



# Memo

## Briefing on changes to BA sets

**To:** NZFS operational personnel and stakeholders **Date:** 16 March 2015  
**From:** Rob McMahon, National Advisor Operations (Plant & Equipment)  
**Action:** For information

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This briefing should be read in conjunction with National Notice 013/2015 and provides some detail on the background to the changes soon to take place with the Draeger PSS5000 BA sets. It covers three specific areas:

1. Medium-pressure hose replacement
2. DSU motion sensor setting adjustments
3. Harness upgrade

### 1. Medium-pressure (MP) hose replacement

#### *Background*

We became aware of the issue of MP hose kinking in February 2014. We started to see the problem at NTC, where there was a loss of air during a confined space training exercise, and then found issues with the hose on operational sets. The symptoms of the issue were visible damage and de-lamination of the hose and the ability to kink it back on itself to restrict or cut off the air flow.

It became clear that the MP hose on the new Draeger PSS5000 sets is softer than that on the old Draeger PA94 and Sabre Centurion sets that we used in the past. Further investigations revealed that the older, more robust hose is no longer able to be manufactured due to some materials used in the manufacturing process now being banned for environmental reasons.

#### *What did we do about it?*

In conjunction with Draeger, we undertook an assessment of the current hose, using representatives from the BA Service Hubs to go out and survey all the BA sets and report back on damage. Draeger then replaced any damaged hose with like-for-like hose, as this was the only type of hose available at that time.

In addition to these replacements, we issued instructions to firefighters on how to stow the sets in BA seats and how to position the BA sets when changing cylinders to minimise the likelihood of damaging the hose. These measures were designed to ensure the issue did not spread any further while we worked with Draeger on a permanent solution.

#### *What is the permanent solution?*

Draeger have developed a new, more robust MP hose which will be rolled out to all BA sets in the coming months. Samples of the new MP hose have been on trial since July 2014 on some sets at the Rotorua Fire Station and at NTC, and the hose has performed well and with no issues.

#### *How and when will the MP hose be replaced?*

Draeger technicians will carry out the replacements during visits to fire stations. Some of these visits will be programmed as part of their scheduled testing while others will be specific visits programmed to carry out the replacement work.

The first batch of new MP hose is due to arrive at Draeger NZ in late March, with more batches arriving weekly after that. All the replacement hoses will be at Draeger NZ by June 2015. However, we will start the replacement programme when the first batch of hose arrives.

This work will start in April with high-use brigades, and we aim to complete it by the end of October this year. We are in discussions with Draeger to finalise the specific replacement schedule and will publish it to Regions and Areas once it is complete.

*Why has it taken so long?*

At the time we discovered the issue with hose kinking, there was no other hose available from Draeger. The only option at this time was to replace damaged hose with like-for-like, undamaged hose.

The MP hose has to comply with strict requirements under the EN (European Norm) standard to which the sets are made. Draeger has had to design the replacement hose and then go through the full re-certification and testing process to be able to maintain their EN standard compliance.

The new hose has a different manufacturing process from the current hose and so this has required Draeger to arrange new tooling and machinery for manufacture.

## **2. DSU motion sensor setting adjustments**

*Background*

We have received feedback from firefighters on the accidental activation of motion alarms since the first standard Draeger PSS5000 sets were introduced. Originally, the DSUs were located on the set's waistbelt and as a result of the feedback they were moved to the shoulder strap.

This change had marginal impact and we continued to receive feedback about accidental activations. Once the telemetry sets were introduced, we also had feedback on the DSUs on those sets suffering accidental activations.

As a result, we changed the sensitivity of both the Bodyguard 1000 on the standard sets and the Bodyguard 7000 on the telemetry sets to make them more sensitive to movement.

However, we are still receiving feedback that the level of accidental investigations is unacceptable.

*Changes to the settings of the DSUs*

As a result of the continued feedback, we have conducted operational trials, in conjunction with Draeger, on new settings for both DSU alarms. The trials were designed to ensure the sensitivity of the units was further increased to an acceptable level, but not to a level so sensitive that it would never activate, as this would defeat the purpose of this vital safety feature.

*Sensitivity settings*

- The Bodyguard 1000 sensitivity setting will change from the current "14" to "8".
- The Bodyguard 7000 sensitivity setting will change from the current "35" to "30".

In both cases, the lower the number the more sensitive the unit is to movement.

The two units have different motion sensor mechanisms, hence the different sensitivity numbers, and the settings of the units bear no relation to each other.

With the Bodyguard 7000 units, the sensitivity change is minimal because the setting of "30" is the lowest the software in the unit allows us to go. However, there are some more changes below that will improve the performance of the units.

### *Time to pre-alarm and time to full alarm setting changes*

In addition to the sensitivity setting changes, we are also changing the timing of the alarm activations. For both the Bodyguard 1000 and 7000 units the changes are as follows:

- Time to pre-alarm 30 seconds (increased from the current 21 seconds)
- Time to full alarm 15 seconds (increased from the current 8 seconds)

This means that if the unit detects no movement, it will not go into pre-alarm for a full 30 seconds. Once the unit is in pre-alarm, it will not go into full alarm until 15 seconds have passed.

These changes to the settings mean that the unit will go into pre-alarm less often, and firefighters will have more opportunity to cancel the pre-alarm before it goes into full alarm.

### *Why have we chosen these timings?*

These timings are based on the British Standard BS10999 which details the maximum timings for DSU alarms allowed. These changes bring us into line with those being used successfully by the London Fire Brigade.

### *How and when will the changes to the settings be made?*

The changes to the DSU alarm settings will be carried out by Draeger technicians when they visit stations to carry out the MP hose replacements.

## **3. Harness parts upgrade**

### *Why are the harnesses being upgraded?*

Draeger are carrying out a global upgrade to their harness parts. This is to standardise their harness parts across all their BA set products, and is not a New Zealand specific initiative.

The harness parts we are getting are the same as those on the Draeger PSS7000 sets.

### *Which parts are being upgraded?*

Only the harness parts are being upgraded, i.e. the shoulder harness and waistbelt. It does not include the straps.

### *How and when will the upgrade to the harnesses be made?*

We are taking the opportunity to upgrade these parts at the same time as the changes to the MP hoses and the DSU alarms.

The upgrade to the harnesses will be carried out by Draeger technicians when they visit stations to carry out the MP hose replacements and DSU alarm setting adjustments.

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### ***Who should I contact for more information?***

If you need to discuss any of these changes please contact **Rob McMahon** on:

- 04 496 3735
- 027 241 3049
- rob.mcmahon@fire.org.nz