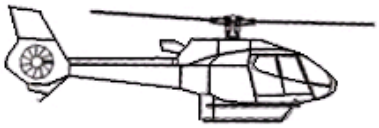
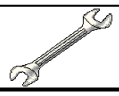


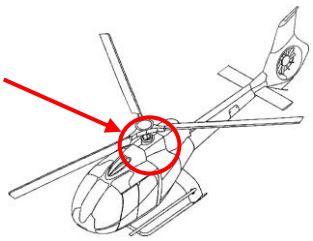
Civil version: T2

# ALERT SERVICE BULLETIN

**SUBJECT: MAIN ROTOR DRIVE - MGB / engine coupling**

**Increase of tightening torque of the MGB/engine coupling**
Corresponds to modification 079804

| For the attention of |
|---|
|  |



| Revision No. | Date of issue |
|---|---|
| Revision 0 | 2016-06-07 |
| Revision 1 | 2017-04-25 |

**Summary:**

The purpose of this ALERT SERVICE BULLETIN is to increase the tightening torque value of the flexible coupling attachments on Main Gearbox (MGB) side and engine side.

**Reason for last Revision:**

The purpose of the last revision is to provide information on the compliance deadline of this ALERT SERVICE BULLETIN and on the flange identification.

**Compliance:**

Airbus Helicopters considers that compliance with instructions of this ALERT SERVICE BULLETIN is essential.

Revision 1 does not supersede compliance with Revision 0 of this Service Bulletin.

# 1. PLANNING INFORMATION

## 1.A. EFFECTIVITY

### 1.A.1. Helicopters/installed equipment or parts

Helicopters PRE MOD 079804.

***NOTE***

*Refer to the aircraft individual inspection record (or RIC AMS) to identify the actual modification status of the aircraft.*

### 1.A.2. Non-installed equipment or parts

- Engine flange assembly P/N 350A35-1081-02 and 350A35-1081-03.

## 1.B. ASSOCIATED REQUIREMENTS

Not applicable.

## 1.C. REASON

Revision 0:

On EC130 T2 helicopters, during maintenance inspections, cases of loss of tightening torques for the MGB intake shaft flexible coupling attachment screws were observed.

The purpose of this ALERT SERVICE BULLETIN Revision 0 was to increase the tightening torque value of the flexible coupling attachments on Main Gearbox (MGB) side and engine side through modification 079804.

Although the aircraft safety level is compliant with the airworthiness regulations, the publication of this ALERT SERVICE BULLETIN guarantees the improvement of Airbus Helicopters safety standards on the EC130 T2 whose engine power is higher than all other single engine Ecureuil family versions.

In a view to harmonizing maintenance operations, this new tightening torque had been extended to all other single engine Ecureuil family versions through recommended Service Bulletins.

Revision 1:

The purpose of the last revision is to provide information on the compliance deadline of this ALERT SERVICE BULLETIN and on the flange identification.

Revision 1 does not supersede compliance with Revision 0 of this Service Bulletin.

## 1.D. DESCRIPTION

This ALERT SERVICE BULLETIN consists in:
- removing MGB/engine coupling.
- replacing lower castellated nuts with higher elliptic castellated nuts in order to increase the number of engaged threads,
- replacing the screws with longer screws for compatibility with elliptic castellated nuts,
- increasing the tightening torque of flexible coupling attachment screws,
- modifying the identification of the engine flange assembly,
- modifying the identification of the MGB/engine coupling assembly.

## 1.E. COMPLIANCE

Revision 1 does not supersede compliance with Revision 0 of this Service Bulletin.

### 1.E.1. Compliance at H/C manufacturer level

Not applicable.

### 1.E.2. Compliance in service

The works must be performed on helicopter by the Operator.

Helicopters/installed equipment or parts:

Comply with paragraph 3. (except for paragraph 3.B.4.) of this ALERT SERVICE BULLETIN at the latest within 660 flight hours since the issue of the revision 1 of this ALERT SERVICE BULLETIN in accordance with operational constraints.

Non-installed equipment or parts:

Comply with paragraph 3.B.4. on non-installed equipment listed in paragraph 1.A.2. at the latest within 2 years.

## 1.F. APPROVAL

Approval of modifications:

The information or instructions relate to modification 079804 which was approved on October 21, 2016 under the authority of EASA Design Organization Approval No. 21J.700 for helicopters of civil versions subject to an Airworthiness Certificate.


Approval of this document:

The technical information contained in this ALERT SERVICE BULLETIN Revision 0 was approved on June 03, 2016 under the authority of EASA Design Organization Approval No.21 J.056 for helicopters of civil versions subject to an Airworthiness Certificate.

The technical information contained in this ALERT SERVICE BULLETIN Revision 1 was approved on April 24, 2017 under the authority of EASA Design Organization Approval No.21 J.700 for helicopters of civil versions subject to an Airworthiness Certificate.

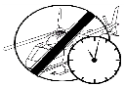
## 1.G. MANPOWER

For compliance with this ALERT SERVICE BULLETIN, Airbus Helicopters recommends the following personnel qualification:

Qualification: 1 Mechanical Technician

Time for the operations is indicated for reference, for a standard configuration.

Time for the operations: approximately 6 hours for Mechanical Technician



The estimated helicopter downtime is approximately 1 day.

## 1.H. WEIGHT AND BALANCE

Not applicable.

## 1.I. POWER CONSUMPTION

Not applicable.

## 1.J. SOFTWARE UPGRADES/UPDATES

Not applicable.

## 1 K. REFERENCES

The following documents are necessary for compliance with this ALERT SERVICE BULLETIN:

AMM : 21-51-02, 4-1 : Removal / Installation - Air Conditioning System Compressor
AMM : 29-11-01, 4-1 : Removal / Installation - Belt-driven Hydraulic Pump
AMM : 53-51-00, 4-1 : Removal / Installation - Upper Cowlings
AMM : 60-00-00, 3-1 : General Safety Instructions - Mechanical Assemblies
AMM : 63-11-00, 4-1 : Removal - MGB / Engine Coupling
AMM : 63-11-00, 4-2 : Installation - MGB / Engine Coupling
AMM : 63-11-00, 5-1 : Adjustment - Tension of the Hydraulic Pump Drive Belt POST MOD 079566 and POST MOD 079568

FLM SECTION 2

MTC: 20.02.05.404: Joining by bolts and nuts
MTC: 20.02.06.401: Safetying plain pins
MTC: 20.02.06.404: Safetying with cotter pins
MTC: 20.02.11.601: Inspection of flexible couplings
MTC: 20.04.01.102: Use of cleaning products on individual parts and on aircraft
MTC: 20.04.05.402: Application of EPOXY primer P05 and P20
MTC: 20.04.05.422: Application of Polyurethane finish paint (1500-M)
MTC: 20.05.01.222: Application of PR 1771 B2 sealant
MTC: 20.08.05.103: Monitoring of parts in operation - marking - service life customization.

## 1.L. OTHER AFFECTED PUBLICATIONS

The modification will be integrated into the following manuals: IPC, AMM, ALS.

The impacted documents shall be updated during a future revision.

## 1.M. PART INTERCHANGEABILITY OR MIXABILITY

Interchangeability:

PRE MOD and POST MOD parts are not interchangeable.

Mixability:

Mixability of PRE MOD and POST MOD parts is prohibited.

## 2. EQUIPMENT OR PARTS INFORMATION

### 2.A. MATERIAL: PRICE - AVAILABILITY - PROCUREMENT

Operations and/or components will be delivered free of charge by Airbus Helicopters Light Helicopters Program Department.

Airbus Helicopters
Etablissement de Marignane
Direction Ventes et Relations Client
13725 MARIGNANE CEDEX
FRANCE

***NOTE 1***

*On the purchase order, please always specify the mode of transport, the destination and the serial numbers of the helicopters to be modified.*

***NOTE 2***

*For ALERT SERVICE BULLETINS, order by:*
*Telex: HELICOP 410 969F*
*Fax: +33 (0)4.42.85.99.96.*

### 2.B. LOGISTIC INFORMATION

Not applicable.

### 2.C. EQUIPMENT OR PARTS REQUIRED PER HELICOPTER/COMPONENT

Kits to be ordered for one helicopter or one assembly:

| Designation | Qty | New P/N | Item | Former P/N | Instruction |
|---|---|---|---|---|---|
| **MGB/engine coupling kit including:** | **1** | **350A07-9804-0071** | | | |
| Screw, special | 12 | 350A32-1060-50 | 1 | 350A32-1060-38 or 350A32-1060-25 | Scrap |
| Nut | 12 | ECS2271BH080N | 2 | ASNA0044BC080L | Scrap |
| Pin | 12 | 23310CA015020 | 3 | | |
| Nut | 12 | ASN52320BH060N | 4 | | |
| Nut | 10 | ASN52320BH070N | 5 | | |
| Clamp, binding | 4 | E0043-7B5 | 6 | | |
| Pin | 2 | EN2367-18020 | 7 | | |

Consumables to be ordered separately:

As per Work Cards and Tasks mentioned in this ALERT SERVICE BULLETIN and list below:

| Designation | Qty | Product P/N | CM | Item |
|---|---|---|---|---|
| Grease | AR | NATO G 355 | CM 116 | 10 |
| Corrosion preventive compound | AR | ECS 7009 | CM 518 | 11 |
| Primer | AR | DHS186-111-40 | CM 488 | 12 |
| Polyurethane paint, grey | AR | ECS2018.30-2640 | CM 4127 | 13 |
| Sealant | AR | PR1771B2 | CM 6068 | 14 |
| Sealing compound | AR | ECS2068.10 | CM 6240 | 15 |

The products can be ordered separately, from the KLX AEROSPACE SOLUTIONS company.
Website: https://www.klxaerospace.com/klxaero/
Telephone: +1.305.925.2600
AOG: +1.305.471.8888

Specific tooling:

| Designation | Qty | Tooling P/N or equivalent | Item |
|---|---|---|---|
| ARRIEL engine support | 1 | 350A93-5400-00 | zz |

## 2.D. EQUIPMENT OR PARTS TO BE RETURNED

Not applicable.

# 3. ACCOMPLISHMENT INSTRUCTIONS

## 3.A. GENERAL

- Read and comply with general mechanical instructions as per AMM Task 60-00-00, 3-1.
- Unless otherwise mentioned, comply with instructions for joining by bolts and nuts as per MTC Work Card 20.02.05.404.
- Read and comply with instructions concerning safetying of plain pins as per MTC Work Card 20.02.06.401.
- Read and comply with instructions on safetying with cotter pins as per MTC Work Card 20.02.06.404.
- Read and comply with instructions for use of cleaning products on individual parts and on aircraft as per MTC Work Card 20.04.01.102.
- Read and comply with instructions for use of EPOXY primer P05-P20 procedure as per MTC Work Card 20.04.05.402.
- Read and comply with instructions for use of Polyurethane SATINE finish paint (1500-M) as per MTC Work Card 20.04.05.422.
- Read and comply with instructions for use of PR 1771 B2 sealant as per MTC Work Card 20.05.01.222.

## 3.B. WORK STEPS

### 3.B.1. Preliminary steps

- Install suitable access means.
- Remove MGB and engine cowlings as per AMM Task 53-51-00, 4-1.
- Remove and/or open all cowlings, panels, doors and all equipment to allow adequate access to the various work areas.

### 3.B.2. Procedure

3.B.2.a. Removal of the MGB/engine coupling (Figure 1)

- Remove the MGB/engine coupling as per AMM Task 63-11-00, 4-1.

***NOTE 1***

*It is not necessary to remove:*
- *flexible coupling (a) from MGB drive shaft (d),*
- *flexible coupling (b) from engine flange (c),*
- *hydraulic pump drive pulley (e) from MGB input flange,*
- *gimbal ring (u) from MGB junction casing (t),*
- *engine casing fire plate.*

- Scrap the following removed components:
  . screws (f),
  . nuts (g), (h) and (j),
  . pins (k),
  . binding clamps (m).
- Clean removed components.

3.B.2.b. Modification of the MGB/engine coupling

**CAUTION**

**SCREWS (f) HEAD (PRE MOD 079804) IS PAINTED. IN ORDER TO VISUALLY AND CLEARLY INDICATE COMPLIANCE WITH MODIFICATION 079804, SCREWS (1) HEAD (POST MOD 079804) IS NOT PAINTED.**

3.B.2.b.1. Attachment of flexible coupling to engine flange (Figure 1)

- Remove and scrap one of the three screws (f) as well as its nut (g) and its pin (k).

***NOTE 2***

*Mark the order of washers (o), (p), (q) and (r) located on either side of flexible coupling (b) (DETAIL B).*

- Install one screw (1), washers (o), (p), (q), (r) and one nut (2) by respecting the order of the washers previously recorded.
- Repeat the operation for the other two attachment screws.
- Tighten nuts (2) to indicated torque.
- Make sure that dimension "C" between the two rounded washers (p) is 9 mm ± 0,2 mm (.347 in.; .362 in.) (DETAIL C).
- Remove if necessary, the assembly to add or remove one or several flexible coupling disk(s) to obtain dimension "C" and tighten again nuts (2) to indicated torque.
- Lock the three nuts (2) with pins (3).
- Modify the identification of the MGB/engine coupling assembly (on MGB junction casing (t)) and engine flange (c) as per paragraph 3.C.

3.B.2.b.2. Attachment of the flexible coupling to the drive shaft on MGB side (Figure 1)

- Remove and scrap one of the three screws (f) as well as its nut (g) and its pin (k).
- Install one screw (1), washer (s), and one nut (2).
- Repeat the operation for the other two attachment screws.
- Tighten nuts (2) to indicated torque.
- Lock the three nuts (2) with pins (3).

3.B.2.c. Installation of the MGB/engine coupling assembly (Figure 1 and Figure 2)

- Install engine junction casing (n) into MGB junction casing (t) (Figure 1).
- Introduce MGB drive shaft assembly (d) in the junction casing assembly.
- Lubricate the splines of engine flange (c) with grease (10).
- Install engine flange assembly (c) on engine shaft and push it fully backwards.
- Install hydraulic pump drive belt (ab) and, if necessary, optional drive belt (ae) on hydraulic pump drive pulley (e) which is always on MGB (aw) (Figure 2).
- Install MGB drive shaft assembly (d) and engine junction casing assembly (n) / engine junction casing (t) complete with gimbal ring (u) between the engine and MGB.

3.B.2.c. Installation of the MGB/engine coupling assembly (Continued)

- Connect flexible coupling (b) to MGB drive shaft (d):
  . Move engine flange (c) forward complete with flexible coupling (b) so that the latter touches MGB drive shaft (d).
  . Install the three screws (1) with washers (o), (p), (q), (r) and nuts (2).

***NOTE 3***

*The order and position of washers are identical to the order and position of washers used during compliance with paragraph 3.B.2.b.1.*

  . Tighten nuts (2) to indicated torque.
  . Lock the three nuts (2) with pins (3).
- Push engine junction casing (n) against the engine and attach it with screws (v), washers (w) and nuts (5).
- Tighten nuts (5) to the tightening torque specified in AMM Task 63-11-00, 4-2.
- Connect flexible coupling (a) to hydraulic pump drive pulley (e):
  . Install three screws (1), washers (s) and nuts (2).
  . Tighten nuts (2) to indicated torque.
  . Lock the three nuts (2) with pins (3).
- Make MGB junction casing (t) slide frontwards, complete with gimbal ring (u) and introduce hydraulic pump drive belt (ab) and, if necessary, optional drive belt (ae) in the windows of MGB connection casing (t) (Figure 2).
- Coat the face in contact with MGB junction casing (t) with corrosion preventive compound (11) (Figure 1).
- Push MGB junction casing (t) against MGB (aw) and attach it with screws (x), washers (y), (z) and nuts (4).
- Tighten nuts (4) to the tightening torque specified in AMM Task 63-11-00, 4-2.

**CAUTION**

**ONLY USE NEW AND APPROVED SERVICE OIL (FLM SECTION 2).**

- Install gimbal pins (ac) which secure gimbal ring (u) onto engine junction casing (n):
  . Lubricate gimbal pins (ac), rings of engine junction casing (n) and gimbal ring (u) with oil.
  . Correctly position gimbal ring (u) with respect to engine junction casing (n).
  . Fit gimbal pins (ac) into gimbal rings (u) and engine junction casing (n).
  . Put safety pins (ad) on gimbal pins (ac) and connect them with binding clamps (6) as per DETAIL A.

***NOTE 4***

*Put safety pins (ad) with the closing system directed downwards.*

3.B.2.d. Installation of equipment items on MGB/engine coupling assembly (Figure 1 and Figure 2)

- Install hydraulic pump drive support (af) (DETAIL D - Figure 2):

***NOTE 5***

*Visually check through the window of MGB junction casing (t) that belt teeth (ab) are correctly positioned in their grooves on drive pulley (e).*

. Position hydraulic pump drive support (af) on MGB junction casing (t).

**CAUTION**

**MAKE SURE THAT TENSIONER YOKE (ag) IS POSITIONED ON SUPPORT (af) FACE ON HYDRAULIC PUMP ASSEMBLY (ah) SIDE (DETAIL G).**

. Install screw (aj), washer (ak) and screw (am), washers (an) and (ao).
. Install nuts (ap) without tightening them.
. Install hydraulic pump drive belt (ab) on driven pulley (aq).
. Carry out tension adjustment of hydraulic pump drive belt (ab) as per AMM Task 63-11-00, 5-1.
. After tension adjustment of the hydraulic pump drive belt:
  - Tighten nuts (ap) to indicated torque.
  - Lock nuts (ap) with pins (7).
  - Make sure that the torque tightening and locking with a pin is performed on nut (ar).
  - Check torque tightening of nut (as) and locking with lockwire on nuts (as) and (at).
. Install, if necessary, hydraulic pump (ah) on support (af) as per AMM Task 29-11-01, 4-1.

- Install air conditioning compressor, if necessary:
  . Install air conditioning compressor (au) as per AMM Task 21-51-02, 4-1.
  . Install drive belt (ae) on air conditioning compressor as per AMM Task 21-51-02, 4-1.
- Apply a layer of sealing compound (15) on screw (x) heads / washers (y) and (z) / nuts (4) that attach MGB junction casing (t) / MGB (aw) (Figure 1).
- Apply a layer of sealant (14) around the mating face of MGB junction casing (t) / MGB (aw).
- Touch-up primer (12) and grey polyurethane paint (13).
- Install both half-plates (av) of the firewall.
- Remove ARRIEL engine support (zz).

**3.B.3. Final steps**

- Install and/or close all cowlings, panels, doors and all equipment to allow adequate access to the various work areas.
- Install MGB and engine cowlings as per AMM Task 53-51-00, 4-1.
- Remove the access means.

**3.B.4. Work steps for non-installed equipment or parts**

- Comply with paragraph 3.B.2.b.1. on engine flanges assembly P/N 350A35-1081-02 and 350A35-1081-03 in stock.

## 3.C. COMPLIANCE CONFIRMATION

Compliance with instructions of this document:

Record compliance with this ALERT SERVICE BULLETIN with the Revision number in the aircraft documents.

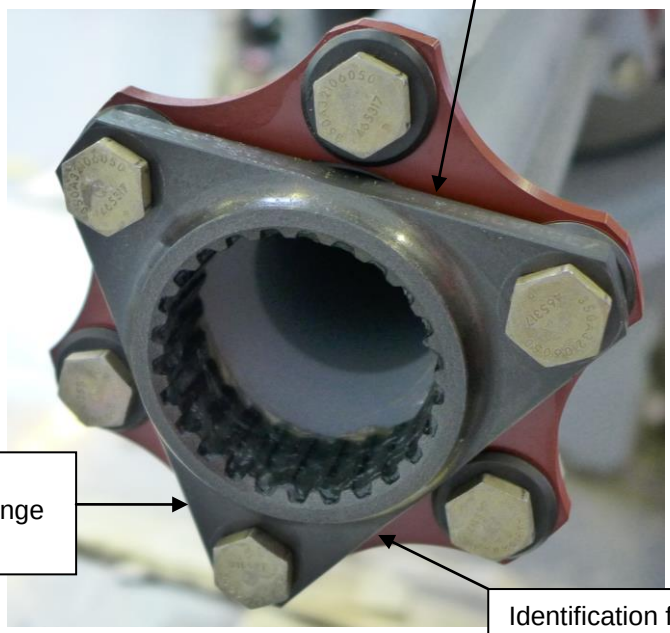
Tracking of modifications in the documentation:

Record compliance with modification 079804 in the aircraft documents.

Identification of modifications on equipment or parts:

Identify parts / assemblies as per table below and/or MTC 20.08.05.103:

| Designation | Former P/N | New P/N | MOD | Type of marking |
|---|---|---|---|---|
| **MGB/engine coupling assembly** | **350A35-0204-00** | **350A35-0204-01** | **079804** | **Vibroetching** |
| **Engine flange assembly** | **350A35-1081-02** | **350A35-1081-04** | **079804** | **Vibroetching** |
| **Engine flange assembly** | **350A35-1081-03** | **350A35-1081-05** | **079804** | **Vibroetching** |



## 3.D. OPERATING AND MAINTENANCE INSTRUCTIONS

Operating instructions:

Not applicable.

Maintenance instructions:

The Aircraft Maintenance Manual (MMA) and the Airworthiness Limitations Section (ALS) of the Maintenance Program (MSM) will include modification 079804 in a further revision.
After compliance with this ALERT SERVICE BULLETIN, and pending this update, use the tightening torque indicated on Figure 1 on the nuts attaching the flexible couplings.
Once these instructions are included in the Aircraft Maintenance Manual (AMM) and in the Airworthiness Limitations Section (ALS) of the Maintenance Program (MSM), refer to them.

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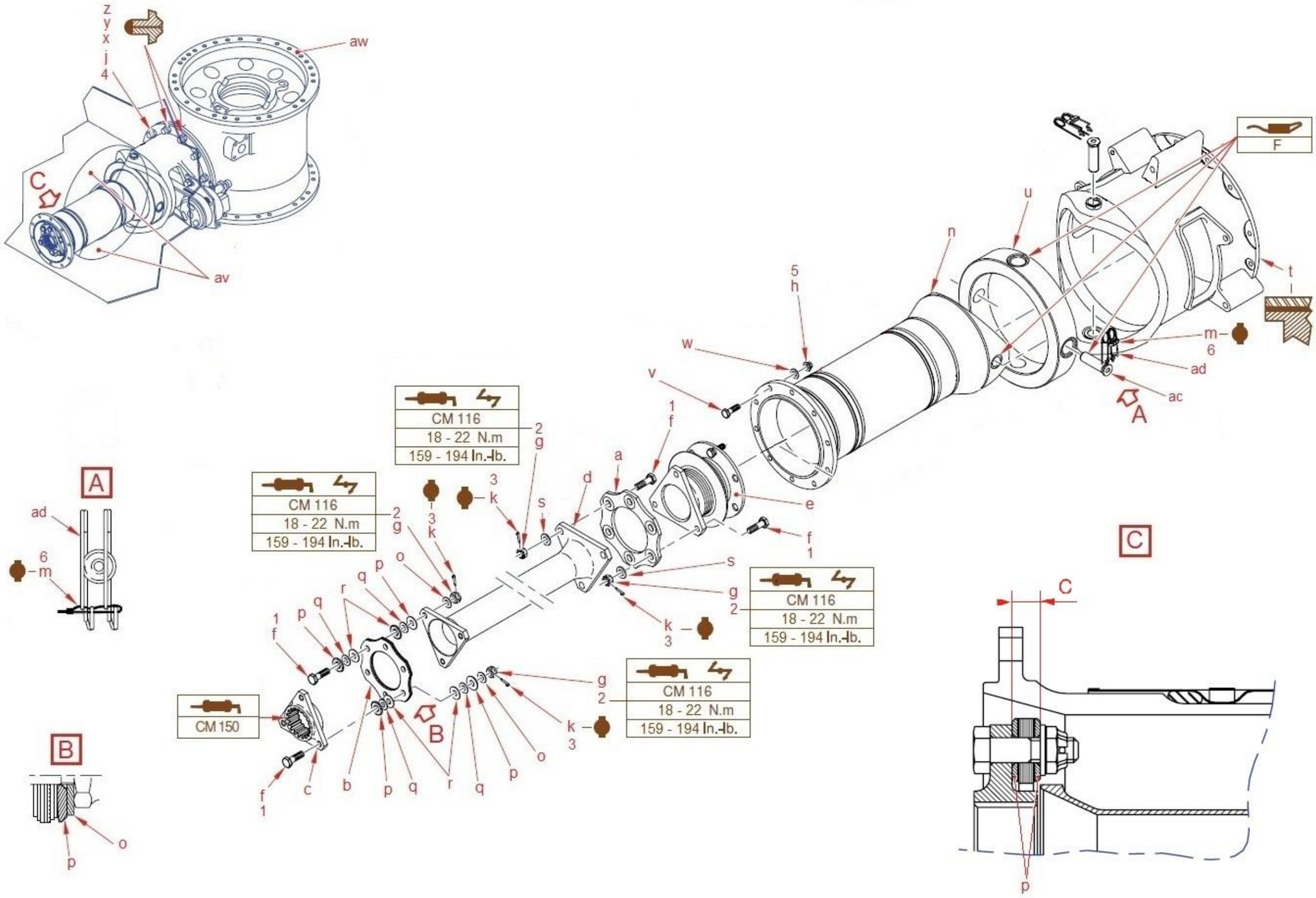
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Figure 1

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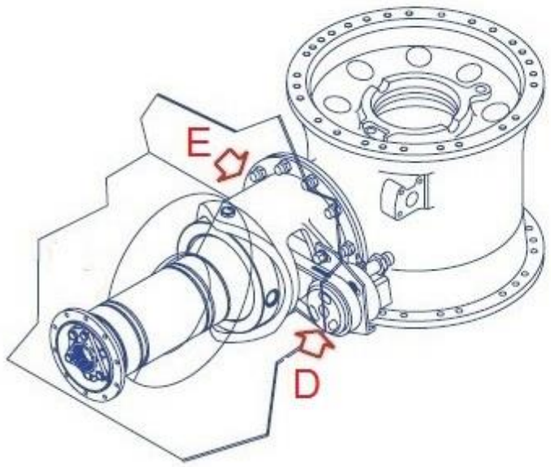
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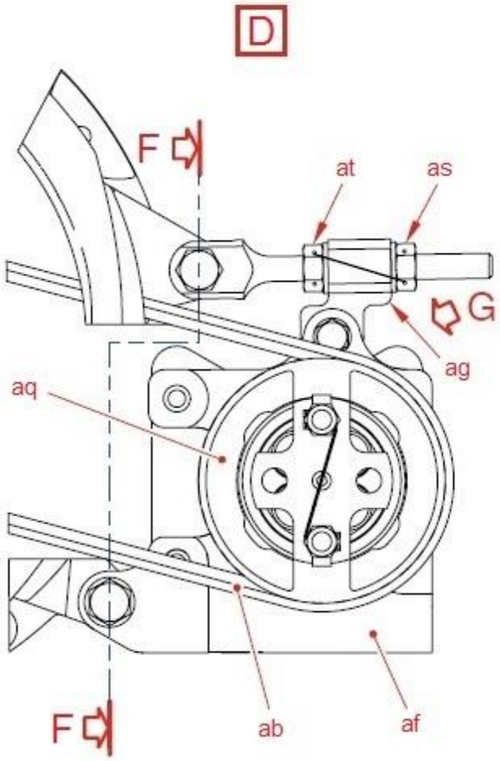
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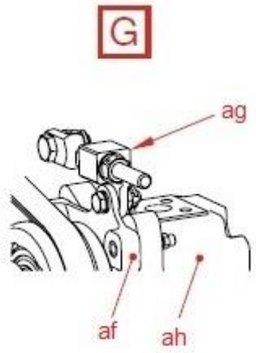
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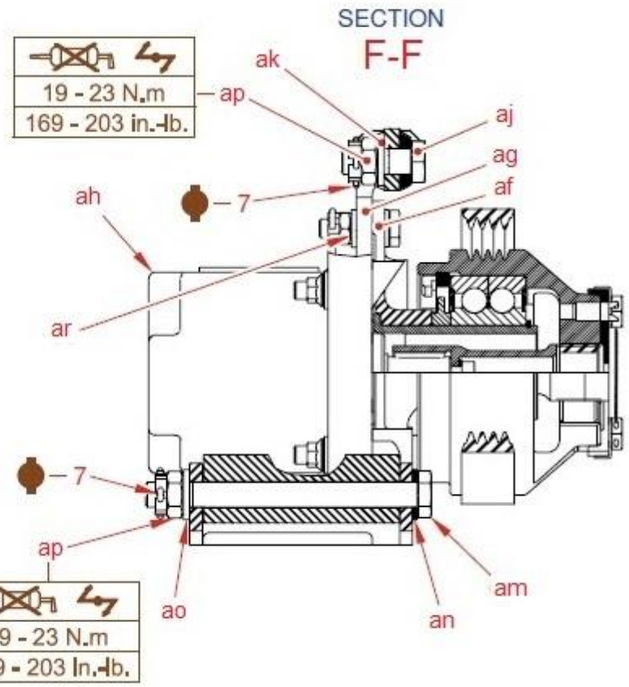
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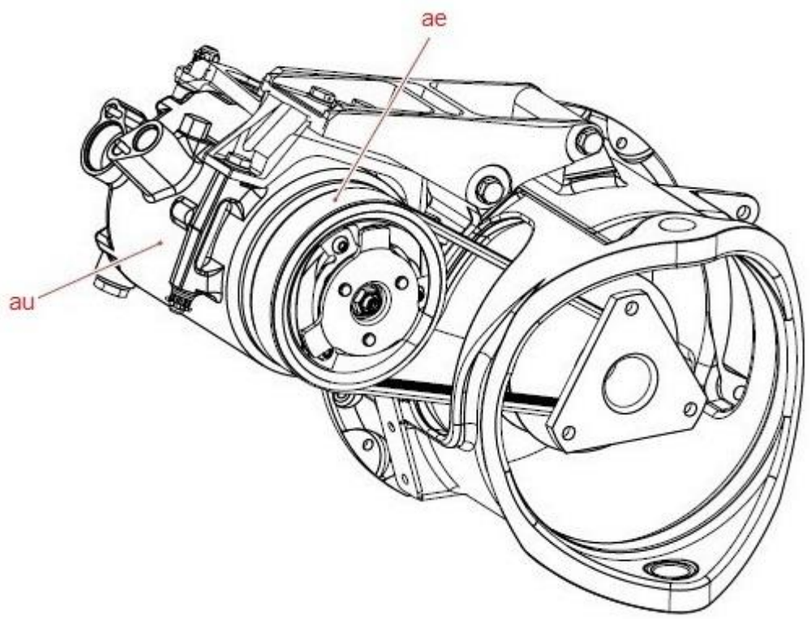
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Figure 2