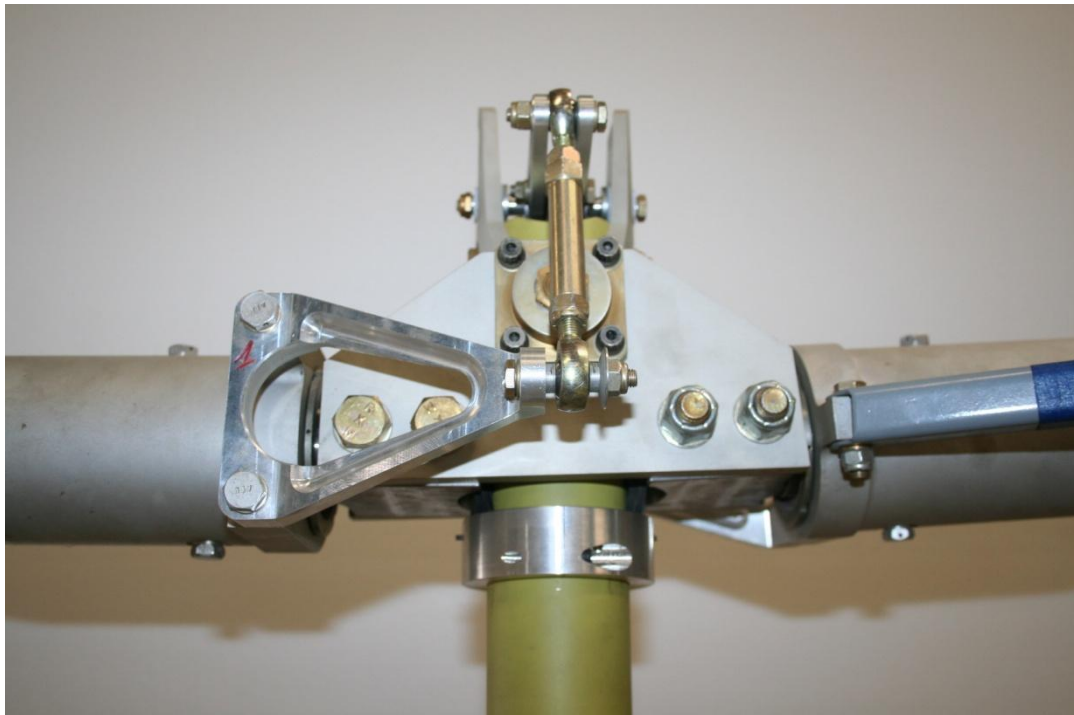


Phase 9: Main Rotor installation

Some of the necessary parts required to assemble the Main Rotor and its installation to the airframe are easily identified when unpacking from the shipping crate. Small parts are in cardboard box 14 and the bolts, nuts and washers are shrink wrapped in box 18.

Note: read the construction phase carefully as some parts may already be assembled to assist shipping.

Main Rotor Head Assembly image



Phase 9: Main Rotor installation

Parts and other components

PARTS	DESCRIPTION	CODE	QTY.	PACK
	Main Rotor Blade	CH6B_07.001.0.0	2	19
	Pitch Horn	CH6B_07.013.0.0	2	14
	Bearing Housing	CH6B_07.018.0.0	2	14
	Main Rotor Side Plate	CH6B_07.019.0.0	2	14
	Pitch Horn Bushing	CH6B_07.023.0.0	4	14
	Main Rotor Blade Rubber Bump Stop Clamp	CH6B_07.031.0.0	2	2
	Main Rotor Blade Rubber Bump Stop	CH6B_07.034.0.0	2	2
	Main Rotor Bearing Protector	CH6B_07.035.0.0	2	14
	Main Rotor Blade Fitment Guide Pin	CH306	1	14

TOTAL PHASE 9 PARTS: 19

Necessary tools

- Wrenches set
- Allen wrenches set
- Wiring tool

Phase 9: Main Rotor installation

Other necessary tools

- Ladder or rest bench
- Safety lock wire – 0.032
- Grease for MR side plate needle roller bearings

Assembly order

Step 1- Assembly and installation of the Main Rotor Side Plates

If required, first install the needle roller bearing race in the Bearing Housing.

Warm the roller bearing housing and then place the needle roller bearing race squarely on the housing before smoothly pushing the bearing race in with a hand press to contact the housing inner face. Do not force the bearing race or allow it to enter off square as damage will occur.

Then, warm the needle roller bearing inner race and install on the Main Rotor mast drive. Tap it on all the way with a thin wall tube socket or similar hollow drift. Do not use excessive force!!

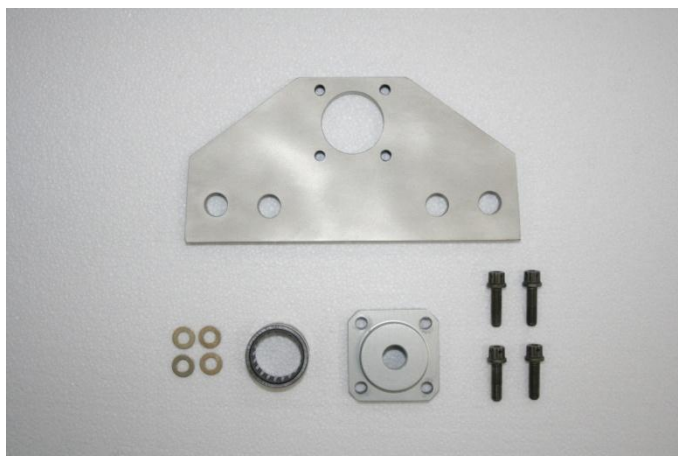


Fig. 1

Assemble the needle bearings housing to the lateral plates.



Fig. 2

Phase 9: Main Rotor installation

Observe that the faces of the lateral plate are different. The inner face has a taper for the dust seal while the outer face has no taper. Attach the bearing housing to the outer (no taper) face as follows:

- A- Bolt - special
- B- Thin washer
- C- Ball bearing housing
- D- Lateral plate

Step 2- Fabrication of the Blade shift tool.

As it would be difficult to use a large flat blade screwdriver, this tool is used, if required, to adjust the plugs in the roller bearing housing plates - which are in turn used to locate the main rotor in the best lateral balance position once the blades are installed in the helicopter. Details are in the following image. Note that the values are in millimetres.

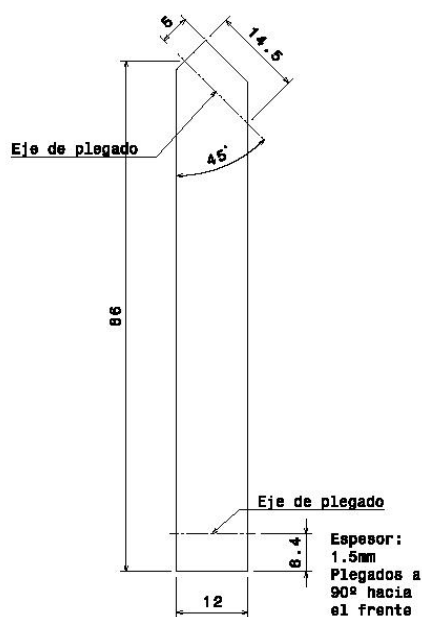


Fig. 3

Phase 9: Main Rotor installation

Step 3- Preparation and installation of the Main Rotor Blades

If required, before the installation of Main lateral plates, you must fabricate and fit the black needle roller bearing dust seals which slide over the needle roller bearing inner race and locate themselves in the taper on the inside of the hub lateral plate. CICARE provides the material for the needle bearing dust seals.

CAUTION

The correct Lubricant must be applied to the needle roller bearings. They are coated with a smear of grease in the factory to prevent corrosion.

You must use lithium extreme pressure (EP) multipurpose GRADE 2 NLGI-2 grease. Use of any other grease may cause damage to the bearings.

Do not mix greases as they may have different base constituents and would be incompatible.



Fig. 4

Then install the Main Rotor Side Plates as shown in the following image:



Fig. 5

Phase 9: Main Rotor installation

Fabrication and installation of the 3M Main Rotor Blade Anti Erosion Tape

The tape is marked with a dotted line on where it must be cut.

If replacing MRB 3M tapes in the field, cut the tape to the same length as the original fitted and ensure that both new tapes are exactly the same length and fitted in the same positions on the blades to maintain the balance of the Main Rotor assembly.

Before installing the blades to the main rotor, ensure that the blade is clean and dry with no grease, insect stains, dust etc and then stick the anti erosive tape to the leading edge. This tape protects the blades from erosion.

The following image shows the tape installed in the blade.



Fig. 6

NOTE

It's recommended to perform this task with two people – each holding an end and holding the tape in tension so that it fits correctly and has no air bubbles under it.

NOTE

Should any part of a tape be found loose during a pre-flight inspection, remove the tape and replace it. If no replacement is available, remove BOTH tapes to maintain system balance and fit new tapes as soon as possible.

Phase 9: Main Rotor installation

Fabrication of the Main Rotor Blade Fitment Guide Pin

If required, Fabricate the pin according to the following schematic - dimensions are in millimetres:

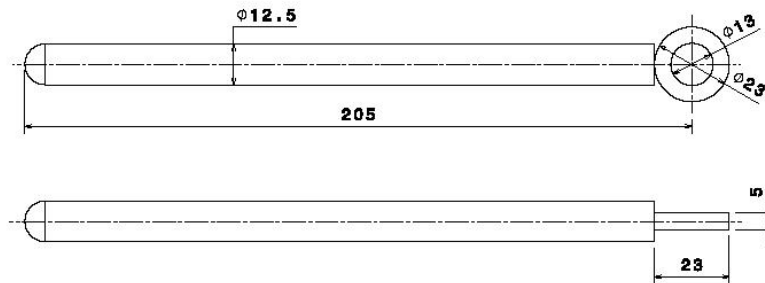


Fig. 7

Main Rotor Blade installation

WARNING

The blades must be installed with the blade trunnions orientated correctly. Install as shown in the next image – the outer (facing the MR Blade) short side to the front and the outer long side to the rear.

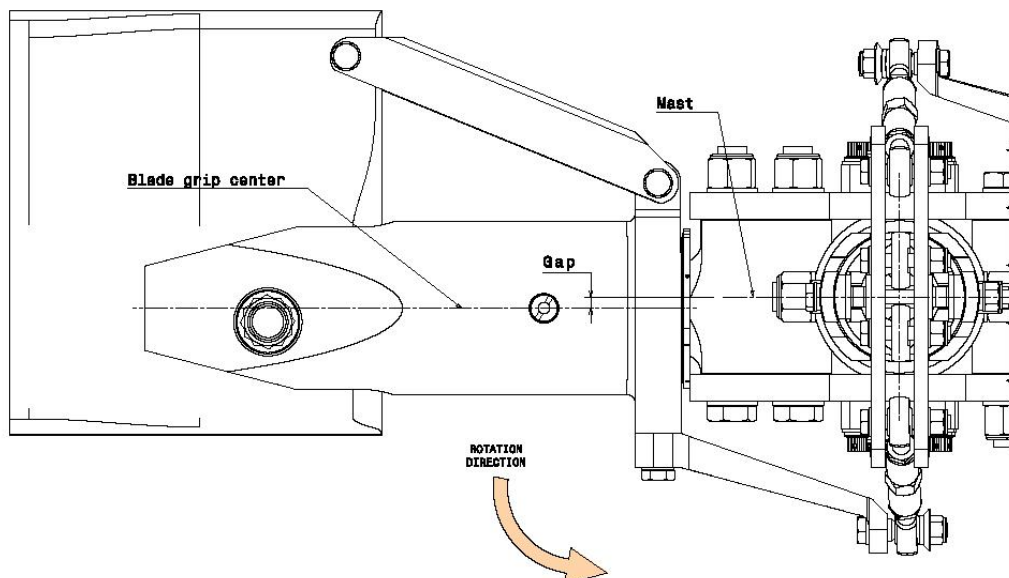


Fig. 8

Phase 9: Main Rotor installation

Install the Main Rotor Blades using the assistance of another person and utilising the Main Rotor Blade Fitment Guide Pin according to the following order:

- A- Bolt AN8-43A
- B- Washer 960-816
- C- Main Rotor Side Plate
- D- Blade Shaft
- E- Main Rotor Side Plate
- F- Washer AN960-816
- G- Nut AN365-820

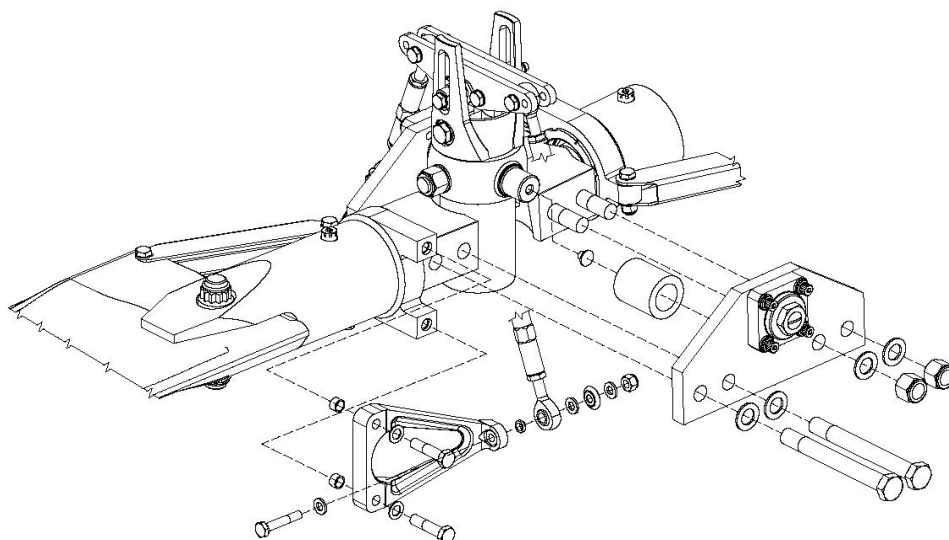


Fig. 9

CAUTION

The Main Rotor Assembly has been assembled, master balanced and run on a helicopter at the factory prior to shipment.

Ensure that the number on the top of the Main Rotor Side Plate coincides with exactly the same number on the Blade Grip.

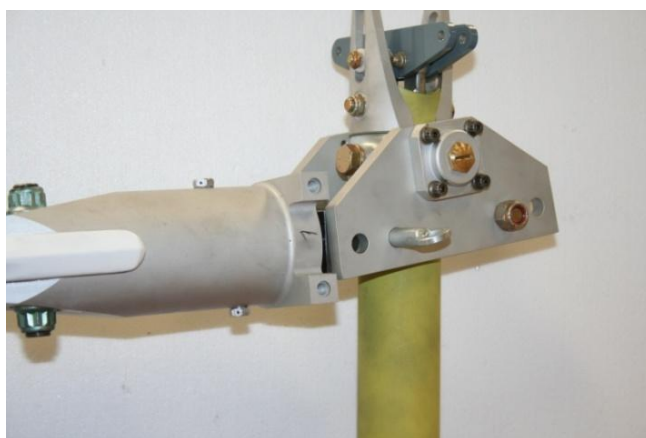


Fig. 10

Phase 9: Main Rotor installation

CAUTION

Before installing the first Main Rotor Blade, install a MR attach bolt in the opposite side and screw its loc nut on by hand. This assists fitment of the blade and any issue that may arise if a side plate should fall off the needle roller bearing inner race.

The person who is on a stand or safe ladder of the correct height to fit the Main Rotor Blade to the Hub, must grab the blade with his right hand and then place the lightly lubricated Main Rotor Blade Fitment Guide Pin in the closest hole to the mast as observed in the image above:

Then, in the closest hole to the MR Blade Grip, fit a AN8-43A bolt and its washer with the bolt head on the same side of the plate as its MR Blade leading edge.

Then remove the tool, replacing it with another AN8-43A bolt fitted in the same direction as the first.

Repeat the previous operation on the opposite side placing the bolts as shown in the following image:

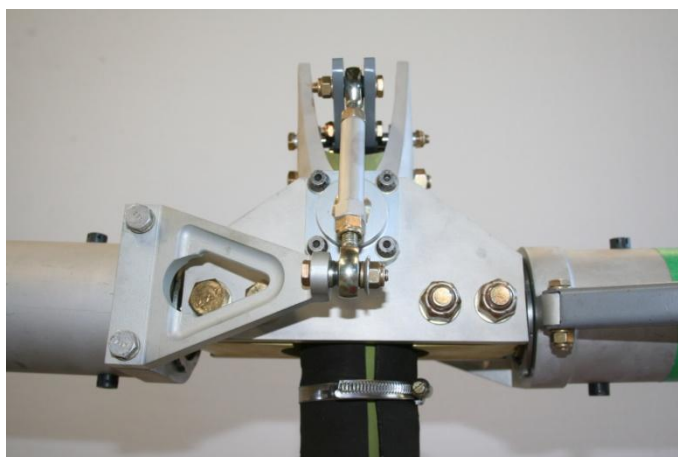


Fig. 11

Phase 9: Main Rotor installation

Step 4- Assembly of the Pitch Horns to Blade Grips



Fig. 12

Assemble the Pitch Horns to the Blade Grips and torque the bolts into the aluminium alloy in the following order:

- A- Bolt AN5H-12A
- B- Washer AN960-516
- C- Pitch Horn
- D- Pitch Horn Bushing
- E- Blade Grip

Then lock wire between the two bolts.

Phase 9: Main Rotor installation

Step 5- Installation of the MR Pitch Link Tubes



Fig. 13

Pitch Horn (lower end)

According to the following order:

- A- Bolt AN4-14A
- B- Washer AN960-416
- C- Pitch Horn
- D- Rod End spacer
- E- Rod End
- F- Washer AN960-416
- G- Special Countersunk Washer
- H- Washer AN960-416
- I- Nut AN365-428

Pitch Control Rocker-Arm (upper end)

According to the following order:

- A- Bolt AN4-13A
- B- Washer AN960-416L
- C- Pitch Control Rocker-Arm
- D- Rod End
- E- Rod End
- F- Pitch Control Rocker-Arm
- G- Washer AN960-416L
- H- Nut AN365-428

