



INSPECTION TEST PLAN

Project name:	GT-21
Page No.:	1 of 9
Confidentiality:	Confidential
Part No.:	7850F20P07
Doc. No.:	AEC_503978_2A
SAP ID: -	Reference No.:
	AEC_503200_0A

Part name: NUT-PLAIN, DRILLED HEX

IRANIAN AERO ENGINE & EQUIPMENT ENGINEERING & MANUFACTURING Co.

MAPNA AERO

INSPECTION TEST PLAN (ITP)

Title: NUT-PLAIN, DRILLED HEX

Project Name: GT-21

Prepared by: POA, Minor Parts Manufacturing Dept.





INSPECTION TEST PLAN

Project name: GT-21
Page No.: 2 of 9
Confidentiality: Confidential

Part name: NUT-PLAIN, DRILLED HEX

Part No.: 7850F20P07

Doc. No.: AEC_503978_2A

SAP ID: -

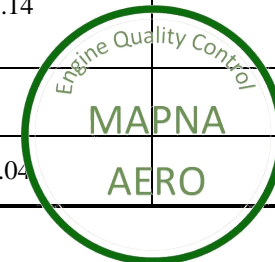
Reference No.: AEC_503200_0A

QTP Document (AEC_503200_0A)

Rev.	Description	#	Prepared By	Checked By		Approved By		Released By	Declared By
0A	First Issue	Position Title:	Joining Process Expert	Joining Process Expert	Outsourcing Manager	CVE	DOM	HOA	HDO
		Employee ID:	3465	0667	3243	3003	2917	3361	2667
		Date:	2023.01.10	2023.01.10		2023.01.10		2023.01.10	2023.01.10

ITP Document (AEC_503978_2A)

Rev.	Description	#	Prepared By	Checked By		Approved By	
0A	First Issue	Position Title:	Production Expert	Head of Minor Part Production	POA Manager	QC Manager	Quality Manager
		Employee ID:	3742	0667	1724	2191	3733
		Date:	2023.01.15	2023.01.15	2023.01.15	2023.01.15	2023.01.15
1A	Added Items: Tensile Test on Solution Heat Treated Material. Deleted Items: Stress-Rupture Test on Finished Parts.	Employee ID:	3731	0667	1724	2191	3733
		Date:	2023.11.14	2023.11.14	2023.11.14	2023.11.14	2023.11.14
2A	Raw Material Specification has been changed from AMS5731 to AMS5734	Employee ID:	3731	0667	1724	2191	3733
		Date:	2024.04.02	2024.04.02	2024.04.02	2024.04.04	2024.04.04





INSPECTION TEST PLAN

Project name:	GT-21
Page No.:	3 of 9
Confidentiality:	Confidential
Part No.:	7850F20P07
Doc. No.:	AEC_503978_2A
SAP ID: -	Reference No.: AEC_503200_0A

Part name: NUT-PLAIN, DRILLED HEX

#	Part Name	SAP	Drawing No.	Description
A	NUT-PLAIN, DRILLED HEX	-	AEC_220408	-





INSPECTION TEST PLAN

Project name:	GT-21
Page No.:	4 of 9
Confidentiality:	Confidential
Doc. No.:	AEC_503978_2A
Reference No.:	AEC_503200_0A

Part name: NUT-PLAIN, DRILLED HEX

Part No.: 7850F20P07

SAP ID: -

#	Terms and Definitions		
1	This document is not valid without MAPNA Aero Quality Control Dept. Stamp.		
2	HOLD POINT(H)*: Hold on the process till Purchaser’s MAPNA Aero QC inspector performs inspection and supervises the required test or activity. The Supplier cannot deviate from this rule unless written approval has been given by MAPNA Aero QC and from HOLD POINT will be changed to REVIEW and APPROVED (RA). The Supplier shall notify the Purchaser’s Inspector 7 working days in advance. Notification period for foreign inspection activities shall be considered as 45 days.		
	WITNESS POINT(W)*: The Supplier shall notify the Purchaser’s Inspector, but there is no hold on the process.		
	The Purchaser can waive this inspection based on its discretion. Supplier shall notify the MAPNA Aero QC inspector 7 working days in advance. Notification period for foreign inspection activities (if any) shall be considered as 45 days.		
	REVIEW and APPROVED (RA)*: The Supplier shall submit the relevant documents of inspection/Activity for review and approve within 7 working days after inspection/activity. The Supplier shall not continue the work without Purchaser’s approval.		
3	Type of Documentation:	REVIEW(R): The Supplier shall submit the relevant documents of inspection/Activity for review.	
		C1: Certificate of Conformity approved by the manufacturer. C2: Certificate of Conformity approved by the manufacturer’s authorized inspection representative/ third party independent of the manufacturing department. C3: Certificate of Conformity approved by MAPNA Aero QC. T1: Test report approved by the manufacturer. T2: Test report approved by the manufacturer’s authorized inspection representative/ third party independent of the manufacturing department. T3: Test report approved by MAPNA Aero QC. Q: Qualification Certificate/Procedure/Doc. approved by MAPNA Aero QC.	
4	Approved Project Spec.: Prior to production, each required procedure shall be prepared by the supplier and submitted to MAPNA Aero QC department for final approval.		
5	WPS, PQR, Weld map & NDT map shall be checked and Approved by purchaser/client.		
6	The supplier shall provide the MQCP document covering the requirements of this ITP. The requirements & inspection levels specified in this ITP is at minimum.		
7	In the case of Nondestructive Tests (Penetrant Test, Ultrasonic Test, Eddy Current Test, Magnetic Particle Test and X-ray Radiography Test), the Supplier shall also submit the procedure for each part 30 days in advance and demonstrate it before inspection/activity. The Supplier shall not perform the NDT inspection/Activity without Purchaser’s approval		

Engine Quality Control

MAPNA

AERO



* In this document MAPNA AERO refers to the Iranian Aero Engine and Equipment Engineering & Manufacturing Company.



INSPECTION TEST PLAN

Project name: GT-21
Page No.: 5 of 9
Confidentiality: Confidential
Doc. No.: AEC_503978_2A
Reference No.: AEC_503200_0A

Part name: NUT-PLAIN, DRILLED HEX

Part No.: 7850F20P07

SAP ID: -

Qualification

#	Inspection/Activity	Reference	QC Point (MAPNA Aero)	Documentation	Note
A.1	Laboratory Certificate	Laboratory Certificate	RA	Q	-
A.2	Packing Plan Review	Approved Project Spec.	RA	Q	-
A.3	Calibration Certificate	Approved Project Spec.	RA	Q	-
A.4	NDT Personnel Qualification	EN 4179	RA	Q	-
A.5	Heat Treatment Furnace Calibration Certificate	Approved Project Spec.	RA	Q	-

Raw Material Check (Prior Manufacturing)

#	Inspection/Activity	Reference of Test Method	Reference of Acceptance Criteria	Frequency of Tests (%)		QC Point (MAPNA Aero)	Documentation	Note
				First Article	Production			
A.6	Material Certificate	-	EN 10204-3.2	100	100	RA	C3	-
A.7	Chemical Composition Analysis	AMS5734 Rev. K, ASTM E353	AMS5734-3.1, AMS2248	100	100	RA	T3	From each heat or lot, determined by wet chemical, spectrochemical or other analytical methods.
A.8	Visual Test (VT)	DIN EN 13018, AMS5734-3.6	AMS5734-3.3.1, AMS5734-3.6	100	100	H	T3	Bars: Shall be solution heat treated/ Shall be uniform in quality and condition, sound, and free from





INSPECTION TEST PLAN

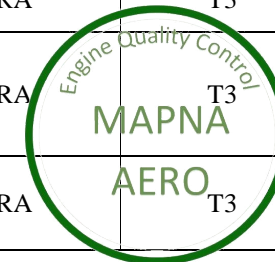
Project name: GT-21
 Page No.: 6 of 9
 Confidentiality: Confidential
 Doc. No.: AEC_503978_2A
 Reference No.: AEC_503200_0A

Part name: NUT-PLAIN, DRILLED HEX

Part No.: 7850F20P07

SAP ID: -

#	Inspection/Activity	Reference of Test Method	Reference of Acceptance Criteria	Frequency of Tests (%)		QC Point (MAPNA Aero)	Documentation	Note
				First Article	Production			
								foreign materials & imperfections.
A.9	Dimensional Check	AMS5734-3.7.1	Drawing, AMS2241	100	100	H	T3	Acc. to Drawing.
A.10	Tensile Test	ASTM E8/E8M	AMS5734-3.5.1.1.1	20	20	RA	T3	As Solution Heat Treated: Shall have a tensile strength not higher than 105 ksi (724 MPa). (Applicable for Bars 12.7 mm and Below).
A.11	Hardness Test	ASTM E10	AMS5734-3.5.1.1.2	20	20	RA	T3	As Solution Heat Treated: Shall have hardness not higher than 201 HB. (Applicable for Bars over 12.7 mm).
A.12	Heat Treatment Cycle Check	-	AMS5734-3.5.1.2	100	100	RA	T3	Pyrometry shall be in accordance with AMS2750. Graph shall be reported.
A.13	Tensile Test	ASTM E8/E8M	AMS5734-3.5.1.2.1	20	20	RA	T3	As Precipitation Heat Treated
A.14	Hardness Test	ASTM E10	AMS5734-3.5.1.2.2	20	20	RA	T3	As Precipitation Heat Treated/ Shall be 277 to 363 HB.
A.15	Stress-Rupture Test (At 649 °C)	AMS5734-3.5.1.2.4, ASTM E139, ASTM E292	AMS5734-3.5.1.2.4	20	20	RA	T3	As Precipitation Heat Treated/





INSPECTION TEST PLAN

Project name: GT-21
 Page No.: 7 of 9
 Confidentiality: Confidential
 Part No.: 7850F20P07
 SAP ID: -
 Doc. No.: AEC_503978_2A
 Reference No.: AEC_503200_0A

Part name: NUT-PLAIN, DRILLED HEX

#	Inspection/Activity	Reference of Test Method	Reference of Acceptance Criteria	Frequency of Tests (%)		QC Point (MAPNA Aero)	Documentation	Note
				First Article	Production			
								Shall not rupture in less than 23 hours.

Note: sampling and plumping should be done in presence and supervision of MAPNA Aero QC and samples should be sent to the related approved laboratory for test.

Finished Forged Parts

#	Inspection/Activity	Reference of Test Method	Reference of Acceptance Criteria	Frequency of Tests (%)		QC Point (MAPNA Aero)	Documentation	Note
				First Article	Production			
A.16	Heat Treatment Cycle Check	-	AMS5734-3.5.1.2 AS7251 Rev. C-3.5	100	100	RA	T3	Pyrometry shall be in accordance with AMS2750. Graph shall be reported.
A.17	Visual Test (VT)	-	Drawing, AS7251-3.13	100	According to AS7251-Table 10 & 11	H	T3	Parts shall be uniform in quality and condition, free from burrs, foreign materials, and from imperfections.
A.18	Dimensional Check	-	Drawing, AS7251-3.2.1, AS7251-3.2.2, AS8879	100	According to AS7251-Table 10 & 11	H	T3	General measurement tools; Checking control Go No Go gage; Check including: Surface Texture; Threads; Chamfer; Geometric Tolerances. The dimensions of finished parts, after





INSPECTION TEST PLAN

Project name: GT-21
 Page No.: 8 of 9
 Confidentiality: Confidential
 Doc. No.: AEC_503978_2A
 Reference No.: AEC_503200_0A

Part name: NUT-PLAIN, DRILLED HEX

Part No.: 7850F20P07

SAP ID: -

#	Inspection/Activity	Reference of Test Method	Reference of Acceptance Criteria	Frequency of Tests (%)		QC Point (MAPNA Aero)	Documentation	Note
				First Article	Production			
								all processing, including plating, shall conform to the part drawing
A.19	Fluorescent Penetrant Inspection (FPI)	ASTM E1417/E1417M, Type 1, Minimum Sensitivity Level 2	AS7251-3.6, AS3071	100	According to AS7251-Table 10 & 11	H	T3	Prior to any required plating or coating and following all forming, deformation and heat treatment
A.20	Hardness Test	MIL-STD-1312-6, NASM1312-6	AS7251-3.5.1	20	According to AS7251-Table 12	RA	T3	the core hardness after heat treatment shall be no greater than 46 HRC
A.21	Axial Tensile Strength	NASM 1312-8	AS7251-3.9.1	20	According to AS7251-Table 12	RA	T3	The nuts shall not crack during test
A.22	Plating or Coating Inspection	-	Drawing, AS7251-3.4.2, AS7251-3.7, AS7251-3.11	100	According to AS7251-Table 10 & 11	RA	T3	Where required, thickness requirement per applicable specification.



Final Inspection

#	Inspection/Activity	Reference	QC Point (MAPNA Aero)	Documentation	Note
A.23	Final Visual Check	Drawing; AS7251-3.13	H	T3	Damage, Quantity and etc.
A.24	Marking Check	Drawing	H	T3	-



INSPECTION TEST PLAN

Project name: GT-21
Page No.: 9 of 9
Confidentiality: Confidential

Part name: NUT-PLAIN, DRILLED HEX

Part No.: 7850F20P07

Doc. No.: AEC_503978_2A

SAP ID: -

Reference No.: AEC_503200_0A

#	Inspection/Activity	Reference	QC Point (MAPNA Aero)	Documentation	Note
A.25	Documentation Check	Acc. to this ITP	RA	Q	1) Final book (Final Dossier) 2) Shipping Documents & Packing list
A.26	Preservation and Packing Check	Acc. to ATA 300	H	C3	-
A.27	IRN (Inspection Release Note)	Acc. to this ITP	H	T3	-

