

# NEW SOUTH WALES FIRE BRIGADES



## OPERATIONS BULLETIN 2003/5

### Maintenance of positive pressure ventilation (PPV) fans.

#### **Positive pressure ventilation fans must be serviced annually.**

- ✓ The fan blades and hub assemblies on all (PPVs) require annual maintenance
- ✓ The first annual service of all fans must take place as soon as practicable after the date of publication of this Operations Bulletin.
- ✓ Station Commanders and Supervisors must ensure that PPV fans allocated to their station/section are serviced by a local mechanical workshop.
- ✓ The cost for servicing is to be charged to the appropriate Zone/station/section cost centre.
- ✓ Servicing is to be conducted in accordance with the content of this Operations Bulletin. This document details the procedure to be carried out on the **three differing makes of fans** owned by the NSW Fire Brigades.
- ✓ The Station Commander is to make an entry in the occurrence book to document the completed PPV servicing. The attached form (at rear) is to be completed and returned via fax or mail to the Rescue Section at the completion of each annual service.

# UNIFIRE FANS (Figure 1).

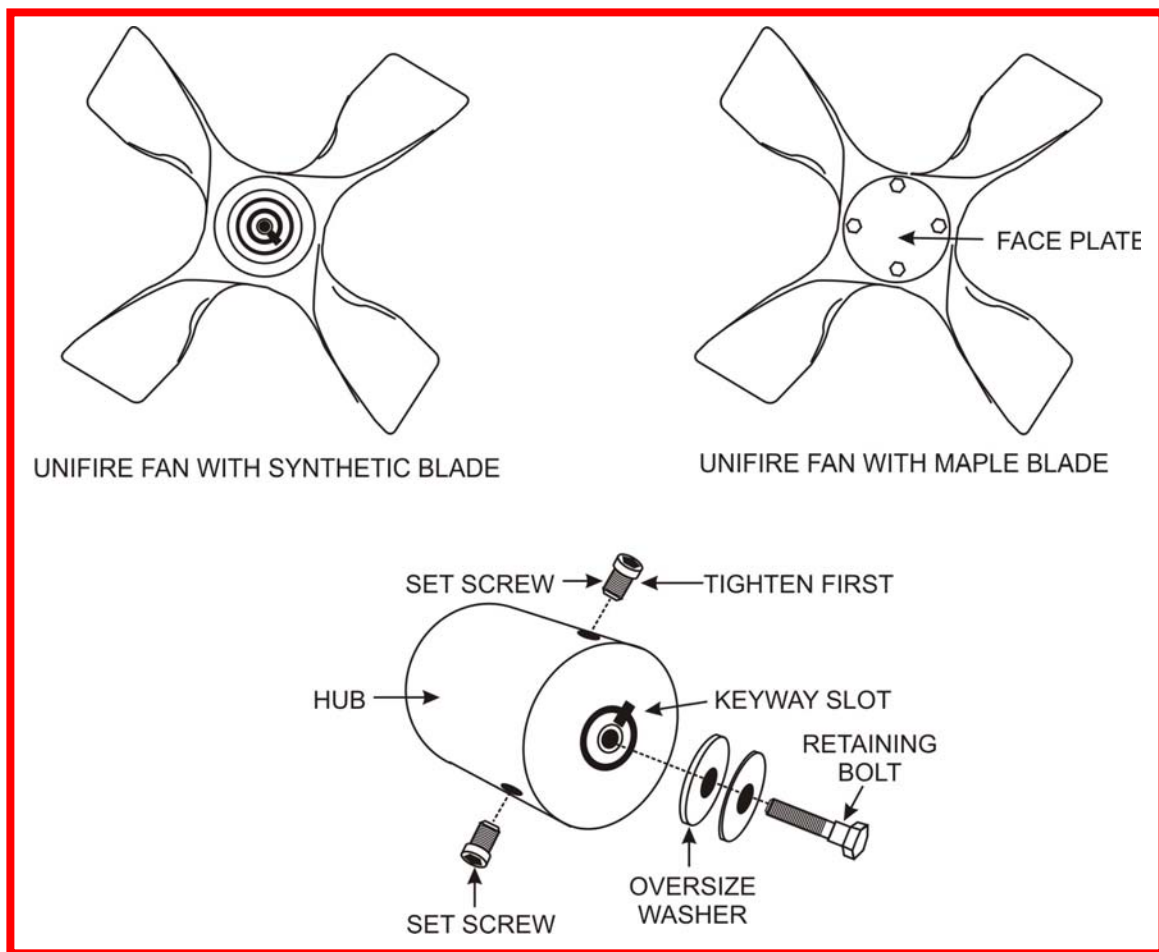
**ALWAYS stop the engine and disconnect the spark plug wire BEFORE working on the PPV.**



- The Unifire hub is a one piece assembly. The hub is attached to the crankshaft by two set screws and one bolt.
- Annually remove the two set screws and bolt, and check the hub for damage.
- For units with the older Maple laminated blades, the four bolts and face plate that secure the blade onto the hub should be removed to allow access to the crankshaft bolt.
- Reassemble the hub as follows:
  - Place loctite 260 or higher on threads of the set screws and a drop in the hole on the hub. Second tighten the screw with the keyway slot first. Next tighten the set screw on opposite side of key way. Torque set the set screws to 24in lbs.
  - The next step is to place the 5/16" x 24 x 1 1/4" and 5/16" washer and an oversized washer provided (in some older units their may be two over sized washers) and place loctite 260 or higher on the bolt and insert into the front of the hub and thread into the end of crank shaft (torque to 12ft lbs).
  - For units with the older Maple laminated blades, bolts holding the blades and face plate should be torqued to 12ft lbs. Remember to use lock washers and loctite along with nyloc nuts. Tighten bolts in a cross pattern.



**Figure 1 Unifire Fans.**



# RAMFAN (Figure 2)



**ALWAYS stop the engine and disconnect the spark plug wire BEFORE working on the PPV.**

## **Annual service of the fan assembly.**

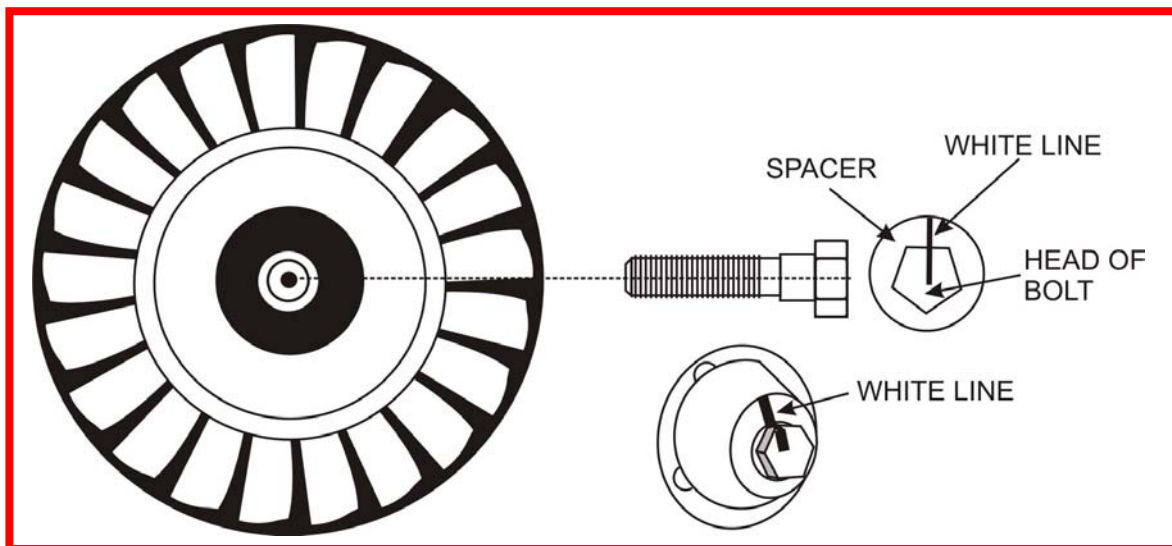
1. Remove shroud guard.
2. Unscrew the centre bolt and remove any white mark from the spacer and bolt.
3. Ensure the spacer is kept and replaced.
4. Clean the thread on the bolt.
5. Apply loctite 410 or similar to the bolt thread.
6. Ensure the spacer is in place and replace bolt.
7. Tighten with torque wrench to 27Nm.
8. Apply a white mark that runs in a straight line across the head of the bolt and onto the spacer (as shown in figure).
9. Ensure that all foreign matter is removed from the fan shroud and guard.
10. Replace guard and ensure that all screws have loctite applied to the threads.

## **After use inspection of the fan blades**

1. Remove shroud guard.
2. Clean fan with a soft cloth and warm soapy water.
3. Visually inspect fan for damage.
4. Check the white marking on the bolt head and spacer for correct alignment (refer to figure).
5. Should the white marking be incorrectly aligned, take the fan to a local mechanical workshop and have the above procedure carried out.
6. If the white marking is correctly aligned, replace guard and ensure that all screws have loctite applied to the threads.



**Figure 2 Ramfan.**



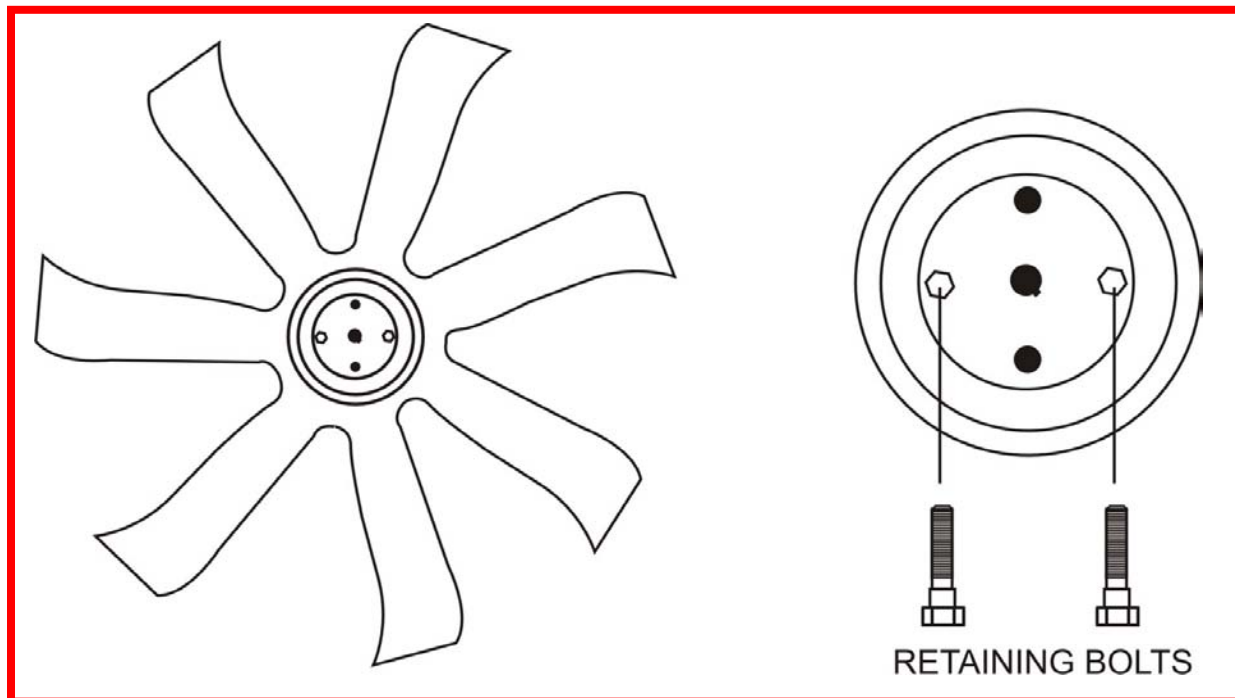


## TEMPEST (Figure 3).

**ALWAYS** stop the engine and disconnect the spark plug wire **BEFORE** working on the PPV.

### Annual service of the fan assembly

1. Remove shroud guard.
2. Loosen the two bolts on the centre bushing.
3. Retighten the bolt to 7 1/2-ft lbs.
4. It is not recommended to use loctite on the bolt threads.



Contact Officer:	File Number:	Date:
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### Maintenance of positive pressure ventilation (PPV) fans.

To be completed and returned to:

Rescue Section

Locked Bag 13

Greenacre 2190.

**Fax: 9742 7381**

From:

Station Commander \_\_\_\_\_

Station Number \_\_\_\_\_

Fax Number \_\_\_\_\_

Date \_\_\_\_\_

Fan Type \_\_\_\_\_

Model \_\_\_\_\_

Serial Number \_\_\_\_\_

FB Kit Number \_\_\_\_\_