November 1969

Brief 69-10599

NASA TECH BRIEF

Liquid Oxygen-Compatible Insulation System

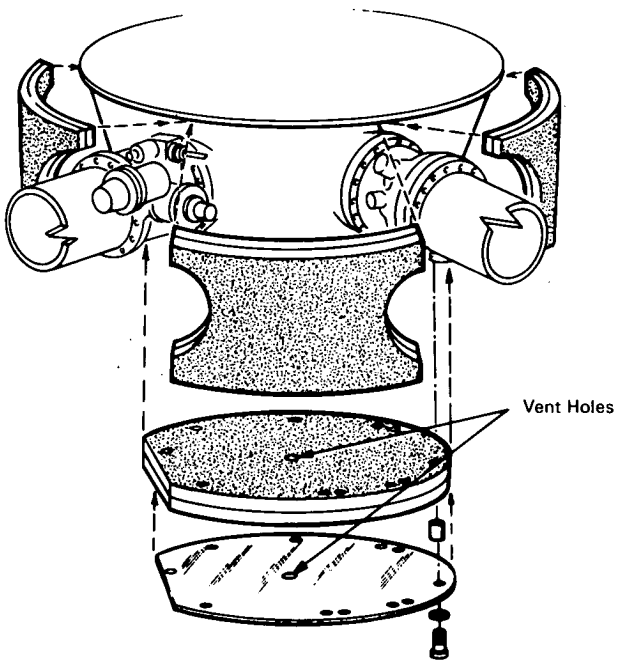

Figure 1.

The problem:

To provide insulation for tees, elbows, sumps, valves, etc. that are used to pass or store fluids at cryogenic temperatures. It is desirable that such insulation be liquid oxygen compatible and be in a form that permits its easy removal and reinstallation for the purpose of system maintenance or changes in system configuration. Previous systems used coatings applied to exterior surfaces to form a homogenous mass that could not readily be removed and replaced.

The solution:

A system that permits individual parts to be insulated in an environmentally controlled facility. These insulated sub units can be easily disassembled and reassembled when access to a particular area of the system is required (see Figure 1).

How it's done:

An insulation system that employs preformed binderless fiberglass batting is protected from weathering and moisture penetration by a covering of corrosion resistant stainless steel (CRES) foil. This system is liquid oxygen compatible and the edges of the CRES foil are seam welded in place to provide the resistance to water absorption. The individual prefabricated insulation parts are tied in place on the various system components by means of a standard lock wire lacing. A typical lacing pattern is shown in Figure 2.

Note:

No further documentation is available. Technical questions may be directed to:

Technology Utilization Officer
Marshall Space Flight Center
Huntsville, Alabama 35812
B69-10599

Patent status:

No patent action is contemplated by NASA.

Source: John S. Jones of
North American Rockwell Corporation
under contract to
Marshall Space Flight Center
(MFS-16113)

(continued overleaf)

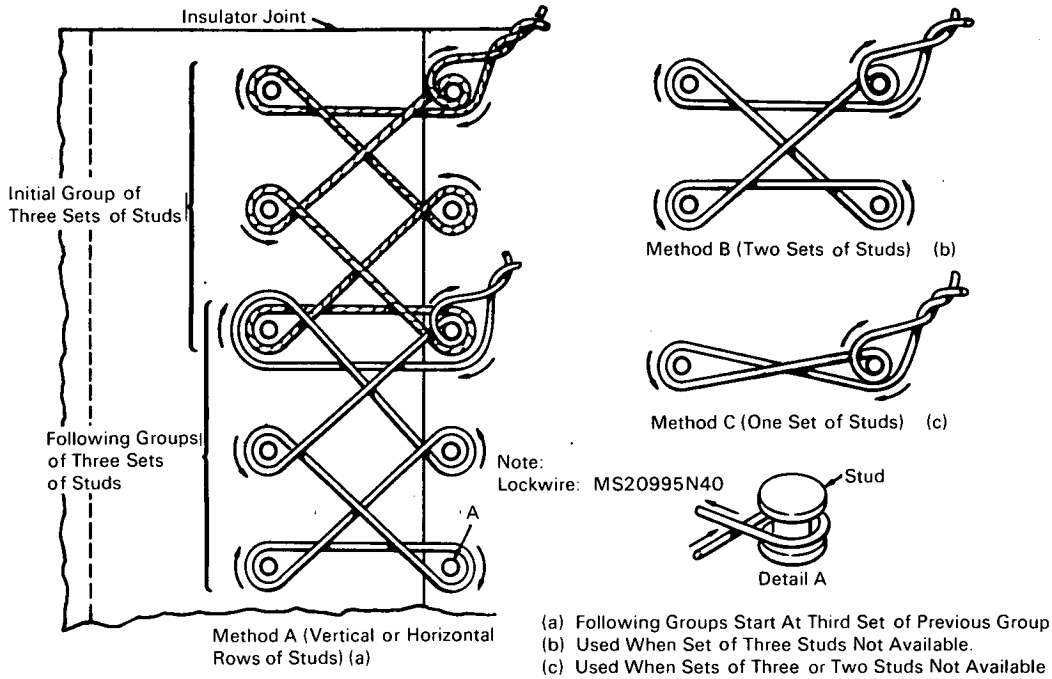
Insulator Joint
Initial Group of Three Sets of Studs
Following Groups of Three Sets of Studs
A
Method A (Vertical or Horizontal Rows of Studs) (a)
Method B (Two Sets of Studs) (b)
Method C (One Set of Studs) (c)
Note:
Lockwire: MS20995N40
Stud
Detail A
(a) Following Groups Start At Third Set of Previous Group
(b) Used When Set of Three Studs Not Available.
(c) Used When Sets of Three or Two Studs Not Available

Figure 2.