

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

REPAIR OF ENGINE COWLING EXHAUST DUCT
ON OH-58D HELICOPTERS

Headquarters, Department of the Army, Washington, D.C.

1 June 1993

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

NOTE

This publication is effective until rescinded or superseded.

1. Priority Classification. ROUTINE.

a. Aircraft in Use. Upon receipt of the Technical Bulletin, the condition status symbol of the cited aircraft will be changed to a Red Dash (-). The Red Dash (-) may be cleared when the inspection/repair of paragraph 8 below is completed. The affected aircraft shall be inspected/repared as soon as practical but no later than the task/inspection suspense date. While the aircraft is on a Red Dash (-) it will be reported as Fully Mission Capable (FMC).

b. Aircraft in Depot Maintenance. Aircraft will not be released until compliance with this Technical Bulletin has been completed.

c. Aircraft Undergoing Maintenance. Aircraft will not be released until compliance with this Technical Bulletin has been completed.

d. Aircraft in Transit. Same as paragraph 1.a.

e. Maintenance Trainers.

(1) Category A. Same as paragraph 1.a.

(2) Category B and Others. Not applicable.

f. Component/Parts in Stock Including War Preserves At All Levels (Depot and Others). Not applicable.

2. Task/inspection Suspense Date.

a. Inspection Suspense Date: Next Progressive Phase Maintenance (PPM) interval following receipt of this Technical Bulletin.

b. Repair: Shall be accomplished prior to next flight.

3. Reporting Compliance Suspense Date. Not applicable.

4. Summary of Problem.

a. Aircraft in the field are continuing to experience problems with cracking/exhaust blow-by of the engine cowling exhaust duct. The problem has been occurring on engine cowling ducts with relatively low aircraft hours. Previous repairs have not adequately eliminated the problem causing excessive downtime and cost to units.

b. For Manpower/Downtime and funding impacts see Para 11.

c. The purpose of the Technical Bulletin is to provide a field repair for aircraft experiencing cracking of the cowling exhaust duct or exhaust gas blow-by damaging the fiberglass of the engine cowling.

5. End Items to be Inspected/Repaired. All OH-58D aircraft.

6. Assembly Components to be Inspected.

| NOMENCLATURE | PART NO. | NSN |
|--------------------------------|-----------------|------------------|
| Cowling Assy, Upper Engine | 406-060-813-139 | 1560-01-185-8970 |
| Cowling Assy, Upper Engine (1) | 406-060-813-175 | 1560-01-331-2409 |
| Duct Assy, Exhaust | 406-060-813-105 | 1560-01-226-7525 |

7. Parts to be Inspected. Not Applicable.

8. Inspection/Repair Procedures. Inspect cowling duct for cracks. Aircraft that reveal cracks in the duct or are experiencing exhaust blow-by indicated by discoloration/damage of the fiberglass cowling shall have the following repair applied.

NOTE

Fiberglass repair of cowling shall be made in accordance with TM 1-1500-204-23.

- a. Remove cowling from aircraft in accordance with TM 55-1520-248-23, Task 2-1-24.
- b. Remove exhaust duct assembly from cowling in accordance with TM 55-1520-248-23, Task 2-1-25.
- c. Stop drill cracks 5 inches or less with a #40 drill bit. Cracks in excess of 5 inches will require replacement of duct.
- d. Fabricate forming tool in accordance with Figure 1.
- e. Using stainless steel sheet, P/N QQ-S-766D, NSN 9515-00-684-6958 cut a piece 5 inches x 23 inches in size.
- f. Mark from both ends of metal sheet approximately 3 1/4 inches. Roll ends of metal sheet in roller in dimensions shown in Figure 2.
- g. Insert metal sheet into forming tool, using Part A of forming tool to complete side bends of doubler. Measure 1/2 inch from Part A to edge of doubler (Figure 3).
- h. Insert guide pins into Part A and punch mark for drilling guide pin holes through doubler. Remove doubler from forming tool and drill holes through doubler using 1/8 inch drill bit.
- i. Reinstall doubler into forming tool and insert guide pins through assembly. Check for 1/2 inch protrusion of doubler from Part A (Fig. 3) and adjust as necessary.

j. Insert entire assembly into shop vise with part to be formed facing up. Using nylon or rawhide mallet, roll edge of doubler in forming tool using caution not to split ends.

k. Remove doubler from forming tool and remove burrs and rough edges. Plug holes drilled for guide pins in para 8 with rivets.

l. Position doubler into upper portion of duct and measure 1 inch from flange edge of cowling duct to flange edge of doubler along centerline. (Figure 4).

m. Using C-clamps, clamp doubler into duct. Ensure 1 inch extension of doubler is maintained. Drill two pilot holes thru duct and doubler using #40 drill bit at outer spot welds of stiffener angle.

n. Using #30 drill bit, drill a row of rivet holes along stiffener angle continuing around each side to seam of cowling duct spacing each rivet hole approximately 1 inch apart. Drill a second row of rivet holes approximately 1/4 inch from trailing edge of doubler same as above.

o. Rivet doubler in place using rivets, P/N M7885/8-4-04, NSN 5320-01-042-2894.

p. If crack was stop drilled in para 3, drill rivet holes and rivet the length of the crack on both sides to reinforce repair.

q. Install cowling duct in accordance with TM 55-1520-248-23, Task 2-1-25.

r. Install engine cowl assembly in accordance with TM 55-1520-248-23, Task 2-1-24.

9. Supply/Parts and Disposition.

a. Parts Required. Not applicable.

b. Requisitioning Instructions. Not applicable.

c. Bulk and Consumables.

| NOMENCLATURE | PART NUMBER | NSN |
|------------------------|--------------|------------------|
| Sheet, Stainless Steel | QQ-S-766D | 9515-00-684-6958 |
| Rivet, Blind | M7885/8-4-04 | 5320-01-042-2894 |
| Sheet, Phenolic 1 1/4" | 611435 | 9330-00-290-1668 |

d. Disposition of Hazardous Material. Not applicable.

10. Special Tools, Jigs and Fixtures Required. Not applicable.

11. Application.

a. Category of Maintenance. AVIM. Aircraft downtime will be charged to AVIM.

b. Time Required for repair of cowling duct.

(1) Total of 20.0 manhours using 1 person.

(2) Total of 20.0 manhours downtime for one end item.

TB 1-1520-248-30-02

- c. Estimated Cost Impact of Stock Fund Items to the Field. Not applicable.
- d. TB/MWOs to be Applied Prior To or Concurrently with This Inspection. Not applicable.
- e. Publications Which Will Require Change as a Result of This Inspection. Not applicable.

12. References.

- a. TM 55-1520-248-23, Aviation Unit and Intermediate Maintenance Manual for Army OH-58D Helicopter.
- b. TM 55-1520-248-23P, Aviation Unit and Intermediate Maintenance Repair Parts and Special Tools List for Helicopter, Observation OH-58D.
- c. TM 1-1500-204-23, General Maintenance Aircraft Manual.

13. Recording and Reporting Requirements.

- a. Reporting Compliance Suspense Date (Aircraft). Not applicable.
- b. Task/Inspection Reporting Suspense Date (Aircraft). Not applicable.
- c. Reporting Compliance Suspense Date (Spares). Not applicable.
- d. Task/Inspection Reporting Suspense Date (Spares), Not applicable.
- e. The following forms are applicable and are to be completed in accordance with DA PAM 738-751.
 - (1) DA Form 2408-13, Aircraft Status Information Record.
 - (2) DA Form 2408-13-1, Aircraft Inspection and Maintenance Record.
 - (3) DA Form 2408-13-2, Related Maintenance Actions Record.
 - (4) DA Form 2408-15, Historical Records for Aircraft.

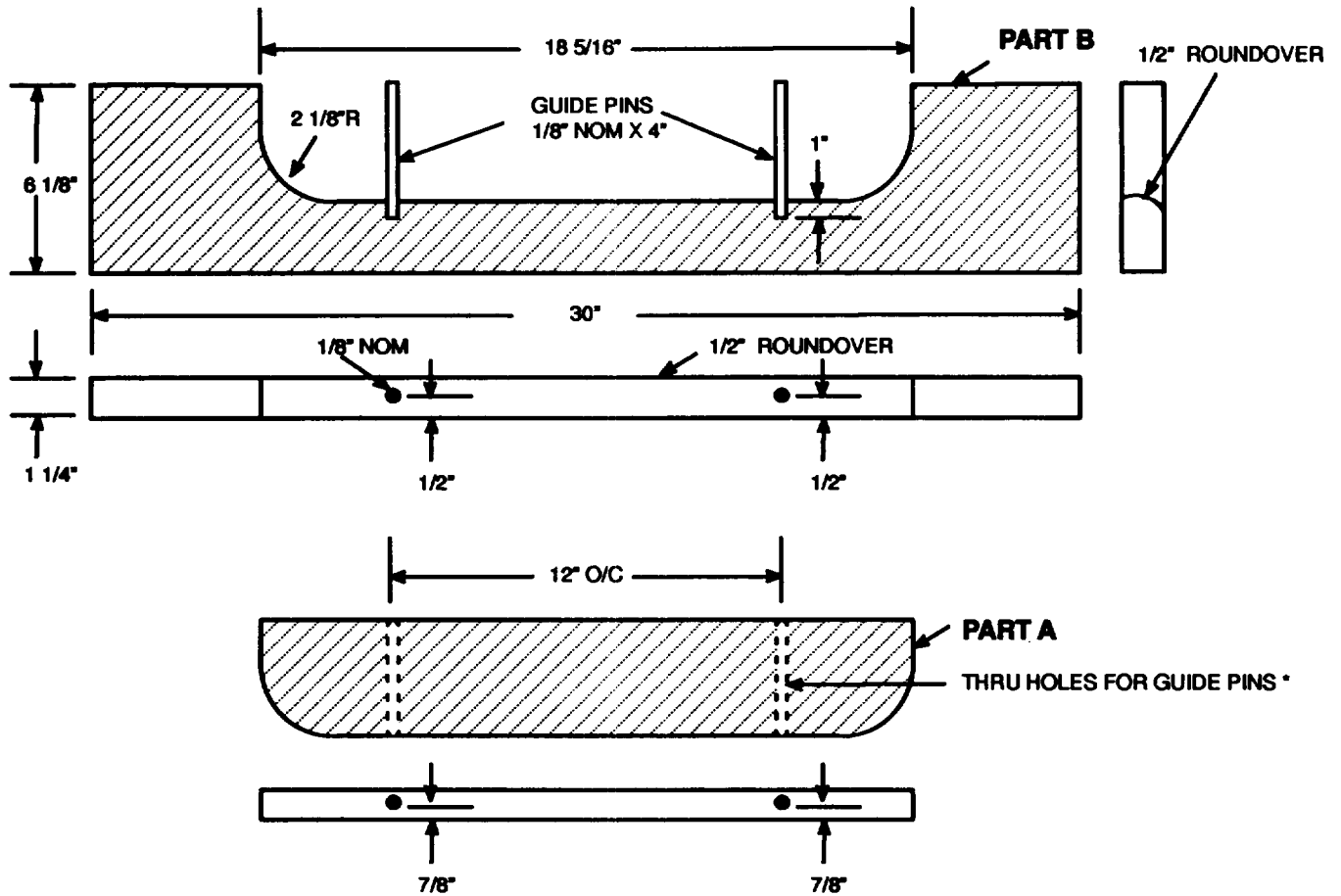
14. Weight and Balance. Not applicable.

15. Points of Contact.

- a. Technical Point of Contact is Mr. Kevin Cahill, AMSAT-I-MEAS, DSN 693-5420 or Commercial, 314/263-5420.
- b. Logistical Point of Contact is Mr. Michael Tesi, SFAE-AV-ASH-L, DSN 693-7613 or Commercial, 314/263-7613.
- c. Forms and Records Point of Contact is Ms. Ann Waldeck, AMSAT-I-MDM, DSN 693-1758 or Commercial 314/263-1758.

16. Reporting of Errors and Recommending Improvements. You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publication and Blank Forms) directly to: Commander, US Army Aviation and Troop Command, ATTN: AMSAT-I-MP, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798. A reply will be furnished to you.

HEAT DUCT EXTENSION/DOUBLER



FORMER W/INSERT USED TO FORM EXHAUST DUCT EXTENSION/ STIFFENER
 MAKE FROM MATERIAL --1 1/4" X 36" X 36" PHENOLIC SHEET, NSN 9330-00-290-1668

*GUIDE PINS ARE STEEL RODS WITH NOMINAL 1/8" DIAMETER
 (MAY USE WELDING ROD CUT TO LENGTH)

Figure 1. Forming Tool

FORMED FROM STAINLESS STEEL SHEET, ANNEALED FINISH
.032" X 5" X 23"

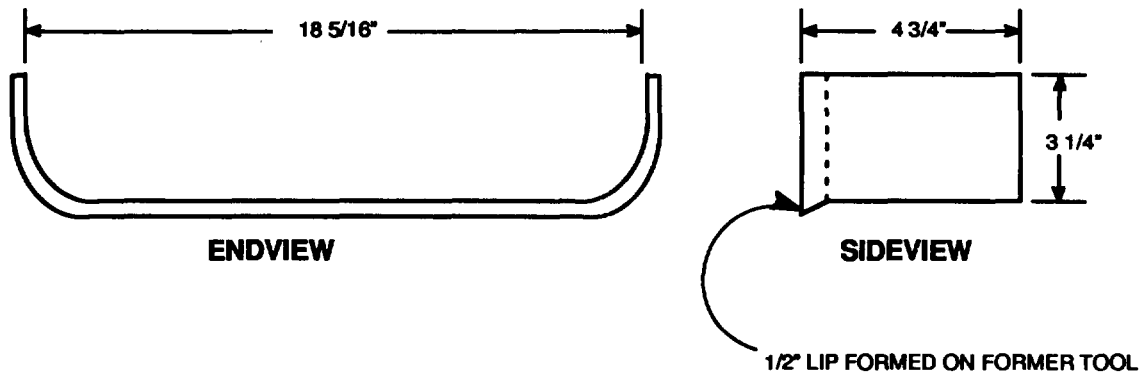


Figure 2. Doubler Dimensions

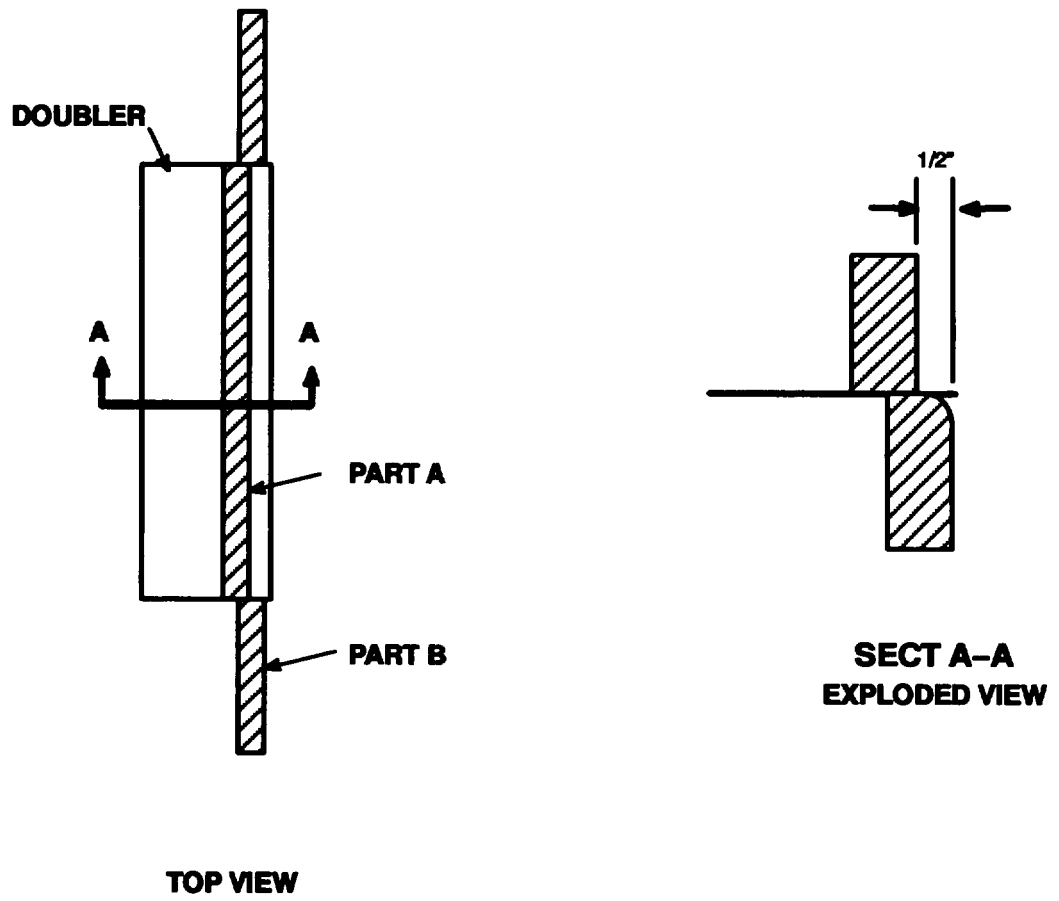


Figure 3. Doubler Fabrication.

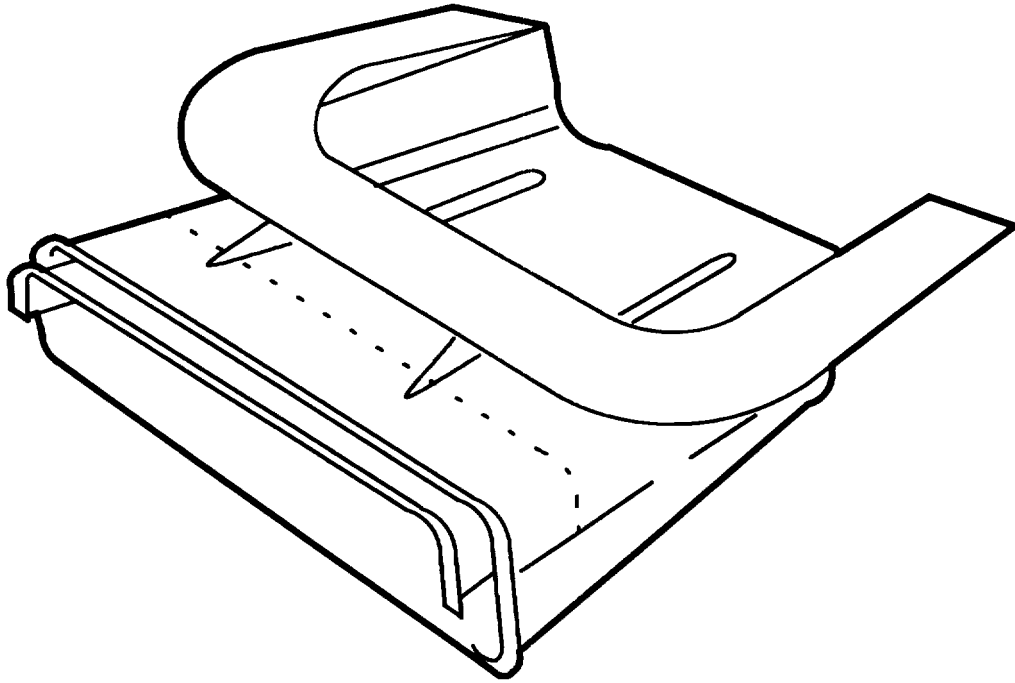
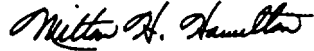


Figure 4. Doubler Installation

By Order of the Secretary of the Army:

Official:



MILTON H. HAMILTON
*Administrative Assistant to the
Secretary of the Army*

04679

GORDON R. SULLIVAN
*General, United States Army
Chief of Staff*

DISTRIBUTION:

To be distributed in accordance with DA Form 12-31-E, block no. 3353, requirements for TB 1-1520-248-30-02.

