

SM7 ROOT CAUSE CODES



INTRO:

In each SM7 service report a root cause code is specified. The root cause code points to the primary defect that caused the failure. So, a thruster motor returning from the field because of a LIM trip has an earth fault. The earth fault is not the primary reason of the failure but rather a consequence of another defect. For example, a faulty shaft seal might have caused water ingress that caused the isolation fault. In this case the root cause code will point to the shaft seal.

The root cause codes are generated to aid the compilation of statistics on thruster motor failures. These statistics will then be used to identify areas where improvements can be made in the future.

An example of a root cause code is 4.3.8
As seen in the example above, the code format consists of 3 numbers separated with dots. Each number identifies a sub category according to the table shown here.
Using this table we can determine that the code in our example indicates the electric failure of PCB6273 namely: 4 Electric, 3 E-pod, 8 PCB6273.

In the table point 1. is used to indicate other. This is done in front as it will remain in the same place if in the future additional causes are added to the table. If we were to put the other section at the end now we would end up with that section somewhere in the middle in the future. Point 2 is to indicate that the thruster motor has solely received preventive maintenance and that no defects were found.

ROOT CAUSE CODE TABLE:

1. Not specified

2. Preventive yearly service

3. Water ingress

1. Not specified
2. Through compensator Diaphragm
3. Through compensator Diaphragm ISS.1
4. Through Shaft seal
5. Through interconnect
6. Through bleed screw
7. E-pod Through interconnect whip
8. E-pod Through whip
9. E-pod Through main O-ring
10. Through mechanical housing damage

4. Electrics

1. Not specified
2. Thruster
 1. Not Specified
 2. Hall sensors failure
 3. Stator failure
2. E-pod
 1. Not Specified
 2. 6273 main fuse blown
 3. 6159 F1 fuse blown
 4. 6159 F2 fuse blown
 5. 6159 F3 fuse blown
 6. 6159 F4 fuse blown
 7. 6159 F5 fuse blown
 8. PCB6273 failure
 9. PCB6146 failure
 10. PCB6159 failure
 11. PCB6158 failure
 12. PCB6157 failure
3. Whips
 1. Metal shell thruster whip
 2. Interconnect

5. Mechanical failure

1. Not specified
2. Rotor shaft bearings seized
3. Propeller shaft bearings seized
4. Propeller shaft failure
5. Severe external corrosion
6. Severe external impact

6. Overheated

1. Not specified
2. Prolonged surface operation