

Temporary Maintenance Instruction TMI 139-568

**Tail rotor blade assembly-
Install/Remove procedure.**

All AW139 Helicopters

The technical content of this document is approved under the authority of DOA nr. EASA.21J.005.

The present TMI will be evaluated for its introduction in the standard set of Technical Publication.

If no further notice is received, the present document expires on: July 5th 2024.

2023-07-05

Introduction

This TMI provides the instructions and requirements to perform the Tail rotor blade assembly- Install/Remove procedure.

Following procedures contained in this TMI updates and supersedes the contents of the relative Data Modules inside IETP:

ANNEX	DATA MODULE CODE	DATA MODULE TITLE
Annex 1	39-C-64-11-01-00A-520A-A	Tail rotor blade assembly - Remove procedure
Annex 2	39-C-64-11-01-00A-720A-A	Tail rotor blade assembly - Install procedure

The content of this TMI will be endorsed within the applicable Maintenance Manual at the earliest opportunity.

ANNEX 1
Tail rotor blade assembly - Remove procedure

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References

Table 1 References

Data Module	Title
39-A-00-20-00-00A-120A-A	Helicopter safety - Pre-operation (make helicopter safe for maintenance)
39-A-00-60-00-00A-010A-A	Critical parts - General data
39-C-64-11-01-00A-720A-A (See Annex 2 of this TMI)	Tail rotor blade assembly - Install procedure
39-C-64-11-04-00A-520A-A	Blade bolt assembly - Remove procedure
39-C-64-21-02-00A-520A-A	Lag damper - Remove procedure

Table 2 Access points

Access Panel / Door Id	Data Module
No Access Point	

Table 3 Zones

Access Panel / Door Id	Data Module
No Zones	

Preliminary Requirements

Required Conditions

Table 4 Required Conditions

Conditions	Data Module/Technical Publication
The helicopter must be safe for maintenance	39-A-00-20-00-00A-120A-A

Support Equipment

Table 5 Support Equipment

Nomenclature	Identification No.	Qty
Platform, right	GG-02-00	1
Support rack, MR and TR blade	HE-09-00	1

Supplies

Table 6 Supplies

Nomenclature	Identification No.	Qty
Lint-free cloth	C011	AR
Cleaning solvent	C010	AR

Spares

Table 7 Spares

Nomenclature
No Spares

Safety Conditions

WARNINGS

- Be careful when you remove the tail rotor blade. The tail rotor blade is heavy. An incorrect movement can cause an injury to persons and/or damage to the equipment.
- The [Cleaning solvent \(C010\)](#) is a dangerous material. Before you do this procedure, make sure that you know all the safety precautions and first aid instructions for the solvent.

CAUTION

This component is a critical part. Be careful when you do work on the component after removal from the helicopter. A damage to the component can occur if you are not careful. Refer to [39-A-00-60-00-00A-010A-A](#).

Procedure

- 1 Put the [Platform, right \(GG-02-00\)](#) adjacent to the right side of the tail rotor.

WARNING

Be careful when you turn the rotors. Make sure that the rotors are clear. An injury to persons and/or damage to the equipment can occur.

CAUTION

Do not push or pull the tail rotor blades to turn the tail rotor. It is easy to cause damage to the tail rotor blades if you push or pull them. Turn the tail rotor driveshaft or the main rotor to put the tail rotor to the necessary position.

- 2 Carefully turn the tail rotor driveshaft until the tail rotor blade (8, [Figure 1](#)) that you will remove is in the horizontal position.
- 3 Make sure that the tail rotor blade (8) and the hub arm (5) have the colored identification mark (6). If necessary, apply the new colored identification mark (6) before you remove the tail rotor blade (8). The identification mark on the hub arm (5) and that of the tail rotor blade (8) must be of the same color.
- 4 Remove the applicable lag damper to make the blade damper attachment (7) free. Refer to the data module [39-C-64-21-02-00A-520A-A](#).

Note

Record the installation direction of the bolt (9). This is to install it correctly during installation procedures.

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- 5 Remove these parts that attach the pitch link (12) to the pitch control arm (4):
- The cotter pin (1). Discard the cotter pin
 - The nut (2)
 - The washer (3)
 - The countersunk washer (10)
 - The bolt (9).
- 6 Remove the bumper washers (11) and (13) from the pitch control arm (4).
- 7 Keep the bumper washers (11) and (13), the washer (3), the countersunk washer (10) and the nut (2) with the related bolt (9).
- 8 Disconnect the pitch link (12) from the pitch control arm (4).
- 9 Remove the old corrosion inhibitor from these parts with the [Lint-free cloth \(C011\)](#) and the [Cleaning solvent \(C010\)](#) :
- The head of the two bolts (21) and the two countersunk washers (20)
 - The two cotter pins (16), the two nuts (15) and the two washers (14).
- 10 Remove these parts that attach the hub flap stop (22) and the elastomeric bearing (17) to the hub arm (5):
- The two cotter pins (16). Discard the cotter pins
 - The two nuts (15)
 - The two washers (14)
 - The two bolts (21)
 - The two countersunk washers (20).
- 11 Carefully remove the hub flap stop (22) and the shim (23) from the hub arm (5).
- 12 Do [step 9](#) thru [step 11](#) again to remove the remaining hub flap stop (18) and the shim (19) from the hub arm (5).

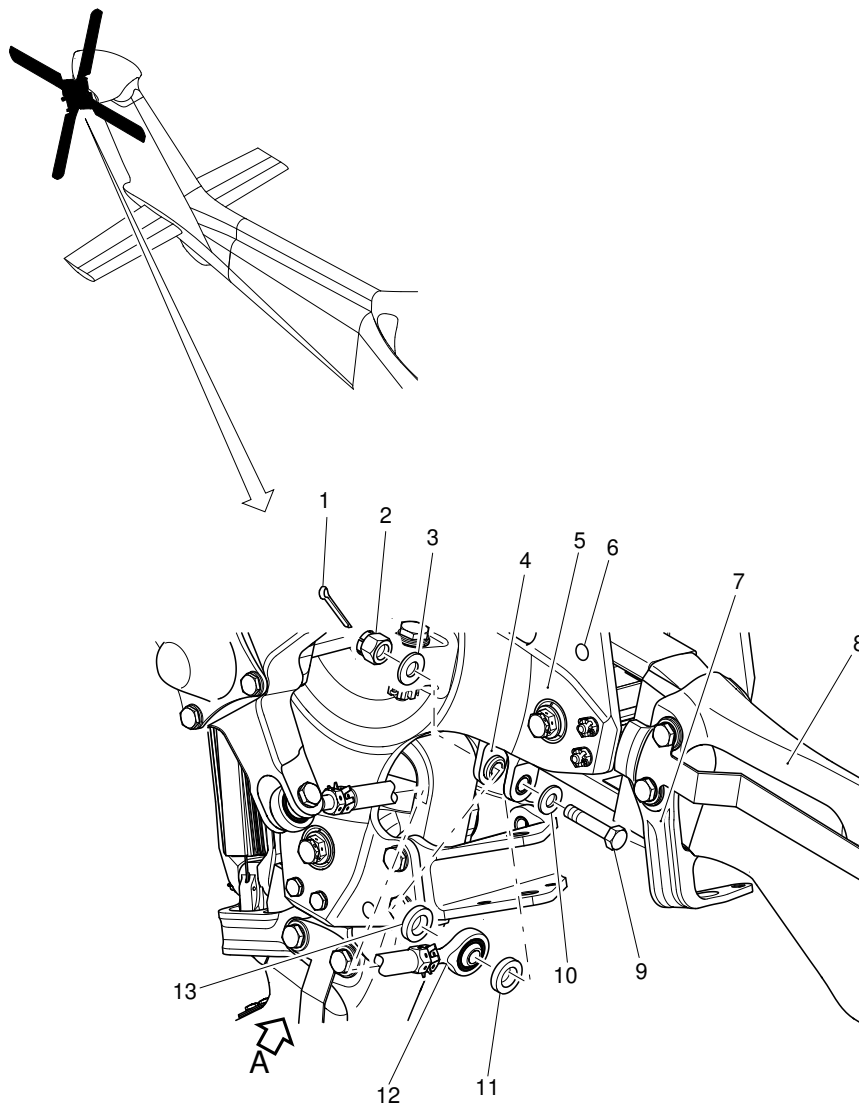
WARNING

The tail rotor blade (8) is heavy. Get a second person to help you remove the tail rotor blade from the hub arm (5).

- 13 Remove the blade bolt assembly (24) from the hub arm (5) and the elastomeric bearing (17). Refer to data module [39-C-64-11-04-00A-520A-A](#).
- 14 Carefully remove the tail rotor blade (8) from the hub arm (5).
- 15 Put the tail rotor blade (8) on the [Support rack, MR and TR blade \(HE-09-00\)](#) .

Requirements After Job Completion

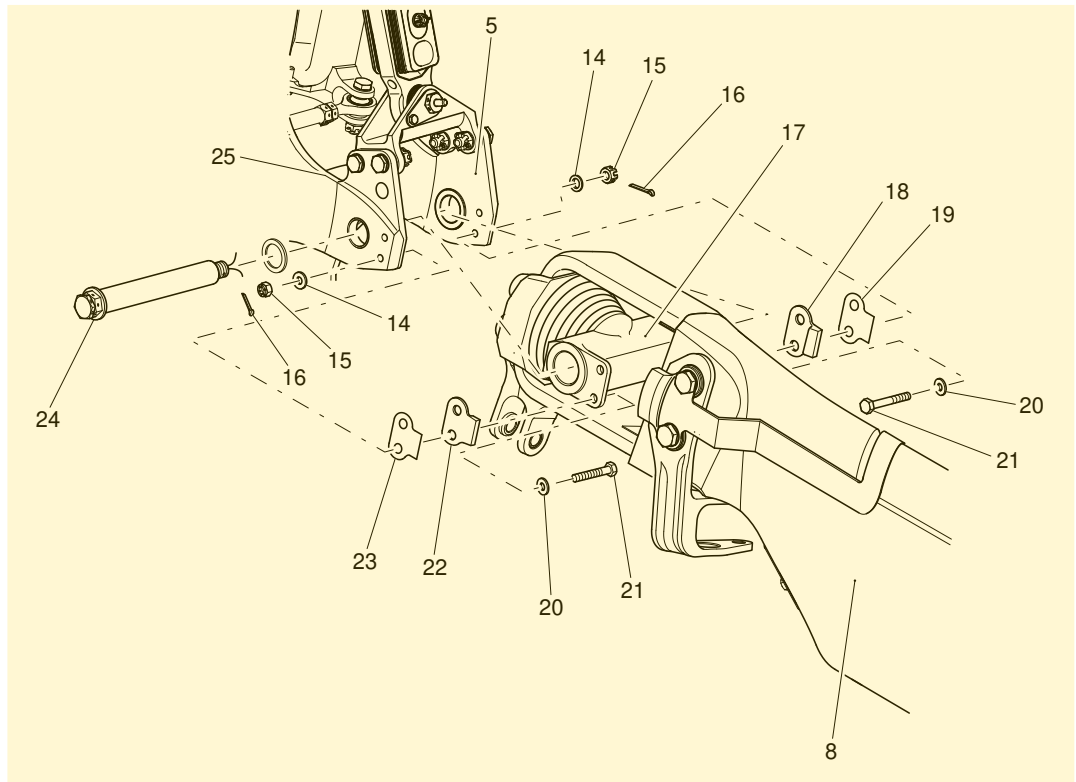
- 1 Install the tail rotor blade. Refer to [39-C-64-11-01-00A-720A-A](#) (See Annex 2 of this TMI)



ICN-39-C-641101-G-00001-13167-A-002-01

Figure 1 (Sheet 1 of 2) Tail rotor blade assembly - Remove procedure

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ICN-39-C-641101-G-00001-13168-A-002-01

Figure 1 (Sheet 2 of 2) Tail rotor blade assembly - Remove procedure

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End of Data Module

Tail rotor blade assembly - Install procedure

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References

Table 1 References

Data Module	Title
39-A-00-20-00-00A-120A-A	Helicopter safety - Pre-operation (make helicopter safe for maintenance)
39-A-00-60-00-00A-010A-A	Critical parts - General data
39-A-18-10-02-00A-37CA-A	Tail rotor - Blade track and balance check
39-C-64-11-04-00A-720A-A	Blade bolt assembly - Install procedure

Table 1 References

Data Module	Title
39-C-64-21-02-00A-720A-A	Lag damper - Install procedure

Table 2 Access points

Access Panel / Door Id	Data Module
No Access Point	

Table 3 Zones

Access Panel / Door Id	Data Module
No Zones	

Preliminary Requirements

Required Conditions

Table 4 Required Conditions

Conditions	Data Module/Technical Publication
The helicopter must be safe for maintenance	39-A-00-20-00-00A-120A-A

Support Equipment

Table 5 Support Equipment

Nomenclature	Identification No.	Qty
Platform, right	GG-02-00	1
Retractor tool, TR blade	GF-33-00	1
Feeler gage	ZZ-00-00	1

Supplies

Table 6 Supplies

Nomenclature	Identification No.	Qty
Lint-free cloth	C011	AR
Antiseize compound	C384	AR

Table 6 Supplies

Nomenclature	Identification No.	Qty
Corrosion inhibitor	C002	AR
Cleaning solvent	C010	AR

Spares

Table 7 Spares

Nomenclature	Identification No.	Qty
Tail rotor blade	64-11-00-04 -001	AR
Peeling shim	64-11-00-04 -030	2
Cotter pin	64-11-00-04 -029	4
Cotter pin	64-21-00-03 -007	1

Safety Conditions

WARNINGS

- **Be careful when you install the tail rotor blade. The tail rotor blade is heavy. An incorrect movement can cause an injury to persons and/or damage to the equipment.**
- **In this procedure, get a second person to help you to put the tail rotor blade in position on the hub arm.**
- **This installation includes Vital Points (VP). During the procedure, you must obey the Local Regulations applicable to the Vital Points.**
- **The materials that follow are dangerous. Before you do this procedure, make sure that you know all the safety precautions and first aid instructions for these materials:**
 - **Antiseize compound (C384)**
 - **Corrosion inhibitor (C002)**
 - **Cleaning solvent (C010) .**

CAUTION

This component is a critical part. Examine the component for signs of structural damage before you install it on the helicopter. Refer to [39-A-00-60-00-00A-010A-A](#).

Procedure

- 1 Put the [Platform, right \(GG-02-00\)](#) adjacent to the right side of the tail rotor.

WARNING

The tail rotor blade (8, [Figure 1](#)) is heavy. Get a second person to help you install the tail rotor blade to the hub arm (5).

Note

The identification mark on the hub arm (5) and that of the tail rotor blade (8) must be of the same color.

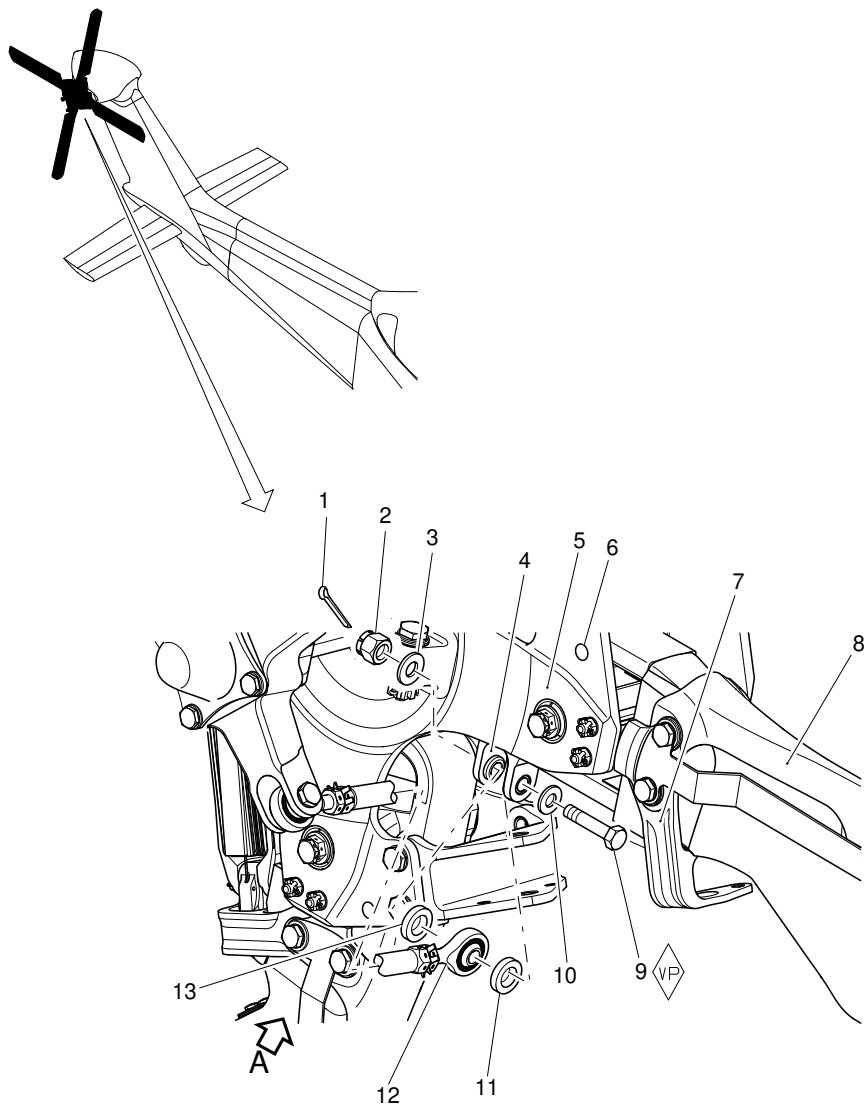
- 2 Put the tail rotor blade (8) (refer to view A) in its position on the hub arm (5).
- 3 Align the holes of the elastomeric bearing (17) with the bushing holes on the hub arm (5). If necessary, use the [Retractor tool, TR blade \(GF-33-00\)](#) .
- 4 Install the blade bolt assembly (24) on the tail rotor blade (8). Refer to data module [39-C-64-11-04-00A-720A-A](#). ([VP](#))
- 5 Do a check for the correct thickness of the peeling shims (23) and then (19) (refer to Section B-B):
 - 5.1 Measure the clearance (Dimension Y) between the surfaces of the elastomeric bearing (17) and the hub arm (5). Use the [Feeler gage \(ZZ-00-00\)](#) .
 - 5.2 Measure and record the Dimension Z of the hub flap stop (22).
 - 5.3 Calculate the thickness of the peeling shim (23) as follows:
$$\text{Peeling shim thickness} = Y - Z.$$
 - 5.4 Measure the thickness of the peeling shim (23) that you must install. The peeling shim thickness must be the same of that calculated with the tolerance of +0.00 to -0.05 mm (+0.0000 to -0.0020 in). If necessary, adjust a new [Peeling shim \(64-11-00-04 -030\)](#) (23) to get the correct thickness.
 - 5.5 Find the clearance (Dimension Y1) between the surfaces of the elastomeric bearing (17) and the hub arm (5). Use the [Feeler gage \(ZZ-00-00\)](#) .
 - 5.6 Measure and record the Dimension Z1 of the hub flap stop (18).
 - 5.7 Calculate the thickness of the peeling shim (19) with this formula:
$$\text{Peeling shim thickness} = Y1 - Z1.$$
 - 5.8 Measure the thickness of the peeling shim (19) that you must install. The peeling shim thickness must be the same of that calculated with the tolerance of +0.00 to -0.05 mm (+0.0000 to -0.0020 in). If necessary, adjust a new [Peeling shim \(64-11-00-04 -030\)](#) (19) to get the correct thickness.
- 6 Clean the mating area between the hub arm (5) and the hub flap stop (22) with the [Lint-free cloth \(C011\)](#) and the [Cleaning solvent \(C010\)](#) .
- 7 Put the hub flap stop (22) and the peeling shim (23) of the correct thickness between the hub arm (5) and the elastomeric bearing (17).

- 8 Clean the thread of the two bolts ([21](#)) with the [Lint-free cloth \(C011\)](#) and the [Cleaning solvent \(C010\)](#) . ([VP](#))
- 9 Apply the [Antiseize compound \(C384\)](#) on the shank of the two bolts ([21](#)) ([VP](#)) .
- 10 Attach the hub flap stop (22) and the peeling shim (23) to the hub arm (5) and the elastomeric bearing ([17](#)) with these parts:
- The two countersunk washers ([20](#)) on the two bolts ([21](#)) . Make sure that the countersunk side of the washer is adjacent of the head of the bolts ([21](#)) . ([VP](#))
 - The two bolts ([21](#)) ([VP](#))
 - The two washers ([14](#)) ([VP](#))
 - The two nuts ([15](#)) ([VP](#)) .
- 11 Torque the two nuts ([15](#)) to 3.4 thru 4.5 N m (30 thru 40 lbf in) . ([VP](#))
- 12 Do [step 6](#) thru [step 11](#) again to install the hub flap stop ([18](#)) and the peeling shim (19) of the correct thickness on the hub arm (5).
- 13 Install the four new [Cotter pin \(64-11-00-04 -029\)](#) ([16](#)) . ([VP](#))
- 14 Connect the pitch link (12) to the pitch control arm (4). Obey the instructions that follow:
- 14.1 Clean the bolt ([9](#)) with the [Lint-free cloth \(C011\)](#) and the [Cleaning solvent \(C010\)](#) . ([VP](#))
- 14.2 Apply the [Antiseize compound \(C384\)](#) on the shank of the bolt ([9](#)) . ([VP](#))
- 14.3 Put the rod end of the pitch link (12) on the fork of the pitch control arm (4).
- 14.4 Put the two bumper washers (11) and (13) in their position between each side of the pitch link rod-end and the fork of the pitch change arm (4).
- Note**
Make sure that the installation direction of the bolt ([9](#)) agrees with the recorded one that you made during the removal. ([VP](#))
- 14.5 Attach the pitch link (12) to the pitch control arm (4) with these parts:
- The countersunk washer (10) on the bolt ([9](#)) . Make sure that the countersunk side of the washer (10) is adjacent to the head of the bolt ([9](#)) ([VP](#))
 - The bolt ([9](#)) ([VP](#))
 - The washer (3)
 - The nut (2).
- 14.6 Torque the nut (2) to 7.9 thru 10.2 N m (70 thru 90 lbf in).
- 14.7 Install the new [Cotter pin \(64-21-00-03 -007\)](#) (1).

- 15 Apply the [Corrosion inhibitor \(C002\)](#) to these parts:
- The head of the bolt ([9](#)) ([VP](#))
 - The cotter pin (1) and the nut (2)
 - The head of the four bolts ([21](#)) ([VP](#)).
- 16 Install the lag damper on the blade damper attachment (7). Refer to the data module [39-C-64-21-02-00A-720A-A](#).

Requirements After Job Completion

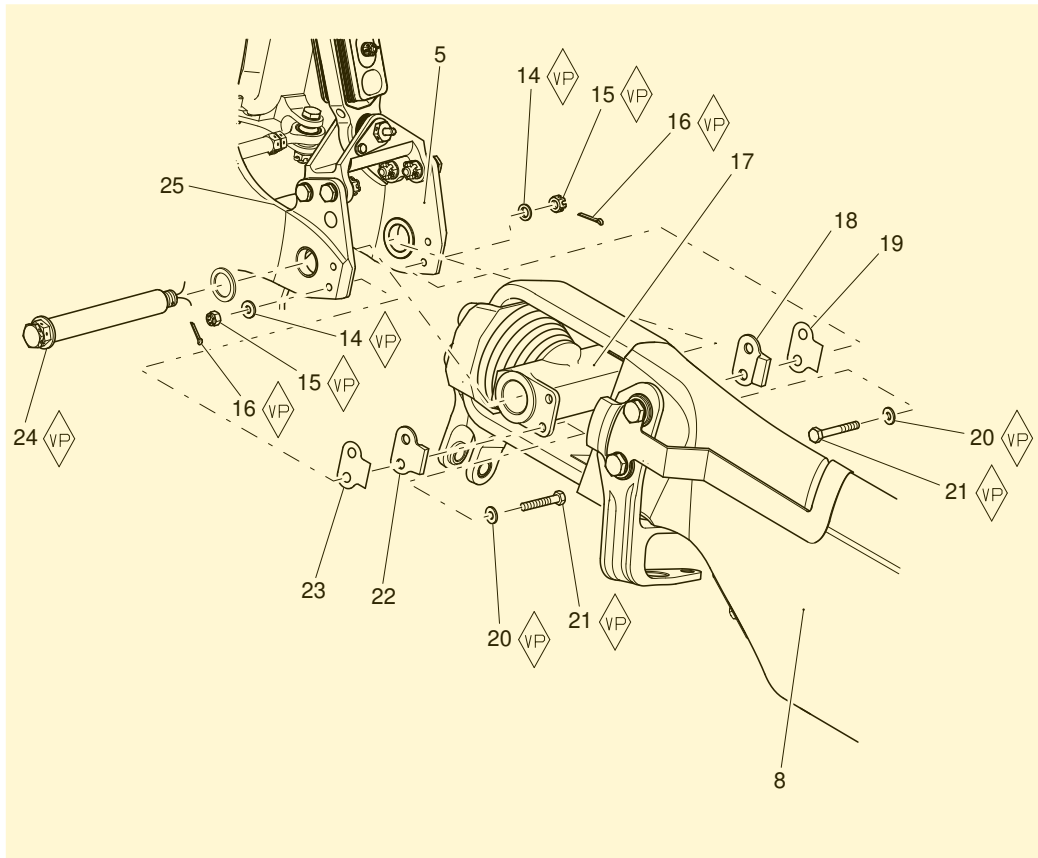
- 1 Remove all the tools and the other items from the work area. Make sure that the work area is clean.
- 2 If you did maintenance operations on the tail-rotor blade assembly (after the removal from the helicopter), do the blade track and balance check of the tail rotor. Refer to [39-A-18-10-02-00A-37CA-A](#)



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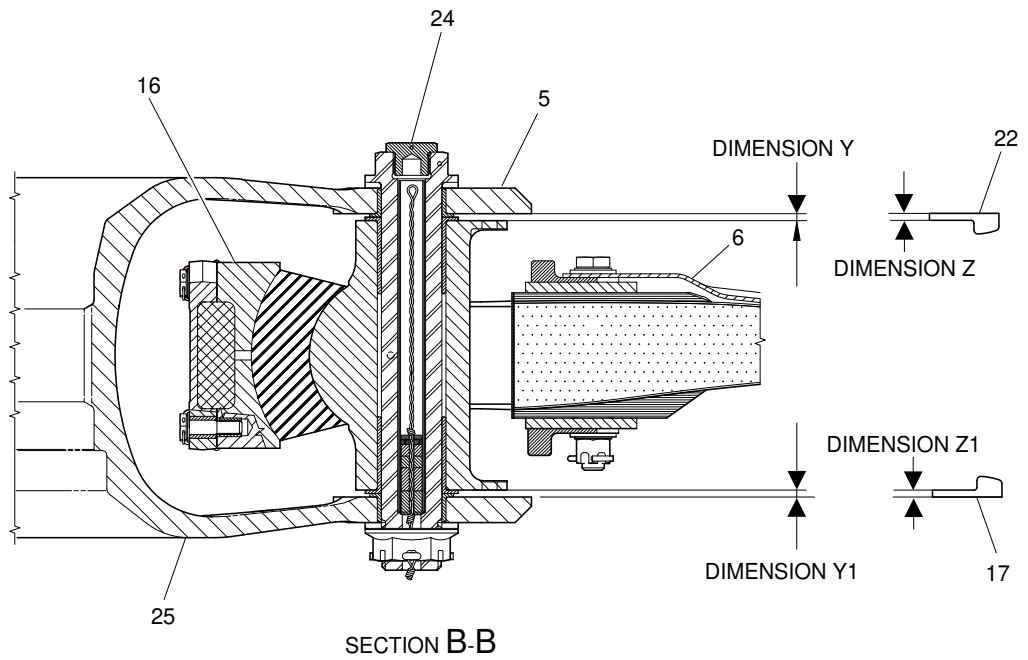
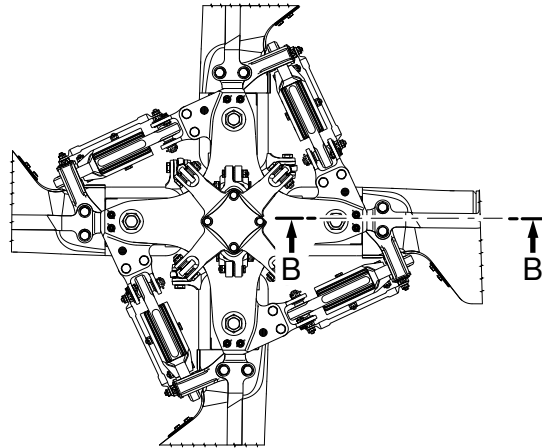
Figure 1 (Sheet 1 of 3) Tail rotor blade assembly - Install procedure

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Figure 1 (Sheet 2 of 3) Tail rotor blade assembly - Install procedure



ICN-39-C-641101-G-00001-13171-A-002-01

Figure 1 (Sheet 3 of 3) Tail rotor blade assembly - Install procedure

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