

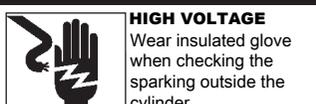
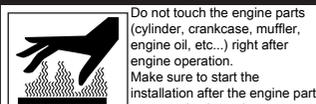
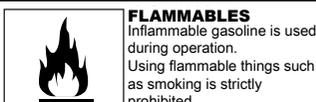
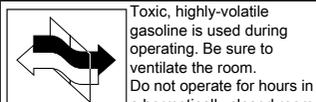
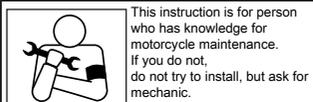
# 100cc SE-PRO SHORT STROKE KIT / CONVERT KIT No. 1/4

(SS KIT) DISPLACEMENT : (BORE) X (STROKE)	CODE	(SS C KIT) CONVERT KIT	CODE
<b>99.8cc</b> : $\phi 57 \times 39.1\text{mm}$ (SHORT STROKE)	217-1418101	<b>ULTRA SE 124cc</b> $\Rightarrow$ <b>CONVERT KIT 100cc</b>	218-1418100
APPLICATION: <b>APE100 (HC07/13) / XR100 MOTARD (HD13) / NSF100/CRF100F/XR100R (HE03)</b>			
REFERENCE: FOR STOCK FLYWHEEL. USING OTHER IGNITION SUCH AS INNER ROTOR MAKES CAM CHAIN / CAMCHAIN TENSIONER BROKEN.			

- Thank you for purchasing Kitaco product. Read and understand the instruction before installing.
  - There are necessary special tools to install this kit.
  - The instruction is not included in repair parts, please keep this instruction and use it as a setting manual.
- ※ Please keep the instruction for later needs.

## ATTENTIONS (MUST READ)

- Race use only. Note that racing parts are not covered under warranty. We are not responsible for damages and accidents caused by assembling mistake and improper setting.
- It is required to make the right setting and change spark plug, gears and so on when installing this kit. Install with KITACO carburetor kit and exhaust muffler, do not use with other manufacturer products since it may cause damage. With running "stock" condition leads to seizure or serous accidents. If running without the right setting, you cannot improve and may cause seizure and damage. Make sure to install with reinforced clutch.
- Follow the instructions and install correctly. Do not modify the way which is not listed, or it will cause damage and trouble.
- Ask a mechanic or a specialist at a specialty shop for assembling and setting if you do not understand the role of the surrounding parts.
- Change the engine oil to the new specified engine oil after you break in (about 100km). (KITACO Specified Oil : elf MOTO 4 PRO TECH 1L [5W-40] 968-2000021)
- Refer to the HONDA service manual for each vehicle when installing.
- Bolts and nuts may get loosen by engine vibration. Make sure to check that each part of bolts and nuts are not loose before running.
- Clean each parts by parts cleaner and use air duster to check whether the oil line is choked up or not.
- Oil the parts with engine oil when assembling.
- Do not use rapid engine brake. For kick starting, kick the pedal after you check the gear is engaged.
- RPM should be less than 5,000 rpm when brake in.
- Refer to HONDA SERVICE MANUAL .



### ATTENTION

- Installing some option parts is required (refer to right side table).
- Centrifugal filter is not built-in in Kitaco short stroke kit / convert kit.
- Oil filter is required (refer to right side table) to protect engine.
- General tools / special tools are required for maintenance.
- TAPPET ADJUST WRENCH ○ SPECIAL TOOL GEAR HOLDER (HONDA GENUINE NUMBER : 07724-0010100)
- THICKNESS GAUGE

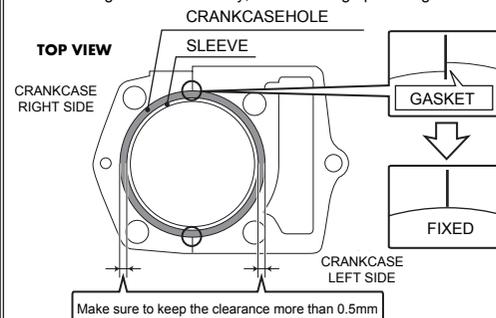
### OPTIONAL PARTS (For each models APE100 • XR100 Motard • NSF100)

CDI	REV CON (CODE : 764-1123100) ※ Recommended map : 2 • 3 POWER REV TYPE 2 (CODE : 766-1123300) / POWER REV RW (CODE : 766-1123700) ※ Recommended map : 4 APE /XR MOTARD : HIGH END DOWN MUFFLER $\phi 100$ (CODE : 540-1413100) / $\phi 80$ (540-1413110)
MUFFLER	NSF : RACING EXHAUS (STAINLESS) (540-1418600) RACING EXHAUS (TITANUM) (540-1418700)
OIL PUMP	SUPER OIL PUMP SET (orifice modification is necessary)(CODE : 331-1413000)
CLUTCH	CLUTCH KIT ( CODE : 307-1413000)
OIL COOLER ※ For each models with ULTRA CLUTCH CASE COVER	APE : SUPER OIL COOLER KIT (OIL FILTER INCLUDED) (330-1413800)
	APE : SUPER OIL COOLER FULL KIT (ULTRA CLUTCE CASE COVER INCLUDED) (330-1413210)
	SUPER OIL COOLER KIT (※ULTRA CLUTCH CASE COWER for APE) (330-1413810)
	XR MOTARD : SUPER OIL COOLER KIT (OIL FILTER INCLUDED) (330-1134700)
	XR MOTARD : SUPER OIL COOLER FULL KIT (ULTRA CLUTCE CASE COVER INCLUDED) (330-1134210)
	NSF100 : SUPER OIL COOLER FULL KIT (ULTRA CLUTCE CASE COVER INCLUDED) (BLACK : 317-1418150) (SILVER : 317-1418160)
	SUPER OIL COOLER KIT (※ULTRA CLUTCH CASE COWER for NSF100) (360-1418300)

### MAKE SURE TO FOLLOW THE FOLLOWING INSTRUCTION WHEN ASSEMBLING

#### ADJUSTING R.L. CRANKCASE MATING SURFACE GAP

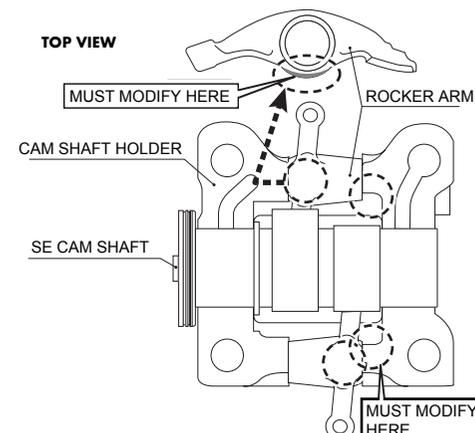
1. Bore the case if there are gap of R.L crankcase or clearance between sleeve and crankcase hole is under 0.3mm or if sleeve does not fit the case. There are some models which modification is unnecessary.
2. Do not shave too much and make sure to stuff some cloth into the crankcase hole not to let the shaves go into it.
3. Restuff some clean cloth to keep the crankcase hole opt of foreign object during installation.
4. Put waste cloth while assembling, so that the obstacles do not come inside.
5. Put new engine oil immediately, after warming up the engine.



#### INTERFERENCE OF SE CAMSHAFT

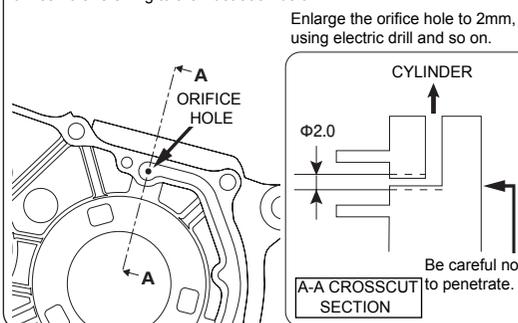
If camshaft hit against camshaft holder and rocker arm, shave the holder and rocker arm (O part).

( Make sure to keep the clearance more than 0.5mm )



#### ORIFICE MODS WHEN EXCHANGING BIG OIL PUMP

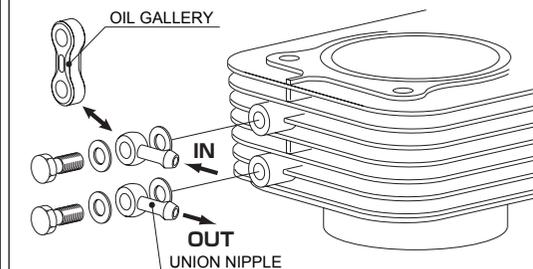
Orifice mods is required when exchanging big oil pump. Enlarge the orifice hole referring to the illustration below.



#### ABOUT CYLINDER OIL LINE

There is bypass type oil line on big bore cylinder.

It is oil cooler oil line if removing oil gallery and installing union nipples.



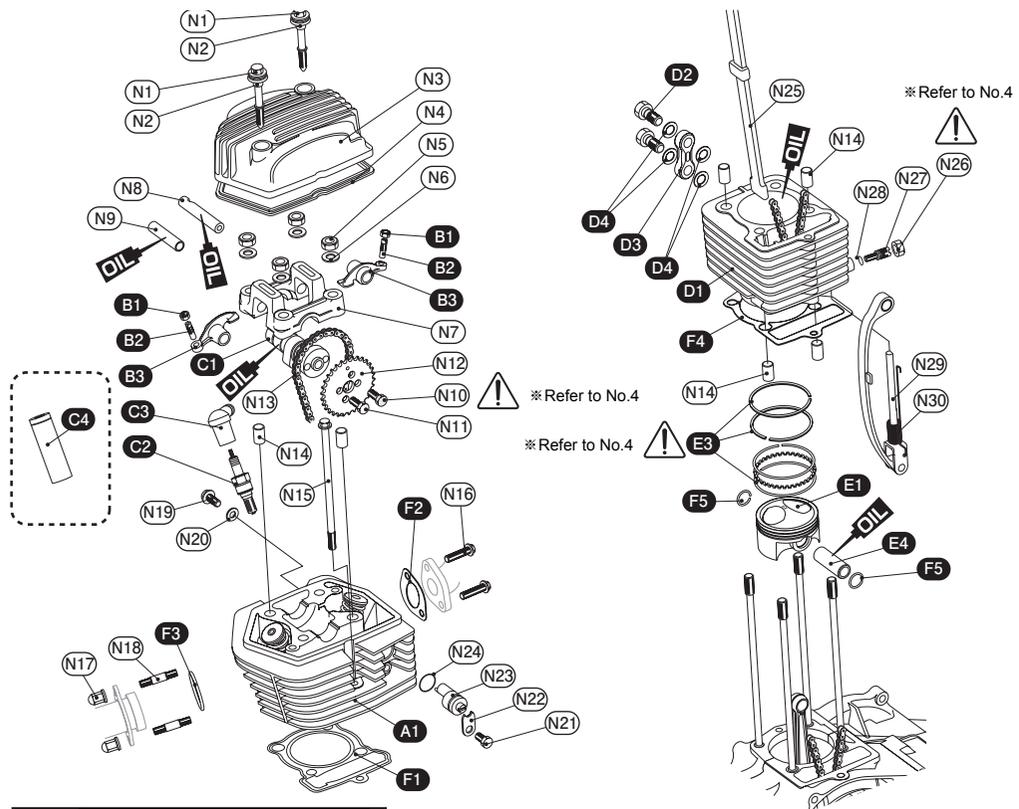
# 100cc SE-PRO SHORT STROKE KIT / CONVERT KIT No. 2/4

(SS KIT) DISPLACEMENT : (BORE) X (STROKE)	CODE	(SS C KIT) CONVERT KIT	CODE
99.8cc : φ 57 × 39.1mm (SHORT STROKE)	217-1418101	ULTRA SE 124cc ⇒ CONVERT KIT 100cc	218-1418100

## ■ CYLINDER PARTS

(Please refer following parts list when assemble.)

※ Inner parts for cylinder head (valves etc) already installed. Please use valve spring compressor when remove or install.

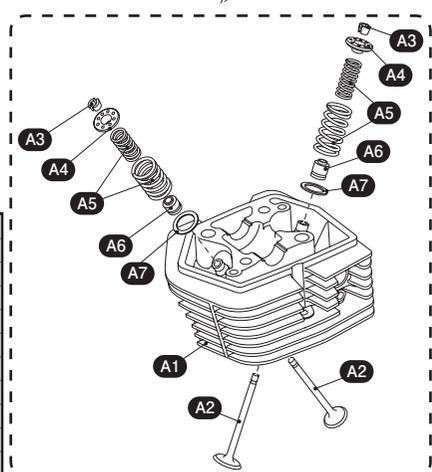


⚠ Refer to adjustment / confirmation

🛢 Apply engine oil

▼ Refer to exploded pictures / developed figure on NO.3

FIG	CODE	NAME	QTY
A ↓	313-1418700	SE PRO CYLINDER HEAD ASSY	× 1
A1	313-1418701	SE PRO CYLINDER HEAD COMP	(× 1)
A2	302-1122700	ULTRA-SE VALVE SET	(× 1SET)
-	302-1122701	IN VALVE · ULTRA-SE	(× 1)
-	302-1122702	EX VALVE · ULTRA-SE	(× 1)
A3	303-1083502	ULTRA VALVE COTTER	(× 4)
A4	303-1083510	ULTRA VALVE SPRING RETAINER	(× 1SET)
A5	303-1123200	VALVE SPRING SET	(× 1SET)
A6	303-1083507	VALVE STEM SEAL	(× 2)
A7	303-1123504	VALVE SPRING OUTER SEAT	(× 2)



※ Use stock parts for the parts which are not included.

Change the reusing parts with new parts if there are significant blem, fatigue and wear.

MINIMOTO KIT (SS KIT) / CONVERT KIT (SS C KIT)	PACKING LIST	SS KIT	SS C KIT	TIGHTENING TORQUE	
FIG	CODE	NAME	217-1418101	218-1418101	
A1	313-1418700	SE PRO CYLINDER HEAD ASSY	× 1		
B ↓	303-0600000	TITANIUM NUT & SCREW	× 1SET		
B1	303-1013711	TAPPET ADJUSTING TITANIUM NUT	(× 2)		10N·m (1.0kgf·m)
B2	303-1013701	TAPPET ADJUSTING SCREW	(× 2)		
B3	303-1122770	SE VALVE ROCKER ARM SET	× 1SET		
C1	300-1413700	ULTRA-SE HIGH CAM SHAFT	× 1		
C2	025-015-0240000	DENSO IRIIDIUM PLUG IY24 /24	× 1		
C3	751-0500310	PLUG CAP (RED/SILICON)	× 1		
C4	674-0400900	PLUG WRENCH	× 1		
D ↓	311-1413700	CHROME CYLINDER ASSY (φ57)	× 1		
D1	311-1413701	CHROME CYLINDER COMP (φ57)	(× 1)		
D2	771-0900900	UNION BOLT (RED) M10 × P1.25	(× 2)		15N·m (1.5kgf·m)
D3	771-0901800	OIL GALLERY (SILVER)	(× 1)		
D4	771-0500999	LUMINUM BANJO BOLT WASHER 10mm	(× 4)		
E1	351-1418400	φ57 FORGED PISTON (ULTRA-SE 100cc) SHORT STROKE 3R (0.8-0.8-1.5)	× 1	× 1	
E3	352-0006570	φ 57 PISTON RING 3R (0.8-0.8-1.5)	× 1SET	× 1SET	
E4	353-2001440	PISTON PIN 14X40 (CrN TYPE)	× 1	× 1	
F ↓	960-1413300	GASKET SET-A (115/125/145cc用)	× 1SET	× 1SET	
	960-1418000	GASKET SET-A (STROKE UP 125cc)			
F1	961-1413300	HEAD GASKET (φ 57)	(× 1)	(× 1)	
	961-1418001	HEAD GASKET (φ 53)			
F2	950-1122011	MANIFOLD GASKET	(× 1)	(× 1)	
F3	70-963-11010	EX GASKET (H-10)	(× 1)	(× 1)	
F4	962-1413300	BASE GASKET	(× 1)	(× 1)	
F5	354-0000140	PISTON PIN CLIP 14mm	(× 2)	(× 2)	

▼ Refer to exploded pictures / packing list on NO.3

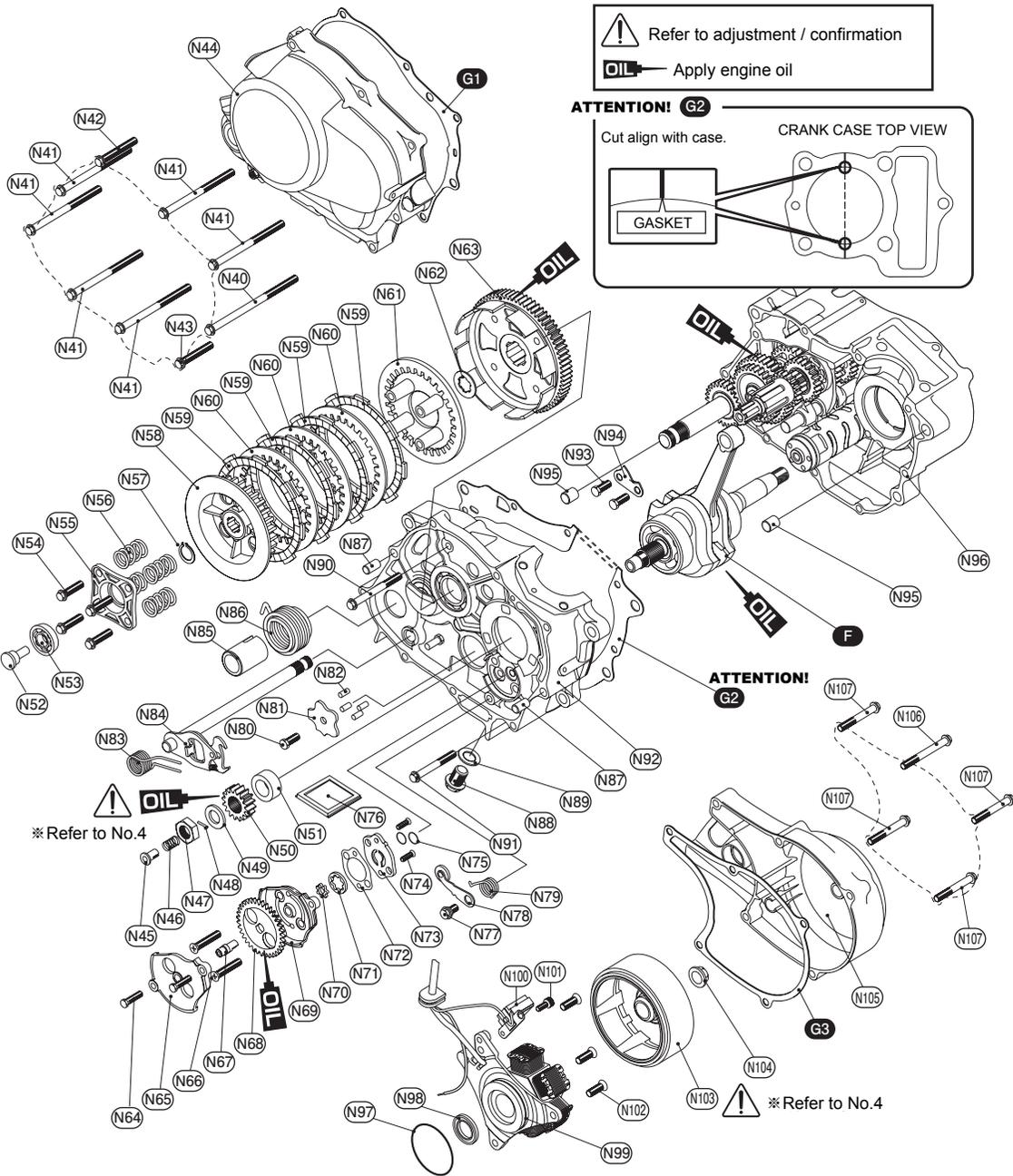
CYLINDER HEAD · CYLINDER PARTS PACKING LIST (INCLUDE STOCK PARTS)							
FIG	NAME	QTY	TIGHTENING TORQUE	FIG	NAME	QTY	TIGHTENING TORQUE
N1	M6 × 45.5 BOLT	× 2	12N·m (1.2kgf·m)	N16	M6 × 20 FLANGE BOLT	× 2	12N·m (1.2kgf·m)
N2	6mm MOUNT RUBBER	× 2		N17	M6 CAP NUT	× 2	10N·m (1.0kgf·m)
N3	CYLINDER HEAD COVER	× 1		N18	M6 × 32 STUD BOLT	× 2	10N·m (1.0kgf·m)
N4	CYLINDER HEAD COVER GASKET	× 1		N19	M6 × 16 BOLT	× 1	12N·m (1.2kgf·m)
N5	M8 NUT	× 4	20N·m (2.0kgf·m)	N20	6mm SEALING WASHER	× 1	
N6	8mm FLAT WASHER	× 4		N21	M6 × 16 BOLT	× 1	12N·m (1.2kgf·m)
N7	CAM SHAFT HOLDER	× 1		N22	TENSIONER ADJUST PLATE	× 1	
N8	ROCKER ARM SHAFT (LONG)	× 1		N23	TENSIONER ADJUST CAM	× 1	
N9	ROCKER ARM SHAFT (SHORT)	× 1		N24	O RING 11 × 2.0	× 1	
N10	M6 × 10 KNOCK BOLT (BLACK)	× 1	12N·m (1.2kgf·m)	N25	CAM CHAIN GUIDE	× 1	
N11	M6 × 10 BOLT	× 1	12N·m (1.2kgf·m)	N26	M8 NUT	× 1	10N·m (1.0kgf·m)
N12	CAM SPROCKET	× 1		N27	TENSIONER ADJUST SCREW	× 1	
N13	CAM CHAIN	× 1		N28	O RING 5.5 × 1.5	× 1	
N14	DOWEL PIN 10X16	× 6		N29	CAM CHAIN TENSIONER COMP	× 1	
N15	M6 × 110 HEXAGON FLANGE BOLT	× 1	12N·m (1.2kgf·m)	N30	CAM CHAIN TENSIONER SPRING	× 1	

SERVICE GUIDE (CYLINDER HEAD)			STANDARD	SERVICE LIMIT	VALVAE / VALVE GUIDE / VALVE SPRING
A	IN VALVESTEM.O.D		φ 3.975 ~ φ 3.990	φ 3.970 以下	
	EX VALVESTEM.O.D		φ 3.965 ~ φ 3.980	φ 3.950 以下	
B	IN VALVE GUIDE I.D		φ 4.000 ~ φ 4.012	φ 4.056 以上	
	EX VALVE GUIDE I.D		φ 4.000 ~ φ 4.012	φ 4.065 以上	
C	IN VALVESTEM.WIDTH		0.7mm	1.0mm 以上	
	EX VALVESTEM.WIDTH		0.85mm	1.2mm 以上	
D	OUTER VALVE SPRING		30mm ± 1	28mm 以下	
	INNER VALVE SPRING		25mm ± 1	24mm 以下	

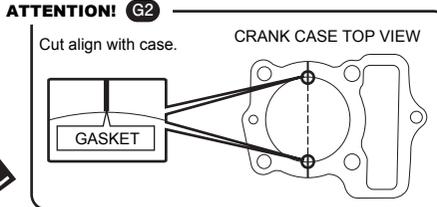
# 100cc SE-PRO SHORT STROKE KIT / CONVERT KIT No. 3/4

(SS KIT) DISPLACEMENT : (BORE) X (STROKE)	CODE	(SS C KIT) CONVERT KIT	CODE
99.8cc : φ 57 × 39.1mm (SHORT STROKE)	217-1418101	ULTRA SE 124cc ⇒ CONVERT KIT 100cc	218-1418100

## CRANK CASE PARTS (Please refer following parts list when assemble.)



⚠ Refer to adjustment / confirmation  
 OIL → Apply engine oil



▲ Refer to exploded pictures / packing list on NO.2

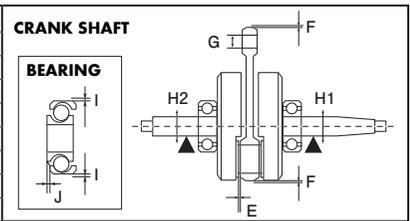
※ Use stock parts for the parts which are not included.

Change the reusing parts with new parts if there are significant blem, fatigue and wear.

MINIMOTO KIT (SS KIT) / CONVERT KIT (SS C KIT) PACKING LIST			SS KIT	SS C KIT
FIG	CODE	NAME	217-1418100	218-1418100
G	309-1413300	SHORT STROKE CRANK SHAFT ASSY (39.1MM)	× 1	× 1
H1	966-1122000	R CRANK CASE COVER GASKET	× 1	× 1
H2	966-1122002	CRANK CASE GASKET	× 1	× 1
H3	966-1122001	L CRANK CASE COVER GASKET	× 1	× 1

CRANK CASE PARTS PACKING LIST (INCLUDE STOCK PARTS)							
FIG	NAME	QTY	TIGHTENING TORQUE	FIG	NAME	QTY	TIGHTENING TORQUE
N40	M6 × 100 BOLT	× 1	12N · m (1.2kgf · m)	N74	M4 X 12 COUNTERSUNK SCREW	× 2	3.2N · m (0.33kgf · m)
N41	M6 × 80 BOLT	× 6	12N · m (1.2kgf · m)	N75	9.4mm O RING	× 2	
N42	M6 × 40 BOLT	× 1	12N · m (1.2kgf · m)	N76	OIL STRAINER	× 1	
N43	M6 × 35 BOLT	× 1	12N · m (1.2kgf · m)	N77	STOPPER ARM PIVOT BOLT	× 1	13N · m (1.3kgf · m)
N44	R CRANK CASE COVER ASSY	× 1		N78	SHIFT DRUM STOPPER ARM	× 1	
N45	OIL THROUGH	× 1		N79	STOPPER ARM SPRING	× 1	
N46	OIL THROUGH SPRING	× 1		N80	M6 × 22 BOLT	× 1	10N · m (1.0kgf · m)
N47	M14 NUT	× 1	40N · m (4.0kgf · m)	N81	SHIFT DRUM STOPPER PLATE	× 1	
N48	OIL THROUGH PIN	× 1		N82	SHIFT DRUM PIN	× 4	
N49	14mm FLAT WASHER	× 1		N83	SHIFT DRUM SPRING	× 1	
N50	PRIMARY DRIVE GEAR	× 1		N84	SHIFT DRUM SPINDLE ASSY	× 1	
N51	COLLAR	× 1		N85	SPRING COLLAR	× 1	
N52	CLUTCH LIFTER GUIDE PIN	× 1		N86	KICK RETURN SPRING	× 1	
N53	BEARING	× 1		N87	DOWEL PIN 8 X 14mm	× 2	
N54	M6 × 22 BOLT	× 4	10N · m (1.0kgf · m)	N88	OIL DRAIN BOLT	× 1	
N55	CLUTCH LIFTER PLATE	× 1		N89	12mm SEALING WASHER	× 1	
N56	CLUTCH SPRING	× 4		N90	M6 × 55 BOLT	× 1	12N · m (1.2kgf · m)
N57	17mm CIR CLIP	× 1		N91	M6 × 45 BOLT	× 1	12N · m (1.2kgf · m)
N58	CLUTCH CENTER	× 1		N92	R CRANK CASE	× 1	
N59	FRICITION DISK	× 4		N93	M6 × 16 BOLT	× 2	10N · m (1.0kgf · m)
N60	CLUTHE PLATE	× 3		N94	RATCHET GUIDE PLATE	× 1	
N61	CLUTCH PRESSURE PLATE	× 1		N95	DOWEL PIN 12 X 20mm	× 2	
N62	17mm SPLINE WASHER	× 1		N96	L CRANKCASE ASSY	× 1	
N63	CLUTCH OUTER	× 1		N97	O RING 43 × 2.5	× 1	
N64	M5 × 18 BOLT	× 2	5N · m (0.5kgf · m)	N98	OIL SEAL	× 1	
N65	DRIVE GEAR COVER	× 1		N99	STATOR COIL ASSY	× 1	
N66	M6 X 30 COUNTERSUNK SCREW	× 2	9N · m (0.9kgf · m)	N100	PICK UP COIL	× 1	
N67	OIL PUMP PLATE DRIVE SHAFT	× 1		N101	M5 × 10 CAP BOLT	× 1	6N · m (0.6kgf · m)
N68	OIL PUMP BODY DRIVE GERA	× 1		N102	M6 X 16 COUNTERSUNK SCREW	× 3	9N · m (0.9kgf · m)
N69	OIL PUMP BODY	× 1		N103	FLY WHEEL	× 1	
N70	OIL PUMP INNER ROTOR	× 1		N104	M12 NUT	× 1	65N · m (6.5kgf · m)
N71	OIL PUMP OUTER ROTOR	× 1		N105	L CRANKCASE COVER	× 1	
N72	OIL PUMP GASKET	× 1		N106	M6 × 50 BOLT	× 1	12N · m (1.2kgf · m)
N73	OIL PUMP PLATE	× 1		N107	M6 × 35 BOLT	× 4	12N · m (1.2kgf · m)

SERVICE GUIDE (CRANK SHAFT)		
	STANDARD	SERVICE LIMIT
E	Connecting rod crosswise gap	0.10 ~ 0.35 0.55mm 以上
F	Connecting rod big end lengthwise gap	0 ~ 0.008 0.010mm 以上
G	Connecting rod small end I.D.	14.012 ~ 14.030 14.050mm 以上
H1	Crankshaft run-out (LEFT)	0.020 0.070mm 以上
H2	Crankshaft run-out (RIGHT)	0.035 0.085mm 以上
I	Bearing I.D. / O.D. lengthwise gap	0.05 ~ 0.09 0.10mm 以上
J	Bearing I.D. / O.D. crosswise gap	0.005 ~ 0.040 0.050mm 以上

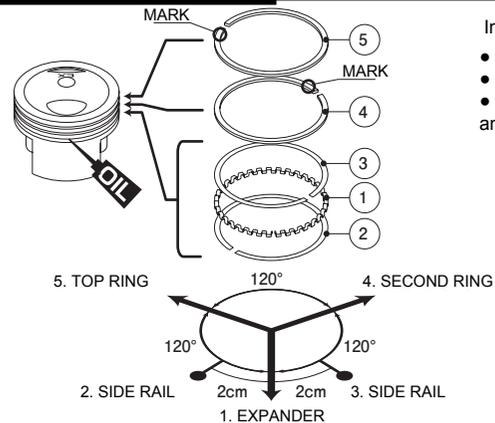


# 100cc SE-PRO SHORT STROKE KIT / CONVERT KIT No. 4/4

(SS KIT) DISPLACEMENT : (BORE) X (STROKE)	CODE	(SS C KIT) CONVERT KIT	CODE
99.8cc : φ 57 × 39.1mm (SHORT STROKE)	217-1418101	ULTRA SE 124cc ⇒ CONVERT KIT 100cc	218-1418100

## ■ INSTALLATION AND ADJUSTMENT OF EACH PARTS

### INSTALLING PISTON RINGS



Install the piston rings as it is shown.

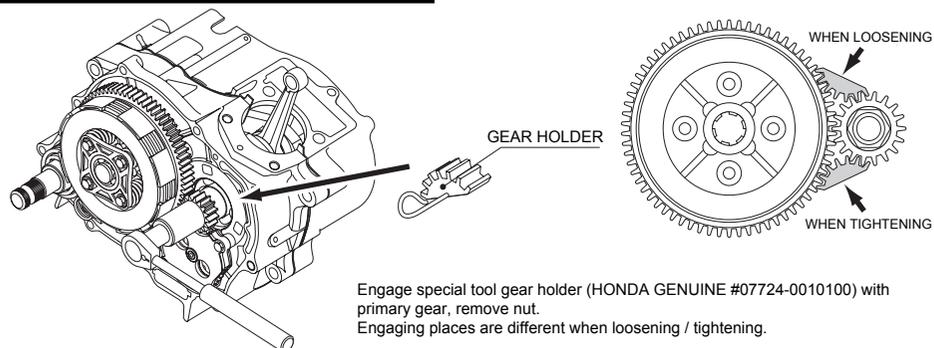
- Set ring's disconnected part as it is shown.
- TOP RING must be set as L-shaped direction.
- There is no specified direction for EXPANDER and SIDE RAIL rings.

#### PISTON RINGS

No.	NAME	PCS
1	EXPANDER	×1
2/3	SIDE RAIL (BOTH SAME)	×2
4	SECOND RING (BLACK)	×1
5	TOP RING (WHITE)	×1

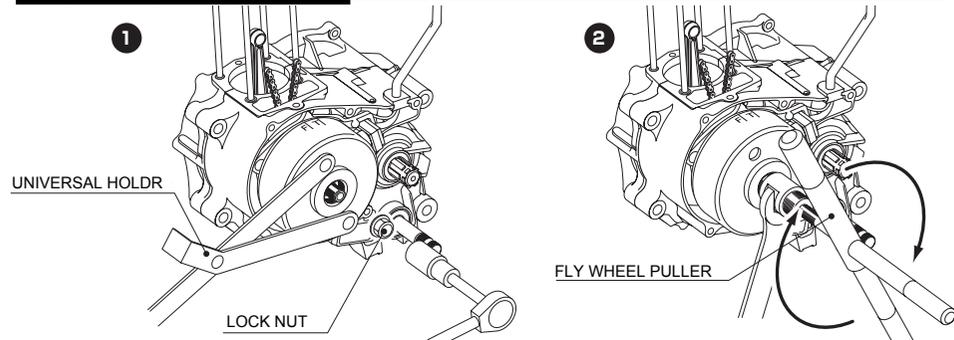
※ Piston's EX mark faces to exhaust side.

### REMOVING / INSTALLING PRIMARY CENTER NUT



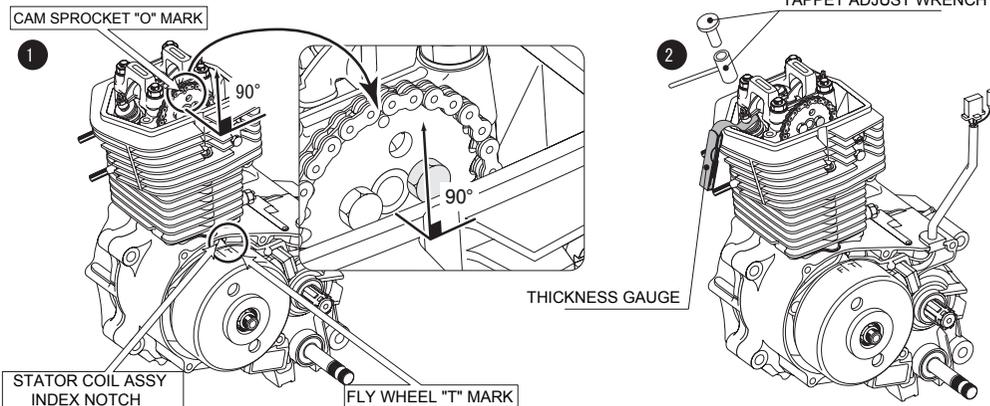
Engage special tool gear holder (HONDA GENUINE #07724-0010100) with primary gear, remove nut.  
Engaging places are different when loosening / tightening.

### REMOVING / INSTALLING FLYWHEEL



- 1) Set the position at compression top dead center (the position aligned flywheel "T" mark with crankcase mating mark). Use universal holder and remove flywheel center nut while stabilizing flywheel.
- 2) Tightening flywheel puller with spanner, turn flywheel puller, remove flywheel.

### ADJUSTING VALVE TIMING AND VALVE



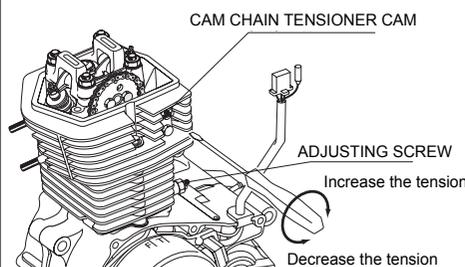
1. Adjustment of valve timing (fixing of cam sprocket) :

Please fix cam sprocket after setup the chain in a state of 90 degree angle of "O-mark of cam sprocket" against "matching surface of cylinder head", when T-mark of flywheel and matching mark of stator coil base" was matched. This position is "Top dead center of compression".

2. Slot in the thickness gauge to under rocker arm adjuster and adjust, tighten the lock nut finally in a state of "Top dead center of compression" (State of fig.1)

● VALVE CLEARANCE IN: 0.05mm EX: 0.05mm

### ADJUSTMENT CAM CHAIN TENSIONER



1. Loosen the bolt of tensioner cam plate, rotate the mark on tensioner cam for 45 degree angle against horizontal position. Tighten the bolt of tensioner cam plate. ※ Don't rotate the bolt over 45 degree angle.

2. Loosen the nut, and loosen tensioner adjust screw and tighten it again. Then, tighten the nut to fix it. Cam chain tensioner will be set for correct position by spring force.

3. Loosen the bolt of tensioner cam plate, get back the mark on tensioner cam for horizontal position. Tighten the bolt of tensioner cam plate.

4. Start the engine and check the sound of cam chain. When it's jangle noise, increase the tension by rotate the tensioner cam to right hand. When it's hissing noise or stall the engine, decrease the tension by rotate the tensioner cam to left hand.

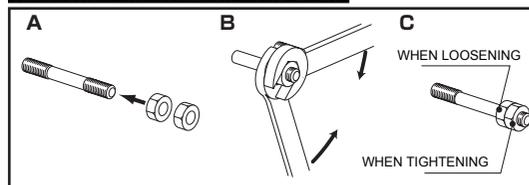
1. Tighting the cam for 45 degree angle against horizontal position.

2. Loosen adjust screw and tighten again.

3. Getback the cam 45 degree angle for horizontal position. PUNCH MARK

4. Adjust the cam with engine running.

### REMOVING / INSTALLING STUD BOLT



A. Put 2pcs of M6 size nut to the stud bolt.

B. Use spanner for each nut and tighten.

C. Push spanner when loosening and pull when tightening.