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NASA TECH BRIEF

Lyndon B. Johnson Space Center

Backflushing System Rapidly Cleans Fluid Filters

The problem:

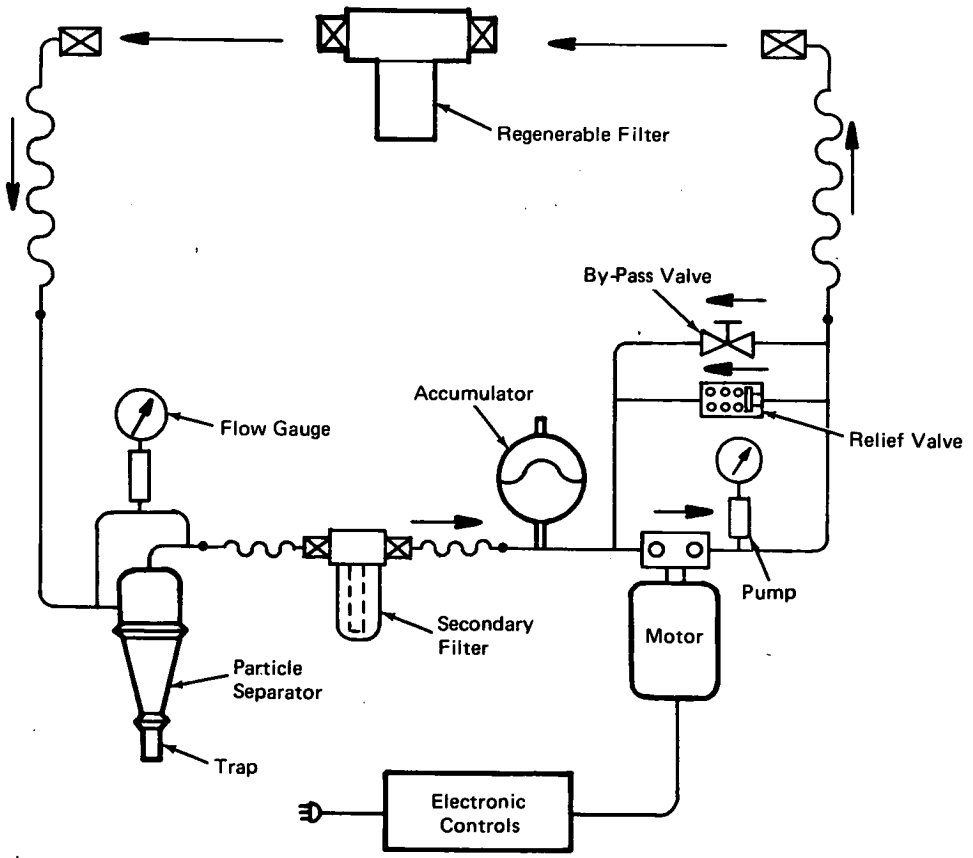
Cleaning of fluid filters is frequently done by backflushing. In many cases, backflushing is a good substitute for time-consuming, uneconomical filter replacements. Some systems, however, require fast servicing which cannot be provided by the existing backflushing equipment.

The solution:

A self contained unit was developed which can backflush filter elements in a fraction of the time expended by the presently used equipment.

How it's done:

The system is operated (see figure) with an electrically driven pump which conveys the fluid onto the inner surface of the filter element through high velocity jets. The jets are part of the housing which encloses a regenerable filter element. The filter element is designed for backflushing and is constructed of stainless steel



Backflushing System

(continued overleaf)

composite material. All of the removed particles are carried into the vortex particle separation where 88 to 93% are removed and trapped. The remaining particulate material is removed by the secondary filter.

This design provides 98 to 100% cleaning efficiency with a 10-micron filter using a backflush of 38 liters (10 gallons) per minute. Comparable backflushing techniques without the impingement jet require over 114 liters (30 gallons) per minute for periods exceeding 30 minutes.

Additional advantages of the system include:

1. reduced down-time of the flushed system to a fraction of that normally required,
2. no need for bleed or purge,
3. elimination of spillage,
4. requirement of little or no operator time,
5. elimination of contact with toxic fluids,
6. reduction of maintenance to a minimum, and
7. capability of automation.

Notes:

1. This innovation may be of interest to manufacturers of hydraulic and pneumatic systems as well as to chemical, food processing, and filter manufacturing industries.
2. The following documentation may be obtained from:
   National Technical Information Service
   Springfield, Virginia 22151
   Single document price $9.00
   (or microfiche $1.45)

   Reference: NASA CR-115505 (N73-23084), Regenerative Particulate Filter Development

Patent status:

This invention is owned by NASA, and a patent application has been filed. Inquiries concerning nonexclusive or exclusive license for its commercial development should be addressed to:

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Source: V. A. DesCamp, M. W. Boex, M. W. Hussey, and T. P. Larson of Martin Marietta Corp. under contract to Johnson Space Center (MSC-14273)