



**HUGHES
SERVICE INFORMATION
NOTICE**

NOTICE NO. N-110

DATE 24 SEP 1973

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**SUBJECT: CONFIGURATION MODIFICATION - 2050 LB GROSS WEIGHT,
CONVERSION KIT NO. M10078**

MODELS AFFECTED: Model 269C Helicopter Serial No. 0004 thru 0209

TIME OF COMPLIANCE: At owners and operators discretion

PREFACE: The information given in this Service Information Notice lists a procedure for optional conversion of the above affected Model 269C helicopters to permit increased (2050 lb) gross weight operation.

The configuration modification is accomplished by (1) installing new 269A8205-61 and 269A8206-61 engine exhaust manifolds, or reworking existing manifolds to the shorter -61 configuration, (2) installing new 269A8225 exhaust seals and a new 269A8238 exhaust collector, (3) installing a 269A8580-1 auxiliary oil cooler kit, if not previously installed, and (4) installing new instrument panel placards and gages calibrated for 2050 lb gross weight operation.

Procedures are also listed for optional installation of a 269A8801-5 exhaust muffler kit, or for modifying an existing exhaust muffler kit installation to incorporate a new muffler-collector assembly. Optional removal of the air scoop assembly from underside of floor panel is also provided for improved winter comfort.

It is to be noted that for helicopters equipped with amphibious float landing gear, takeoff and landing to and from water are not permitted above 1900 pounds gross weight. Refer to applicable float kit RFM Supplement.

The referenced maintenance manuals and kit installation instructions are to be used, as applicable, with instructions provided in this Notice for installation of kit components.

Reference

- 269 Series - Basic HMI, Issued 1 April 1973
- 269 Series - HMI Appendix A, Issued 1 April 1973
- 269 Series - HMI Configuration Supplement C, Issued 1 March 1973
- Installation Instructions - Engine Oil Auxiliary Desert Cooler Kit, 269A8580-1
- Installation Instructions - Exhaust Muffler Installation, 269A8801-5

PARTS LIST

<u>Nomenclature</u>	<u>Part No.</u>	<u>Qty</u>	<u>Mfr</u>
(Note 1) Instrument Cluster	269A4111-7	1	Hughes
(Note 2) Instrument Cluster	269A4112-3	1	Hughes
(Note 3) Indicator, Manifold Pressure	269A4250-11	1	Hughes
Placard, Manifold Pressure	269A4646-193	1	Hughes
Placard, Vne	269A4646-197	1	Hughes
(Note 4) Manifold, Engine Exhaust	269A8205-61	1	Hughes
(Note 4) Manifold, Engine Exhaust	269A8206-61	1	Hughes
(Note 5) Seal	269A8225	4	Hughes
(Note 6) Collector	269A8238	1	Hughes
(Note 7) Muffler-Collector Assembly	269A8241	1	Hughes
(Note 5) Auxiliary Oil Cooler Kit	269A8580-1	1	Hughes
(Note 8) Exhaust Muffler Kit	269A8801-5	1	Hughes
(Note 9) Rivet, pop	AD41BS	4	Commercial
Bolt	AN4C5A	1	Commercial
Washer	AN960C416	1	Commercial
Nut	NAS1021C4	1	Commercial
Model 269C Rotorcraft Flight Manual, Configuration "c", Revised 16 April 1973		1	Hughes

NOTES:

1. Optional - existing 269A4111-9 cluster assembly may be reworked to -7 configuration.
2. Required for 269C SN 0004 thru 0048, unless previously installed with optional muffler kit.
3. Optional - existing 269A4250-9 indicator may be used; however, 269A4250-11 indicator is recommended by Hughes.
4. Optional - existing exhaust manifold may be reworked to -61 configuration.
5. Required if not previously installed.
6. Required unless new 269A8241 muffler-collector assembly is installed.
7. Optional - existing muffler may be reworked and welded to 269A8238 collector to create muffler-collector assembly.
8. Optional kit installation.
9. Optional - required only if 269A2213-5 air scoop assembly is removed.

MATERIALS

(Note 1) Plate, stainless steel (0.032 x 5.00 dia)	321 Cor Res Stl MIL-S-6721	Commercial
(Note 1) Rod, welding	#601	Huntington Alloy Products Div, Huntington, West Va
(Note 2) Sheet, aluminum alloy (0.025 x 3.05 x 3.90)	2024-T3 QQ-A-250/4	Commercial
(Note 2) Cement	PR1221	Products Research & Chem Corp

NOTES:

1. Required if existing muffler is reworked to create muffler-collector assembly.
2. Required if 269A2213-5 air scoop assembly is removed.

MODIFICATION PROCEDURE

NOTE

For 2050 lb gross weight operation, the existing 269A8201 engine exhaust system must be reworked to new -3 configuration which incorporates shorter exhaust manifolds, new exhaust seals and an exhaust collector. If the optional exhaust muffler is desired, the 269A8801-5 muffler kit may be installed, or an existing muffler kit installation modified to be compatible with the reworked engine exhaust system.

- a. Install new 269A8205-61 and 269A8206-61 engine exhaust manifolds, or modify existing exhaust manifolds as follows. (Refer to Basic HMI.)
 - (1) Remove exhaust manifolds; also remove exhaust muffler and 269A8224 cylindrical deflectors and clips at flange adapters, if presently installed.

NOTE

Perform substep (2) below only if optional 269A8801-5 exhaust muffler kit is to be initially installed. The 269A8520 deflectors are standard equipment for 269C SN 0085 and subsequent. Also, the 269A8520-7 left engine cooling deflector is already installed on 269C SN 0004 thru 0048 equipped with Xenon searchlight and TE-TA-30 dual alternator.

- (2) As required, install 269A8520-5 and 269A8520-7 deflectors per referenced 269C HMI and exhaust muffler kit instructions.

NOTE

Perform substep (3) below only if existing exhaust manifolds are to be reworked.

- (3) Shorten existing exhaust manifolds by cutting off 2.75 inches at aft ends. Remove tab from section of exhaust tube cut off and reweld on aft end of upper manifold, using #601 welding rod. Locate tab 2.75 inches from end and in line with 269A8219 clamp. Identify reworked #1 and #2 cylinder exhaust manifolds as M10078-3; identify reworked #3 and #4 cylinder exhaust manifolds as M10078-5.
- (4) Install new -61 or reworked exhaust manifolds on helicopter; install new 269A8225 seals as shown in View A-A of Figure 1. Also install 269A8224 cylindrical deflectors and clips, if exhaust muffler is to be used; refer to HMI Appendix A and exhaust muffler kit installation instructions.
- (5) If exhaust muffler is NOT to be used, install new 269A8238 collector at aft ends of exhaust manifolds as shown, using existing 269A8219 clamps.
- (6) If exhaust muffler is to be used, install new 269A8241 muffler-collector (or reworked muffler-collector as noted below) at aft ends of exhaust manifolds, using existing 269A8219 clamps.

NOTE

An existing 269A4593 muffler may be reworked and welded to 269A8238 collector to form a muffler-collector assembly as follows:

- (a) Remove forward end plate with double inlet from existing muffler.
- (b) Replace end plate with new plate fabricated from 0.032 inch thick stainless steel with a single 2.50 inch diameter hole to match 269A8238 collector centered in plate.
- (c) Weld collector to new plate and weld plate to muffler. Collector is to extend approximately 9.25 inches beyond forward end of muffler.
- (d) Identify reworked muffler-collector assembly as M10078-7.

- (7) Install 269A8807-5 strap to top of 269A8219 clamps, using existing hardware, and to tab on upper exhaust manifold using AN4C5A bolt, AN960C416 washer and NAS1021C4 nut.
- (8) Install exhaust manifold support cable from scroll mounting bracket to top of 269A8219 clamps.
- (9) If exhaust muffler is used, install 269A8803 band on muffler and secure to cable and support hardware attached to frame tube. Refer to HMI Appendix A and exhaust muffler kit installation instructions.

NOTE

The 269A2213-5 air scoop assembly may be removed for improved winter comfort, but is not a required modification.

b. Remove 269A2213-5 air scoop assembly and modify cabin floor panel as follows:

- (1) Remove or displace floor carpeting forward of instrument console.
- (2) Remove lower forward fairing. (Refer to Basic HMI.)
- (3) Remove four rivets securing 269A2213-5 air scoop assembly to underside of floor panel.
- (4) Cover cutout in floor panel with fabricated 0.025 x 3.05 x 3.90 aluminum sheet.
- (5) Bond aluminum sheet to cabin floor panel with PR1221 cement.
- (6) Install sheet to floor panel with four AD41BS pop rivets, using existing rivet holes.
- (7) Reinstall lower forward fairing; reinstall floor carpeting.

NOTE

The 269A8580-1 auxiliary oil cooler kit must be installed for 2050 lb gross weight operation.

c. If not previously installed, install new 269A8580-1 auxiliary oil cooler kit, per referenced kit installation instructions and as follows:

- (1) Prior to installing 269A8569 bolt ring on duct assembly, rivet six URA3 receptacles to bolt ring, using zinc chromate primer. Locate rivet attach holes from receptacles. Use twelve MS20470AD3 rivets and #41 drill.
- (2) Install six UA3T15 studs through oil cooler flange; flatten GH3 grommets after passing over threads of studs on back side of oil cooler flange. Connect bolt ring and duct assembly to oil cooler using studs and receptacles.
- (3) Replace existing 269A8237-139 tube assembly with new 269A8237-131 flex tubing (lower oil return line from outlet of scroll mounted oil cooler to inlet of new auxiliary oil cooler).

NOTE

The 269A4804-11 instrument panel must be reworked for 2050 lb gross weight operation.

d. Replace existing instrument panel gages and placards as follows:

- (1) Replace existing Vne placard with new 269A4646-197 placard.
- (2) Replace existing manifold pressure placard with new 269A4646-193 manifold pressure placard.
- (3) Replace existing 269A4111-9 instrument cluster assembly with new 269A4111-7 instrument cluster assembly, per Basic HMI, or rework the -9 cluster assembly to the -7 configuration as follows:
 - (a) Remove the 269A4111-9 instrument cluster assembly from instrument panel. (Refer to Basic HMI.)
 - (b) With instrument cover glass removed, remove existing red radial line at 475° on cylinder head temperature instrument dial.
 - (c) Add new 0.04-inch wide red radial line at 500°F with the lower edge of the red line at the center of the existing white 500°F mark. Add new 0.04-inch wide yellow arc between 450°F and 500°F.

- (d) Identify reworked instrument cluster assembly as M10078-9.
- (e) Replace instrument cover glass; replace instrument cluster assembly per Basic HMI.

NOTE

The 269A4112-3 instrument cluster assembly is presently installed on 269C helicopter SN 0049 and subsequent, and on 269C helicopter SN 0004 thru 0048 equipped with exhaust muffler kit.

- (4) As required, replace existing 269A4112 instrument cluster assembly with 269A4112-3 instrument cluster assembly, per Basic HMI.

NOTE

Installation of 269A4250-11 manifold pressure indicator is optional, but recommended by Hughes.

- (5) Replace existing 269A4250-9 manifold pressure indicator with 269A4250-11 manifold pressure indicator, per Basic HMI.
- e. Perform the following final preparations:
- (1) Check configuration modification for discrepancies.
 - (2) Record installation of M10078 configuration modification kit in Component Record of helicopter Log Book.
 - (3) Incorporate Rotorcraft Flight Manual Configuration "c" in Owners Manual. Owners/Flight Manual Configuration "c" must be carried in helicopter for 2050 lb gross weight operation.

NOTE

Takeoff and landing to and from water are not permitted above 1900 pounds gross weight, for helicopters equipped with amphibious float landing gear. Refer to applicable float kit RFM Supplement operating limitations.

WEIGHT & BALANCE DATA

269A8801-5 Exhaust Muffler Installation

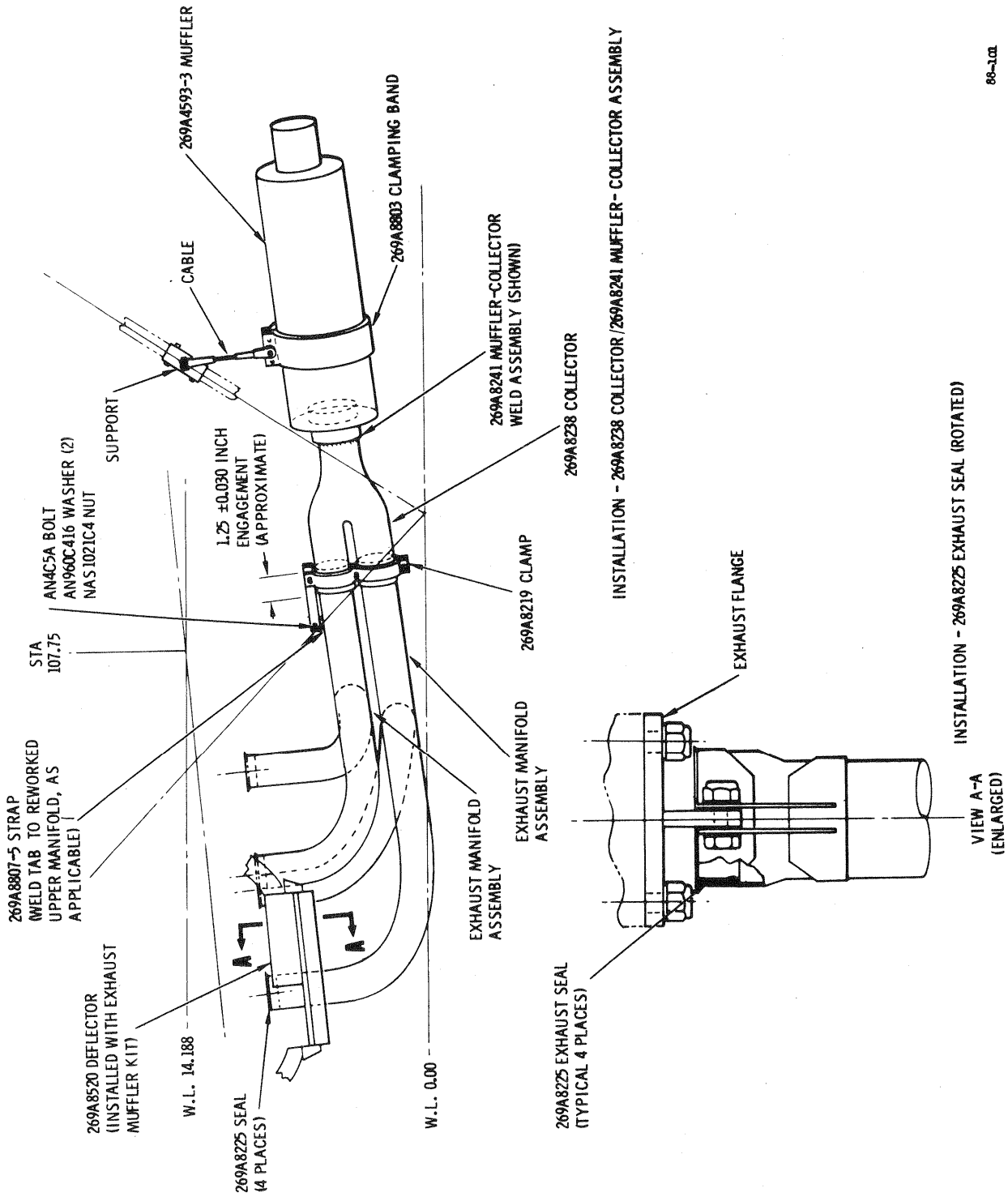
For initial muffler kit installation ADD: 3.3 lb at 124.5 inch arm

269A8201-3 Engine Exhaust System

For rework of existing engine exhaust system to new -3 configuration (added manifolds, seals, collector) ADD: 0.6 lb at 118.0 inch arm

269A8580-1 Auxiliary Oil Cooler Installation

For initial auxiliary oil cooler kit installation ADD: 5.3 lb at 80.0 inch arm



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Figure 1. Configuration Modification - 2050 Lb Gross Weight, Conversion Kit No. M10078