

Honda Motor Co., Ltd.  
(Recieved)

BL	BL	BL	BL
----	----	----	----

### PROCESS QUALITY CHECK TABLE-I

MODEL	K0NA	DESIGNATION OF PARTS	HS	HA	HB	OTHERS
PART NUMBER	23121-KONA-D010					
PART NAME	GEAR PRIMARY DRIVE					

Approved by	Confirmed by	Created by
		



## MATERIAL STORAGE



### RECEIVING INSPECTION



## KEYWAY BROACHING



## HOBGING



## SHAVING



JIG SETTING/CONDITION  
CHECKING



## PRE WASHING



### PRE HEATING



## CARBURISING



### POST WASHING



## TEMPERING



## SHOT BLASTING



HONNING



WASHING














## ROI TESTING



## PACKING & DISPATCH

Flow process chart symbols shall confirm to JISZ8206 (Composite symbol : combine sub job symbol in main job symbol)

	PROCESS		QUANTITY CHECK		CROSS PART OF FLOW LINE		MAINLY AS INSPECTING QUALITY AND DOING QTY INSPECTION
	TRANSPORT		QUALITY CHECK		CONTROL DIVISION OF FLOW CHART		PREVIOUS PAST TROUBLE HISTORY
	STORE		FLOW CHART		MAINLY AS PROCESSING PARTS AND DOING INSPECTION		

[illegible]Route :-Dept. Approved  $\Rightarrow$  Dept. checked  $\Rightarrow$  Dept. Prepared

Original to be retained untill:-

PROCESS QUALITY CHECK TABLE-II

MFG ORDER	PROCESS NAME EQUIPMENT NAME (SUPPLIER NAME)	QUALITY CHARACTERISTICS										PRODUCTION CONDITION CONTROL										ILLUSTRATION
		SI NO.	FAILURE MODE	CRITICAL ITEM	CONTROL ITEM	* SPECIFICATION	PERSON IN CHARGE	CHECK METHOD	MEASURING FREQUENCY	RECORDING FREQUENCY	CONTROL METHOD	SI NO.	CRITICAL ITEM	CONTROL ITEM	SPECIFICATION	PERSON IN CHARGE	CHECK METHOD	MEASURING FREQUENCY	RECORDING FREQUENCY	CONTROL METHOD		
10	RECEIVING INSPECTION	1			Material	SCr420HV	QA	Supplier MTC (Latest by 6 months)	AS PER SAMPLING PLAN	Each Lot	INCOMING INSPECTION REPORT											
		2			Hardness	80-95 HRB	↑	Hardness tester	↑	↑	↑											
		3			Appearance	free from Burr dent damage & scratches etc	↑	Visual	↑	↑	↑											
		4			Microstructure	Uniform distribution of ferrite & pearlite bainite 25% max	↑	Microscope	↑	↑	↑											
		5		◇	Diameter	Ø18 950+0.02	↑	Internal micrometre/Bore gauge	↑	↑	↑											
		6			Roughness	Rz 12.5	↑	Roughness tester	↑	↑	↑											
		7			Diameter	Ø39 4-0.05/-0.15	↑	D V C/Micrometer	↑	↑	↑											
		8		◇	Runout	0.05 wrt B	↑	Mandril, Dial & Bench centre	↑	↑	↑											
		9			Roughness	Rz 100	↑	Roughness tester/Visual	↑	↑	↑											
		10			Roughness	Rz 12.5	↑	Roughness tester	↑	↑	↑											
		11		◇	Dimension	13.5+0.05/+0.15	↑	D V C/Height gauge	↑	↑	↑											
		12		◇	Parallelism	0.02	↑	Height gauge	↑	↑	↑											
		13			Runout	0.02 wrt B	↑	Mandril, Dial & Bench centre	↑	↑	↑											
		14			Roughness	Rz 12.5	↑	Roughness tester	↑	↑	↑											
		15			Chamfer (both side)	C0.5+0.2	↑	Contour	↑	↑	↑											
		16			Chamfer (both side)	C0.5+0.2	↑	Contour	↑	↑	↑											
		17			Supplier identification	Supplier A: Dimension 4+0.2 Supplier B: Dimension 4-0.2 Supplier C: Feed mark on chamfer-1 as shown	↑	Contour/Visual	↑	↑	↑											
		18		◇	Runout (On Ø26 circumf)	0.02 wrt B	↑	Mandril, Dial & Bench centre	↑	↑	↑											
		19			Diameter	Ø26 +0.3	↑	D V C	↑	↑	↑											
		20			Dimension	0.1-0.3	↑	Contour / DVC	↑	↑	↑											
		21			Radius	R	↑	Visual/Contour	↑	↑	↑											
		22			Dimension	2-2.5	↑	Contour / DVC	↑	↑	↑											
		23			Dimension	4±0.2	↑	Contour / DVC	↑	↑	↑											
		24			Condition	This face & bore should be made in same setup	↑	Control plan	↑	↑	↑											
		25			Hazardous or ELV	Hazardous items should be within limit	↑	ELV or Hazardous report	↑	↑	↑											
20	KEYWAY BROACHING	1		◇	KEY WAY WIDTH	4.04- 4.06	LINE ASSOCIATE	SLIP GAUGE	5/SETUP & TC	5/SETUP & TC	SETTING APPROVAL SHEET LOT CONTROL & INSPECTION CHECK SHEET	1		RESTING FACE	NO DENT	LINE ASSOCIATE	VISUAL	1/100	—	—		
					↑	OK	↑	SPLINE GAUGE	1/10	1/10		2		LUBRICATION PRESSURE	1.4-1.8 Mpa	LINE ASSOCIATE	PRESSURE GAUGE	1/SHIFT	1/FIRST SHIFT	EQUIPMENT CHECK SHEET		
		2		◇	KEY WAY DEPTH	21.05-21.2	↑	VERNIER CALIPER	5 /SETUP & TC 1/50	5 /SETUP & TC 1/50	↑	3		AIR PRESSURE	0.4-0.6 Mpa	LINE ASSOCIATE	PRESSURE GAUGE	↑	↑	↑		
		3			SYMMETRICITY	≤0.04	↑	SLIP GAUGE & DIAL INDICATOR	5 /SETUP & TC	5 /SETUP & TC	↑											
					↑	OK	↑	SPECIAL GAUGE	1/10	1/10	↑											
		4			KEY WAY TAPER	≤0.03	↑	V-BLOCK & DIAL INDICATOR	↑	↑	↑											
		5			SURFACE ROUGHNESS	Rz25	QA	ROUGHNESS TESTER	1 /SETUP & TC	1 /SETUP & TC	SETTING APPROVAL SHEET											
					↑	OK	↑	↑	↑	↑	↑											
		6		⊗	APPERNACE	NO DENTS & BURRS	LINE ASSOCIATE	VISUAL	100%	—	—											
					↑	NO DOUBLE OPERATION/ NO OPERATION MISS	↑	↑	↑	—	—											













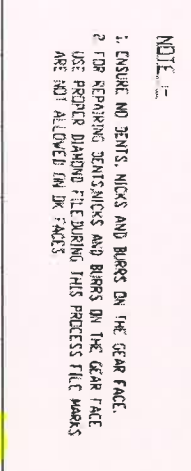

CONTROL PARAMETERS  
KEYWAY WIDTH = 4.04-4.06  
KEYWAY DEPTH = 21.05-21.2  
SYMMETRICITY = ≤0.04  
KEYWAY TAPER = ≤0.03

PROCESS QUALITY CHECK TABLE-II

MFG ORDER	PROCESS NAME EQUIPMENT NAME (SUPPLIER NAME)	QUALITY CHARACTERISTICS										PRODUCTION CONDITION CONTROL										ILLUSTRATION
		SI NO.	FAILURE MODE	CRITICAL ITEM	CONTROL ITEM	SPECIFICATION	PERSON IN CHARGE	CHECK METHOD	MEASURING FREQUENCY	RECORDING FREQUENCY	CONTROL METHOD	SI NO.	CRITICAL ITEM	CONTROL ITEM	SPECIFICATION	PERSON IN CHARGE	CHECK METHOD	MEASURING FREQUENCY	RECORDING FREQUENCY	CONTROL METHOD		
30	HOBBING	1		◇	OBD (BALL Ø 3.175mm)	Ø39.450-39.480	LINE ASSOCIATE	OBD MICROMETER/OBD FIXTURE	5/SETUP & TC	5/SETUP & TC	SETTING APPROVAL SHEET LOT CONTROL & INSPECTION CHECK SHEET	1		TAIL STOCK CLAMPING PRESSURE	6-7.5 Mpa	LINE ASSOCIATE	PRESSURE GAUGE	1/SHIFT	1/FIRST SHIFT	EQUIPMENT CHECK SHEET	<div>CONTROL PARAMETERS</div> <div>MODULE = 1.75    ADDT. TEETH = 19</div> <div>HELIX ANGLE = 0°    PRESSURE ANGLE = 14.5°</div> <div>ØPCD RUN OUT = 0.005</div> <div>PROFILE (PT) = 0.004 MAX LEAD (PT) = 0.004 MAX</div>	
					2		ONE TOUCH ARBOR R/O & DIA WEAR LIMIT	0.005 & Ø18.93-0.025/0.035		BENCH CENTER & MICROMETER												
		2		◇	PCD RUNOUT	≤0.035		PCD TESTER	5/SETUP & TC	5/SETUP & TC		3		HOB ARBOR R/O	0.005 MAX		DIAL INDICATOR & MAGNETIC STAND			EQUIPMENT CHECK SHEET X R CHAET		
		3			PROFILE	12µMAX	Q A	GEAR TESTER	1/SETUP & TC	1/SETUP & TC	SETTING APPROVAL SHEET & GRAPH	4		BASE CENTER & WORK ARBOUR TAPER	NO DENTS		VISUAL			EQUIPMENT CHECK SHEET		
		4			LEAD	14µMAX																
5			ROOT DIAMETER (AS SHOWN IN FIG)	Ø30.6 <sup>+0.3</sup>	LINE ASSOCIATE	VERNIER CALIPER	5/SETUP & TC 1/50	5/SETUP & TC 1/50	SETTING APPROVAL SHEET													
6			TOOTH SURFACE ROUGHNESS	RZ 25 MAX	Q A	ROUGHNESS TESTER	1/SETUP & TC	1/SETUP & TC	SETTING APPROVAL SHEET													
7			APPEARNACE	NO DENTS & BURRS NO DOUBBLE OPERATION	LINE ASSOCIATE	VISUAL	100%															
40	SHAVING	1		◇	OBD (ø 3.175)	38.250-38.280	LINE ASSOCIATE	OBD MICROMETER/ OBD FIXTURE	5/SETUP & TC	5/SETUP & TC	SETTING APPROVAL SHEET	1	◇	TAIL STOCK CLAMPING PRESSURE	2-4 Mpa	LINE ASSOCIATE	PRESSURE GAUGE	1/SHIFT	1/FIRST SHIFT	EQUIPMENT CHECK SHEET		
		2		◇	PCD RUNOUT	≤0.025		PCD R/O TESTER	5/SETUP & TC	5/SETUP & TC		2	◇	FIXTURE CONDITION	NO DENTS/WEAR		VISUAL					
		3			PROFILE	AS PER TABLE	Q.A	GEAR TESTER	1/SETUP & TC	1/SETUP & TC	SETTING APPROVAL SHEET	3	◇	MASTER WORK R/O	0.010 MAX		DIAL INDICATOR & MAGNETIC STAND					
														4	◇	CUTTER FACE R/O	0.005 MAX					
		4			LEAD																	
5			MQS	TOOTH SURFACE ROUGHNESS	± Rz 6.3	QA	ROUGHNESS TESTER (ALONG PROFILE)	1/SET UP & TC	1/SET UP & TC	SETTING APPROVAL SHEET												
6			APPEARANCE	NO DENTS & BURRS	LINE ASSOCIATE	VISUAL	1/50															
60	JIG SETTING / CONDITION CHECKING	1			JIG SETTING OF COMPONENT	SEE NOTES	LINE ASSOCIATE	VISUAL	1/LOT			1		BASE TRAY	NO CRACK BEND,DAMAGE	LINE ASSOCIATE	VISUAL	1/LOT				
		2			SETTING CONDITION	NO COLLAPS						2		STACKING BASKET								
		3			APPEARANCE	NO DENTS & DAMAGE NO OPERATION MISSED			100%			3		MESH				1				
02 & 04	PRE WASHING & POST WASHING	1			APPEARANCE	NO OIL, NO DIRT ON THE COMPONENT	LINE ASSOCIATE	VISUAL	100%				FOR EACH MACHINE									
														TEMPERATURE	110±10°C	LINE ASSOCIATE	DIGITAL TEMP. INDICATOR	1/SHIFT	1/FIRST SHIFT	EQUIPMENT CHECK SHEET		
03	PRE-HEATING													WASHING TIME	20±5 MIN	LINE ASSOCIATE	TIMER	1/LOT	1/LOT	EQUIPMENT CHECK SHEET		
		1			JIG SETTING	SEE NOTE-2	LINE ASSOCIATE	VISUAL	100%			1		TEMP	400±10°C	LINE ASSOCIATE	CONTROL METER	EACH LOT	EACH LOT	EQUIPMENT CHECK SHEET		
												2		PRE HEATING SOAKING TIME	110±10 MINUTES	LINE ASSOCIATE	TIMER	EACH LOT	EACH LOT			
												3		HEATING VOLTAGE	250-450V	LINE ASSOCIATE	VOLTMETER	EACH LOT	EACH LOT			
													4		HEATER CURRENT	50-75A	LINE ASSOCIATE	AMMETER	EACH LOT	EACH LOT		

PROCESS QUALITY CHECK TABLE-II

MFG ORDER	PROCESS NAME EQUIPMENT NAME (SUPPLIER NAME)	QUALITY CHARACTERISTICS										PRODUCTION CONDITION CONTROL										ILLUSTRATION
		SI.NO.	FAILURE MODE	CRITICAL ITEM	CONTROL ITEM	SPECIFICATION	PERSON IN CHARGE	CHECK METHOD	MEASURING FREQUENCY	RECORDING FREQUENCY	CONTROL METHOD	SI.NO.	CRITICAL ITEM	CONTROL ITEM	SPECIFICATION	PERSON IN CHARGE	CHECK METHOD	MEASURING FREQUENCY	RECORDING FREQUENCY	CONTROL METHOD		
60 & 70	CARBURISING & TEMPERING	1		◇ MQS	CASE DEPTH	0.3-0.5 MM	QA	MICRO VICKERS (CUT OFF, 513 HV LOAD 0.3 KG)	1/LT	1/LT	CCF PROCESS CONTROL SHEET			FOR CCF								
		2		◇	HARDNESS OF TOOTH FLANK (0.1MM FROM THE SURFACE)	720-800 HV (300g) (TARGRT 750 MIN.)	↑	↑	↑	↑	↑	1	◇	CARBON POTENTIAL	REF CYCLE DIAGRAM	↑	CP CONTROLLER	EACH LOT	EACH LOT	CCF PROCESS CONTROL SHEET		
		3			SURFACE HARDNESS(BEFORE TEMPERING)	80-85 HRA (REFERENCE)	↑	ROCKWELL HARDNESS TESTER (LOAD 60KG)	10/LT	10/LT	↑	2	◇	CARBURSING TEMP	880°C±10°C	↑	CONTROL METER	↑	↑	↑		
		4		◇ MQS	SURFACE HARDNESS(AFTER TEMPERING)	75-83 HRA	↑	↑	↑	↑	↑	3	◇	CARBURSING TIME	50±5 MINUTES (3 ZONES)	↑	RECORD METER	↑	↑	↑		
		5		◇ MQS	CORE HARDNESS	25-45 HRC	↑	ROCKWELL HARDNESS TESTER (LOAD 150KG)	1/LT	1/LT	↑	4	◇	HARDENING TEMP	840°C±10°C	↑	CONTROL METER	↑	↑	↑		
		6		◇	MICRO STRUCTURE AT SURFACE	MARTENSITE ABOVE C CLASS	↑	MICROSCOPE	↑	↑	↑	5	◇	HARDENING TIME	30±5 MINUTES	↑	RECORD METER	↑	↑	↑		
		7		◇	MICRO STRUCTURE AT CORE	LOW CARBON TEMPERED MARTENSITE	↑	MICROSCOPE	↑	↑	↑	6	◇	QUENCH OIL TEMP	140°±10°C	↑	CONTROL METER	↑	↑	↑		
		8			APPEARANCE	FREE FROM OIL	LINE ASSOCIATE	VISUAL	EACH LOT	—	—	7	◇	QUENCHING TIME	10±5 MINUTES	↑	RECORD METER	↑	↑	↑		
												8	◇	AGITATOR RPM	HIGH	↑	INDICATOR	↑	↑	↑		
												9	◇	TEMPERING TEMP	170°C±10°C	↑	CONTROL METER	↑	↑	↑		
										10	◇	TEMPERING TIME	35±5 MINUTES (4 ZONES)	↑	RECORD METER	↑	↑	↑				
055	SHOT BLASTING	1			APPEARANCE	PARTS SHOULD FREE FROM SCALES, BURRS AND SHOTS	LINE ASSOCIATE	VISUAL	100%	—	—	11		SHOT BLASTING TIME	5- 20 MINUTES	LINE ASSOCIATE	TIMER	EACH LOT	—	—		
												12		AIR PRESSURE	5 ~ 6 KG/CM <sup>2</sup>	LINE ASSOCIATE	PRESSURE GAUGE	1/SHIFT	1/1ST SHIFT	EQUIPMENT CHECK SHEET		
												13		IMPELLER MOTOR CURRENT	12 ~ 20 A FOR M/C 265002 & 265003	↑	AMMETER	↑	↑	↑		
												14		IMPELLER MOTOR CURRENT	8 ~ 15 A FOR M/C 265004,265005	↑	AMMETER	↑	↑	↑		
												15		ID MOTOR CURRENT	20 A MAX FOR M/C 265003 & 265004,265005		AMMETER	↑	↑	↑		
												16		MANGANETER READING	PSIG 11 MAX	↑	MANGANETER SCALE	↑	↑	↑		

PROCESS QUALITY CHECK TABLE-II																							
MFG ORDER	PROCESS NAME EQUIPMENT NAME (SUPPLIER NAME)	QUALITY CHARACTERISTICS										PRODUCTION CONDITION CONTROL											
		SI NO.	FAILURE MODE	CRITICAL ITEM	CONTROL ITEM	SPECIFICATION	PERSON IN CHARGE	CHECK METHOD	MEASURING FREQUENCY	RECORDING FREQUENCY	CONTROL METHOD	SI NO.	CRITICAL ITEM	CONTROL ITEM	SPECIFICATION	PERSON IN CHARGE	CHECK METHOD	MEASURING FREQUENCY	RECORDING FREQUENCY	CONTROL METHOD	ILLUSTRATION		
80	HONING	1			BORE DIAMETER	Ø18 <sup>+0.010</sup> -0.005	LINE ASSOCIATE	PLUG GAUGE	5/CASSATE & TC	5/CASSATE & TC	SETTING APPROVAL SHEET	1		FIXTURE CONDITION	NO DENTS & DAMAGES	LINE ASSOCIATE	VISUAL	1/SHIFT	1/FIRST SHIFT	EQUIPMENT CHECK SHEET			
		2		MOS	BORE SURFACE ROUGHNESS	Rz 6.3 MAX	QA	ROUGHNESS TESTER	1/CASSATE & TC	1/CASSATE & TC	SETTING APPROVAL SHEET LOT CONTROL & INSPECTION CHECK SHEET	2		HYDRAULIC PRESSURE	5.0-6.0 MPa		PRESSURE GAUGE						
		3			QUALITY	±0.003			AIR PLUG GAUGE	5/CASSATE & TC	5/CASSATE & TC	SETTING APPROVAL SHEET											
		4			TAPER	±0.003				100%	1/10	LOT CONTROL & INSPECTION CHECK SHEET											
		5			ROUNDNESS	±0.003	QA	ROUNDNESS TESTER	1/CASSATE & TC	1/CASSATE & TC	SETTING APPROVAL SHEET												
		6			FACE R/O	±0.03			TAPER MANOREL & DIAL INDICATOR	5/CASSATE & TC	5/CASSATE & TC	SETTING APPROVAL SHEET											
7			PCD RUNOUT	±0.002			PCD TESTER	5/CASSATE & TC	5/CASSATE & TC	SETTING APPROVAL SHEET													
8		MOS	APPEARANCE	NO DENTS & BURRS	LINE ASSOCIATE	VISUAL	100%																
				NO UNCLEAN																			
C07	WASHING	1			APPEARANCE AFTER WASHING	CLEAN & DRY COMPONENT WITH NO DIRT	LINE ASSOCIATE	VISUAL	1/TRAY			1		DRY TANK PRESSUR	2-3 kg/cm²	LINE ASSOCIATE	PRESSURE GAUGE	1/SHIFT	1/FIRST SHIFT	EQUIPMENT CHECK SHEET			
		2			APPEARANCE AFTER ANTI RUST OIL APPLICATION	COMPONENT FULLY COVERED WITH OIL	LINE ASSOCIATE	VISUAL	100%			2		CLEAN TANK PRESSURE	12-15 KG/CM2								
		3			CONTAMINATION AS PER INHES-SCM	SEE NOTE-1	QA	MILLIPORE	1/MONTH	1/MONTH	LOG BOOK	3		CLEANING AGENT TEMPERATURE	60°c-80°c		TEMPERATURE CONTROLLER DISPLAY						
		4										4		HOT AIR TEMP.	60°c-80°c		TEMPERATURE CONTROLLER DISPLAY						
		5											5		CLEANING AGENT CONCENTRATION	2%-5%		REFRACTOMETER					
90	ROLL TESTING	1			TCE	±0.04 mm	LINE ASSOCIATE	DIAL INDICATOR	1/SETUP & TC	1/SETUP & TC	SETTING APPROVAL SHEET	1		LOCATOR WEAR	Ø18.890-18.895	LINE ASSOCIATE	OD MICROMETER	1M	1M	FIXTURE CALIBRATION SHEET			
		2			NICK MARKS	NO NICK MARKS			VISUAL	100%	1/10		2		MASTER GEAR	NO DENTS & NO BURRS		VISUAL	1/SHIFT	1/FIRST SHIFT		EQUIPMENT CHECK SHEET	
		3			DIRECTION OF ROTATION OF COMPONENT	FIRST C.W THEN CCW							3		FIXTURE BOLT LOOSING CHECK	NO LOOSING		MANUAL CHECK					
		4			APPEARANCE	NO DENT NO BURR SEE NOTE 2																	
		5			CENTER DISTANCE	80.003 ±0.029			DIAL INDICATOR & MASTER DISC SET		1/SET UP & TC	SETTING APPROVAL SHEET	1		MASTER GEAR	MASTER GEAR PARAMETERS	QA ASSOCIATE	VERIFICATION FROM MASTER GEAR MANUFACTURER DRAWING	ONCE/NEW MASTER GEAR	ONCE/NEW MASTER GEAR		SUPPLIER MASTER GEAR DRAWING	
6			OPERATIONS COMPLETED	KEYWAY BROACHING			VISUAL	100%															
				HOBGING																			
				SHAVING																			
				HONING								</											