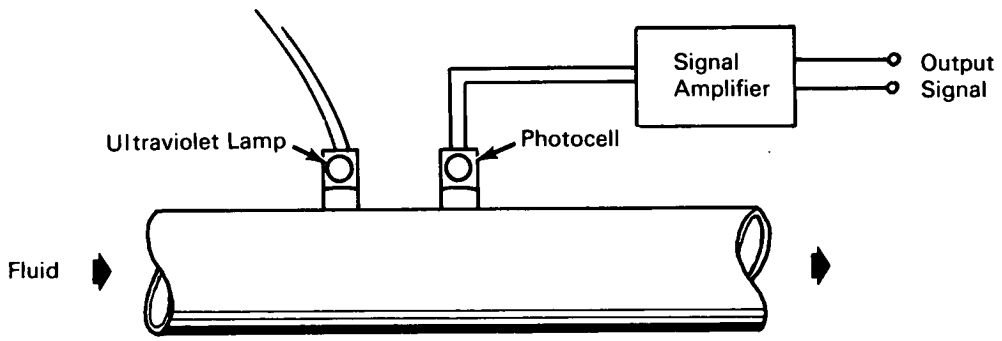
February 1966

Brief 66-10068

NASA TECH BRIEF

Sensor Detects Hydrocarbon Oil Contaminants in Fluid Lines



The problem:

To design a system that will continuously monitor and instantaneously detect hydrocarbon oil contaminants that may be present in a fluid line. Present procedures for checking a process fluid for oil contamination require frequent sampling of the fluid and time-consuming laboratory testing.

The solution:

A system incorporating an ultraviolet light which causes the hydrocarbon oil particles that may be carried in the fluid stream to fluoresce. The light emitted by the oil particles is detected by a photocell which is relatively insensitive to ultraviolet radiation.

How it's done:

A beam of ultraviolet light is directed through a window into the pipeline carrying the fluid. The fluorescence from any hydrocarbon oil particles is detected by a photocell positioned at another window in the line. The photocell may be connected to a readout circuit, an alarm, or an electromechanical shutoff valve.

Notes:

1. This system, which is based on the principle that common petroleum-base oils fluoresce under ultraviolet light, has not been reduced to practice.
2. A related innovation is described in NASA Tech Brief B63-10311, April 1964. Inquiries may also be directed to:

   Technology Utilization Officer
   Marshall Space Flight Center
   Huntsville, Alabama, 35812
   Reference: B66-10068

Patent status:

No patent action is contemplated by NASA.

Source: Benjamin Roth
of North American Aviation, Inc.,
under contract to
Marshall Space Flight Center
(M-FS-522)

Category 01