

EO 05-1-3/17

**ROYAL CANADIAN AIR FORCE**



**EXHAUST STACK  
AND TAIL PIPE REPAIR**

(This EO replaces Part 17 of EO 05-1-3)

**ISSUED ON AUTHORITY OF THE CHIEF OF THE AIR STAFF**

**18 NOV 60**

# LIST OF RCAF REVISIONS

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## EXHAUST STACK AND TAIL PIPE REPAIR

### GENERAL

1 Repairs that may be made to exhaust or tail pipes are limited by the characteristics of the metal used in the fabrication of these components. Inconel and stainless steels are the common metals used that may be repaired by welding. Other high temperature, corrosion resistant metals, such as Hastelloy and the chrome or chrome nickel steels, are difficult or perhaps impossible to weld without changing the characteristics of the metal.

### TAIL PIPE REPAIRS

2 For removal of corrosion products, refer to EO 05-1-3/23. For repairs to tail pipes refer to the specific Structural Repair Manual for the aircraft. Repair of tail pipes without specific instructions is hazardous and must not be attempted.

### EXHAUST SYSTEM REPAIRS

3 Repairs to the exhaust system are confined to welding small cracks, patching holes and replacing parts when necessary. For typical exhaust assembly repairs, see Figure 1. Remove the part from the aircraft before welding. Clean the part, (refer to EO 05-1-3/20) and use the proper flux for the material to be welded. Remove flux completely after welding to reduce corrosive action induced during engine operation.

### DENTS

4 Repair dented members by hammering the dent to its normal position. After repair, inspect the metal to check that it has not been cracked by hammering.

### SHORT CRACKS

5 Locate the crack and ascertain the extent of the damage. All cracks having a length of less than 2 inches should be welded.

### SMALL HOLES

6 In the case of holes up to 1 inch diameter, apply a surface patch, using similar material of same gauge as the component being repaired. Make patch large enough to cover approximately 2 inches beyond the ends and sides of the crack. Make the patch oval in shape in order to prevent heating along a straight line when welding, see Figure 1.

### MAJOR DAMAGE

7 In case of major damage, such as long cracks and large holes in any section of the exhaust assembly, replacement is preferable. If a replacement section is not available, use a flush butt welded patch of same material as component being repaired as shown in Figure 1. First cut the patch to shape as shown and bend to the curvature of the damaged component. In order to ensure proper shape of the cutout of the damaged section, make guiding marks for cutting by scribing the contour of the already cut patch on the section with a scratch awl. Tack weld patch at several places and then butt weld. After welding has been completed, clean up weld by using a wire brush.

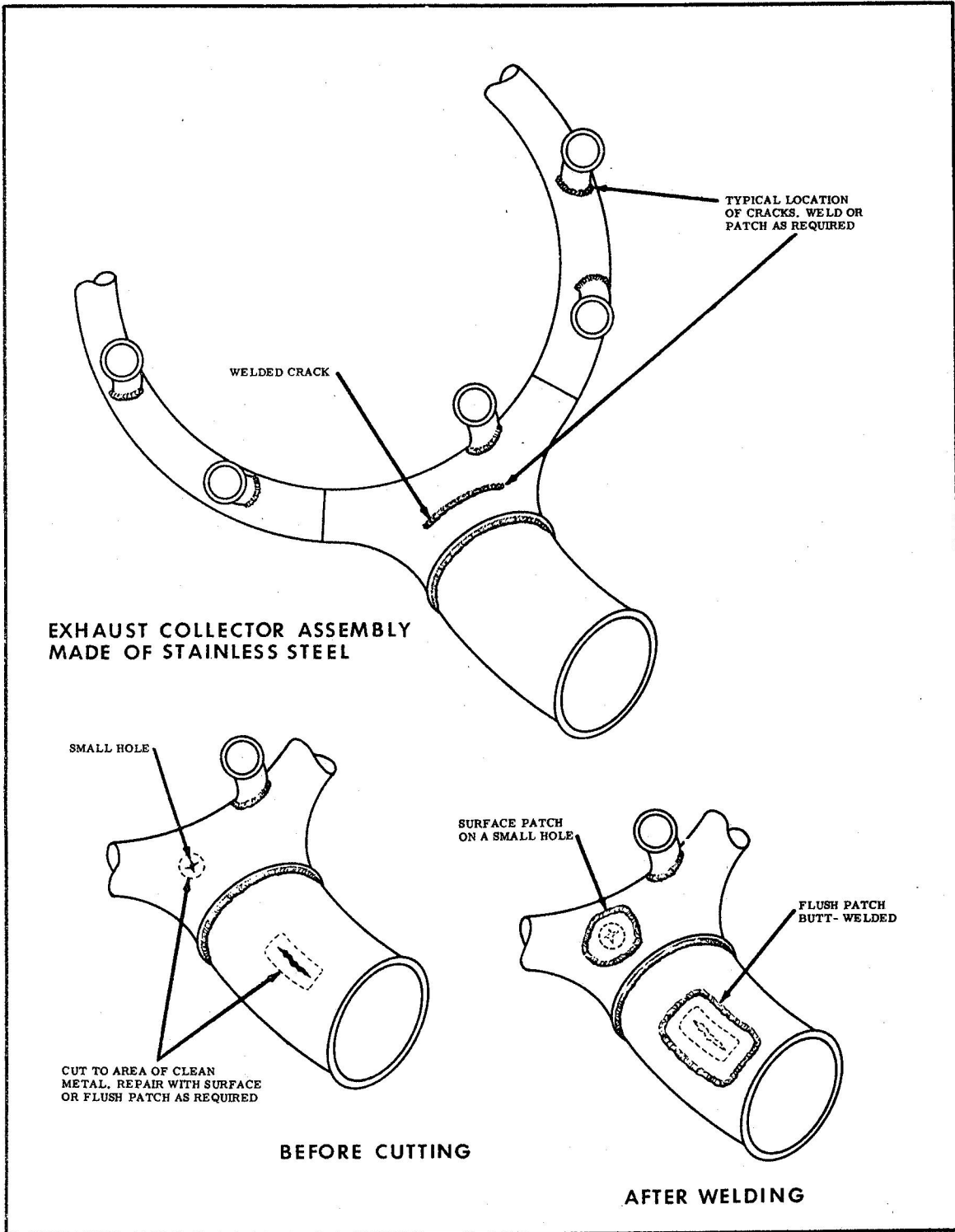


Figure 1 Exhaust Assembly Repairs



When marking on exhaust stacks, tail pipes or any part of any power plant, do not use pencil. Use chalk only. The use of pencil on metal surfaces that become heated could cause a change in the material that could be detrimental to service life. When chalk is used for marking, this should be removed prior to the component being placed back in service.

