

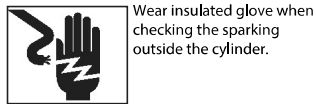
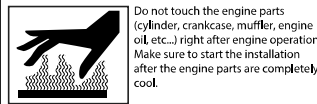
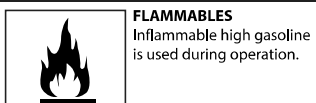
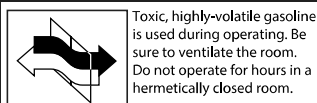
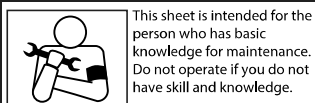
145cc SE2-PRO BIG BORE KIT / VERSION UP KIT		
145cc SE2-PRO BIG BORE KIT / VERSION UP KIT (FORGING PISTON)		No, 1/4
CODE	(145cc SE2-PRO BIG BORE KIT)	212-1418811
	(ULTRA SE II 115/124cc → 145cc FORGING PISTON VERSION UPKIT)	213-1418810
APPLICATION	APE100 (HC07) /XR100 MOTARD (HD13) /CRF100	
DISPLACEMENT	145cc : φ 57 × (STROKE) 56.5mm	

- Thank you for purchasing Kitaco product. Read and understand the instruction before installing.
- For installation, other specified tools are required.
- After installation, please use this instruction sheet as setting manual.

※Please keep this instruction sheet safe because spare parts do not included.

ATTENTION (MUST READ)

- This parts is made exclusive for racing use. Note that racing parts are not covered under warranty. Installed vehicles cannot ride the on general public road. We are not responsible for violation of law or damages and accidents caused by assembling mistake and improper setting.
- For installing this parts, you need to change carburetor, plug, gear, etc, setting and process of crank case. If you ride with genuine setting, unable to power up, and might cause of burning, break etc. Please set up as engine potential.
- 145cc KIT is specified for Kitaco stroke up crank vehicle. Cannot use for normal crank shaft.
- Follow the instructions and install correctly. Do not modify the way which is not listed or it will cause 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 the engine oil to the new specified engine oil after you break in (about 100km). (Kitaco specified oil : elf XT3818)
- 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 and use air duster to check whether the oil line is choked up.
- Oil the parts with engine oil when assembling.
- Recommendation spark plug with big bore kit is DENSO IRIDIUM PLUG more than heat value 24 (same as No.8).
- Do not do hard engine brake, etc to make heavy demands to mission. When using kick starter, make sure gears are biting together before pedal down. Or we recommend to start engine with pushing with more than 2nd gear.
- If you cannot understand installation, please use manufacturer service manual.



ATTENTION WHEN USING

- We recommend to change optional parts on the right side when installing this product. (Refer to the option parts list.)
- There is a centrifugal type filter inside the normal crank shaft, we recommend to install oil filter for protect engine. (Refer to the option parts list.)
- For maintenance this parts, each specified tools and general tools are required.

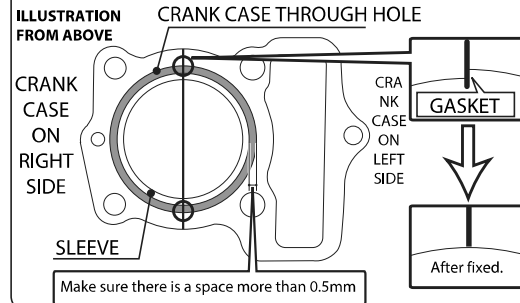
OPTION PARTS LIST (SPECIFIED FOR APE100·XR100 MOTARD·NSF100)			
		NAME	CODE
ELECTRICAL SYSTEM	CDI	Rev con (code : 764-1417100 [for XR100 MOTARD]) ※Recommendation point:1/2.	764-1123100
		POWER REV 2 CDI (code : 766-1123300) / POWER REV RW CDI (766-1422700)	
MISSION	CLUTCH	Reinforce clutch KIT ※Please use other company's product.	DISCONTINUED
OIL SURROUNDING PARTS	REQUIRED	OIL PUMP PLATE SET (Need to orifice process.)	331-1413900
	APE/XR MOTARD/ NSF100	SUPER OIL COOLER KIT (ULTRA Clutch cover · for take out cylinder)	
ENGINE OIL		PANOLIN 4T RACE STREET	
INTAKE SYSTEM	CABURETOR	BIG CAB KIT MIKUNI VM26/ KEIHIN PWK28	-

▼GENERAL TOOLS, OTHER SPECIFIED TOOLS		CODE
KITACO SPECIFIED TOOL	TAPPET ADJUST WRENCH (□ / — type for adjust screw.)	674-0900200
	TAPPET ADJUST WRENCH (□ type for adjust screw.)	674-0900210
	GEAR HOLDER	674-0510900
	THICKNESS GAUGE	-

★FOR INSTALLATION, PLEASE FOLLOW ATTENTION BELOW.

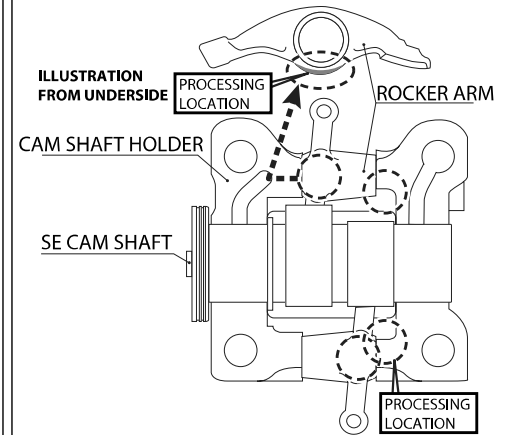
Fixing slip of R.L crank case matching surface

- 1, Make a space (more than 0.3~0.5mm) between sleeve and crank case if sleeve touches case or cylinder sleeve is slipped. This might not need to do according to model year or model type.
- 2, Fill cloth to prevent from shaving entering, then file the touching point.
- 3, Remove cloth carefully not to enter shaving.
- 4, Fill clean cloth to hole after removing cloth not to enter foreign matter when installation.
- 5, After installation, please do a trial run for 100km with around 6,000 rpm or less, do not over rev. After that, please change engine oil to new.



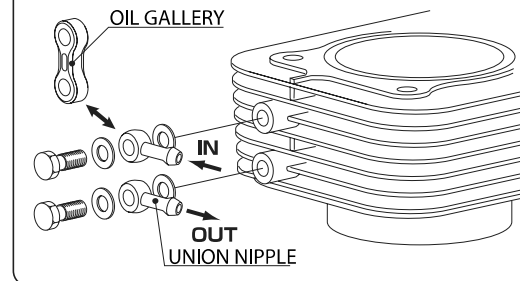
SE CAMSHAFT INTERRUPTING

Please check with assemble cam shaft holder, rocker arm and high cam shaft temporarily as illustration below. If high cam shaft interrupt to high cam shaft holder and rocker arm, please shave by leutor. (Please make clearance more than around 0.05mm.)



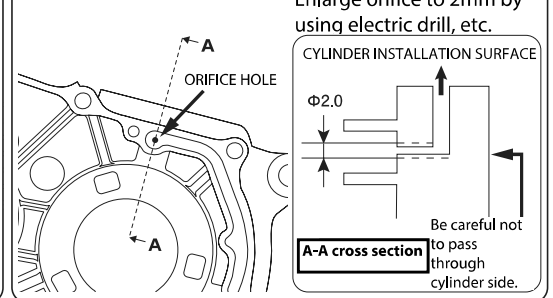
ABOUT CYLINDER OIL LINE

This big bore kit cylinder is already assembled by-pass type oil line on right side. It is able to be a oil line of oil cooler, etc, by installing oil gallery and installing union nipple.



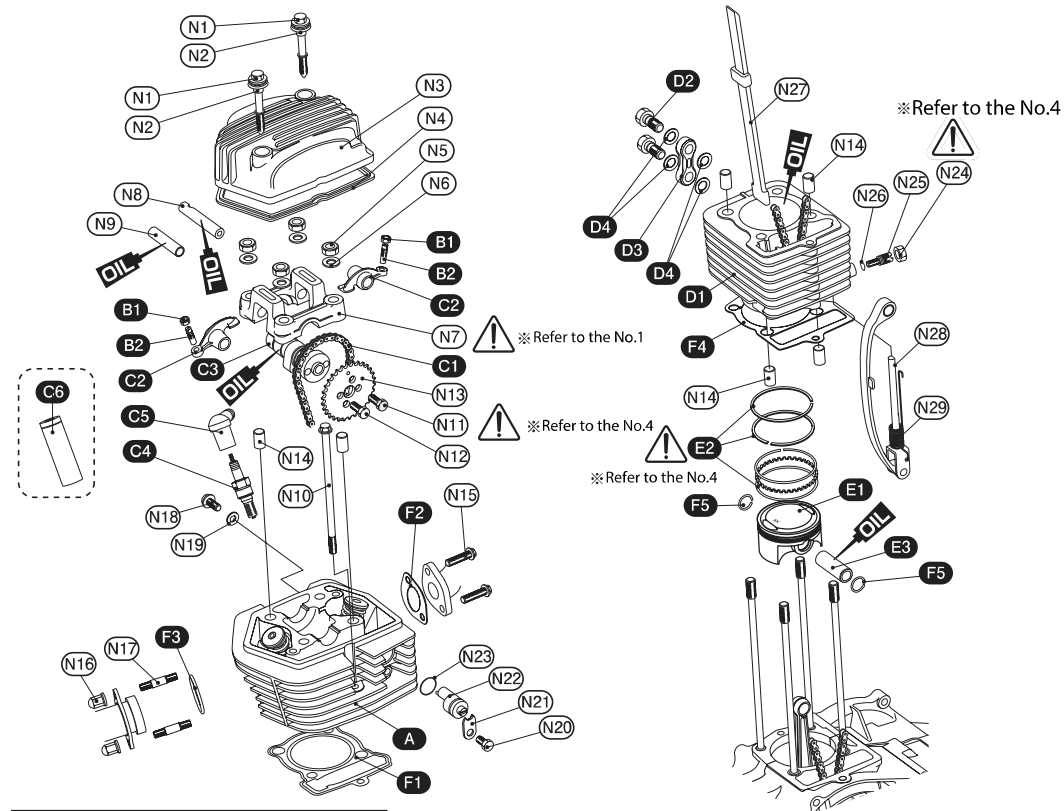
ABOUT THE ORIFICE PROCESSING WHEN CHANGING LARGER OIL PUMP

You need to orifice processing on right side of crank case if you change oil pump to larger type. Referring to illustration, please do enlarged processing of orifice hole.



■CYLINDER PART PARTS Refer to the illustration when installing. (Please use this when maintenance.)

※ Cylinder head surrounding parts are already assembled. When installing/removing, please use valve compressor.

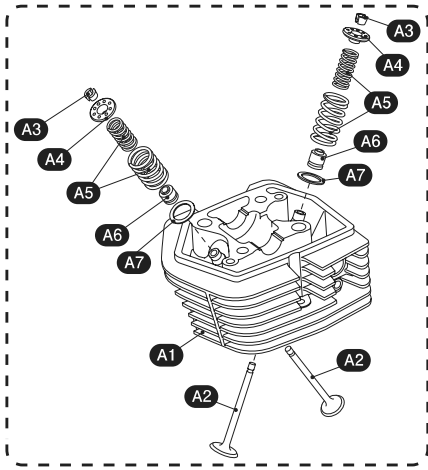


Refer to the how to install / adjust / checking list.
 Apply engine oil.

▼ Crank case net illustration is on No.3.

※ () is 1SET QTY.

FIGURE	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	303-1083500	VALVE SPRING TITANIUM RETAINER	(× 1SET)
A5	303-1123200	VALVE SPRING SET	(× 1SET)
A6	303-1083507	VALVE STEM SEAL	(× 2)
A7	303-1123504	VALVE SPRING OUTER SEAT	(× 2)



145cc SE2-PRO BIG BORE KIT PACKING LIST			BIG BORE	VERSION UP	TORQUE
FIGURE	CODE	NAME	SE	V-UP	
A ↓	313-1418700	SE PRO CYLINDER HEAD ASSY	× 1	REUSE	
B ↓	303-0600000	TITANIUM NUT & SCREW SET	× 1SET	× 1SET	
B1	303-1013711	TITANIUM NUT	(× 2)	(× 2)	10N·m (1.0kgf·m)
B2	303-1013701	ROCKER ARM ADJUST SCREW	(× 2)	(× 2)	
C1	299-0125090	SD CAM CHAIN DID25DAH-90L	× 1	REUSE	
C2	303-1122770	SE VALVE ROCKER ARM SET	× 1SET	× 1SET	
C3	300-1413700	SE HIGH CAM SHAFT	× 1	× 1	
C4	025-015-0240000	IRIDIUM PLUG (IY24)	× 1	REUSE	
C5	751-0500310	PLUG CAP (RED SILICONE)	× 1	REUSE	
C6	674-0400900	PLUG WRENCH	× 1	REUSE	
D ↓	311-1413700	CHROME CYLINDER ASSY (φ57)	× 1	REUSE	
D1	311-1413701	CYLINDER COMP (φ57)	(× 1)		
D2	771-0900900	ALUMINUM BANJO BOLT M10xP1.25	(× 2)		15N·m (1.5kgf·m)
D3	771-0901800	OIL GALLERY (SILVER)	(× 1)		
D4	771-0500999	ALUMINUM SEALING WASHER 10mm	(× 4)		
E1	351-1413930	φ57 FORGING PISTON (FOR ULTRA-SE) 3R (0.8-0.8-1.5)	× 1	× 1	
E2	352-0006570	φ 57 PISTON RING 3R (0.8-0.8-1.5)	× 1SET	× 1SET	
E3	353-2001440	PISTON PIN 14 × 40 (CrN TYPE)	× 1	× 1	
F ↓	960-1413300	RUBBER SEAL SET-A Ape 100cc	× 1	× 1	
F1	961-1413300	HEAD GASKET (φ 57)	(× 1)	(× 1)	
F2	950-1122011	MANI HOLD GASKET (VM26)	(× 1)	(× 1)	
F3	70-963-11010	EX GASKET (H-10)	(× 1)	(× 1)	
F4	962-1413300	CYLINDER GASKET	(× 1)	(× 1)	
F5	354-0000140	PISTON PIN CLIP 14mm	(× 2)	(× 2)	

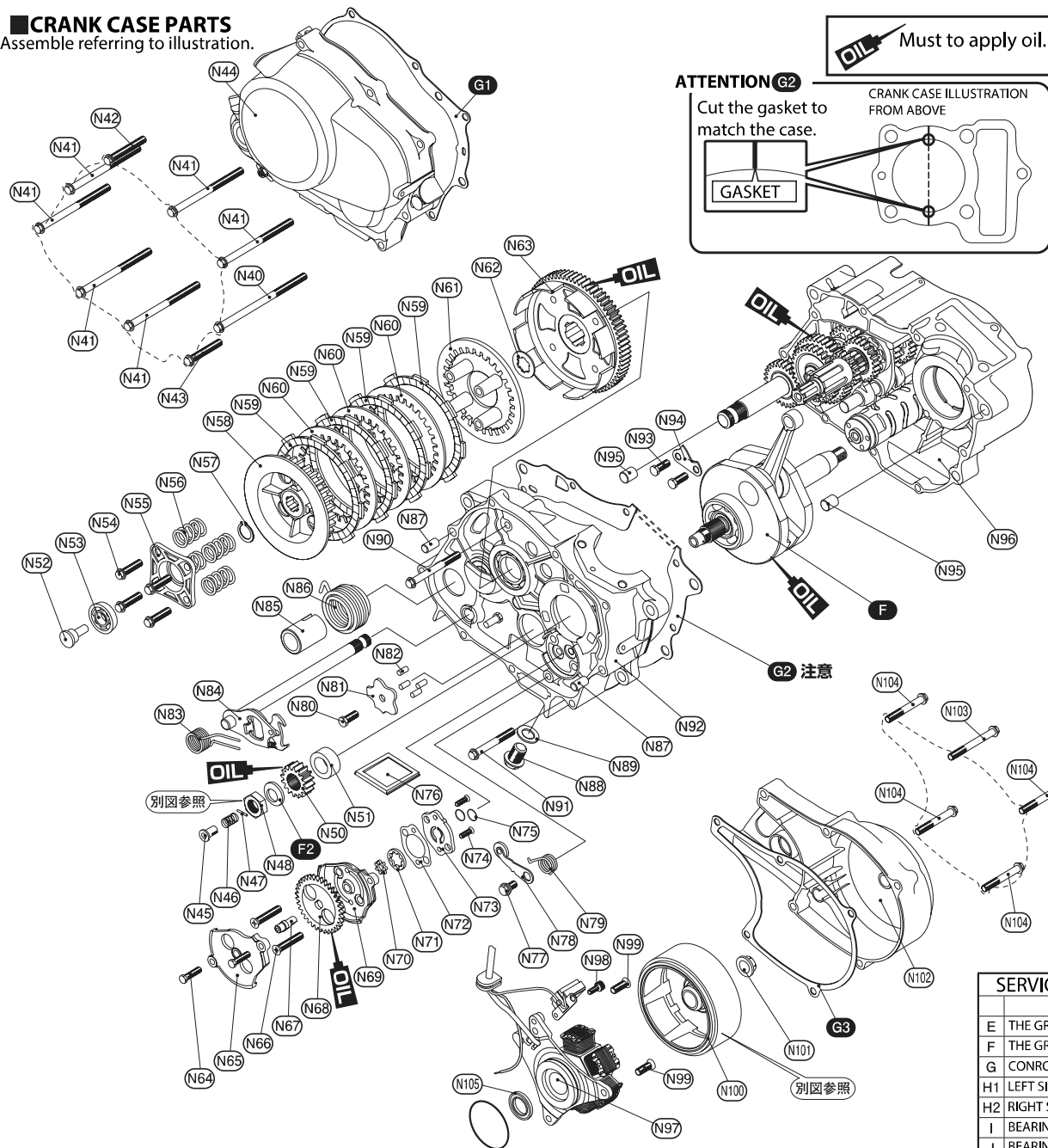
▲ Basically, reuse genuine parts if it is unattached.
 If there is a hard degradation like a blem, fatigue and wear etc on the reuse parts, please change to new ones.

PARTS LIST OF CYLINDER HEAD AND CYLINDER PART (NORMAL INCLUDED)							
FIGURE	NAME	QTY	TORQUE	FIGURE	NAME	QTY	TORQUE
N1	M6 × 45.5 BOLT	× 2	1.2kgf · m	N16	M6 CAP NUT	× 2	1.0kgf · m
N2	6mm MOUNTING RUBBER	× 2		N17	M6 × 32 STUD BOLT	× 2	1.0kgf · m
N3	CYLINDER HEAD COVER	× 1		N18	M6 × 16 BOLT	× 1	1.2kgf · m
N4	CYLINDER HEAD COVER RUBBER SEAL	× 1		N19	6mm SEALING WASHER	× 1	
N5	M8 NUT	× 4	2.0kgf · m	N20	M6 × 16 BOLT	× 1	1.2kgf · m
N6	8mm FLAT WASHER	× 4		N21	TENSIONER ADJUST PLATE	× 1	
N7	CAM SHAFT HOLDER	× 1		N22	TENSIONER ADJUST CAM	× 1	
N8	ROCKER ARM SHAFT (LONG)	× 1		N23	O RING 11 × 2.0	× 1	
N9	ROCKER ARM SHAFT (SHORT)	× 1		N24	M8 NUT	× 1	1.0kgf · m
N10	M6 × 110 HEXAGON FLANGE BOLT	× 1	1.2kgf · m	N25	TENSIONER ADJUST SCREW	× 1	
N11	M6 × 10 KNOCK BOLT (BLACK)	× 1	1.2kgf · m	N26	O RING 5.5 × 1.5	× 1	
N12	M6 × 10 BOLT	× 1	1.2kgf · m	N27	CAM CHAIN GUIDE	× 1	
N13	CAM SPROCKET	× 1		N28	CAM CHAIN TENSIONER COMP	× 1	
N14	KNOCK PIN 10x16	× 6		N29	CAM CHAIN TENSIONER SPRING	× 1	
N15	M6 × 20 FLANGE BOLT	× 2	1.2kgf · m				

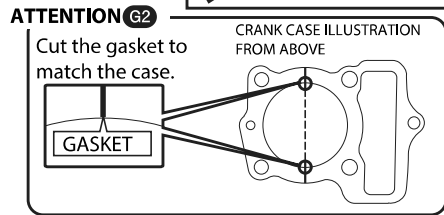
SERVICE GUIDE (CYLINDER HEAD)	STANDARD VALUE	USAGE	VALVE/VALVE GUIDE/VALVE SPRING
A IN VALVE STEM O.D.	φ 3.975 ~ φ 3.990	φ 3.970 or less	
EX VALVE STEM O.D.	φ 3.965 ~ φ 3.980	φ 3.950 or less	
B IN VALVE GUIDE I.D.	φ 4.000 ~ φ 4.012	φ 4.056 or more	
EX VALVE GUIDE I.D.	φ 4.000 ~ φ 4.012	φ 4.065 or more	
C IN VALVE SHEET TOUCHING WIDTH	0.7mm	1.0mm or more	
EX VALVE SHEET TOUCHING WIDTH	0.85mm	1.2mm or more	
D OUTER VALVE SPRING	30mm ± 1	28mm or less	
INNER VALVE SPRING	25mm ± 1	24mm or less	

CRANK CASE PARTS

Assemble referring to illustration.



OIL Must to apply oil.

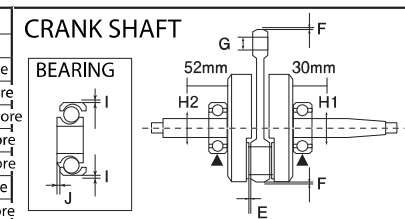


145cc SE2-PRO BIG BORE KIT PACKING LIST			
FIGURE	CODE	NAME	
F1	309-1413110	LONG STROKE CRANK SHAFT ASSY (56.5mm/100-145cc)	× 1
F2	307-1013030	CLUTCH LOCK WASHER (TAPER)	× 1
G1	966-1122000	R CRANK CASE COVER GASKET	× 1
G2	966-1122002	CRANK CASE COVER GASKET	× 1
G3	966-1122001	L CRANK CASE COVER GASKET	× 1
G4	966-1413090	OIL SEAL 19 × 36 × 7	× 1

▲ 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.

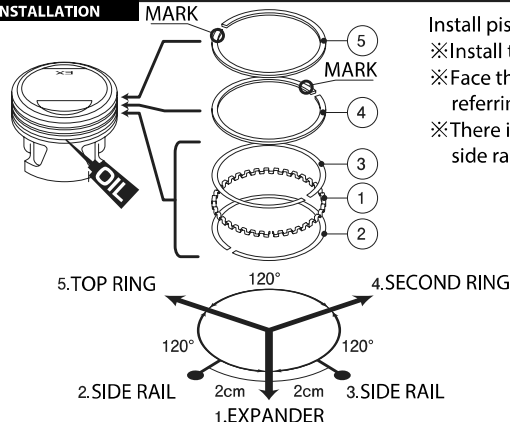
PARTS LIST OF CRANK CASE PART (NORMAL INCLUDED)							
FIGURE	NAME	QTY	TORQUE	FIGURE	NAME	QTY	TORQUE
N40	M6 × 100 BOLT	× 1	1.2kgf · m	N73	OIL PUMP PLATE	× 1	
N41	M6 × 80 BOLT	× 6	1.2kgf · m	N74	M4 × 12 FLAT HEAD SCREW	× 2	0.33kgf · m
N42	M6 × 40 BOLT	× 1	1.2kgf · m	N75	9.4mmO RING	× 2	
N43	M6 × 35 BOLT	× 1	1.2kgf · m	N76	OIL STRAINER	× 1	
N44	RIGHT SIDE CRANK CASE COVER ASSY	× 1		N77	STOPPER ARM PIVOT BOLT	× 1	1.3kgf · m
N45	OIL THROUGH	× 1		N78	SHIFT DRUM STOPPER ARM	× 1	
N46	OIL THROUGH SPRING	× 1		N79	STOPPER ARM SPRING	× 1	
N47	OIL THROUGH PIN	× 1		N80	M6 × 22 BOLT	× 1	1.0kgf · m
N48	M14 NUT	× 1	4.0kgf · m	N81	SHIFT DRUM STOPPER PLATE	× 1	
N50	PRIMARY DRIVE GEAR	× 1		N82	SHIFT DRUM PIN	× 4	
N51	COLLAR	× 1		N83	SHIFT RETURN SPRING	× 1	
N52	CLUTCH LIFTER GUIDE PIN	× 1		N84	SHIFT SPINDLE ASSY	× 1	
N53	BEARING	× 1		N85	SPRING COLLAR	× 1	
N54	M6 × 22 BOLT	× 4	1.0kgf · m	N86	KICK RETURN SPRING	× 1	
N55	CLUTCH LIFTER PLATE	× 1		N87	KNOCK PIN 8x14mm	× 2	
N56	CLUTCH SPRING	× 4		N88	OIL DRAIN BOLT	× 1	
N57	17mm CIR CLIP	× 1		N89	12mm SEALING WASHER	× 1	
N58	CLUTCH CENTER	× 1		N90	M6 × 55 BOLT	× 1	1.2kgf · m
N59	FRICTION DISC	× 4		N91	M6 × 45 BOLT	× 1	1.2kgf · m
N60	CLUTCH PLATE	× 3		N92	RIGHT SIDE CRANK CASE	× 1	
N61	CLUTCH PRESSURE PLATE	× 1		N93	M6 × 16 BOLT	× 2	1.0kgf · m
N62	17mm SPLINE WASHER	× 1		N94	RATCHET GUIDE PLATE	× 1	
N63	CLUTCH OUTER	× 1		N95	KNOCK PIN 12x20mm	× 2	
N64	M5 × 18 BOLT	× 2	0.5kgf · m	N96	LEFT SIDE CRANK CASE ASSY	× 1	
N65	DRIVE GEAR COVER	× 1		N97	STATOR COIL ASSY	× 1	
N66	M6 × 30 FLAT HEAD SCREW	× 2	0.9kgf · m	N98	M5 × 10 SOCKET BOLT	× 1	0.6kgf · m
N67	OIL PUMP DRIVE SHAFT	× 1		N99	M6 × 16 FLAT HEAD SCREW	× 3	0.9kgf · m
N68	OIL PUMP DRIVE GEAR	× 1		N100	FLYWHEEL	× 1	
N69	OIL PUMP MAIN UNIT	× 1		N101	M12 NUT	× 1	6.5kgf · m
N70	OIL PUMP INNER ROTER	× 1		N102	LEFT SIDE CRANK CASE COVER	× 1	
N71	OIL PUMP OUTER ROTER	× 1		N103	M6 × 50 BOLT	× 1	1.2kgf · m
N72	OIL PUMP GASKET	× 1		N104	M6 × 35 BOLT	× 4	1.2kgf · m
N72	OIL PUMP GASKET	× 1		N105	OIL SEAL	× 1	

SERVICE GUIDE (CRANK SHAFT)		
	STANDARD VALUE	USAGE
E	THE GREAT ROD LATERAL CLEARANCE	0.10 ~ 0.35 0.55mm or more
F	THE GREAT ROD VERTICAL CLEARANCE	0 ~ 0.012 0.050mm or more
G	CONROD SMALL END INNER DIAMETER	14.012 ~ 14.030 14.050mm or more
H1	LEFT SIDE CRANK SHAFT SHAKE	0.020 0.070mm or more
H2	RIGHT SIDE CRANK SHAFT SHAKE	0.035 0.085mm or more
I	BEARING VERTICAL CLEARANCE	0.05 ~ 0.09 0.10mm or more
J	BEARING LATERAL CLEARANCE	0.005 ~ 0.040 0.050mm or more



ADJUST AND INSTALL / CHECK LIST

PISTON RING INSTALLATION

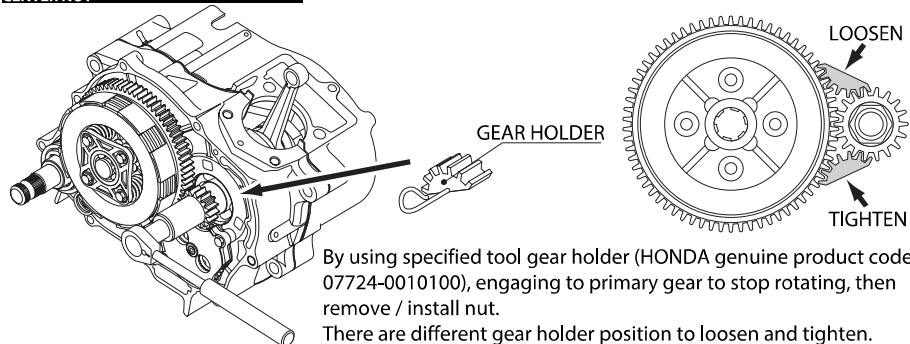


Install piston ring referring to illustration on left side.
 ※Install top ring and second ring with mark side up.
 ※Face the ring matching surface in the direction referring to illustration.
 ※There is no up and down side on expander and side rail.

ピストンリング		
FIGURE NAME		QTY
1	EXPANDER	×1
2/3	SIDE RAIL (SAME AS UP AND DOWN)	×2
4	SECOND RING (BLACK)	×1
5	TOP RING (WHITE)	×1

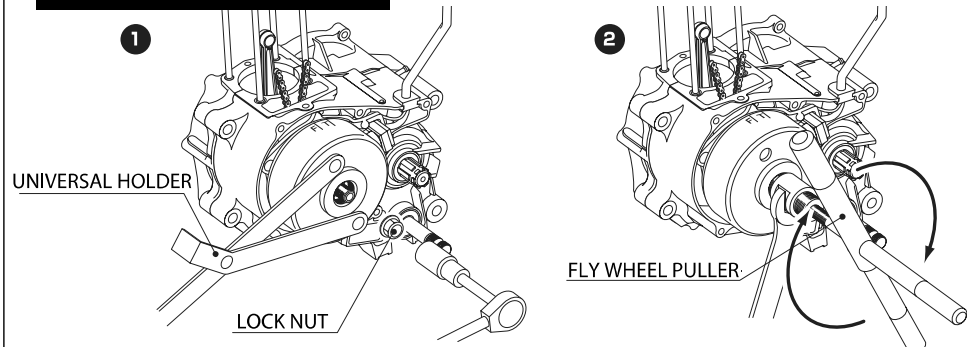
※Install piston with EX mark direction to exhaust side.

INSTALLING / REMOVING PRIMARY GEAR CENTER NUT



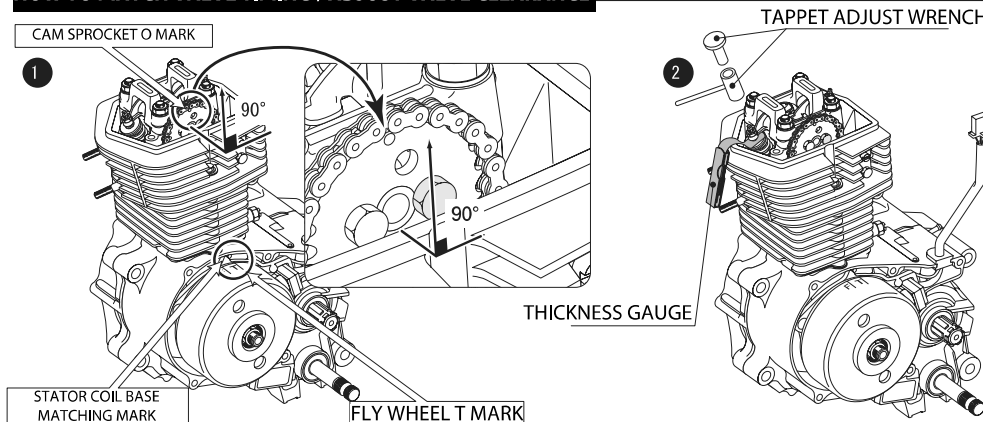
By using specified tool gear holder (HONDA genuine product code : 07724-0010100), engaging to primary gear to stop rotating, then remove / install nut.
 There are different gear holder position to loosen and tighten.

INSTALLING / REMOVING FLY WHEEL



1. Firstly, match to compression top dead position (fly wheel T mark and crank case matching mark matched position).
2. Fix the fly wheel puller by spanner, etc, rotate fly wheel puller handle to pull up fly wheel.

HOW TO MATCH VALVE TIMING / ADJUST VALVE CLEARANCE

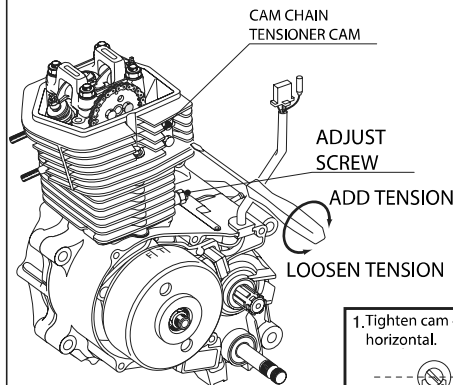


1. Adjusting valve timing (cam sprocket installation) is when fly wheel side fly wheel T mark, stator coil base matching mark are matched, please install chain and cam sprocket while cam sprocket side cam sprocket O mark and cylinder head installation surface is 90°. The position is compression top dead center.

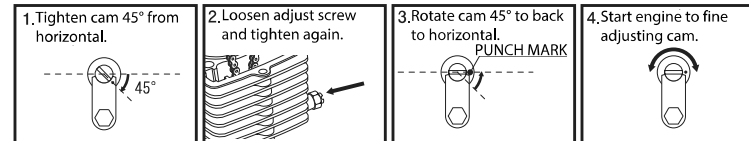
2. At compression top dead center (1 situation), insert thickness gauge to under the locker arm adjuster, adjust until locker arm adjuster touches thickness gauge. Finally, tighten lock nut.

● VALVE CLEARANCE INTAKE SIDE : 0.05mm EXHAUST SIDE : 0.05mm

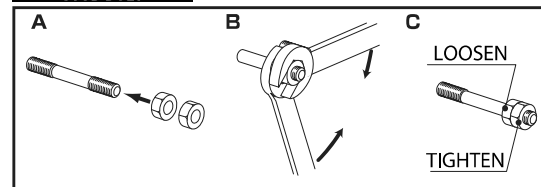
HOW TO ADJUST CAM CHAIN TENSIONER



1. Loosen tensioner cam plate bolt, then rotate tensioner cam punch mark to 45° from horizontal. Tighten tensioner cam plate bolt.
 ※Do not rotate more than 45°.
2. Loosen nut and tensioner adjust screw and tighten the tensioner adjust screw again, then tighten nut to fix them. At this time, cam chain tensioner is set correct position by spring power.
3. Loosen tensioner cam plate bolt to back tensioner cam punch mark back to horizontal. Then tighten it.
4. Start engine to check the cam chain sound. If the sound is "jingling", rotate tensioner cam to right to add tension. If the sound is "whoosh" or do not idle, rotate tensioner cam left to loosen tension.



INSTALLING / REMOVING STUD BOLT



- A. Hook 2 M6 nuts to stud bolt.
- B. Hook spanner, etc to each nuts and tighten them each other to fix.
- C. Hook spanner, etc to inner nut for loosen, tighten for front side nut to install / remove.