

Clutch

Table of Contents

Exploded View	5-2
Specifications	5-6
Special Tools	5-7
Clutch Lever and Cable (KLX110D)	5-8
Clutch Lever Free Play Inspection	5-8
Clutch Lever Free Play Adjustment	5-8
Clutch Cable Removal	5-8
Clutch Cable Installation	5-8
Clutch Cable Lubrication and Inspection	5-8
Clutch Cover (KLX110C)	5-9
Clutch Cover Removal	5-9
Clutch Cover Installation	5-9
Clutch Cover Disassembly	5-9
Clutch Cover Assembly	5-10
Clutch Cover (KLX110D)	5-11
Clutch Cover Removal	5-11
Clutch Cover Installation	5-11
Release Shaft Removal	5-11
Release Shaft Installation	5-12
Clutch	5-13
Clutch Removal (KLX110C)	5-13
Secondary Clutch Disassembly (KLX110C)	5-14
Secondary Clutch Assembly (KLX110C)	5-14
Clutch Installation (KLX110C)	5-15
Clutch Removal (KLX110D)	5-16
Clutch Hub Disassembly (KLX110D)	5-18
Clutch Hub Assembly (KLX110D)	5-18
Clutch Installation (KLX110D)	5-18
Primary Clutch Housing Wear Inspection (KLX110C)	5-19
Primary Clutch Shoe Lining Wear Inspection (KLX110C)	5-19
One-Way Clutch Inspection (KLX110C)	5-20
Friction and Steel Plate Damage, Wear Inspection	5-20
Friction and Steel Plate Warp Inspection	5-20
Clutch Spring Free Length Measurement	5-20
Clutch Housing Finger Damage Inspection	5-21
Clutch Hub Spline Damage Inspection	5-21
Clutch Adjustment (KLX110C)	5-21

Exploded View

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Clutch Cover Bolts	8.8	0.9	78 in·lb	
2	Oil Seal Retaining Plate Screws	2.9	0.3	26 in·lb	L
3	Primary Clutch Hub Nut	72	7.3	53	
4	Clutch Spring Bolts	5.0	0.51	44 in·lb	
5	Secondary Clutch Hub Nut	72	7.3	53	
6	Clutch Adjusting Screw Locknut	19	1.9	14	

EO: Apply engine oil.

G: Apply grease.

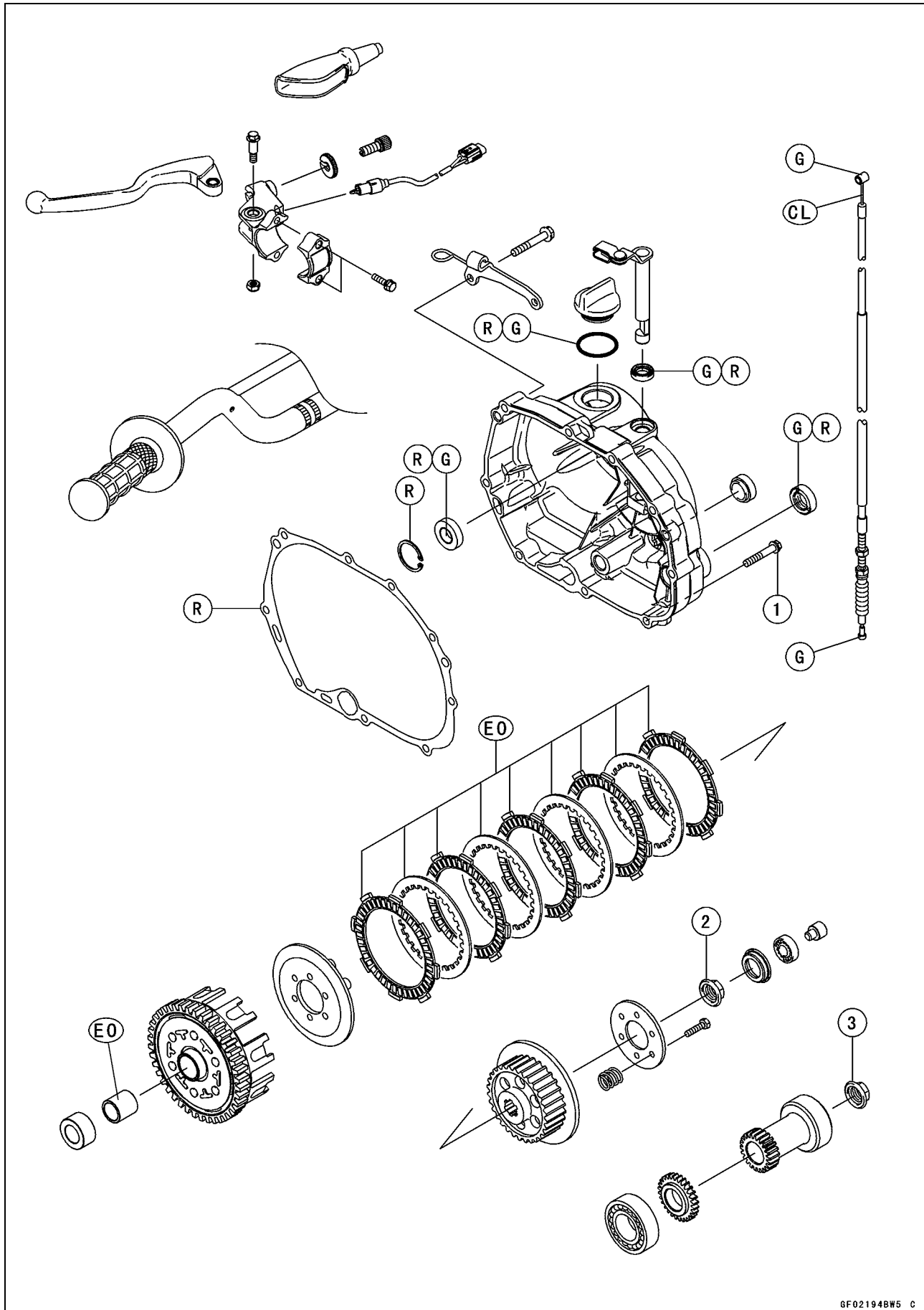
L: Apply a non-permanent locking agent.

R: Replacement Parts

5-4 CLUTCH

Exploded View

KLX110D Models



Exploded View

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Clutch Cover Bolts	8.8	0.9	78 in·lb	
2	Clutch Hub Nut	72	7.3	53	
3	Primary Gear Nut	72	7.3	53	

CL: Apply cable lubricant.

EO: Apply engine oil.

G: Apply grease.

R: Replacement Parts

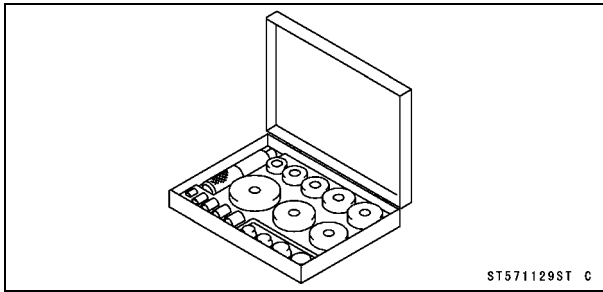
5-6 CLUTCH

Specifications

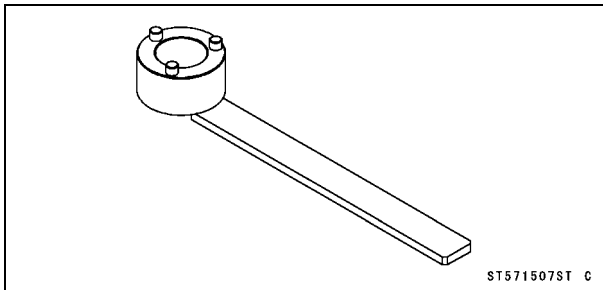
Item	Standard	Service Limit
Clutch (KLX110C)		
Primary Clutch:		
Primary Clutch Housing Inside Diameter	104.0 ~ 104.2 mm (4.094 ~ 4.102 in.)	104.5 mm (4.114 in.)
Primary Clutch Shoe Groove Depth	1.0 mm (0.04 in.)	0.5 mm (0.02 in.)
Secondary Clutch:		
Friction Plate Thickness	3.1 ~ 3.3 mm (0.12 ~ 0.13 in.)	3.0 mm (0.12 in.)
Friction and Steel Plate Warp	0.2 mm (0.008 in.) or less	0.3 mm (0.01 in.)
Clutch Spring Free Length	19.1 mm (0.752 in.)	18.0 mm (0.709 in.)
Clutch (KLX110D)		
Clutch Lever Free Play	2 ~ 3 mm (0.08 ~ 0.12 in.)	— — —
Friction Plate Thickness	3.12 ~ 3.28 mm (0.123 ~ 0.129 in.)	3.0 mm (0.12 in.)
Friction and Steel Plate Warp	0.15 mm (0.0059 in.) or less	0.3 mm (0.01 in.)
Clutch Spring Free Length	22.04 mm (0.868 in.)	20.4 mm (0.803 in.)

Special Tools

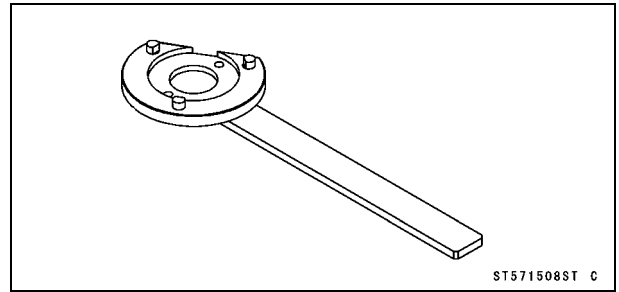
**Bearing Driver Set:
57001-1129**



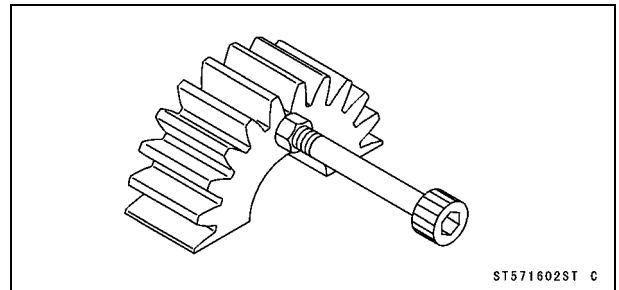
**Clutch Holder 1:
57001-1507**



**Clutch Holder 2:
57001-1508**



**Gear Holder:
57001-1602**



5-8 CLUTCH

Clutch Lever and Cable (KLX110D)

Due to friction plate wear and clutch cable stretch over a long period of use, the clutch must be adjusted in accordance with the Periodic Maintenance Chart.

⚠ WARNING

The engine and exhaust system get extremely hot during normal operation and can cause serious burns. Never touch the engine or exhaust pipe during clutch adjustment.

Clutch Lever Free Play Inspection

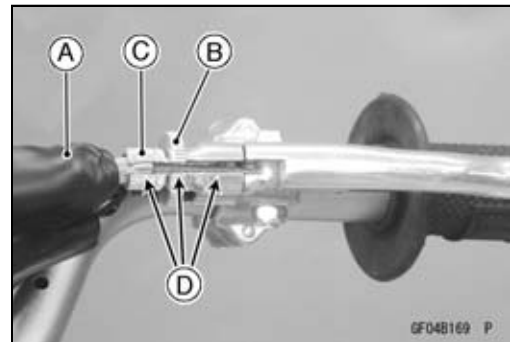
- Refer to the Clutch Lever Free Play Inspection in the Periodic Maintenance chapter.

Clutch Lever Free Play Adjustment

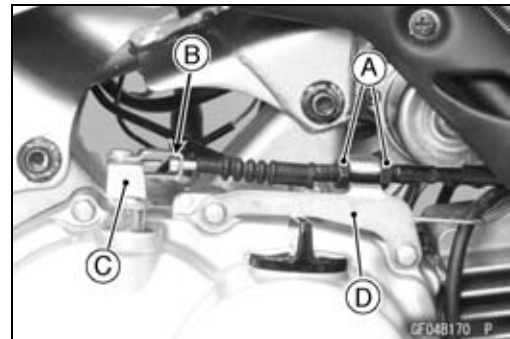
- Refer to the Clutch Lever Free Play Adjustment in the Periodic Maintenance chapter.

Clutch Cable Removal

- Tuck the rubber boot [A].
- Loosen the locknut [B] and screw in the adjuster [C].
- Align the slots [D] in the clutch lever, locknut and adjuster, and then free the cable from the lever.



- Loosen the adjusting nuts [A] fully.
- Free the clutch inner cable tip [B] from the clutch release lever [C], and free the clutch cable from the clutch cable holder [D].
- Pull the clutch cable out of the frame.

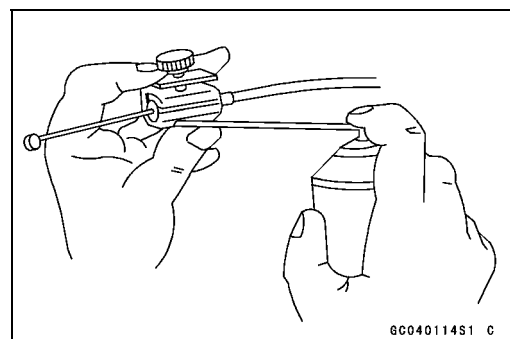


Clutch Cable Installation

- Installation is the reverse of removal.
- Run the clutch cable correctly (see Cable, Wire, and Hose Routing section in the Appendix chapter).
- Adjust the clutch lever free play (see Clutch Lever Free Play Adjustment in the Periodic Maintenance chapter).

Clutch Cable Lubrication and Inspection

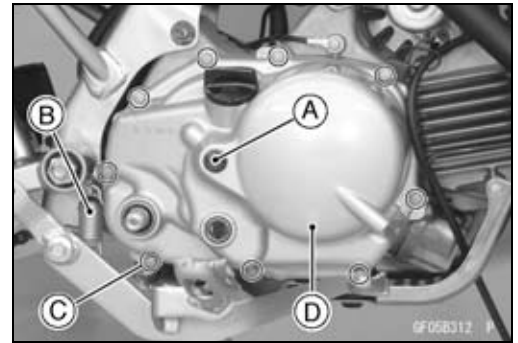
- Whenever the cable is removed, or in accordance with the Periodic Maintenance Chart, lubricate the clutch cable (see General Lubrication in the Periodic Maintenance chapter).
 - Apply a thin coat of grease to the cable ends.
 - Use the pressure cable lubber to lubricate the cable.
- With the cable disconnected at both ends, the cable should move freely in the cable housing.



Clutch Cover (KLX110C)

Clutch Cover Removal

- Drain the engine oil (see Engine Oil Change in the Periodic Maintenance chapter).
- Remove the kick pedal (see Kick Pedal Removal in the Crankshaft/Transmission chapter).
- When the clutch cover is to be disassembled, loosen the clutch adjuster locknut [A] before clutch cover removal.
- Loosen the footpeg bracket bolts for extra clearance.
- Remove:
 - Brake Pedal Return Spring [B] (Upper End)
 - Clutch Cover Bolts [C]
 - Clutch Cover [D]



Clutch Cover Installation

- Blow on compressed air to the oil passage [A] in the clutch cover.



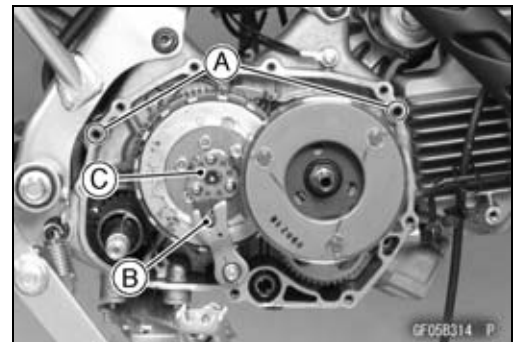
- Install the dowel pins [A].
- Install a new gasket.
- Apply grease to the kick shaft oil seal lip.
- Install the clutch cover, be sure that the release cam [B] and release ball assembly [C] are not falling down.

Torque - Clutch Cover Bolts: 8.8 N·m (0.90 kgf·m, 78 in·lb)

- Install other removed parts.
- Tighten:

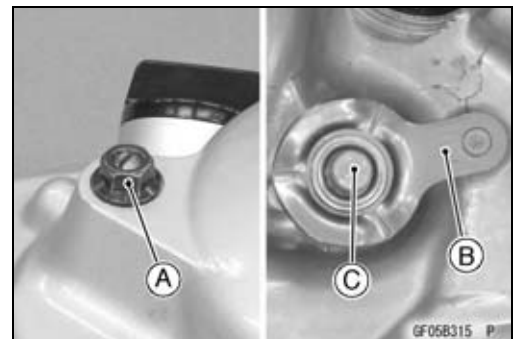
Torque - Footpeg Bracket Bolts: 25 N·m (2.5 kgf·m, 18 ft·lb)

- Pour in the specified engine oil (see Engine Oil Change in the Periodic Maintenance chapter).
- Adjust the clutch lever free play (see Clutch Lever Free Play Adjustment in the Periodic Maintenance chapter).



Clutch Cover Disassembly

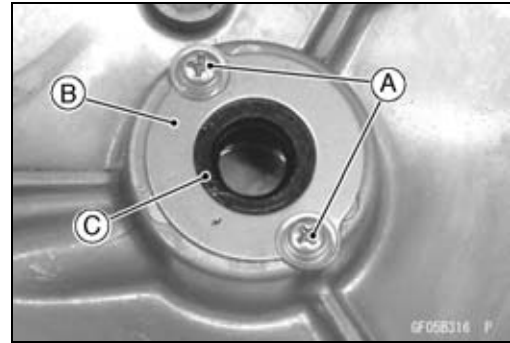
- Remove the clutch cover (see Clutch Cover Removal).
- Unscrew the clutch adjuster locknut [A].
- Remove the release plate [B] and the release shaft [C].



5-10 CLUTCH

Clutch Cover (KLX110C)

- Remove the screws [A] and plate [B].
- Take the oil seal [C] out of the cover with a hook.



Clutch Cover Assembly

- Replace the O-ring and the oil seal with new ones.
- Apply high-temperature grease to the oil seal lips [A].
- Press in the new oil seal so that the seal surface is flush with the cover.

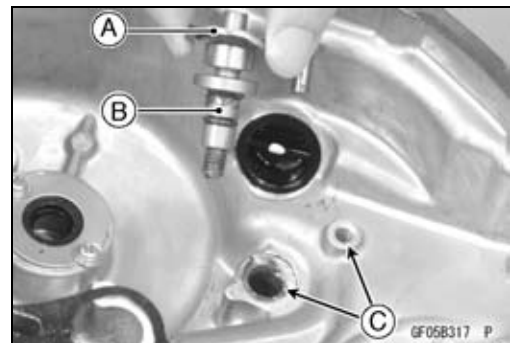
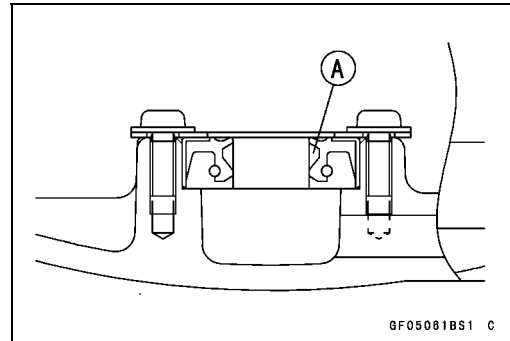
Special Tool - Bearing Driver Set: 57001-1129

- Apply a non-permanent locking agent to the oil seal retaining plate screws.
- Install the plate, and tighten the plate screws.

Torque - Oil Seal Retaining Plate Screws: 2.9 N·m (0.30 kgf·m, 26 in·lb)

- Apply high-temperature grease to the O-ring, and install it.
- Turn in the release plate [A] into the release shaft [B] fully but not too tightly and then back it out the three turns, and insert it into the holes [C] of clutch cover securely.
- Tighten the locknut into the release shaft from the opposite side.

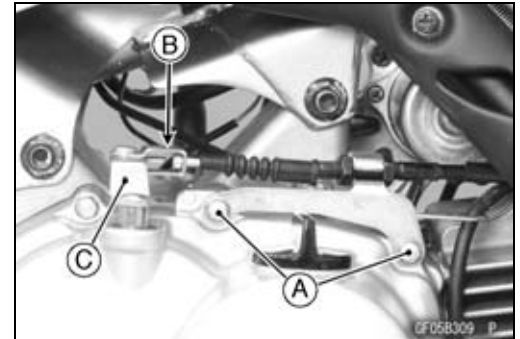
Torque - Clutch Adjusting Screw Locknut: 19 N·m (1.9 kgf·m, 14 ft·lb)



Clutch Cover (KLX110D)

Clutch Cover Removal

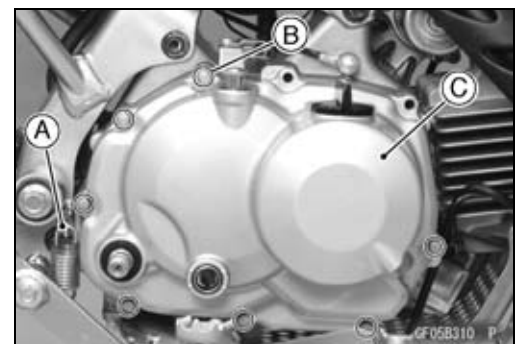
- Drain the engine oil (see Engine Oil Change in the Periodic Maintenance chapter).
- Remove the kick pedal (see Kick Pedal Removal in the Crankshaft/Transmission chapter).
- Remove the clutch cover bolts [A].
- Free the clutch cable lower end [B] from the clutch release lever [C].



- Remove:
 - Brake Pedal Return Spring [A] (Upper End)
 - Clutch Cover Bolts [B]
 - Clutch Cover [C]

NOTE

○Do not remove the clutch release lever and shaft assembly unless it is absolutely necessary. If removed, the oil seal replacement may be required. Apply grease to the oil seal lips.



Clutch Cover Installation

- Install the dowel pins [A].
- Install a new gasket.
- Apply high-temperature grease to the oil seal lip of the crankshaft of the clutch cover.
- Apply grease to the kick shaft oil seal lip.
- Install the clutch cover and clutch cable.

Torque - Clutch Cover Bolts: 8.8 N·m (0.90 kgf·m, 78 in·lb)

- Install other removed parts.
- Pour in the specified engine oil (see Engine Oil Change in the Periodic Maintenance chapter).
- Adjust the clutch lever free play (see Clutch Lever Free Play Adjustment in the Periodic Maintenance chapter).

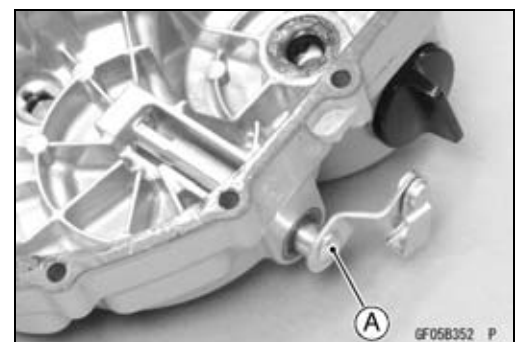


Release Shaft Removal

NOTICE

Do not remove the clutch release shaft unless it is absolutely necessary. If removed, release shaft oil seal must be replaced with a new one.

- Remove the clutch cover (see Clutch Cover Removal).
- Pull the lever and shaft assembly [A] straight out of the clutch cover.

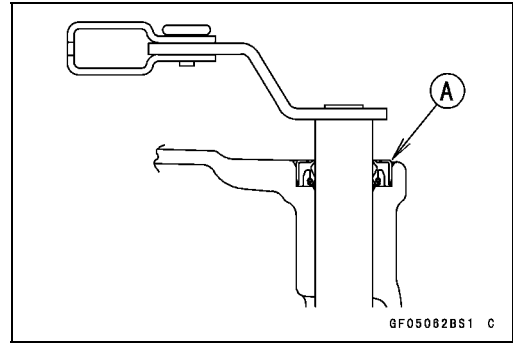


5-12 CLUTCH

Clutch Cover (KLX110D)

Release Shaft Installation

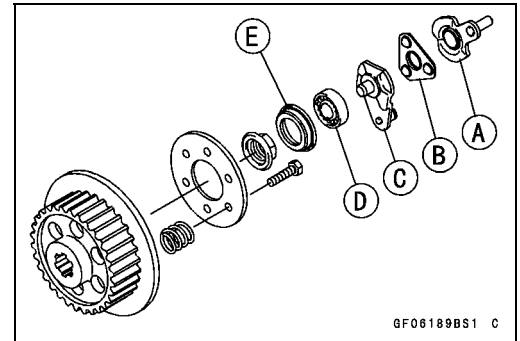
- Installation is the reverse of removal.
- Apply grease to the new oil seal lips.
- Press in the oil seal [A] until it bottoms out.



Clutch

Clutch Removal (KLX110C)

- Remove the clutch cover (see Clutch Cover Removal).
- Pull out the clutch release lever [A].
- Remove:
 - Release Ball Assembly [B]
 - Release Cam [C]
 - Ball Bearing [D]
 - Ball Bearing Holder [E]



- Loosen the primary clutch hub nut while holding the primary clutch steady with the gear holder.

Special Tool - Gear Holder: 57001-1602

NOTE

○If the primary clutch hub nut is difficult to loosen using a gear holder (57001-1602), use the clutch holder 1 (57001-1507).

- Loosen the primary clutch hub nut [A], while holding the primary clutch steady with the clutch holder [B].

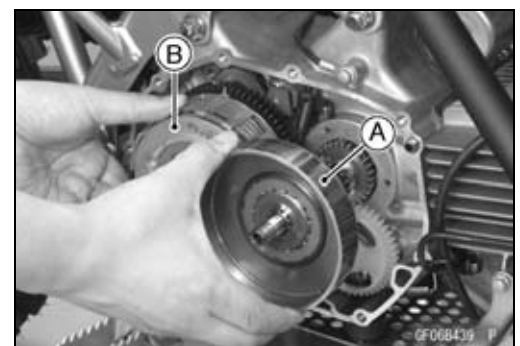
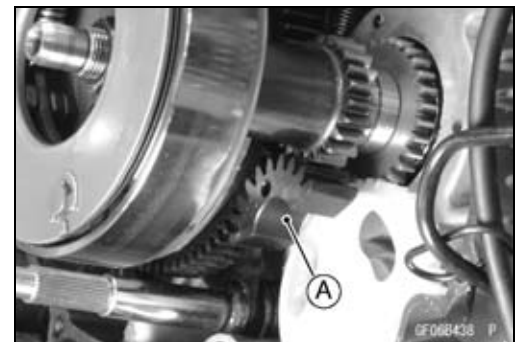
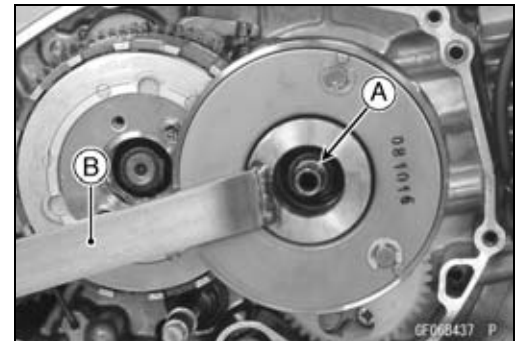
Special Tool - Clutch Holder 1: 57001-1507

- Remove the secondary clutch hub nut, while holding the secondary clutch steady with the gear holder [A].

Special Tool - Gear Holder: 57001-1602

- Remove:
 - Primary Clutch Hub Nut
 - Primary Clutch Hub Nut Assembly

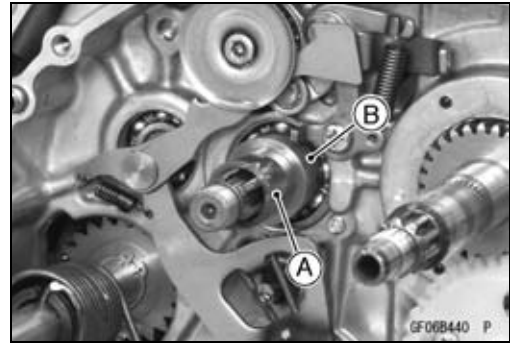
- Remove the primary clutch housing [A] and secondary clutch [B] together.



5-14 CLUTCH

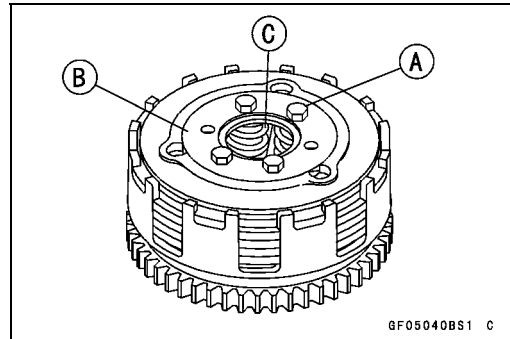
Clutch

- Remove:
 - Collar [A]
 - Spacer [B]

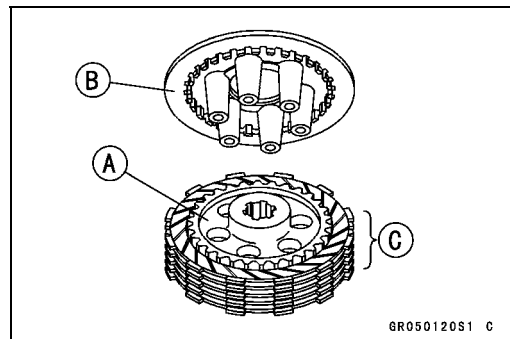


Secondary Clutch Disassembly (KLX110C)

- Remove the secondary clutch (see Clutch Removal).
- Unscrew the clutch spring bolts [A] and take off the spring plate [B] and springs [C].

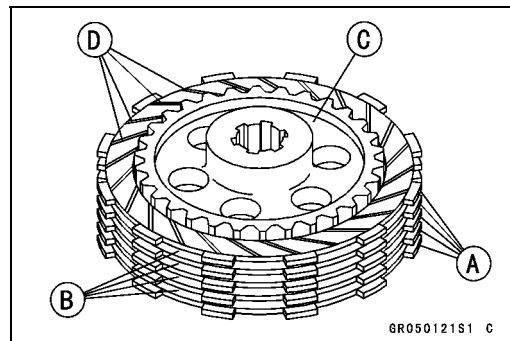


- Remove the clutch hub [A] and clutch wheel [B].
- Remove the secondary clutch plates [C].



Secondary Clutch Assembly (KLX110C)

- Install the friction plates [A] and steel plates [B] on the secondary clutch hub [C], starting with a friction plate and alternating them.
- The grooves [D] on the friction plate surfaces are cut tangentially and radially. Install the friction plates so that the grooves run toward the center in the direction of the clutch housing rotation (counterclockwise viewed from the engine right side).

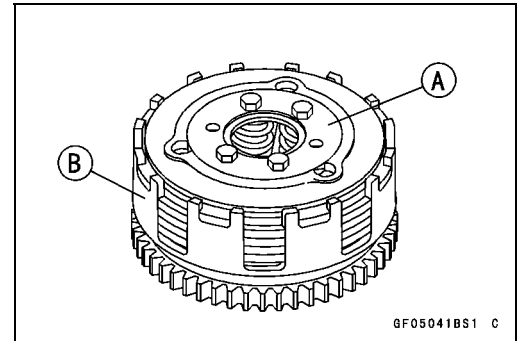


NOTICE

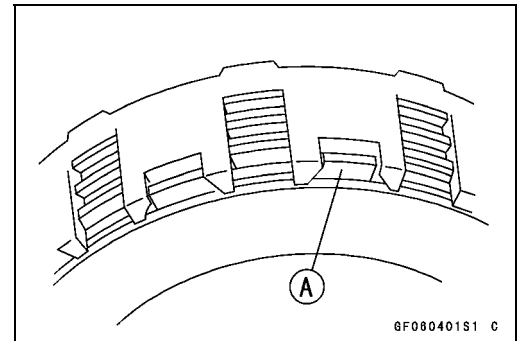
If new dry steel plates and friction plates are installed, apply engine oil to the surfaces of each plate to avoid clutch plate seizure.

Clutch

- Install the clutch wheel on the clutch hub.
- Install the clutch spring plate [A] with the springs and spring bolts temporarily and fit the clutch hub and plate assembly into the clutch housing [B].

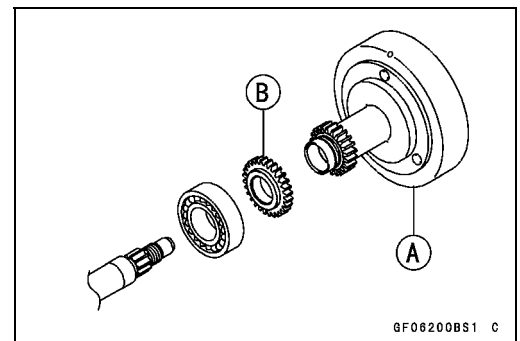


- Install the last friction plate [A] fitting the tangs in the grooves on the housing as shown.
- Tighten:
 - Torque - Secondary Clutch Spring Bolts: 5.0 N·m (0.51 kgf·m, 44 in·lb)**

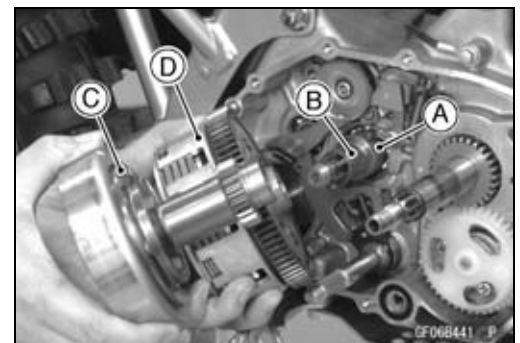


Clutch Installation (KLX110C)

- ★ If the primary clutch housing disassembled, assemble it as follows.
 - Install the gear [B] to the primary clutch housing [A].
 - Fit the tooth form of the gears, and press the holder to the clutch housing.
- Install the clutch housing.

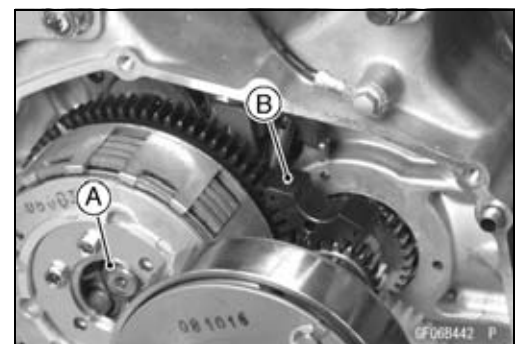


- Apply engine oil to the collar.
- Install:
 - Spacer [A]
 - Collar [B]
- Insert the primary [C] and secondary clutch [D] together.
 - Hard to install the secondary clutch, turn the drive shaft while pushing the clutch.



- Tighten the secondary clutch nut [A], while holding the gear holder [B].
 - Torque - Secondary Clutch Hub Nut: 72 N·m (7.3 kgf·m, 53 ft·lb)**

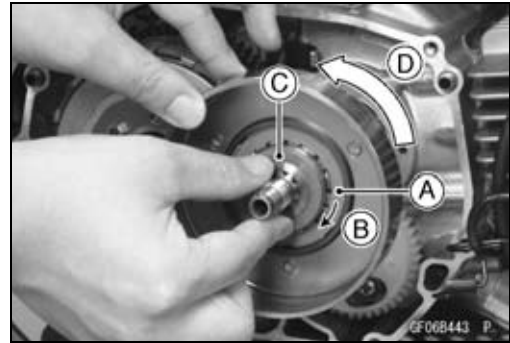
Special Tool - Gear Holder: 57001-1602



5-16 CLUTCH

Clutch

- ★ If the one-way clutch and race dropped from the primary clutch housing, install it as follows.
- Put the one-way clutch [A] in the clutch housing halfway with the rotation mark [B] facing out.
- Fit the race [C] into the one-way clutch with the machining unevenness side facing outside. Push the race in the clutch housing while turning the clutch housing counter-clockwise [D].

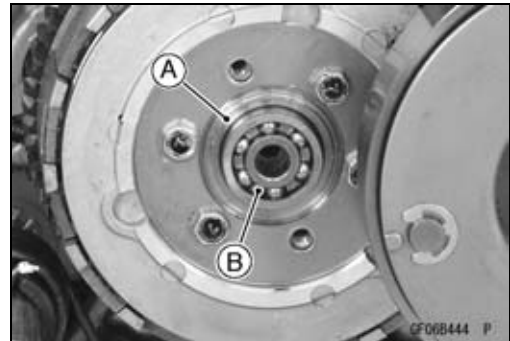


- Install the clutch hub.
- Tighten the primary clutch hub nut, while holding the primary clutch steady with the clutch holder.

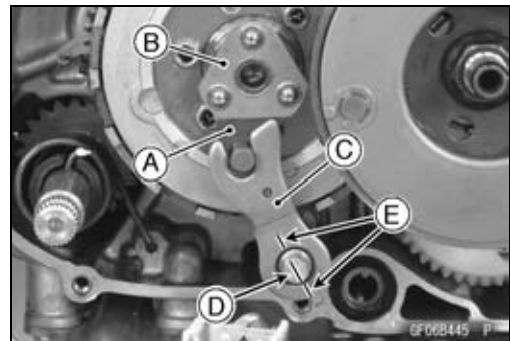
Special Tool - Clutch Holder 1: 57001-1507

Torque - Primary Clutch Hub Nut: 72 N·m (7.3 kgf·m, 53 ft·lb)

- Install the ball bearing holder [A] and ball bearing [B].

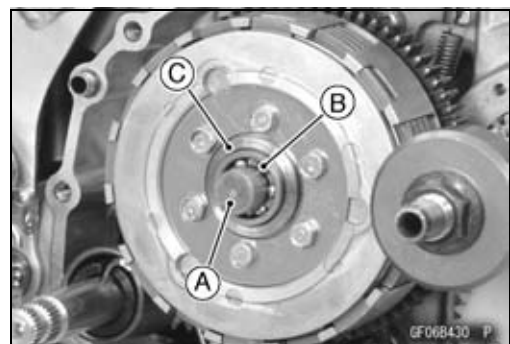


- Apply high-temperature grease to the release ball assembly.
- Install the release cam [A] and release ball assembly [B].
- Install the release lever [C] to the shift shaft, with shift shaft line [D] aligning to release lever line [E].
- Install the clutch cover (see Clutch Cover Installation).
- Adjust the clutch (see Clutch Release Adjustment in the Periodic Maintenance chapter).



Clutch Removal (KLX110D)

- Remove the clutch cover (see Clutch Cover Removal).
- Remove:
 - Clutch Pusher [A]
 - Ball Bearing [B]
 - Ball Bearing Holder [C]



Clutch

- Loosen the clutch hub nut while holding the clutch steady with the gear holder.

Special Tool - Gear Holder: 57001-1602

NOTE

○ If the clutch hub nut is difficult to loosen using a gear holder (57001-1602), use the clutch holder 2 (57001-1508).

- Loosen the clutch hub nut [A], while holding the clutch steady with the clutch holder [B].
- Search the positions of three notches of clutch holder, which can be aligned.
- Remove two clutch spring bolts [C] inserted into the two holes of clutch holder when searching.
- Set a clutch holder.

Special Tool - Clutch Holder 2: 57001-1508

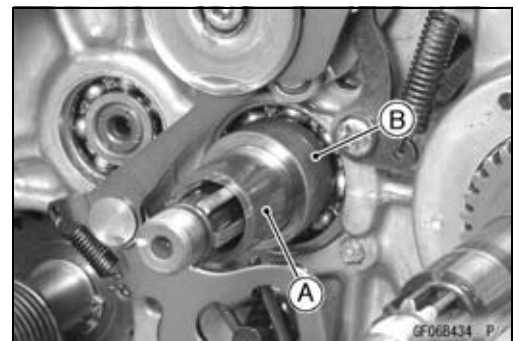
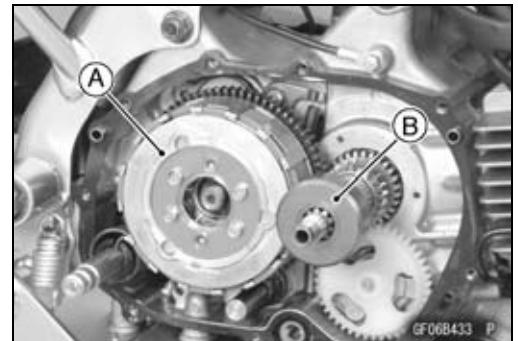
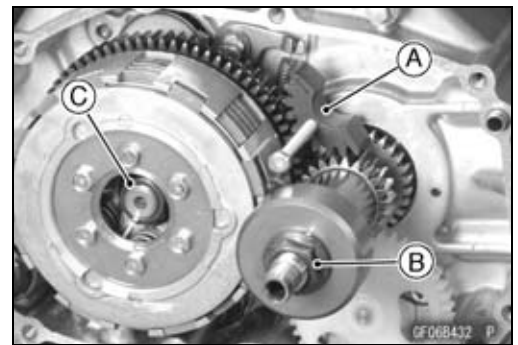
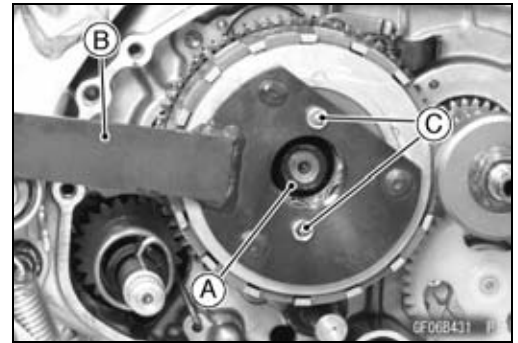
- Using the gear holder [A] to prevent the clutch from rotating.

Special Tool - Gear Holder: 57001-1602

- Remove:
 - Primary Gear Nut [B]
 - Clutch Hub Nut [C]

- Remove the clutch hub [A] and primary gear [B] together.

- Remove:
 - Collar [A]
 - Spacer [B]

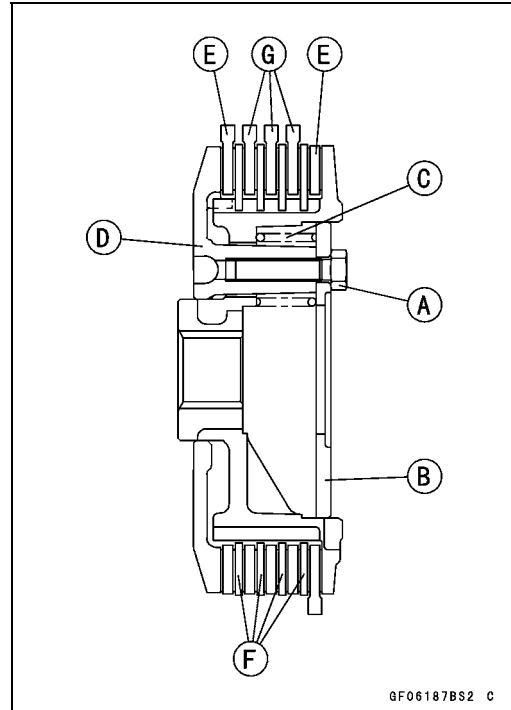


5-18 CLUTCH

Clutch

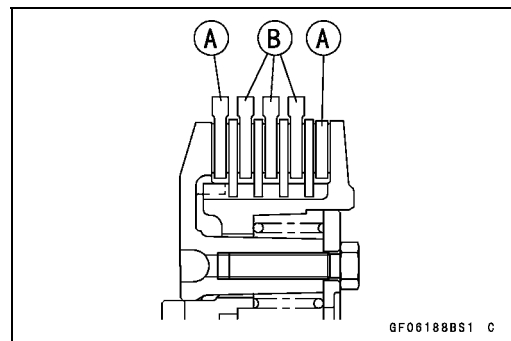
Clutch Hub Disassembly (KLX110D)

- Separate the clutch hub assembly from the clutch housing.
- Remove:
 - Clutch Spring Bolts [A]
 - Clutch Spring Plate [B]
 - Clutch Springs [C]
 - Clutch Holder [D]
 - Friction Plates [E]
 - Steel Plates [F]
 - Friction Plates [G]



Clutch Hub Assembly (KLX110D)

- Clutch hub assembly is the reverse of disassembly.
- The friction plates [A] are different from the other plates [B]. These plates are installed to both end of the all plates.



- Install the clutch spring plate and then tighten the clutch spring bolts to specified torque.

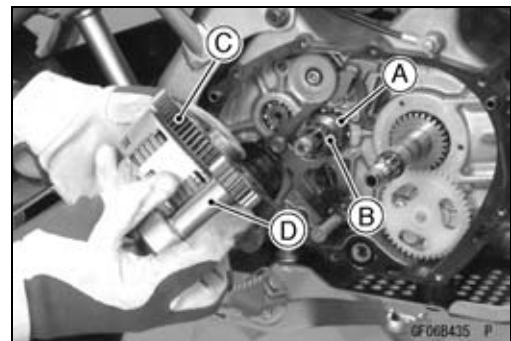
Torque - Clutch Spring Bolts: 5.0 N·m (0.51 kgf·m, 44 in·lb)

NOTICE

If new dry friction plates and steel plates are installed, apply engine oil to the surfaces of each plate to avoid clutch plate seizure.

Clutch Installation (KLX110D)

- Apply molybdenum disulfide oil to the drive shaft and collar.
- Install:
 - Spacer [A]
 - Collar [B]
- Install the clutch hub [C] and primary gear [D] together.
- Hard to install the clutch hub, turn the drive shaft while pushing the clutch.



Clutch

- Tighten the clutch hub nut while holding the clutch steady with the gear holder.

Special Tool - Gear Holder: 57001-1602

NOTE

○ If the clutch hub nut is difficult to tighten using a gear holder (57001-1602), use the clutch holder 2 (57001-1508).

- Tighten the clutch hub nut, while holding the clutch steady with the clutch holder.

Special Tool - Clutch Holder 2: 57001-1508

Torque - Clutch Hub Nut: 72 N·m (7.3 kgf·m, 53 ft·lb)

- Tighten two clutch spring bolts holding the clutch housing with hand.

Torque - Clutch Spring Bolts: 5.0 N·m (0.51 kgf·m, 44 in·lb)

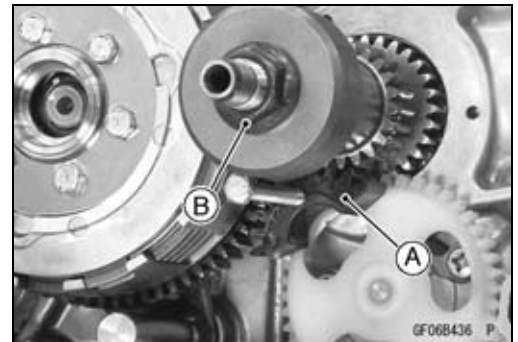
- Use the gear holder [A] to prevent the clutch from rotating.

Special Tool - Gear Holder: 57001-1602

- Tighten the primary gear nut [B].

Torque - Primary Gear Nut: 72 N·m (7.3 kgf·m, 53 ft·lb)

- Install other removed parts.



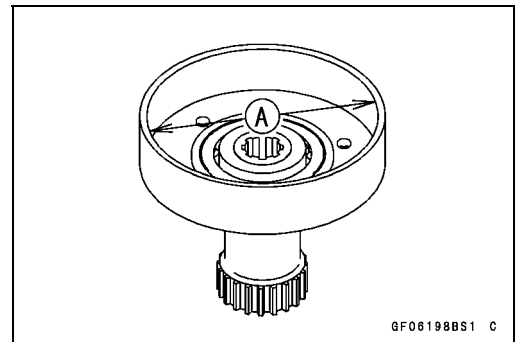
Primary Clutch Housing Wear Inspection (KLX110C)

- Measure the inside diameter [A] of the clutch housing sliding surface.
- Use a vernier caliper and measure at several points as shown.
- ★ If any measurement is greater than the service limit, replace the primary clutch housing.

Primary Clutch Housing Inside Diameter

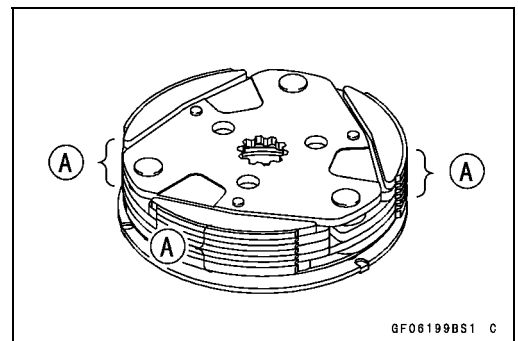
Standard: 104.0 ~ 104.2 mm (4.094 ~ 4.102 in.)

Service Limit: 104.5 mm (4.114 in.)



Primary Clutch Shoe Lining Wear Inspection (KLX110C)

- Remove the primary clutch hub (see Clutch Removal).
- Visually inspect the primary clutch shoe linings [A] for uneven wear, discoloration, missing friction material, cracks or other damage.
- ★ If any of the linings are damaged, replace the primary clutch hub.

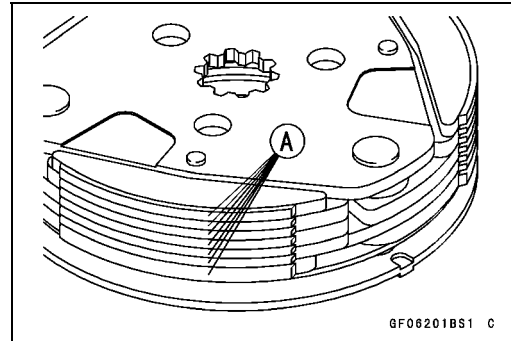


5-20 CLUTCH

Clutch

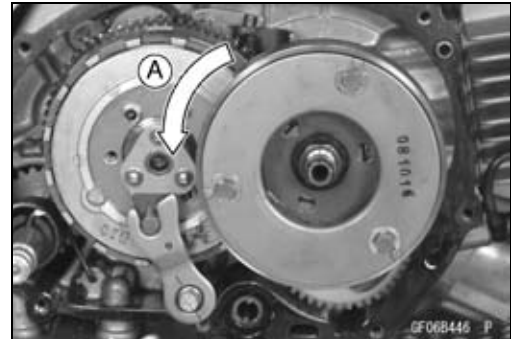
- Measure the groove depth [A].
- Use a depth gauge, and measure at several points as shown.
- ★ If any measurement is less than the service limit, replace the primary clutch hub.

Primary Clutch Shoe Groove Depth	
Standard:	1.0 mm (0.04 in.)
Service Limit:	0.5 mm (0.02 in.)

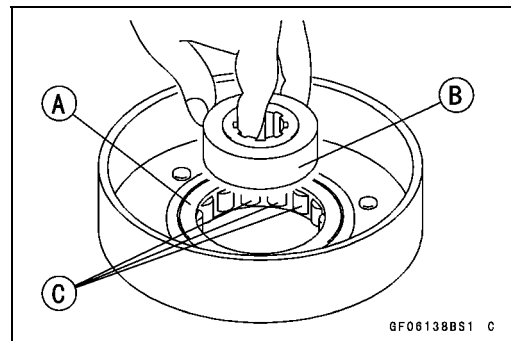


One-Way Clutch Inspection (KLX110C)

- Remove the clutch cover.
- Turn the primary clutch housing by hand. When view from the right side of the engine, the primary clutch housing should turn counterclockwise freely [A] but should not turn clockwise.



- ★ If the one-way clutch does not operate as it should or if it makes noise, go to the next steps.
- Remove the primary clutch.
- Check that the one-way clutch is installed so that the rotation mark faces out.
- Visually inspect the one-way clutch [A] and the race [B] in the primary clutch housing.
- ★ If there is any worn or damaged part, replace it.
- Check that the rollers [C] in the one-way clutch is installed when viewed from the right side of the engine.



Friction and Steel Plate Damage, Wear Inspection

- Refer to Friction and Steel Plates Inspection in the Periodic Maintenance chapter.

Friction and Steel Plate Warp Inspection

- Refer to Friction and Steel Plates Inspection in the Periodic Maintenance chapter.

Clutch Spring Free Length Measurement

- Measure the free length of the clutch springs [A].
- ★ If any spring is shorter than the service limit, it must be replaced.

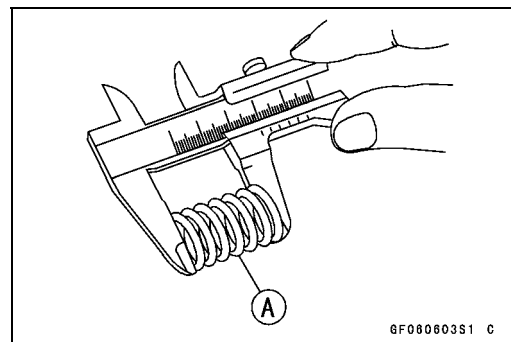
Clutch Spring Free Length

Standard:

KLX110C Models	19.10 mm (0.752 in.)
KLX110D Models	22.04 mm (0.868 in.)

Service Limit:

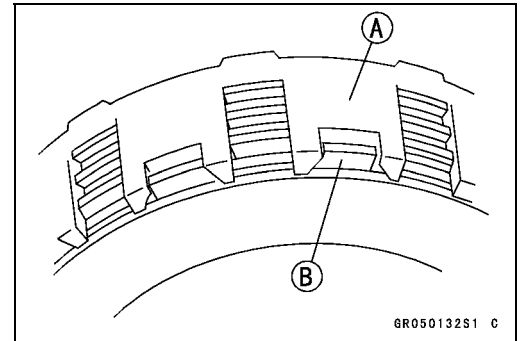
KLX110C Models	18.0 mm (0.709 in.)
KLX110D Models	20.4 mm (0.803 in.)



Clutch

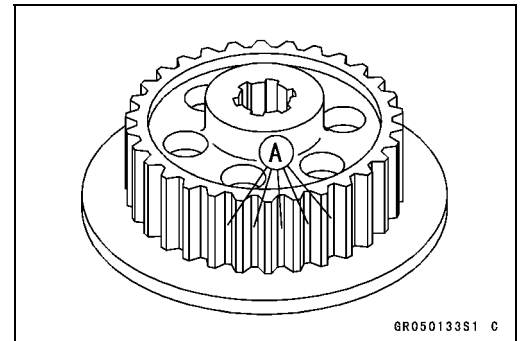
Clutch Housing Finger Damage Inspection

- Visually inspect the clutch housing fingers [A] where the friction plate tangs [B] hit them.
- ★ If they are badly worn or if there are groove cuts where the tangs hit, replace the housing. Also, replace the friction plates if their tangs are damaged.



Clutch Hub Spline Damage Inspection

- Visually inspect where the teeth on the steel plates wear against the clutch hub splines.
- ★ If there are notches worn into the clutch hub splines [A], replace the clutch hub. Also, replace the steel plates if their teeth are damaged.



Clutch Adjustment (KLX110C)

- Refer to the Clutch Release Adjustment in the Periodic Maintenance chapter.