
SERVICE BULLETIN

N° **139-779**

OPTIONAL

DATE: June 7, 2024

REV. : /

TITLE

ATA 21 – ECS SHOCK ABSORBERS REMOVAL RETROMOD

REVISION LOG

First Issue

An appropriate entry should be made in the aircraft log book upon accomplishment.
If ownership of aircraft has changed, please, forward to new owner.

1. PLANNING INFORMATION

A. EFFECTIVITY

All AW139 helicopters equipped with the ECS condenser pack retromod P/N 3G2150P02011.

B. COMPLIANCE

At Customer's option.

C. CONCURRENT REQUIREMENTS

N.A.

D. REASON

This Service Bulletin is issued in order to provide the necessary instructions on how to perform the ECS shock absorbers removal retromod P/N 3G2150P02411.

LH issued this SB for the following reason:

| | |
|--|---|
| Helicopter Reliability/Maintainability | |
| Product Improvement | |
| Obsolescence | |
| Customization | ✓ |
| Product/Capability Enhancement | |

E. DESCRIPTION

The ECS shock absorbers removal retromod P/N 3G2150P02411 gives instructions to remove the existing ECS condenser pack retromod P/N 3G2150P02011.

In particular, the retromod consists in the installation of the condenser assembly without the two lower and upper supports and the six shock absorbers installed between the upper deck and the condenser assembly.

F. APPROVAL

The technical content of this Service Bulletin is approved under the authority of DOA nr. EASA.21.J.005. For helicopters registered under other Aviation Authorities, before applying the Service Bulletin, applicable Aviation Authority approval must be checked within Leonardo Helicopters customer portal.

EASA states mandatory compliance with inspections, modifications or technical directives and related time of compliance by means of relevant Airworthiness Directives.

If an aircraft listed in the effectivity embodies a modification or repair not LH certified and affecting the content of this Service Bulletin, it is responsibility of the Owner/Operator to obtain a formal approval by Aviation Authority having jurisdiction on the aircraft, for any adaptation necessary before incorporation of the present Service Bulletin.

G. MANPOWER

To comply with this Service Bulletin, approximately 16 (sixteen) MMH are deemed necessary.

MMH are based on hands-on time and can change with helicopter configuration, personnel and facilities available. MMH are not comprehensive of the overall hours necessary to get access to work areas and to remove all the equipment that interferes with the application of the prescribed instructions.

H. WEIGHT AND BALANCE

| | WEIGHT (kg) | ARM (mm) | MOMENT (kg-mm) |
|----------------------|-------------|----------|----------------|
| LONGITUDINAL BALANCE | | 4179 | 8233 |
| LATERAL BALANCE | | 0 | 0 |

I. REFERENCES

I.1 PUBLICATIONS

Following Data Modules refer to AMP:

| <u>DATA MODULE</u> | <u>DESCRIPTION</u> | <u>PART</u> |
|-------------------------------|--|-------------|
| DM01 39-A-00-20-00-00A-120A-A | Helicopter on ground for a safe maintenance. | - |
| DM02 39-A-06-41-00-00A-010A-A | Access door panel remove procedure. | - |
| DM03 39-A-93-62-08-00A-520A-K | Forward LIDAR support - Remove procedure | - |
| DM04 39-A-93-62-08-00A-720A-K | Forward LIDAR support - Install procedure | - |
| DM05 39-D-21-90-03-00A-520A-K | Condenser assembly - Remove procedure | - |
| DM06 39-D-21-90-03-00A-720A-K | Condenser assembly - Install procedure | - |
| DM07 39-E-21-90-03-00A-520A-K | Condenser assembly - Remove procedure | - |

| <u>DATA MODULE</u> | <u>DESCRIPTION</u> | <u>PART</u> |
|-------------------------------|--|-------------|
| DM08 39-E-21-90-03-00A-720A-K | Condenser assembly - Install procedure | - |
| DM09 39-F-21-90-07-00A-520A-K | Condenser assembly - Remove procedure | - |
| DM10 39-F-21-90-07-00A-720A-K | Condenser assembly - Install procedure | - |
| DM11 39-G-21-90-07-00A-520A-K | Condenser assembly - Remove procedure | - |
| DM12 39-G-21-90-07-00A-720A-K | Condenser assembly - Install procedure | - |

I.2 ACRONYMS & ABBREVIATIONS

| | |
|------|---------------------------------------|
| AMD | Aircraft Material Data Information |
| AMP | Aircraft Maintenance Publication |
| AR | As Required |
| DM | Data Module |
| DOA | Design Organization Approval |
| EASA | European Union Aviation Safety Agency |
| ECS | Environmental Control System |
| FWD | Forward |
| IPD | Illustrated Parts Data Publication |
| ITEP | Illustrated Tool and Equipment |
| LH | Left Hand |
| MMH | Maintenance Man Hours |
| N.A. | Not Applicable |
| OPLS | Obstacle Proximity LIDAR System |
| P/N | Part Number |
| RH | Right Hand |
| SB | Service Bulletin |

I.3 ANNEX

N.A.

J. PUBLICATIONS AFFECTED

N.A.

K. SOFTWARE ACCOMPLISHMENT SUMMARY

N.A.

2. MATERIAL INFORMATION

A. REQUIRED MATERIALS

A.1 PARTS

| # | P/N | ALTERNATIVE P/N | DESCRIPTION | Q.TY | LVL | NOTE | LOG P/N |
|---|---------------|-----------------|---|------|-----|------|-----------|
| 1 | 3G2150P02411 | | ECS SHOCK ABSORBERS REMOVAL RETROMOD | REF | . | | |
| 2 | NAS6703-4 | | Bolt | 2 | .. | | 139-779L1 |
| 3 | NAS6703-7 | | Bolt | 2 | .. | | 139-779L1 |
| 4 | NAS6703-5 | | Bolt | 4 | .. | | 139-779L1 |
| 5 | NAS1149C0332R | | Washer | 8 | .. | | 139-779L1 |

Refer also to IPD for the spares materials required to comply with the AMP DMs referenced in the accomplishment instructions.

A.2 CONSUMABLES

The following consumable materials, or equivalent, are necessary to accomplish this Service Bulletin:

| # | SPEC./LH CODE NUMBER | DESCRIPTION | Q.TY | NOTE | PART |
|---|--|--|------|------|------|
| 6 | ASTM-D5363 | Loctite 222 (C029) | AR | (1) | - |
| 7 | AMS 3266 Class B, Code n°999999999000008841 | Conductive Sealant PR1764M B-2 (C170) | AR | (1) | - |
| 8 | Code n°900004107 | Polyurethane paint | AR | (1) | - |
| 9 | MIL-PRF-23377, Code n°900005211 | Primer | AR | (1) | - |

Refer also to AMDI for the consumable materials required to comply with the AMP DMs referenced in the accomplishment instructions.

A.3 LOGISTIC MATRIX

In order to apply this Service Bulletin, the following Logistic P/N can be ordered in accordance with the applicable notes:

| LOGISTIC P/N | Q.TY (PER HELO) | NOTE | PART |
|--------------|-----------------|------|------|
| 139-779L1 | 1 | - | - |

NOTES

(1) Item to be procured as local supply.

B. SPECIAL TOOLS

Refer also to ITEP for the special tools required to comply with the AMP DM referenced in the accomplishment instructions.

C. INDUSTRY SUPPORT INFORMATION

Customization.

3. ACCOMPLISHMENT INSTRUCTIONS

GENERAL NOTES

- a) Place an identification tag on all components that are re-usable, including the attaching hardware that has been removed to gain access to the modification area and adequately protect them until their later re-use.
 - b) During the installation of bonding braids or components requiring grounding, clean the surface structure in order to obtain a good ground contact.
 - c) Let adhesive cure at room temperature for at least 24 hours unless otherwise specified.
1. In accordance with AMP DM 39-A-00-20-00-00A-120A-A, prepare the helicopter on ground for a safe maintenance. Disconnect the battery, all electrical power sources and/or the external power supply.
 2. In accordance with AMP DM 39-A-06-41-00-00A-010A-A and with reference to Figures 1 thru 4, remove all external panels, internal panels and internal liners as required to gain access to the area affected by the retromod and perform the ECS shock absorbers removal retromod P/N 3G2150P02411 as described in the following procedure:

NOTE

Perform step 2.1 only if the helicopter is equipped with kit OPLS .

- 2.1 In accordance with AMP DM 39-A-93-62-08-00A-520A-K, remove and retain for later reuse the FWD LIDAR support assy.
- 2.2 With reference to Figure 3 Section B1-B1, remove n°8 bolts P/N LN29943-06012C, n°8 nuts P/N LN9338-06 and n°8 washers P/N NAS1149C0463R that fix the two upper supports P/N 3G2150A07251 to the condenser assembly.
- 2.3 With reference to Figure 2 View A and Figure 3 Section B1-B1, remove and retain for later reuse the condenser assembly and the relative fixing hardware (according to the Data Modules listed below as applicable:
 - AMP DM 39-D-21-90-03-00A-520A-K;
 - AMP DM 39-E-21-90-03-00A-520A-K;
 - AMP DM 39-F-21-90-07-00A-520A-K;
 - AMP DM 39-G-21-90-07-00A-520A-K.

- 2.4 With reference to Figure 3 Section B1-B1, remove n°6 bolts P/N LN29943-06003C and n°6 washers P/N AW010TY004FN03A that fix the six shock absorbers P/N 3G2150I00131 to the two upper supports P/N 3G2150A07251.
- 2.5 With reference to Figure 3 Section B1-B1, from the two upper supports P/N 3G2150A07251 remove the following fixing hardware:
 - n°4 nuts P/N MS21043-4;
 - n°4 bushings P/N 3G2150A06951;
 - n°4 washers P/N NAS1149C0732R;
 - n°4 upper spacers P/N 3G2150A07451.
- 2.6 With reference to Figure 3 Section B1-B1, remove n°2 upper supports P/N 3G2150A07251 from the six shock absorbers P/N 3G2150I00131 and the two lower supports.
- 2.7 With reference to Figure 3 Section B1-B1, cut the lockwire from the twelve bolts and remove n°12 bolts P/N NAS6603H2 and n°12 washers P/N NAS620C10L that fix the three shock absorbers P/N 3G2150I00131 to the lower support LH assy P/N 3G2150A07031. Remove n°3 shock absorbers P/N 3G2150I00131.
- 2.8 With reference to Figure 3 Section B1-B1, from the lower support LH assy P/N 3G2150A07031 remove the following fixing hardware:
 - n°2 bushings P/N 3G2150A07351;
 - n°1 lower spacer P/N 3G2150A07651;
 - n°1 lower spacer P/N 3G2150A07551;
 - n°1 washer P/N NAS1149C0732R;
 - n°2 washers P/N NAS1149C0432R;
 - n°2 bushings P/N 3G2150A06951.
- 2.9 With reference to Figure 3 Section B1-B1, cut the lockwire from the four bolts and remove n°3 bolts P/N NAS6603H2, the bolt P/N NAS6603H5 and n°4 washers P/N NAS620C10L that attach the lower support LH assy P/N 3G2150A07031 to the upper deck.
- 2.10 With reference to Figure 3 Section B1-B1, remove the bonding cable P/N A601A4B18 from the lower support LH assy P/N 3G2150A07031.
- 2.11 With reference to Figure 3 Section B1-B1, remove the lower support LH assy P/N 3G2150A07031 from the upper deck.
- 2.12 With reference to Figure 3 section B2-B2, clean and restore the mating surface of the lower support LH assy P/N 3G2150A07031 using polyurethane paint and primer.
- 2.13 Repeat steps from 2.7 to 2.12 for the lower support RH assy P/N 3G2150A07131.

- 2.14 With reference to Figure 4 Detail C, prepare the mating surface as follow:
- 2.14.1 Swab degrease grease, oil, non-conductive soluble films or protective coating.
 - 2.14.2 Abrade using 320 grit garnet or finer or "Scotch Brite" pad.
 - 2.14.3 Strip paint using paint stripper.

NOTE

Interpose conductive sealant PR1764M B-2 (C170) between the upper deck and the support (refer to Figure 4 Detail C). Spread the squeezed out sealant along the support external perimeter in order to create a sealant fillet.

- 2.15 With reference to Figure 2 View A and Figure 4 Section B3-B3, re-install the condenser assembly previously retained by means of n°2 bolts P/N NAS6703-4, n°2 bolts P/N NAS6703-7, n°4 bolts P/N NAS6703-5 and n°8 washers P/N NAS1149C0332R according to the Data Modules listed below as applicable:
- AMP DM 39-D-21-90-03-00A-720A-K;
 - AMP DM 39-E-21-90-03-00A-720A-K;
 - AMP DM 39-F-21-90-07-00A-720A-K;
 - AMP DM39-G-21-90-07-00A-720A-K.
- 2.16 With reference to Figure 4 Section B3-B3, secure connections using loctite 222 (C029).

NOTE

Re-install the FWD LIDAR support assy only if previously removed at step 2.1.

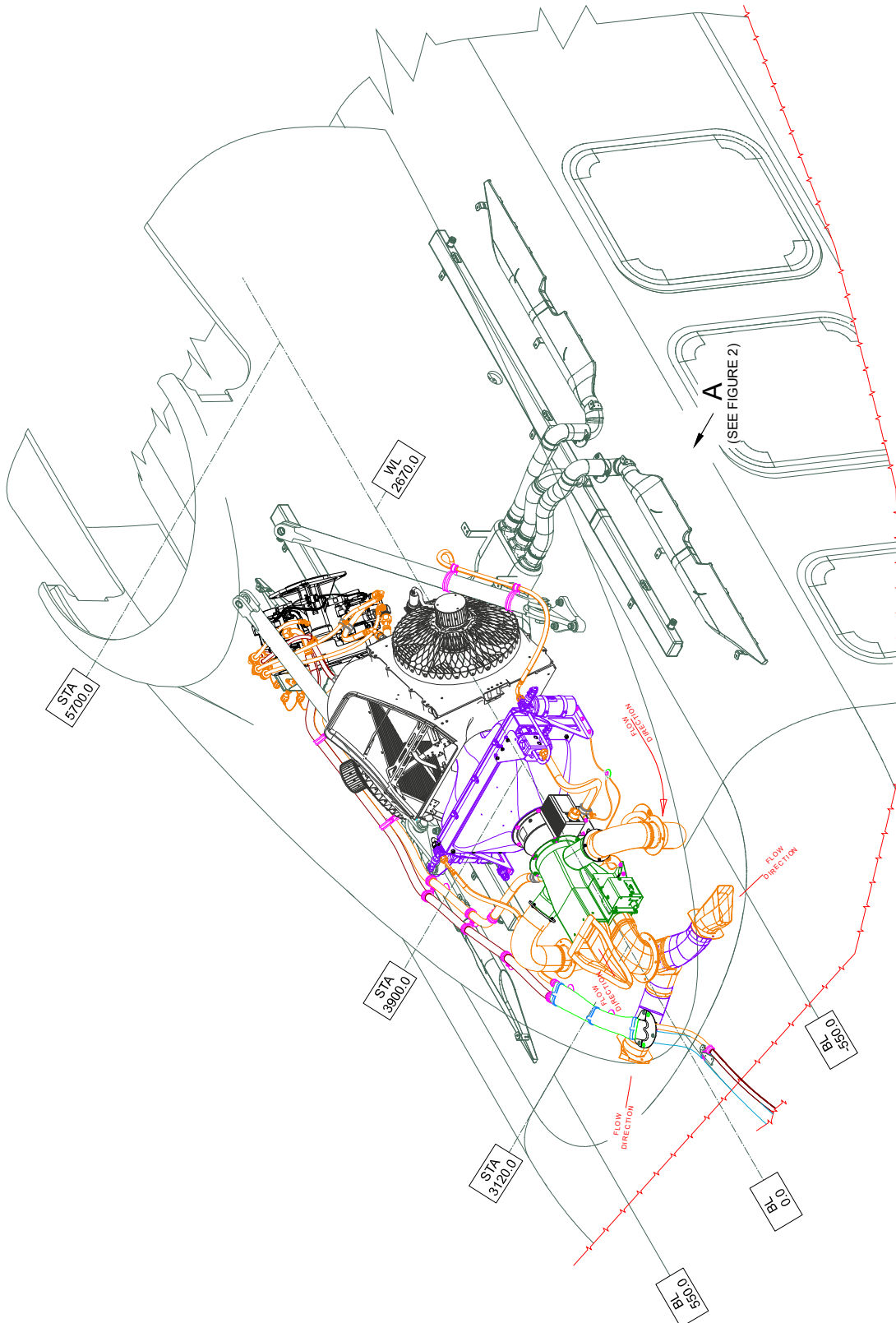
- 2.17 In accordance with AMP DM 39-A-93-62-08-00A-720A-K, re-install the FWD LIDAR support assy.
- 3. In accordance with AMP DM 39-A-06-41-00-00A-010A-A, re-install all external panels, internal panels and internal liners previously removed
 - 4. In accordance with weight and balance changes, update the Chart A (see Rotorcraft Flight Manual, Part II, section 6).
 - 5. Return the helicopter to flight configuration and record for compliance with this Service Bulletin on the helicopter logbook.
 - 6. Gain access to My Communications section on [Leonardo Customer Portal](#) and compile the "Service - Technical Bulletin Application".

As an alternative, send the attached compliance form to the following mail box:

engineering.support.lhd@leonardo.com

and (for North, Central and South America) also to:

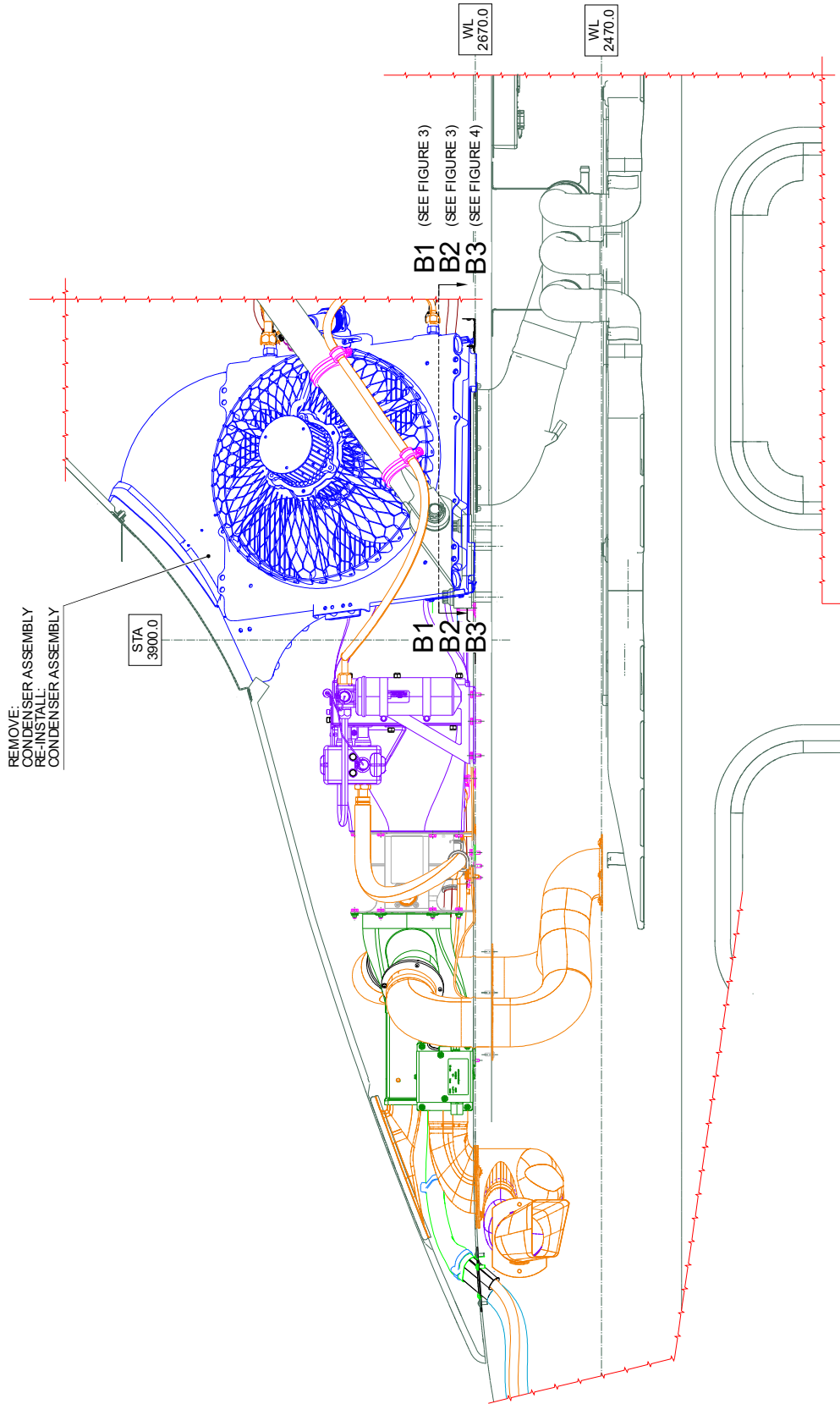
AWPC.Engineering.Support@leonardocompany.us



UPPER DECK
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE

Figure 1

S.B. N°139-779 OPTIONAL
DATE: June 7, 2024
REVISION: /



VIEW A
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE
(REFER TO FIGURE 1)

Figure 2

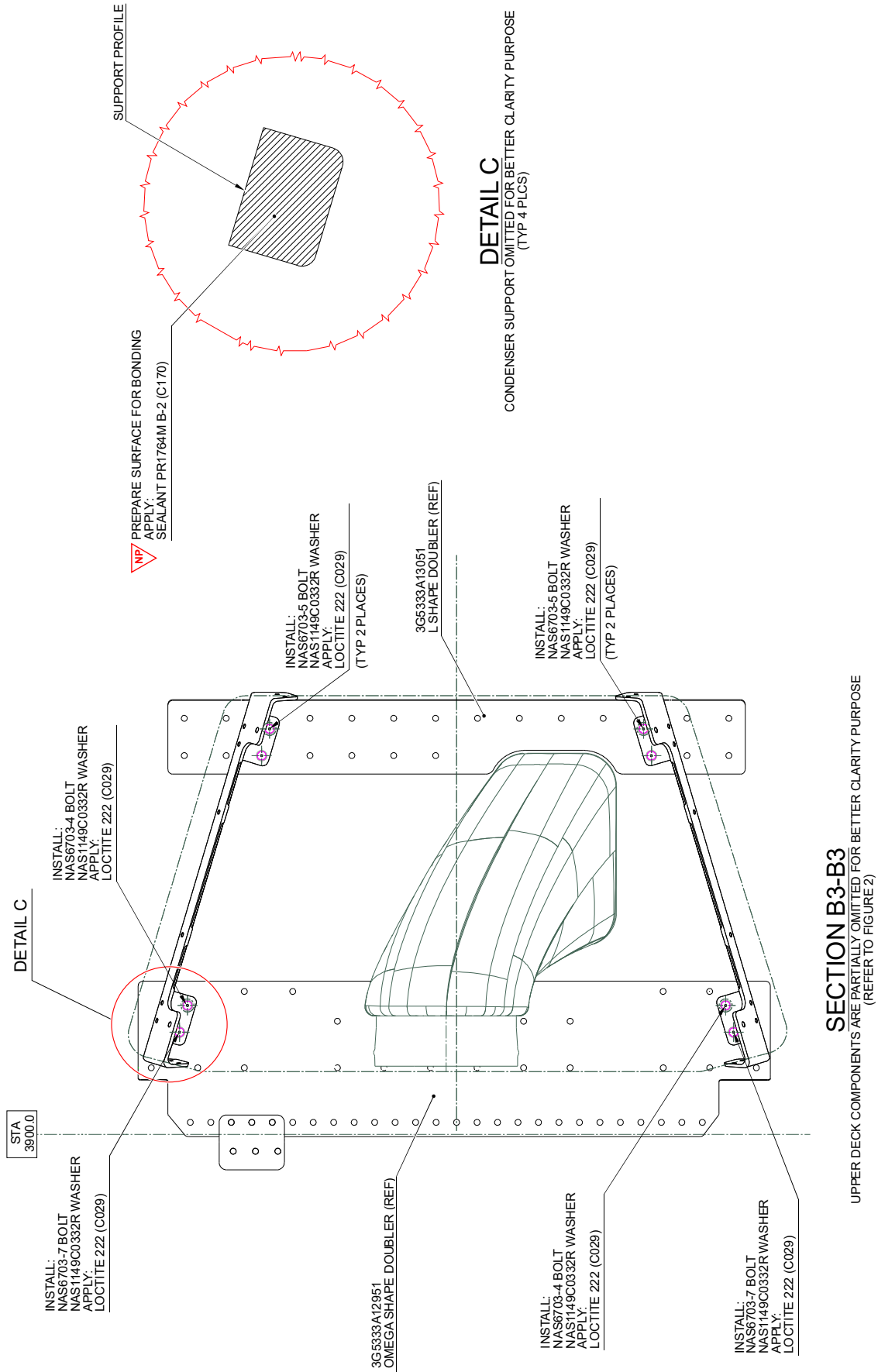


Figure 4

