


 <div style="text-align: center;"><b>CONTROL PLAN</b></div>													
Initial sample		Pre-launch		<input checked="" type="checkbox"/> Production		Safe Launch							
SMISL Part Number / Issue Number / Issue Date						Key Contact / Phone No			Organization / Plant Approval / Date (If Req'd)		Date (Orig.)	Rev No. :	Date:
761017      0      29/08/2016						SARAVANAN DURAI /0413-2641089					22/09/2016	2	01/10/2017
Customer Part Number / Issue Number / Date						Core Team			Customer Engineering Approval / Date (If Req'd)				
130258650R      ---      29/08/2016						SARAVANAN DURAI, SATHISH V, RMN, JP, HMG, DR, SB							
Organization :						Part Description			Customer Quality Approval / Date (If Req'd)				
Customer : RENAULT NISSAN						PINION EXHAUST CAMSHAFT							
Process No:		Operation Description:				Machine:			Other Approval / Date (If Req'd)				
20		COMPACTION				500 TON PRESS-I							
Characteristics				Methods						Reaction Plan			
Dim. No.	Product	Process	Spl. Char Class	Product / Process Specification Tolerance		Evaluation Measurement Technique	Gauge / Fixture code	Sample		RES	Control Method	Reaction Plan	
				MIN	MAX			Size	Freq			Action	RES
		PROCESS PARAMETERS		AS PER COMP PROCESS SHEET REV NO : 0					SETUP/FIRST OFF/ ON ADJUSTMENT	O	START UP CHECK	ADJUST & RECHECK	
1	WEIGHT			192.5 gms	197.5 gms	WEIGHING BALANCE		5	SETUP	I	SETUP APPROVAL	REFER WORK INSTRUCTION:MFG-WI-COM-60	
1	WEIGHT			192.5 gms	197.5 gms	ONLINE WEIGHT CHECKER		1	ONGOING (RECORDING NOT REQUIRED)	-	100% INSPECTION	REFER WORK INSTRUCTION:MFG-WI-COM-60	
2	OVERALL DESITY			6.95g/cc	7.15g/cc	DENSITY KIT		1	SETUP / FIRST OFF	O	SETUP APPROVAL / AUDIT INSPECTION	REFER WORK INSTRUCTION: MFG-WI-COM-66	
3	DENSITY SECTION -P1			7.05g/cc	7.15g/cc	DENSITY KIT		1	SETUP / FIRST OFF	O	SETUP APPROVAL / AUDIT INSPECTION	REFER WORK INSTRUCTION: MFG-WI-COM-66	
3A	DENSITY DIFF ACROSS P1			-	0.15 g/cc	DENSITY KIT		1	SETUP / FIRST OFF	O	SETUP APPROVAL / AUDIT INSPECTION	REFER WORK INSTRUCTION: MFG-WI-COM-66	
3	DENSITY SECTION -P2			6.95g/cc	7.10g/cc	DENSITY KIT		1	SETUP / FIRST OFF	O	SETUP APPROVAL / AUDIT INSPECTION	REFER WORK INSTRUCTION: MFG-WI-COM-66	
3	DENSITY SECTION -P3			6.85g/cc	6.95g/cc	DENSITY KIT		1	SETUP / FIRST OFF	O	SETUP APPROVAL / AUDIT INSPECTION	REFER WORK INSTRUCTION: MFG-WI-COM-66	
3	DENSITY SECTION -P4			6.85g/cc	6.95g/cc	DENSITY KIT		1	SETUP / FIRST OFF	O	SETUP APPROVAL / AUDIT INSPECTION	REFER WORK INSTRUCTION: MFG-WI-COM-66	
4	INNER STEP DIAMETER			Ø27.900	Ø27.950	CMM		3	SETUP / LAST PIECE	I	SETUP APPROVAL / LAST PIECE APPROVAL	CHECK AND REPLACE THE INNER PUNCH	
5	PERPENDICULARITY wrt B			-	0.02	CMM		3	SETUP	I	SETUP APPROVAL	REFER WORK INSTRUCTION: MFG-WI-COM-63	
6	HUB DIAMETER			Ø34.67	Ø34.77	VERNIER CALIPER		5	SETUP / LAST PIECE	I	SETUP APPROVAL / LAST PIECE APPROVAL	CHECK AND REPLACE THE PUNCH	
7A	DIAMETER @ FACE "A"			Ø82.80	Ø83.10	VERNIER CALIPER		5	SETUP / LAST PIECE	I	SETUP APPROVAL / LAST PIECE APPROVAL	CHECK AND REPLACE THE TOOL	
7B	DIAMETER @ FACE "B"			Ø82.80	Ø83.10	VERNIER CALIPER		5	SETUP / LAST PIECE	I	SETUP APPROVAL / LAST PIECE APPROVAL	CHECK AND REPLACE THE TOOL	

 <b>CONTROL PLAN</b>														
Initial sample			Pre-launch		<input checked="" type="checkbox"/> Production		Safe Launch							
SMISL Part Number / Issue Number / Issue Date					Key Contact / Phone No			Organization / Plant Approval / Date (If Req'd)			Date (Orig.)	Rev No. :	Date:	
761017      0      29/08/2016					SARAVANAN DURAI /0413-2641089						22/09/2016	2	01/10/2017	
Customer Part Number / Issue Number / Date					Core Team			Customer Engineering Approval / Date (If Req'd)						
130258650R      ---      29/08/2016					SARAVANAN DURAI, SATHISH V, RMN, JP, HMG, DR, SB									
Organization :					Part Description			Customer Quality Approval / Date (If Req'd)						
Customer : RENAULT NISSAN					PINION EXHAUST CAMSHAFT									
Process No:		Operation Description:			Machine:			Other Approval / Date (If Req'd)						
20		COMPACTION			500 TON PRESS-I									
Characteristics				Spl. Char Class	Methods				RES	Control Method	Reaction Plan			
Dim. No.	Product	Process	Product / Process Specification Tolerance		Evaluation Measurement Technique	Gauge / Fixture code	Sample				Action	RES		
			MIN				MAX	Size					Freq	
8	TIP DIAMETER			Ø96.92	Ø97.10	MICROMETER		5	SETUP / LAST PIECE	I	SETUP APPROVAL / LAST PIECE APPROVAL	CHECK AND REPLACE THE DIE		
9	CONCENTRICITY wrt C			-	0.13	LEVER DIAL & TAPER MANDREL	761016.9.900	5	SETUP / FIRST OFF / EVERY 4 HOURS / LAST OFF	I & O	SETUP APPROVAL / AUDIT INSPECTION	REFER WORK INSTRUCTION: MFG-WI-COM-64		
10	CONCENTRICITY wrt C			-	0.15	LEVER DIAL & TAPER MANDREL	761016.9.900	5	SETUP / FIRST OFF / EVERY 4 HOURS / LAST OFF	I & O	SETUP APPROVAL / AUDIT INSPECTION	REFER WORK INSTRUCTION: MFG-WI-COM-64		
11A	DIAMETER			Ø14.9	Ø15.1	VERNIER CALIPER		5	SETUP / LAST PIECE	I	SETUP APPROVAL / LAST PIECE APPROVAL	CHECK AND REPLACE THE TOOL		
11B	DIAMETER			Ø14.5	Ø14.7	VERNIER CALIPER		5	SETUP / LAST PIECE	I	SETUP APPROVAL / LAST PIECE APPROVAL	CHECK AND REPLACE THE TOOL		
12	DEPTH			1.55	1.65	PLUNGER DIAL		5	SETUP / FIRST OFF / EVERY 4 HOURS / LAST OFF	I & O	SETUP APPROVAL / AUDIT INSPECTION	ADJUST & RECHECK		
13	DEPTH			5.00	5.15	PLUNGER DIAL		5	SETUP / FIRST OFF / EVERY 4 HOURS / LAST OFF	I & O	SETUP APPROVAL / AUDIT INSPECTION	ADJUST & RECHECK		
14	THICKNESS			5.37	5.47	PLUNGER DIAL		5	SETUP / FIRST OFF / EVERY 4 HOURS / LAST OFF	I & O	SETUP APPROVAL / AUDIT INSPECTION	REFER WORK INSTRUCTION: MFG-WI-COM-61		
15	FLATNESS			-	0.05	CMM		3	SETUP	I	SETUP APPROVAL	CHECK AND REPLACE THE TOOL		
16	FLATNESS			-	0.1	CMM		3	SETUP	I	SETUP APPROVAL	CHECK AND REPLACE THE PUNCH		
17	THICKNESS			4.73	4.88	MICROMETER		5	SETUP / FIRST OFF / EVERY 4 HOURS / LAST OFF	I & O	SETUP APPROVAL / AUDIT INSPECTION	REFER WORK INSTRUCTION: MFG-WI-COM-61		
	DIM NO: 17			-	0.1	MICROMETER		5	SETUP / FIRST OFF / EVERY 4 HOURS / LAST OFF	I & O	SETUP APPROVAL / AUDIT INSPECTION	REFER WORK INSTRUCTION: MFG-WI-COM-62		
18 A	DEPTH @ FACE "A"			0.25	0.45	PLUNGER DIAL		5	SETUP / FIRST OFF / EVERY 4 HOURS / LAST OFF	I & O	SETUP APPROVAL / AUDIT INSPECTION	CHECK AND REPLACE THE TOOL		
18 B	DEPTH @ FACE "B"			0.25	0.45	PLUNGER DIAL		5	SETUP / FIRST OFF / EVERY 4 HOURS / LAST OFF	I & O	SETUP APPROVAL / AUDIT INSPECTION	CHECK AND REPLACE THE TOOL		

 <h2 style="text-align: center;">CONTROL PLAN</h2>													
Initial sample			Pre-launch		<input checked="" type="checkbox"/> Production		Safe Launch						
SMISL Part Number / Issue Number / Issue Date						Key Contact / Phone No		Organization / Plant Approval / Date (If Req'd)			Date (Orig.)	Rev No. :	Date:
761017      0      29/08/2016						SARAVANAN DURAI /0413-2641089					22/09/2016	2	01/10/2017
Customer Part Number / Issue Number / Date						Core Team		Customer Engineering Approval / Date (If Req'd)					
130258650R      ---      29/08/2016						SARAVANAN DURAI, SATHISH V, RMN, JP, HMG, DR, SB							
Organization :						Part Description		Customer Quality Approval / Date (If Req'd)					
Customer : RENAULT NISSAN						PINION EXHAUST CAMSHAFT							
Process No:			Operation Description:			Machine:		Other Approval / Date (If Req'd)					
20			COMPACTION			500 TON PRESS-I							
Characteristics				Spl. Char Class	Methods				RES	Control Method	Reaction Plan		
Dim. No.	Product	Process	Product / Process Specification Tolerance		Evaluation Measurement Technique	Gauge / Fixture code	Sample				Action	RES	
			MIN				MAX	Size					Freq
19	DISTANCE			24.93	25.13	CMM		3	SETUP	I	SETUP APPROVAL	CHECK AND REPLACE THE INNER PUNCH	
22A	FACE OUT w.r.t C ON			-	0.15	LEVER DIAL & TAPER MANDREL	761016.9.900	5	SETUP / FIRST OFF / EVERY 4 HOURS / LAST OFF	I & O	SETUP APPROVAL / AUDIT INSPECTION	REFER WORK INSTRUCTION: MFG-WI-COM-63	
22B	FACE OUT w.r.t C ON			-	0.15	LEVER DIAL & TAPER MANDREL	761016.9.900	5	SETUP / FIRST OFF / EVERY 4 HOURS / LAST OFF	I & O	SETUP APPROVAL / AUDIT INSPECTION	REFER WORK INSTRUCTION: MFG-WI-COM-63	
22B	DIM NO: 22B			-	0.1	PLUNGER DIAL		5	SETUP / FIRST OFF / EVERY 4 HOURS / LAST OFF	I & O	SETUP APPROVAL / AUDIT INSPECTION	ADJUST & RECHECK	
26	KEY THICKNESS			2.97	2.99	CMM		3	SETUP / FIRST OFF / LAST PIECE	I	SETUP APPROVAL / LAST PIECE APPROVAL	CHECK AND REPLACE THE INNER PUNCH	
27	DIMENSION OVER PIN			99.63	99.75	DOP GAUGE	DOP/01	5	SETUP / LAST PIECE	I	SETUP APPROVAL / LAST PIECE APPROVAL	CHECK AND REPLACE THE DIE	
28	ANGLE			35.2°	36.2°	CMM		3	SETUP / FIRST OFF / LAST PIECE	I	SETUP APPROVAL / AUDIT INSPECTION / LAST PIECE APPROVAL	CHECK AND REPLACE THE TOOL	
32	NO OF TEETH			50		VISUAL		1	SETUP	I	SETUP APPROVAL	CHECK AND REPLACE THE DIE	
33	TIMING MARK & PART IDENTIFICATION			AS PER DRAWING		VISUAL ENGG-WI-761017-001		1	SETUP	I	SETUP APPROVAL	CHECK AND REPLACE THE PUNCHES	
34	BURR			NOT ALLOWED		VISUAL		5	SETUP / FIRST OFF / EVERY 4 HOURS / LAST OFF	I & O	SETUP APPROVAL / AUDIT INSPECTION	QUARANTINE & INFORM TO SUPERVISOR	
34	CHIP OFF			NOT ALLOWED		VISUAL		5	SETUP / FIRST OFF / EVERY 4 HOURS / LAST OFF	I & O	SETUP APPROVAL / AUDIT INSPECTION	QUARANTINE & INFORM TO SUPERVISOR	
34	CRACKS			NOT ALLOWED		VISUAL		5	SETUP / FIRST OFF / EVERY 4 HOURS / LAST OFF	I & O	SETUP APPROVAL / AUDIT INSPECTION	REFER WORK INSTRUCTION: MFG-WI-COM-68	
34	DENT			NOT ALLOWED		VISUAL		5	SETUP / FIRST OFF / EVERY 4 HOURS / LAST OFF	I & O	SETUP APPROVAL / AUDIT INSPECTION	QUARANTINE & INFORM TO SUPERVISOR	
34	SCORING MARK			NOT ALLOWED		VISUAL		5	SETUP / FIRST OFF / EVERY 4 HOURS / LAST OFF	I & O	SETUP APPROVAL / AUDIT INSPECTION	QUARANTINE & INFORM TO SUPERVISOR	

 <b>CONTROL PLAN</b>														
Initial sample			Pre-launch		<input checked="" type="checkbox"/> Production		Safe Launch							
SMISL Part Number / Issue Number / Issue Date					Key Contact / Phone No			Organization / Plant Approval / Date (If Req'd)			Date (Orig.)	Rev No. :	Date:	
761017      0      29/08/2016					SARAVANAN DURAI /0413-2641089						22/09/2016	2	01/10/2017	
Customer Part Number / Issue Number / Date					Core Team			Customer Engineering Approval / Date (If Req'd)						
130258650R      ---      29/08/2016					SARAVANAN DURAI, SATHISH V, RMN, JP, HMG, DR, SB									
Organization :					Part Description			Customer Quality Approval / Date (If Req'd)						
Customer : RENAULT NISSAN					PINION EXHAUST CAMSHAFT									
Process No:		Operation Description:			Machine:			Other Approval / Date (If Req'd)						
20		COMPACTION			500 TON PRESS-I									
Characteristics				Spl. Char Class	Methods				RES	Control Method	Reaction Plan			
Dim. No.	Product	Process	Product / Process Specification Tolerance		Evaluation Measurement Technique	Gauge / Fixture code	Sample				Action	RES		
			MIN				MAX	Size					Freq	
34	FLAKING			NOT ALLOWED	VISUAL		5	SETUP / FIRST OFF / EVERY 4 HOURS / LAST OFF	I & O	SETUP APPROVAL / AUDIT INSPECTION	QUARANTINE & INFORM TO SUPERVISOR			
34	TEETH BREAK			NOT ALLOWED	VISUAL		5	SETUP / FIRST OFF / EVERY 4 HOURS / LAST OFF	I & O	SETUP APPROVAL / AUDIT INSPECTION	QUARANTINE & INFORM TO SUPERVISOR			
34	CRACK			NO CRACK ALLOWED	SINTERING & MPI		10	SETUP / FIRST OFF	O	SETUP APPROVAL / AUDIT INSPECTION	QUARANTINE & INFORM TO SUPERVISOR			
		POWDER HOPPER SENSOR		ERROR PROOF SHOULD WORK	AS PER WI: MFG-WI-COM-16		1	EVERY SHIFT	O	START UP CHECK	REFER WORK INSTRUCTION MFG-WI-GEN-05			
		DOUBLE PRESSING SENSOR		ERROR PROOF SHOULD WORK	AS PER WI: MFG-WI-COM-12		1	EVERY SHIFT	O	START UP CHECK	REFER WORK INSTRUCTION MFG-WI-GEN-05			
		ADAPTER SAFETY BLOCKS		ERROR PROOF SHOULD WORK	AS PER WI: MFG-WI-COM-80		1	EVERY SHIFT	O	START UP CHECK	REFER WORK INSTRUCTION MFG-WI-GEN-05			
		TONNAGE SAFETY		ERROR PROOF SHOULD WORK	AS PER WI: MFG-WI-COM-81		1	EVERY SHIFT	O	START UP CHECK	REFER WORK INSTRUCTION MFG-WI-GEN-05			
		ONLINE CHECK WEIGHER		ERROR PROOF SHOULD WORK	AS PER WI: MFG-WI-COM-83		1	EVERY SHIFT	O	START UP CHECK	REFER WORK INSTRUCTION MFG-WI-GEN-05			
Prepared by: SURESH G <span style="float: right;">Approved by: SARAVANAN DURAI</span>														