



BOLLETTINO TECNICO

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

N° **139-176**

DATE June 04, 2010

REV. /

Compliance with
this bulletin is:

OPTIONAL

**SUBJECT: TAIL ROTOR DRIVE MGB ADAPTER VARIANT P/N 3G6306P01011,
INSTALLATION OF**

REASON: Update the tail rotor drive quill subassembly to the latest configuration.

HELICOPTERS AFFECTED: AB139/AW139 Helicopters equipped with tail rotor drive MGB adapter P/N 3G6320A09652, P/N 3G6320A09653 or P/N 3G6320A09632.

COMPLIANCE: At customer's option.

DESCRIPTION: Few cases of damages in the MGB adapter splines of the tail rotor drive quill have been experienced.

To prevent this from occurring a design improvement in the tail rotor drive subassembly has been implemented by AgustaWestland.

This bollettino provides the instructions for the installation of the variant P/N 3G6306P01011 in the MGB tail rotor drive quill.

Basically, the change requires the replacement of existing MGB adapter P/N 3G6320A09652 or P/N 3G6320A09653 or P/N 3G6320A09632 with the new clamped adapter P/N 3G6320A16551.

The new clamped adapter is provided with a shoulder against which a cap washer, fastened to the rotor brake disc flange, acts as retainer.

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

B.T. 139-176

To remove the gap existing between the clamped adapter shoulder and the cap washer, a series of shims of predefined thickness are installed on rotor brake disc flange.

With this change no axial movement of the clamped adapter is permitted thus preventing any possible damage.

REQUIRED MANPOWER: To comply with this bollettino, the following man-hours are deemed necessary:

Approximately 8 (eight) Maintenance-Man-Hours

Man-hours are based on hands-on time and can change with personnel and facilities available.

WARRANTY:N/A.

REQUIRED MATERIALS:The following materials, necessary to comply with this bollettino, have to be requested to AgustaWestland:

	<u>P/N</u>	<u>DESCRIPTION</u>	<u>Q.TY</u>
	3G6306P01011	T/R DRIVE/MGB ADAPTER VARIANT	REF
Composed of:			
	3G6320A16551	Clamped Adapter	.1
	3G6320A16651	Cap Washer	.1
(1)	AW001BS01A030	Shim	.1
(1)	AW001BS01A035	Shim	.2
(1)	AW001BS01A040	Shim	.2
(1)	AW001BS01A045	Shim	.2
(1)	AW001BS01A050	Shim	.1
(1)	AW001BS01A055	Shim	.1
(1)	AW001BS01A060	Shim	.2
(1)	AW001BS01A070	Shim	.2
(1)	AW001BS01A100	Shim	.1
	MS21042L5	Nut, Self-locking	.6
	NAS1149C0532R	Washer	.6

<u>P/N</u>	<u>DESCRIPTION</u>	<u>Q.TY</u>
NAS1149C0563R	Washer	.6
NAS6605-10	Bolt	.6
AS3209-130	O-Ring	.1
AS3209-132	O-Ring	.1
MS27253-2	Identification Plate	.1

Note:

- (1) The final quantity and type of shims to be used will be defined only after the thickness calculation procedure defined in steps 15 and 17 of this bollettino. All listed shims, at shown quantities, will be supplied.

Moreover, the following consumable materials are necessary to comply with this bollettino:

<u>SPEC./AW Code Number</u>	<u>DESCRIPTION</u>	<u>Q.TY</u>	<u>NOTE</u>
Commercial / Code No. 900000711	Parker super O-Lube grease (C115), or equivalent	AR	Local supply
MIL-G-21164 / Code No. 999999999000002864	Aeroshell Grease 17 (C022), or equivalent	AR	Local supply
199-05-002, Ty II, Class 2 / Code No. 90004603	EA934.NA Adhesive (C054)	AR	Local supply
Commercial	Soft, lint-free Cloth (C011)	AR	Local supply
PD-680, Ty II/Code No.505405407	Ardrox 5503 (C010) Cleaning solvent, or equivalent	AR	Local supply

SPECIAL TOOLS:

<u>SPECIFICATION</u>	<u>DESCRIPTION</u>	<u>Q.TY</u>	<u>NOTE</u>
Commercial	Dial gauge	1	Local supply

B.T. 139-176

WEIGHT AND BALANCE CHANGES: Compliance with this Bollettino has the following effects on A/C weight and balance:

<u>WEIGHT (Kg)</u>	<u>ARM (mm)</u>	<u>MOMENT (Kgmm)</u>
1.105	5711.42	6311.12

REFERENCES:

- ✓ AW139 Aircraft Maintenance Publication (AMP)
- ✓ AW139 Aircraft Material Data Information (AMDI)
- ✓ AW139 Illustrated Parts Data (IPD)

PUBLICATIONS AFFECTED:

- ✓ AW139 Aircraft Maintenance Publication (AMP)
- ✓ AW139 Illustrated Parts Data (IPD)

COMPLIANCE INSTRUCTIONS

1. Prepare the helicopter for a safe ground maintenance. Disconnect the battery and all the electrical power sources and/or the external power supply. Refer to AMP (see DM n° 39-A-00-20-00-00A-120A-A).
2. With reference to AMP (see DM 39-A-06-41-00-00A-010A-A), open the access door 473AL.

NOTE

Put an identification tag on all components that are re-usable, including the attaching hardware removed to get access to the modification area and adequately protect parts until re-use.

3. With reference to AMP (see DM 39-A-71-33-03-00A-520A-A and DM 39-A-71-33-02-00A-520A-A), remove the LH and RH covers on the upper deck.
4. With reference to AMP (see DM 39-A-65-11-01-00A-520A-A), remove the No. 1 tail rotor drive shaft.
5. With reference to AMP (see DM 39-A-63-51-02-00A-520A-A), remove the rotor brake disc. Discard the fastening hardware.
6. Get access to the MGB tail rotor drive quill and with reference to Figure 1 carefully remove sliding adapter P/N 3G6320A09652 or P/N 3G6320A09632 or P/N 3G6320A09653 from the pinion.

NOTE

The clamped adapter is held in its seat with only two O-rings.

7. Discard the adapter P/N 3G6320A09652 or P/N 3G6320A09632 or P/N 3G6320A09653 and related O-ring P/N M83248/1-132 installed on the outer diameter.

B.T. 139-176

8. Remove O-ring P/N M83248/1-130 from tail take-off pinion and discard it.

CAUTION

Clamped adapter P/N 3G6320A16551 is a Critical Part therefore maximum attention and care must be paid during execution of the following steps. Damage to the component can occur if not properly handled. Before installing the component on the helicopter examine the part for absence of any damage.

9. With a lint-free cloth wet with cleaning solvent (C010) thoroughly clean the clamped adapter P/N 3G6320A16551.
10. With reference to Figure 1 temporarily install the clamped adapter P/N 3G6320A16551 into the tail take-off pinion in the following way:
 - a. Lubricate the splines of the clamped adapter with Aeroshell Grease 17 (C022) or equivalent.
 - b. Carefully insert the clamped adapter P/N 3G6320A16551 into the tail take-off pinion.
11. With reference to Figure 1 and Figure 2 Detail D assemble the rotor disc in the following way:
 - a. With a lint-free cloth wet with cleaning solvent (C010) thoroughly clean the rotor brake flange P/N 3G6320A10852.
 - b. Make up a nominal thickness of 2.00 mm by means of a combination of one Shim P/N AW001BS01A100, one Shim P/N AW001BS01A060 and one Shim P/N AW001BS01A040.
 - c. With a dial gauge measure and record the actual thickness of the stack of shims.

d. Install on the rotor brake flange, by means of six NAS6605-10 bolts, six MS21042L5 nuts, six NAS1149C0563R washers (under nuts) and six NAS1149C0532R washers (under nuts), the following items:

- Previously removed rotor brake disc P/N3G6351V00551.
- Shim P/N AW001BS01A100 (1 off)
- Shim P/N AW001BS01A060 (1 off)
- Shim P/N AW001BS01A040 (1 off)
- Cap washer P/N 3G6320A16651

e. Torque six MS21042L5 nuts at 13.00 Nm.

12. With reference to Figure 3 push clamped adapter towards “X” direction until its inner shoulder is in contact with the tail take-off pinion.

13. Position a micrometer gauge pointer against clamped adapter outer flange, on plane “A”. Set the gauge to zero.

14. Pull out the clamped adapter towards “Y” direction until its outer shoulder is seated against the cap washer.

15. Record dial reading and define the thickness to be installed as follows:

- a. **Required Shim Thickness = Actual thickness of shim stack *minus* dial reading**
- b. **Min. Preload Thickness = Actual thickness of shim stack *minus* dial reading *minus* 0.01 mm**
- c. **Max. Preload Thickness = Actual thickness of shim stack *minus* dial reading *minus* 0.06 mm**

CAUTION

Thickness shall be calculated again in accordance with the above procedure, each time one component of the assembly is replaced for any reason.

B.T. 139-176

16. Remove six bolts and nuts. Remove the cap washer and three shims installed at previous step 11.b.
17. With reference to the following table look for the value of the required shim thickness obtained from above calculation, then set up the combination of required shims,

NOTE

Last three digits of shim part number identifies its thickness in hundredths of mm, with a tolerance of ± 0.01 mm (i.e.. shim P/N AW001BS01A040 has a nominal thickness of 0.4 mm and an actual thickness of 0.39 to 0.41 mm).

NOTE

The proposed combination of shim(s) listed in the table below allows respecting the preload requirement between adapter and pinion. Each final shims combination shall however be measured before installation.

MEASURED NOMINAL THICKNESS [mm]	MAX PRE-LOAD THICKNESS [mm]	MIN PRE-LOAD THICKNESS [mm]	SHIM (NOMINAL THICKNESS)								
	-0,06	-0,01	0,3	0,35	0,4	0,45	0,5	0,55	0,6	0,7	1
0,5	0,44	0,49				1					
0,51	0,45	0,5				1					
0,51 (ALT)	0,45	0,5					1				
0,52	0,46	0,51					1				
0,53	0,47	0,52					1				
0,54	0,48	0,53					1				
0,55	0,49	0,54					1				
0,56	0,5	0,55					1				
0,56 (ALT)	0,5	0,55						1			
0,57	0,51	0,56						1			

MEASURED NOMINAL THICKNESS [mm]	MAX PRE-LOAD THICKNESS [mm]	MIN PRE-LOAD THICKNESS [mm]	SHIM (NOMINAL THICKNESS)								
	-0,06	-0,01	0,3	0,35	0,4	0,45	0,5	0,55	0,6	0,7	1
0,58	0,52	0,57						1			
0,59	0,53	0,58						1			
0,6	0,54	0,59						1			
0,61	0,55	0,6						1			
0,61 (ALT)	0,55	0,6							1		
0,62	0,56	0,61							1		
0,63	0,57	0,62							1		
0,64	0,58	0,63							1		
0,65	0,59	0,64							1		
0,66	0,6	0,65							1		
0,67	0,61	0,66							1		
0,67 (ALT)	0,61	0,66	1	1							
0,68	0,62	0,67	1	1							
0,69	0,63	0,68	1	1							
0,7	0,64	0,69	1	1							
0,71	0,65	0,7	1	1							
0,72	0,66	0,71								1	
0,73	0,67	0,72								1	
0,74	0,68	0,73								1	
0,75	0,69	0,74								1	
0,76	0,7	0,75								1	
0,77	0,71	0,76								1	
0,77 (ALT)	0,71	0,76		1	1						
0,78	0,72	0,77		1	1						
0,79	0,73	0,78		1	1						
0,8	0,74	0,79		1	1						
0,81	0,75	0,8		1	1						
0,82	0,76	0,81		1	1						
0,82 (ALT)	0,76	0,81			2						
0,83	0,77	0,82			2						
0,84	0,78	0,83			2						
0,85	0,79	0,84			2						
0,86	0,8	0,85			2						
0,87	0,81	0,86			2						
0,87 (ALT)	0,81	0,86			1	1					
0,88	0,82	0,87			1	1					

B.T. 139-176

MEASURED NOMINAL THICKNESS [mm]	MAX PRE-LOAD THICKNESS [mm]	MIN PRE-LOAD THICKNESS [mm]	SHIM (NOMINAL THICKNESS)								
	-0,06	-0,01	0,3	0,35	0,4	0,45	0,5	0,55	0,6	0,7	1
0,89	0,83	0,88			1	1					
0,9	0,84	0,89			1	1					
0,91	0,85	0,9			1	1					
0,92	0,86	0,91			1	1					
0,92 (ALT)	0,86	0,91				2					
0,93	0,87	0,92				2					
0,94	0,88	0,93				2					
0,95	0,89	0,94				2					
0,96	0,9	0,95				2					
0,97	0,91	0,96				2					
0,97 (ALT)	0,91	0,96				1	1				
0,98	0,92	0,97				1	1				
0,99	0,93	0,98				1	1				
1	0,94	0,99				1	1				
1,01	0,95	1				1	1				
1,02	0,96	1,01									1
1,03	0,97	1,02									1
1,04	0,98	1,03									1
1,05	0,99	1,04									1
1,06	1	1,05									1
1,07	1,01	1,06									1
1,08	1,02	1,07						1	1		
1,09	1,03	1,08						1	1		
1,1	1,04	1,09						1	1		
1,11	1,05	1,1						1	1		
1,12	1,06	1,11						1	1		
1,12 (ALT)	1,06	1,11						1		1	
1,13	1,07	1,12						1		1	
1,14	1,08	1,13						1		1	
1,15	1,09	1,14						1		1	
1,16	1,1	1,15						1		1	
1,17	1,11	1,16						1		1	
1,17 (ALT)	1,11	1,16							1	1	
1,18	1,12	1,17							1	1	
1,19	1,13	1,18							1	1	
1,2	1,14	1,19							1	1	

MEASURED NOMINAL THICKNESS [mm]	MAX PRE-LOAD THICKNESS [mm]	MIN PRE-LOAD THICKNESS [mm]	SHIM (NOMINAL THICKNESS)								
	-0,06	-0,01	0,3	0,35	0,4	0,45	0,5	0,55	0,6	0,7	1
1,21	1,15	1,2						1	1		
1,22	1,16	1,21						1	1		
1,22 (ALT)	1,16	1,21							2		
1,23	1,17	1,22							2		
1,24	1,18	1,23							2		
1,25	1,19	1,24							2		
1,26	1,2	1,25							2		
1,27	1,21	1,26					1			1	
1,27 (ALT)	1,21	1,26						1		1	
1,28	1,22	1,27						1		1	
1,29	1,23	1,28						1		1	
1,3	1,24	1,29						1		1	
1,31	1,25	1,3						1		1	
1,32	1,26	1,31						1		1	
1,32 (ALT)	1,26	1,31							1	1	
1,33	1,27	1,32							1	1	
1,34	1,28	1,33							1	1	
1,35	1,29	1,34							1	1	
1,36	1,3	1,35							1	1	
1,37	1,31	1,36	1								1
1,37 (ALT)	1,31	1,36		1							1
1,38	1,32	1,37		1							1
1,39	1,33	1,38		1							1
1,4	1,34	1,39		1							1
1,41	1,35	1,4		1							1
1,42	1,36	1,41		1							1
1,42 (ALT)	1,36	1,41			1						1
1,43	1,37	1,42								2	
1,44	1,38	1,43								2	
1,45	1,39	1,44								2	
1,46	1,4	1,45								2	
1,47	1,41	1,46			1						1
1,47 (ALT)	1,41	1,46				1					1
1,48	1,42	1,47				1					1
1,49	1,43	1,48				1					1
1,5	1,44	1,49				1					1

B.T. 139-176

MEASURED NOMINAL THICKNESS [mm]	MAX PRE-LOAD THICKNESS [mm]	MIN PRE-LOAD THICKNESS [mm]	SHIM (NOMINAL THICKNESS)								
	-0,06	-0,01	0,3	0,35	0,4	0,45	0,5	0,55	0,6	0,7	1
1,51	1,45	1,5				1					1
1,52	1,46	1,51				1					1
1,52 (ALT)	1,46	1,51					1				1
1,53	1,47	1,52					1				1
1,54	1,48	1,53					1				1
1,55	1,49	1,54					1				1
1,56	1,5	1,55					1				1
1,57	1,51	1,56					1				1
1,57 (ALT)	1,51	1,56						1			1
1,58	1,52	1,57						1			1
1,59	1,53	1,58						1			1
1,6	1,54	1,59						1			1

18. With a dial gauge measure and record the actual thickness of the stack of shims assembled and verify if it is within the acceptable pre-load values calculated at step 15 and reported in the above table (columns 2 and 3). Contact AW139 Product Support Engineering (aw139.mbx@agustawestland.com) if a correct shims combination can not be reached.

19. Install the clamped adapter P/N 3G6320A16551 into the tail take-off pinion in the following way:

- a. Lubricate new O-ring P/N AS3209-130 with Parker super O-Lube grease (C115) and install it in the groove of the tail take-off pinion.
- b. Lubricate new O-ring P/N AS3209-132 with Parker super O-Lube grease (C115) or equivalent and install it in the related groove of the clamped adapter.
- c. Lubricate the splines of the clamped adapter with Aeroshell Grease 17 (C022), or equivalent.
- d. Carefully insert the clamped adapter P/N 3G6320A16551 into the tail take-off pinion.

20. With reference to Figure 2 Detail D install the selected shim(s) and cap washer P/N 3G6320A16651 on the rotor brake disc using the fastening hardware mentioned at above step 11.b.
21. Torque the six MS21042L5 nuts from 13.58 to 18.08 Nm in a crosswise sequence.
22. Remove all tools and other items from the work area. Make sure that the work area is clean.
23. If not already existing on the MGB, prepare a new additional identification plate P/N MS27253-2 by stamping the MGB Variant P/N 3G6306P01011 in the field "Modification Incorporated".
24. With reference to Figure 4 bond the identification plate on the MGB with adhesive EA943NA (C054), adjacent to the existing plate.
25. With reference to AMP (see DM 39-A-65-11-01-00A-720A-A), install the No. 1 tail rotor drive shaft.
26. With reference to AMP (see DM 39-A-71-33-03-00A-720A-A and 39-A-71-33-02-00A-720A-A), install the LH and RH covers on the upper deck.
27. Close the access door 473AL (refer to AMP DM 39-A-06-41-00-00A-010A-A).
28. Return helicopter to flight configuration.
29. With reference to AMP (see DM 39-A-63-51-00-00A-321A-A), perform the rotor brake system operational check.
30. Update the Chart A in accordance with Weight and Balance changes (See Rotorcraft Flight Manual, Part 2, Section 6).
31. Record compliance with this bollettino on the Main Gear Box Log Card.
32. Record compliance with this bollettino on A/C log book.

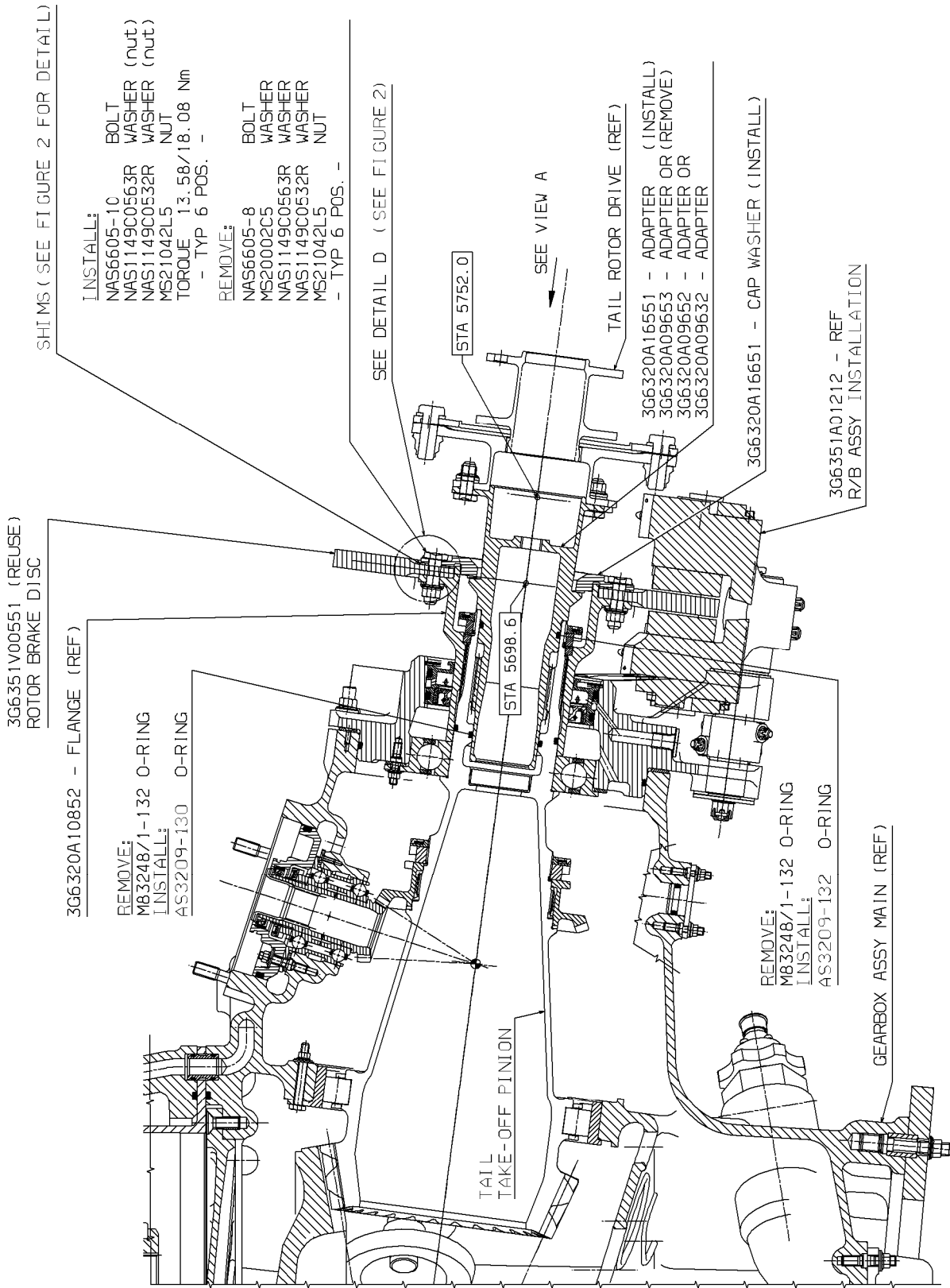









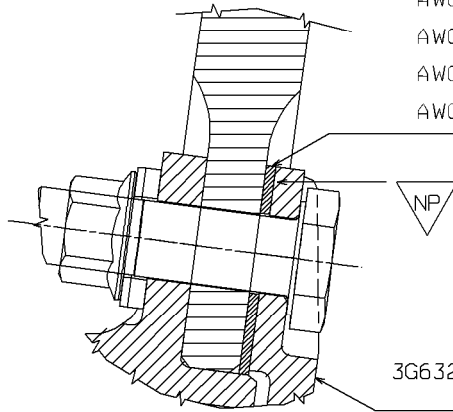



Figure 1

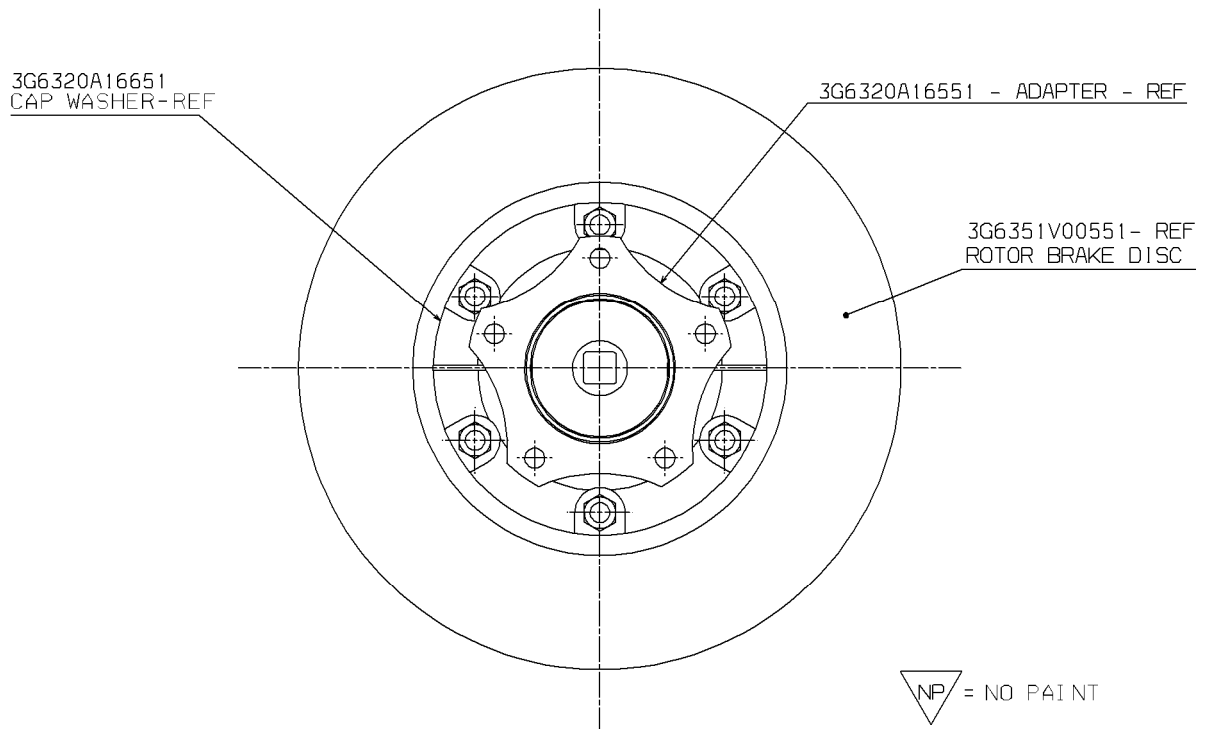
- AW001BS01A100 SHIM 
- AW001BS01A070 SHIM 
- AW001BS01A060 SHIM 
- AW001BS01A055 SHIM 
- AW001BS01A050 SHIM 
- AW001BS01A045 SHIM 
- AW001BS01A040 SHIM 
- AW001BS01A035 SHIM 
- AW001BS01A030 SHIM 



 A COMBINATION OF MAX THREE SHIMS CAN BE CHOSEN FROM THIS LIST. SET UP THE REQUIRED THICKNESS, AS DEFINED IN STEP 15 OF THIS BOLLETTINO.

3G6320A16651 - CAP WASHER
- REF -

DETAIL D



VIEW A

Figure 2

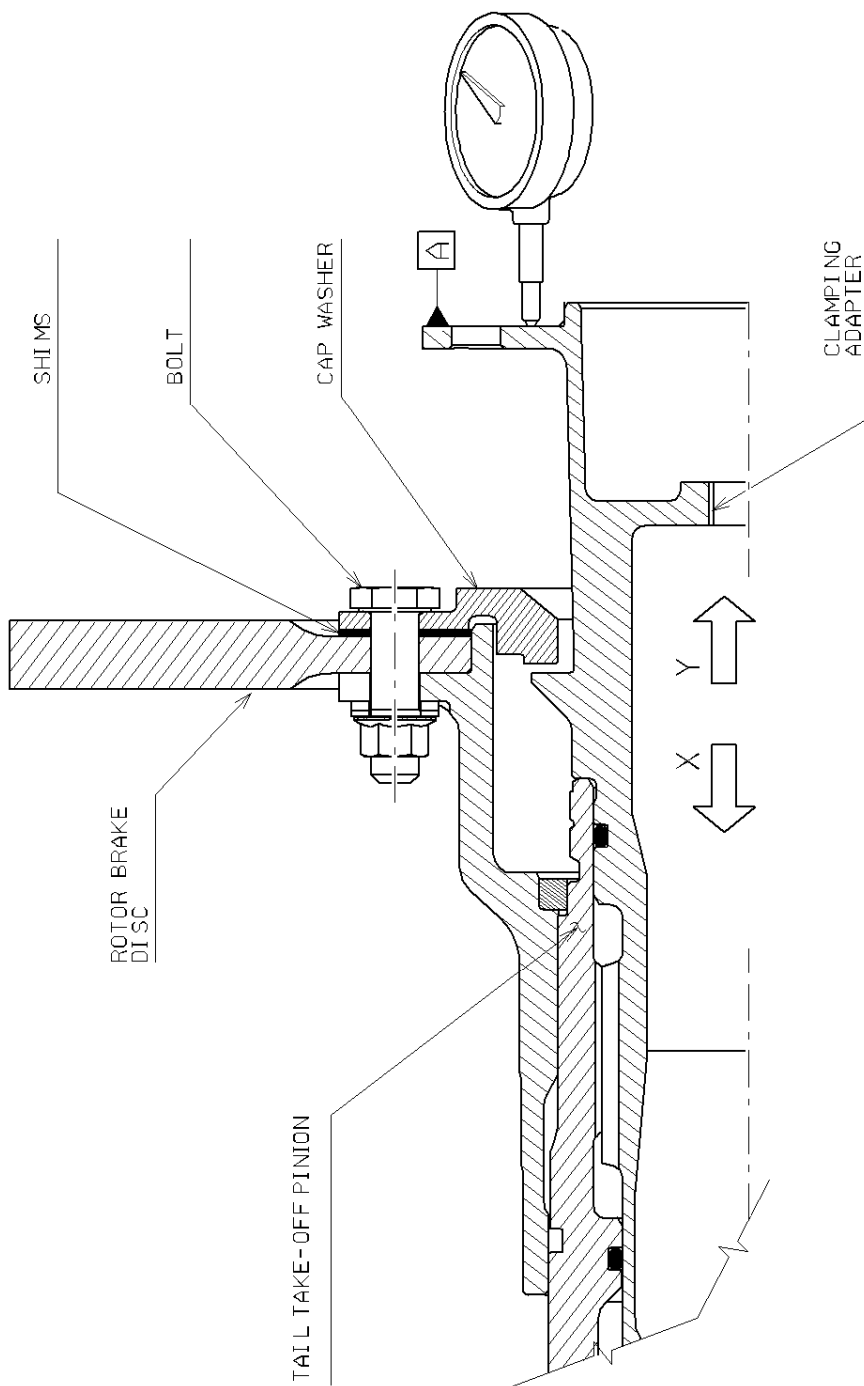


Figure 3

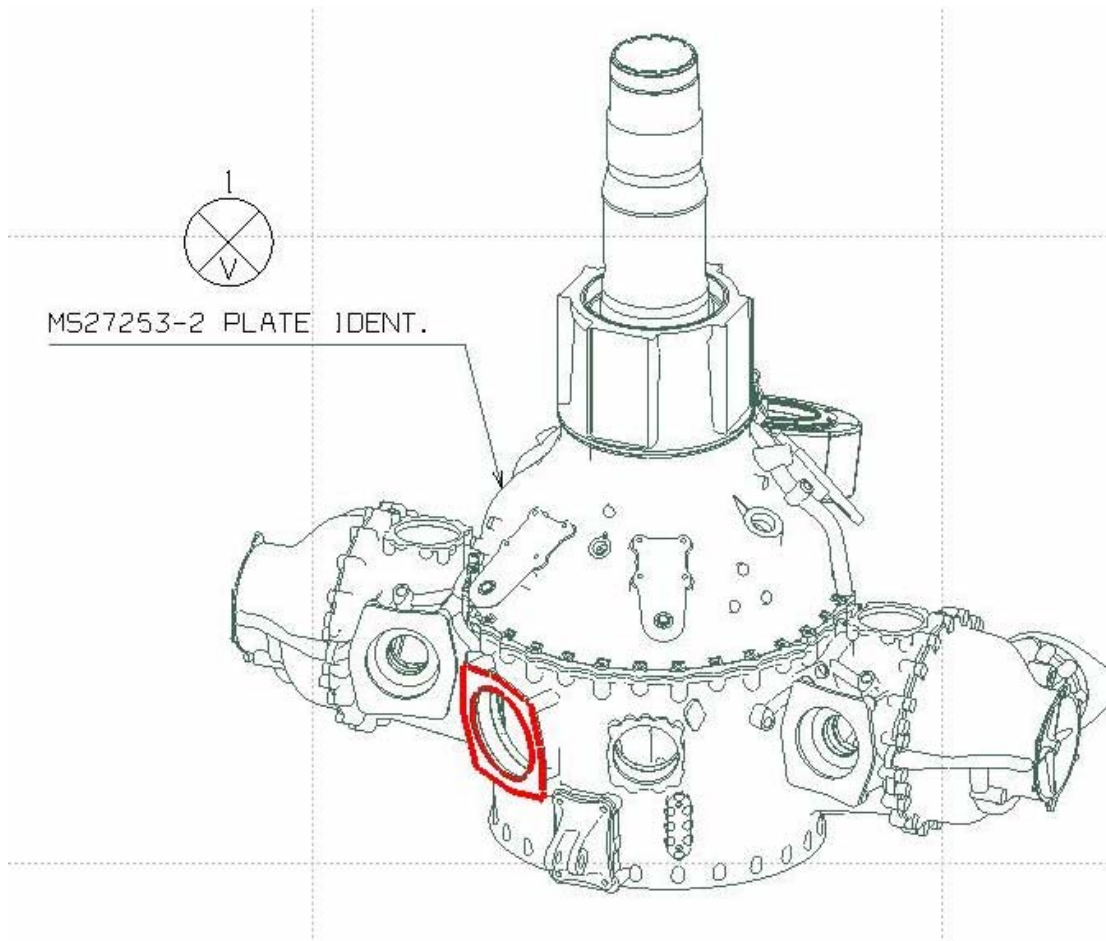


Figure 4



Prego spedire a questo indirizzo: <i>Please send to the following address:</i> AGUSTA s.p.A. CUSTOMER SUPPORT & SERVICES - ITALY PRODUCT SUPPORT ENGINEERING DPT. Via del Gregge, 100 21015 Lonate Pozzolo (VA) - ITALY Tel.: +39 0331 664600 Fax: +39 0331 664684		MODULO APPLICAZIONE BOLLETTINO TECNICO <i>TECHNICAL BULLETIN COMPLIANCE FORM</i>		Data: <i>Date:</i>
		Numero: <i>Number:</i>		
		Revisione: <i>Revision:</i>		
Denominazione Cliente ed Indirizzo: <i>Customer Name and Address:</i>		Telefono: <i>Telephone:</i>		
		Fax:		
		Data Applicazione B.T.: <i>B.T. Compliance Date:</i>		
Modello Elicottero <i>Helicopter Model</i>	S/N	Matricola <i>Tail Number</i>	Ore Totali <i>Total Hours</i>	Ore D.U.R. <i>T.S.O.</i>
Note: <i>Remarks:</i>				
Informazioni: <i>Information:</i> Al fine di gestire le varianti alla configurazione base, in relazione all'emissione del Bollettino Tecnico, preghiamo di voler compilare il presente modulo in tutte le sue parti e spedirlo all'indirizzo sopra indicato. Si ringrazia per la gentile collaborazione data. We request your cooperation in filling this form, in order to keep out statistical data relevant to aircraft configuration up-to-date. The form should be filled in all its parts and sent to the above address. We thank you beforehand for the information given.				