



**HUGHES  
SERVICE INFORMATION  
NOTICE**

NOTICE NO. N-83

DATE January 27, 1971

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**SUBJECT:** INSTALLATION - EXHAUST HEATER  
MODIFICATION KIT (M10065-1)

**MODELS AFFECTED:** Model 269A (TH-55A) Helicopter  
Serial Nos. 0315 and subsequent

**TIME OF COMPLIANCE:** At owners or operators discretion

**PREFACE:** The information given in this Service Information Notice lists a procedure for modifying the existing 269A4201-5 exhaust heater installation incorporated on the above affected helicopters. The primary change is the replacement of the existing muffler jacket with a new heat exchanger assembly. Incorporation of the heater exchanger configuration is designed to increase the reliability of both the heater system and the exhaust system, and reduce maintenance.

**Reference**

269 Series - Basic Handbook of Maintenance Instructions, Issued 1 September 1970  
269 HMI - Configuration Supplement TH-55A, Issued 1 September 1970

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### MATERIALS

Tie-straps - Koroseal or equivalent  
Primer - zinc chromate  
Aluminum sheet - 0.020 x 3.05 x 3.90 (2024-T4 alclad; QQ-A-250/5)

### TOOLS & EQUIPMENT

Drill - portable  
Drill bit - 0.198/0.204 in. dia.  
Gage - spring tension  
Gun - rivet  
Drill bit - )#30) 0.128/0.132 in. dia.

| <u>Nomenclature</u>             | <u>Part Number</u> | <u>Quantity</u> |
|---------------------------------|--------------------|-----------------|
| Modification Kit-Exhaust Heater | M10065-1           | 1               |
| Consists of: Heat Exchanger     | 269A4234           | 1               |
| Band                            | 269A8803           | 1               |
| Strap                           | 269A8807-3         | 1               |
| Support Assembly                | 269A8808           | 1               |
| Tubing                          | U-9                | A/R             |
| Clamp                           | AN742D40           | 1               |
| Clamp                           | MS21919DG18        | 1               |
| Screw                           | AN520-10 R8        | 1               |
| Nut                             | NAS1291-3          | 1               |
| Washer                          | AN960C10           | A/R             |
| Washer                          | AN960PD10L         | 2               |
| Nut                             | NAS1021C3          | 6               |
| Bolt                            | AN3C5A             | 4               |
| Bolt                            | AN5C10             | 1               |
| Nut                             | AN310C5            | 1               |
| Washer                          | AN960C516          | A/R             |
| Cotter Pin                      | AN381-25-12        | 1               |
| Bolt                            | AN3C4A             | 2               |
| Exhaust Seal                    | 269A8225           | 4               |
| Rivet                           | AD41BS             | 4               |

MODIFICATION - 269A4201-5 EXHAUST HEATER INSTALLATION

I Removal of Muffler Jacket Assembly

- a. Remove muffler jacket assembly from engine exhaust manifolds. (Refer to Section 18, TH-55A HMI Supplement)
- b. Loosen clamp and disconnect flexible tube from heater blower.
- c. Install new 269A8225 exhaust seals in each of four exhaust manifolds as follows:
  1. Place seals within exhaust pipes with flange on seals against top end of pipes and with the relief on the seals matching the relief on the pipes.
  2. Place the exhaust pipes on the 269A8207-3 flanges and push up into place so that AN4C7A bolt may be inserted. Torque bolt and nut to 50-70 in. lbs.

NOTE

If the exhaust manifolds cannot be pushed into place by hand, place a shot or sand bag under the manifold and carefully push into place using a hydraulic jack.

WARNING

Do not use hammer on exhaust manifolds to preclude denting of the pipes.

- d. Reinstall diagonal joints at A' and B' attachment points of A'-B' strut assembly and zinc chromate bolt shafts. (Refer to Section 13, Basic HMI)

- e. Reroute wires to diagonal joint A-B' strut assembly and connect previously identified wires to alternator terminals.
- f. Install rubber nipples over alternator electrical terminals.

## II Installation of Heat Exchanger Assembly

- a. Install 269A8803 band on heat exchanger with hardware as shown. (See figure 1)
- b. Install 269A8808 support assembly on 269A2239-3 frame tube with hardware as shown; do not torque attachment bolt.
- c. Install heat exchanger on aft end of exhaust manifold tubes; push heat exchanger forward firmly so that flares on heat exchanger tubes engage exhaust pipes. Install 269A8807-3 strap and secure at tabs with hardware as shown.
- d. Attach support assembly to band on heat exchanger with hardware as shown; position support assembly on frame tube as required to support heat exchanger; tighten attachment bolt.

## III Relocation of Heater Valve Assembly and Saddle Clamp

- a. Remove lower forward fairing.
- b. Remove heater valve assembly. (Refer to Section 18, TH-55A HMI Supplement)

### NOTE

Remove and retain stiffeners and clamps from center section frame tube.

- c. Loosen clamp and disconnect flexible tube from dual-neck transition duct.
- d. Loosen clamps and disconnect flexible tubing at plenum chamber parts and at dual openings of transition duct.
- e. Loosen saddle clamp and remove transition duct; remove hardware securing saddle fitting to LH side of 269A2124 beam.
- f. Position saddle clamp at RH side of 269A2124 beam at location shown; mark and drill two 0.194/0.204 inch diameter attachment holes in beam; install saddle clamp with existing hardware.
- g. Reinstall transition duct in saddle clamp; reinstall flexible tubing to duct openings and plenum ports; reverse tubes to accommodate new RH side location for saddle clamp.
- h. Install valve assembly on 269A2239-7 frame tube (RH side) at dimensions shown, using existing hardware. Be sure that control arm of heater valve is positioned outboard.
- i. Secure new flexible tubes over ends of heater valve, using existing hardware as shown; secure tubes to transistor duct and to forward port of heat exchanger with clamps as shown.
- j. Secure new flexible tube to aft port of heat exchanger and to blower assembly with clamps as shown.
- k. Secure new flexible tubes to helicopter frame tubes at locations shown; use Koroseal ties or equivalent, and attaching hardware as shown.

#### IV Rigging of Heater Controls

- a. Route heater control cable over transition duct, along right hand outboard side of flexible tube to heater valve assembly.

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NOTE

Control cable knob should be kept in a down position during rigging procedure.

- b. Loosen nut and separate spacers on bolt shaft on valve door bracket; insert control cable wire through bolt shaft hole.
- c. Install bracket over control cable; secure bracket to tab on valve assembly with existing hardware. Extend cable approximately one-half inch past clamp; face clamp inboard to allow a free flow movement.
- d. Secure control cable to flexible tube with Koroseal ties or equivalent.
- e. Push valve door back into valve chamber, until door is open to fullest extent.
- f. With door in full open position, place wrench on door bracket bolt head. With second wrench, tighten nut until spacers cause deflection in control cable wire.

NOTE

Check bolt to ensure that spacers are seated properly and not bound on bracket hole diameter.

- g. Pull up on control cable knob; check valve door position to determine if it is closed.
- h. Check control cable wire to determine if its location between the spacers has changed.

i. Check control cable clamp located forward of hinge and determine if it is stationary.

j. If valve door is not closed and steps h. and i. are satisfactory, release pressure on control cable wire by loosening nut on door bracket bolt.

k. Push control cable knob down and then pull up approximately 1/4 inch.

l. Repeat steps e. through g.

m. If control cable wire has slipped from position, loosen valve door bracket nut and repeat steps f. and g.

n. If control cable clamp has not remained stationary, relocate clamp to proper position and retighten.

o. When steps g. through i. are satisfactory, pull up and push down control knob rapidly several times.

#### NOTE

Have assistant verify control cable operation while control cable knob is being manipulated.

p. Bend control cable wire end protruding through the bracket bolt 180° to ensure positive retention.

V Removal - 269A2213 Air Scoop Assembly

- a. Remove rivets securing air scoop assembly to 269A2149 lower forward canopy floor panel; remove air scoop assembly.
- b. Fabricate aluminum sheet (0.02 x 3.05 x 3.90) and attach sheet to floor panel to cover cutout; transfer hole locations from air scoop and install with four AD41BS rivets.
- c. Install lower forward fairing.

VI Periodic Inspection

- a. At each 100-hour periodic inspection, remove heat exchanger assembly from helicopter; remove two inner tube assemblies from jacket.
- b. Check jacket and tube assemblies (ID and OD) for evidence of cracks, perforations, erosion or deterioration; replace jacket or tubes as required if any of the above discrepancies are noted.

VII Compliance

- a. Record compliance with Part I through Part V of this Service Notice (M10065-1 Kit Installation) in Compliance Record of helicopter Log Book.
- b. Record compliance with Part VI of this Service Notice (100-Hour Inspection) in Compliance Record of helicopter Log Book.



WEIGHT & BALANCE DATA

For removal of exhaust heater components,

SUBTRACT: 10.9 lbs at 90.3 inch arm

For installation of Kit No. M10065-1 components,

ADD: 18.9 lbs. at 110.0 inch arm

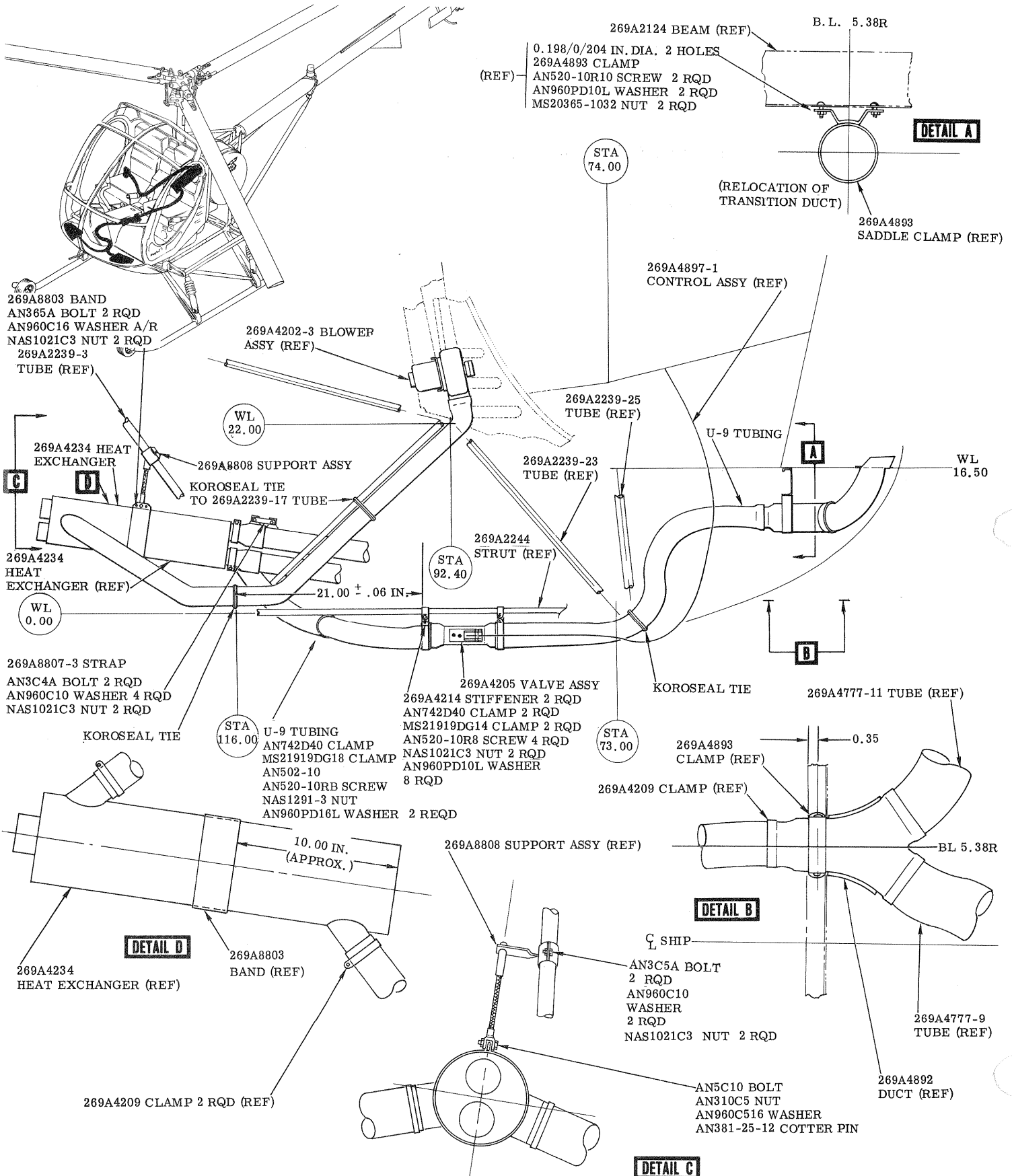


FIGURE 1. INSTALLATION - EXHAUST HEATER MODIFICATION KIT (M10065)