NEW RELEASE INFORMATION Vol.324

COMPLETE HEAD / BLOCK SERIES

The long-awaited complete engine series is finally back!

Supreme spec built with the technology cultivated over the years is now back on the market!

POINT!

The “Complete Head” and “Complete Block” series do not require the customer to prepare or send the head or block in advance, all the parts are brand new and will be manufactured by TOMEI. This product is not an engine assembly type, but a tuned head part and block part, each of which will be sold separately.
This allows for greater flexibility in terms of the timing of installation and the selection of other parts to be used in conjunction with the engine, allowing the user to expand their engine manufacturing options to suit the characteristics of the field of use.

Use it for purposes!

- Great alternative option of engine overhaul.
- Perfect base for next tuning steps.
- For more performance and reliability.

COMPLETE HEAD SERIES

BASE ENGINE	RB26DETT		SR20DET	4G63		EJ207/20Y		EJ25/26	
									
With out camshaft	CPH-RB26		CPH-SR	CPH-4G63E8	CPH-4G63E9	CPH-EJ20-S	CPH-EJ20-D	CPH-EJ25-S	CPH-EJ25-D
APPLICATION	BNR32/BCNR33/BNR34		S14/S15	EVO8 GSR 6SPEED	EVO9 GSR/MR	GDB C-G	GR/GV/VAB	SINGLE AVCS (USDM)	DUAL AVCS
P/N	231012		232012	233012	233022	234012	234022	234032	234042
JPY	720,000		568,000	585,000		650,000			
With camshaft	CPH-RB26R32-C	CPH-RB26R34-C	CPH-SR-C	CPH-4G63E8-C	CPH-4G63E9-C	CPH-EJ20-S-C	CPH-EJ20-D-C	CPH-EJ25-S-C	CPH-EJ25-D-C
APPLICATION	BNR32/BCNR33	BNR34	S14/S15	EVO8 GSR 6SPEED	EVO9 GSR/MR	GDB C-G	GR/GV/VAB	シングルAVCS (USDM)	デュアルAVCS
P/N	231112	231122	232112	233112	233122	234112	234122	234132	234142
JPY	850,000		761,000	785,000	805,000	798,000			
SPEC									
CCV	approx. 67.0cc		approx. 48.5cc	approx. 44.0cc		approx. 50.0cc		approx. 52.5cc	
VALVE	TOMEI 1mm Oversized		TOMEI 1mm Oversized	TOMEI 1mm Oversized		TOMEI 1mm Oversized			
VALVE SPRING	TOMEI TYPE A		TOMEI TYPE A	TOMEI Oval Shaped Core Wire		TOMEI Oval Shaped Core Wire			
VALVE SPRING RETAINER	TOMEI TITANIUM		TOMEI TITANIUM	TOMEI TITANIUM		TOMEI TITANIUM			
VALVE SPRING SHEET	STD+TOMEI		STD+TOMEI	STD+TOMEI		STD+TOMEI			
VALVE GUIDE	TOMEI Cn-Sn-P alloy		TOMEI Cn-Sn-P alloy	TOMEI Cn-Sn-P alloy		TOMEI Cn-Sn-P alloy			
VALVE SHEET RING	STD		STD	STD		TOMEI Be Cu Alloy			
CAM SHAFT	TOMEI IN/EX 270-10.25		TOMEI IN/EX SOLID 260-12.0	TOMEI IN/EX SOLID 270-11.5		TOMEI IN 250-9.60 EX 256-9.80 S-AVCS	TOMEI IN 260-9.80 EX 256-10.00 D-AVCS	TOMEI IN 260-9.80 EX 264-10.00 S-AVCS	TOMEI IN 260-9.80 EX 264-10.00 D-AVCS
VALVE LIFTER	TOMEI for High Lift Cam		-	-		STD			
SOLID PIVOT	-		TOMEI Shim Adjustable Type	TOMEI Shim Adjustable Type		-			
ROCKER ARM STOPPER	-		TOMEI SPCC	-		-			

※With out camshaft model does not include the parts in the this highlighted sention.

VALVE GUIDE REPLACEMENTS

We heat the cylinder head up to 200 degrees Celsius to extract the stock valve guides.
The difference in thermal expansion will allow an easy and safe removal process of the valve guides without damaging the head. Then we again heat the head prior to the installation of the new TOMEI valve guides are frozen to -200 degrees Celsius with liquid nitrogen. So the total temperature difference of 400 degrees Celsius will ensure the absolute best installation process, without the risk of damaging either the head or the new valve guides. This is how we also achieve the best seal and seating of our valve guides.

OVERSIZED VALVE SHEET RINGS

When upgrading to oversized valves, larger valve seat rings are required. Just simply enlarging the seats to accommodate the larger diameter of the valve is not enough. Long term durability and optimized flow is all taken into account. New seats are cut, and both the intake and exhaust ports are corrected for improved head flow.

VALVE SEAT CUT

Each valve seat width, position and taper angles. The surface condition is checked and addressed to maximize the aerodynamics from the intake to the combustion chamber, and then out through the exhaust. Each seat is cut to suit each valves position and tapered angle. The surface angles and positions are all arranged to optimize overall flow. By increasing the sealing properties of the valve to valve seat, then more accurate compression can be maintained. This process is extremely time consuming, to find the optimum design for the engine application.

OPTIMIZING THE COMBUSTION CHAMBER

The valve seat rings surrounding area may have some imperfections from the factory. This can affect the combustion chambers volume and performance. So by targeting this area, the flow can be optimized to maximize the already limited area. Deburring casting imperfections from the port to the seat rings and smoothing this area is an absolute must. Extra care and attention is taken into account for the airflow dynamics of this area.

VALVE SPRING SETTING & ADJUSTMENTS

The valve springs will need to be upgraded to help keep good balance for both low and high engine speeds. The added weight reduction will greatly help the valve train assembly. The key points are to set the correct load properties of each valve spring and also with the use of the valve spring sheet adjustments. This process will increase the valve springs design efficiency which also means that the load is then set.

PORT STEP CORRECTIONS

Correcting the valve seat rings helps optimize the combustion chamber shape and makes the flow characteristics much better on the intake and exhaust side.

VALVE LAPPING

A special lapping compound is used to lap the valves and the seat rings to correct the sealing and contact areas of the valve with the seat ring. The correct adjustments can then be made to optimize sealing, to prevent any gas leaks. If the area is too large, then there is a risk of grime or carbon buildup. This can then damage both the valves and seats, which will hinder performance. If it's too narrow, the high stress loads on the seats will reduce cooling efficiency as the heat cannot dissipate into the cylinder head effectively.

HEAD SURFACE CORRECTION

The head is checked for any signs of deformation, and then corrected with the mill cutter to make the appropriate corrections. This will increase the heads plane to improve sealing characteristics,with a secure flat face to met well to the cylinder block. Having corrected the face of the head will help increase compression and deliver more power.

CLEANING THE HEAD

The entire head is meticulously cleaned. Both the water and oil galleries and every orifice are cleaned by hand with various tools. Then it is finished off with a high pressure hot washing machine, then finally by high pressurized air deaning. Passing these 3 extensive processes,the head will come out looking brand new. An extensive check of the head will be done next,and the casting errors will be removed by hand.

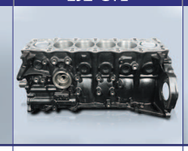
COMBUSTION CHAMBER CAPACITY ADJUSTMENTS

Large valve seat rings are fitted and adjusted. The valve seats are then cut and finally the combustion chambers are carefully calculated, adjusted to suit the target displacement on each cylinder. All Complete head have their cylinder compression chamber ratios all adjusted to suit the target volume. Meticulous attention to detail and precious of 0.1-0.9cc is normal in our standards to attain the optimum results.

PRECISION ASSEMBLY

Our staff Is always striving for perfection. So "Precision Assembly" is always first priority on our work methods. This is why we have been around since the late 60's and still going strong. Our materials. equipment, work environment and management are specifically designed to show in our end product results.

COMPLETE BLOCK SERIES

BASE ENGINE	RB26DETT				2JZ-GTE	4G63				EJ207/20Y		EJ255/257
												
MODEL	RB28		RB26		2JZ-36	4G63-22		4G63-23		EJ22		EJ26
	CPB-RB28-S	CPB-RB28-N	CPB-RB26-S	CPB-RB26-N	CPB-2J36	CPB-4G22-E8	CPB-4G22-E9	CPB-4G23-E8	CPB-4G23-E9	CPB-EJ22-S	CPB-EJ22-D	CPB-EJ26
APPLICATION	BNR32/BCNR33/BNR34/WGNC34				JZA80/JZS161	Evo.8	Evo.9	Evo.8	Evo.9	GDB C-G	GRB/GVB/VAB	EJ255/EJ257搭載車
P/N	211011	211012	211021	211022	216010	213211	213311	213221	213321	214211	214311	215011
JPY	1,345,000	1,600,000	1,185,000	1,440,000	1,900,000	1,000,000		1,000,000		1,000,000		1,000,000
SPEC												
BORE*STROKE	Φ86.5×77.7mm		Φ86.5×73.7mm		Φ87.0×100.0mm	Φ85.5×94.0mm		Φ85.5×100.0mm		Φ92.5×79.0mm		Φ99.75×83.0mm
DISPLACEMENT	2738cc		2597cc		3565cc	2158cc		2295cc		2123cc		2593cc
PISTON	FORGED PISTON Φ86.5 (VALVE RECESSED)				FORGED Φ87.0	FORGED Φ85.5		FORGED Φ85.5		FORGED Φ92.5		FORGED Φ99.75
CONNECTING ROD	FORGED H-BEAM 119.5mm		FORGED H-BEAM 121.5mm		FORGED H-BEAM139.0mm	FORGED/ H-B 150.0mm		FORGED/ H-B 147.0mm		FORGED/ H-B 130.5mm		FORGED/ H-B 128.5mm
CRANKSHAFT	FORGED 8 COUNTERED 77.7mm		HERITAGE		FORGED FULL COUNTERED 100.0mm	BILLET FULL COUNTERED 94.0mm		BILLET FULL COUNTERED 100.0mm		BILLET 79.0mm		BILLET FULL COUNTERED 83.0mm
MAIN BEARING	COMPETITION				COMPETITION	COMPETITION				COMPETITION		
CONROD BEARING	COMPETITION				COMPETITION	COMPETITION				COMPETITION		
MAIN BOLTS	STUDS TYPE				STUDS TYPE	STUDS TYPE				Reinforced		
CRANK CAPS	STD				TAITAN Billet Reinforced	STD				STD		
CYLINDER BLOCK	HERITAGE STD	HERITAGE N1	HERITAGE STD	HERITAGE N1	STD	STD				STD		

RB28

The +200cc of capacity increase makes a huge difference. Experience the super response to the throttle and endless acceleration.

RB26

We wanted to keep the original feeling of the RB26.This model is designed for users who enjoy the performance of their beloved engine for a long period of time.

2JZ-36

Highly responsive with a wide torque band that helps to spool a large single turbo.

4G63-22

Supreme torque and stretch especially at high RPM range of 2.2L. Best choise for those who wish to keep the feeling of the stock 2.0L.

4G63-23

The 100mm stroke produces an overwhelming torque at the low RPM range beneficial both for sprt driving and street use.

EJ22

The very best balance of torque, power and feeling that can possibly be achieved out of EJ20 block that pushes up the EJ20 to a whole lot different stage.

EJ26

Designed to maximize the potential of EJ25 with the minimum inclease of the bore size not to spoil the durability. The definitive total balance for EJ25.

CYLINDER BLOCK SURFACE CORRECTION

The blocks surface is milled and the central part cavities are corrected down to the finest derails. the heads meting face is increased for accurate optimum sealing characteristics. The block is then prepared for the boring & honing process.

BORING & HONING WITH DUMMY CYLINDER HEAD

The dummy head is fitted to the block to replicate the complete engine assembled for the boring and honing process. this maintains the highest levels of accuracy for the cylinder bor. honing is processed to reduce friction and increase oil accumulation which helps maintain the tightest piston clearances. All measurements and assembly is performed in a temperature controlled room of 20±1℃. all year round.

REMOVING CASTING ERRORS

The excess casting errors that remain from the factory cast finish, can dome off & run through the engine system. this can cause major problems. This important detail must not be missed to remove all unwanted casting burr from the blocks surface 6 maximize your engines life.

COMPLETE CLEANING & INSPECTION

The high pressure washing & air cleaning are all performed with meticulous detail. The extensive 3 step process is performed in detail with the oil galleries and water jackets, Everything is inspected on the new block to find any faults from the original factory casting for fault lines. Any casting burrs and/or irregularities are then corrected and/or removed.

CRANKSHAFT DYNAMIC BALANCING

The dynamic balancing of the crankshaft reduces unwanted vibrations & increases response, engine speed, extends bearing & engine life for additional power gains. This process optimizes the crankshafts optimum potential.

PISTONS & CONRODS BALANCING

Since the rotating assembly will be used for high engine speeds and extreme conditions, the stress loads will be excessive as well. With the high inertial forces experienced by these components the G-Forces can be up to 2000G so with a tiny difference in weight at major factor for uneven wear, distortion, performance and engine life. So precision and minimal weight difference across all components is an absolute must to get the most out of your engine.




MAIN CONROD BEARING SELECTION

Minimizing friction and increasing lubrication efficiency is optimized by maintaining consistent strict clearances. Both the TOMEI conrods and TOMEI competition bearings have been designed to for the best results in minimizing metal fatigue & scoring will improving durability for high power and RPM applications.

CRANK CONROD THRUST CHECK

Both the crankshaft & connecting rods thrust clearance is checked and kept within the specified values required.

PRECISION ASSEMBLY

Each & every TOMEI complete engine product has been assembled by TOMEI strict engine build process. Precise, strict tolerances & clearances area all meticulously checked & maintained. All studs / bolts have assembly paste applied torque setting are checked & performed twice on each & finally tightened with the angle wrench gauge.

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