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DIVEX CAUTION NOTICE

Caution Notice No. DVX003/2005

**Electric Gasmizer Gas Booster
Part No. B10510**

Distribution list:

All Purchasers of Divex / Gas Services manufactured -"Electric Gasmizer" Divers Gas recovery systems utilising the Williams & James / Hamworthy K651 gas booster.

Background:

The Divex / Gas Services 651 "Electric Gasmizer" Gas Booster was designed specifically to meet the technical demands of a diver's breathing gas recovery system typically using heliox gas mixtures. It is fitted with a high flow Tescom bypass regulator Divex Part No GE040 – (Hamworthy part # 43120) to ensure the pump is constantly supplied with gas at the inlet side.

The booster, when running, pumps a constant volume per minute, and to satisfy the pump's requirement if there is no return flow from the divers, the bypass regulator will supply this volume from the high pressure (outlet side) of the booster. This ensures the booster inlet pressure does not drop towards a VACUUM.

The compressor piston/cross head assembly's (items 2A-2K of section 7-2 of the manual) and the pressure packing seals (contained within item 7) are designed to only work one way and if subjected to "vacuum / reverse pressure" may permit AIR to enter the cylinders. See attached drawing and parts listing from manual for information showing 2nd stage as example.

If this happens then this "air" will be pumped into the diver's gas mixture within the reclaim systems active volume / volume tank and will alter the breathing gas mixture! Additional unplanned amounts of Oxygen or Nitrogen being introduced to gas mixtures/systems have potentially significant effects. **

Problem:

It has been identified that a number of worksites have made unauthorised modifications to the by pass regulator circuit and Divex caution that these modifications have unacceptable consequences.

These worksites have modified the pipe work by installing a filter on the inlet side of the Booster Bypass regulator.

Divex believe the reason for this modification is an attempt to extend the life of the bypass regulator valve seat. (Divex Part# RK210)

If this filter becomes clogged/blocked the gas flow though the bypass regulator is reduced and as a result the booster inlet pressure can drop to a VACUUM if there is no return gas from diver's on line. The piston/cross head assembly's pressure packing seals are then possibly subjected to reverse

pressurisation thus permitting “air” to be sucked into the cylinders past these seals and this air is then pumped into the system! (**see paragraph 4)

As trained in the Electric Gasmizer technical training courses and as shall be highlighted in the next release of the Divex Electric Gasmizer Booster manual, the valve seat (Divex Part # RK210) requires to be inspected regularly, as a minimum every 1000 hours booster running time, and if showing any signs of damage must be replaced. This shall effectively deal with the expected wear caused by the graphite dust from the booster piston rings entering the regulator. This dust ingress is a known factor which Divex have considered and is covered by recommending these regular valve seat inspection/ replacement intervals.

Note : In the event of leakage past the valve seat the bypass regulator “is fail safe” by “leaking gas” from the high pressure side to the booster inlet and preventing any possibility of a suction developing. The pump itself has the capacity to cope with these initial leakages in addition to any reclaim gas returning to the surface from 2 working divers at depths of up to 450msw.

Recommended Actions:

- i) All work sites need to survey their installations and determine if such a modification has been made.
- ii) If any booster is found to be fitted with an inline filter assembly on the bypass regulator inlet pipe work then it ought be removed immediately and replaced with the original pipe work and fittings.

The original fittings may not be available on site, in which case an interim solution would be to remove the filter element from the installed filter assembly whilst the correct components are procured to complete a full reinstatement.

Divex shall be pleased to assist with any queries users may have with this notice and users should contact in the first instance:-

Signed:..... Date:.....

Malcolm Cattanach
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Attachment: 3 pages extract from manual showing a typical 2nd stage cylinder assembly detail. The 1st stage cylinder assembly has same general configuration.