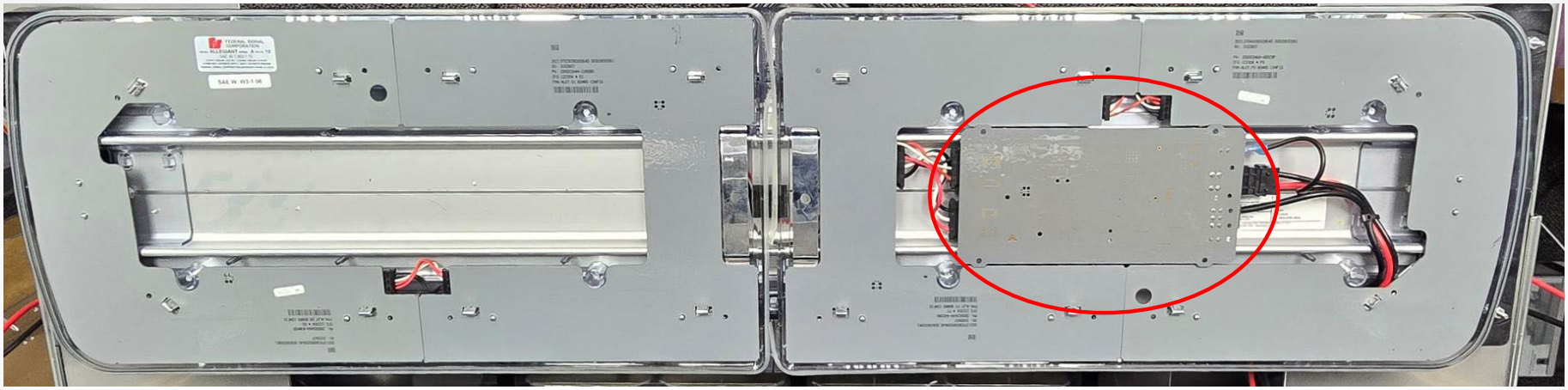




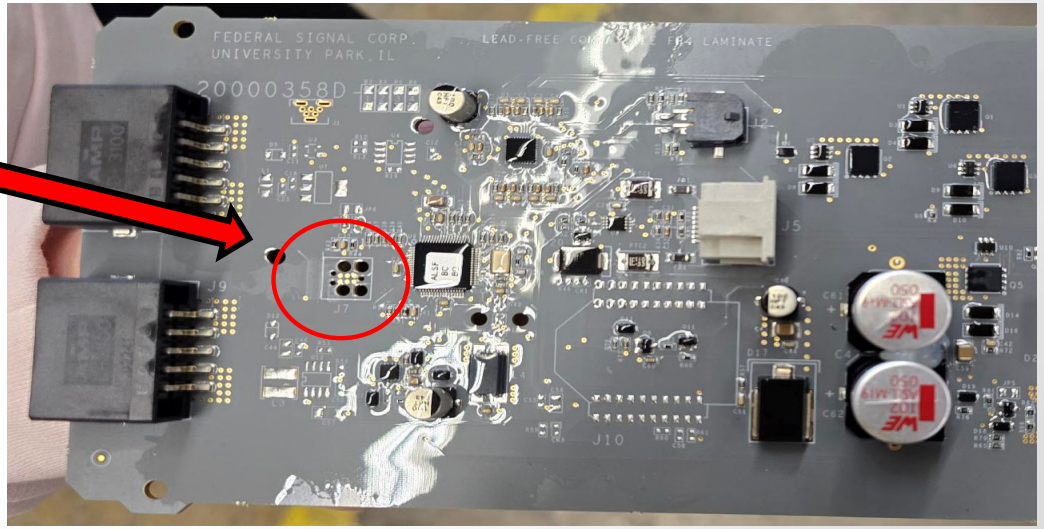


- Hex Files – ***ROC_STD_1102_RBW*** **or newer (except *ROC_STD_1104*) for inner/end boards without 9LED alleys***
  ***If the end board alley positions are labeled J, K, L, M, N, O, P, Q, S, or T, they will need to be flashed with *the* ROC_STD_1102_RBW_INTGENDS hex file (see pictures in middle above)**
- Target Chip – ***PIC18F45K40***

Identifying Allegiant Control Board Program Header



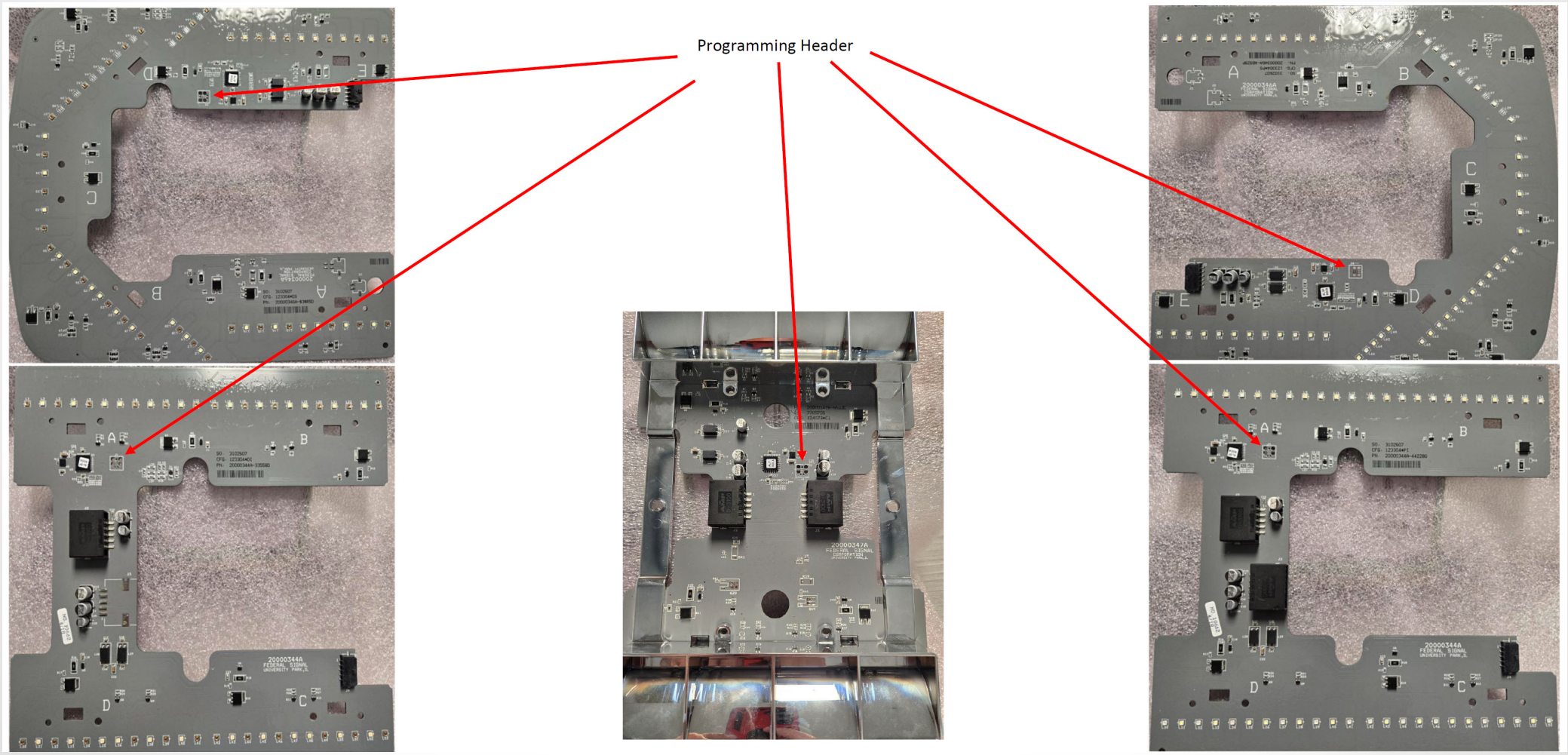
6-pin connector on left



- Hex Files* – ***ALSF_BC_STDJ_A1*** **(FSJoin)**
  ALSF_BC_B0 **(Non-FSJoin)**
- Target Chip – ***PIC32MX150F256H***

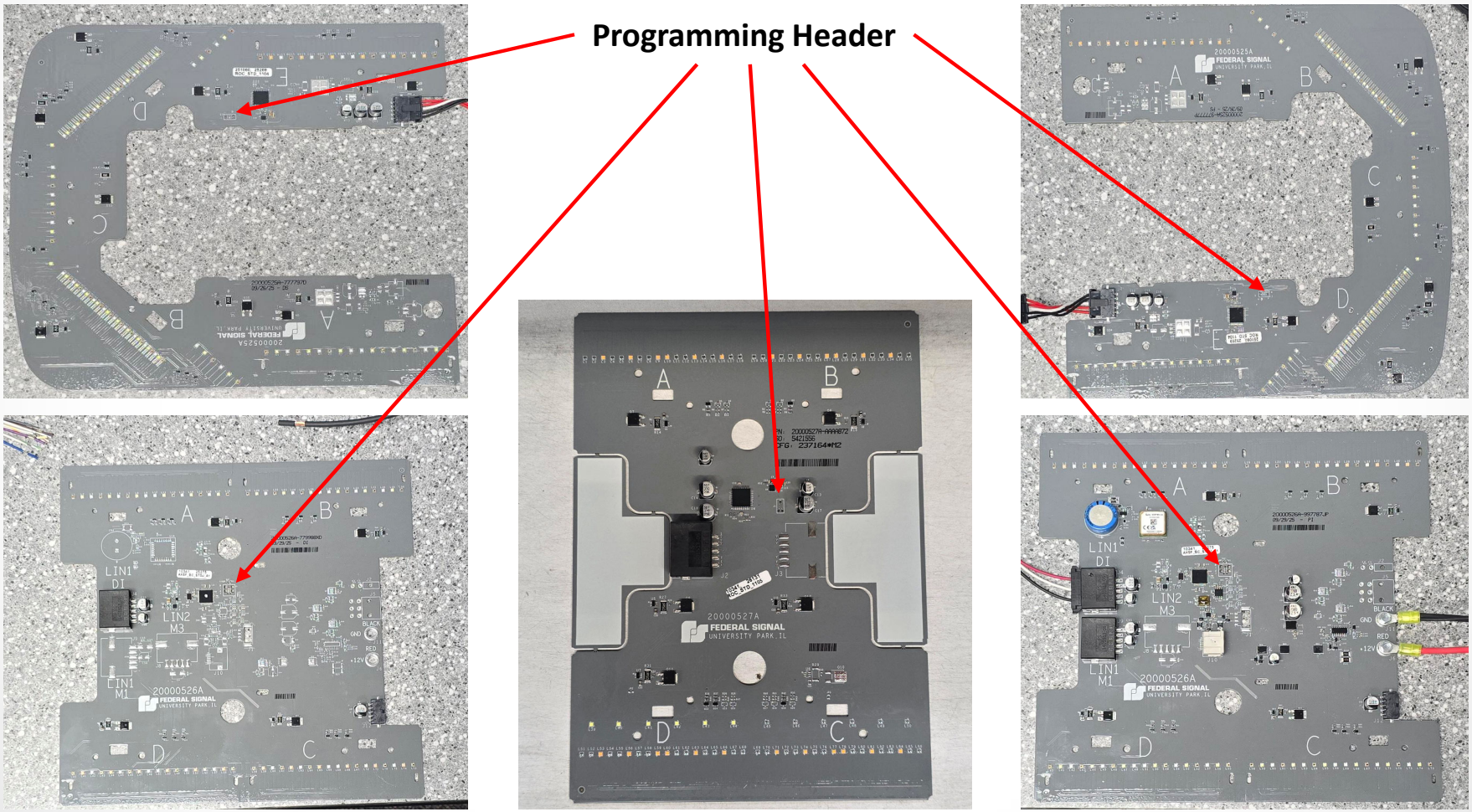
*For standard hex files only. Special lightbar hex files may vary.

Identifying Allegiant ROC Board Program Header



- Hex File – ***ROC_STD_1102*** **or newer**
- Target Chip – ***PIC18F45K40***

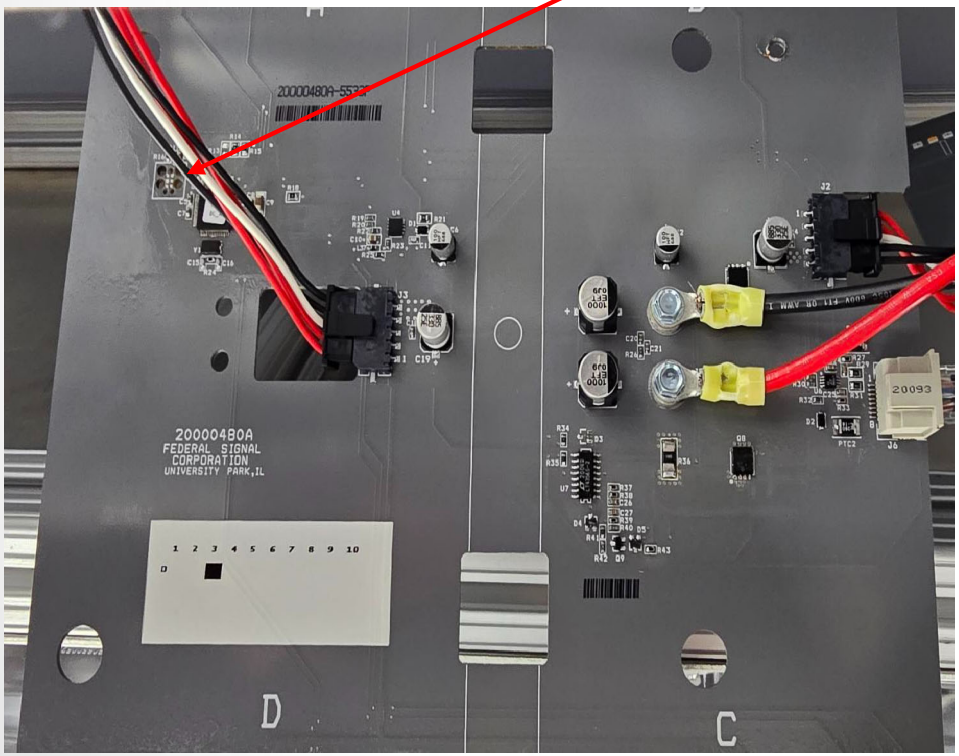
Identifying Allegiant Max ROC Board Program Header



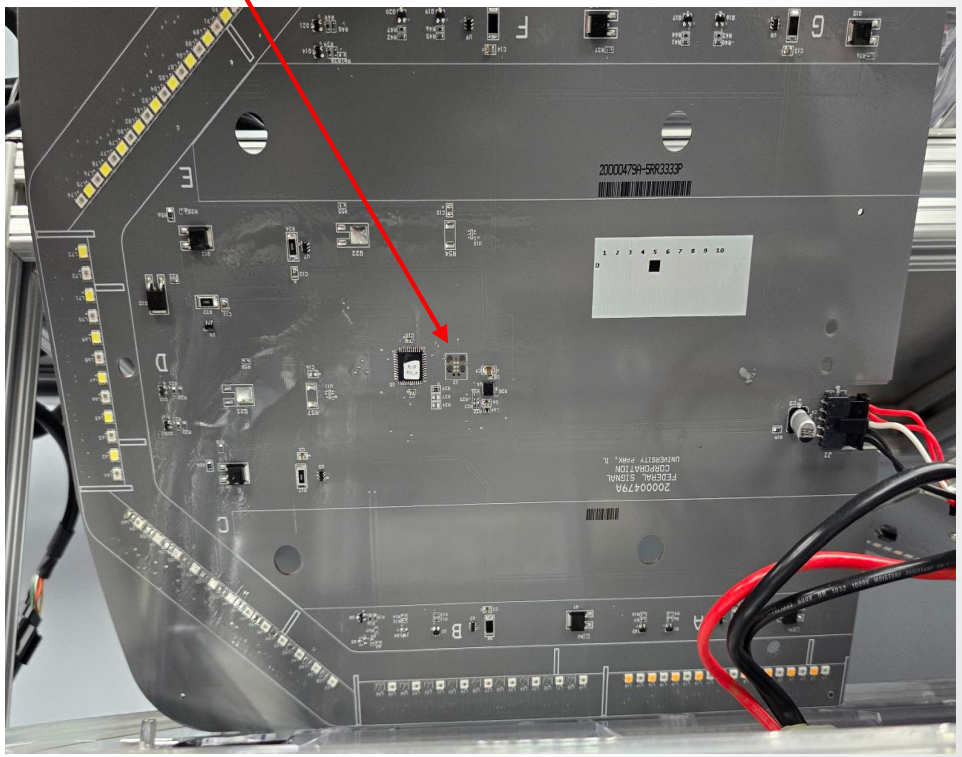
- Hex Files – ***ROC_STD_1105*** **or newer for end/center ROC boards,** ***AXSF_BC_1433*** **for inner ROC boards**
- Target Chip – ***PIC18F45K40*** **for end/center ROC boards,** ***PIC32MX570F512H*** **for inner ROC boards**

Identifying Reliant/Reliant S2 ROC Board Program Header

Programming Header



Inner ROC Boards



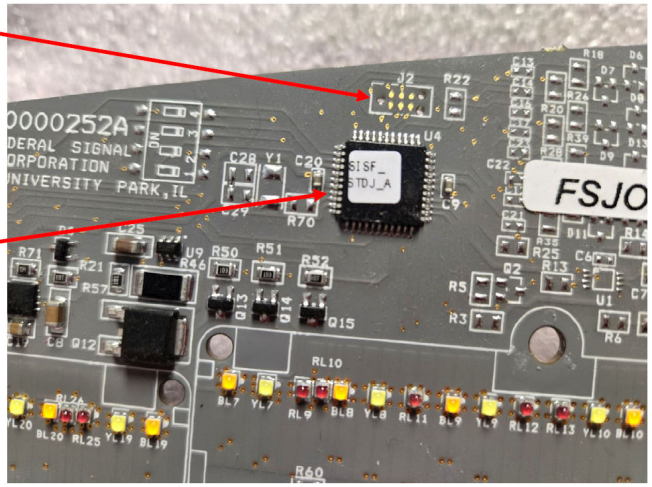
End ROC Boards

- Hex Files* – ***ROC_STD_1105*** **or newer for end ROC boards,** ***RLNT3C_INNERS_12012*** **for inner ROC boards (FSJoin)**
- Target Chip – ***PIC18F45K40*** **for end ROC boards,** ***PIC32MX150F256H*** **for inner ROC boards**

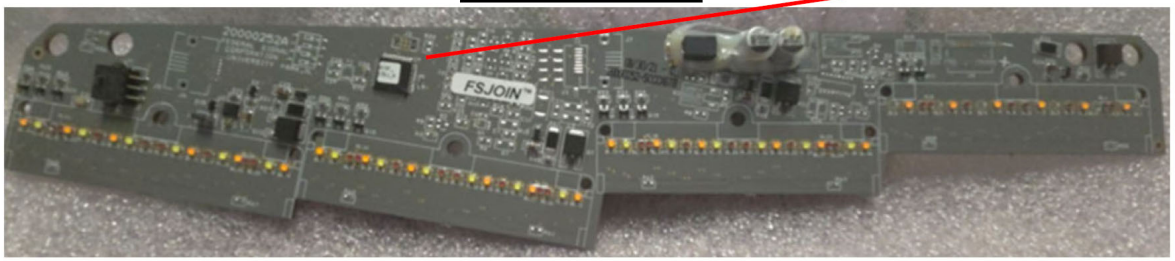
*Reliant S2 standard hex files only. Special lightbar hex files may vary.

Identifying SIFM and SIFZ ILS Board Program Header

Programming Header

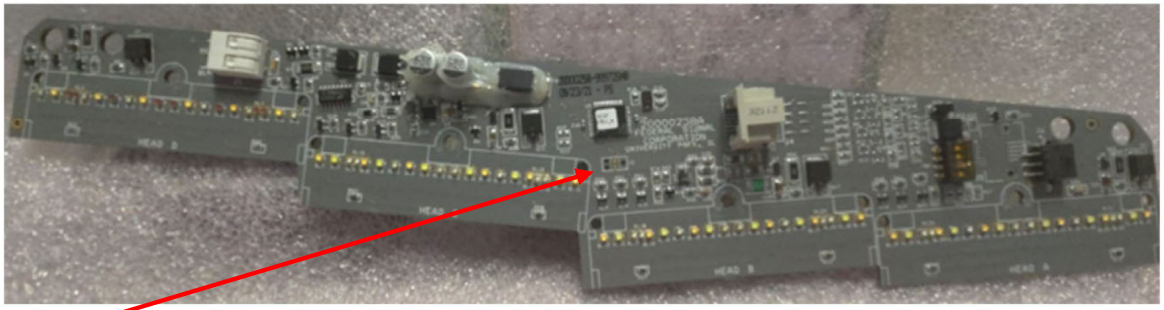


Follower Board



Driver Side

Controller Board



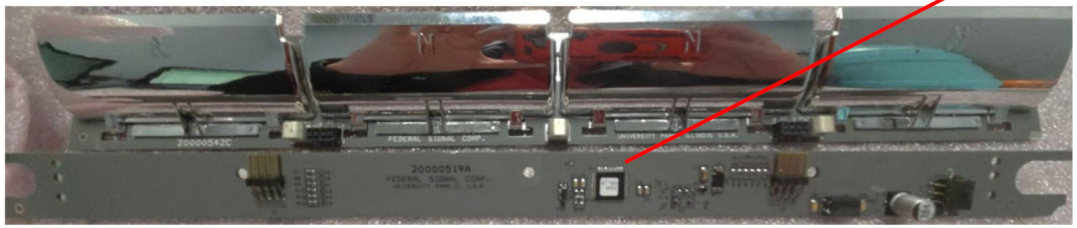
Passenger Side

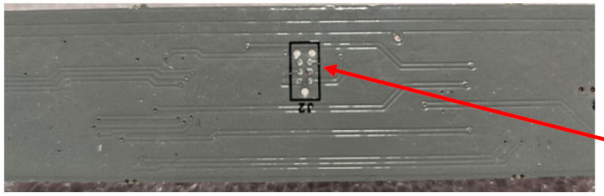
- Hex File – ***SISF_STDJ_A2*** **or newer (FSJoin)**
- Target Chip – ***PIC18F47K40***

Identifying CN SignalMaster Board Program Header



Follower Board and LED Board





Programming Header
- On back side of follower board, opposite side of chip.

Controller Board and LED Board

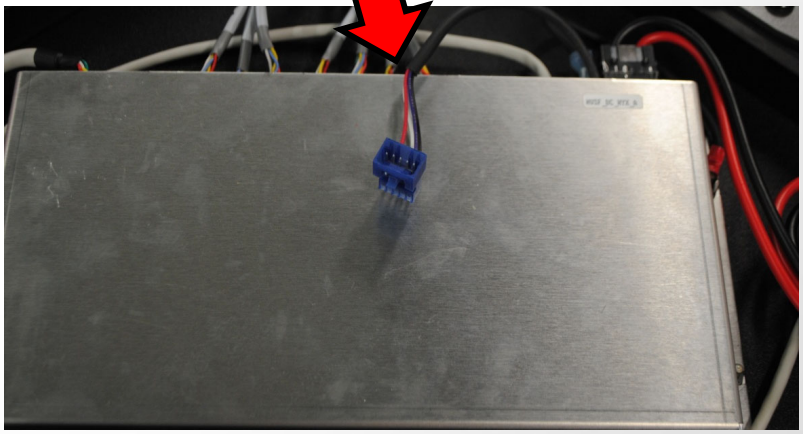


Programming Header
- On back side of controller board, opposite side of chip.

- Hex File – ***CSSF_STDJ_A2*** **or newer (FSJoin)**
- Target Chip – ***PIC18F47K40***

Identifying Vision SLR Control Board Program Header

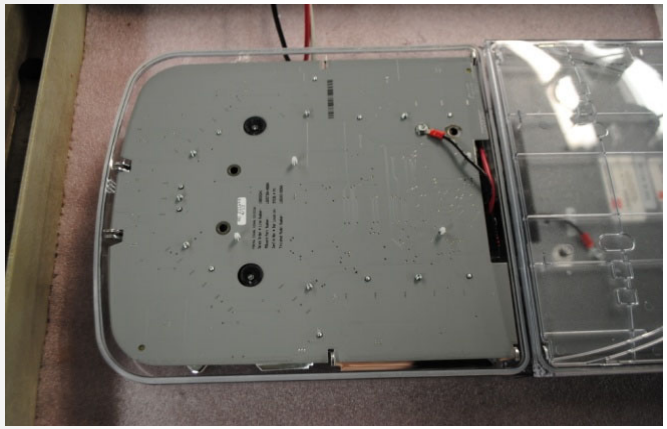




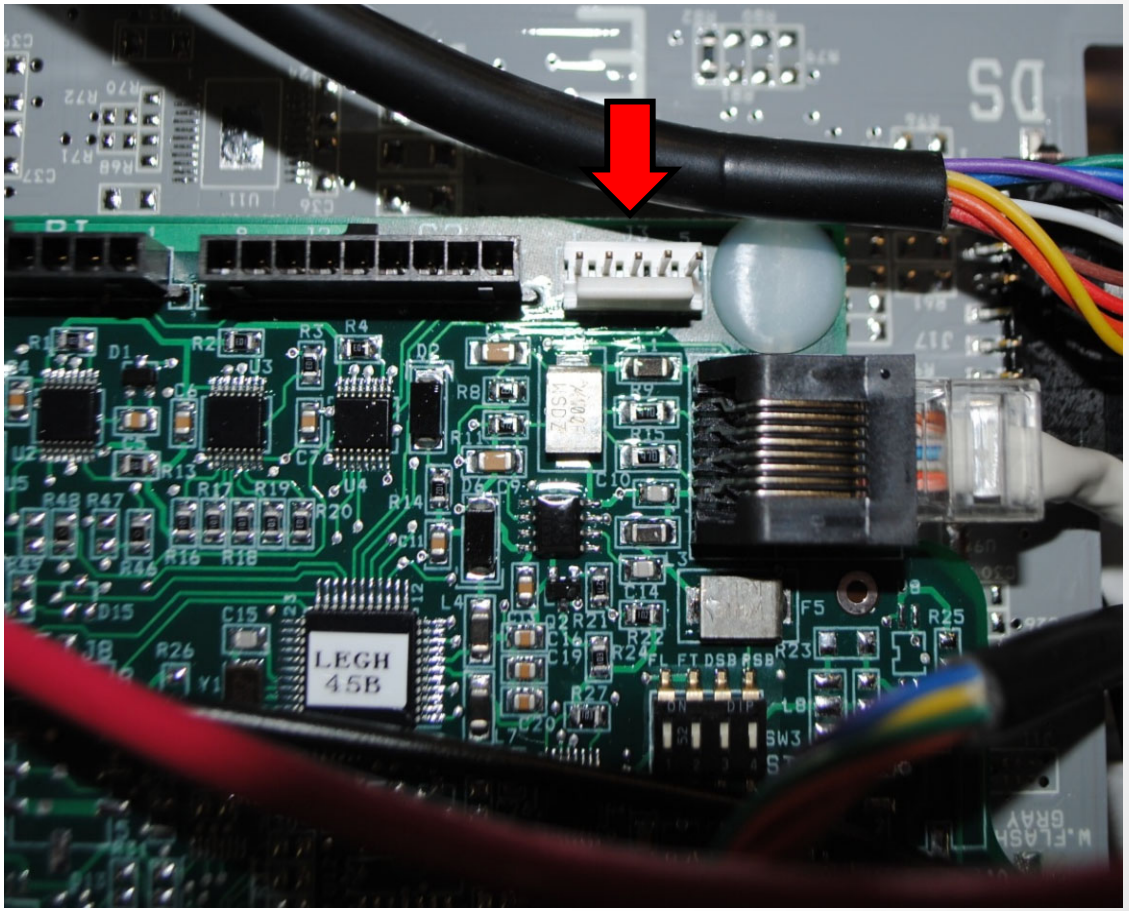
- Hex File* – ***NVSF_BC_C1***
- Target Chip – ***PIC18F87J11***

*For standard hex file only. Special lightbar hex files may vary.

Identifying Legend/LPX Control Board Program Header







- Hex Files* – ***LEGH45C*** **(for 45”),** ***LEGH53C*** **(for 53”),** ***LEGH61C*** **(for 61”),** ***LEGH70B*** **(for 70”)**
- Target Chip – ***PIC18F4520***

*For standard hex files only. Special lightbar hex files may vary.

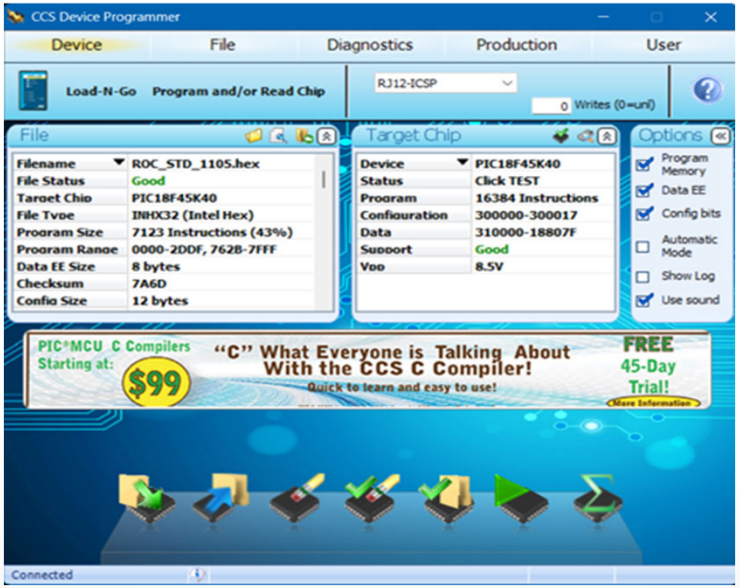
Identifying SSP Series B Control Head Program Header



- Hex Files – ***SSP2K_CH_2042*** **(for SSP2000B),** ***SSP3K_CH_2042*** **(for SSP3000B)**
- Target Chip – ***PIC18F97J60***

Re-Flashing Steps

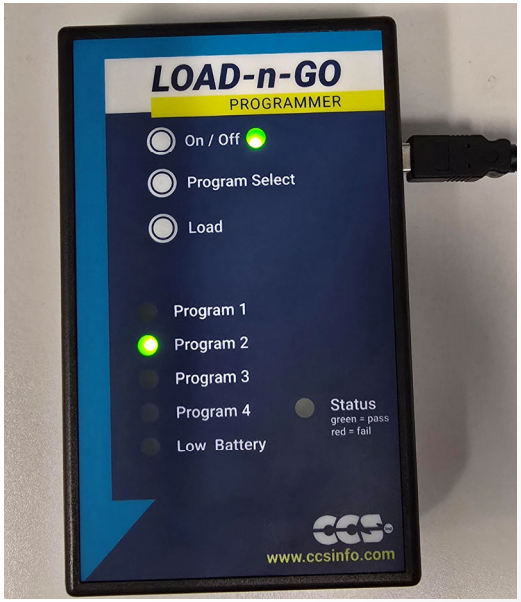
1. Determine programmer model and voltage setting (pages 4-6)
2. Determine connector type (page 10)
3. Plug programmer into computer's USB port
4. Wait for drivers to install
5. Open CCSLOAD program



Re-Flashing Steps – cont.

- ✓ Status LED will change from red to green when software is opened
- ✓ If software is already open and LED is red, close and then reopen

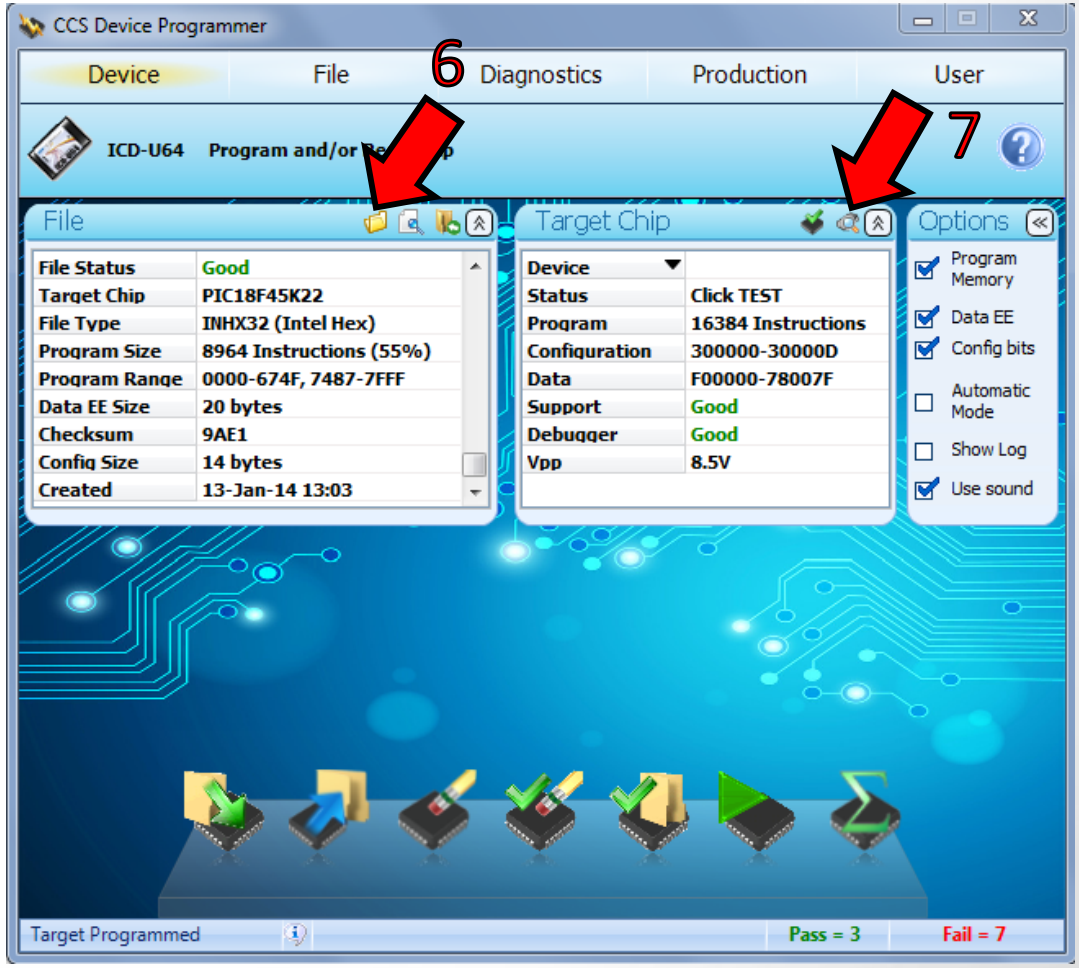




Re-Flashing Steps – cont.

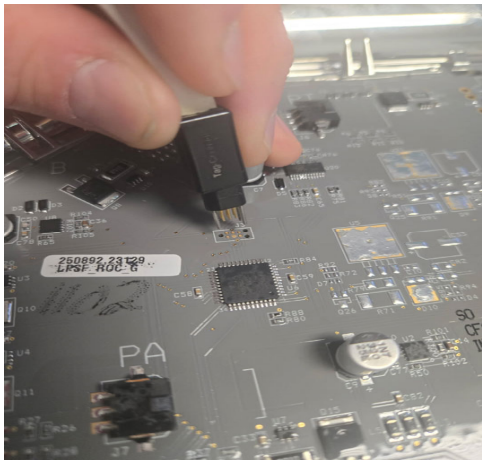
6. **Click on the yellow folder icon. Locate the .hex file on your computer and open it in the software. You will see the file name changed to show the name of the .hex file.**

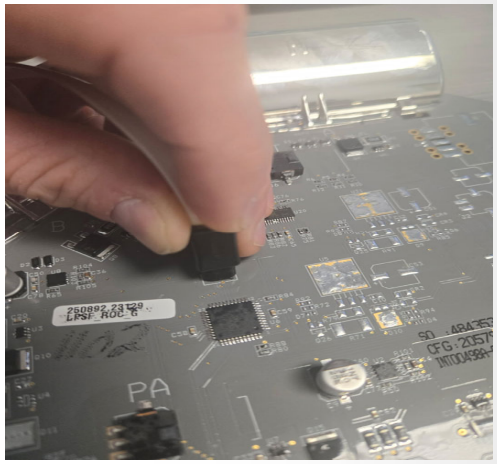
7. **Click on the gray icon with the magnifying glass. Locate the correct PIC (target chip) used for the boards in the directory.**



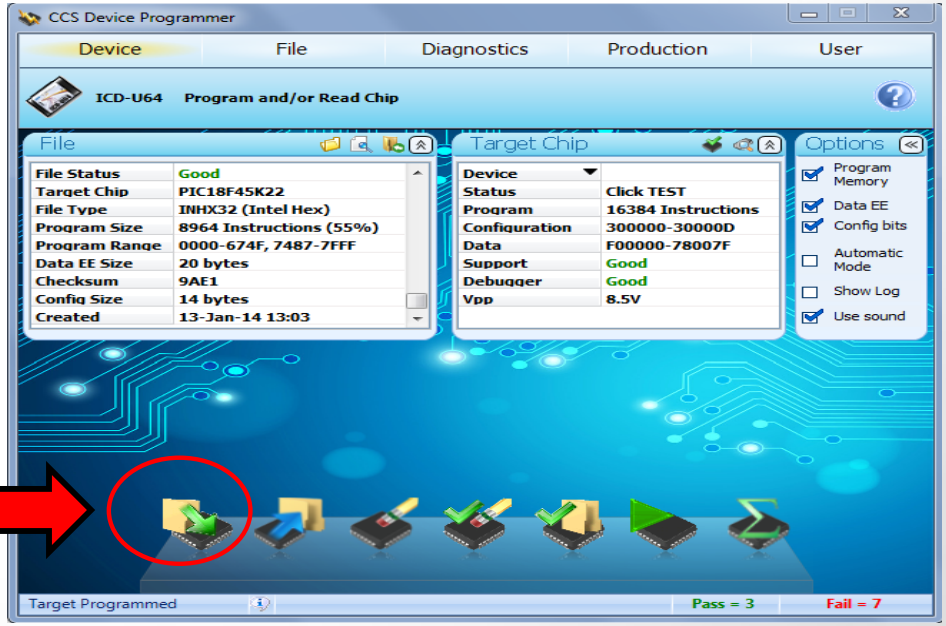
Re-Flashing Steps – cont.

8. **Attach the programming cable to the board header as shown on the right. There may be a clear coating over the contacts on the board. If there, you will need to use a plastic scraper or your fingernail to lightly scrape away the clear coating for a better contact.**





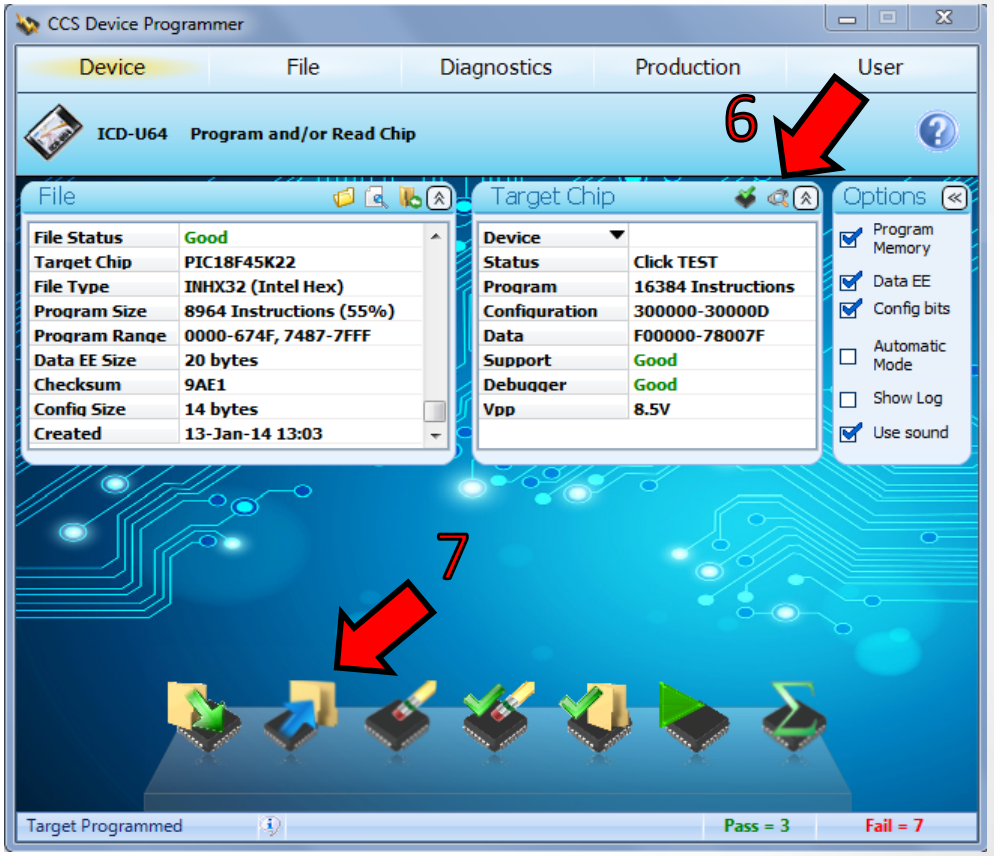
9. **Click on the "Write To Chip" icon below. The status bar will show the status of the program. If no errors are shown, the boards were programmed successfully.**

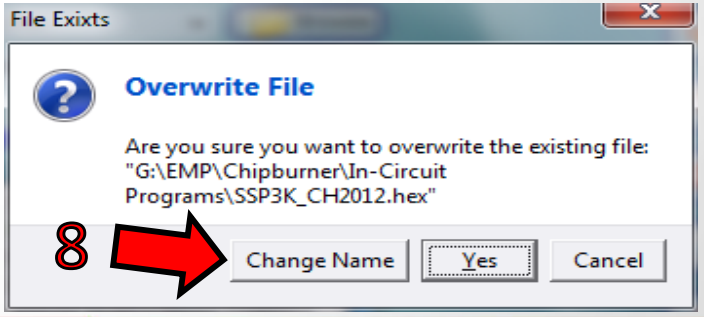


9

Extracting a Hex File From a Board

1. Make sure programming software is closed and programmer is disconnected
2. Verify voltage is set to correct setting
3. Plug programming header into board to read
4. Plug programmer into USB
5. Open PC software
6. Click on the gray icon with the magnifying glass and locate the correct PIC (target chip) used for the boards in the directory
7. Click “Read from Chip” icon on dock
8. Click “Change Name”
9. Select name and location where you want the hex file to be written (make sure to add “.hex” to end of filename)

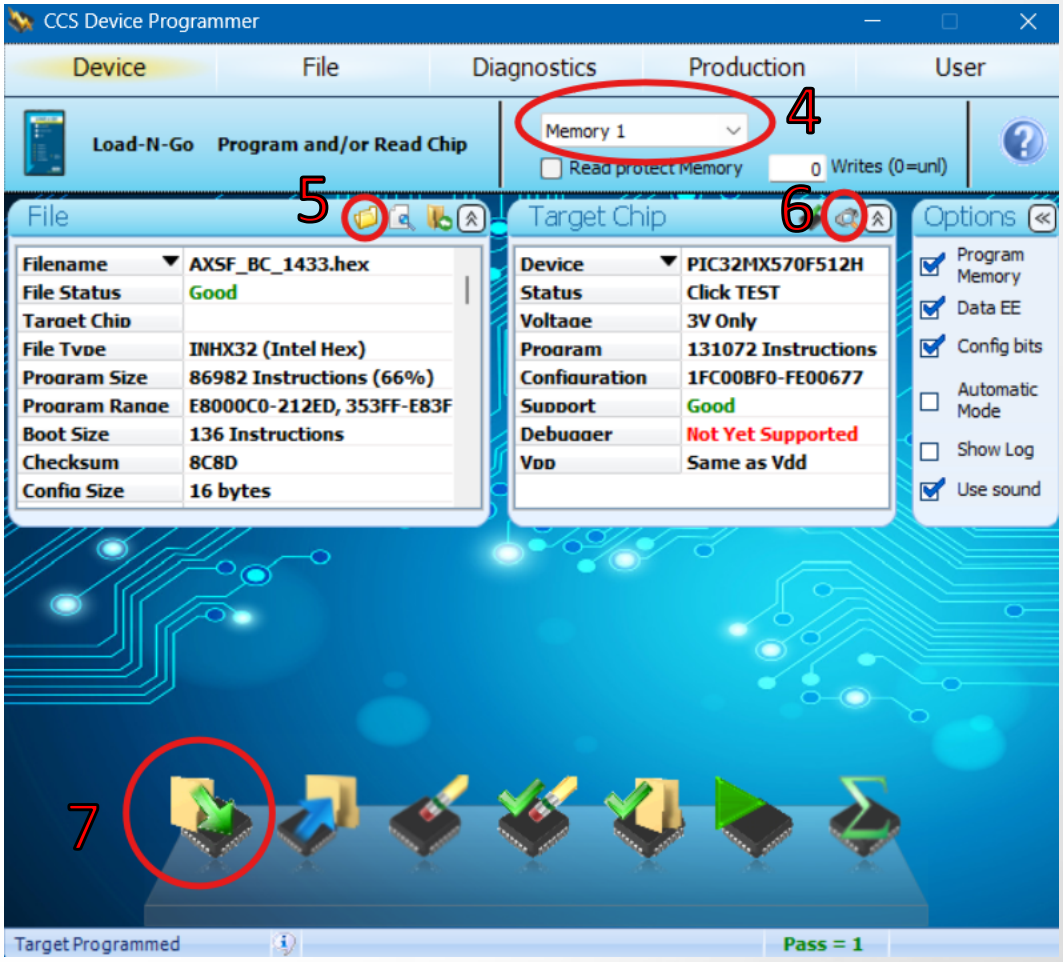




Using Memory Banks on Load-n-Go Model

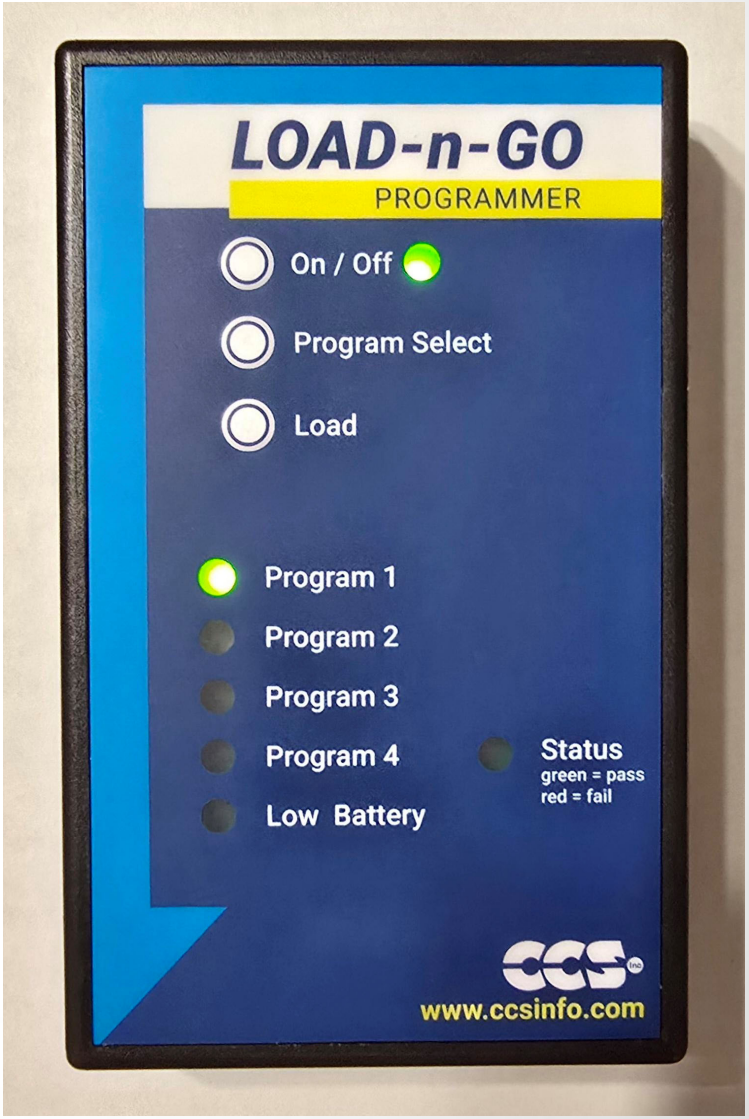
You can use the 4 memory banks to flash hex files without using a computer.

1. **Make sure programming software is closed and programmer is disconnected**
2. **Plug programmer into USB**
3. **Open PC software**
4. **Select the memory bank you prefer**
5. **Click on yellow folder icon to locate hex file**
6. **Click on the gray icon with the magnifying glass and locate the correct PIC (target chip) used for the boards in the directory**
7. **Click “Write to Mem” option on dock**
8. **Once hex file is flashed, disconnect USB**



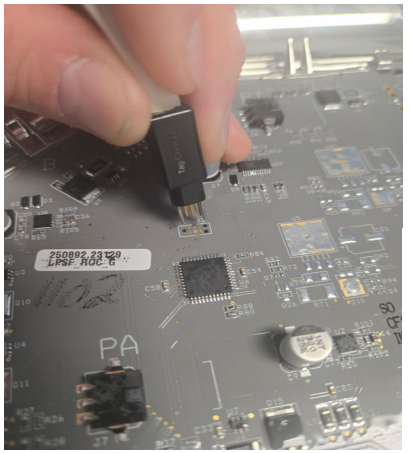
Using Memory Banks on Load-n-Go Model – cont.

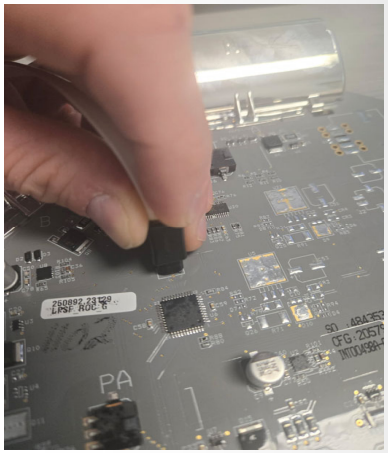
9. When ready to flash, load 4 AA batteries into rear of the programmer (not included)
10. Reattach battery cover
11. Determine correct jumper (refer to page 5)
12. Turn on programmer by pressing On/Off button
13. Cycle through programs 1-4 by pressing the “Program Select” button to reach the desired memory bank



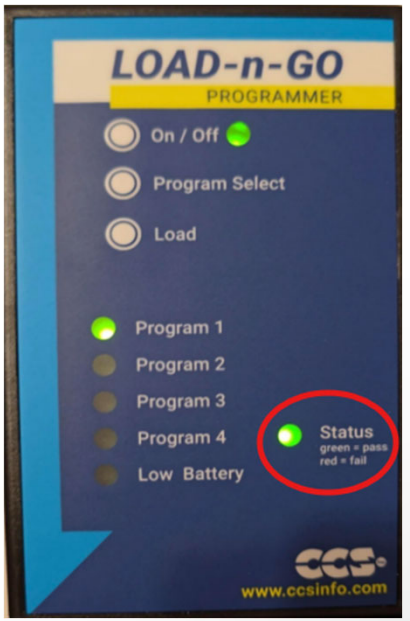
Using Memory Banks on Load-n-Go Model – cont.

14. **Attach the programming cable to the board header as shown on the right. There may be a clear coating over the contacts on the board. If there, you will need to use a plastic scraper or your fingernail to lightly scrape away the clear coating for a better contact.**

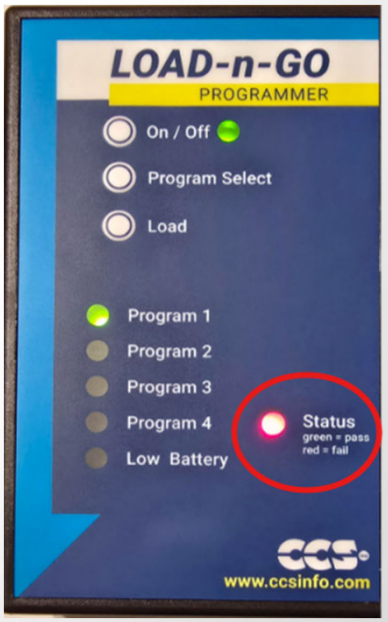




15. **Press "Load" button on programmer to begin flashing the hex file. The Status LED will slowly blink GREEN.**

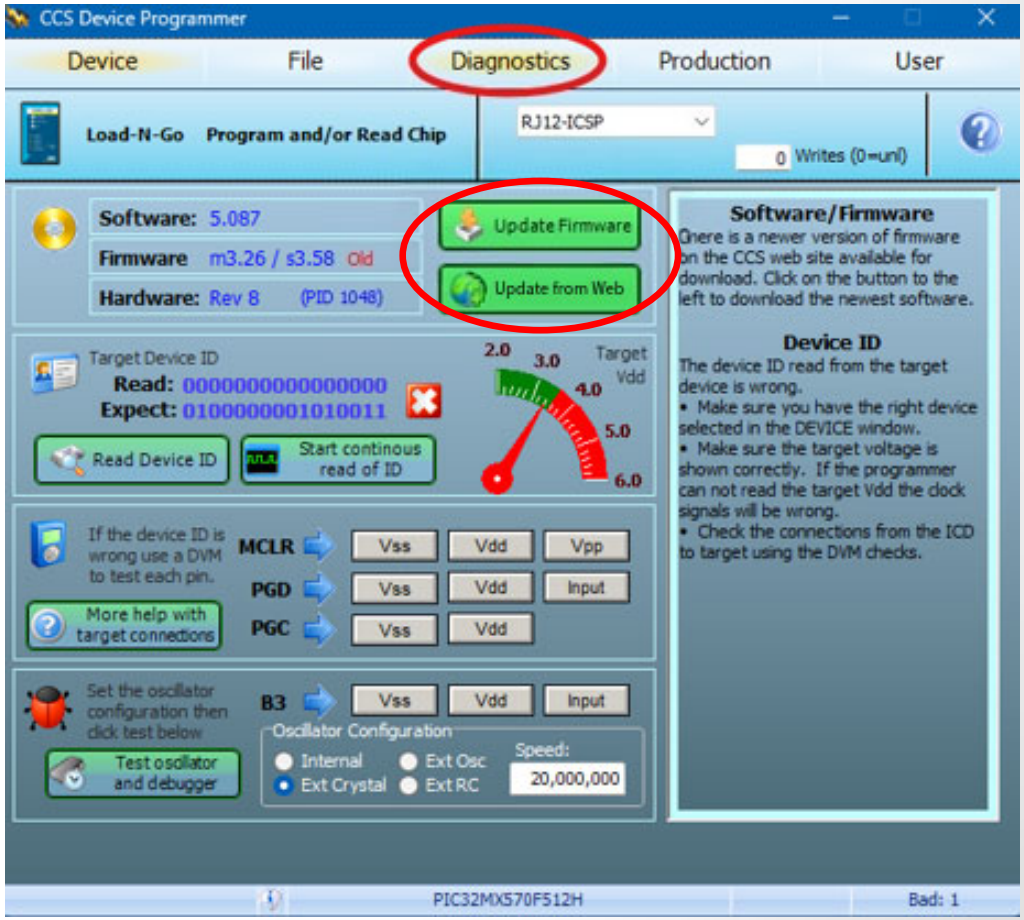


16. **If the hex file successfully loaded, it would turn solid GREEN. If the hex file was not successfully loaded, it would blink RED.**



Troubleshooting ROCPR2

- ✓ **Always double check power jumper is in correct position!**
  - ✓ **If using the ICD-U80, make sure "Supply Power" is checked!**
- ✓ **Ensure that the software and firmware are up-to-date (see screen to right)**
- ✓ **If applicable, make sure the clear coating on board header is scraped off**
- ✓ **If programming fails, check all connections and then restart the PC software before re-trying**
- ✓ **Check the cable between programmer and board for broken connections (continuity)**

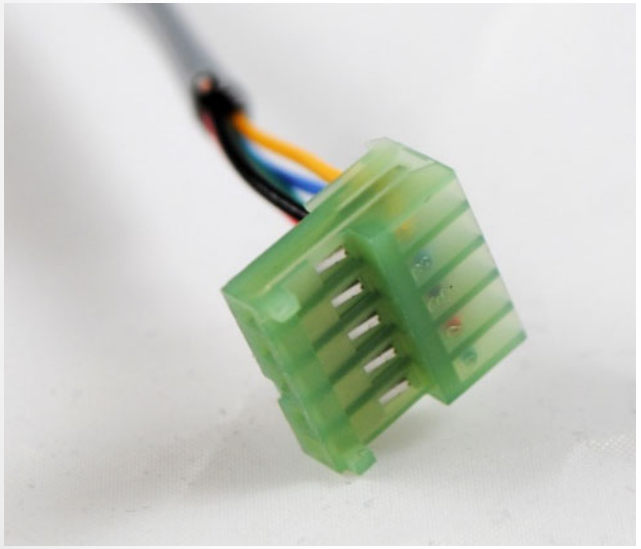


Reflashing Tips

- ✓ If reflashing ROC boards in an FSJoin lightbar, the 'Detect LED Configuration' function may no longer work if using the Convergence Software
  - ✓ Colors must be inputted manually
- ✓ After reflashing, some products may need to be power cycled for changes to take effect
- ✓ FSJoin ILS and FSJoin CN SignalMaster controller board that is reflashed with the ROCPR2 will NOT recover them if they lost communication after a firmware update through the Convergence software
  - ✓ The passenger ROC board on the ILS, or the controller board on the CN SignalMaster would have to be sent in on an RMA to be reflashed
- ✓ If reflashing the Valor and Integrity ROC boards that are affected with the ROC_STD_1104 firmware, ask for the service bulletin and the instructions associated with it
  - ✓ Scan or click QR code below for a step-by-step video on how to reflash the ROC boards

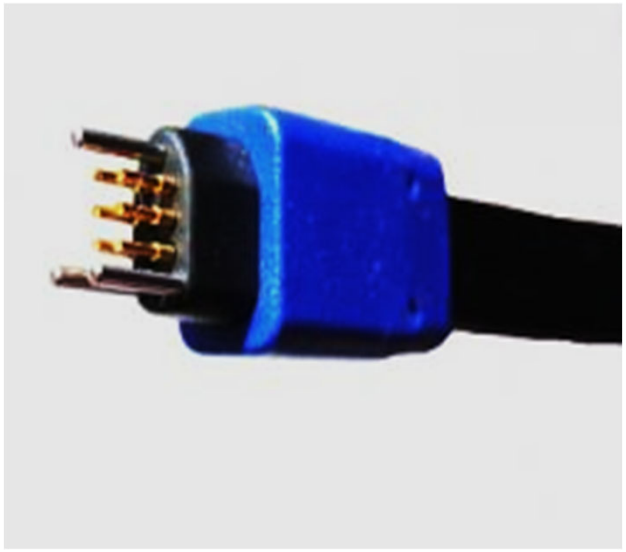
ROCPR2 Common Replacement Parts

5-Pin Header Cable



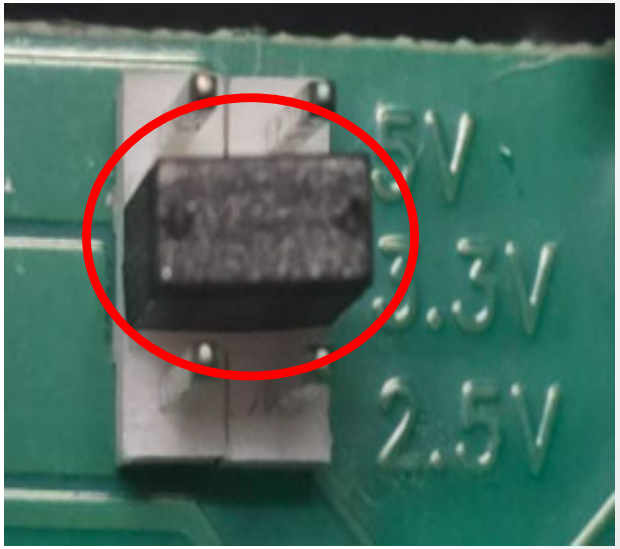
Z17500003A

6-Pin Surface Cable



Z17500501

2-Position Jumper



Z139A209B

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