## **BOLT ASSEMBLY (6528322)**

SL.NO	PART NO.	ASSY/COMPONENT	NOMENCLATURE	<u>PAGE</u>
1	6147463		BOLT SUB ASSEMBLY	84
2	6528256		BOLT, ALTERNATE FEED	85
3	5013529	COMPONENTS	PIN, SHOULDER, HEADLESS	86
4	5009385		PIN, STRAIGHT, HEADLESS	87
5	5152858		PLATE, RECOIL	88
6	6008976		EXTENSION ASSEMBLY, FIRING PIN	89
7	5009353	EXTENSION ASSEMBLY, FIRING PIN &	SPRING, HELICAL COMPRESSION	90
8	5009382	CONTROLL	PIN, STRAIGHT, HEADLESS	91
9	6008946		EXTENSION, FIRING PIN	92
10	5504062	COMPONENT	SWITCH, BOLT	93
11	6009718	COMPONENT	LEVER, COCKING	94
12	7161300	COMPONENT	LOCK, ACCELERATOR STOP	95
13	7161301	COMPONENT	STOP, ACCELERATOR	96
14	5504067	COMPONENT	SEAR	97
15	5351220	COMPONENT	SLIDE, SEAR	98
16	5009524	COMPONENT	SPRING, HELICAL COMPRESSION	99
17	7312078	COMPONENT	PIN, COCKING LEVER	100
18	6008959		EXTRACTOR ASSEMBLY, SMALL ARMS CARTRIDGE	101
19	5009523		SPRING, HELICAL COMPRESSION	102
20	5504065	EXTRACTOR ASSEMBLY, SMALL ARMS CARTRIDGE & COMPONENTS	EXTRACTOR	103
21	6009732	7.11.11.0 37.11.11.12.0 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3.	EJECTOR, SMALL ARMS CARTRIDGE	104
22	5009273	-	PIN, EJECTOR	105
23	7310080	COMPONENT	PIN, FIRING	106

	QUALITY ASSURANCE PLAN (M2HB GUN IM PHASE)											
Drg . No.	6528322											
Nommenclature	BOLT ASSEMBLY	BREECH	H, OOW50BMG. RI	EQD FOR HB A	SSEMBLY (726563	36)			QAP No: OFT/QAP/M2HB/6528322			
Material	AS PER MATERIAL	SPECIFI	CATION IN THE AS	SEMBLY PARTLI	ST.							
Component Nomenclature/ operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Inspection by GM/OFT (Review/Witness)	Remarks					
	General appearance	Non Critical	Visual	100%			Firm Inspection report	R				
Bolt assembly Breech (Raw material)	Chemical properties	Non Critical	Chemical Lab analysis	100%	AS PER MATERIAL	SPECIFICATION IN THE ASSEMBLY PARTLIST.	Test report from NABL lab	R	Sample will be drawn and sealed by Inspection Agency			
(Naw Haterial)	Mechanical properties	Non Critical	Mechanical Lab analysis	100%			Test report from NABL lab	R				
Heat Treatment	Mechanical properties	Non Critical	Mechanical Lab analysis	100%	As per Draw	ing 6528322 & Components	Test report from NABL lab	R				
Protective Finish	General appearance	Non Critical	Visual and Dimensional Checks	100%	Test report  As per Drawing 6528322 & Components from R  NABL lab				Firm will be undertaking 100 % Checks and			
In process	Dimensions Specified in the Inspection report of the component	Non Critical	Dimensional measurement	100%	As per Drawing 6528322 & Components		Firm Inspection report	R	Pre inspection Report for the same be submitted			
Final Inspection	General appearance	Non Critical	Visual and Dimensional Checks	100%	As per Drawing 6528322 & Components Firm Inspection report  W							

\*Note: As per the MoU No: OFT / SRCG / M2HBGun / MoU /01 Dt: 20.09.2021, Clause 3(c) sub clause (i) NAI, Trichy may do Surveillance audit of the reports, if applicable.

(ii) In case of hard ware items, NAI, Trichy will review the reports, if required.

Manugado Civilian Technical Officer (Mech)

for Prosipal Inspector Of Naval Armament
Tiruchirappalli.

G. DEVENDIKANE, I.O. 1-3.

ASST. WORKS MANAGER

GOVT. OF. INDIA, MIN. OF DEVENCE

ORDNANCE FACTURE.

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	QUALITY ASSURANCE PLAN (M2HB GUN IM PHASE)											
Drg . No.	6147463								·			
Nommenclature	BOLT SUB ASSE	MBLY ,		QAP No: OFT/QAP/M2HB/6147463								
Material	AS PER MATERIAL	SPECIF										
Component Nomenclature/ operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Acceptance norms	Inspection by GM/OFT (Review/Witness)	Remarks				
	General appearance	Non Critical	Visual	100%			Firm Inspection report	R				
Bolt assembly Breech (Raw material)	Chemical properties	Non Critical	Chemical Lab analysis	100%	AS PER MATERIAL	SPECIFICATION IN THE ASSEMBLY PARTLIST.	Test report from NABL lab	R	Sample will be drawn and sealed by Inspection Agency			
	Mechanical properties	Non Critical	Mechanical Lab analysis	100%			Test report from NABL lab	R				
Heat Treatment	Mechanical properties	Non Critical	Mechanical Lab analysis	100%	As per Draw	ing 6147463 & Components	Test report from NABL lab	R				
Protective Finish	General appearance	Non Critical	Visual and Dimensional Checks	100%	As per Drawing 6147463 & Components		Test report from NABL lab	R	Firm will be undertaking 100 % Checks and			
In process	Dimensions Specified in the Inspection report of the component	Non Critical	Dimensional measurement	100%	As per Drawing 6147463 & Components		Firm Inspection report	R	Pre inspection Report for the same be submitted			
Final Inspection	General appearance	Non Critical	Visual and Dimensional Checks	100%	As per Drawing 6147463 & Components Firm Inspection report W			W				

\*Note: As per the MoU No: OFT / SRCG / M2HBGun / MoU /01 Dt: 20.09.2021, Clause 3(c) sub clause (i) NAI, Trichy may do Surveillance audit of the reports, if applicable. (ii) In case of hard ware items, NAI, Trichy will review the reports, if required.

NAI

Civilian Technical Officer (Mech)

for Principal Inspector Of Waval Armamen(

Thumifappalli.

OEVEN OF RENE, 1.0.5.3.

VASST WORKS MANAGER

GOVE OF INDIA, MIN. OF DEFENCE

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	QUALITY ASSURANCE PLAN (M2HB GUN IM PHASE)												
Drg . No. Nommenclature	6528256 BOLT, ALTERNATE	FEED, C	OOW50BMG : REQD	FOR BOLT SUE	3 ASSEMBLY ( 61	47463)			QAP No: OFT/QAP/M2HB/6528256				
Material  Component  Nomenclature/ operations	ALLOY STEEL BAR Characteristics	, ASTM A	Type of check	Quantum of check	Inspection by NAI or their authorised Rep. (Review/Witness) (*)	Remarks							
	General appearance	Critical	Visual	100%			Firm Inspection report	R					
Bolt, Alternate Feed (Raw material)	Chemical properties	Critical	Chemical Lab analysis	100%	ALLOY STEEL	BAR, ASTM A331 OR A322, GRADE E 4340.	Test report from NABL lab	. R	Sample will be drawn and sealed by Inspection Agency				
(	Mechanical properties	Critical	Mechanical Lab analysis	100%			Test report from NABL lab	R					
Heat Treatment	Mechanical properties	Critical	Mechanical Lab analysis	100%	MINIMUM FOR ON TRANSFER TO NEU 802°C TO 829°C. Q HOLD FOR 20 MIN FOLLOWING IS MA HOUR MINIMUM TO B) LOCAL INDUCTI- TEMPER ONE HOU C53-59. SHEET 7 P	MACHINING, STRESS RELIEVE AT 566°C  NE HOUR. FINISH MACHINE. PREHEAT AT 510°C.  ITRAL SALT BATH OR NEUTRAL ATMOSPHERE AT  UENCH IN MARTEMPERING SALT AT 218°C.  UTES. (ABOVE IS FOR GUIDANCE ONLY) THE  ANDATORY: TEMPER 371°C MINIMUM FOR ONE  TO ROCKWELL C40-46.  ON HARDEN ZONE "A" (C4, SHEET 7). DOUBLE  IR + ONE HOUR, 204°C- 232°C TO ROCKWELL  ROVIDES A SUGGESTED TEST METHOD FOR THE  9 HARDENED ZONE "A".	Test report from NABL lab	R	Firm will be undertaking 100 % Checks and Pre inspection Report for the same be submitted				
In process -As per Drawing 6528256	Dimensions Specified in the Inspection report of the component	Critical	Dimensional measurement	100%		As per Drawing 6528256	Firm Inspection report	R					
Final Inspection	General appearance	Critical	Visual and Dimensional Checks	100%		As per Drawing 6528256	Firm Inspection report	W					

(ii) For springs manufactured In-house (OFT) - Dimension inspection, Load Testing on sampling basis. (iii) For springs procured from vendors - from raw material to finished product QA by NAI, Trichy.

P Ayumugan Civilian Technical Officer (Mech) for Principal Inspector Of Naval Armament Tiruchirappalli.

G.DEVENDIRANE, I.O.F.S.

ASST. WORKS MANAGER
ASST. WORKS MIN. OF. DEFENCE
GOVT. OF. INDIA, MIN. OF. DEFENCE
ORDNANCE FACTORY
TIRUCHIRAPPALIT

	QUALITY ASSURANCE PLAN											
,					N IM PHASE)				Date of Issue / / 2021			
Drg . No.	5013529								QAP No:			
Nommenclature	Nommenclature PIN, SHOULDER, HEADLESS, OOW50BMG: REQD FOR BOLT SUB ASSEMBLY (6147463)											
Material												
Component Nomenclature/ operations	Characteristics	Remarks										
	General appearance	Non Critical	Visual	100%			Firm Inspection report	R				
Pin, Shoulder, Headless (Raw material)	Chemical properties	Non Critical	Chemical Lab analysis	100%		STEEL, ASTM A576: 1075,1080,1090,1095 OR ASTM A686: CLASS W1-8 THRU 10, GRADE 'C' OR ASTM A331 OR A322, 6150.		R	Sample will be drawn and sealed by Inspection Agency			
	Mechanical properties	Non Critical	Mechanical Lab analysis	100%			Test report from NABL lab	R				
Heat Treatment	Mechanical properties	Non Critical	Mechanical Lab analysis	100%	HEAT AT 788°C TO A HOUR MINIMUM TO FOR 6150: HEAT AT 843°C TO	195, W-1-8 THRU 10: 815°C. OIL QUENCH. TEMPER FOR ONE O HARDNESS SPECIFIED. (RH A 72-76) 871°C. OIL QUENCH. TEMPER FOR ONE O HARDNESS SPECIFIED. (RH A 72-76)	Test report from NABL lab	R	Firm will be undertaking			
Protective Finish	General appearance	Non Critical	Visual and Dimensional Checks	100%	MIL-STD-171 Finish 5.3.1.2 (or) 5.3.2.2		Test report from NABL lab	R	100 % Checks and Pre inspection Report for the same be submitted			
In process -As per Drawing 5013529	Dimensions Specified in the Inspection report of the component	Non Critical	_ Dimensional measurement	100%	As per Drawing 5013529		Firm Inspection report	R				
Final Inspection	General appearance	Non Critical	Visual and Dimensional Checks	100%	As per Drawing 5013529 Firm Inspection W							

\*Note : As per the MoU No: OFT / SRCG / M2HBGun / MoU /01 Dt: 20.09.2021, Clause 3(c) sub clause (i) NAI, Trichy may do Surveillance audit of the reports, if applicable. (ii) In case of hard ware items, NAI, Trichy will review the reports, if required.

P Amaningani

Civilian Technical Officer (Mech) for Principal inspector Of Naval Armament Tiruchirappalli. CONTRACTORY OF THE PROPERTY OF

	QUALITY ASSURANCE PLAN												
		•		(M2HB GU	N IM PHASE)				Date of Issue / / 2021				
Drg . No.	5009385												
Nommenclature	PIN, STRAIGHT, HE		QAP No: OFT/QAP/M2HB/5009385										
Material	STEEL, ASTM A576	: 1095 OI											
Component Nomenclature/ operations	Characteristics	Inspection by GM/OFT (Review/Witness) (*)	Remarks										
	General appearance	Non Critical	Visual	100%			Firm Inspection report	R					
Pin, Straight, Headless (Raw material)	Chemical properties	Non Critical	Chemical Lab analysis	100%		6: 1095 OR STEEL ASTM A686: CLASS U 11, GRADE 'C' OR 1075 steel	Test report from NABL lab	R	Sample will be drawn and sealed by Inspection Agency				
	Mechanical properties	Non Critical	Mechanical Lab analysis	100%			Test report from NABL lab	R					
Heat Treatment	Mechanical properties	Non Critical	Mechanical Lab analysis	100%		OIL QUENCH AND TEMPER 1 HOUR DNESS SPECIFIED (RH 15N 80-83.5)	Test report from NABL lab	R					
Protective Finish	General appearance	Non Critical	Visual and Dimensional Checks	100%	MIL-STD-171	Finish 5.3.1.2 (or) 5.3.2.2	Test report from NABL lab	.R	Firm will be undertaking 100 % Checks and				
In process -As per Drawing 5009385	Dimensions Specified in the Inspection report of the component	Non Critical	Dimensional measurement	100%	As per Drawing 5009385		Firm Inspection report	R	Pre inspection Report for the same be submitted				
Final Inspection	General appearance	Non Critical	Visual and Dimensional Checks	100%	As	s per Drawing 5009385							

<sup>\*</sup>Note: As per the MoU No: OFT / SRCG / M2HBGun / MoU /01 Dt: 20.09.2021, Clause 3(c) sub clause (i) NAI, Trichy may do Surveillance audit of the reports, if applicable.

(ii) In case of hard ware items, NAI, Trichy will review the reports, if required.

P Malanagam

Civilian Technical Officer (Mech)

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	QUALITY ASSURANCE PLAN (M2HB GUN IM PHASE)												
Drg . No.	TOD TOD TOD TOD TOUR ACCUSED V (CAATCA2)												
Nommenclature	QAP No: - OFT/QAP/M2HB/5152858												
Material													
Component Nomenclature/ operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Acceptance norms	Remarks						
	General appearance	Non Critical	Visual	100%				R					
Plate, Recoil (Raw material)	Chemical properties	Non Critical	Chemical Lab analysis	100%		5, 1080, 1084 OR 1095 ASTM A576 OR 36 CLASS W1-8 THRU 10, GRADE 'C'.	Test report from NABL lab	R	Sample will be drawn and sealed by Inspection Agency				
	Mechanical properties	Non Critical	Mechanical Lab analysis	100%			Test report from NABL lab	R					
Heat Treatment	Mechanical properties	Non Critical	Mechanical Lab analysis	100%	1	HEAT AT 774°C TO 802°C. OIL QUENCH. TEMPER 1 HOUR MINIMUM TO HARDNESS SPECIFIED (RH C55-61.5)		R	Firm will be undertaking				
In process -As per Drawing 5152858	Dimensions Specified in the Inspection report of the component	Non Critical	Dimensional measurement	100%	As per Drawing 5152858		Firm Inspection report	R	100 % Checks and Pre inspection Report for the same be submitted				
Final Inspection	General appearance	Non Critical	Visual and Dimensional Checks	100%	As	per Drawing 5152858	Firm Inspection report	W					

(\*) Note: As per the MoU No: OFT / SRCG / M2HBGun / MoU /01 Dt: 20.09.2021, Clause No. 3(b), Sub clause (i) is applicable for In-House manufacturing and inspection by GM/OFT.

Sub clause (ii) is applicable for <u>out sourced</u> components. JRI will be done by NAI & OFT on sampling basis.

For springs: (i) Trade: Raw material to finished product QA by NAI. (ii) In house: Dimension inspection and Load test on sampling basis by NAI.

NA

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ASST.WORKS MANAGER

GOVT.OF.INDIA, MIN. OF, BEFENCE

ORDNANCE FACTORY

TIRUCHIRAPPALLI

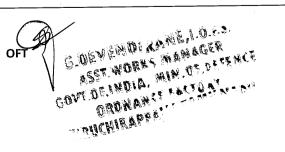
	QUALITY ASSURANCE PLAN (M2HB GUN IM PHASE)												
Drg . No.	6008976				·								
Nommenclature	EXTENSION ASSI	EXTENSION ASSEMBLY FIRING PIN, OOW50BMG. REQD FOR BOLT ASSEMBLY BREECH (6528322)											
Material	AS PER MATERIAL	SPECIFI		OFT/QAP/M2HB/6008976									
Component Nomenclature/ operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Inspection by GM/OFT (Review/Witness)	Remarks						
	General appearance	Non Critical	Visual	100%	Firm Inspection report			R					
Extension assembly firing Pin	Chemical properties	Non Critical	Chemical Lab analysis	100%	AS PER MATERIAL	SPECIFICATION IN THE ASSEMBLY PARTLIST.	Test report from NABL lab	. R	Sample will be drawn and sealed by Inspection Agency				
(Raw material)	Mechanical properties	Non Critical	Mechanical Lab analysis	100%			Test report from NABL lab	R					
Heat Treatment	Mechanical properties	Non Critical	Mechanical Lab analysis	100%	As per Draw	ing 6008976 & Components	Test report from NABL lab	R					
Protective Finish	General appearance	Non Critical	Visual and Dimensional Checks	100%	As per Draw	ing 6008976 & Components	Test report from NABL lab	R	Firm will be undertaking 100 % Checks and				
In process	Dimensions Specified in the Inspection report of the component	Non Critical	Dimensional measurement	100%	As per Drawing 6008976 & Components		Firm Inspection report	R	Pre inspection Report for the same be submitted				
Final Inspection	General appearance	Non Critical	Visual and Dimensional Checks	100%	As per Drawing 6008976 & Components Firm Inspection report W								

\*Note: As per the MoU No: OFT / SRCG / M2HBGun / MoU /01 Dt: 20.09.2021, Clause 3(c) sub clause (i) NAI, Trichy may do Surveillance audit of the reports, if applicable. (ii) In case of hard ware items, NAI, Trichy will review the reports, if required.

P Arumugam
Civilian Technical Officer (Mech)

for Principal Inspector Of Naval Armament

Theonirappalli.



## **QUALITY ASSURANCE PLAN** (M2HB GUN IM PHASE)

Issue No : 01 Rev No: 00

Date of Issue / / 2021

Drg . No.	5009353								QAP No:	
Nommenclature	SPRING, HELICAL	COMPRE	SSION, OOW50BM	G REQD FOR EX	(TENSION ASSEME	BLY FIRING PIN( 6008976)			OFT/QAP/M2HB/5009353	
Material	WIRE, STEEL, MUS	IC ASTM	A228							
Component Nomenclature/ operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Acceptance norms	Format of record	Inspection by NAI or their authorised Rep. (Review/Witness) (*)	Remarks	
	General appearance	Critical	Visual	100%		,	Firm Inspection report	R		
Spring, Helical Compression.	Chemical properties	Critical	Chemical Lab analysis	100%	WIRE, STEEL, MUSIC ASTM A228		Test report from NABL lab	R	Sample will be drawn and sealed by Inspection Agency	
(Raw material)	Mechanical properties	Critical	Mechanical Lab analysis	100%			Test report from NABL lab	- R		
Heat Treatment	Mechanical properties	Critical	Mechanical Lab analysis	100%	STRESS RELIEVE AT 2	24°C ± 5°C .FOR 30 Min After Coiling.	Test report from NABL lab	R		
Protective Finish	General appearance	Critical	Visual and Dimensional Checks	100%	MIL-STD-171	Finish 3.3.1 WITH MIL-PRF-3150 SUPPLEMENTARY OIL.	Test report from NABL lab	R	Firm will be undertaking	
In process -As per Drawing 5009353	Dimensions Specified in the Inspection report of the component	Critical	Dimensional measurement	100%	As p	As per Drawing 5009353		R	100 % Checks and Pre inspection Report for the same be submitted	
Load Test	Mechanical properties	Critical	Mechanical Lab analysis	100%	LOAD TEST SHOULD CARRIED OUT AS PER DRAWING 5009353		Firm Inspection report	R		
Final Inspection	General appearance	Critical	Visual and Dimensional Checks	100%	As per Drawing 5009353		Firm Inspection report	w		

(\*) Note: As per the MoU No: OFT / SRCG / M2HBGun / MoU /01 Dt: 20.09.2021, Clause no. 3(a), Sub clause (ii) & (iii) the following is applicable.

(ii) For springs manufactured In-house (OFT) - Dimension inspection, Load Testing on sampling basis.

(iii) For springs procured from vendors - from raw material to finished product QA by NAI, Trichy.

P Nardmugam

Civilian Technical Officer (Mech)

for Principal Inspector Of Navai Armement

Tiruchirappalli.



G.DEVENDIRANE, 1.O.F.S. ASST. WORKS MANAGER GOVT.OF.INDIA, MIN.OF.DEFENCE ORDNANCE FACTORY TIRUCHIRAPPALL

	QUALITY ASSURANCE PLAN (M2HB GUN IM PHASE)											
Drg . No.	5009382					FIRING PIN( 6008976)			QAP No:			
Nommenclature	OFT/QAP/M2HB/5009382											
Material	STEEL, ASTM A576											
Component Nomenclature/ operations	Characteristics	Remarks										
	General appearance	Non Critical	Visual	100%			Firm Inspection report	R				
Pin, Straight, Headless (Raw material)	Chemical properties	Non Critical	Chemical Lab analysis	100%	STEEL, ASTM A57 FINER, OR STEEL AS	6: 1095 AUSTENITIC GRAIN SIZE 5 OR TM A686: CLASS W1-8 THRU 9, GRADE 'C'.	Test report from NABL lab	R	Sample will be drawn and sealed by Inspection Agency			
•	Mechanical properties	Non Critical	Mechanical Lab analysis	100%			Test report from NABL lab	R .				
Heat Treatment	Mechanical properties	Non Critical	Mechanical Lab analysis	100%	SPEC. MIL-H-6875. TEMPER 1 HOUR M 15N 79.5-86)	OIL QUENCH OR MARQUENCH AND INIMUM TO HARDNESS SPECIFIED (RH	Test report from NABL lab	R				
Protective Finish	General appearance	Non Critical	Visual and Dimensional Checks	100%	MIL-STD-171 Finish 5.3.1.2 (or) 5.3.2.2		Test report from NABL lab	R	Firm will be undertaking  100 % Checks and  Pre inspection Report for the same be			
In process -As per Drawing 5009382	Dimensions Specified in the Inspection report of the component	Non Critical	Dimensional measurement	100%	As per Drawing 5009382		Firm Inspection report	R	submitted			
Final Inspection	General appearance	Non Critical	Visual and Dimensional Checks	100%		per Drawing 5009382  Trichy may do Surveillance audit of	Firm Inspection report	. vv				

\*Note: As per the MoU No: OFT / SRCG / M2HBGun / MoU /01 Dt: 20.09.2021, Clause 3(c) sub clause (i) NAI, Trichy may do Surveillance audit of the reports, if applicable.

(ii) In case of hard ware items, NAI, Trichy will review the reports, if required.

for Principal Inspector Of Naval Armament. Tiruchirappatii.

G.DEVENDIRANE, I.O.F.S.

ASST.WORKS MANAGER

GOVT.OF.INDIA, MIN.OF.DEFENCE

ORDNANCE FACTORY

TIRUCHIRAPPALL

	QUALITY ASSURANCE PLAN										
					IN IM PHASE)				Date of Issue / / 2021		
Drg . No.	6008946 EXTENSION, FIRING								QAP No:		
Nommenclature		OFT/QAP/M2HB/6008946									
Material	STEEL, ASTM A331	: 4130, 4	140.								
Component Nomenclature/ operations	Characteristics	Inspection by NAI or their authorised Rep. (Review/Witness) (*)	Remarks								
	General appearance	Critical	Visual	100%			Firm Inspection report	R			
Extension, Firing Pin (Raw material)	Chemical properties	Critical	Chemical Lab analysis	100%	STEE	EL, ASTM A331: 4130, 4140.	Test report from NABL lab	R	Sample will be drawn and sealed by Inspection Agency		
	Mechanical properties	Critical	Mechanical Lab analysis	100%	-		Test report from NABL lab	R			
Heat Treatment	Mechanical properties	Critical	Mechanical Lab analysis	100%	INDUCTION HARDE	N LENGTHS-H-AND-K-TEMPER 1 HOUR DNESS SPECIFIED (RH A74.5-78)	Test report from NABL lab	R			
Protective Finish	General appearance	Critical	Visual and Dimensional Checks	100%	MIL-STD-171	Finish 5.3.1.2 (or) 5.3.2.2	Test report from NABL lab	R	Firm will be undertaking 100 % Checks and Pre inspection Report for the same be		
In process -As per Drawing 6008946	Dimensions Specified in the Inspection report of the component	Critical	Dimensional measurement	100%	As per Drawing 6008946		Firm Inspection report	R	submitted		
Final Inspection	General appearance	Critical	Visual and Dimensional Checks	100%		As per Drawing 6008946					

(ii) For springs manufactured In-house (OFT) - Dimension inspection, Load Testing on sampling basis. (iii) For springs procured from vendors - from raw material to finished product QA by NAI, Trichy.

	QUALITY ASSURANCE PLAN (M2HB GUN IM PHASE)											
Drg . No.	5504062											
Nommenclature	SWITCH, BOLT, OC		QAP No: OFT/QAP/M2HB/5504062									
Material	STEEL, ASTM A322											
Component Nomenclature/ operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Acceptance norms	Format of record	Inspection by NAI / GM/OFT (Review/Witness) (*)	Remarks			
	General appearance	Non Critical	Visual	100%			Firm Inspection report	R				
SWITCH, BOLT (Raw material)	Chemical properties	Non Critical	Chemical Lab analysis	100%	STEEL, AST	M A322 OR A331 , 4140, 4340.	Test report from NABL lab	R	Sample will be drawn and sealed by Inspection Agency			
	Mechanical properties	Non Critical	Mechanical Lab analysis	100%			Test report from NABL lab	R				
Heat Treatment	Mechanical properties	Non Critical	Mechanical Lab analysis	100%	As per Drawing 5504062	HEAT AT 838°C TO 860°C. OIL QUENCH. TEMPER ONE HOUR MINIMUM TO HARDNESS SPECIFIED RH C45-51	Test report from NABL lab	R				
Protective Finish	General appearance	Non Critical	Visual and Dimensional Checks	100%	MIL-STD-171	Finish 5.3.1.2 (or) 5.3.2.2	Test report from NABL lab	R	Firm will be undertaking 100 % Checks and			
In process -As per Drawing 5504062	Dimensions Specified in the Inspection report of the component	Non Critical	Dimensional measurement	100%	As per Drawing 5504062		Firm Inspection report	R	Pre inspection Report for the same be submitted			
Final Inspection	General appearance	Non Critical	Visual and Dimensional Checks	100%	As	s per Drawing 5504062	Firm Inspection report	W				

(\*) Note: As per the MoU No: OFT / SRCG / M2HBGun / MoU /01 Dt: 20.09.2021, Clause No. 3(b), Sub clause (i) is applicable for In-House manufacturing and inspection by GM/OFT. Sub clause (ii) is applicable for out sourced components. JRI will be done by NAI & OFT on sampling basis.

For springs: (i) Trade: Raw material to finished product QA by NAI. (ii) In house: Dimension inspection and Load test on sampling basis by NAI.

P'Arumugam

Civillan Technical Officer (Mech)

for the cipal Inspector Of Naval Armament

Tiranirappalli.



IN THE STATE OF TH	QUALITY ASSURANCE PLAN (M2HB GUN IM PHASE)											
Drg . No.	6009718											
Nommenclature	LEVER, COCKING,	OOW50E	BMG REQD FOR E	BOLT ASSEMBL	Y BREECH ( 54283	322)						
Material	ALLOY STEEL BAR ALT: ALLOY STEEL, SHE ALLOY STEEL, PLA	S, COLE EET AND TES, AS EET, STF	STRIP, ASTM A506 TM A829, GRADES RIP, PLATE AMS 635	4331, GRADES 4 , GRADES 4340. 4340 9 (GRADE 4340)					QAP No: OFT/QAP/M2HB/6009718			
Component Nomenclature/ operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Acceptance norms	Format of record	Inspection by NAI or their authorised Rep. (Review/Witness) (*)	Remarks			
	General appearance	Critical	Visual	100%		, HOT WROUGHT, ASTM A322, GRADES 4340 G, COLD FINISHED , ASTM A331,	Firm Inspection report	R				
Lucia Carlina	Chemical properties	Critical	Chemical Lab analysis	100%		GRADES 4340 ALT: AND STRIP, ASTM A506, GRADES	Test report from NABL lab	R	Sample will be drawn and sealed by			
Lever, Cocking (Raw material)	Mechanical properties	Critical	Mechanical Lab analysis	100%	ALLOY STEEL, PLAT	4340. IES, ASTM A829, GRADES 4340 , STRIP, PLATE AMS 6359 (GRADE 4340) STRIP, PLATE, AMS 6454 (GRADE 4340)	NARI lah	R	and sealed by Inspection Agency			
Heat Treatment	Mechanical properties	Critical	Mechanical Lab analysis	100%	As per Drawing 6009718	HEAT AT 815°C - 843°C. OIL QUENCH. DOUBLE TEMPER AT 215°C FOR TWO HOURS PLUS ONE HOUR TO HARDNESS SPECIFIED RH C 52-59.	from	R	Firm will be undertaking			
Protective Finish	General appearance	Critical	Visual and Dimensional Checks	100%	MIL-STD-171	Finish 5.3.1.2 (or) 5.3.2.2	Test report from NABL lab	R	100 % Checks and Pre inspection Report for the same be			
In process -As per Drawing 6009718	Dimensions Specified in the Inspection report of the component	Critical	Dimensional measurement	100%	As per	r Drawing 6009718	Firm Inspection report	R	Submitted			
Final Inspection	General appearance	Critical	Visual and Dimensional Checks	100%	As per	r Drawing 6009718	Firm Inspection report	w				

(ii) For springs manufactured In-house (OFT) - Dimension inspection, Load Testing on sampling basis.

(iii) For springs procured from vendors - from raw material to finished product QA by NAI, Trichy.

P Arumugam (Civilian Technical Officer (Mech)

for Principal Inspector Of Naval Armament

Tiruchirappaili.

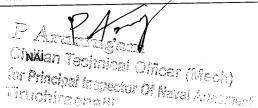
G.DEVENDIRANE, I.O.F.S.

ASST WORKS MANAGER
GOVT. OF. INDIA, MIN. OF. DEFENCE
ORDNANCE FACTORY.
TIRUCHIRAPPALLI

	QUALITY ASSURANCE PLAN (M2HB GUN IM PHASE)												
Drg . No.	7161300												
Nommenclature	LOCK, ACCELERAT	OR STOR		QAP No:									
Material	STEEL, AMS-QQ-S-	700: 1065		OFT/QAP/M2HB/7161300									
Component Nomenclature/ operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Acceptance norms	Format of record	Inspection by NAI / GM/OFT (Review/Witness) (*)	Remarks				
	General appearance	Non Critical	Visual	100%			Firm Inspection report	R	Course will be drawn				
Lock, Accelerator Stop (Raw material)	Chemical properties	Non Critical	Chemical Lab analysis	100%	STEEL, AMS-QQ-S 1095, SOFT TYPE	STEEL, AMS-QQ-S-700: 1065; ASTM A684; 1085 OR 1095, SOFT TYPE ANNEALED; OR ASTM A322 OR A331, 4130		R	Sample will be drawn and sealed by Inspection Agency				
	Mechanical properties	Non Critical	Mechanical Lab analysis	100%			Test report from NABL lab	R					
Heat Treatment	Mechanical properties	Non Critical	Mechanical Lab analysis	100%	HEAT AT 843°C T HOUR MINIMUM METHOD IS I TEMPERING TIME	065,1085, 1095 STEEL  T AT 815°C TO 843°C.  FOR 4130 STEEL  O 871°C. OIL QUENCH. TEMPER 1  TO RHA 74-78. HEAT TREATMENT FOR GUIDANCE ONLY EXCEPT  E SHALL NOT BE REDUCED BELOW  THAT SPECIFIED.	Test report from NABL lab	R	Firm will be undertaking 100 % Checks and Pre inspection Report for the same be				
Protective Finish	General appearance	Non Critical	Visual and Dimensional Checks	100%	MIL-STD-171	Finish 5.3.1.2 (or) 5.3.2.2	Test report from NABL lab	R	submitted				
In process -As per Drawing 7161300	Dimensions Specified in the Inspection report of the component	Non Critical	Dimensional measurement	100%	As p	per Drawing 7161300	Firm Inspection report	R					
Final Inspection	General appearance	Non Critical	Visual and Dimensional Checks	100%	As p	per Drawing 7161300	Firm Inspection report	W					

(\*) Note: As per the MoU No: OFT / SRCG / M2HBGun / MoU /01 Dt: 20.09.2021, Clause No. 3(b), Sub clause (i) is applicable for In-House manufacturing and inspection by GM/OFT. Sub clause (ii) is applicable for out sourced components. JRI will be done by NAI & OFT on sampling basis.

For springs: (i) Trade: Raw material to finished product QA by NAI. (ii) In house: Dimension inspection and Load test on sampling basis by NAI.





		Issue No : 01 Rev No: 00 Date of Issue / / 2021											
Drg . No.													
Nommenclature	STOP, ACCELERAT		QAP No: OFT/QAP/M2HB/7161301										
Material	STEEL, ASTM A322	OR A33	1: 6150,8645 OR 865	50.									
Component Nomenclature/ operations	Characteristics	Remarks											
	General appearance	Non Critical	Visual	100%			Firm Inspection report	R					
Stop Accelerator (Raw material)	Chemical properties	Non Critical	Chemical Lab analysis	100%	STEEL, ASTM A	.322 OR A331: 6150,8645 OR 8650.	Test report from NABL lab	R	Sample will be drawn and sealed by Inspection Agency				
	Mechanical properties	Non Critical	Mechanical Lab analysis	100%	-	_	Test report from NABL lab	R					
Heat Treatment	Mechanical properties	Non Critical	Mechanical Lab analysis	100%		O 871°C. OIL QUENCH. TEMPER ONE TO HARDNESS SPECIFIED RH A73.5-77.	Test report from NABL lab	R					
Protective Finish	General appearance	Non Critical	Visual and Dimensional Checks	100%	MIL-STD-171	Finish 5.3.1.2 (or) 5.3.2.2	Test report from NABL lab	R	Firm will be undertaking 100 % Checks and				
In process -As per Drawing 7161301	Dimensions Specified in the Inspection report of the component	Non Critical	Dimensional measurement	100%	As	per Drawing 7161301	Firm Inspection report	R	Pre inspection Report for the same be submitted				
Final Inspection	General appearance	Non Critical	Visual and Dimensional Checks	100%	As	per Drawing 7161301	Firm Inspection report	W					

(\*) Note: As per the MoU No: OFT / SRCG / M2HBGun / MoU /01 Dt: 20.09.2021, Clause No. 3(b), Sub clause (i) is applicable for In-House manufacturing and inspection by GM/OFT. Sub clause (ii) is applicable for out sourced components. JRI will be done by NAI & OFT on sampling basis.

For springs: (i) Trade: Raw material to finished product QA by NAI. (ii) In house: Dimension inspection and Load test on sampling basis by NAI.

\* As per the MoU No: OFT / SRCG / M2HBGun / MoU /01 Dt: 20.09.2021

P Marumugam / Civilian Technical Officer (Mech)

for Principal Inspector Of Navai Armament Tiruchirappalli.

	QUALITY ASSURANCE PLAN (M2HB GUN IM PHASE)													
Drg . No.	5504067								QAP No:					
Nommenclature	SEAR, OOW50BMG	:REQD		QAP No: OFT/QAP/M2HB/5504067										
Material	STEEL, ASTM A304	EEL, ASTM A304: 4140H.												
Component Nomenclature/ operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Acceptance norms	Format of record	Inspection by NAI or their authorised Rep. (Review/Witness) (*)	Remarks					
	General appearance	Critical	Visual	100%			Firm Inspection report	R						
Sear (Raw material)	Chemical properties	Critical	Chemical Lab analysis	100%	STE	EL, ASTM A304: 4140H.	Test report from NABL lab	R	Sample will be drawn and sealed by Inspection Agency					
	Mechanical properties	Critical	Mechanical Lab analysis	100%		· 	Test report from NABL lab	R						
Heat Treatment	Mechanical properties	Critical	Mechanical Lab analysis	100%		O 871°C. OIL QUENCH. TEMPER ONE O HARDNESS SPECIFIED RH A75.5-78.5	Test report from NABL lab	. R						
Protective Finish	General appearance	Critical	Visual and Dimensional Checks	100%	MIL-STD-171	Finish 5.3.1.2 (or) 5.3.2.2	Test report from NABL lab	R	Firm will be undertaking 100 % Checks and					
In process -As per Drawing 5504067	Dimensions Specified in the Inspection report of the component	Critical	Dimensional measurement	100%	As	per Drawing 5504067	Firm Inspection report	R	Pre inspection Report for the same be submitted					
Final Inspection	General appearance	Critical	Visual and Dimensional Checks	100%	As	s per Drawing 5504067	Firm Inspection report	W						

(ii) For springs manufactured In-house (OFT) - Dimension inspection, Load Testing on sampling basis.

(iii) For springs procured from vendors - from raw material to finished product QA by NAI, Trichy.

Civilian Technical Officer (Mech)

for Principal inspector Of Navai Armament Tiruchirappalli. GOVENDIRANE, I. 9. F.S.

ASST. WORKS MANAGER

GOVT. OF. INDIA, MIN. OF. DEFENCE

ORDNANCE FACTORY

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			0	UALITY ASS	URANCE PL	AN			Issue No : 01 Rev No: 00	
			_		N IM PHASE)				Date of Issue / / 2021	
Drg . No.	5351220									
Nommenclature	SLIDE SEAR, OOW	OBMG :	REQD FOR BOLT	ASSEMBLY BR	EECH (5428322)	)			CARNE	
Material	4140.	STEEL B L SHEET	ARS, HOT WROUGI STRIP PLATE, AMS	HT, ASTM A322, 6 6359 (GRADE 4	004050.0450.4	OY STEEL BARS, COLD FINISHED 340, 4140. ALLOY STEEL PLATES EEL SHEET, STRIP, PLATE AMS 6	S ASTM A829. G	RADES 6150, 4340,	QAP No: OFT/QAP/M2HB/5351220	
Component Nomenclature/ operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Acceptance norms	Format of record	Inspection by NAI / GM/OFT (Review/Witness) (*)	Remarks	
	General appearance	Non Critical	Visual	100%	ALLOY STEEL, SH	IEET AND STRIP, ASTM A506, GRADES	Firm Inspection report	R		
	Chemical properties	Non Critical	Chemical Lab analysis	100%	6150, 4340, 4140; ALLOY STEEL BARS, COLD FINISHED, ASTM A331, GRADES 6150, 4340, 4140. ALT.MATL: ALLOY STEEL BARS, HOT WROUGHT, ASTM		Test report from NABL lab	R	Sample will be drawn	
Slide Sear (Raw material)	Mechanical properties	Non Critical	Mechanical Lab analysis	100%	ASTM A829, GR. SHEET STRIP PLA STEEL SHEET, ST	150, 4340, 4140. ALLOY STEEL PLATES, ADES 6150, 4340, 4140. ALLOY STEEL ATE, AMS 6359 (GRADE 4340); ALLOY IRIP, PLATE AMS 6395 (GRADE 4140); SHEET, PLATE STRIP, SAE AMS 6455 (GRADE 6150)	Test report from NABL lab	R	and sealed by Inspection Agency	
Heat Treatment	Mechanical properties	Non Critical	Mechanical Lab analysis	100%	TEMPER FOR S FOR 4340: HEA TEMPER FOR	FOR 6150: HEAT AT 843°C TO 871°C. OIL QUENCH. TEMPER FOR 1 HOUR MINIMUM TO HARDNESS SPECIFIED (RH C45-51) FOR 4340: HEAT AT 815.5°C TO 843°C. OIL QUENCH. TEMPER FOR 1 HOUR MINIMUM TO HARDNESS SPECIFIED (RH C45-51)		R	Firm will be undertaking	
Protective Finish	General appearance	Non Critical	Visual and Dimensional Checks	100%	MIL-STD-171	Finish 5.3.1.2 (or) 5.3.2.2	Test report from NABL lab	R	100 % Checks and Pre inspection Report for the same books submitted	
In process -As per Drawing 5351220	Dimensions Specified in the Inspection report of the component	Non Critical	Dimensional measurement	100%	А	s per Drawing 5351220	Firm Inspection report	R		
Final Inspection	General appearance	Non Critical	Visual and Dimensional Checks	100%	Δ	As per Drawing 5351220	Firm Inspection report	W		

(\*) Note: As per the MoU No: OFT / SRCG / M2HBGun / MoU /01 Dt: 20.09.2021, Clause No. 3(b), Sub clause (i) is applicable for In-House manufacturing and inspection by GM/OFT.

Sub clause (ii) is applicable for out sourced components. JRI will be done by NAI & OFT on sampling basis.

For springs: (i) Trade: Raw material to finished product A by NAI. (ii) In house: Dimension inspection and Load test on sampling basis by NAI.

American Officer (Mech)

for Principal inspector Of Naval Armament

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	QUALITY ASSURANCE PLAN													
				(M2HB GUN	NIM PHASE)				Date of Issue / / 2021					
Drg . No.	5009524													
Nommenclature	SPRING, HELICAL	SPRING, HELICAL COMPRESSION, OOW50BMG :REQD FOR BOLT ASSEMBLY BREECH ( 5428322)												
Material	WIRE, MUSIC, STE	/IRE, MUSIC, STEEL ASTM A228												
Component Nomenclature/ operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Acceptance norms	Format of record	Inspection by NAI or their authorised Rep. (Review/Witness) (*)	Remarks					
	General appearance	Critical	Visual	100%	-		Firm Inspection report	R						
Spring, Helical Compression. (Raw material)	Chemical properties	Critical	Chemical Lab analysis	100%	WIRE, M	IUSIC, STEEL ASTM A228	Test report from NABL lab	R	Sample will be drawn and sealed by Inspection Agency					
	Mechanical properties	Critical	Mechanical Lab analysis	100%			Test report from NABL lab	R						
Heat Treatment	Mechanical properties	Critical	Mechanical Lab analysis	100%	STRESS RELIEVE	AT 224°C ± 5°C .FOR 30 Min After Coiling.	Test report from NABL lab	R						
Protective Finish	General appearance	Critical	Visual and Dimensional Checks	100%	MIL-STD-171	Finish 3.3.1 WITH MIL-PRF-3150 SUPPLEMENTARY OIL TREATMENT	Test report from NABL lab	R						
n process -As per Drawing 5009524	Dimensions Specified in the Inspection report of the component	Critical	Dimensional measurement	100%	As p	er Drawing 5009524	Firm Inspection report	R	Firm will be undertaking 100 % Checks and Pre inspection Report for the same b submitted					
Load Test	Mechanical properties	Critical	Mechanical Lab analysis	100%	LOAD TEST SHALI	L CARRIED OUT AS PER DRAWING 5009524	Firm Inspection report	R						
inal Inspection	General appearance	Critical	Visual and Dimensional Checks	100%	As p	er Drawing 5009524	Firm Inspection report	W						

(ii) For springs manufactured In-house (OFT) - Dimension inspection, Load Testing on sampling basis.

(iii) For springs procured from vendors - from raw material to finished product QA by NAI, Trichy.

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	QUALITY ASSURANCE PLAN (M2HB GUN IM PHASE)												
				(MZTID CC	14 1101 1 110 10 10 10				/ / 2021				
Drg . No.	7312078								QAP No:				
Nommenclature	PIN, COCKING, LEV	ER, OOV		OFT/QAP/M2HB/7312078									
Material	STEEL, ASTM A108	TEEL, ASTM A108, 1045 OR ASTM A322 OR A331, 4140.											
Component Nomenclature/ operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Acceptance norms	Format of record	Inspection by GM/OFT (Review/Witness) (*)	Remarks				
	General appearance	Non Critical	Visual	100%			Firm Inspection report	R					
Pin, Cocking Lever (Raw material)	Chemical properties	Non Critical	Chemical Lab analysis	100%	STEEL, ASTM A108	s, 1045 OR ASTM A322 OR A331, 4140.	Test report from NABL lab	R	Sample will be drawn and sealed by Inspection Agency				
•	Mechanical properties	Non Critical	Mechanical Lab analysis	100%		· · · · · · · · · · · · · · · · · · ·	Test report from NABL lab	R					
Heat Treatment	Mechanical properties	Non Critical	Mechanical Lab	100%	HOUR MINIMUM	O 860°C. OIL QUENCH. TEMPER ONE IN AT 399°C MINIMUM TO HARDNESS PECIFIED RH A71.5-75	Test report from NABL lab	R					
Protective Finish	General appearance	Non Critical	Visual and Dimensional Checks	100%	MIL-STD-171	Finish 5.3.1.2 (or) 5.3.2.2	Test report from NABL lab	R	Firm will be undertaking 100 % Checks and Pre inspection Report for the same be				
In process -As per Drawing 7312078	Dimensions Specified in the Inspection report of the component	Non Critical	Dimensional measurement	100%	As	per Drawing 7312078	Firm Inspection report	R	submitted				
Final Inspection	General appearance	Non Critical	Visual and Dimensional Checks	100%		per Drawing 7312078 Trichy may do Surveillance audit of	Firm Inspection report	W					

(ii) In case of hard ware items, NAI, Trichy will review the reports, if required.

Civilian Technical Officer (Mech)

for Principal Inspector Of Naval Armament
Tiruchirappalli.

GDEVENDIRANE, 1.O.F.S. ASST. WORKS MANAGER GOVT.OF.INDIA, MIN.OF.DEFENCE ORDNANCE FACTORY TIRUCHIRAPPALLI TAMERIA 2011

	QUALITY ASSURANCE PLAN (M2HB GUN IM PHASE)												
Drg . No.	6008959					TO TARRENT PRESCU	(0529222)		QAP No:				
Nommenclature	EXTRACTOR AS	EXTRACTOR ASSEMBLY SMALL ARMS CARTRIDGE, OOW50BMG. REQD FOR BOLT ASSEMBLY BREECH (6528322)											
Material	AS PER MATERIAL	SPECIF	ICATION IN THE AS	SEMBLY PARTLI	ST.								
Component Nomenclature/ operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Acceptance norms	Format of record	Inspection by GM/OFT (Review/Witness)	Remarks				
-	General appearance	Non Critical	Visual	100%			Firm Inspection report	R					
Extractor assembly, Small arms Cartridge	Chemical properties	Non Critical	Chemical Lab analysis	100%	AS PER MATERIAL	SPECIFICATION IN THE ASSEMBLY PARTLIST.	Test report from NABL lab	R	Sample will be drawn and sealed by Inspection Agency				
(Raw material)	Mechanical properties	Non Critical	Mechanical Lab analysis	100%			Test report from NABL lab	R					
Heat Treatment	Mechanical properties	Non Critical	Mechanical Lab analysis	100%	As per Draw	ing 6008959 & Components	Test report from NABL lab	R					
Protective Finish	General appearance	Non Critical	Visual and Dimensional Checks	100%	As per Draw	ing 6008959 & Components	Test report from NABL lab	R	Firm will be undertaking 100 % Checks and				
In process	Dimensions Specified in the Inspection report of the component	Non Critical	Dimensional measurement	100%	As per Draw	ing 6008959 & Components	Firm Inspection report	R	Pre inspection Report for the same be submitted				
Final Inspection	General appearance	Non Critical	Visual and Dimensional Checks	100%	As per Draw	ring 6008959 & Components	Firm Inspection report	W					

\*Note: As per the MoU No: OFT / SRCG / M2HBGun / MoU /01 Dt: 20.09.2021, Clause 3(c) sub clause (i) NAI, Trichy may do Surveillance audit of the reports, if applicable.

(ii) In case of hard ware items, NAI, Trichy will review the reports, if required.

Civilian Technical Officer (Mech)

for Principal inspector Of Naval Ameniment Tiruchirappalli. FT DEVENOIRANE, I.O.C.S.

ASST. WORKS MANAGER

GOVI. OF 134012, MIN. OF, DEFENSE

ORDMANCE FACTORY

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	QUALITY ASSURANCE PLAN (M2HB GUN IM PHASE)													
									/ / 2021					
Drg . No.	5009523						, i., iii.							
Nommenclature	SPRING, HELICAL	SPRING, HELICAL COMPRESSION, OOW50BMG: REQD FOR EXTRACTOR ASSEMBLY SMALL ARMS CARTRIDGE ( 6008959)												
Material	WIRE, MUSIC, STE	EEL AST		QAP No: OFT/QAP/M2HB/5009523										
Component Nomenclature/ operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Acceptance norms	Format of record	Inspection by NAI / GM/OFT (Review/Witness) (*)	Remarks					
	General appearance	Non Critical	Visual	100%			Firm Inspection report	R						
Spring, Helical Compression. (Raw material)	Chemical properties	Non Critical	Chemical Lab analysis	100%	WIRE, M	IUSIC, STEEL ASTM A228	Test report from NABL lab	R	Sample will be drawn and sealed by Inspection Agency					
(nav material)	Mechanical properties	Non Critical	Mechanical Lab analysis	100%			Test report from NABL lab	R						
Heat Treatment	Mechanical properties	Non Critical	Mechanical Lab analysis	100%	STRESS RELIEVE	AT 224°C ± 5°C .FOR 30 Min After Coiling.	Test report from NABL lab	R						
Protective Finish	General appearance	Non Critical	Visual and Dimensional Checks	100%	MIL-STD-171	Finish 3.3.1 WITH MIL-PRF-3150 SUPPLEMENTARY OIL TREATMENT	Test report from NABL lab	R						
In process -As per Drawing 5009523	Dimensions Specified in the Inspection report of the component	Non Critical	Dimensional measurement	100%	As p	er Drawing 5009523	Firm Inspection report	R	Firm will be undertaking 100 % Checks and Pre inspection Report for the same b submitted					
Load Test	Mechanical properties	Non Critical	Mechanical Lab analysis	100%		L APPLY AFTER SPRING HAS BEEN SSED SOLID FIVE(5) TIMES.	Firm Inspection report	R						
Final Inspection	General appearance	Non Critical	Visual and Dimensional Checks	100%	As p	er Drawing 5009523	Firm Inspection report	W	·					

(\*) Note: As per the MoU No: OFT / SRCG / M2HBGun / MoU /01 Dt: 20.09.2021, Clause No. 3(b), Sub clause (i) is applicable for In-House manufacturing and inspection by GM/OFT.

Sub clause (ii) is applicable for out sourced components. JRI will be done by NAI & OFT on sampling basis.

For springs: (i) Trade: Raw material to finished product QA by NAI. (ii) In house: Dimension inspection and Load test on sampling basis by NAI.

P.Arumugam

Civilian Technical Officer (Mech)

for Principal Inspector Of Naval Armament Tiruchirannalli

G.DEVENDIRANE, I.O.F.S.

ASST WORKS MANAGER

GOVT. OF. INDIA, MIN. OF. DEFENCE

ORDNANCE FACTORY

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	QUALITY ASSURANCE PLAN (M2HB GUN IM PHASE)											
Drg . No.	5504065											
Nommenclature	EXTRACTOR,OOW	/50BMG.	REQD FOR EXTRA	CTOR ASSEMBL	Y SMALL ARMS CA	ARTRIDGE ( 6008959)	···		QAP No:			
Material	STEEL, ASTM A331 FOR CASTING: STE GRADE A OF MIL-S	EEL, MIL	-S-22141; IC 4140, I	C 4340. TENSILE	TEST SHALL NOT	APPLY. INSPECTION SHALL BE	N ACCORDAN	CE WITH CLASS 1,	OFT/QAP/M2HB/5504065			
Component Nomenclature/ operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Acceptance norms	Format of record	Inspection by NAI or their authorised Rep. (Review/Witness) (*)	Remarks			
	General appearance	Critical	Visual	100%			Firm Inspection report	R				
Extractor (Raw material)	Chemical properties	Critical	Chemical Lab analysis	100%	FOR CASTING: STE TENSILE TEST SHALL	M A331 OR A322: 4140,4340 EEL, MIL-S-22141; IC 4140, IC 4340. NOT APPLY. INSPECTION SHALL BE IN	Test report from NABL lab	R	Sample will be drawn and sealed by Inspection Agency			
	Mechanical properties	Critical	Mechanical Lab analysis	100%	ACCORDANCE WITH	CLASS 1, GRADE A OF MIL-STD-2175.	Test report from NABL lab	R				
Heat Treatment	Mechanical properties	Critical	Mechanical Lab analysis	100%	OIL QUENCH. TO	871°C IN NEUTRAL ATMOSPHERE. EMPER ONE HOUR MINIMUM TO SS SPECIFIED RH C49-55.	Test report from NABL lab	R				
Protective Finish	General appearance	Critical	Visual and Dimensional Checks	100%	MIL-STD-171	Finish 5.3.1.2 (or) 5.3.2.2	Test report from NABL lab	R	Firm will be undertaking 100 % Checks and Pre inspection Report for the same be			
In process -As per Drawing 5504065	Dimensions Specified in the Inspection report of the component	Critical	Dimensional measurement	100%	As p	per Drawing 5504065	Firm Inspection report	R	submitted			
Final Inspection	General appearance	Critical	Visual and Dimensional Checks	100%	As p	per Drawing 5504065	Firm Inspection report	w				

(ii) For springs manufactured In-house (OFT) - Dimension inspection, Load Testing on sampling basis.

(iii) For springs procured from vendors - from raw material to finished product QA by NAI, Trichy.

P Marumugam/

Civilian Technical Officer (Mech)

for a clipal inspector Of Naval Armament Ta Mappalli.

G. DEVENDI RAME I O. C.S.

ASSY, WORKS MANAGER

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	QUALITY ASSURANCE PLAN										
					GUN IM PHASE				Date of Issue / / 2021		
Drg . No.	6009732										
Nommenclature						EMBLY SMALL ARMS CARTRIDGE ( 60	08959)		QAP No: OFT/QAP/M2HB/6009732		
Material	STEEL, ASTM A576 INVESTMENT CAST A OF MIL-STD-2175	TING: ST	M A108: 1075 TO 10 EEL, MIL-S-22141; I	184; ASTM A322 ( C 6150. TENSILE	OR ASTM A331: 414 TEST SHALL NOT	40. APPLY, INSPECTION SHALL BE IN AC	CORDANCE W	ITH CLASS 2, GRADE	OF I/QAP/WIZID/0003132		
Component Nomenclature/ operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Acceptance norms	Format of record	Inspection by NAI or their authorised Rep. (Review/Witness) (*)	Remarks		
	General appearance	Critical	Visual	100%	STEEL, ASTM A576 C	OR ASTM A108: 1075 TO 1084; ASTM A322 OR	Firm Inspection report	R			
Ejector, Small Arms Cartridge (Raw material)	Chemical properties	Critical	Chemical Lab analysis	100%	INVESTMENT CASTIN	ASTM A331: 4140.  INVESTMENT CASTING: STEEL, MIL-S-22141; IC 6150. TENSILE TEST SHALL NOT APPLY. INSPECTION SHALL BE IN ACCORDANCE WITH		R	Sample will be drawn and sealed by Inspection Agency		
(Raw Haterial)	Mechanical properties	Critical	Mechanical Lab analysis	100%	CLASS	2, GRADE A OF MIL-STD-2175.	Test report from NABL lab	R			
Heat Treatment	Mechanical properties	Critical	Mechanical Lab analysis	100%	MINIMUM TO CASTING: HEAT A	WROUGHT MATERIAL:  802°C. OIL QUENCH. TEMPER ONE HOUR D HARDNESS SPECIFIED RH A 73.5 - 77. I 816°C - 843°C. OIL QUENCH. TEMPER ONE I TO HARDNESS SPECIFIED RH A 73.5 - 77.	Test report from NABL lab	R	Firm will be undertaking		
Protective Finish	General appearance	Critical	Visual and Dimensional Checks	100%	MIL-STD-171	Finish 5.3.1.2 (or) 5.3.2.2	Test report from NABL lab	R	100 % Checks and Pre inspection Report for the same be submitted		
In process -As per Drawing 6009732	Dimensions Specified in the Inspection report of the component	Critical	Dimensional measurement	100%		As per Drawing 6009732	Firm Inspection report	R	- Submitted -		
Final Inspection	General appearance	Critical	Visual and Dimensional Checks	100%		As per Drawing 6009732	Firm Inspection report	W			

(ii) For springs manufactured In-house (OFT) - Dimension inspection, Load Testing on sampling basis. (iii) For springs procured from vendors - from raw material to finished product QA by NAI, Trichy.

RaArumugam

Civilian Technical Officer (Mech)

for fixincipal Inspector Of Naval Armament

Tiruchirappalli.



	QUALITY ASSURANCE PLAN (M2HB GUN IM PHASE)												
Drg . No.	5009273								QAP No:				
Nommenclature	PIN, EJECTOR, OO	IN, EJECTOR, OOW50BMG: REQD FOR EXTRACTOR ASSEMBLY SMALL ARMS CARTRIDGE ( 6008959)											
Material	STEEL, CARBON; S												
Component Nomenclature/ operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Acceptance norms	Format of record	Inspection by GM/OFT (Review/Witness) (*)	Remarks				
	General appearance	Non Critical	Visual	100%			Firm Inspection report	R					
Pin Ejector (Raw material)	Chemical properties	Non Critical	Chemical Lab analysis	100%		SAE 1141, 1151, ASTM A108. ALT. SI 4140 ASTM A322, A331	Test report from NABL lab	R	Sample will be drawn and sealed by Inspection Agency				
	Mechanical properties	Non Critical	Mechanical Lab analysis	100%			Test report from NABL lab	R .					
Heat Treatment	Mechanical properties	Non Critical	Mechanical Lab analysis	100%	HARDNESS SPEC	TEMPER 1 HOUR MINIMUM TO CIFIED (RH 15N 84-87). LOCALLY GTH "A" TO RH 15N 72 MAX.	Test report from NABL lab	R					
Protective Finish	General appearance	Non Critical	Visual and Dimensional Checks	100%	MIL-STD-171	Finish 5.3.1.2 (or) 5.3.2.2	Test report from NABL lab	R	Firm will be undertaking  100 % Checks and  Pre inspection Report for the same be				
In process -As per Drawing 5009273	Dimensions Specified in the Inspection report of the component	Non Critical	Dimensional measurement	100%	As p	er Drawing 5009273	Firm Inspection report	R	submitted				
Final Inspection	General appearance	Non Critical	Visual and Dimensional Checks	100%	As p	er Drawing 5009273	Firm Inspection report	W					

\*Note: As per the MoU No: OFT / SRCG / M2HBGun / MoU /01 Dt: 20.09.2021, Clause 3(c) sub clause (i) NAI, Trichy may do Surveillance audit of the reports, if applicable.

(ii) In case of hard ware items, NAI, Trichy will review the reports, if required.

Civilian Technical Officer (Mech)

for Principal Inspector Of Naval Armsment

Tiruchirappalli.



## Issue No : 01 Rev No: 00 **QUALITY ASSURANCE PLAN** Date of Issue (M2HB GUN IM PHASE) / 2021 7310080 Dra . No. QAP No: PIN, FIRING ,OOW50BMG :REQD FOR BOLT ASSEMBLY BREECH ( 5428322) Nommenclature OFT/QAP/M2HB/7310080 STEEL, ASTM A322 OR A331: 4340, 8642 OR 8740. Material Inspection by NAI or their authorised Component Format of Reference Quantum of Remarks Acceptance norms Type of check Characteristics Class Rep. (Review/Witness) Nomenclature/ record document check (\*) operations Firm Inspection R 100% Visual General appearance Critical report Sample will be drawn Test report and sealed by Chemical Lab R Pin, Firing STEEL, ASTM A322 OR A331: 4340, 8642 OR 8740. from 100% Chemical properties Critical analysis Inspection Agency (Raw material) NABL lab Test report Mechanical Lab Mechanical R from 100% Critical analysis properties NABL lab Test report HEAT AT 816°C TO 843°C. OIL QUENCH. TEMPER 1 HOUR Mechanical Lab Mechanical R from 100% Critical MINIMUM TO HARDNESS SPECIFIED (RH A 73.5-77) Heat Treatment analysis properties NABL lab Test report Firm will be undertaking Visual and R from Finish 5.3.1.2 (or) 5.3.2.2 MIL-STD-171 100% General appearance Critical Protective Finish 100 % Checks and Dimensional Checks NABL lab Pre inspection Report for the same be Dimensions Specified submitted Firm Inspection in the Inspection Dimensional R In process -As per As per Drawing 7310080 Critical 100% report measurement report of the Drawing 7310080 component Firm Inspection Visual and As per Drawing 7310080 W 100% General appearance Critical Final Inspection report Dimensional Checks

(\*) Note: As per the MoU No: OFT / SRCG / M2HBGun / MoU /01 Dt: 20.09.2021, Clause no. 3(a), Sub clause (ii) & (iii) the following is applicable.

(ii) For springs manufactured In-house (OFT) - Dimension inspection, Load Testing on sampling basis.

(iii) For springs procured from vendors - from raw material to finished product QA by NAI, Trichy.

Givilian Technical Officer (Mech) for Principal Espostor Of Novel Armament

OFT DEVENDY KANE, I.O.F.S.

ASST. WORKS MANAGER

ORONANCE PACTORY.

TIRUCHIROPOSITION.