

TECHNICAL SERVICE BULLETIN

03-200011-001: TSB, Remediation of Loose FE1
RF and Front Panel Ports

ISSUE

This guide is intended for remediation of loose RF and front panel ports on Hawk and Peregrine models. Several steps have been taken in Rajant MFG to eliminate this issue beginning with serial number 105,538.

This guide is intended for units that may exhibit this issue before the MFG changes were implemented, or ports that have become loose. The range of potentially affected serials is 80,253 to 105,537. Note that not all serials will be affected, and not all serials in the range are FE-1 Hawk or Peregrine models.

ACTION

Please read this entire document before beginning any remediation of RF Ports.

Prepare with the following materials:

- An **INCH LB** torque wrench capable of **40 to 60 INCH LBs**.
- An 18mm deep well socket, preferably a 6 point.
- A 17mm deep well socket, preferably a 6 point for early units.
- A 1 Inch deep well socket, preferably a 6 point.
- **OR**, square drive crow's foot which requires additional planning* since the extended length increases the indicated torque.
- Specifically VC-3 Thread locker which is capable of being re-torqued or checked unlike cyano-based thread locker types.
- See addendum for notes on tooling, torque, and in-situ remediation.



Figure 1

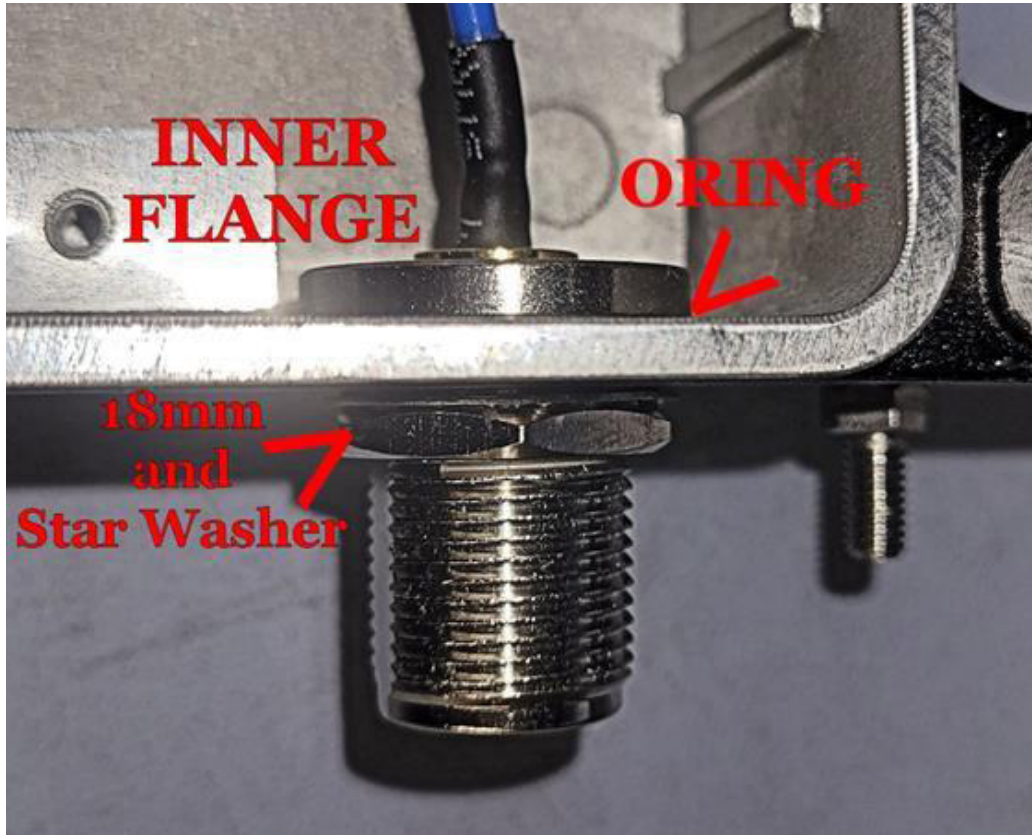


Figure 1 shows how the N style RF port mounts through the case bulkhead.

**DO NOT remove the lid- this will void the warranty.
The lid is removed in the pictures for reference only.**

An inner flange that contains an O-ring machined into a groove sits on the inside of the case. Outside of the case sits a star washer, followed by an 18mm nut, and the threaded portion to connect RF cables on to the N connector.

There is a “D” feature for the RF port such that the connector cannot spin when torquing the nut. The goal is to compress the o-ring against the inner case with the inner port flange by torquing to 60 in lbs.

	SIZE A		DRAWING NO.	C
	SCALE		Page 2 of 9	REV

DO NOT merely check or retorque N connectors unless you have applied VC-3 as detailed below. Initial production had 242/243 Thread locker that is crystalline when cured, and the effectivity will be reduced by disturbing it.

DO NOT remove or fully loosen the nut on the RF port such that the RF cable can fall inside of the unit. If this happens, the unit must be returned to Rajant.

To begin the remediation, loosen the 18mm nut such that about ~1cm of thread is exposed between the washer and the case outer surface.

Figure 2

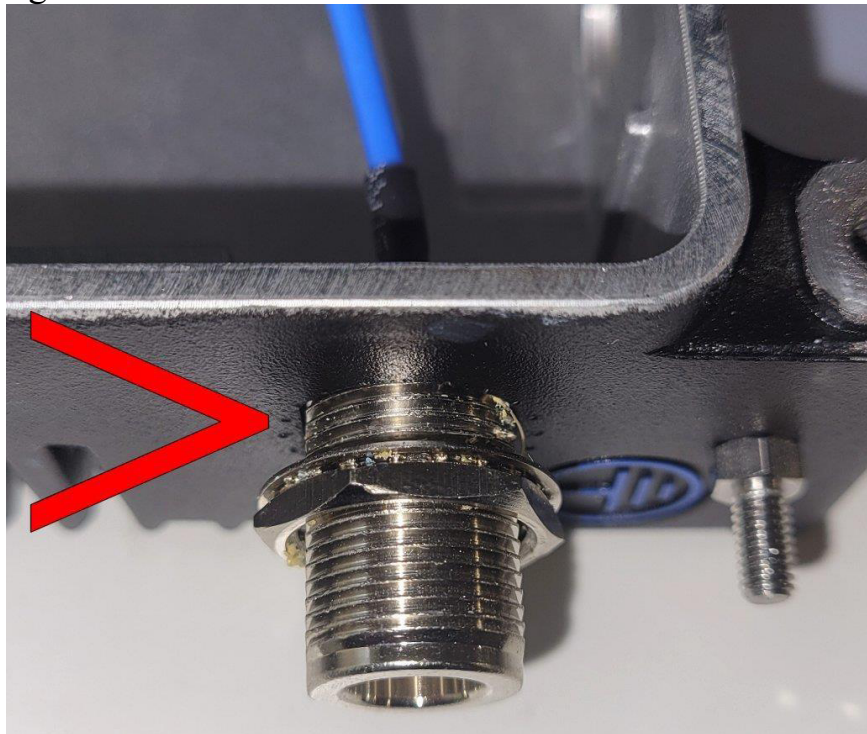


Figure 2- Fasteners moved forward to allow VC-3 application

	SIZE A		DRAWING NO.	C
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Prepare VC-3 Vibra-Tite threadlocker mixing the solids with the MEK solvent.

Figure 3.



Figure 3- shake/mix well. A brush is attached to cap.

This step is important to get enough solvent suspended material in the threads which you will be walking the nut back over for full application. Turning the bottle upside down will allow the solids to get agitated into the solvent well.

The manufacturer's instructions advise 30 min to cure before assembly- through experimentation we have found that because of the relatively small area covered by the thin nut reassembly can happen immediately, and achieve the desired effect.

Spinning the nut through the treated area fully coats the threads on the nut 360 deg during re-assembly. You will have cured VC-3 under and in front of the nut, preventing it from winding off. The VC-3 will cure in-situ, however Rajant recommends that this operation not be performed when it is actively raining or wet.

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Figure 4

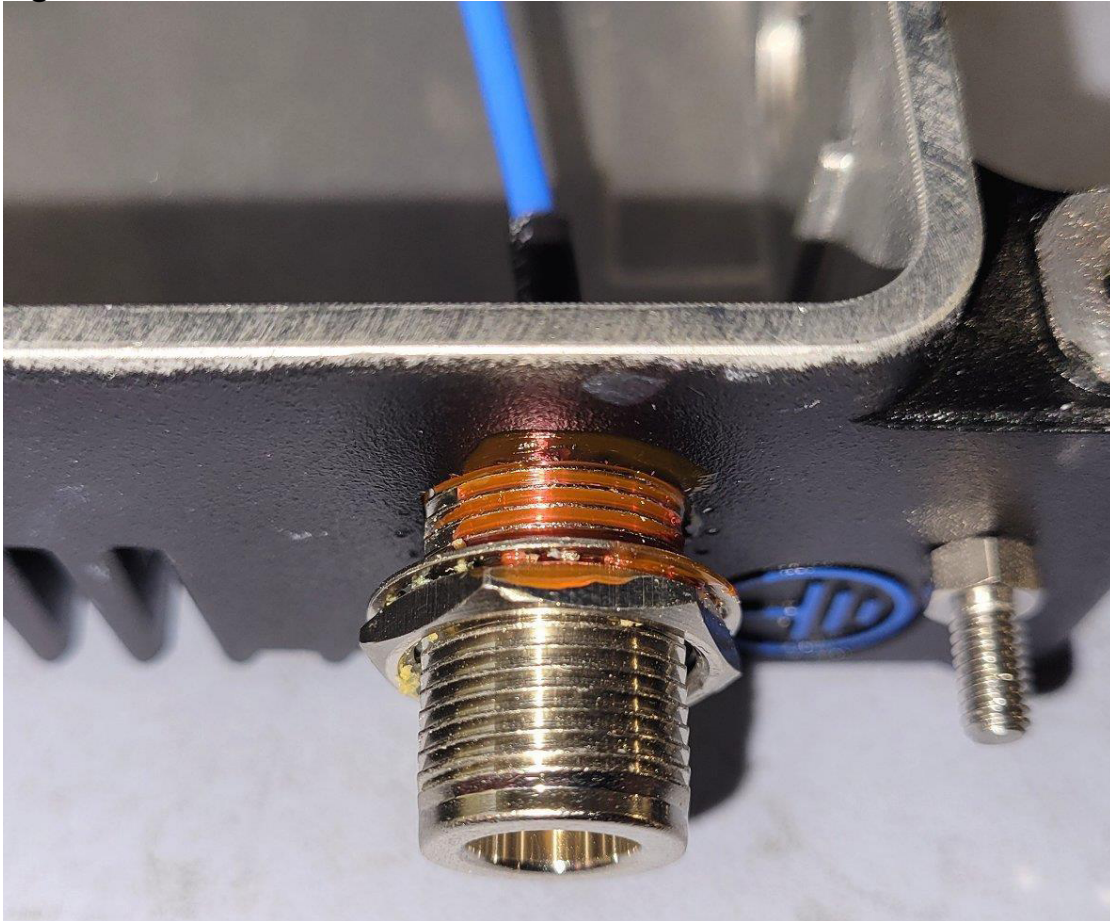


Figure 4- VC-3 brushed on, ready to re-torque to 60 in lb.

	SIZE A		DRAWING NO.	C
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Figure 5

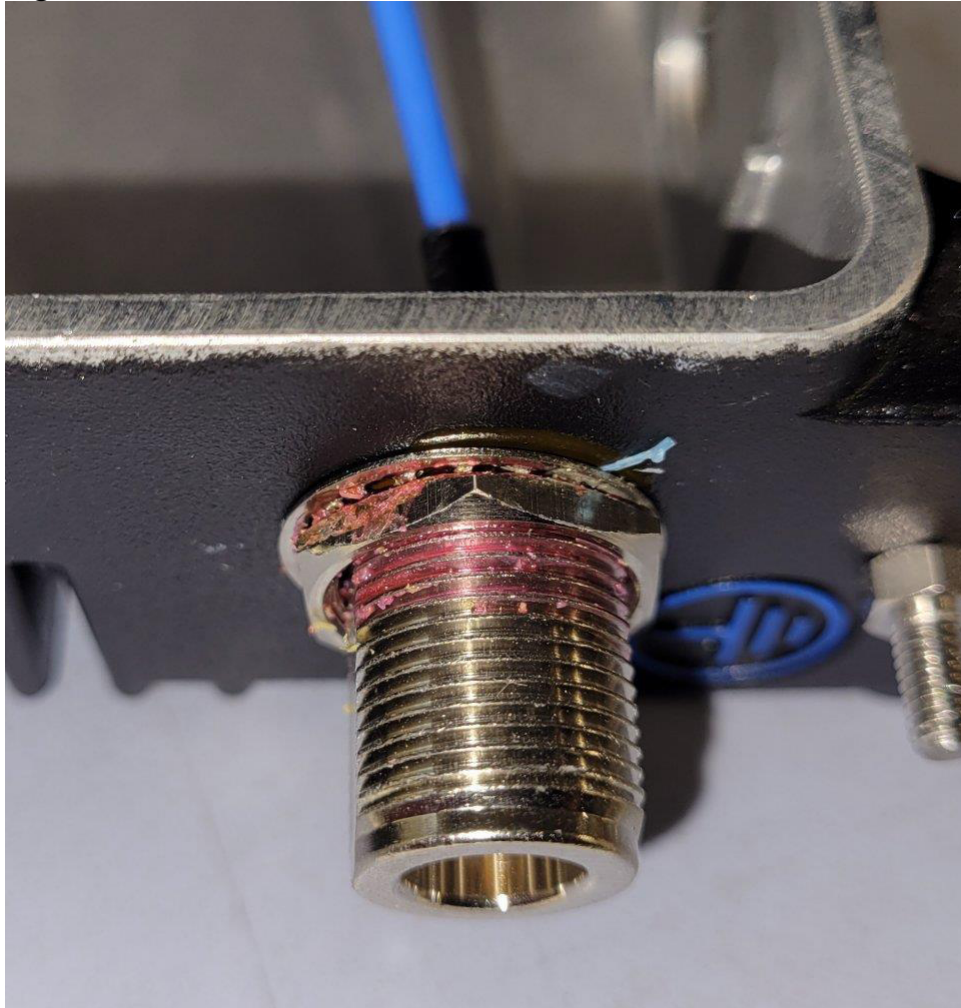


Figure 5- Nut torqued back into place @ 60 IN LBS

Remnants of previous threadlocker (blue/clear in color) are acceptable.

The alternative is tediously cleaning every N port before VC-3 application. Most original threadlocker will fall out when loosening nut in the first steps because of its' crystalline nature. Some residual VC-3 on nut and case is also acceptable.

DO NOT EXCEED 60 IN lbs on the RF Port Torque

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Front Panel Remediation- 40 IN lbs

Figure 6



Refer to Figure 6. You will need either a 17 or 18mm socket for the ETH and PWR ports as the outer size of the hex nut changed during production from the connector vendor. The USB connector nut size is 1 Inch US standard.

Remediate one nut at a time, so the front panel PCB remains in place during this operation. (Do not remove all of the front panel nuts at one time.)

Apply VC-3 to the exposed threads, and replace the nuts finger tight one at a time.

Torque the front panel connectors to **40 IN lbs** in the order shown above.

DO NOT EXCEED 40 IN lb on the front panel connectors.

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*Additional notes and Addendum

- When performing this operation on a bench: a deep well, 6 point, 18mm socket on a 3/8" square drive head torque wrench is straight forward.
- When performing this remediation as-installed with RF cables in a deployment where you do not want to remove the RF cable, and the connection is taped per best practice; you must consider the following:

Figure 7

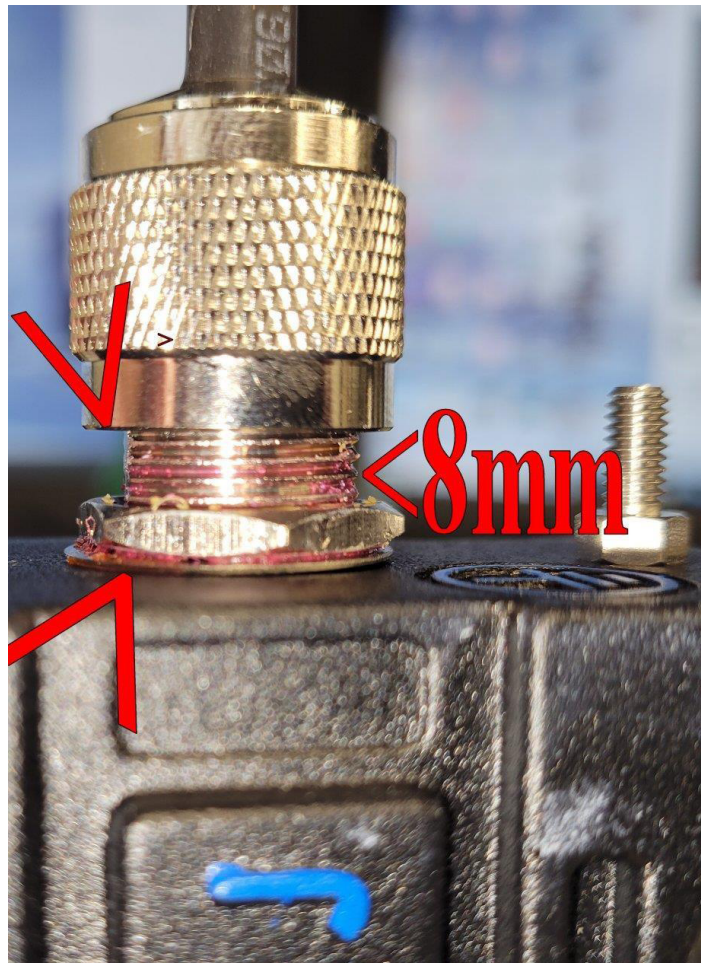


Figure 7: 8mm clearance from case to RF cable

	SIZE A		DRAWING NO.	C
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- There is about 8mm of clearance between the case face, and the bottom of the RF cable connector.
- If you intend you use a crow's foot style interchangeable head wrench, the thickness of the crow's foot must be less than 8mm (i.e. a thin quality steel)
- If your taping overlaps the nut, it must be removed and re-taped. Spinning installed tape with a crow's foot will result in inaccurate torque and ineffective taping.
- Use either a torque wrench with a square drive and a socket, or a torque wrench with interchangeable crow's feet ("T" rail-and-spring-pin style) as pictured below in Figure 8.
- **DO NOT** use a square drive crow's foot with a torque wrench intended for a socket unless you do the proper calculations.

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Figure 8



Figure 8- Do not use a square drive torque wrench made for a socket with a square drive crow's foot unless you do the proper calculations.

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