The Assessment of severity of the hazard

|  |  |  |  |
| --- | --- | --- | --- |
| Toxic material name | MMH | MON3 | Ammonia  (Heat pipe) |
| Severity of the hazard | I | I | Less than III |
| Remarks |  |  | Even if the entire amount of ammonia is leaked at the work place of SFA, it is estimated only X ppm and has no effect on human health. |

(Note: Hydrazine, MMH, MON3, and NTO are basically classified as Severity I. Ammonia used in heat pipes is classified as less than Severity III if the entire amount of ammonia leaked poses no effect on human health. For other toxic materials, the severity of the hazard is determined on case-by-case basis after evaluating the effects on the human body.)



3 seals

3 seals

3 seals

3 seals

Figure. Piping system diagram of the payload (1-1-1)

(Note: Clarify the number of valves and their seals, and where the valve is filled with inert gas. Clarify that each satisfies the required number of inhibits against external leakage.)

Figure. Cross-sectional view of pouring/draining valve (1-1-1)

(Note: Clarify where the seal is located against the flow path)

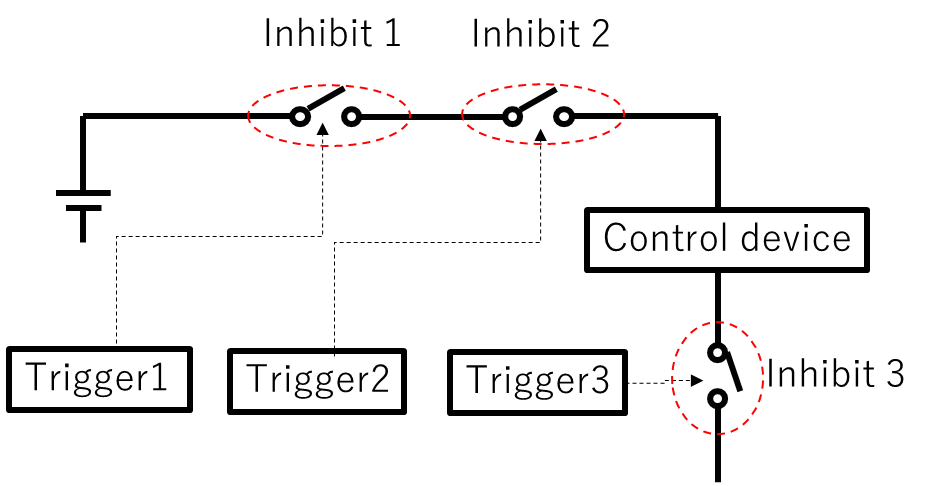


Figure. Schematic of valves control line (2-1-1)

(Note: Describes that 2FT is satisfied. List the minimum required inhibits (here inhibit 1, inhibit 2, inhibit 3) and their control lines (here trigger 1, trigger 2, trigger 3). Do not list more inhibits than required.)

Explanation of 2FT feasibility of valve control lines.

Inhibits 1,2, and 3 are independent switches and when all inhibits 1 to 3 are turned on, the propellant valve opens.

Inhibits 1, 2, and 3 are turned on by signals from triggers 1, 2, and 3, respectively. There is no failure mode that triggers 1, 2, and 3 in common.

Table. Summary of strength analysis results for payload suspension points (6-1-1)

|  |  |  |
| --- | --- | --- |
| Parts | Safety factor | Margin of Safety |
| Adapter | 2 | 1.1 |
| Pivot hinge point | 2 | 1.1 |

Table. Summary of strength analysis results for lifting devices (6-2-1)

|  |  |  |
| --- | --- | --- |
| Devices | Safety factor | Margin of Safety |
| Lifting device | 6 | 1.1 |