ROD ASSEMBLY DRIVING SPRING (5564305)

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			Qi	(M2HB GUN			·		Date of Issue / / 2021				
Drg . No.	5564305								QAP No:				
Nommenclature	enclature ROD ASSEMBLY DRIVING SPRING, OOW50BMG. REQD FOR HB ASSEMBLY (7265636)												
Material	AS PER MATERIAL SPECIFICATION IN THE ASSEMBLY PARTLIST.												
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					
Rod Assembly Driving Spring	Chemical properties	Non Critical	Chemical Lab analysis	100%	AS PER MATERIAL	AS PER MATERIAL SPECIFICATION IN THE ASSEMBLY PARTLIST.		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	ving 5564305 & Components	Test report from NABL lab Test report	R					
Protective Finish	General appearance	Non Critical	Visual and Dimensional Checks	100%	As per Draw	As per Drawing 5564305 & Components		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 5564305 & Components		Firm Inspection report	K	Pre inspection Report for the same be submitted				
Final Inspection	General appearance	Non Critical	Visual and Dimensional Checks			ving 5564305 & Components Trichy may do Surveillance aud	Firm Inspection report						

*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

(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.

G.DEVENDIRANE.1.0.F.S.
ASST WORKS MANAGER
GOVT.OF.INDIA, MIN.OF.DEFENCE
ORDNANCE FACTORY
TIRUCHIRAPPALLI-TAMILNADU

				LIALITY ACC	URANCE PLA	N			Issue No : 01 Rev No: 00					
			Q	(M2HB GUN	N IM PHASE)				Date of Issue / / 2021					
Drg . No.	g . No. 5152900 mmenclature COLLOR, DRIVING SPRING ROD , OOW50BMG : REQD FOR ROD ASSEMBLY DRIVING SPRING (5564305)													
				OFT/QAP/M2HB/5152900										
Material	STEEL, ASTM A576													
Component Nomenclature/ operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Acceptance norms	Remarks							
	General appearance	Non Critical	Visual	100%			Firm Inspection report	R						
Collor, Driving Spring Rod (Raw material)	Chemical properties	Non Critical	Chemical Lab analysis	100%	STEEL, ASTM A576 STEEL, ASTM A68	STEEL, ASTM A576: 1095 AUSTENITIC GRAIN SIZE 5-8 OR STEEL, ASTM A686: CLASS W1-8 THRU 10, GRADE 'C'.		R	Sample will be drawn and sealed by Inspection Agency					
(Naw 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%	HEAT AT 787°C TO HOUR MINIMUM	816°C. OIL QUENCH. TEMPER FOR ONE TO HARDNESS SPECIFIED. (RH 15N 84- 88)	Test report from NABL lab	R						
Protective Finish	General appearance	Non Critical	Visual and Dimensional Checks	100%	MIL-STD-171			R	Firm will be undertaking 100 % Checks and					
In process -As per Drawing 5152900	Dimensions Specified in the Inspection report of the	Non Critical	Dimensional measurement	100%	As per Drawing 5152900		Firm Inspection report	R	Pre inspection Report for the same be submitted					
Final Inspection	component General appearance	Non Critical	Visual and Dimensional Checks	100%	As	s per Drawing 5152900	Firm Inspection report							

*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.

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Circ connical Officer (Mech)

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		Issue No : 01 Rev No: 00 Date of Issue / / 2021												
Drg . No.	. No. 5152898 nmenclature PIN, SHOULDER, HEADLESS, OOW50BMG: REQD FOR ROD ASSEMBLY DRIVING SPRING (5564305)													
Nommenclature	PIN, SHOULDER, H		QAP No: OFT/QAP/M2HB/5152898											
Material	STEEL, ASTM A576													
Component Nomenclature/ operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Acceptance norms	Remarks							
	General appearance	Non Critical	Visual	100%			Firm Inspection report	R						
Pin, Shoulder, Headless	Chemical properties	Non Critical	Chemical Lab analysis	100%	STEEL, ASTM A570	6: 1095 OR STEEL, ASTM A686: CLASS 1-8 THRU 9, GRADE 'C'.	Test report from NABL lab	R	Sample will be drawn and sealed by Inspection Agency					
(Raw material)	Mechanical properties	Non Critical	Mechanical Lab	100%			Test report from NABL lab	R						
Heat Treatment	Mechanical properties	Non Critical	Mechanical Lab analysis	100%	HEAT AT 787°C TO HOUR MINIMUM	816°C. OIL QUENCH. TEMPER FOR ONE TO HARDNESS SPECIFIED. (RH 15N 75- 79)	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 5152898	Dimensions Specified in the Inspection report of the	Non Critical	Dimensional measurement	100%	As	s per Drawing 5152898	Firm Inspection report	R	Pre inspection Report for the same be submitted					
Final Inspection	component General appearance	Non Critical	Visual and Dimensional Checks	100%		s per Drawing 5152898	Firm Inspection report	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \						

*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

Phacking from Civilian Technical Officer (Mech)

Jor Principal Inspector Of Nevel Armament Tiruchirappalli.

G.DEVENDIHANE, I.O.R.S.
ASST WORKS MANAGER
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ORDNANCE FACTORY
TIRUCHIRAPPALLI-TAMILMADU

	QUALITY ASSURANCE PLAN												
					I IM PHASE)	•			Date of Issue / / 2021				
Drg . No.	g . No. 7313289 mmenclature ROD ASSEMBLY GUIDE , OOW50BMG. REQD FOR ROD ASSEMBLY DRIVING SPRING (5564305)												
Nommenclature	ROD ASSEMBLY	QAP No: OFT/QAP/M2HB/7313289											
Material	AS PER MATERIAL												
Component Nomenclature/ operations	Characteristics	Class	Type of check	Quantum of check	Reference document	Acceptance norms	Remarks						
	General appearance	Non Critical	Visual	100%	Firm Inspection R report								
Rod Assembly Guide (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 Drawi	ing 7313289 & Components	Test report from NABL lab	R					
Protective Finish	General appearance	Non Critical	Visual and Dimensional Checks	100%	As per Draw	As per Drawing 7313289 & Components		· 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 7313289 & 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	ing 7313289 & Components	W						

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

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ASSI WORKS MANAGER
GOVT. OF. INDIA, MIN. OF. DEFENCE
ORDNANCE FACTORY
TIRUCHIRAPPALLI-TAMILMADU

					UDANCE DI AI	M			Issue No : 01 Rev No: 00				
	QUALITY ASSURANCE PLAN (M2HB GUN IM PHASE)												
Drg . No.	- AN OUNT COMFORMS: PEOD FOR ROD ASSEMBLY GUIDE (7313289)												
Nommenclature													
Material	ALLOY STEEL BARS,												
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					
Rod, Guide	Chemical properties	Critical	Chemical Lab analysis	100%	ALLOY STEEL BARS, HOT WROUGHT ASTM A322, GRADES 4140,4142,4340, ALLOY STEEL BARS, COLD FINISHED, ASTM A331, GRADES 4140, 4142, 4340, STEEL BARS,		Test report from NABL lab	· R	Sample will be drawn and sealed by Inspection Agency				
(Raw material)	Mechanical	Critical	Mechanical Lab	100%	- CARBON, HOT W	ROUGHT, ASTM A576, GRADE 1095.	Test report from NABL lab	R					
Heat Treatment	properties Mechanical properties	Critical	Mechanical Lab analysis	100%	As per Drawing 7313288	HARDEN BOTH ENDS FOR DISTANCE INDICATED. OIL QUENCH AND TEMPER ONE HOUR MINIMUM TO HARDNESS SPECIFIED RH 15N 84.5- 87.5	Test report from NABL lab	R					
Protective Finish	General appearance	Critical	Visual and Dimensional Checks	100%	As	per Drawing 7313288	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 7313288	Dimensions Specified in the Inspection report of the	Critical	Dimensional measurement	100%	As	s per Drawing 7313288	Firm Inspection report	R R	submitted 				
Final Inspection	component General appearance	Critical	Visual and Dimensional Checks	100%	A	s per Drawing 7313288	Firm Inspection report	w w					
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(*) 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.

ASSI MORKS MINAGER
GOVI. OF INDIA, MIN. OF DEFENCE
ORDNANCE FACTORY
TIRUCHIRAPPALLI-AMILYADU

		Issue No : 01 Rev No: 00 Date of Issue / / 2021								
Org . No.	QAP No:									
Nommenclature	PIN, SHOULDER, HI		OFT/QAP/M2HB/5152899							
Material	STEEL, ASTM A576									
Component Nomenclature/ operations	Characteristics	Quantum of Reference Acceptance norms Format of (Review/Witness)								
	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: 1095 OR STEEL, ASTM A686: CLASS W1-8 THRU 9, GRADE 'C'.		Test report from NABL lab	R	Sample will be drawn and sealed by Inspection Agency	
(Naw material)	Mechanical properties	Non Critical	Mechanical Lab	100%	-		Test report from NABL lab	R		
Heat Treatment	Mechanical properties	Non Critical	Mechanical Lab analysis	100%	HARDEN AND TEM 76.5-80). LOCALLY	PER TO HARDNESS SPECIFIED (RH 15N TEMPER LENGTH B TO ROCKWELL 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	
In process -As per Drawing 5152899	Dimensions Specified in the Inspection report of the component	Non Critical	Dimensional measurement	100%	As	per Drawing 5152899	Firm Inspection report	R	Pre inspection Report for the same be submitted	
Final Inspection	General appearance	Non Critical	Visual and Dimensional Checks	100%		per Drawing 5152899	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

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

PNA Kimugam Civilian Technical Officer (Mech)

rcipal Inspector Of Naval Armament

G. DEVENDIRAME, 1.O.F.S. ASST WORKS MANAGER GOVT.OF.INDIA, MIN.OF.BEFENCE ORDNANCE FACTORY TRUCHIRAPPALLITAMILMARI

	Issue No : 01 Rev No: 00													
				(M2HB GUN	I IM PHASE)				Date of Issue / / 2021					
Org . No.														
Nommenclature	SPRING ASSEME	SPRING ASSEMBLY DRIVING, OOW50BMG. REQD FOR ROD ASSEMBLY DRIVING SPRING (5564305)												
Material	AS PER MATERIAL SPECIFICATION IN THE ASSEMBLY PARTLIST.													
Component Nomenclature/ operations	re/ Characteristics Class Type of check check document Acceptance norms record (Review/Witness)								Remarks					
	General appearance	Non Critical	Visual	100%			Firm Inspection report	R						
Spring Assembly Driving (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 Drawi	ing 7312243 & Components	Test report from NABL lab	R						
Protective Finish	General appearance	Non Critical	Visual and Dimensional Checks	100%	As per Drawi	ing 7312243 & Components	Test report from NABL lab	R	Firm will be undertaking 100 % Checks and					
n process	Dimensions Specified in the Inspection report of the component	Non Critical	Dimensional measurement	100%	As per Drawing 7312243 & 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 Drawi	ing 7312243 & Components								

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Civilian Technical Officer (Mech)
for Principal Inspector Of Naval Armament
Tire chirappalli.

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G. DEVENOURS MANAGER

ASST. WORKS MANAGER

OF DEVENOURS MANAGE

	QUALITY ASSURANCE PLAN											
			α.		IM PHASE)		_		Date of Issue / / 2021			
Drg . No.	6147509											
Nommenclature	SPRING, HELICAL		-									
Material	STEEL WIRE, MUS	QAP No: OFT/QAP/M2HB/6147509										
Component Quantum of Reference Format of or their au								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%	STEEL WIRE, MUS	STEEL WIRE, MUSIC SPRING QUALITY, ASTM A228 / A228M		R	Sample will be drawn and sealed by Inspection Agency			
(Kaw Haterial)	Mechanical properties	Critical	Mechanical Lab analysis	100%			Test report from NABL lab	R				
Heat Treatment	Mechanical properties	Critical	Mechanical Lab analysis	100%	STRESS RELIEVE A	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 5.3.3.1 WITH DRY FILM LUBRICANT MIL-PRF-46010 PER FINISH 30.7 OF MIL-STD-171	Test report from NABL lab	R	Firm will be undertaking			
In process -As per Drawing 6147509	Dimensions Specified in the Inspection report of the component	Critical	Dimensional measurement	100%	As per Drawing 6147509		Firm Inspection report	R	100 % Checks and Pre inspection Report for the same be submitted			
Load Test	Mechanical properties	Critical	Mechanical Lab analysis	100%	LOAD TEST SHALL	BE CARRIED OUT AS PER DRAWING 6147509						
Final Inspection	General appearance	Critical	Visual and Dimensional Checks	100%	As p	per Drawing 6147509	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.

Civilian Technilal Officer (Mech) Jor Principal Impostor Of Naval Armement Tiruchirappatti.

G.DEVENDIRANE, I.O. F.S. ASST. WORKS MANAGER GOVT.OF.INDIA, MIN. OF. DEFENCE ORDNANCE FACTORY DIRAPPALLI TA MILE.

	QUALITY ASSURANCE PLAN (M2HB GUN IM PHASE)												
Drg . No.													
Nommenclature	Nommenclature SPRING, HELICAL COMPRESSION, OOW50BMG: REQD FOR SPRING ASSEMBLY DRIVING (7312243)												
Material													
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%	STEEL WIRE, MUS	IC SPRING QUALITY, ASTM A228 / A228M	Test report from NABL lab	R	Sample will be drawn and sealed by Inspection Agency				
(Raw material)	Mechanical properties	Critical	Mechanical Lab analysis	100%				R					
Heat Treatment	Mechanical properties	Critical	Mechanical Lab analysis	100%	STRESS RELIEVE A	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 5.3.1.2 WITH MIL-PRF-3150 SUPPLEMENTARY OIL.	Test report from NABL lab	R	Fire will be undertaking				
In process -As per Drawing 6147510	Dimensions Specified in the Inspection report of the component	Critical	Dimensional measurement	100%	As per Drawing 6147510		Firm Inspection report	R	Firm will be undertaking 100 % Checks and Pre inspection Report for the same be submitted				
Load Test	Mechanical properties	Critical	Mechanical Lab analysis	100%		L APPLY AFTER SPRING HAS BEEN SED SOLID FIVE(5) TIMES.	Firm Inspection report	R					
Final Inspection	General appearance	Critical	Visual and Dimensional Checks	100%	As p	er Drawing 6147510	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.

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ASST WORKS MANAGER

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