



RUSSIAN FEDERATION
MINISTRY OF TRANSPORT OF THE RUSSIAN FEDERATION
FEDERAL AIR TRANSPORT AGENCY

AIRWORTHINESS DIRECTIVE

January 23, 2025

No. 2025-MI-8,171-01

Applicability – Mi-8,
Mi-8AMT, Mi-171, Mi-171A2 Helicopters and their Modifications

State of Design - Russian Federation

The corrective actions set out in this airworthiness Directive are mandatory. No operator may operate an aircraft covered by this airworthiness Directive except in accordance with the requirements of this Directive

On March 10, 2023 an aviation incident occurred to Mi-8AMT helicopter, Registration No. RA-22802 operated by UTair-Helicopter Services, JSC due to 8AMT-4102-11 Universal Joint fatigue failure, which attaches main landing gear radius rod to fuselage, when operating time is significantly less than the assigned service time.

Based on Helicopters Mil and Kamov, JSC's Technical Solution dated 28.08.2024 No. 1-K-Ми-8AMT-ГА-2024 (hereinafter referred to as Technical Solution) in order to ensure safe flights and keep airworthiness

WE REQUIRE:

1. Organizations operating Mi-8, Mi-8AMT, Mi-171, Mi-171A2 helicopters and their modifications, manufactured by U-UAP, JSC to perform their one-time inspection during the nearest form of periodic maintenance according to Paragraphs 1.1. and 1.2. of Technical Solution.
2. If there are no remarks, continue operating the helicopters.
3. The information on the damaged universal joints is to be provided as appropriate to Helicopters Mil and Kamov, JSC, U-UAP, JSC and Federal Air Transport Agency regional authorities.
4. The Airworthiness Directive comes into force from 29.01.2025 and terminates after its completing.

Attachment: Technical Solution dated 28.08.2024 No. I-K-Ми-8AMT-ГА-2024, on 5 pages.

Federal Air Transport
Agency Deputy Manager

C.M. Stramous

TECHNICAL

No. 1-K-Mи-8AMT-ГА-2024

On Inspecting 8AMT-4102-11 Universal Joint of Main Landing Gear Radial Rod Mi-8,
Mi-8AMT, Mi-171, Mi-171A2 Helicopters and their Modifications, Manufactured by
U-UAP, JSC
2024

1. Ground for performing procedure

1.1 Report on the investigation results of the aviation incident, which occurred on 10.03.2023 to Mi-8AMT helicopter RA-22802 of UTair-Helicopter Services, JSC when performing flight UTH-9947 as per the route: i.s. Vankor – i.s. Vankor-gruzovaya – 53 km of gazoprovoda – i.s. Vankor dated 09.08.2023.

2. Purpose.

Examining 8AMT-4102-11 universal joints of main landing gear radius rods on Mi-8, Mi-8AMT, Mi-171, Mi-171A2 helicopters and their modifications, manufactured by U-UAP, JSC, in operating organizations of the Russian civil aviation for the defects, which are similar to the defects, that were detected when investigating the aviation incident, occurred on 10.03.2023 to Mi-8AMT helicopter No. RA-22802.

3. Brief description of the item

8AMT-4102-11 Universal Joint (ref. fig. 1 of TC No. 2) is a part with outline dimensions of 40×40×97 mm of 30ХГСА pressed steel. The material hardness after quenching is 35.5...40.5 HRC. Fork eyes surfaces, radius blends R4 are strengthened by cold hardening after thermal treatment. The assigned service time of 8AMT-4102-11 universal joint is not determined. Operating 8AMT-4102-11 universal joint shall comply with the time limits of the airframe, where the universal joint is installed.

Due to the detected fatigue cracks when repairing and damaged universal joint during operation with the operating time, which is significantly less than the assigned service time, the following solution is made:

SOLUTION:

1. Organizations operating Mi-8, Mi-8AMT, Mi-171, Mi-171A2 helicopters and their modifications manufactured by U-UAP, JSC, during the nearest form of periodic maintenance, shall perform their one-time inspections, as follows:

1.1. Measuring total vertical, longitudinal and lateral free plays of main landing gears followed by comparing the measured values with maximum permitted values of free plays as per Task Card No. 1.

If any exceeded values of main landing gear total free plays are detected, repairing bolt attachments is required in compliance with Mi-171PK Overhaul Manual, Book 3, Helicopter Systems, Part 7. Landing Gear. Pneumatic System. Task Card No. 501. Assembly and Installation of Main Landing Gear.

1.2. Non-destructive testing 8AMT-4102-11 universal joints of main landing gear radial rods in compliance with Task Card No. 2.

The universal joints that are manufactured with deviations from the values as per Task Card No. 2, or the items with detected cracks are to be replaced by the new ones (the first category).

The information on the damaged universal joints is to be provided to Helicopters Mil and Kamov, JSC, U-UAP, JSC and Federal Air Transport Agency.

2. If there are no remarks, continue operating the helicopters.

3. All procedures are performed by the operating organizations at their own expense.

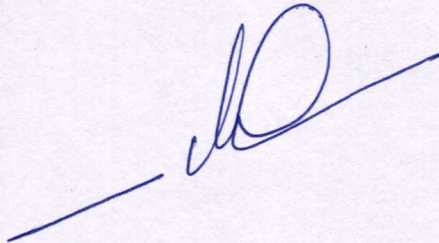
Attachment:

1. Task Card No. 1. Measuring Total Vertical and Longitudinal Play of Main Landing Gear in Mi-8 Helicopter;

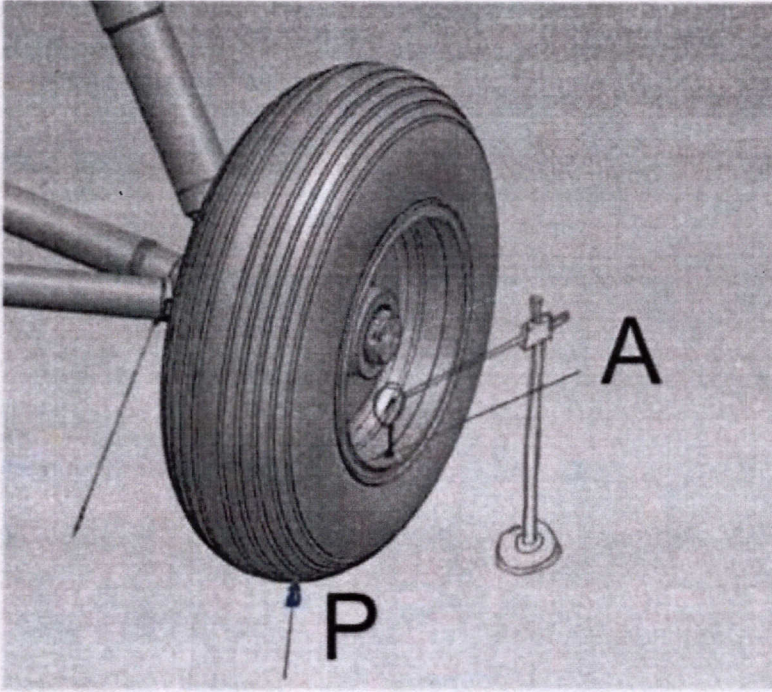
2. Task Card No. 2. 8AMT-4102-11 Universal Joint of Main Landing Gear Radial Rods Non-destructing Testing in Mi-8 Helicopter.

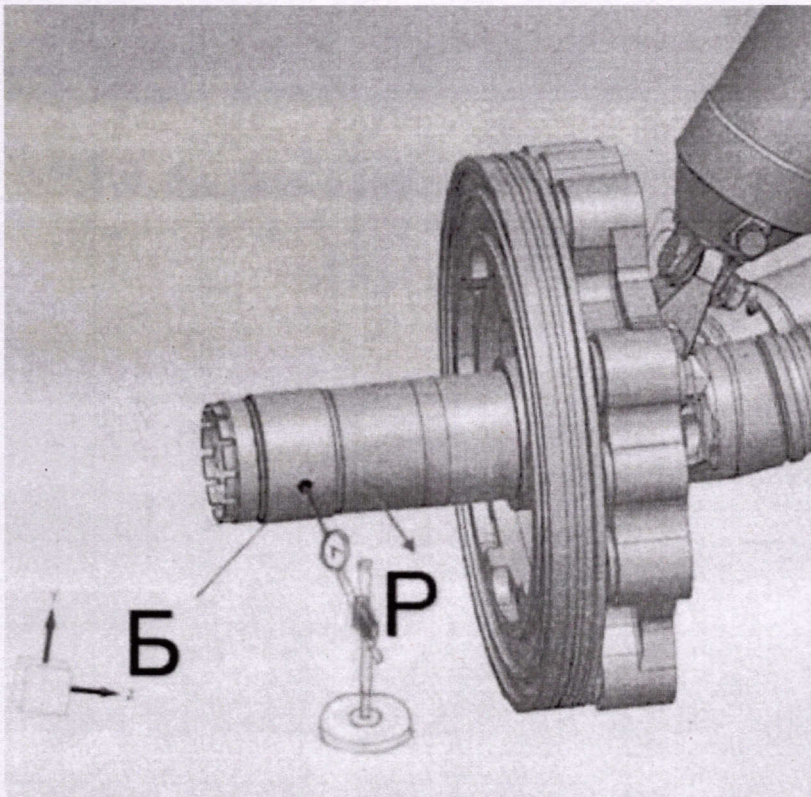
Translation from Russian into English is approved.

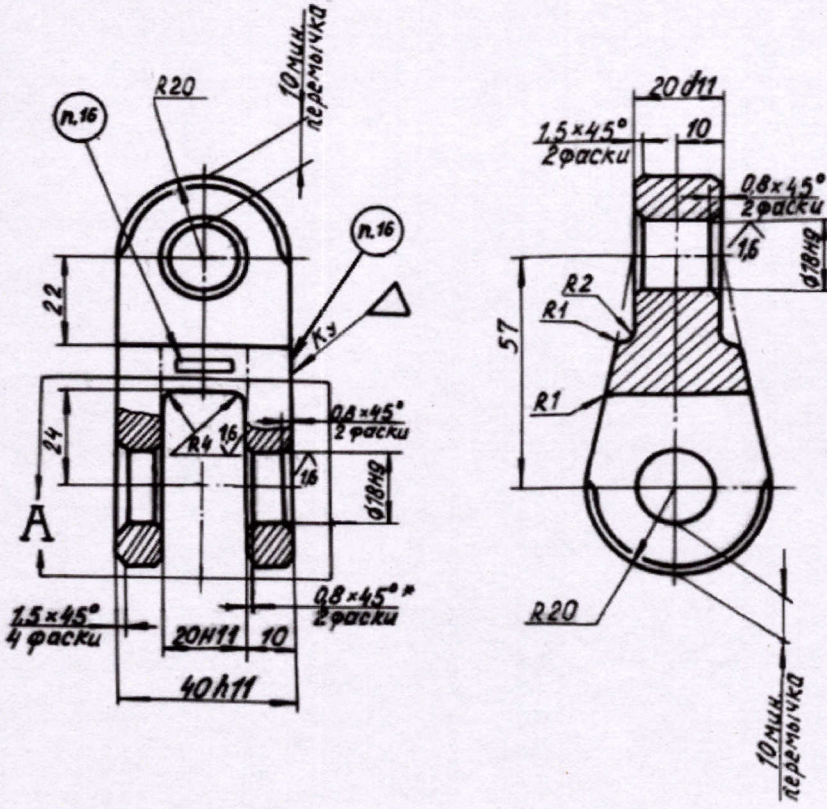
Chief Designer for Aftersales
Support and Operation



A.M. Soldatov

	TASK CARD NO. 1	Pages 2
MS Item — —	Procedure: Measuring Total Vertical and Longitudinal Play of Main Landing Gear	Manhours 4.00
Procedure and Technical Requirements (TR)		Corrective Actions
Measurement of total vertical and longitudinal play of main landing gear shall be performed in the following order: 1. Perform preliminary operations, for which purpose put the helicopter on hydraulic jacks and lift it until the wheels are off the ground. 2. Put the support of 246-9921-3100 type fixture on a horizontal platform near the wheel (at a distance 25 ... 50 mm), as shown in Fig. 1. 3. Set the indicator ИЧ10 so that the tip of its rod rests with a slight tension on the wheel flange at point A and tighten the retainer wing nut, turn the dial to set the indicator pointer reading to '0'. 4. Using a lever, apply force P3= (80 ... 100) kgf vertically upwards at the point of contact of the tire with the ground. 5. Take indicator readings. Total vertical play value should not exceed 8.00 mm. 		If the total longitudinal and/or lateral play is exceeded, visually determine the assemblies with the greatest play by sharply shaking the landing gear by the wheel in the longitudinal and vertical direction. Dismantle the units and parts with worn-out assemblies. Perform micro measurement of the parts that form the worn-out assemblies. Repair the assemblies by installing repair bolts and by boring the appropriate holes in the parts up to the required size. At the same time, follow the Fits and Clearances Manual for Mi-8 helicopter.
Fig. 1 Measuring Total Vertical Play of Main Landing Gear 6. Dismantle the wheel KT97-310. 7. Put 246-9921-3100 type fixture on a horizontal platform in front of the wheel axle, as shown in Fig. 2. 8. Using a dynamometer and a cord (lanyard) with a diameter of 6 ... 10 mm, apply a force of P1 = (15 ... 17) kgf by hand to the wheel axle (in the area between the mounting surfaces of the bearings) in the direction from 246-9921-3100 type fixture.		

Procedure and Technical Requirements (TR)		Corrective Actions	Checked by
9. By moving the retainer along the slider or moving the fixture itself, set the indicator ИЧ10 so that the tip of its rod rests with a slight tension on the cylindrical part of the wheel flange at point Б and tighten the retainer wing nut, turn the dial to set the indicator pointer reading to '0'. 10. Take off the tension P1 and apply the tension P2 = (15 ... 17) kgf in the opposite direction. 11. Take indicator readings. Total play value should not exceed 8.00 mm.			
 Fig. 2 Measuring Total Longitudinal Play of Main Landing Gear			
12. Perform final works, for which purpose install the wheel KT97-310 and other parts, necessary for mounting the wheel to the helicopter. Lower the helicopter from the hydraulic jacks onto the wheels.			
Test Equipment	Tools and Fixtures	Expendable Materials	
Indicator ИЧ10 ГОСТ 577-68	246-9921-3100 Type Fixture Hydraulic Jacks 8AT-9907-00		

	TASK CARD NO. 2		Pages 1
MS Item — —	Procedure: 8AMT-4102-11 Universal Joint Non-destructing Testing		Manhours
Procedure and Technical Requirements (TR)		Corrective actions	Checked by
Dismantle the universal joint from the main landing gear. Clean the universal joint from dust, dirt and grease by cloth and wash it in petrol Nefras. Get it dry. Measure dimensions Ø18H9 (in the longitudinal and lateral planes of the part), 20d11, 20H11 with accuracy 0.01 mm.  Fig. 1 – 8AMT-4102-11 Universal Joint Sketch Perform non-destructing testing by dye penetrant inspection method for cracks, paying special attention to the places of fillets R4.		When the dimensions of Ø18H9 (measured in longitudinal and lateral planes of the part) deviate beyond the tolerance field more than 0.15 mm, this assembly should be repaired by Aircraft Repair Plant specialists according to the Overhaul Manual. When the dimensions of 20d11, 20H11 deviate beyond the tolerance field more than 0.1 mm, the part should be rejected. If there are cracks, the part should be rejected.	
Test Equipment	Tools and Fixtures	Expendable Materials	
	Caliper ШЦЦ-11-200-0,01 ГОСТ 166-89 7-fold Magnifying Glass ГОСТ 25703-83	Cotton Cloth Nefras-C 50/170 ГОСТ 8505-80 Indicator Fluid for Penetrant Inspection in Accordance with ГОСТ 18442-80, ГОСТ Р ИСО 3452-2-2009 Development Liquid for Penetrant Inspection in Accordance with ГОСТ 18442-80, ГОСТ Р ИСО 3452-2-2009	