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JUNIPER NEWS

Be wise and Juniperise!

An additional tank is required for a distilled water flush when turbine compressor washing the Hercules

EASING THE BURDEN

Maintenance downtime is both necessary and expensive. The more tools available to effect servicing expediently the greater the opportunity for downtime reduction and better utilisation of downtime.

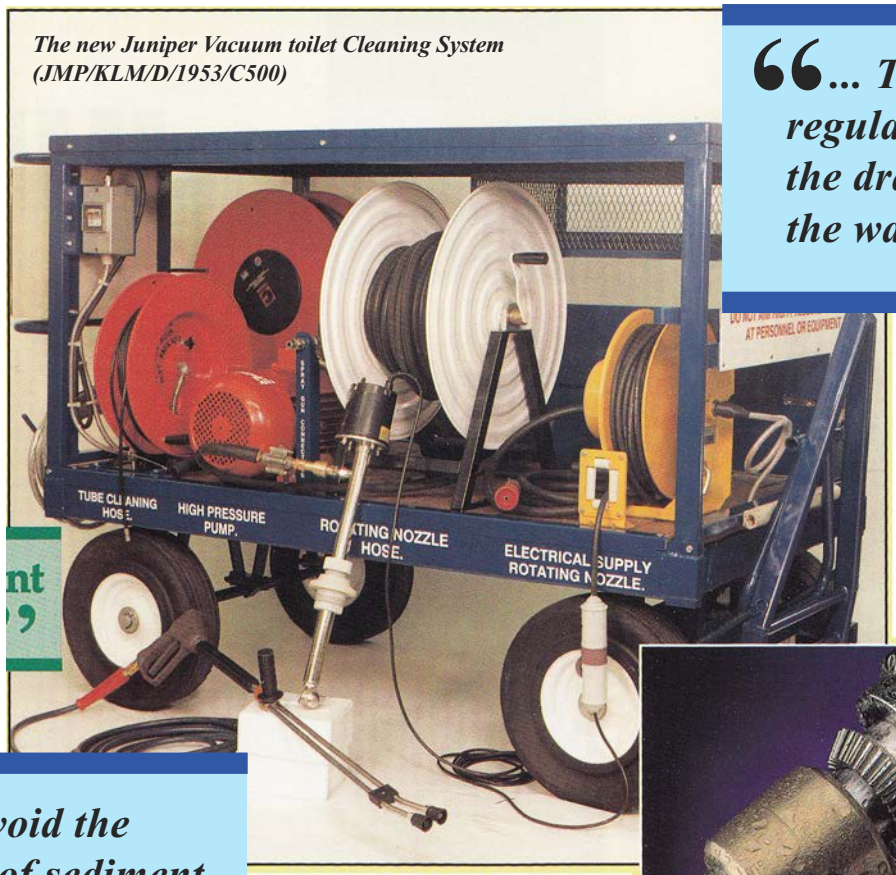
Continual product development and attention to detail for making the job of the maintenance engineer easier is the key to success. Juniper's commitment to reducing effort and time spent by maintenance personnel in performing routine maintenance is manifest in its range of products which has now been extended to cover toilet cleaning. This innovative new development is currently being used in service with one of the world's leading commercial operators and is described in more detail herein.

Popular washing unit

Turbine compressor washing units for the Allison T56 on the Hercules and P3 Orion aircraft are now in use with the Royal Netherlands Air Force and have been delivered to the Royal Air Force and the Royal Australian Air Force. Later this year Juniper will commission the units for the RAAF at Sydney and Adelaide, Australia. In the early phases of development fumes were experienced in the cabin after compressor washing the Hercules – the spray ring development (reported in Issue 1 of Juniper News) and flushing the engine with distilled water after cleaning eliminated this completely. As a result the trailer units have been developed further to house the spray ring and by adding a further tank.

Steve Marshall
Managing Director

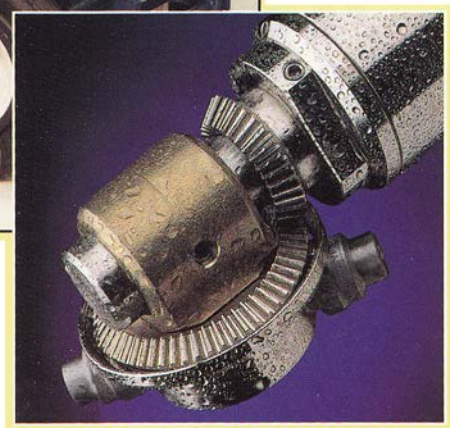
Vacuum Toilet cleaning System



The new Juniper Vacuum toilet Cleaning System (JMP/KLM/D/1953/C500)

> *"... The key is regular cleaning of the drain tubes and the waste tanks..."*

> *"... avoid the build-up of sediment in the vacuum toilet system..."*



Right - The nozzle rotates on a global sweep to cover the interior of the tank.

Following in the wake of the compressor washing rigs, oil replenishment units and more recently the foam washing system, a new Vacuum Toilet Cleaning System has been developed.

The prime objective of the cleaning system is to ensure maximum availability of toilet facilities to passengers i.e. reduce the occurence of blockages. The key is regular cleaning of the drain tubes and the waste tanks to avoid the build-up of sediment in the vacuum toilet system. This can be carried out with the minimum of effort by one operator as a part of the '*A check*' servicing, provided the cleaning process is sufficiently staightforward and the right tools are available.

Juniper has worked closely with KLM in developing a suitable unit which has been in service since September 1995, being used successfully on Boeing 767, 747-400 and MD11 aircraft.

The newly developed unit houses all the necessary cleaning materials and tools for the task and can be trailered to the aircraft. Water and electricity is supplied to the cleaning unit from the ground service connections in the hangar. The water supply is separated from the ground service by a water brake tank for hygiene reasons. An electric pump pressurises the water to 200 bar and delivers this to a nozzle which is inserted into the waste tank via the level sensing aperture. The nozzle is powered via electricity from the cleaning unit and rotates globally to clean all parts of the tank in a sweep. Hence, within six minutes the tank can be cleaned.

Blockages are most likely to occur in the drain tube between toilet bowl and waste tank, therefore regular cleaning is important. To effect this, a high pressure flexible hose is fed into the drain tube via the toilet bowl from the aircraft cabin. The nozzle on the hose-end directs a high pressure water jet backwards enabling efficient agitation of the sediment attached to the drain tube walls for detachment and providing propulsion for feeding the nozzle and hose along the drain tube. The thirty five metres of cable provided will cover the longest drain tubes found on commercial aircraft. To enable the operator to keep the unit clean a pressure spray gun is supplied to enable washing down of the equipment before storage. An adaptor to connect the tank cleaner in the MD11 waste tank is required.

With further adaptors the unit can be applied to other aircraft, such as the Airbus A300-600, A310 / A320 / A330 and A340.

FOAM WASHING DEVELOPMENTS

Foam washing a Gazelle helicopter was completed within 30 minutes - taken at the new Air Training Centre at Hazlebrouk Barracks, Aborfield.

Considerable interest was shown in the foam washing unit at the Dubai Air Show 1995. Fitted with a petrol driven compressor, the unit can be independently operated and as a result can be used at airfields where facilities are limited, e.g. where compressed air is not available. A diesel driven compressor could be fitted as an alternative to the petrol driven compressor. Application of heavy duty cleaning compound (gel) can still be effected with the drums located nearby the trailer for connection.

Juniper's foam washing equipment can be tailored specifically to your needs.

Recently a U.S. company was supplied with two Foamer 250 Mk4 Combis. These units were fitted with 50 litre stainless gel tanks in lieu of the standard packaging.

The carbon braking systems used on railway carriages results in deposits of corrosive dust on the carriage sides which is most effectively removed with an acid based cleaner. Since the acid detroys the foaming agent, some development was clearly needed to apply this mixture.

Adding the foaming agent when the cleaner is dispensed was the most appropriate solution. To effect this, an additive tank was fitted to one of the conventional foaming units so that when the acid cleaner is pumped through the foaming unit a suitable quantity of foaming agent is added. The acid cleaner is applied under controlled condidtions in a special bay so that the cleaning solution can be collected and disposed of correctly.

Regional Railways now wash their trains with Juniper equipment. The units provided allow thorough cleaning of the carriage exterior and bogie.

HERCULES OPERATORS

ADDITIONAL BONUS GAINED FROM USING THE HERCULES SPRAY RING

On a recent demonstration compressor wash for the Belgium Air Force using Juniper's Hercules spray ring, it was observed that they had carried out a modification to the speed sensitive valve, which enabled the bleed hose of the wash rig to be connected to the valve, via a *fire access door* in the engine nacelle. The modification consisted of an extension hose connected to the valve and fastened to an existing bracket, which was located about 24 inches to the rear of the valve. This extension hose terminated in a male quick release fitting.

By incorporating such a modification and using the spray ring, **compressor washing** can be carried out by simply connecting the delivery hose to the spray ring and the bleed hose to the speed sensitive valve via the *fire access door*. **No panels have to be removed and no pipes have to be disconnected.**

UNBLENDED FUEL

Unblended fuel, obtained at out of town locations can cause serious corrosion problems. To solve this problem, the RAF have utilised a Risbridger Oil gun and connected it to the refuelling hose with an adapter supplied with the Risbridger kit. This enables measured quantities of **AL38 Fuel System Icing Inhibitor** to be blended with the fuel as refuelling takes place.

The gun is designed to fit directly on to a 25 litre drum of AL38. By carrying this kit on board your aircraft you have one less problem to worry about.

BATTLE TO REDUCE RUNNING COSTS

Cheshire Air training has purchased a Risbridger re-oiling dispenser where savings can be made in the purchase of oil in bulk, since the Risbridger dispenser can be fitted to industry standard lubricant containers.

Angus Whyte from CATS topping up the engine oil on a Slingsby T67B Firefly aircraft with the new Risbridger unit.

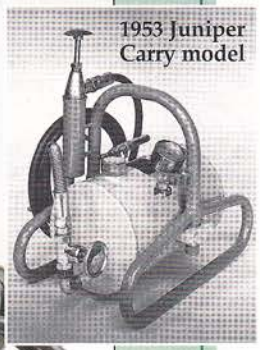
WORLDWIDE REPRESENTATION

Australia, Belgium, *France, Denmark, Germany, Italy, The Netherlands, Norway, *Portugal, Singapore, United Arab Emirates, USA.

* Pending

Contact Juniper for details of your local agent.

AIRCRAFT PURGING RIG



1953 Juniper Carry model

Juniper's Carry model is reborn as a hydraulic purging rig for bleeding aircraft hydraulic system. This popular unit was designed in the early fifties as a high pressure portable lubricator and could be found in many garages around the UK.

The Carry model was one of four models manufactured by Juniper and advertised in the manual of Garage and Service Equipment 1953. It retailed at £28-12-2d. The new model has a capacity of 5 litres and delivers oil up to 1600 PSI.

EXHIBITIONS

Helitech 1995, Dubai Air Show 1995.

Juniper's Stand at Helitech

STOP PRESS

CLEANING THE CAPITAL'S TRAINS

FOAMER 50
Juniper's washing equipment has been demonstrated successfully cleaning carriages at Hammersmith Station.

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ISO 9002 Certificate No. 0713

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