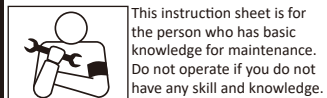


STANDARD BIG BORE KIT 88cc for 12V monkey		NO.1/3	
DISPLACEMENT : (BORE) x (STROKE)		STD 88cc : $\phi 52 \times 41.4\text{mm}$ (STOCK)	
CODE			
ALUMINUM CYLINDER	214-1083102	ALUMINUM HARD PLATING CYLINDER	215-1133101
ALUMINUM CYLINDER / SPL CAMSHAFT	214-1083112	ALUMINUM HARD PLATING CYLINDER / SPL CAMSHAFT	215-1133102
APPLICATION			
MONKEY / GORILLA	FNO,Z50J-2000001 ~ FNO,AB27-1000001 ~ 1899999	LITTLE CUB	FNO,C50-4300001 ~ FNO,AA01-3000001 ~ 3999999
MONKEY BAJA		CHALY ※ 1)	FNO,CF50-3400001 ~
DAX50 (12V)	AB26	SOLO	AC17
CD50	FNO,CD50-1500001 ~	GIORCUB	AF53
BENLY 50S / CL50	FNO,CD50-2200005 ~	XR50R / CRF50F	AE03
JAZZ	AC09	※ Unable to install MONKEY R / RT, MOTRA, CHALY AND SUPER CUB with wide width camshaft.	
MAGNA 50	AC13	※ 1) In case of CHALY, machining is required because cylinder fin and leg shield interrupt each other.	
SUPER CUB50	FNO,C50-9000001 ~ 9501323		
PRESS CUB50	FNO,C50-9600001 ~ 0095210		
※ Unable to install FI models.	FNO,C50-0200001 ~		
	FNO,AA01-1000001 ~ 1699999		

- Thank you for purchasing Kitaco product. Read and understand the instruction before installing.
- Special tools are required to install.
- After installation, please use this sheet as setting manual.
- ※ Instruction sheet is not included to repair parts. Please keep this instruction safe.

## ATTENTION (MUST READ)

- This product is for racing use. It is out of warranty. Unable to ride on public road with installed vehicle. We are not responsible for violation of law or damages and accidents caused by assembling mistake and improper setting.
- By installing this product, changing plug, gear, etc and setting is required. Please use Kitaco carburetor and exhaust. Using other company's product may cause of break. If riding with stock setting, it unables to power up, cause of burning and break. Please set up to match the engine. Please change stronger clutch.
- Please follow this instruction sheet. Do not modify the way which is not listed or it will cause burning, damage and trouble.
- Please ask authorized mechanic for assembling and setting. Ask a specialist at specialty shop if you do not understand the role of the surrounding parts.
- Change engine oil after break in (around 100km).
- Refer to the manufacturer service manual when installation.
- Bolts and nuts may get loosen by engine vibration. Make sure not to loosen any bolts and nuts before driving.
- Clean each parts by parts cleaner, etc and check the oil line is choked by using air duster.
- Oil the parts with engine oil when assembling.
- Do not use engine brake, etc burden the mission. When starting engine with kick, check the gear is engaged before kick.
- Please ride under 5,000rpm when break in.



This instruction sheet is for the person who has basic knowledge for maintenance. Do not operate if you do not have any skill and knowledge.



Toxic, high-volatile gasoline is used during operation. Be sure to ventilate the room. Please start engine under well-ventilated place.



FLAMMABLES  
Inflammable high gasoline is used during operation. Using products causing fire or smoke is strictly prohibited.



Do not touch cylinder, crank case, exhaust, etc during or right after engine operation. It is high temperature.



Do not spark the plug outside the cylinder for spark check. It might cause of fire and explosion.

230606

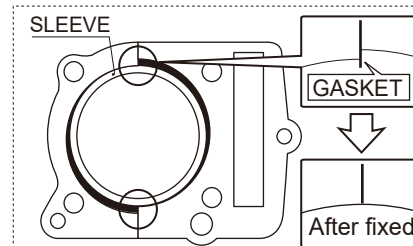


3-8-13 NAGATA,  
HIGASHI-OSAKA,  
OSAKA, JAPAN  
<https://www.kitaco.co.jp/>

## ATTENTION WHEN INSTALLING

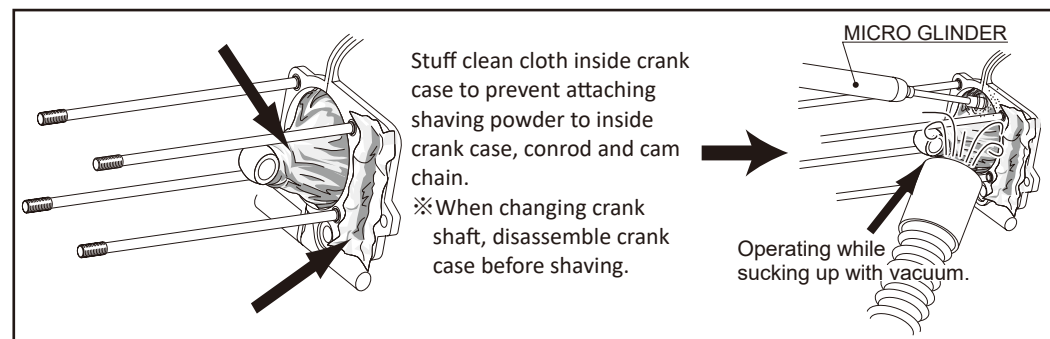
### The clearance between cylinder sleeve and crank case through hole.

When installing cylinder, make sure that there is a gap more than 0.5mm all around cylinder sleeve and crank case side through hole. Because of the crank case tolerance, 0.5mm or less gap might interrupt the sleeve. In that case, shave crank case through hole sharply to make clearance more than 0.5mm. If the gasket sticks out from crank case matching surface, cylinder sleeve might touch the gasket because of deformation by thermal expansion, and it might cause of burning piston and oil leaking. Crank case hardness is more than tolerance, processing and assembling require extreme caution.



### CRANK CASE FLAT SURFACE

In case of unable to insert cylinder sleeve into crank case, o is out of the hole, please shave. Make sure that there is a gap more than 0.5mm all around cylinder sleeve and crank case through hole.



Stuff clean cloth inside crank case to prevent attaching shaving powder to inside crank case, conrod and cam chain.

※ When changing crank shaft, disassemble crank case before shaving.

Operating while sucking up with vacuum.

### OPTION PARTS (SOLD SEPARATELY)

▼ By installing big bore kit, reinforcing clutch, high geared, installing oil cooler, etc are required.

OIL SURROUNDINGS	SUPER OIL COOLER KIT (3ROW CONDENSER)	CODE : 360-1133200
	SUPER OIL PUMP KIT (For application C)	331-1083300
CLUTCH	3 DISK DRIVE UNIT	307-1123500
	MANUAL CLUTCH KIT (3 DISK)	307-1123000

▼ Changing intake parts are required.

CARBURETOR (Specified for each model.)	MONKEY / GORILLA	KEIHIN PC $\phi$ 20 BIG CARBURETOR KIT	110-1015516
		KEIHIN PE $\phi$ 24	110-1123408
		MIKUNI VM $\phi$ 26 (left side / short / long type)	110-1123203/110-1013013
CDI (Specified for each model.)	MONKEY / GORILLA (Not for 6V model)	POWER REV 2	766-1123300
		REV CON ※Recommend map : 4	764-1123100

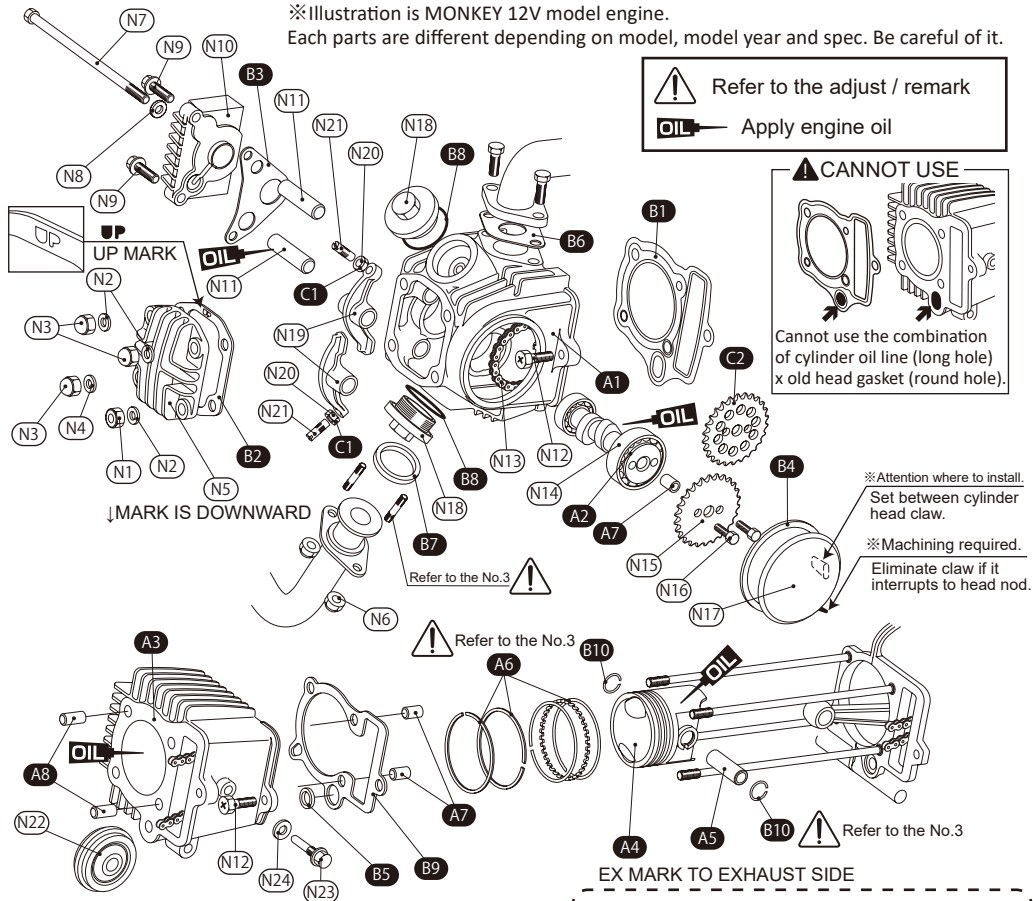
▼ General and special tools are required.

KITACO SPECIAL TOOLS	FLY WHEEL PULLER	674-0500120
	CENTER LOCK NUT WRENCH	674-1432900
	UNIVERSAL HOLDER	674-0500000
COMMERCIAL	TAPPET ADJUST WRENCH	674-0900200
	THICKNESS GAUGE	-
OTHERS	SPL HIGH CAMSHAFT (For application C)	300-1083100
	LOCKER ARM (TITANIUM) NUT	303-1013711
	CAP NUT & WASHER SET	313-0600000

**OTHER ATTENTION** ● Please use unleaded premium gasoline. This is high pressure, regular gasoline may cause of knocking and breaking vehicle.

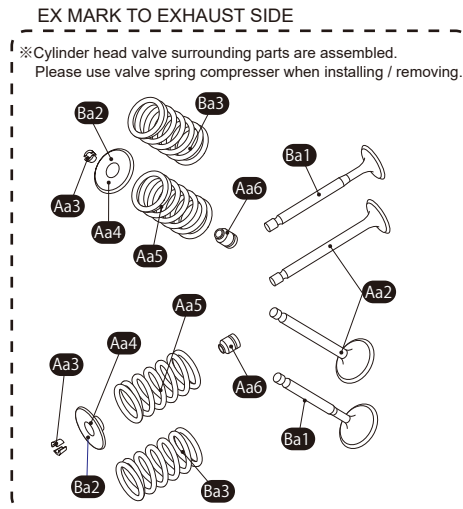
■CYLINDER PARTS / Refer to the illustration when assembling. (Please use when maintenance.)

※Illustration is MONKEY 12V model engine.  
Each parts are different depending on model, model year and spec. Be careful of it.



※() is 1set QTY.

FIGURE	CODE	NAME	QTY
-	313-1133010	STD CYLINDER HEAD COMP	× 1
Aa2 ↓	302-1013011	STD VALVE SET	× 1
	302-1013100	IN VALVE · STD	(× 1)
	302-1013200	EX VALVE · STD	(× 1)
Aa3	303-1013502	VALVE COTTER	× 4
Aa4	303-1013510	VALVE SPRING RETAINER	× 2
Aa5	303-1133010	VALVE SPRING NEW STD	(× 2)
Aa6	303-1122507	VALVE STEM SEAL	× 2



※Basically, reuse genuine parts if it is unattached.  
If there is a hard degradation like a blem, fatigue and wear etc on the reuse parts, please change to new ones.

▼PACKING LIST

FIGURE	CODE	NAME	214-1083102	214-1083112	215-1133101	215-1133102
A1	313-1133110	STD CYLINDER HEAD ASSY (Valve assembled)	× 1	× 1	× 1	× 1
A2	300-1083100	SPL HIGH CAMSHAFT (For application C)	OP	× 1	OP	× 1
A3	311-1123200	Φ52.0 CYLINDER T2 (For 88/108cc)	× 1	× 1	-	-
	311-1083701	Φ52.0 CHROME CYLINDER (For 88/108cc)	-	-	× 1	× 1
A4	351-1133101	Φ52.0 PISTON (For 88cc) 3R (0.8-0.8-1.5)	× 1	× 1	× 1	× 1
A5	353-0001336	PISTON PIN 13x36	× 1	× 1	× 1	× 1
A6	352-0006520	Φ52.0 PISTON RING (For 88/108cc) 3R (0.8-0.8-1.5)	× 1SET	× 1SET	× 1SET	× 1SET
A7	70-989-08120	DOWEL PIN 8x12L	× 2+1	× 2+1	× 2+1	× 2+1
A8	70-989-08140	DOWEL PIN 8x14L	× 2	× 2	× 2	× 2
B ↓	960-1016088	RUBBER SEAL SET-A (For 88/108cc) MONKEY BC SUS RUBBER SEAL	× 1SET	× 1SET	-	-
	960-1123088	RUBBER SEAL SET-A (For 88/108cc) ROUND HOLE SUS RUBBER SEAL	-	-	× 1SET	× 1SET
B1	961-1123200	HEAD GASKET (88/108cc) LONG ROUND HOLE STAINLESS STEEL	(× 1)	(× 1)	-	-
	961-1123088	HEAD GASKET (88/108cc) ROUND HOLE STAINLESS STEEL	-	-	(× 1)	(× 1)
B2	966-1015022	CYLINDER HEAD COVER GASKET	(× 1)	(× 1)	(× 1)	(× 1)
B3	966-1015110	R HEAD SIDE COVER GASKET (12V MONKEY)	(× 1)	(× 1)	(× 1)	(× 1)
B4	966-1015021	L HEAD SIDE COVER GASKET	(× 1)	(× 1)	(× 1)	(× 1)
B5	966-1015010	RUBBER SEAL 16mm	(× 1)	(× 1)	(× 1)	(× 1)
B6	950-1015010	MANIFOLD RUBBER SEAL	(× 1)	(× 1)	(× 1)	(× 1)
B7	70-963-11001	EX GASKET (H-1)	(× 1)	(× 1)	(× 1)	(× 1)
B8	967-1015000	O RING 30.8mm	(× 2)	(× 2)	(× 2)	(× 2)
B9	962-1083600	BASE RUBBER SEAL	(× 1)	(× 1)	(× 1)	(× 1)
B10	354-0000130	PISTON PIN CLIP 13mm	(× 2)	(× 2)	(× 2)	(× 2)
OPTION PARTS (CYLINDER HEAD PARTS)						
C1	303-1013711	TAPPET ADJUST TITANIUM NUT (1PC)	OP	OP	OP	OP
OPTION PARTS (INSTALLING OIL PUMP)						
-	331-1083300	SUPER OIL PUMP KIT (For application C)	OP	OP	OP	OP

▼OPTION PARTS

FIGURE	CODE	NAME	QTY
C2	303-1133900	LIGHT WEIGHT CAM SPROCKET 28T (12V MONKEY)	OP

▲() is 1set QTY.

▲OP is option parts. Please purchase separately depending on setting.

STOCK PARTS (TORQUE)

FIGURE	NAME	QTY	TORQUE	FIGURE	NAME	QTY	TORQUE
N1	M6 NUT	× 1	12N·m (1.2kgf·m)	N13	CAM CHAIN	× 1	
N2	6mm FLAT WASHER	× 3		N14	CAMSHAFT	× 1	
N3	M6 CAP NUT	× 3	12N·m (1.2kgf·m)	N15	CAM SPROCKET	× 1	
N4	6mm COPPER FLAT WASHER	× 1		N16	M5 BOLT	× 2	8N·m (0.8kgf·m)
N5	CYLINDER HEAD COVER	× 1		N17	L CYLINDER HEAD SIDE COVER	× 1	
N6	M6 FLANGE NUT	× 2	12N·m (1.2kgf·m)	N18	TAPPET CAP	× 2	12N·m (1.2kgf·m)
N7	M6 x 110 BOLT	× 1	10N·m (1.0kgf·m)	N19	LOCKER ARM	× 2	
N8	6mm SEALING WASHER	× 1		N20	TAPPET ADJUST NUT	× 2	10N·m (1.0kgf·m)
N9	M6 x 20 BOLT	× 2	10N·m (1.0kgf·m)	N21	TAPPET ADJUST SCREW	× 2	
N10	R CYLINDER HEAD SIDE COVER	× 1		N22	CAM CHAIN GUIDE ROLLER	× 1	
N11	LOCKER ARM SHAFT	× 2		N23	ROLLER PIN	× 1	10N·m (1.0kgf·m)
N12	M6 BOLT	× 2	10N·m (1.0kgf·m)	N24	8mm SEALING WASHER	× 1	

SERVICE GUIDE CYLINDER HEAD	BASIC VALUE	USAGE	VALVE / VALVE GUIDE / VALVE SPRING
A IN VALVE STEM DIAMETER	φ 5.445 ~ φ 5.465	~ φ 5.400	
EX VALVE STEM DIAMETER	φ 5.430 ~ φ 5.445	~ φ 5.400	
B IN VALVE GUIDE I.D.	φ 5.475 ~ φ 5.485	φ 5.500 ~	
EX VALVE GUIDE I.D.	φ 5.475 ~ φ 5.485	φ 5.500 ~	
C IN VALVE SEAT CONTACT WIDTH	0.8 ± 0.1mm	1.3mm ~	
EX VALVE SEAT CONTACT WIDTH	0.8 ± 0.1mm	1.5mm ~	
D OUTER VALVE SPRING	30 ± 0.3mm	~ 29mm	

## ADJUSTMENT AND INSTALLING EACH PARTS / CHECK POINT

### INSTALLING PISTON RING

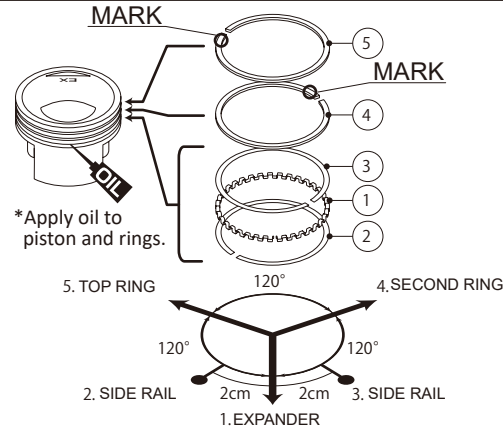
Install piston ring as illustration.

#### "POINT"

- Divide ring as following illustration.
- Top and second ring marked face to upward (head direction).
- There is no specified direction for expander and side rail.

PARTS DATA (Install in numerical order)		
FIGURE	NAME	QTY
1	EXPANDER	× 1
2/3	SIDE RAIL (BOTH SAME)	× 2
4	SECOND RING (BLACK)	× 1
5	TOP RING (WHITE)	× 1

\*Install piston with EX mark to exhaust side.



### HOW TO ADJUST VALVE TIMING AND CHECK VALVE CLEARANCE

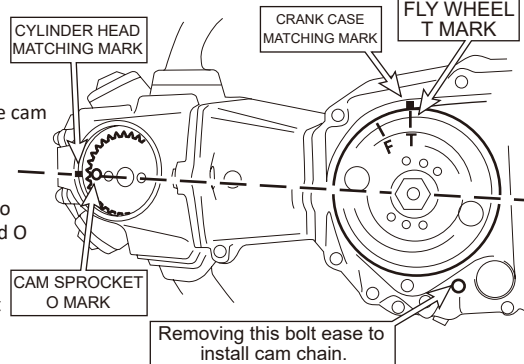
#### INSTALLING CAMSHAFT

- 1) Rotate crank shaft to counterclockwise to match fly wheel "T" mark and crank case matching mark.
- 2) Apply clean oil to camshaft and camshaft bearing. Face cam lobe to piston side, install camshaft to inside cylinder head while pushing locker arm.
- 3) Install dowel pin to cam sprocket, match cam sprocket O mark and cylinder head nod. Then install cam chain to sprocket. (Align crank shaft center, cam shaft center and O mark in a straight line.)

\*Refer to the compression top dead center illustration.

- 4) Install cam sprocket to camshaft, tighten cam sprocket bolt. (**TORQUE : 0.8kgf·m**)

### COMPRESSION TOP DEAD CENTER



### VALVE CLEARANCE SETTING

- 5) Rotate crank shaft to counterclockwise to match fly wheel "T" mark and L crank case matching mark. Move locker arm to check piston position is at compression top dead center.

- 6) Insert thickness gauge between adjust screw and valve stem to adjust intake and exhaust valve clearance.

#### ○ VALVE CLEARANCE

IN : 0.05~0.07mm

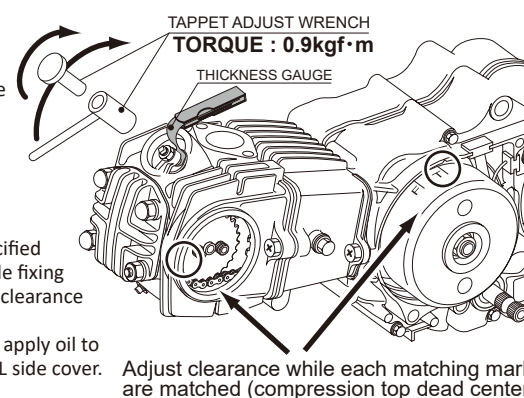
EX : 0.07~0.09mm

### ADJUSTMENT

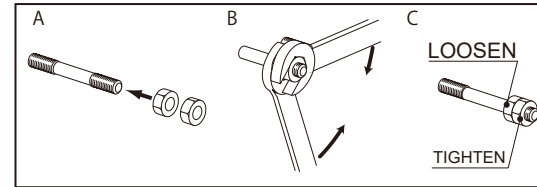
- 7) Loosen lock nut and rotate adjust screw to adjust specified valve clearance. After adjustment, tighten lock nut while fixing adjust screw. After tightening lock nut, check the valve clearance again. (**TORQUE : 0.9kgf·m**)

- 8) Check the tappet cap O ring, please change it in need, apply oil to tappet cap O ring, install tappet cap and cylinder head L side cover.

### VALVE CLEARANCE ADJUSTMENT



### REMOVING / INSTALLING STUD BOLT



- A. Put 2pcs M6 nuts on stud bolt.
- B. Tighten each nuts with spanner, etc to fix.
- C. Remove / install with spanner to back side to loosen and front side to tighten.

### START ENGINE AFTER INSTALLATION

A time lag of circulation engine oil around engine inside may cause of burning. In case of the engine with oil check bolt, remove check bolt and spark plug, then kick to the (cranking) oil comes out from check bolt. After check it, put check bolt and spark plug back and start engine.

### BREAK IN (HEAT TREATMENT)

Please do break in with low (short) gear (in case of 5speed model, please use 4speed) and total 2 hours without applying force to engine.

### ADDITIONAL TIGHTENING

After break in, cylinder, cylinder head stud bolts might get distortion and elongation because of cooling and heating. Additional tightening to even the power. The bolts of cylinder head for most of the models are 4pcs + hexagon bolts 1 or 2 pcs.

After the engine becomes room temperature, loosen a nut of 4pcs stud bolt, then apply oil to nut, washer and stud bolt screw part and tighten with specified torque.

Secondly, loosen diagonally stud bolt nut, then as same as previous, apply oil to nut, washer and stud bolt screw part and tighten with specified torque. (continue)

(ATTENTION! Do not loosen all 4pcs nut at once. Please operate one by one.)

Finally, apply oil to bolts and tighten with specified torque as same to finish.

### 88→108cc VERSION UP KIT

There are version up tuning parts from 88cc BBK to 108cc STD (STANDARD) BBK.

In case of grow out of it, etc, please purchase them.

REQUIRED PARTS FOR VERSION UP	
CODE	NAME
309-1083500	STROKE UP CRANK SHAFT COMP (12V CRANK)
966-1015004	R CRANK CASE COVER GASKET
966-1015023	CRANK CASE GASKET
331-1083400	ULTRA OIL PUMP KIT (For application C)
307-1123000	MANUAL CLUTCH KIT
317-1083030	ULTRA CLUTCH KIT TYPE X (For monkey 4speed)
317-1123730	ULTRA CLUTCH KIT TYPE X (For monkey 5speed typeII/III)
OPTION PARTS (For auto clutch model)	
966-1015011	CLUTCH OUTER COVER GASKET (For auto clutch model)
OPTION PARTS (For ignition model model)	
966-1085013	L CRANK CASE COVER GASKET (For starter motor model)

### SERVICE GUIDE VALVE TIMING DEGREE (AT1mm LIFT)

\*Compared to sock head, valve train layout and timing is different.

SPL CAMSHAFT		OPEN	CLOSE
NEW STD CYLINDER HEAD	INTAKE	BTDC 7°	ABDC 41°
	EXHAUST	BBDC 46°	ATDC 11°
STOCK HEAD	INTAKE	BTDC 4°	ABDC 37°
	EXHAUST	BBDC 46°	ATDC 9°