Kawasaki

Ninja ZX-7R
ZXR 750R

'92 Racing Kit Manual

This Manual contains only the information of the racing kit parts. Refer to the base manual listed below for information of the original model.

Base Manual	Part Number
Ninja ZX-7R/ZXR750R Motorcycle Service Manaul	99924-1139-01

'93 MAIN HARNESS # 26030-1206 A

© Kawasaki Heavy Industries, Ltd. 1991

First Edition (1) : Dec. 24, 1991 (I

Congratulation on your purchase of racing kit parts for the '92 ZXR750R.

IMPORTANT

This manual provides how to install racing kit parts for the '92 ZXR750R and how to tune up basically.

As for the basic knowledge, refer to the Service Manual for the ZXR750R (P/No. 99924-1139-01).

When you participate in a race, it is necessary to modify the machine for the regulation. So we want you to ask for the tuning up shop.

In this manual, the following abbreviations are used.

SB	:	Super Bike racing
Enduro	:	Enduro racing

⚠WARNING

AFTER ANY MODIFICATION TO TURN THE VEHICLE TO A COMPETITION MACHINE, IT SHOULD NOT BE USED ON PUBLIC STREETS, ROADS OR HIGHWAYS. THE USE OF THIS VEHICLE SHOULD BE LIMITED TO PARTICIPATION IN SANCTIONED COMPETITION EVENTS UPON A CLOSED COURSE.

⚠CAUTION

When operating the engine, be careful not to trouble persons with noise. Do not run the engine with loud engine and exhaust noise.

DISCLAIMER OF WARRANTY

ON OPTIONAL TURNING PARTS FOR RACING ARE NO WARRANTIES EXPRESSED OR IMPLIED.

BASIC WORKS IN INSTALLING KIT PARTS

We are going to make up the original ZXR750R for the racing machine. We recommend that the rider himself should do the basic works, removing parts or installing parts etc., given advices from the tuning shop. In a race, although trouble will be apt to happen, if you participate in basic works, you can discriminate causes of trouble, so you can return the race soon.

But concerning difficult technical works, you should ask tuning shop.

Table of Contents

General Specifications 3
Racing Kit Service Data 5
Periodic Maintenance Chart (for SB) 6
Preparation 8
  Before Installing: 8
'92 Racing Parts Information for '91 Racing Machine 9
Racing Parts for Super Bike 10
Carburetor Setting Parts Assembly 12
  Shroud: 12
  Air Cleaner Housing (SB): 13
  Carburetor: 14
Engine Parts Installation 21
  Cylinder Head: 21
  Valves: 22
  Camshaft: 22
  Camshaft Chain Tensioner: 23
  Piston: 24
  Connecting Rod: 25
  Connecting Rod Bolts/Nuts Tightening (Plastic Region): 26
  Transmission: 27
  Clutch: 27
  Starter Motor, Alternator and Oil Pump Driven Mechanism (SB): 29
  Oil Level Gauge: 32
  Muffler: 33
  Radiator: 34
  Engine Guard: 35
Frame Parts Installation 36
  Final Drive: 36
  Front Wheel, Rear Wheel (Optional Parts): 37
  Disk Brake (Optional Parts): 40
  Steering Stopper (All Racing): 41
  Steering Damper (Optional Parts): 41
  Front Hub: 42
  Shift Lever (Optional Parts): 43
  Right Footpeg and Brake Pedal (Optional Parts): 43
  Front Fork, Rear Shock Absorber (Optional Parts): 44
  Suspension Arm, Rod (Optional Parts): 48
  Catch Tank (Optional Parts): 49
Electric Parts 50
  Alternator (Optional Parts): 50
  Bracket (Optional Parts): 50
  Battery (Optional Parts): 51
  Main Harness (SB) 51
  Fuel Pump Stop Switch Kit Parts Assembly (Optional Parts): 52
Wiring Diagram (with Original Alternator Mounted) 53
Wiring Diagram (with Kit Alternator Mounted) 54
Racing Kit Parts List 55

General Specifications

Item			'92 ZXR750R Racing
Engine :			
Compression ratio			13.2
Maximum horsepower			140 PS or more/13 000 rpm
Maximum torque			84 N-m (8.6 kg-m, 62 ft-lb)
Igniter			Digital Igniter
Ignition timing			5° BTDC @500 rpm
			10° BTDC @1 000 rpm
			45° BTDC @5 000 ~ 9 000 rpm
			42.5° BTDC @9 500 rpm
*Clearance between piston head and valve:			
	Inlet		0.70 mm or more (Crankshaft timing @12° ATDC)
	Exhaust		1.30 mm or more (Crankshaft timing @12° BTDC)
Valve timing :	Inlet	Open	43° (BTDC)
		Close	69° (ABDC)
		Duration	292°
	Exhaust	Open	69° (BBDC)
		Close	39° (ATDC)
		Duration	288°
*Camshaft timing (Cam lift center):			
	Inlet		103 + 2° (ATDC)
			− 1°
	Exhaust		105 + 2° (BTDC)
			− 1°
Fuel			Racing gasoline
Engine oil:	Brand (Recommended oil)		CASTROL "Formular RS" or SYNTRON
	Viscosity		SAE 15W-50, 20W-50
	Level		Between upper and lower levels of oil level gauge.
Drive Train:			
Transmission gear ratio :		1st	2.375 (38/16)
		2nd	1.895 (36/19)
		3rd	1.619 (34/21)
		4th	1.409 (31/22), Optional 1.500 (33/22)
		5th	1.292 (31/24), Optional 1.391 (32/23)
		6th	1.200 (30/25), Optional 1.292 (31/24)
Final drive reduction ratio			2.294 (39/17) ~ 2.933 (44/15)
Overall drive ratio	(Top gear)		4.831 ~ 6.177
	(Optional top gear)		5.201 ~ 6.649

* When the clearance between the valve and the piston head is smaller than the standard specification, turn the installed position of the camshaft sprocket on the camshaft and change the camshaft timing.

Item		'92 ZXR750R Racing
Frame :		
Steering damper :	Damper force	8 kg
Front wheel :	Type	Dry slick tire
	Rim size	Width 3.5 x inner diameter 17 in
Rear wheel :	Type	Dry slick tire
	Rim size	Width 5.5 x inner diameter 17 in
Electrical Equipment:		
Spark plug		NGK R016-10
Battery :	without alternator	12 V 7 Ah or more
	with starter motor	12 V 9 Ah or more
Alternator (for enduro) :	Type	Single-phase AC
	Rated output	14.5 A-12 V/6 000 rpm ~ 16.5 A-12 V/10 000 rpm
	Voltage regulator	Separated from alternator

Racing Kit Service Data

Item		Standard
Carburetor(All Racing):		
Main jet		#155 (standard), 150, 152, 158, 160, 162
Jet needle mark		OBFHP
Jet needle clip position		4th groove from top
Pilot screw		0 (Closed)
Air screw		1-1/2
Main air jet		#200
Slow jet		#60
Camshaft:		
Cam height:	Inlet	36.88 ~ 37.09 mm
	Exhaust	36.63 ~ 36.84 mm
Cylinder Head, Valves:		
Valve clearance:	Inlet	0.16 ~ 0.21 mm
	Exhaust	0.21 ~ 0.25 mm
Valve seat surface outside diameter:		
	Inlet	28.3 ~ 28.7 mm
	Exhaust	24.3 ~ 24.7 mm
Squish:		
(between piston shoulder and cylinder head):		0.7 ~ 0.85 mm (require head gasket selection)
Drive Chain:		
Chain slack		20 ~ 25 mm (No load --- 1G)
Front Fork:		
Rebound dumping		4th click from fully seated position (full clockwise until the adjuster stops)
Ignition System:		
Spark plug		NGK R016-10 (racing plug)
Spark plug tightening torque		13 N-m (1.3 kg-m, 113 in-1b)
IC igniter		Modified timing advance curve for high speed engine rpm
Overrev limit		14 000 rpm (standard: 12 200 rpm)

Periodic Maintenance Chart (for SB)

The scheduled maintenance must be done in accordance with this chart to keep the motorcycle in good running condition. The initial maintenance is vitally important and must not be neglected.

FREQUENCY / OPERATION	Each race (300 km)	Every 3 races (1 000 km)	Every 5 races	Every 10 races	As required
Engine					
Clutch plate -- check*		●			
Oil pump chain -- check		●			
Throttle grip play -- check*	●				
Spark plug -- clean/gap*	●				
Carburetor -- check*/adjust	●				
Camshaft chain tensioner -- adjust	●				
Engine oil -- change		●			
Oil filter -- replace					●
Valve lapping			●		
Cylinder head/valve -- decarbonization			●		
Piston -- clean/check*			●		
Cylinder -- check			●		
Piston/cylinder clearance -- check*			●		
Piston ring -- replace			●		
Crankshaft main bearing -- check*				●	
Connecting rod big end bearing -- check*				●	
Engine sprocket -- check*	●				
Coolant -- change					●
Radiator hoses, connections -- check*	●				
Frame					
Brake operation -- check*	●				
Brake lining or pad wear -- check*	●				
Brake fluid level -- check*	●				
Brake fluid -- change					year
Brake master cylinder cup and dust seal -- replace					year
Brake caliper piston seal and dust seal -- replace					year
Brake hose -- replace					2 years

OPERATION / FREQUENCY	Each race (300 km)	Every 3 races (1 000 km)	Every 5 races	Every 10 races	As required
Frame					
Drive chain -- adjust	●				
Drive chain -- lubricate	●				
Drive chain wear -- check*	●				
Drive chain guide -- replace	if damaged				
Front fork -- clean/check*	●				
Front fork oil -- change	First change after 2 races, then every 5 races				
Nut, bolt, and fastener tightness -- check*	●				
Fuel system -- clean	●				
Fuel hose, fuel filter -- replace					●
Steering play -- check*	●				
Steering stem bearing -- grease			●		
Rear sprocket -- replace					●
General lubrication of chassis -- perform	●				
Wheel bearing (rear) -- grease				●	
Swing arm pivot, uni-trak linkage -- grease			●		
Swing arm pivot, uni-trak linkage -- check*			●		

* : Replace, add, adjust, clean, or torque if necessary.

Preparation

Before Installing:

- Refer to the regulations because the parts are different depending on each races. Modify the parts based on your race regulation.
- Main Removal Parts for both Super Bike and Enduro Races.
  - Lights, Cooling fan
  - Rear View Mirror
  - Side stand
  - Starter lockout switch
  - Starter motor (Super Bike only)
- Remove the side stand switch. When the optional main harness is not used, connect removing Black/Yellow and Green/White Leads directly.
- Required Parts in Enduro Racing:
  - Electric Starter
  - Alternator
  - Regulator/Rectifier
  - Head light (Check on your regulation)
  - Tail light (Check on your regulation)
  - Standard Main harness
  - For the others, use the same parts as the Super Bike version.
- Gaskets are also included in this racing kit parts, use them as follows.
  - Head Gaskets.....for squish adjustment
  - Other Gaskets .....for spare

'92 Racing Parts Information for '91 Racing Machine

'91 racing machine can be turned engine performance up equally to the '92 machine by installing the following '92 kit parts.

Item	Parts	P/No.	Q'ty	Point
Exhaust Muffler	Exhaust pipe # 1	18049-1606	1	Exhaust Muffler kit increases engine middle speed performance. The engine peak performance is nearly the same as '91 model. Muffler Body is for lowering exhaust note.
	Exhaust pipe # 2	18049-1607	1	
	Exhaust pipe # 3	18049-1608	1	
	Exhaust pipe # 4	18049-1609	1	
	Exhaust manifold unit	39178-1205	1	
	Joint Pipe	18049-1610	1	
	Muffler body unit	18090-1201	1	
Valve Train	Valve spring	49078-1118	16	Valve train kit increases their own durability and reduces loss of mechanical friction.
	Camchain tensioner ass'y	12048-1117	1	
Combustion Chamber	Piston	13001-1374	4	Kit piston improves combustion efficiency and increases compression ratio to 13.2. Two head gaskets are provided for squish adjustment.
	Cylinder head gasket	11004-1242	1	
	Cylinder head gasket	11004-1243	1	
Oil Pump Gear Train	Clutch housing	13095-1254	1	Oil Pump gear train kit reduces mechanical friction loss in this train by changing teeth of drive shaft sprocket and oil pump sprockets.
	Needle bearing	92046-1215	2	
	Collor	92143-1579	1	
	Spacer	92026-1422	1	
	Sprocket (drive shaft)	21053-1060	1	
	Sprocket (oil pump)	12046-1135	1	
	Chain guide	12053-1302	1	
	Bolt	130P0630	2	
Oil Pump	Rotor	16154-1102	1	Kit oil pump reduces mechanical friction loss of pump by lowering oil pressure at high engine speed.
	Body	16160-1192	1	
Ignition System	Igniter	21119-1358	1	Kit igniter changes ignition timing for high speed engine rpm.

NOTE 1) : Do not use oil pump gear train parts for enduro racing. Enduro machine should use the original gear train.

NOTE 2) : The kit igniter must be used together with the kit valve spring as a set.

Racing Parts for Super Bike

We have provided the following racing parts for the entry of the Super Bike race. These parts "however" will not delivered as a kit. So please order each parts.

Item	Parts	P/No.	Q'ty
Carburetor parts	Kit carburetor	99997-1069	1
Engine guard	Guard (Left) Guard (Right)	55020-1407 55020-1408	1 1
	Plain washer	410B0800	4
Ignition system	Spark plug, NGK RO16-10	92070-1181	4
	Igniter	21119-1358	1
Seal plug for starter motor mounting hole	Starter motor hole plug	92066-1332	1
	Starter motor hole plug	92066-1333	1
	O-ring, 24.4 mm	92055-1262	1
	Nut	312G0600	1
	Flanged bolt	130G0625	1
Muffler	Holder (Exhaust) plate	18069-1106	4
	Holder (Exhaust) inner	18069-1107	4
	Holder (Exhaust) outer	18069-1108	4
	Socket bolt	92150-1535	8
	Spring	92144-1352	12
	Exhaust pipe #1	18049-1606	1
	Exhaust pipe #2	18049-1607	1
	Exhaust pipe #3	18049-1608	1
	Exhaust pipe #4	18049-1609	1
	Exhaust manifold unit	39178-1205	1
	Exhaust joint pipe	18049-1610	1
	Muffler body unit	18090-1201	1
	Muffler stay	35011-1562	1
	Flanged bolt M8 x 30	92002-1178	3
	Clamp	92170-1059	1
	Gasket	92104-1055	1
Seal Plug for alternator mounting hole	Plug	92066-1363	1
	O-ring	92055-1357	1
	Flanged bolt M8 x 20	132G0820	1

Item	Parts	P/No.	Q'ty
Oil pump gear train	Clutch housing	13095-1254	1
	Spacer	92026-1422	1
	Needle Bearing	92046-1215	2
	Collar	92143-1579	1
	Spring	92081-139	6
	Sprocket (drive shaft)	21053-1060	1
	Sprocket (oil pump)	12046-1135	1
	Chain guide	12053-1302	1
	Chain	92057-1343	1
	Rotor (oil pump)	16154-1102	1
	Body (oil pump)	16160-1192	1
	Bolt	130P0630	2
Camshaft Chain Tensioner	Tensioner Assy	12048-1117	1

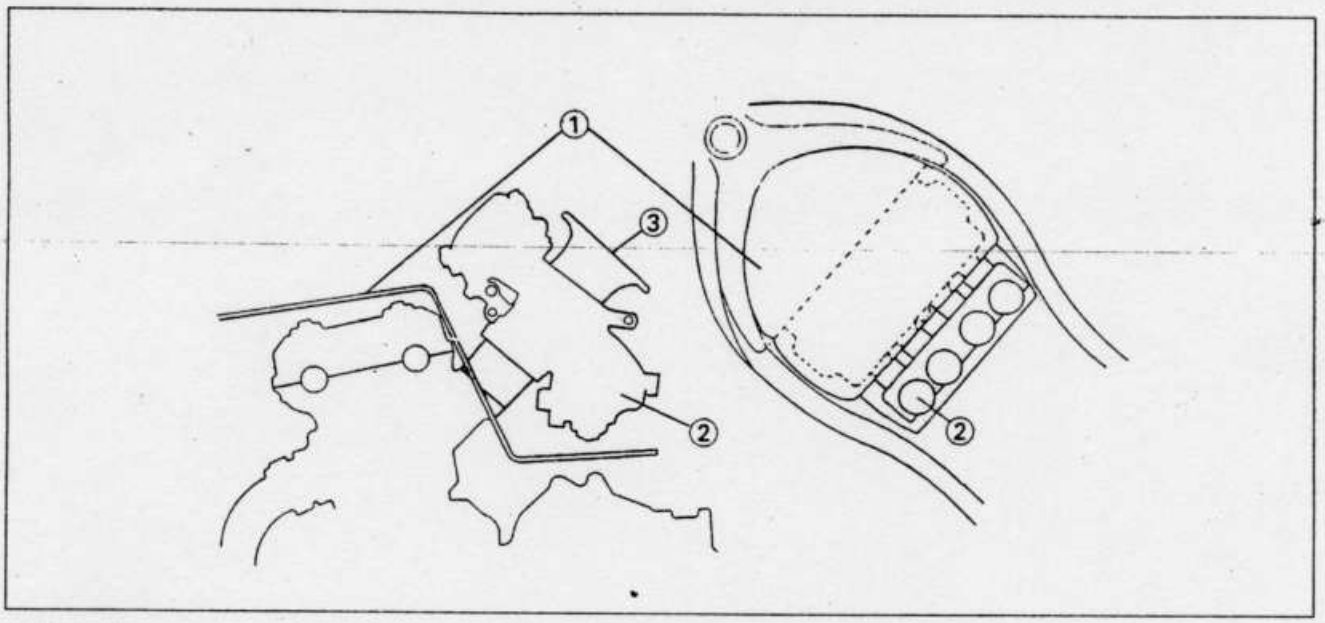
Carburetor Setting Parts Assembly

Shroud:

- ● Install a shroud on the cylinder head as shown to shut off the hot air flow coming from the radiator and engine.
- ○ The shroud is not included in the kit parts.
- ○ Prepare the shroud by yourself using a paper pattern which is inserted in this Racing kit Manual.

  Suggested Material : Polypropylene

  Suggested Thickness : 1.0 ~ 2.0 mm
- ○ If possible, attach heat insulating pads under side of the shroud for more effectiveness.
- ● Install air ducts on the intake port of the carburetor. The air ducts are included in the kit carburetor.



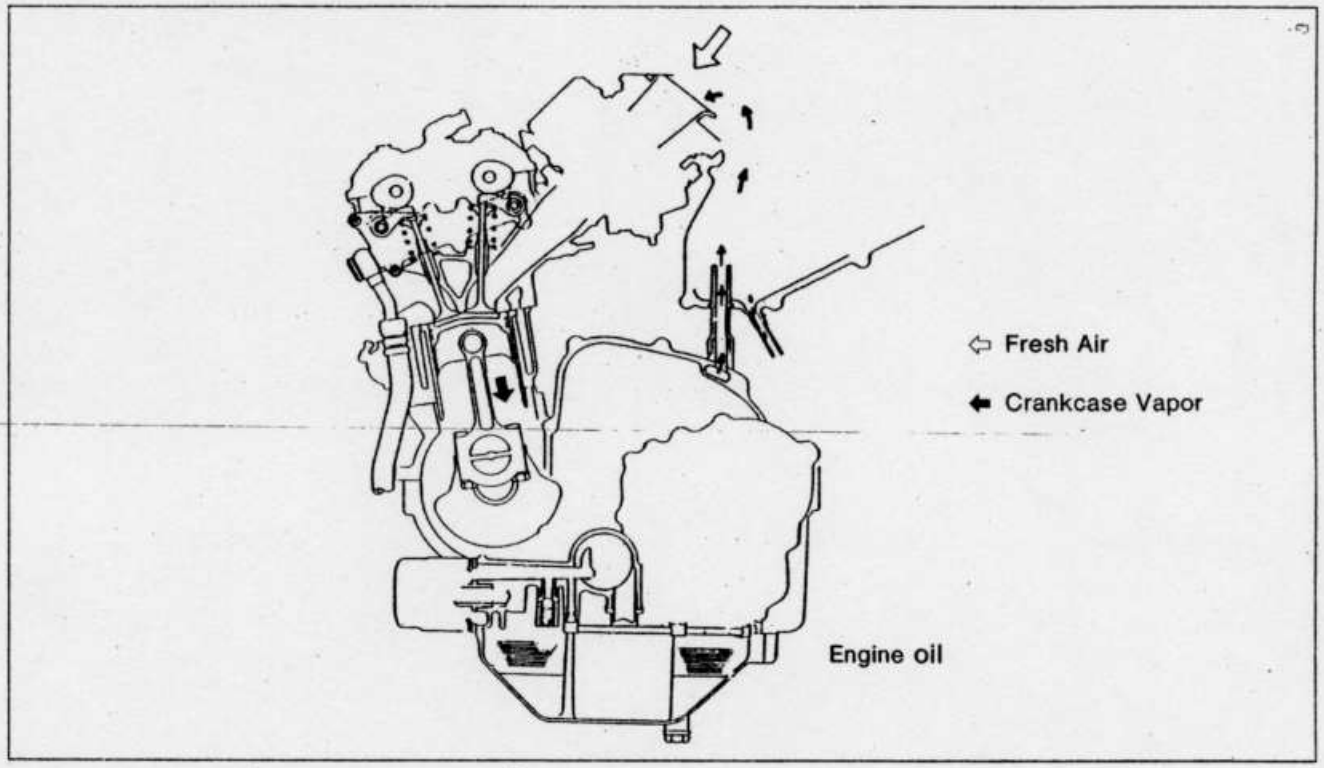
1. Shroud
2. Carburetor: 99997-1069
3. Duct: 14073-1518

Air Cleaner Housing (SB):

'92 Super Bike racing regulation requires a device that eliminates release of crankcase vapor into the atmosphere.

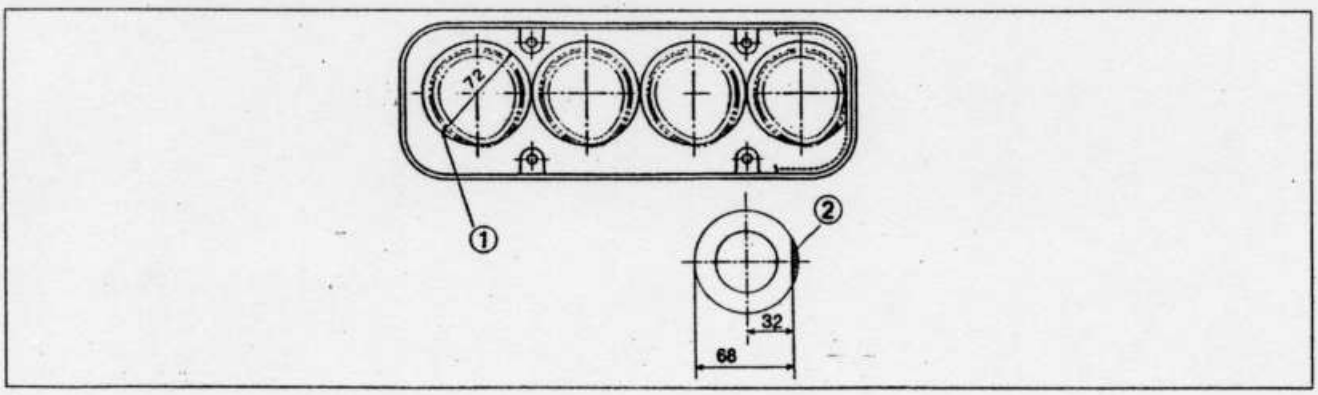
With the standard ZXR750R, the crankcase vapor is leaded into the air cleaner housing to avoid release of the vapor and this meets with the new regulation, therefore Kawasaki recommend use of the original device.

Crankcase Emission control System



However, the following modification is required.

- ●Enlarge the four air ducts mating holes of the air cleaner housing to accept the kit air ducts.
- ●Cut the left side of the #1 air duct to meet shape of the air duct with the modified air cleaner hole.
- ○The air cleaner element and the intake silencer which are located in the air cleaner housing are not needed for this device, so remove them for weight reduction.



1. Enlarge Holes about 72 mm 2. Cut Section

Carburetor:

Replace the carburetor setting parts with the kit parts.

Carburetor Setting Parts

Items	Original Setting	Kit Setting
Make, type	Keihin, FVKD39	←--
Idle speed	1 050 ~ 1 150 r/min (rpm)	- - -
Carburetor synchronization vacuum	Less than 2.7 kPa (2 cm Hg) difference between any two carburetors	←--
Main jet	#138	#155 (Kit standard setting) #150, #152, #158, #160, #162
Main air jet	#100	#200
Jet needle: #1, 4	OBEMP	OBFHM with clip: 4th groove from top
#2, 3	OBFMP	OBFHM with clip: 4th groove from top
Slow jet	#42	#60
Pilot screw	1 5/8 turns out	0 (Closed)
Slow air jet	#120	1 1/2 turns out (Air screw)
Starter jet	#55	←--
Service fuel level	3.0 mm above fuel level line	←--
Float height	9.0 mm	←--
Throttle switch		Not needed
Accelerator pump		Fuel flow rate is increased.
Float bowl		Bolt is installed on bowl for Main Jet replacement.

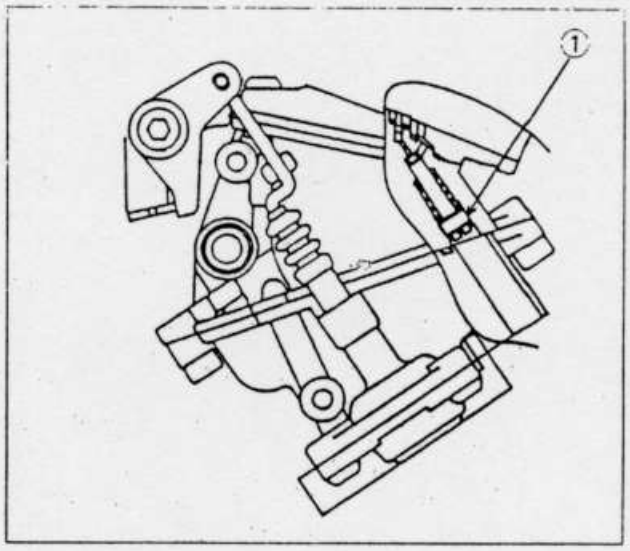
Idle Speed Adjustment

●Turn the adjusting screw in or out to obtain suitable engine revolution.

Turn Clockwise : increase engine revolution

Turn Counterclockwise :

decrease engine revolution



1. Pilot Screw

Adjustment of Idle Fuel/Air Mixture Ratio

●Turn the pilot screw in or out to obtain proper fuel/air mixture at idling.

Turn Clockwise : lean mixture

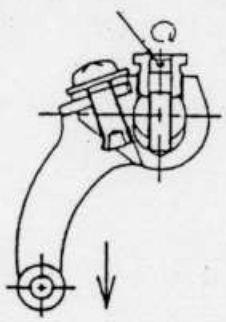
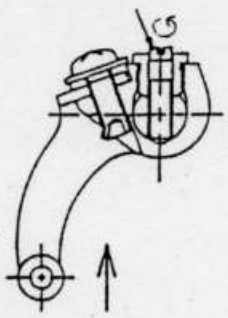
Turn Counterclockwise : rich mixture

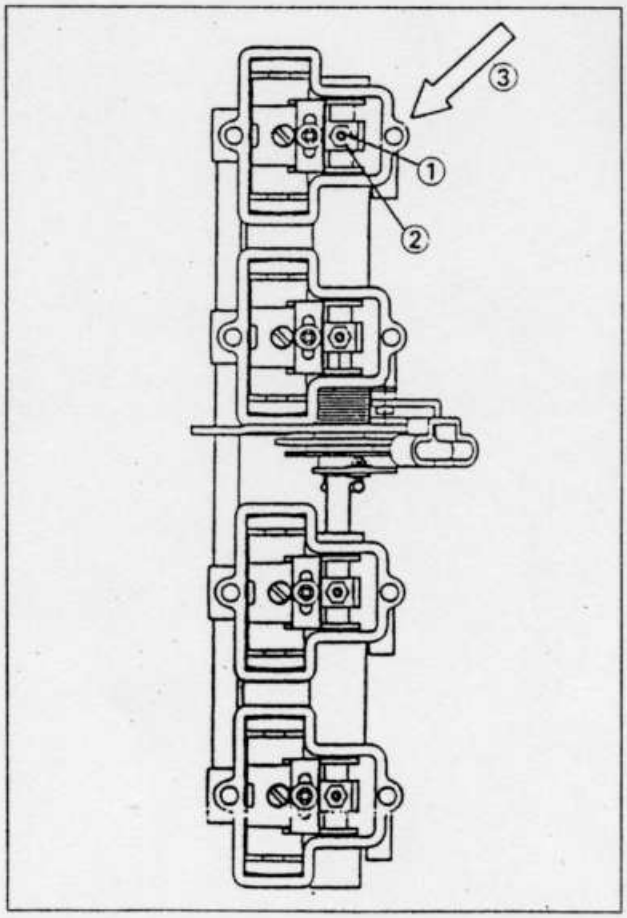
A proper fuel/air mixture ratio can be obtained by using CO meter.

Initial Synchronization

If engine idling is especially rough , it may be necessary to synchronize the throttle valves with synchronization screw and nut before making the idling adjustment.

Function

Synchronization Screw	Synchronization Screw
	
Screw Position: Turn the synchro-zation screw clockwise	**Screw Position:** Turn the synchro-zation screw counterclockwise.
Situation: The throttle valve comes down.	**Situation:** The throttle valve comes up.



1. Synchronization Screw 3. Master Carburetor
2. Synchronization Nut

There are two ways to obtain initial synchronization. Choose one of the following two methods.

(1) Measure the carburetor intake vacuum. If the difference in vacuum readings between any two cylinder is greater than 2 cm Hg reset synchronization screw.

(2) Inspect throttle valve clearance of all four carburetors. If the clearance between the throttle valve and the bottom of carburetor is different, adjust the throttle level.

Procedure

(1) #4 Master Carburetor

#4 synchronization screw should not be adjusted since this screw is adjusted at the factory as a master carburetor.

If the idle adjustment is needed, adjust it with the throttle stop screw.

(2) #1, #2, #3 carburetors

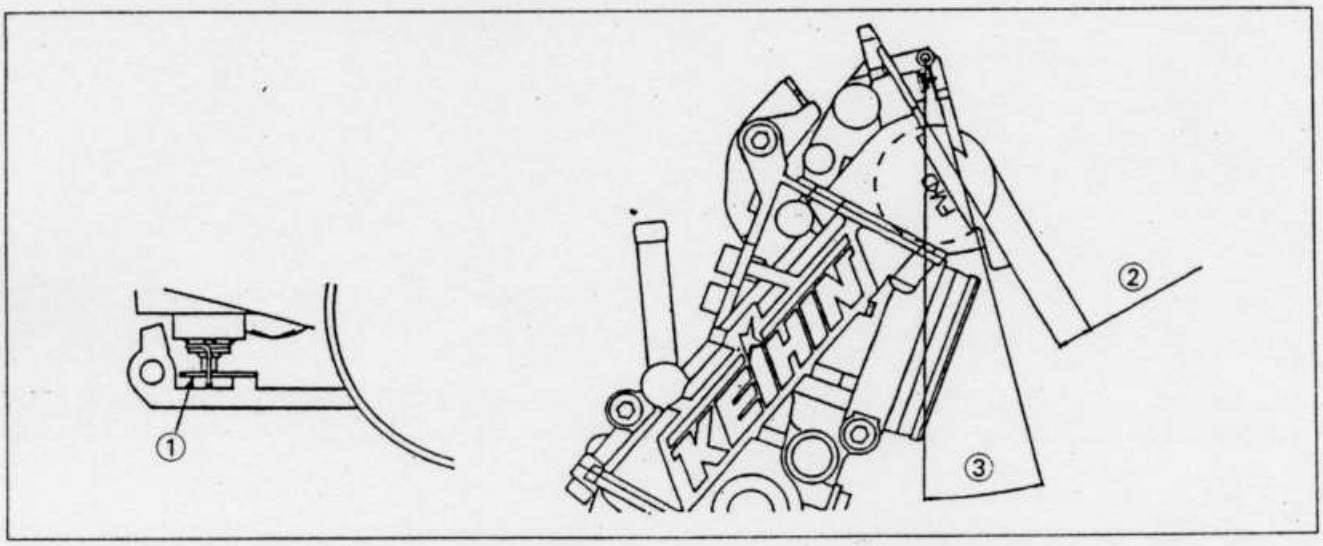
Adjust the idle speed with the synchronization screw on each carburetor.

If the throttle valves of #1, #2 and #3 are positioned too low, the throttle stop screw on #4 carburetor will not be effected.

Float Height

With the carburetors inclined as shown, measure the float height.

If the measurement is out of specification, adjust it by bending the tongue on the float arm.



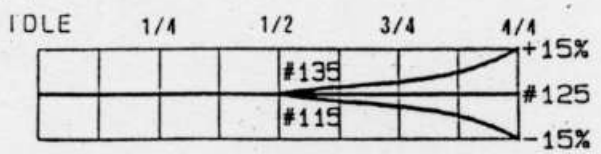
1. Tongue 2. Float Height 3. Approx. 15 degrees

Working Range of Each Carburetor Component

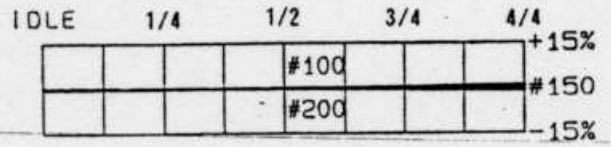
Carburetor setting changes are made by changing or adjusting the following carburetor components.

The following components, the jet needle, main jet and slow jet, regulate the flow of fuel; main air jet, slow air jet, and pilot screw regulate the flow of air. The following charts indicate the working range of each components.

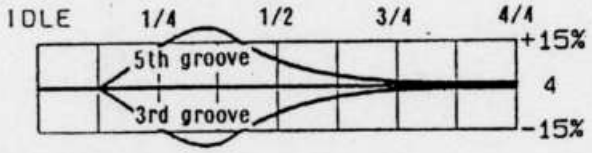
(1) Main Jet



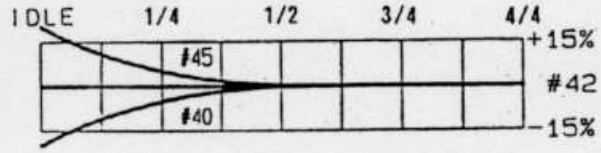
(2) Main Air Jet



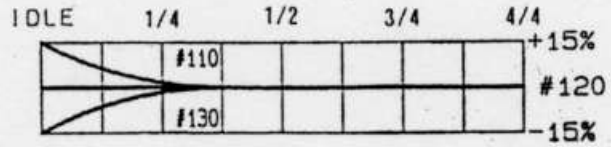
(3) Jet Needle (with groove)



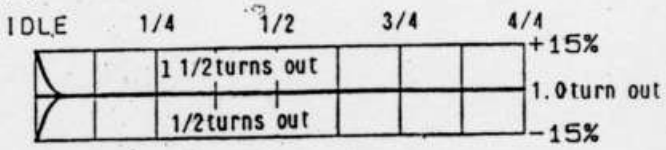
(4) Slow Jet



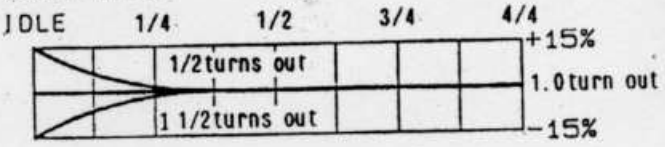
(5) Slow Air Jet



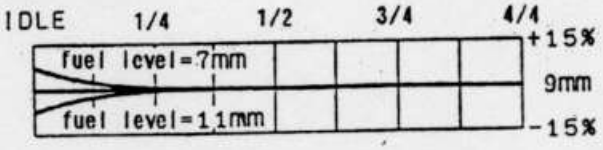
(6) Pilot Screw



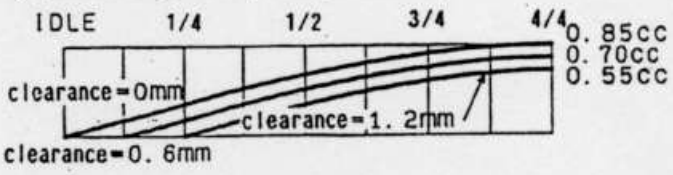
(7) Air Screw



(8) Fuel Level



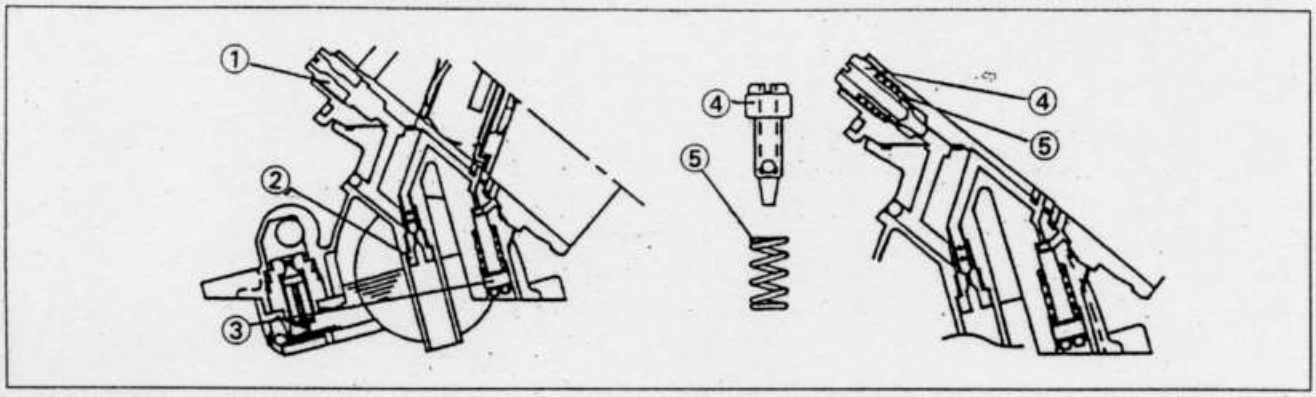
(9) Accelerator Pump Output Timing



Pilot System Setting Parts

- Replace the slow jet with the kit.
- Replace the slow air jet with the kit air screw and spring.

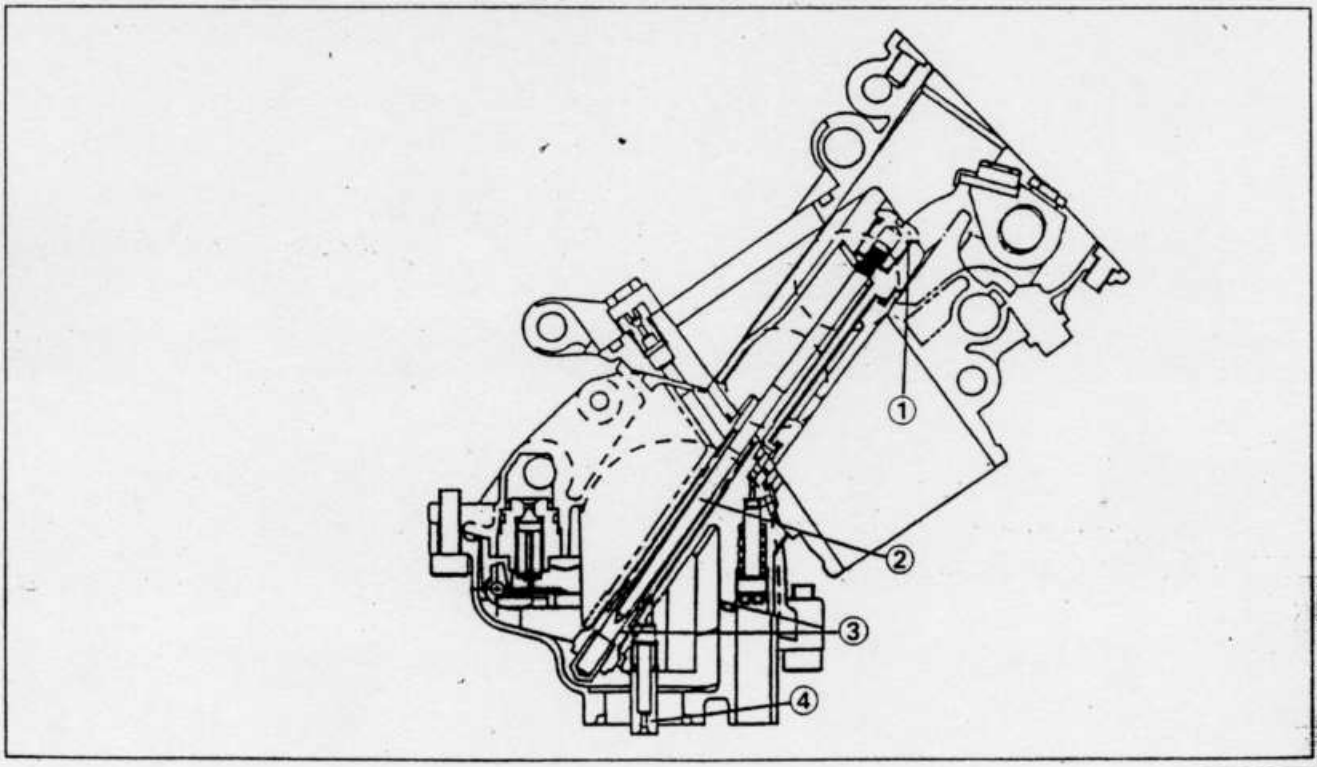
Original Carburetor **Kit Carburetor**



1. Slow Air Jet
2. Slow Jet
3. Pilot Screw
4. Air Screw
5. Spring

Main System Setting Parts

- Replace the main air jet, main jet, and jet needle with each kit.



1. Needle Set Screw
2. Jet Needle
3. Needle Jet
4. Main Jet

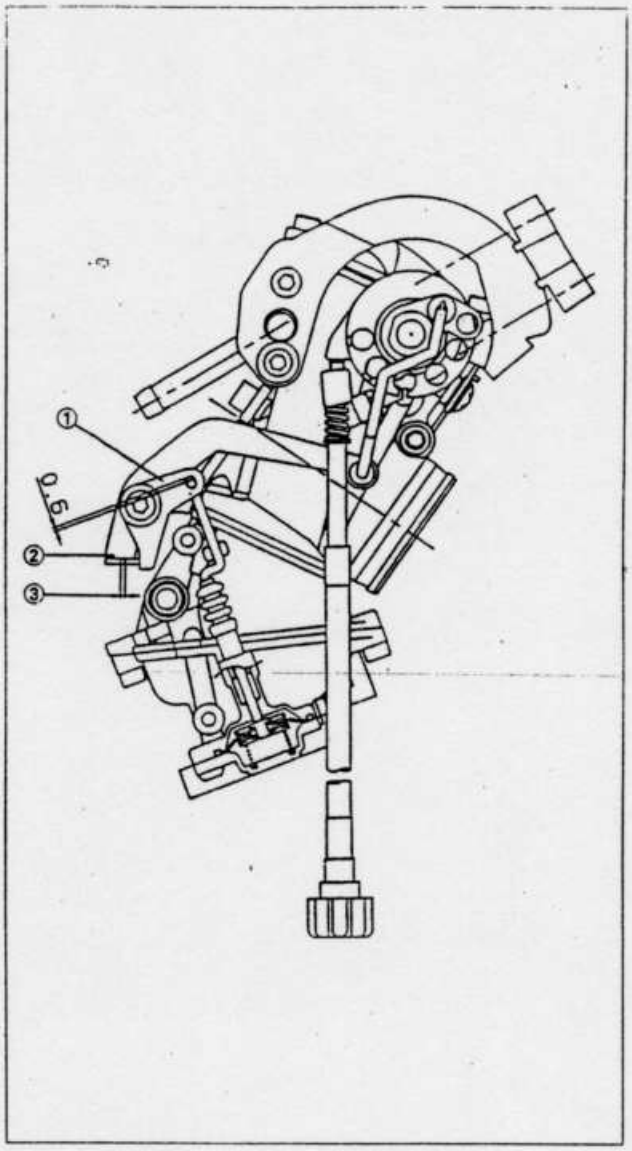
Accelerator Pump Adjustment

The fuel output timing of fuel pump can be changed by changing clearance between pump rod and link lever A.

The link lever standard clearance is 0.6 mm.

Decreasing the clearance makes faster the output timing and increasing it makes slow the timing.

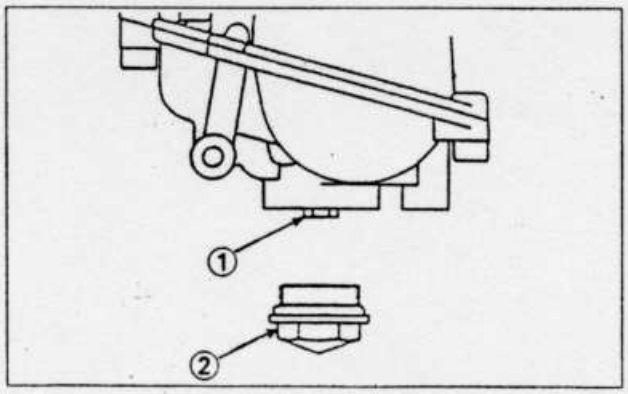
The clearance can be changed by getting wider or narrower the link lever B opening.



1. Link Lever A
2. Link Lever B
3. Link Lever B Opening

Main Jet (MJ) Replacement

(1) Remove the holding bolt at the lower part of the float bowl.
(2) The top of the main jet can be seen. Remove it with a wrench.
(3) Installation is reverse of the removal.



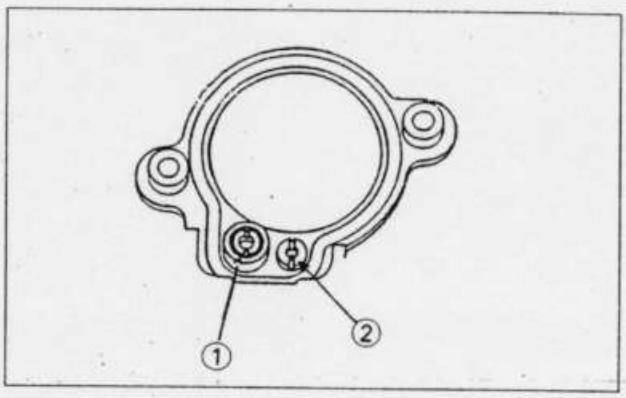
1. Main Jet
2. Holding Bolt

Jet Needle (JN)

(1) Remove the carburetor top cover.
(2) With the throttle grip fully opened, unscrew the jet needle set screw with a minus screw driver.
(3) Pull out the jet needle.
(4) Installation is reverse of the removal.

Main Air Jet, Slow Air Jet (MAJ, SAJ)

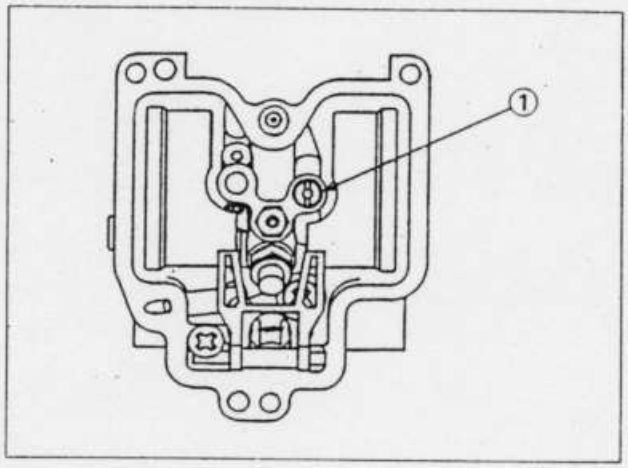
These are installed in front part of the carburetor intake port. Be careful not to take the main air jet for slow air jet.



1. Slow Air Jet 2. Main Air Jet

Slow Jet (SJ)

(1) Remove all four float bowls with fuel hoses connected.
(2) Remove the slow jet with minus screwdriver.
(3) Installation is reverse of the removal.
(4) Make sure that the O-ring is firmly seated in the groove.

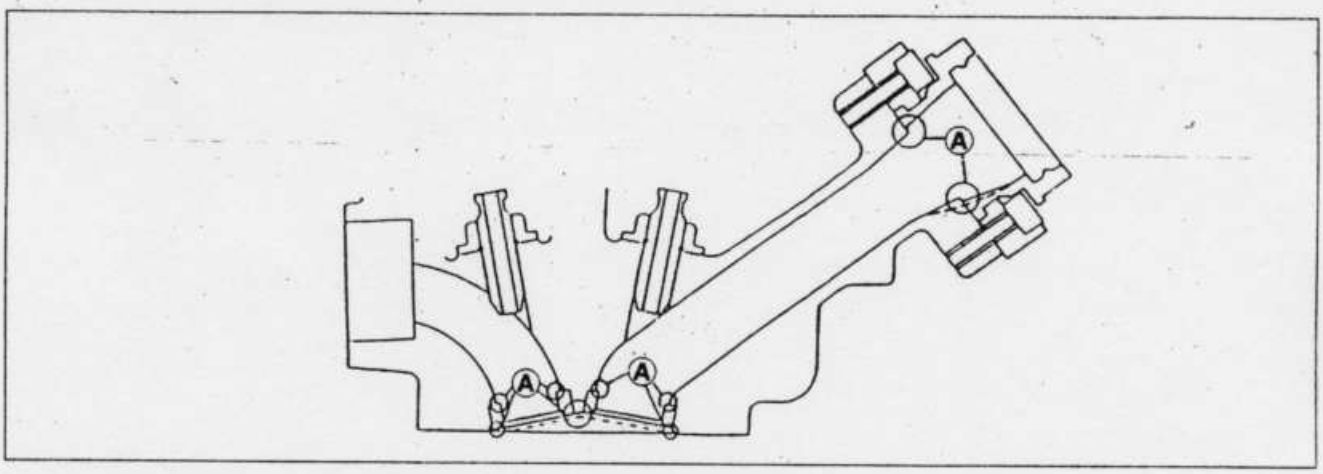


1. Slow Jet

Engine Parts Installation

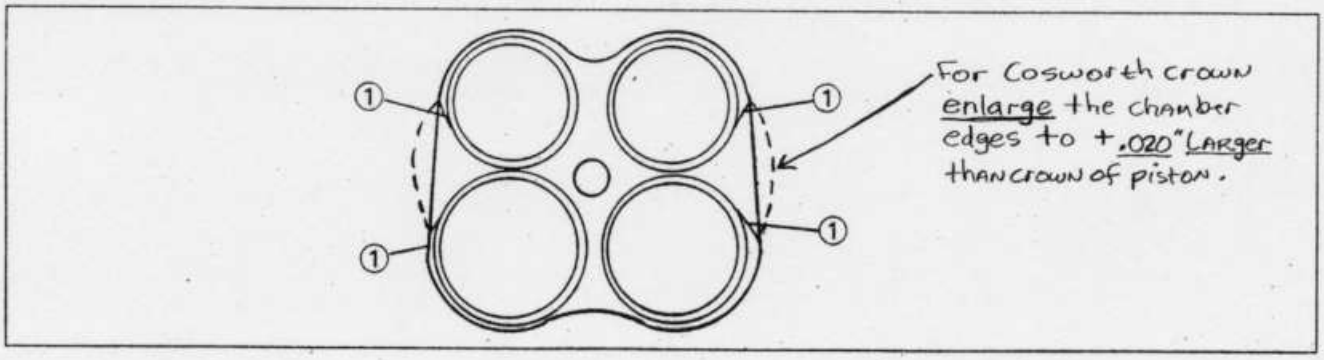
Cylinder Head:

- Grind off and Smooth any stepped portion in the following area.
  - Inside of the intake port
  - Inside of the exhaust port
  - Mating surface between the valve seat and ports
  - Mating surface between the carburetor holder and inlet port
- Chamfer the machining edge of the cylinder head where the valve seat is installed, also smooth the dome of the combustion chamber.
- Use the following tools for these cylinder head modifications.
  - Hand Grinder
  - Oil stone for eliminating any sharp edge
  - Emery cloth for smooth any shapes as final process

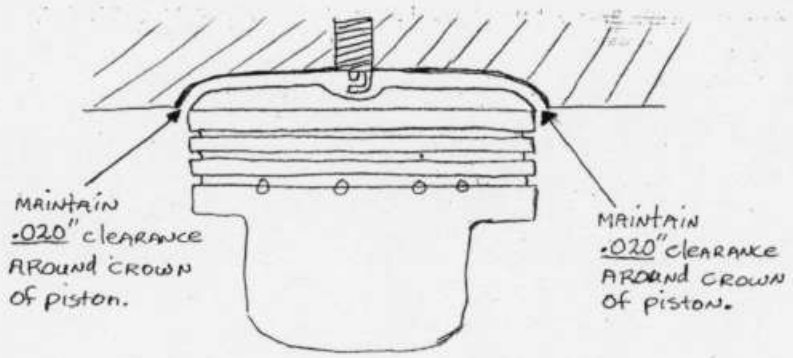


A : Stepped Portions – – – : Combustion Chamber Dome

- The combustion chambers are modified by cutting work but the edges shown must be hand finished for smooth corner.



1. Edges (4)



Valves:

Replace the valves with the kit parts.

The original part can be used as it is. But there are the following difference between the original parts and kit parts.

- Changed the valve head angle to reduce its weight.
- Flatten the valve head surface to increase compression ratio. This valve matches the shape of the combustion chamber well.

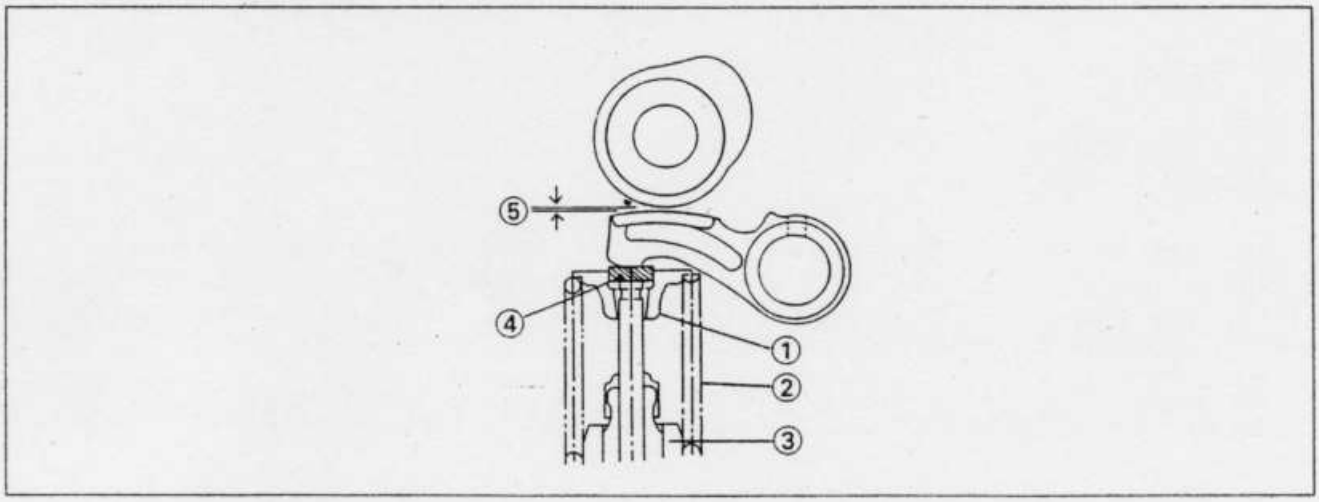
Replace the valve spring, spring sheet, and spring retainer with the kit parts.

The '92 kit valve spring has rather reliable durability than '91 kit one. This valve spring must be used whenever the '92 kit igniter is used. ID mark of this valve is red color.

- The spring is a single spring. Install the spring so that the closed coil end is facing toward the valve seat down wards.
- The retainer is made of an aluminum forging. This reduces the inertial mass of the valve train .
- Check the valve clearance using the thickness gauge. If the clearance is out of the limit, change the shim and adjust it. (Measure the clearance when the engine is cool.)
- Measure the clearance when the cam lobe top is opposite side of the rocker arm.
- To prevent engine trouble, adjust the valve clearance within the specified value. However you can get best performance when the intake is 0.21 mm and exhaust is 0.25 mm.

Valve Clearance

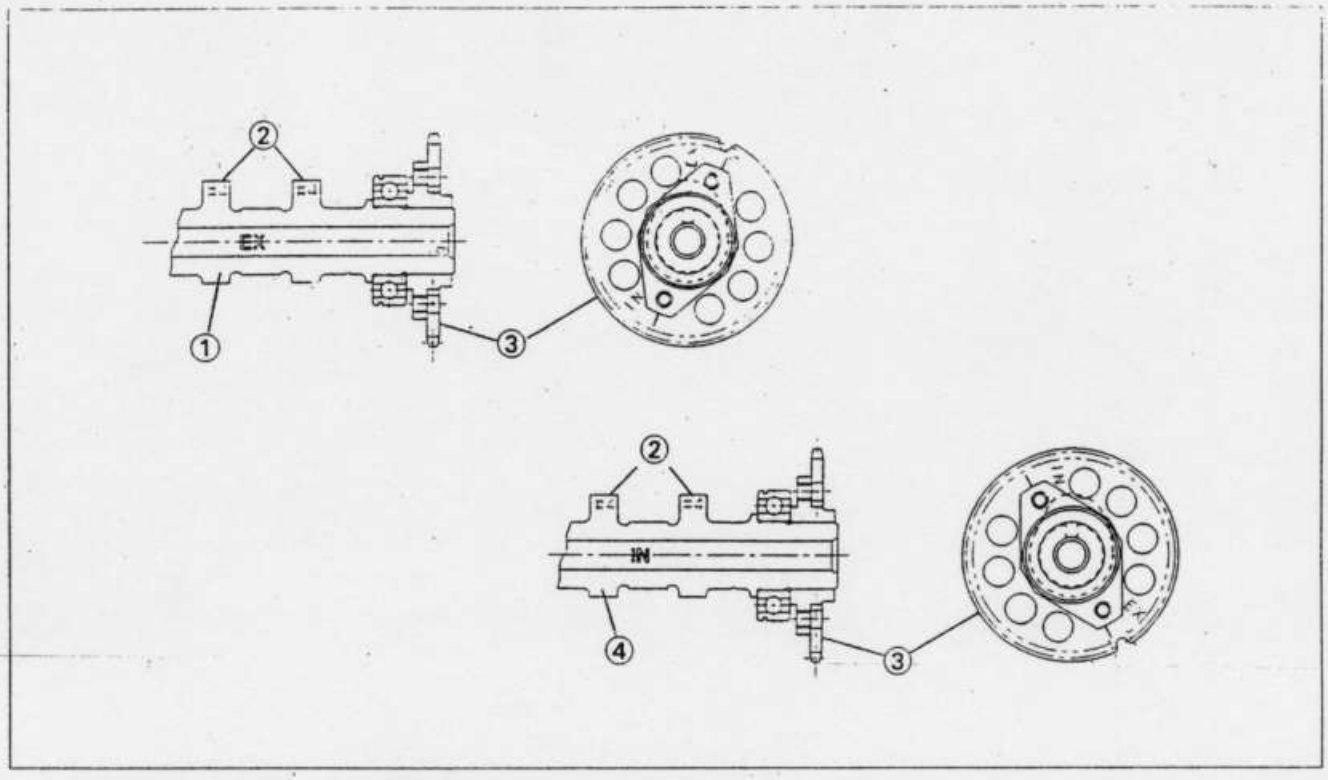
Intake : 0.16 ~ 0.21mm
Exhaust : 0.21 ~ 0.25 mm



1. Spring Retainer: 12009-1071
2. Spring: 49078-1118
3. Spring Seat: 16007-1165
4. Shim (STD part)
5. Clearance

Camshaft:

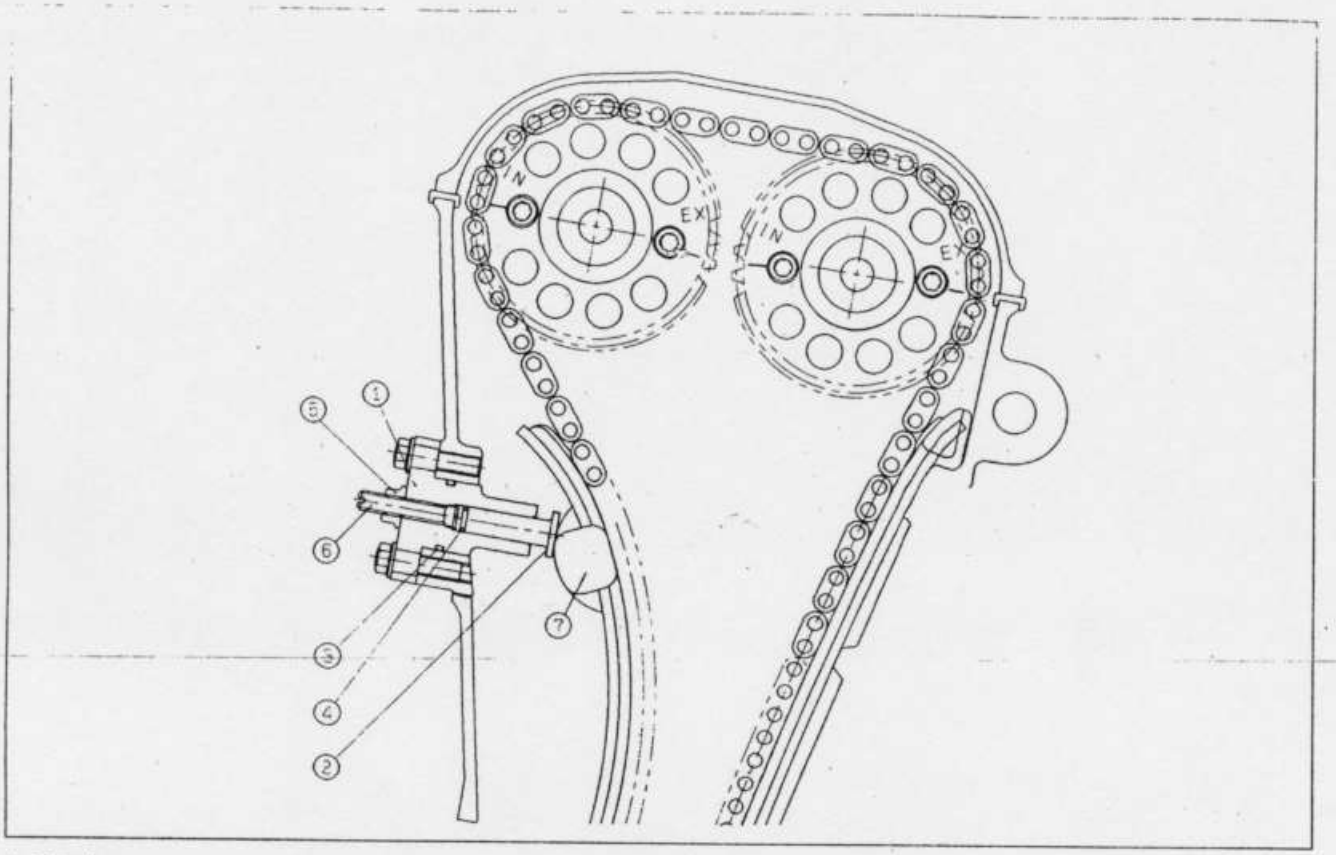
- The kit camshaft has bigger valve lifter and wider valve timing than the original one.
- Replace the camshaft sprocket for the kit parts. The intake camshaft sprocket is the same as the exhaust camshaft sprocket. It has long holes and is bolted on the camshaft so as to be able to adjust the valve timing.
- Install the camshaft as follows.
- The illustrations shows camshaft sprockets positions when the top section of both exhaust and inlet #4 cam lobe is upward.
- Install the exhaust camshaft sprocket so that the EX mark is top.
- Install the inlet camshaft sprocket so that the IN mark is top.



1. Exhaust Camshaft 2. Inlet Camshaft 3. Sprocket 4. No. 4 Cam

Camshaft Chain Tensioner:

- ●Replace the camshaft chain tensioner with the kit to increase durability of tensioner.
- ●Apply the engine oil to the tensioner rod, O-ring and adjusting screw, insert them into the tensioner body.
- ○Check to see that the tensioner rod turns freely in the body, if not, polish the tensioner rod or fine the female threads in the adjusting screw hole with a tap (Diameter x Pitch = 6 mm x 1.0 mm).
- ●Install the tensioner on the cylinder block with the tensioner rod is fully pushed back.
- ●Turn the adjusting screw in with a screw driver until it becomes hard to turn.
- ●Turn the crankshaft clockwise several times and then screw the adjusting screw in again to take up any gap and tighten the locknut.
- ○Never forward the tensioner rod forcibly, this will increase mechanical loss of the tensioner and may damage to the chain guide.
- ○The camshaft tensioner must be adjusted at every race.



1. Tensioner
2. Tensioner Rod
3. O-ring
4. O-ring
5. Nut
6. Adjusting Screw
7. Chain Guide

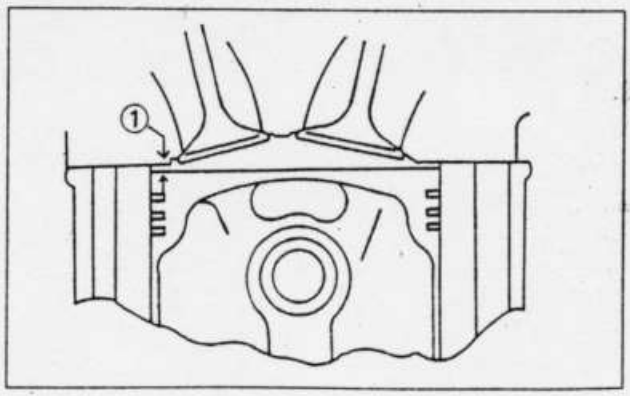
Piston:

- ●The shape of the piston head is changed to set the compression ratio 13.0.
- ○The high compression ratio causes engine knocking. Use the high octane number gasoline (racing gasoline; ex. Shell AV-100 etc.) for preventing engine knocking.
- ●Use the original piston rings and piston pins.
- ●When replacing for the kit piston, inspect the piston squish.
- ○Position the piston at the Top Dead Center, and put the small piece of the solder on the shoulder of the piston. Install the cylinder head gasket and cylinder head, and tighten the head bolt with the specified torque. The thickness of the collapse solder is the size of the squish.
- ○Remove the cylinder head and measure the thickness of solder.

Squish Measurement

0.7 ~ 0.85 mm

- ○The most preferable squish measurement is 0.7 mm.
- ○When the squish is less than 0.7 mm, replace the head gasket with a kit (P/No. 11004-1243, ID mark "70") and measure the squish again, if the squish is still under the specification, smooth the piston shoulder.
- ○When the squish is more than 0.7 mm, replace the head gasket with a kit (P/No. 11004-1242 ID mark "60") and measure the equish again, if the squish is still over 0.7 mm, smooth the cylinder top surface.

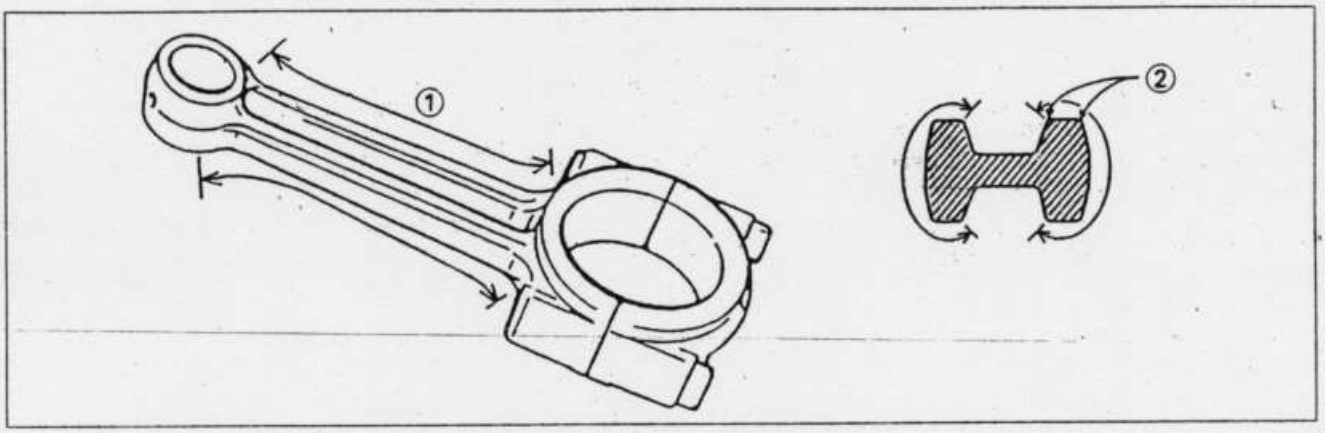


1. Squish

Connecting Rod:

To increase durability, further increase the inertial mass and keep balance between each cylinder, it had better modify the connecting rod as follows.

- When removing the connecting rod from the crankshaft, write the number of the cylinder on it, and keep it with the metal and connecting rod cap.
- The connecting rod body and it's cap are machined together at the factory in the assembled state, so they must be replaced as a set.
- The connecting rod weight marks on both the body and cap should be located on the same side.
- Using the oil stone (about #120), grind the connecting rod side faces for smooth surfaces.



1. Polishing Direction and Area (Move the oil stone in this direction)
2. Chamfer Edges

- Grind the connecting rods so that the difference of each connecting rod's weight must be within 4 g.
- Polish the connecting rod side faces and bosses with the buffing machine or oil stone (about #200 ~ #300).

A. Connecting Rod Big end Clearance
Making the big end clearance larger than the standard specification.
Larger clearance will reduce the mechanical loss and will improve higher the engine performance.

- Measure the clearance using a plastigauge.

Connecting Rod Big End Clearance

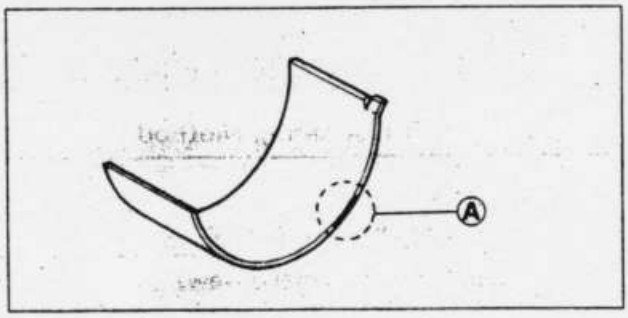
Original Machine:	**38 ~ 65 micron**
Racing Machine:	**50 ~ 70 micron**

- The clearance can be changed by replacing the big end bearing insert with one type of thinner one as shown.

Big End Bearing Insert Thickness

P/No.	Color Size Mark	Thickness
92028-1623	Blue	1.485 ~ 1.490 mm
92028-1624	Black	1.480 ~ 1.485 mm
92028-1625	Brown	1.475 ~ 1.480 mm

- In case of the thinner one has been installed on the original machine, use it as it is. Reboring of the big end does not required.



A. Size Color Mark

Connecting Rod Bolts/Nuts Tightening (Plastic Region):

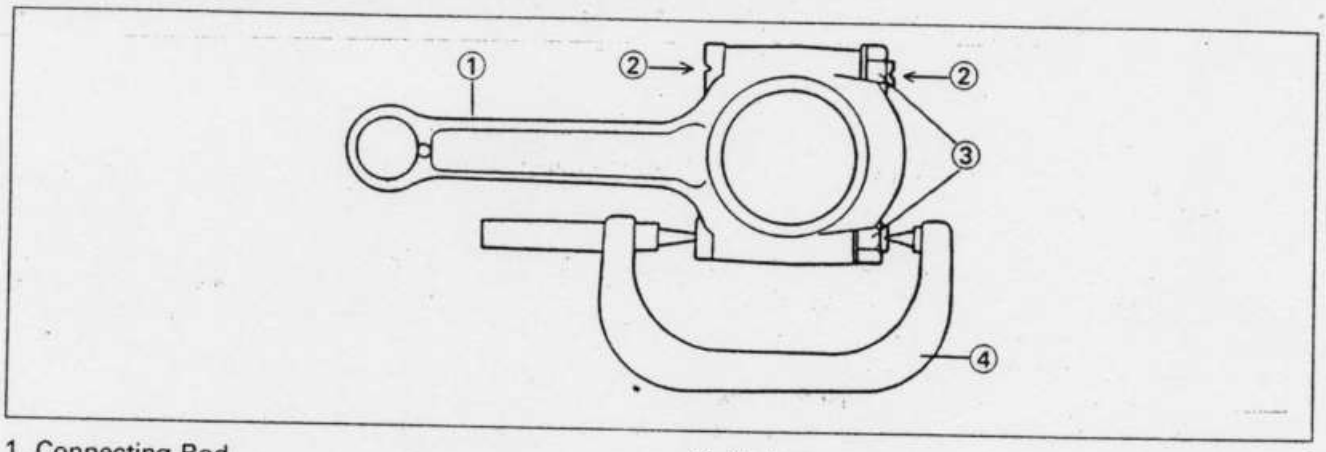
The connecting rod big end is bolted using the "plastic region fastening method" as introduced on this machine.

This method precisely achieves the needed clamping force without exceeding it unnecessarily, allowing the use of thinner, lighter bolts further decreasing connecting rod weight.

- There are two types of the plastic region fastening. One is a bolt length measurement method and other is a tightening torque method. Observe one of the following two but the bolt length measurement method is preferable.
- There are two values of the nut tightening torque as shown, select item according to your bolt conditions.
- Apply a thin coat of a molybdenum disulfide grease to seated surface of the connecting rod bolts and nuts.

(1) Bolt Length Measurement Method

- Install the connecting rod bolts in the connecting rod.
- Tighten the connecting rod nut temporarily.
- Make indent on both bolt head and bolt tip.
- Set a point micrometer as shown.
- Tighten the big end cap nuts until the bolt elongation is come to specified length as shown. This is a more reliable and preferable way to tighten the big end cap nuts.



1. Connecting Rod
2. Indent with a punch.
3. Nuts
4. Fit micrometer pins onto dents.

(2) Tightening Torque Method

- First, tighten the nuts to the specified torque, and then tighten the nuts 120° more.

⚠CAUTION

Plastic Region bolts are used, so, in case of disassembling connecting rod, replace bolts and nuts with new ones.
If you intend to reuse bolts and nuts, tighten then with different tightening torque as shown table.

Connecting Rod Tightening Method

Connecting rod bolt/nut condition	Tightening Method	
	Bolt Elongation	Tightening Torque
Non-used bolt and nut (Brand New)	0.3 mm ~ 0.32 mm	2.6 kg-m plus 120°
Ones mounted on newly obtained connecting rod assembly	0.26 mm ~ 0.28 mm	1.8 kg-m plus 120°
Ones mounted on stock machine	0.26 mm ~ 0.28 mm	1.8 kg-m plus 120°

Connecting Rod Bolt and Nut Useful Time Limit

Connecting Rod Bolt/Nut Condition	Useful Time Limit		
	1	2	3
Ones obtained only as single nut	possible	possible	possible
Ones mounted on newly obtained connecting rod assembly	possible	possible	impossible
Ones mounted on stock machine	impossible (exchange them for new ones)		

Transmission:

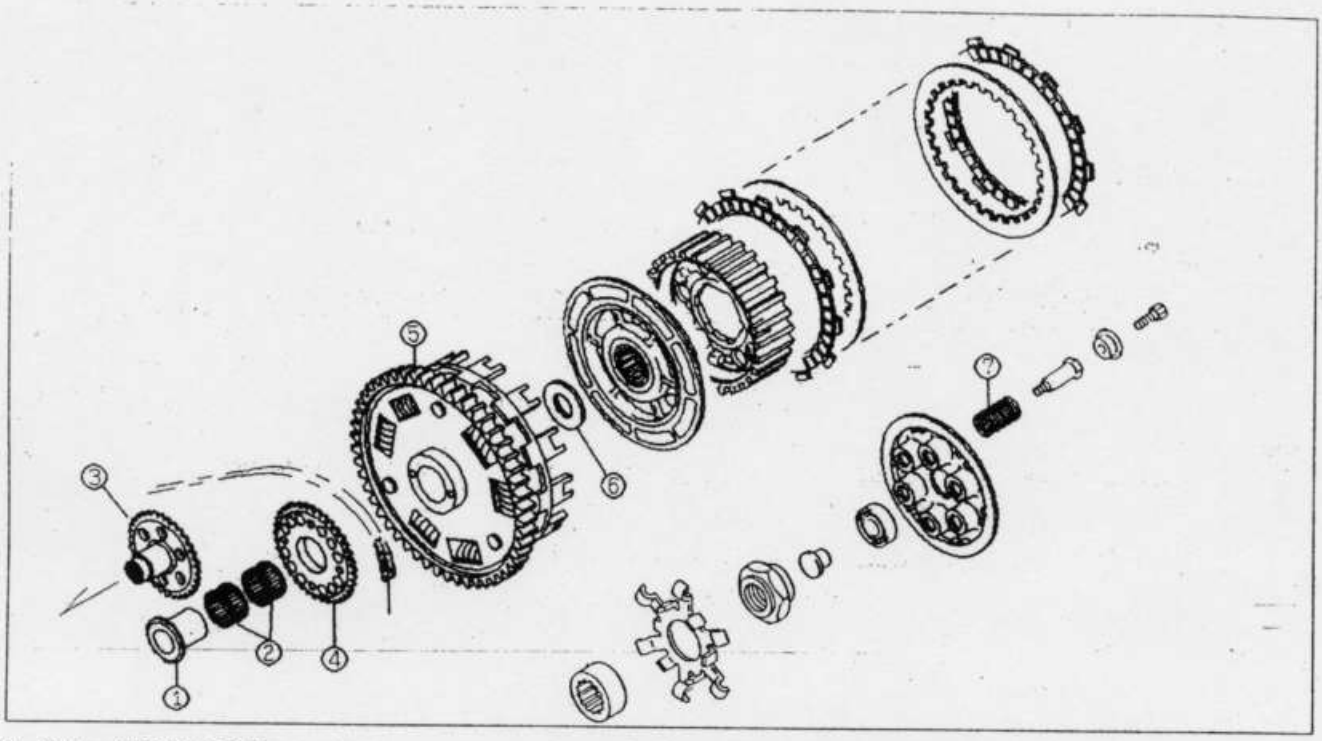
The original model has been mounted the cross ratio transmission so that it can be used in a race. Besides, You can select the following gears as optional parts.

	Input	Output (Ref.)	Gear Ratio	Stock Gear Ratio
4th	13260-1268	13260-1271	1.500 (33/22)	1.409 (31/22)
5th	13260-1269	13260-1272	1.391 (32/23)	1.292 (31/24)
Top	13260-1270	13260-1273	1.292 (31/24)	1.200 (30/25)

Clutch:

Replace the clutch housing and clutch spring with the kit parts.

- ● The clutch housing (13095-1254) is provided for the super bike racing and the clutch spring (92081-139) is for all racing use.
- ○ For the super bike racing, use the kit clutch housing, drive shaft sprocket (21053-1060) and oil pump sprocket (12046-1135) as a set. These parts set will lower the oil pump maximum rpm about 27% and reduce mechanical friction loss in the oil pump gear train. For the enduro racing, use the original clutch housing.
- ○ The kit spring tension is up to about 30% and for reliable clutch functioning.



1. Collar: 92143-1579
2. Needle Bearing: 92046-1215
3. Oil Pump Sprocket: 12046-1135
4. Sprocket: 21053-1060
5. Clutch Housing: 13095-1254
6. Spacer: 92026-1422
7. Clutch Spring: 92081-139

Starter Motor, Alternator and Oil Pump Driven Mechanism (SB):

- Remove the starter motor, alternator and their driven mechanism from the engine since these parts are not needed for the race. For the enduro racing, use either the original alternator or the kit one.
- Replace the oil pump gear train with kit parts.

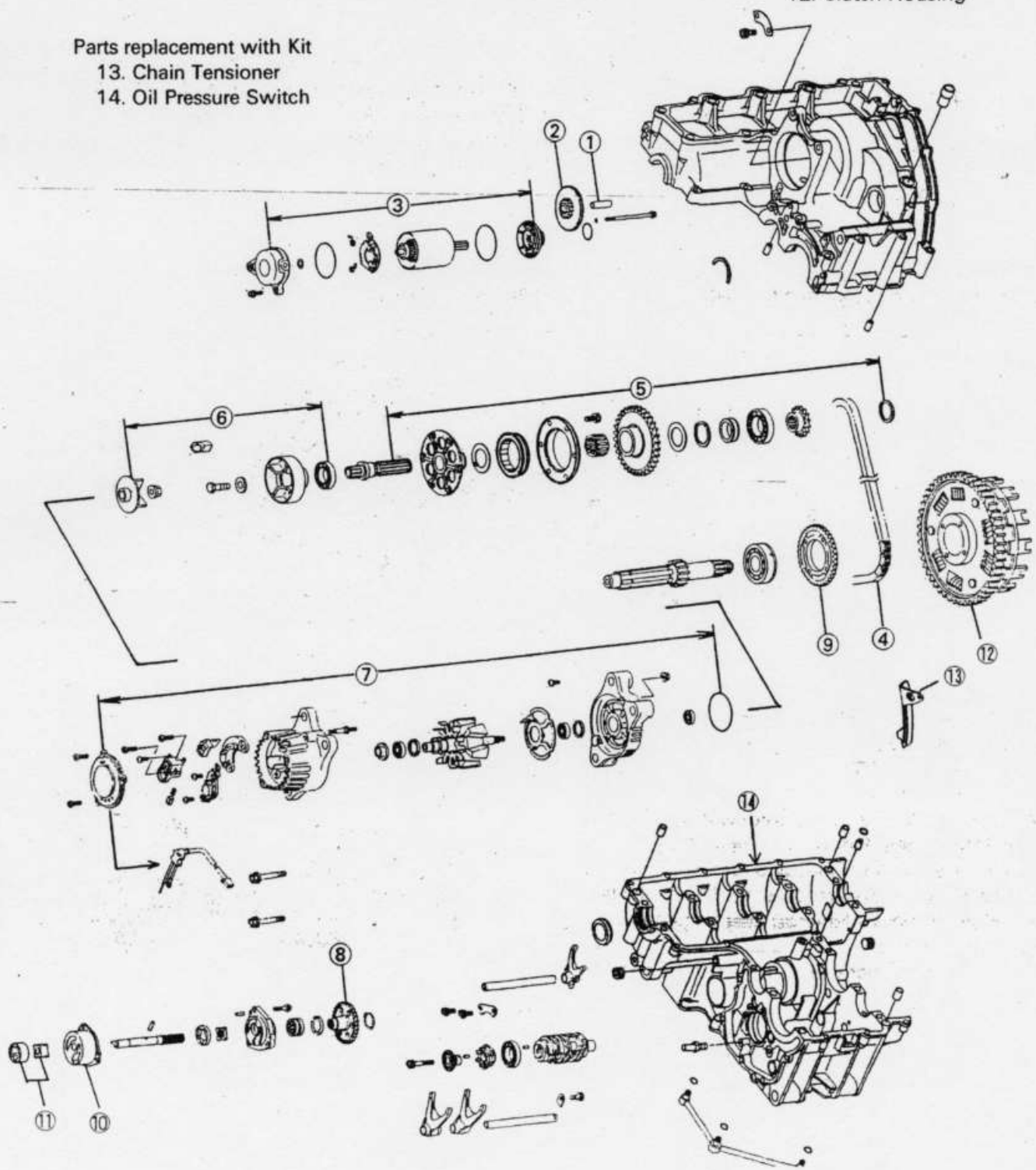
1) Removal Parts

Starter Motor related parts
1. Idle Gear Shaft
2. Idle Gear
3. Starter Motor

Alternator related parts
4. Chain
5. Starter Clutch
6. Coupling
7. Alternator

Oil Pump Driven Mechanism
8. Oil Pump Sprocket
9. Drive Shaft Sprocket
10. Oil Pump Body
11. Oil Pump Rotor
12. Clutch Housing

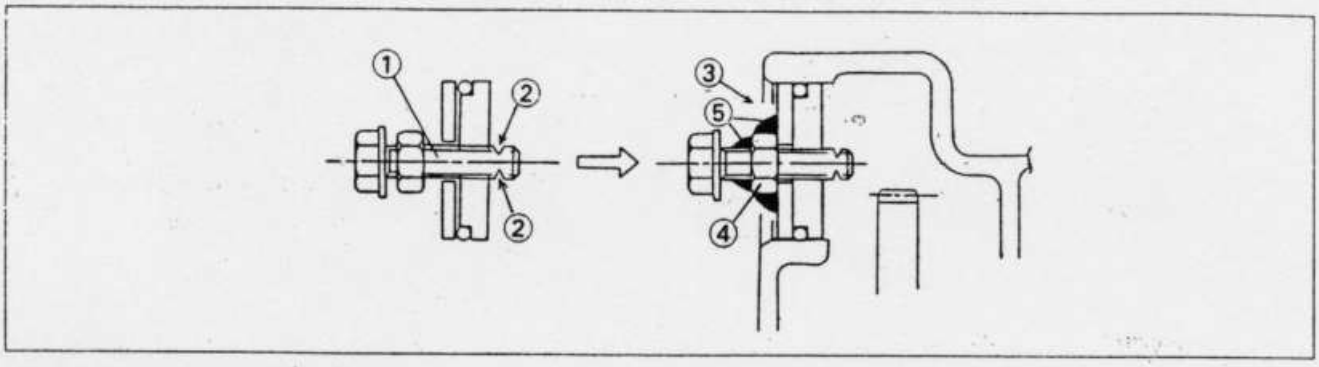
Parts replacement with Kit
13. Chain Tensioner
14. Oil Pressure Switch



2) **Kit Parts Installation:**

(1) Starter Motor Hole Plug

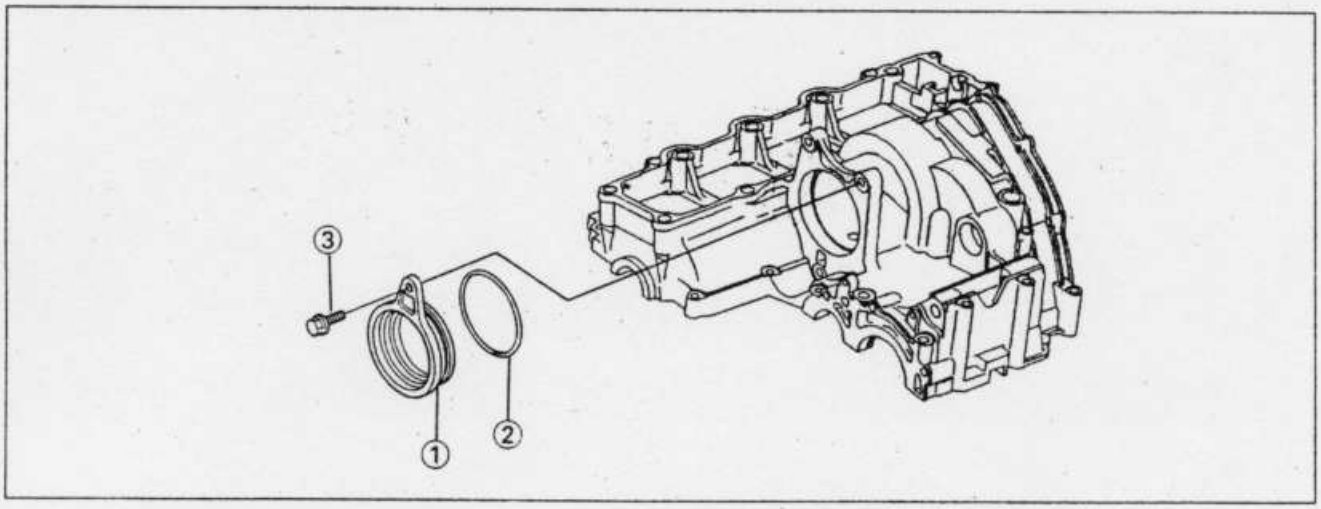
Using the kit parts, plug the hole where the starter motor was mounted on the crankcase.



1. Seal Plug for Starter Motor Hole
   Bolt: 130G0625
   Nut: 312G0600
   O-ring: 92055-1262
   Plug: 92066-1332
   Plug: 92066-1333
2. Stake the seal plug to prevent it from coming out.
3. Starter Motor Hole
4. Tighten the nut after seal plug installation.
5. Apply liquid gasket.

(2) Alternator Hole Plug

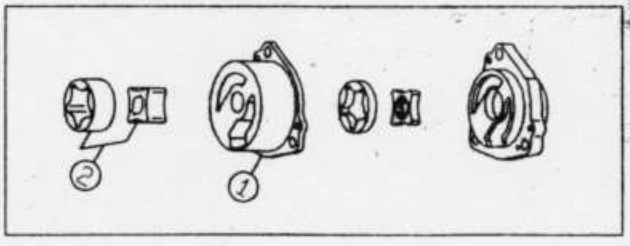
Using the kit parts, plug the hole where the alternator was mounted on the crankcase.



1. Plug: 92066-1363
2. O-ring: 92055-1357
3. Bolt: 132G0820

(3) Oil Pump Body, Rotor

- ●Replace the oil pump body and rotor with kit.
- ●The kit oil pump assy reduces mechanical friction loss of oil pump by lowering oil pressure at high speed engine rpm.
- ○The kit oil pump body and rotor must be used as a set.

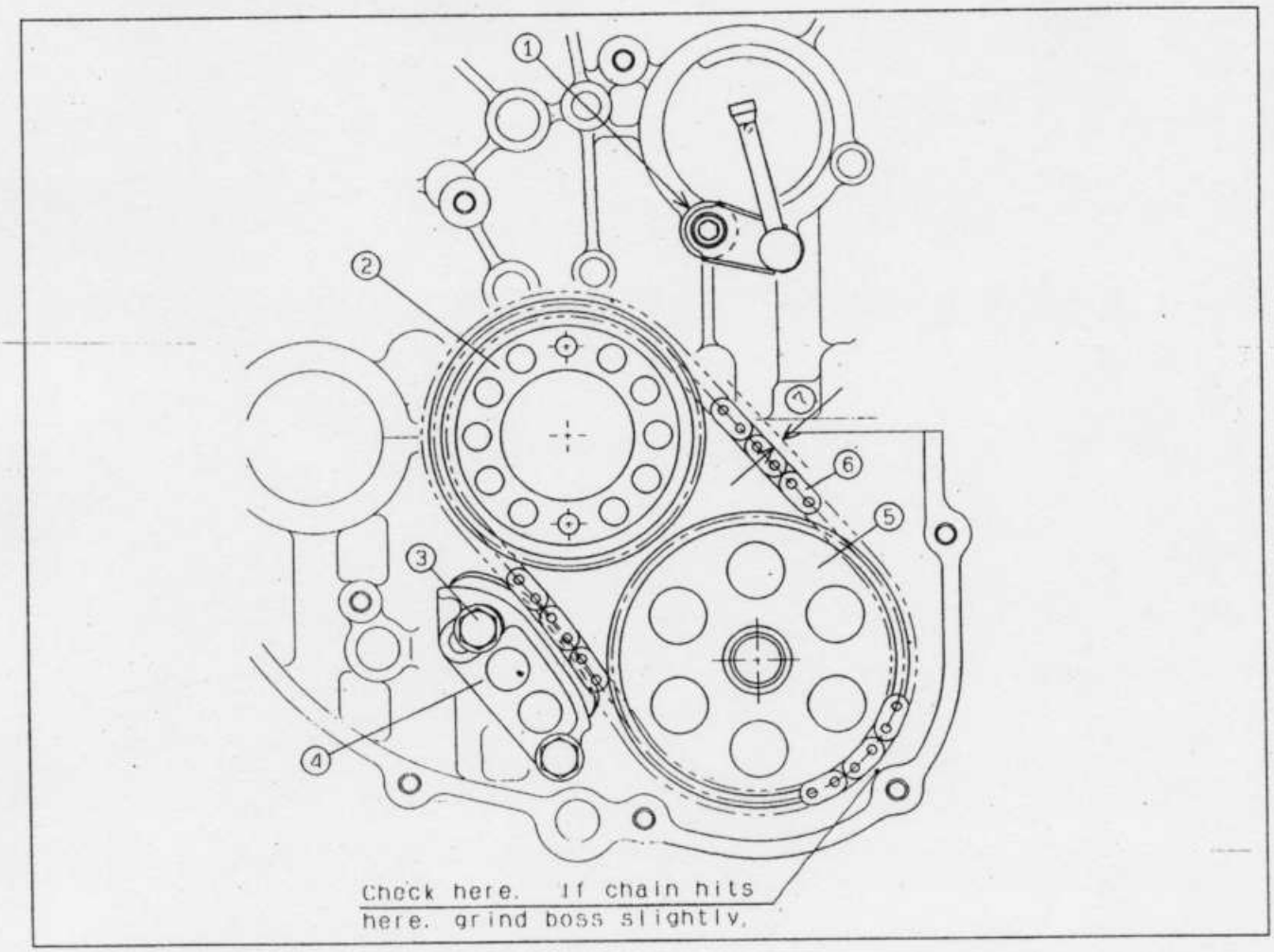


1. Oil Pump Body: 16160-1192
2. Rotor: 16154-1102

(4) Oil Pump Driven Mechanism (SB)

- Replace the oil pump sprocket on the oil pump shaft with a kit sprocket (12046-1135).
- Replace the drive shaft sprocket with a kit sprocket (21053-1060).
- Link the drive shaft sprocket and the oil pump sprocket directly with a kit chain (92057-1343).
- The chain can be installed on any sprockets timing.
- Install a kit chain guide (12053-1302).

Kit Oil Pump Gear Train Installation (SB)



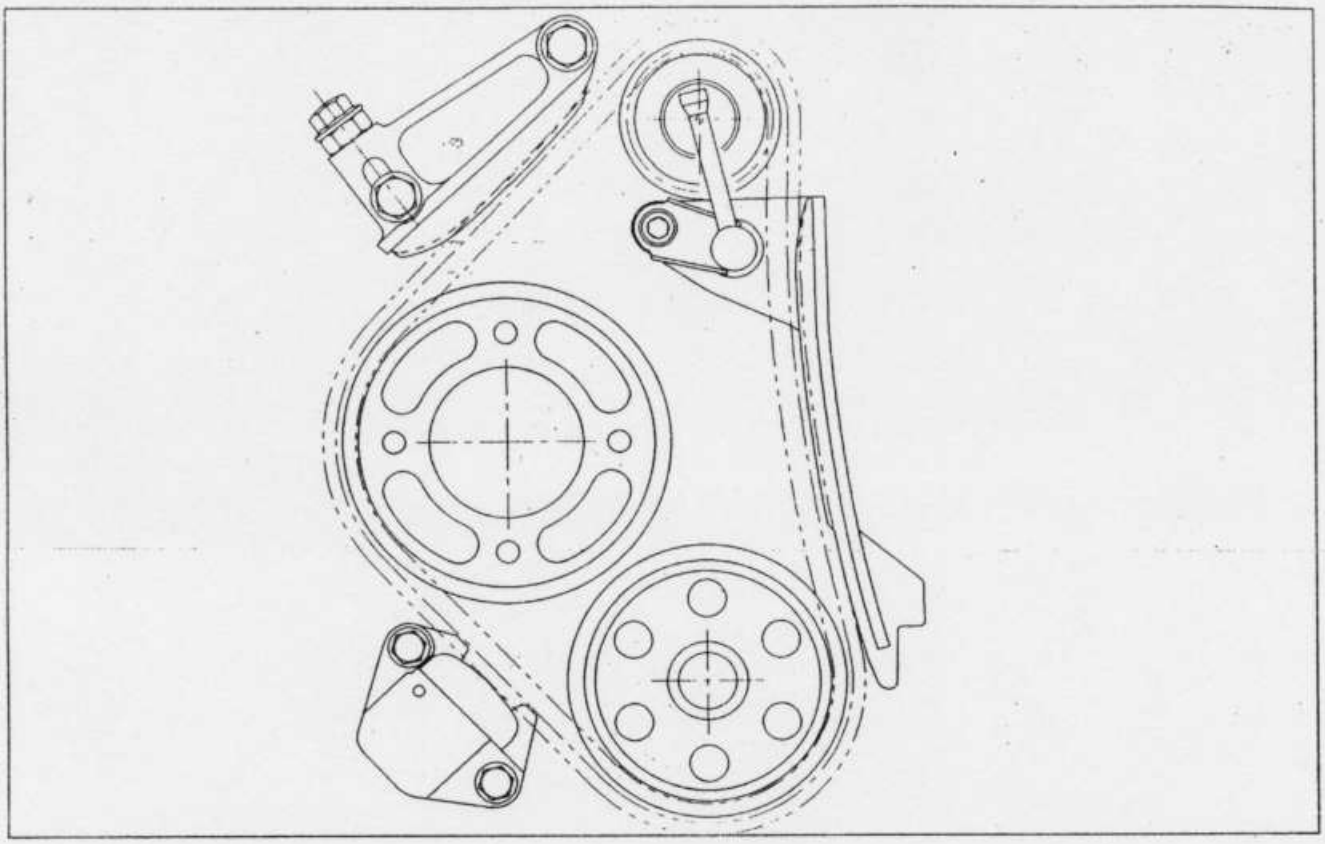
1. Washer (92022-1691):
   Install a washer to fill gap where the original chain guide was installed.
2. Drive Shaft Sprocket (21053-1060)
3. Bolt (130P0630)
4. Chain Guide (12053-1302)
5. Oil Pump Sprocket (12046-1135)
6. Chain (92057-1343)
7. Chain Slack

- Chain slack adjustment
  Install the chain guide (12053-1302) so that the chain slack on the opposite side to the guide is about 3 mm.

○ Periodical chain slack adjustment is not required, check it when the clutch is maintained.

Enduro racing

○ For enduro racing, use the original oil pump gear train as shown.



(5) Alternator (Enduro)

● Use either the set of the original alternator and regulator or the kit ones.

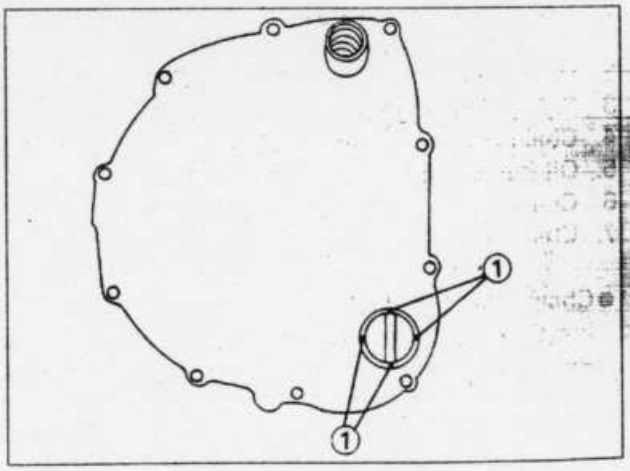
Combination	Alternator	Regulator
1	Original	built in alternator
2	Kit	Kit

(6) Plug

● Install the kit plug (92066-059) on the place where the oil pressure switch was installed.

Oil Level Gauge:

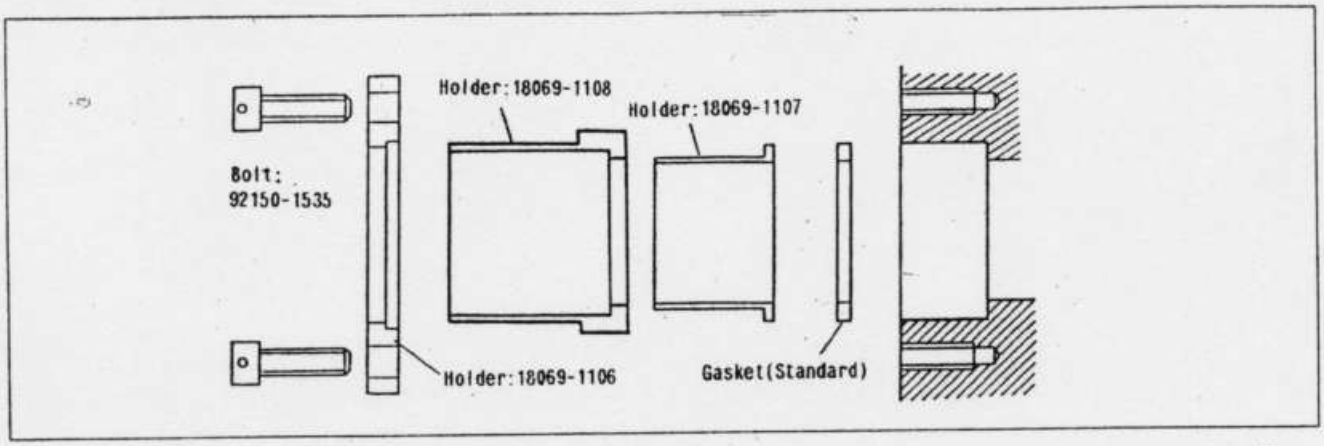
A high pressure inside the crankcase may pull out the oil level gauge. To avoid this, caulking 4 points out side of the oil level gauge with a punch.



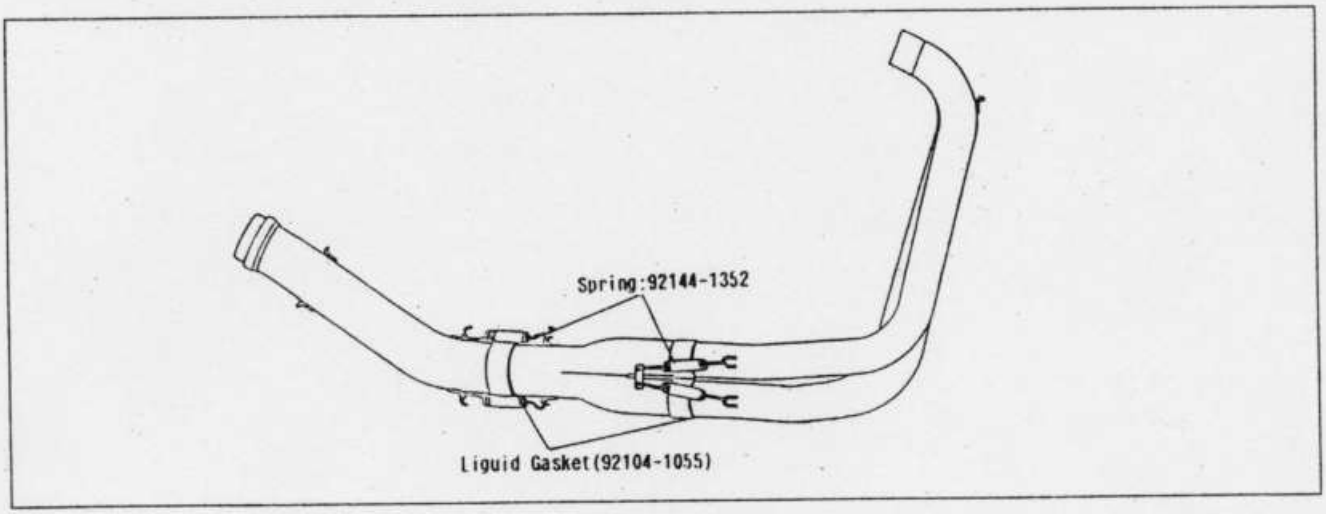
1. Caulk with Punch

Muffler:

- In order to replace the muffler with the kit part, remove the studs of exhaust holder.
- Install the following kit parts on the cylinder.

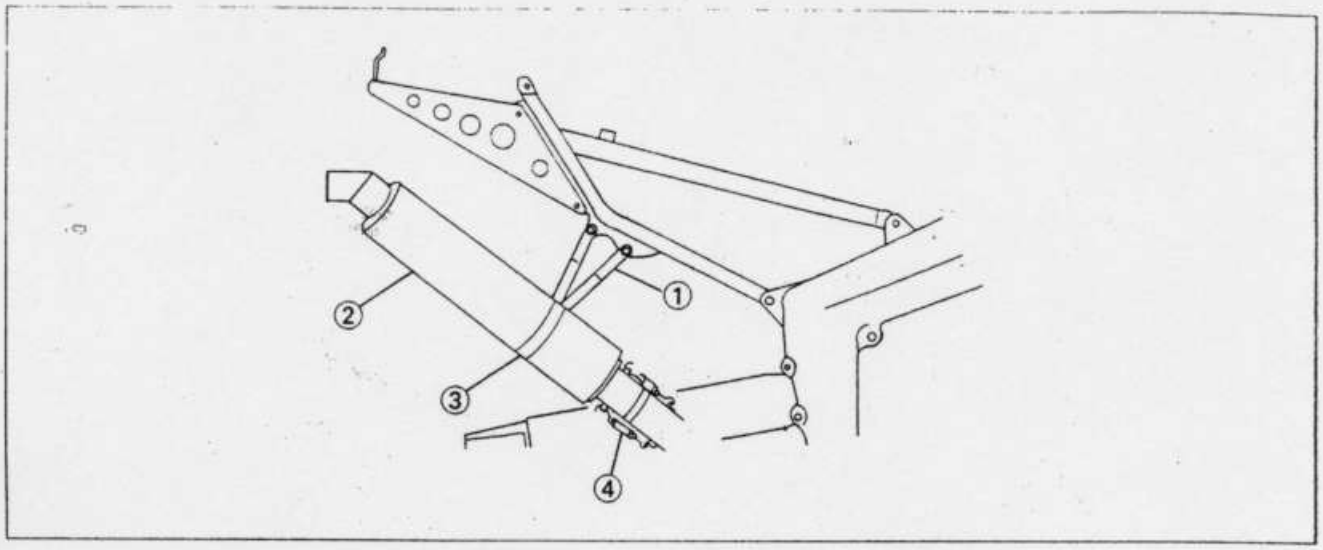


- Connect the kit exhaust pipe and muffler body as shown below.



- Mount the muffler assembly on the frame as shown below.

○ Inspect that the muffler has enough ground clearance when the rider is on the machine with the machine fully bottomed. If you find an abnormal condition from the inspection, modify muffler stay or muffler mounting parts.



1. Muffler Stay: 35011-1562
2. Muffler: 18090-1060
3. Clamp: 92170-1059
4. Spring: 92144-1352

- When running in rainy condition, water entering into the muffler get wet the glass wool. Because this let the sound absorbing efficiency reduce, the exhaust sound level may increase. To avoid this, apply the liquid gasket (black, 92104-1053), before assembling the muffler, to the following fittings.
  Between the exhaust pipe and manifold
  Between the manifold and joint pipe
  Between the joint pipe and silencer
  Also apply the liquid gasket to the circumference of the front and rear baffle plate of the silencer.
- Glass wool for muffler (Optional Part)
  The glass wool is available as an optional part. Replace it when you noticed loud exhaust note due to carbon deposit.

○ Replacement

1) Drill out 8 pieces of the rivet from the muffler with a drill of 4.8 mm to 5.2 mm in diameter.
2) Pull out the tail pipe with a baffle tube from the muffler.
3) Pull out the grass wool from the muffler and replace it with a new wool.
4) Insert the end of baffle tube into the muffler.
5) Connect the tail pipe to the muffler with rivets (92039-1140 or a 4.8 mm rivet in diameter).

Radiator:

Attach plastic board, which is prepared by yourself, on the upper and both sides of the radiator to improve cooling effect.

Original Radiator

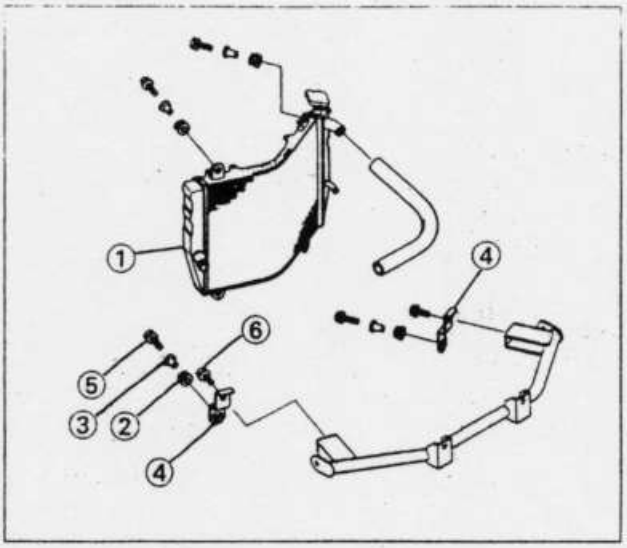
In case the original radiator is used, follow the next steps.

- Remove the thermostat to improve cooling effect.
- Replace the original reservoir tank with the kit (Option: 43078-1121) to meet racing regulation.

Optional Radiator

An optional radiator has increased radiation efficiency by 12% than the original one.

- Follow the procedures shown below for installation.
- Remove the thermostat and it's housing to improve cooling effect.
- Install the original water temperature sensor on the right rear of the radiator.
- Replace the reservoir tank with the kit (Option: 43087-1121) to meet racing regulation.
- Using the kit stay (35011-1593) mount the radiator on the original radiator stay.

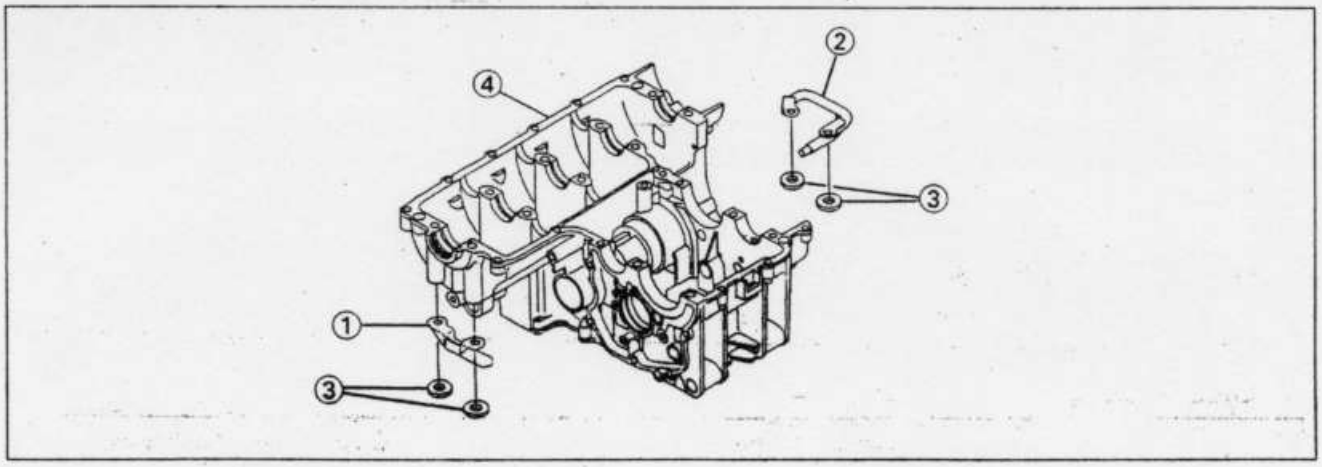


1. Radiator: 39061-1170
2. Damper: 92075-277
3. Collar: 92027-1651
5. Bolt: 130J0620
4. Stay: 35011-1593
6. Bolt: 130J0610

- Using the kit radiator hose (option: 39062-1481) and original lower radiator hose, route them to the engine.
  - Use the kit hose for the return hose (top of the radiator) and original hose for the main hose (lower of the radiator).

Engine Guard:

To protect the engine, install the kit engine guards both L.H. and R.H. of the engine.



1. Guard (left): 55020-1407
2. Guard (right): 55020-1408
3. Washers: 410B0800

Frame Parts Installation

Final Drive:

The following two types of each engine sprocket and rear sprocket are available. Choose any necessary sprocket in the following table.

1) Engine Sprocket

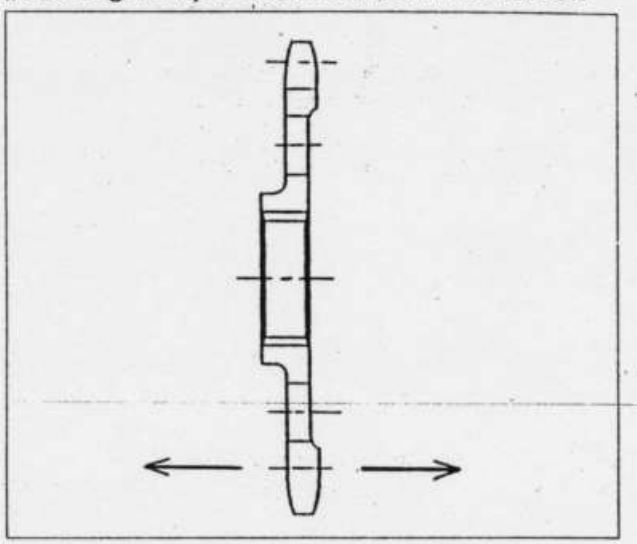
(1) Super Bike Racing

Teeth	Parts Number	Applicable Drive Chain Size
15	13144-1191	#520
16	13144-1192	
17	13144-1193	

(2) Enduro Racing

Teeth	Parts Number	Applicable Drive Chain Size
15	13144-1117	#530
16	13144-1128	
17	13144-1009	

#520 Engine Sprocket Installation Direction



← Toward Outside → Toward Crankcase

2) Rear Sprocket

The rear sprocket are provided for the original wheel use and optional wheel use on each the sprint racing and enduro racing.

But only the optional wheel is suggested for the enduro race, therefore no sprocket is available for the original wheel.

(1) Super Bike Racing

Teeth	Original Wheel	Original Wheel	Applicable Drive Chain Size
39	42041-1394	42041-1388	#520
40	42041-1395	42041-1389	
41	42041-1396	42041-1390	
42	42041-1397	42041-1391	
43	42041-1398	42041-1392	
44	42041-1399	42041-1393	

(2) Enduro Racing

Teeth	Optional Wheel	Applicable Drive Chain Size
39	42041-1401	#530
40	42041-1402	
41	42041-1403	
42	42041-1404	
43	42041-1405	
44	42041-1406	

3) Final Reduction Ratio

Engine \ Rear	39T	40T	41T	42T	43T	44T
15T	2.600	2.666	2.733	2.800	2.867	2.933
16T	2.438	2.500	2.563	2.625	2.688	2.750
17T	2.294	2.353	2.412	2.471	2.529	2.588

4) Drive Chain (Optional Parts)

#520 Joint endless drive chain (120 Links without O-ring) is available as an optional part.

Front Wheel, Rear Wheel (Optional Parts):

MARCHESINI or MARVIC wheel made of magnesium is available. Since the positions of disk brake bolt in it are different from KAWASAKI wheels, the standard disk brake plates can not be mounted on.

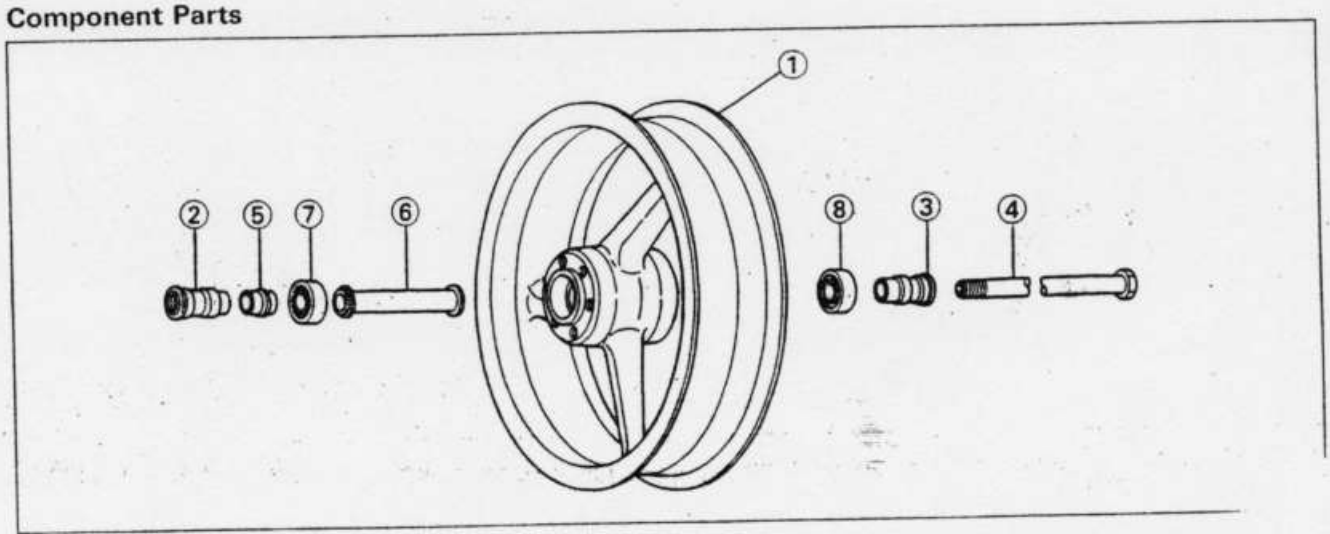
- Use MARCHESINI wheels and the optional disk brake plates, calipers and rear sprocket as a set.

1) Front Wheel

Two types of the wheel are available. Refer to the table and choose the wheel.

P/No.	Wheel Size	Applicable Tire	Example
41073-1502	3.75-17	MICHELIN SLICK TIRE	S0311, S0312, 1116 series
		DUNLOP SLICK TIRE	
41073-1504	3.50-17	RAIN TIRE	P2301

Component Parts



1. Front Wheel : 41073-1504 (3.50-17)
   : 41073-1502 (3.75-17)
2. Collar (L.H. Front Fork): 92143-1503
3. Collar (R.H. Front Fork): 92143-1502
4. Axle Shaft: 41068-1332
5. Collar (Press into No. 7 Bearing): 921
6. Collar (Wheel Center Collar): 9214
7. Bearing: 601B6005UU
8. Bearing: 601B6204UU

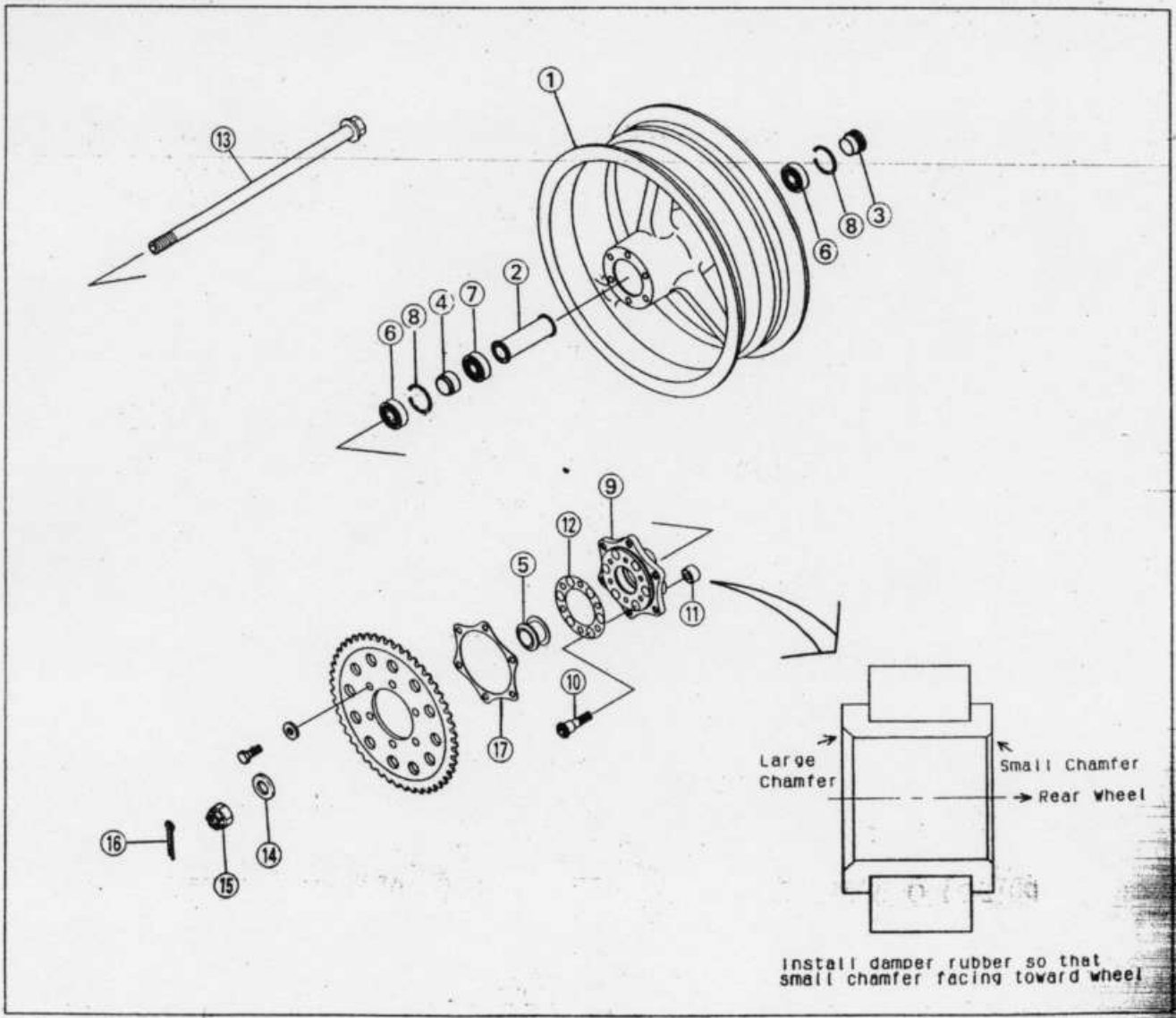
2) Rear Wheel

Three types of the wheel are available.

● Choose any suitable wheel in the table.

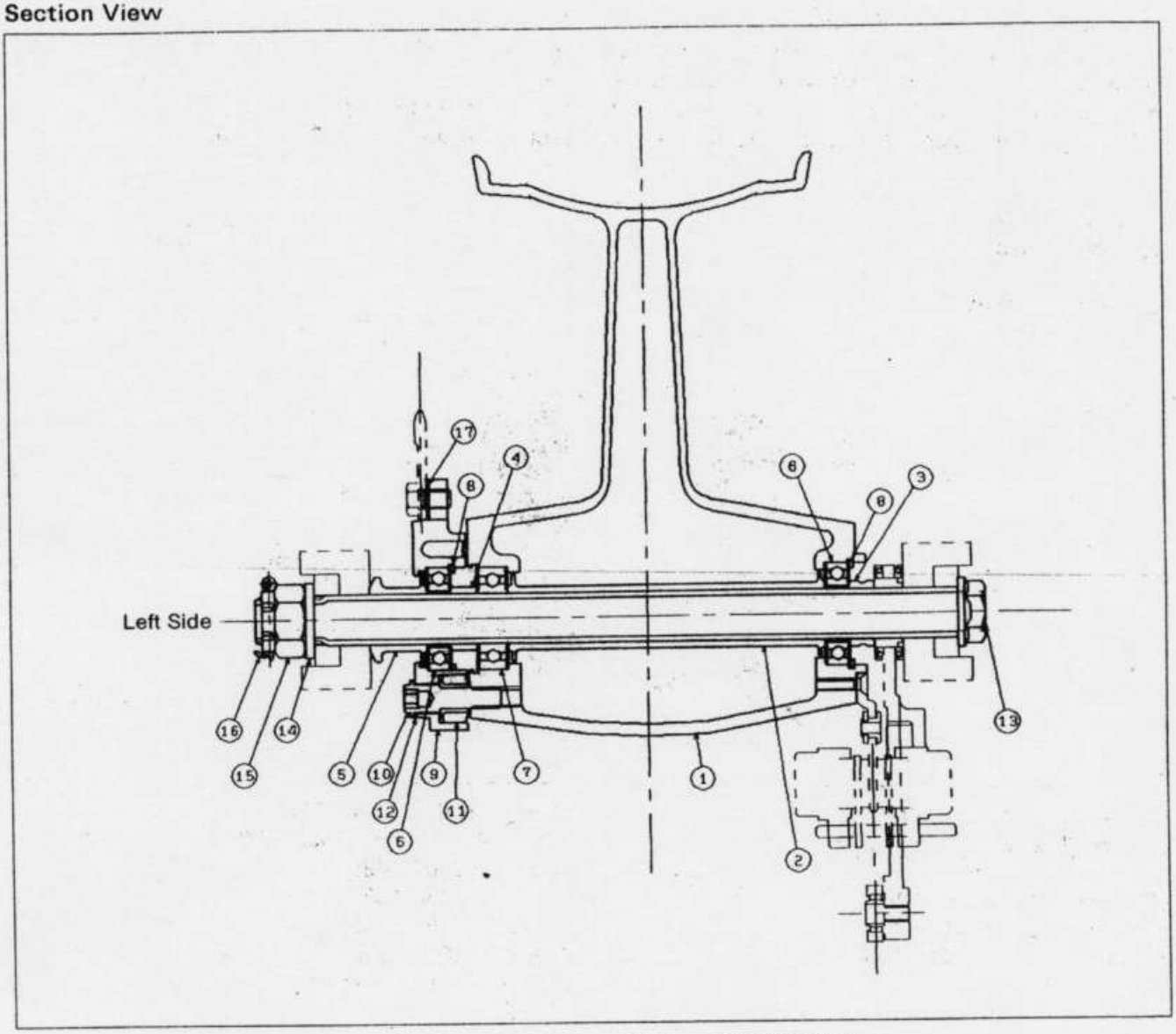
P/No.	Wheel Size	Applicable Tire	Example
49058-1295	6.00-17	MICHELIN SLICK TIRE	
		DUNLOP SLICK TIRE	
49058-1293	5.50-17	MICHELIN RAIN TIRE	P3104
49058-1294	5.50-18	DUNLOP RAIN TIRE	

Component Parts



Note) Install No. 11 damper rubber into No. 9 coupling so that small chamfer side faces toward the wheel.

Section View



1. Rear Wheel: 49658-1295
2. Collar: 92143-1505
3. Collar: 92143-1506
4. Collar: 92143-1550
5. Collar: 92143-1551
6. Bearing: 92045-1260
7. Bearing: 601B6205UU
8. Snap Ring: 92033-1043
9. Coupling: 42034-1123
10. Bolt: 92150-1609
11. Damper Rubber: 92160-1378
12. Washer: 92200-1141
13. Axle Shaft: 41068-1326
14. Washer: 92200-1081
15. Nut: 92015-1844
16. Cotter Pin: 550D4040
17. Spacer: 92026-1413 (Only for #530 drive chain)

Note) No. 17 spacer must be installed between rear sprocket and coupling for #530 drive chain.

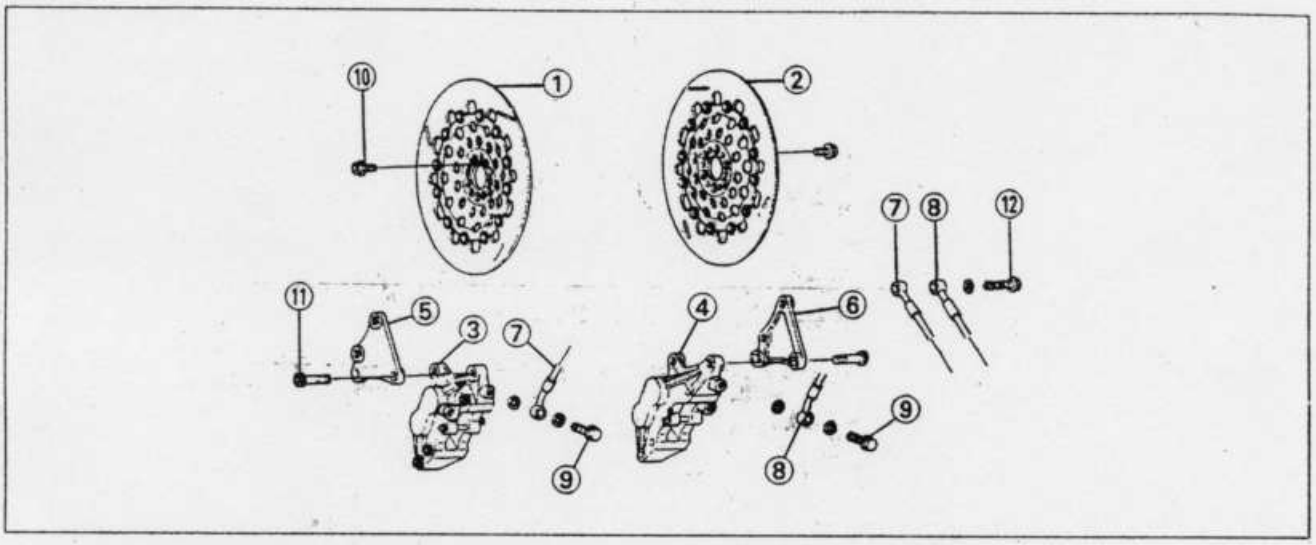
Disk Brake (Optional Parts):

The kit disk brakes are prepared only for mounting on the optional wheels.

- The caliper is made rather light weight than the original one.
- The coefficient of friction of kit pad is increased rather than the one of the original disk pad.
- The disk plate design is the same as the original one except for the position of the bolt holes.

1) Front Brake

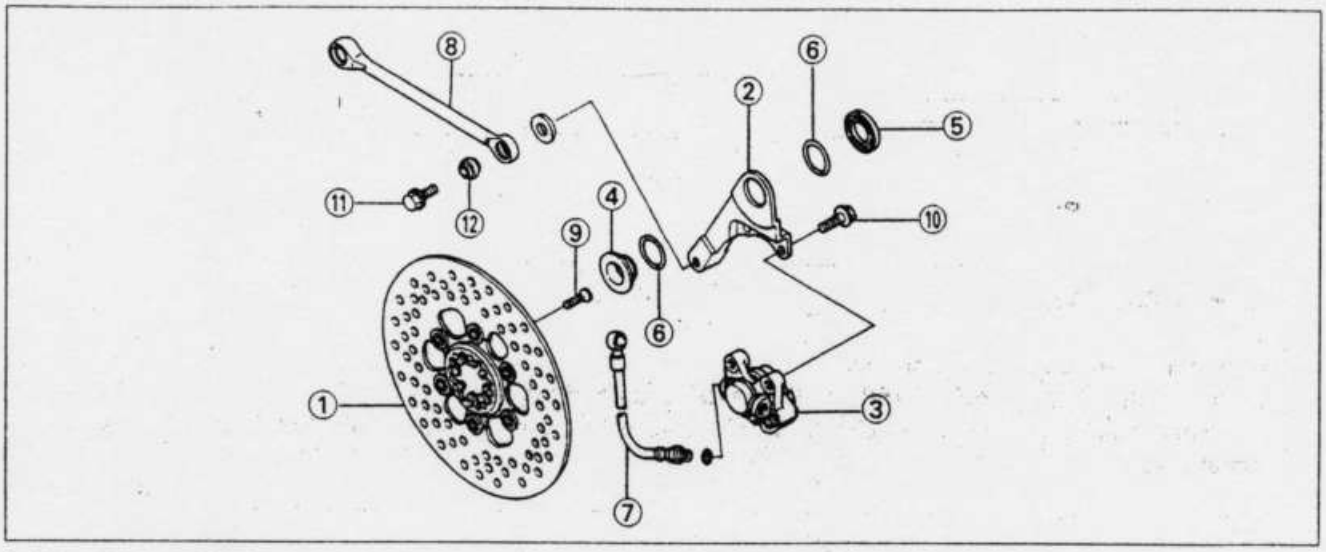
Component Parts



1. Disk Plate (L): 41080-1332
2. Disk Plate (R): 41080-1333
3. Caliper (L): 43041-1459
4. Caliper (R): 43041-1460
5. Bracket (L): 11047-1483
6. Bracket (R): 11047-1484
7. Brake Hose (L): 43059-1707
8. Brake Hose (R): 43059-1708
9. Bolt: 92002-1888
10. Bolt: 92150-1521
11. Bolt: 92150-1405
12. Bolt: 92002-1909

The other parts: original

2) Rear Brake

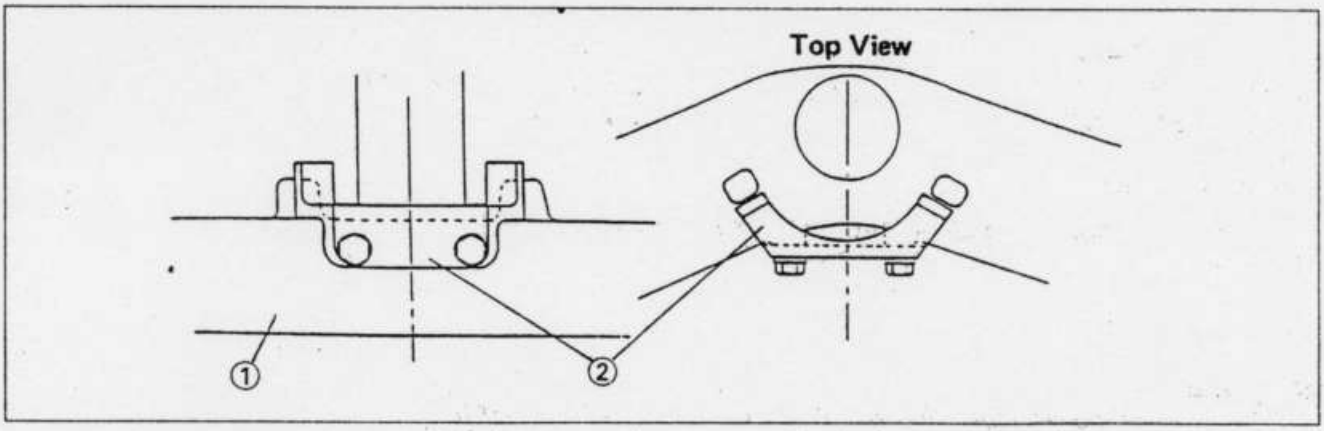


1. Disk Plate: 41080-1334
2. Bracket: 11047-1748
3. Caliper: 43041-1461
4. Collar: 92143-1583
5. Collar: 92143-1584
6. O-ring: 670C3039
7. Brake Hose: 43059-1709
8. Torque Rod: 43007-1164
9. Screw: 221R0625
10. Bolt: 92002-1417
11. Bolt: 92001-1691
12. Joint Ball: 59266-1094

Steering Stopper (All Racing):

The steering stopper is used for reducing steering angle (about 21 ~ 22°).

● Install the steering stopper on the front fork under bracket as shown.

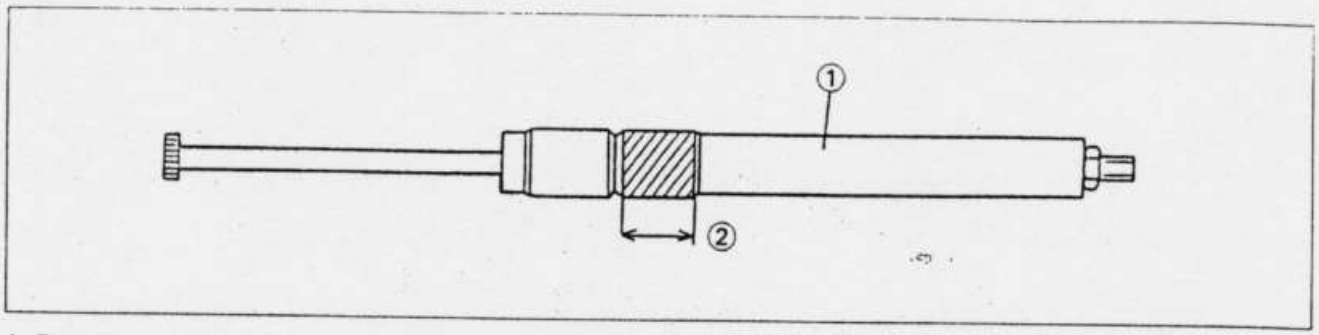


1. Front Fork Under Bracket
2. Bracket (Stopper): 111046-1753

Steering Damper (Optional Parts):

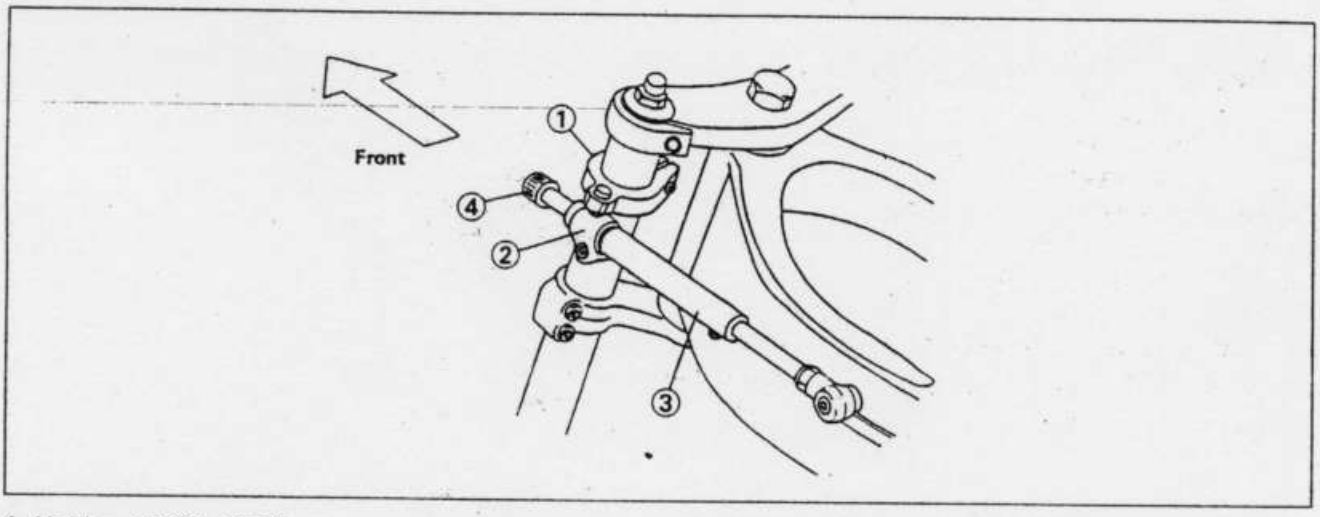
The steering damper is useful at high speeds to prevent handlebar vibration.

● Be sure to hold the grip area as shown with the clamp, or the steering damper will not work well.



1. Damper: 44003-1903
2. Grip Area

● Installing the steering damper as shown.
○ Clamp the holder (P/No. 13091-1758) on the left outer tube of the front fork.
○ Turn the handlebar back and forth, check that the steering damper (P/No. 44003-1903) operates without abnormal load.



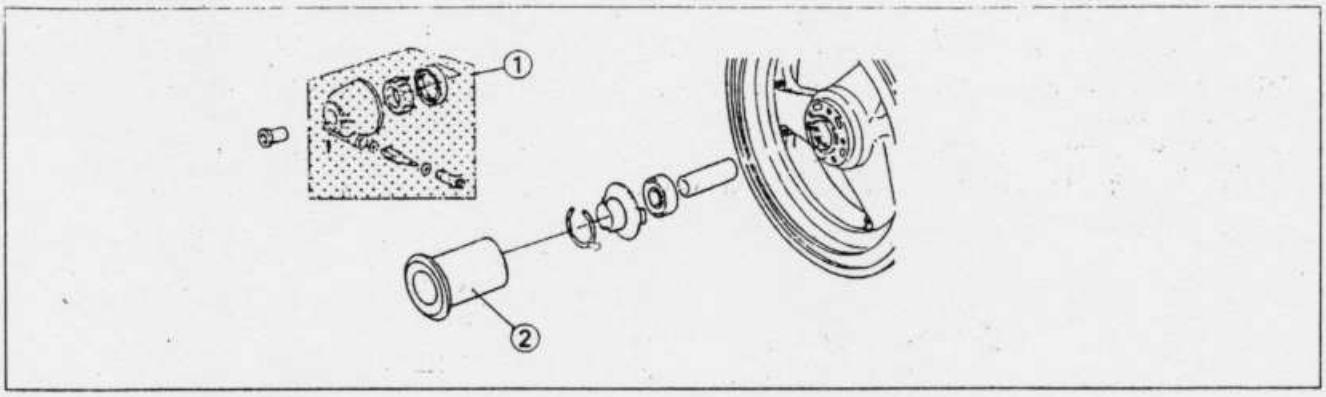
1. Holder: 13091-1758
2. Holder: 13091-1573
3. Steering Damper: 44003-1903
4. Adjuster

Damper Adjuster

Standard Position : 8th click (1st click is fully clockwise click)
Usable Range : 1st to 12 ~ 17th click

Front Hub:

Replace the speedometer gear unit with the kit collar (P/No. 92143-1500).

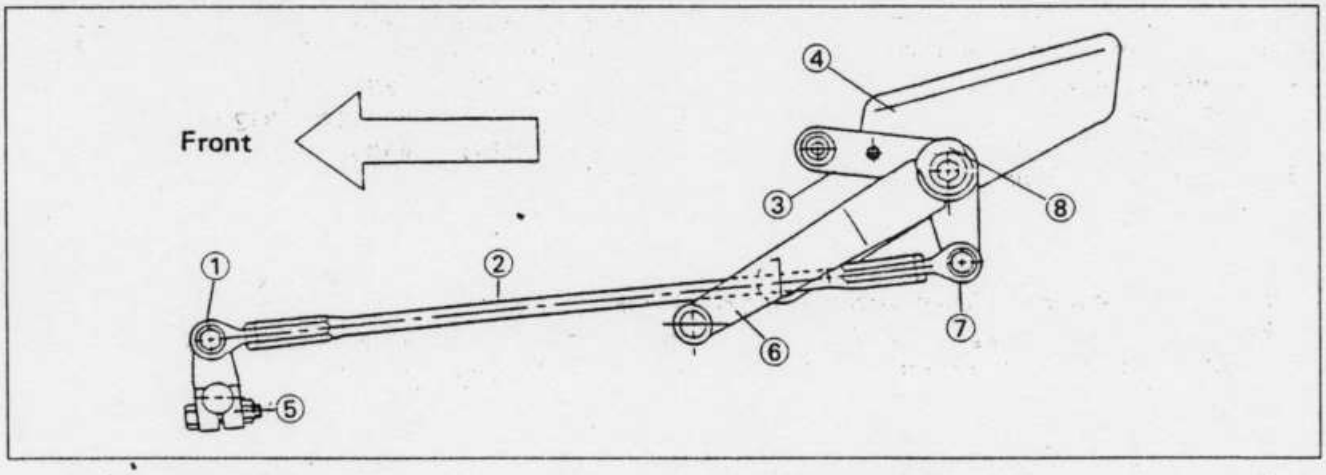


1. Removed Parts
2. Collar: 92143-1500

Shift Lever (Optional Parts):

The Shift Lever for racing use is available.

- Remove the following parts from the frame.
  Shift Rod, Shift Lever
  Left Front Footpeg, Bracket
- Install the left footpeg bracket (stay, guard) and the left front footpeg.
- Install the kit shift levers and kit shift rod lever on the shift shaft.



1. Knuckle Joint: 59266-1084
2. Shift Rod: 39111-1123
3. Stay: 35011-1625
4. Guard: 55020-1406
5. Shift Lever: 13156-1335
6. Shift Lever: 13156-1336
7. Knuckle Joint: 59266-1085
8. Left Footpeg: 34028-1342

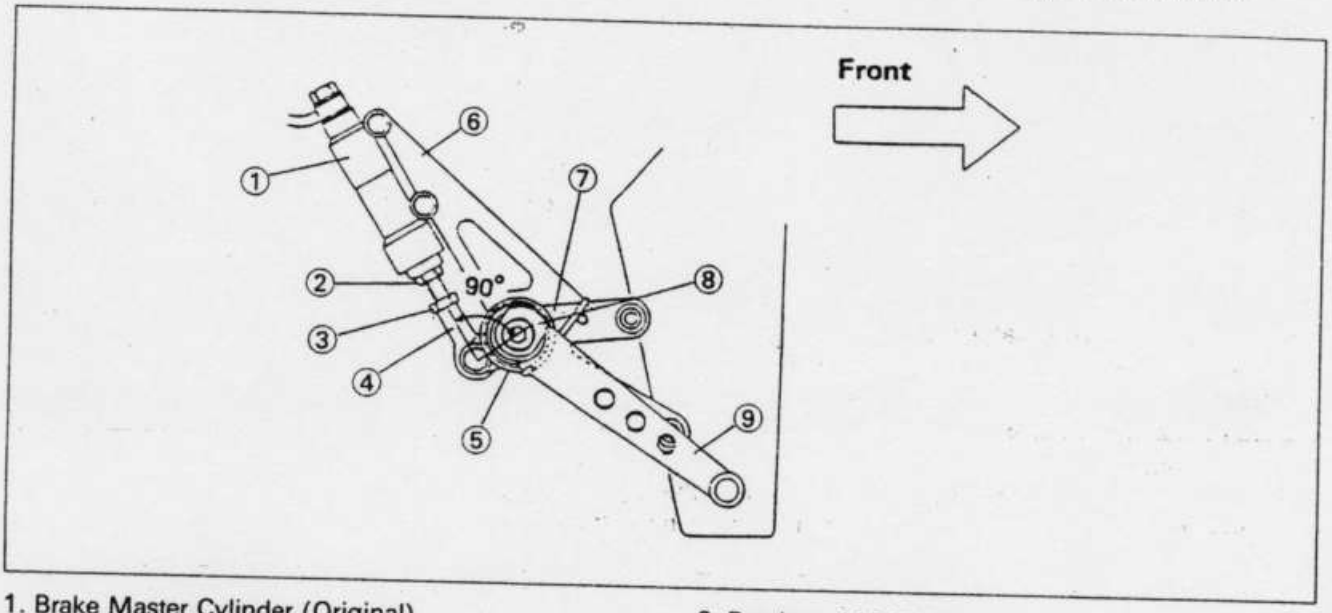
Right Footpeg and Brake Pedal (Optional Parts):

The brake pedal for racing use is available.

- Removal Parts:
  Right Front Footpeg, Brake Pedal, Footpeg Bracket
- Original Parts:
  Rear Brake Master Cylinder
- Installed Kit Parts:
  Right Footpeg Bracket
  Right Footpeg Assembly
  Brake Pedal

- Install the brake master cylinder, removed from the frame, on the rear part of the right footpeg bracket. In this time, remove the bracket from the lower part of the master cylinder and remain the locknut.
- Link the knuckle joint in the lower part of the brake master cylinder with the rear end of the brake pedal with bolts and nuts.
- Adjust the height of the Brake Pedal .

○ Using the adjuster locknut in the lower part of the master cylinder, set the suitable highest of the pedal.



1. Brake Master Cylinder (Original)
2. Adjuster (Original)
3. Locknut (Original)
4. Knuckle Joint (Original)
5. Return Spring (Original)
6. Bracket: 11047-1747
7. Stay: 35011-1625
8. Right Footpeg: 34028-1342
9. Brake Pedal: 43001-1317

Front Fork, Rear Shock Absorber (Optional Parts):

Each three kinds of springs are available for the front fork and rear shock absorber as optional parts. Select one of them in accordance with the rider's weight and track condition.

1) Spring Dimension

(1) Front Fork Main Spring

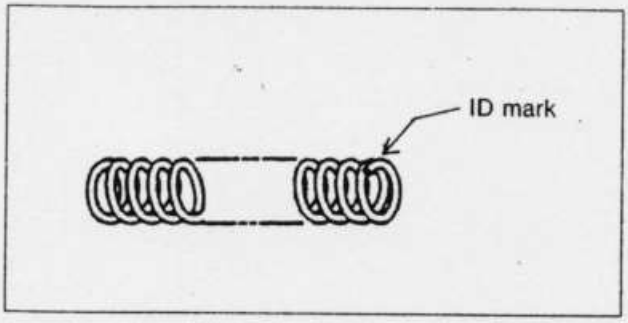
(Unit : mm)

P/No.	A x B x C	Number of winding	Spring constant
Original Spring	5.0 x 25.2 x 295.6	23.25	K = 1.0 kgf/mm
44026-1522	4.8 x 25.6 x 295.6	22.25	K = 0.85 kgf/mm
44026-1523	5.0 x 25.2 x 295.6	25.75	K = 0.90 kgf/mm
44026-1524	5.0 x 25.2 x 295.6	24.50	K = 0.95 kgf/mm

A : Coil Diameter B : Spring Inside Diameter C : Spring Free Length

Identification Mark:

The following ID marks is put on the springs.



One Slit (44026-1522)
Two Slit (44026-1523)
Three Slits (44026-1524)

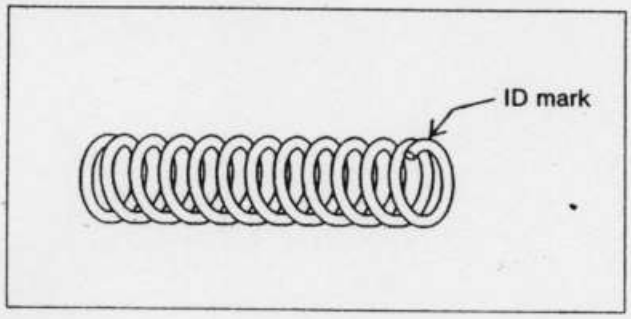
(2) Rear Shock Absorber

(Unit : mm)

P/No.	A x B x C	Number of winding	Spring constant
Original Spring	11.2 x 56 x 230	7	K = 7.5 kgf/mm
92144-1657	11.0 x 56 x 230	7	K = 6.75 kgf/mm
92144-1664	10.5 x 56 x 230	6.25	K = 6.5 kgf/mm
92144-1665	10.8 x 56 x 230	6.5	K = 7.0 kgf/mm

A : Coil Diameter B : Spring Inside Diameter C : Spring Free Length

Identification Mark:



Two White Lines (92144-1664)
Three White Lines (92144-1665)

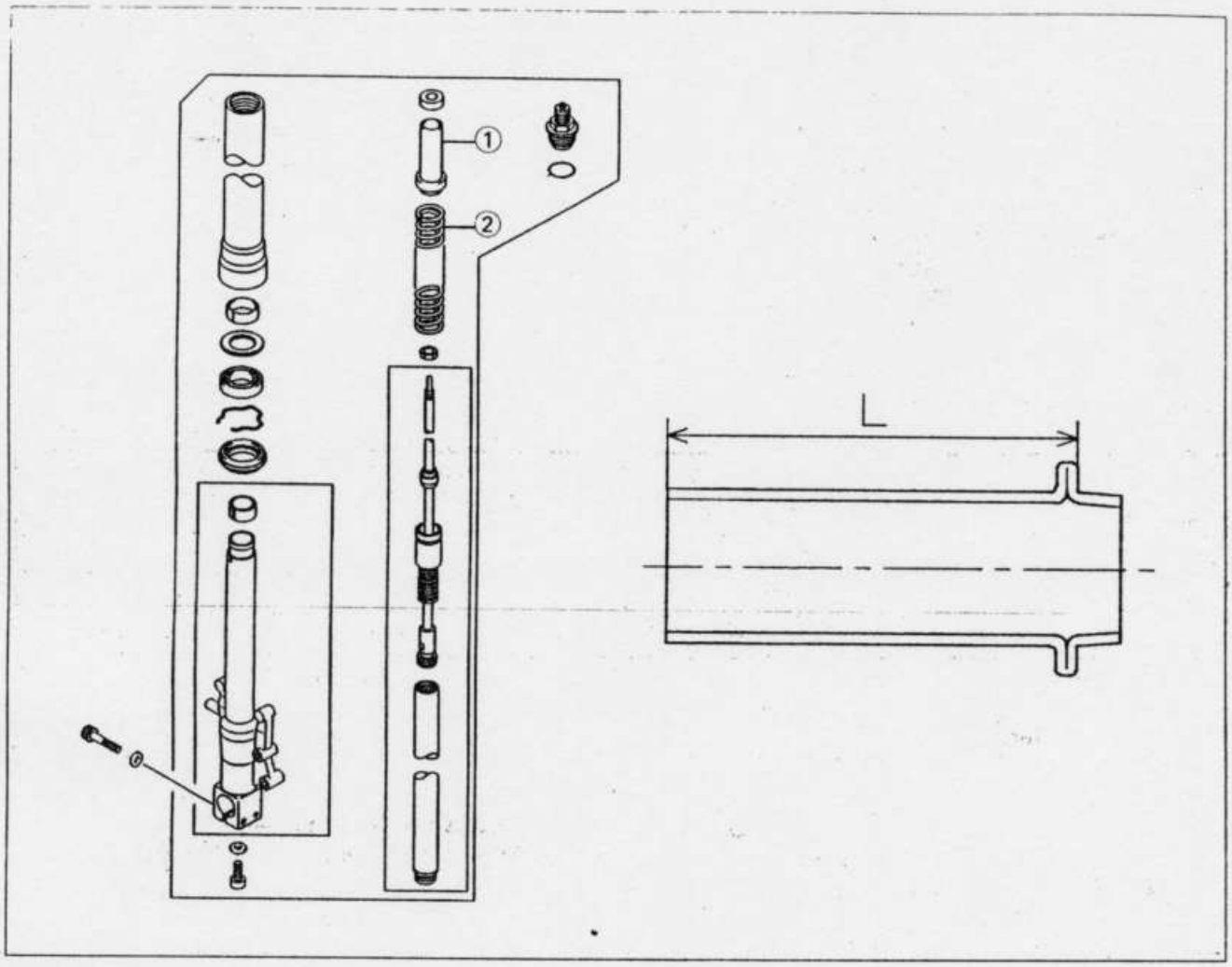
(3) Spring Guide

An optional soft front fork main spring creates softer handling at the first spring stroke, if this condition does meet your requirement, use one of the two optional spring guides which are made longer than the original one.

Spring Guide Length

P/No.	Length
Original Part	50.0 mm
92026-1423	53.4 mm
92026-1424	58.4 mm

Front Fork Component Parts (Left Side)



1. Spring Guide
2. Main Spring

L: Spring Guide Length

3) Spring Replacement

(1) Front Fork Main Spring

Replace main the spring referring to the Fork Oil Change of the ZX750J/K Service Manual.

●The front fork main spring should be changed together with a spring guide as a set.

Service Data		Standard
Spring Preload Adjuster Position		Adjuster protrusion is 20 mm (8.5 Marks)
Rebound Damping Adjuster Position (Upper)		7th click from first click of fully clockwised position
Compression Damping Adjuster Position		4th click from first click of fully clockwised position
Front Fork Oil:	Type	KAYABA 01 (SAE5W)
	Capacity	380 ±4 mL
	Oil Level	112 ±2 mL (fully compressed without main spring)

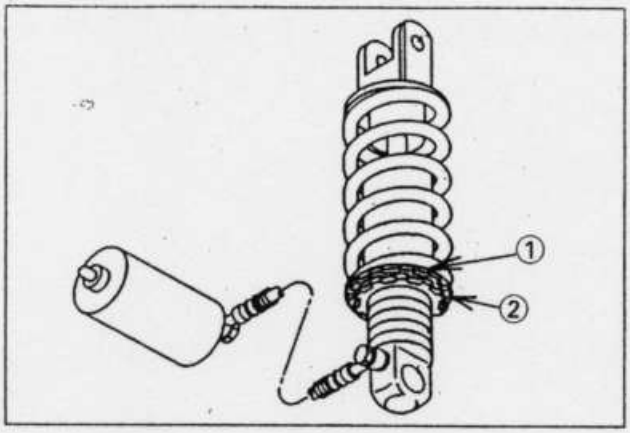
(2) Rear Shock Absorber

●Remove the rear shock absorber from the machine referring to the ZX750R-J/K Service Manual.

●Hold the oil pipe connected side of the rear shock absorber with a vise.

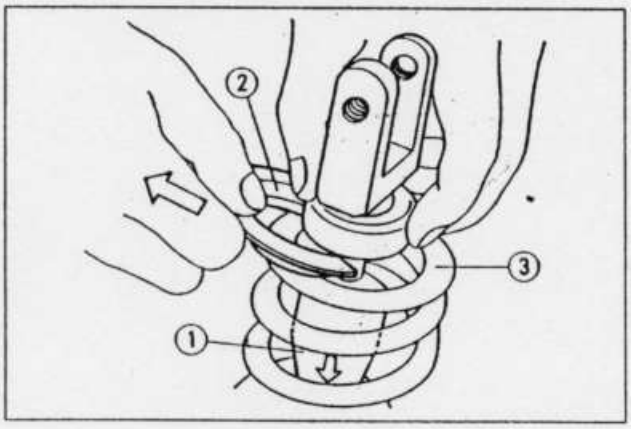
○Do not disconnect the oil pipe from the rear shock body unless you change the oil capacity.
The standard oil capacity is 193 mL.
The standard gas pressure is 1,000 kPa (10.0 kg/cm²).

● Using the hook wrench (special tool: 57001-1101), loosen the locknut and turn the adjusting nut all the way down.



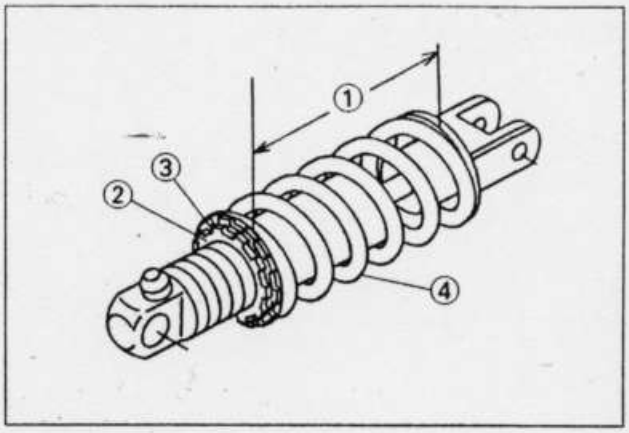
1. Adjusting Nut
2. Lock Nut

● Slip down the rubber bumper on the rear shock rod.
● Remove the spring retainer clip from the shock absorber and lift off the spring.



1. Rubber Bumper
2. Retainer Clip
3. Spring

● Replace the spring with one of the optional parts.
● Assembly is reverse order of the removal.
○ Position the adjusting and locknuts so that the spring length is 220 mm.

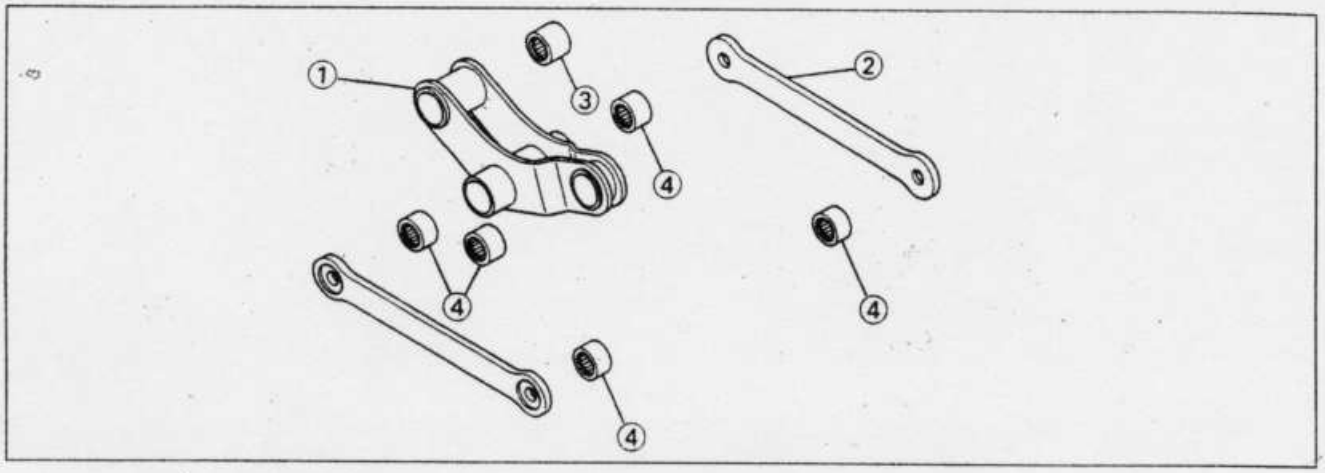


1. Spring Length
2. Locknut
3. Adjusting Nut
4. Spring

Suspension Arm, Rod (Optional Parts):

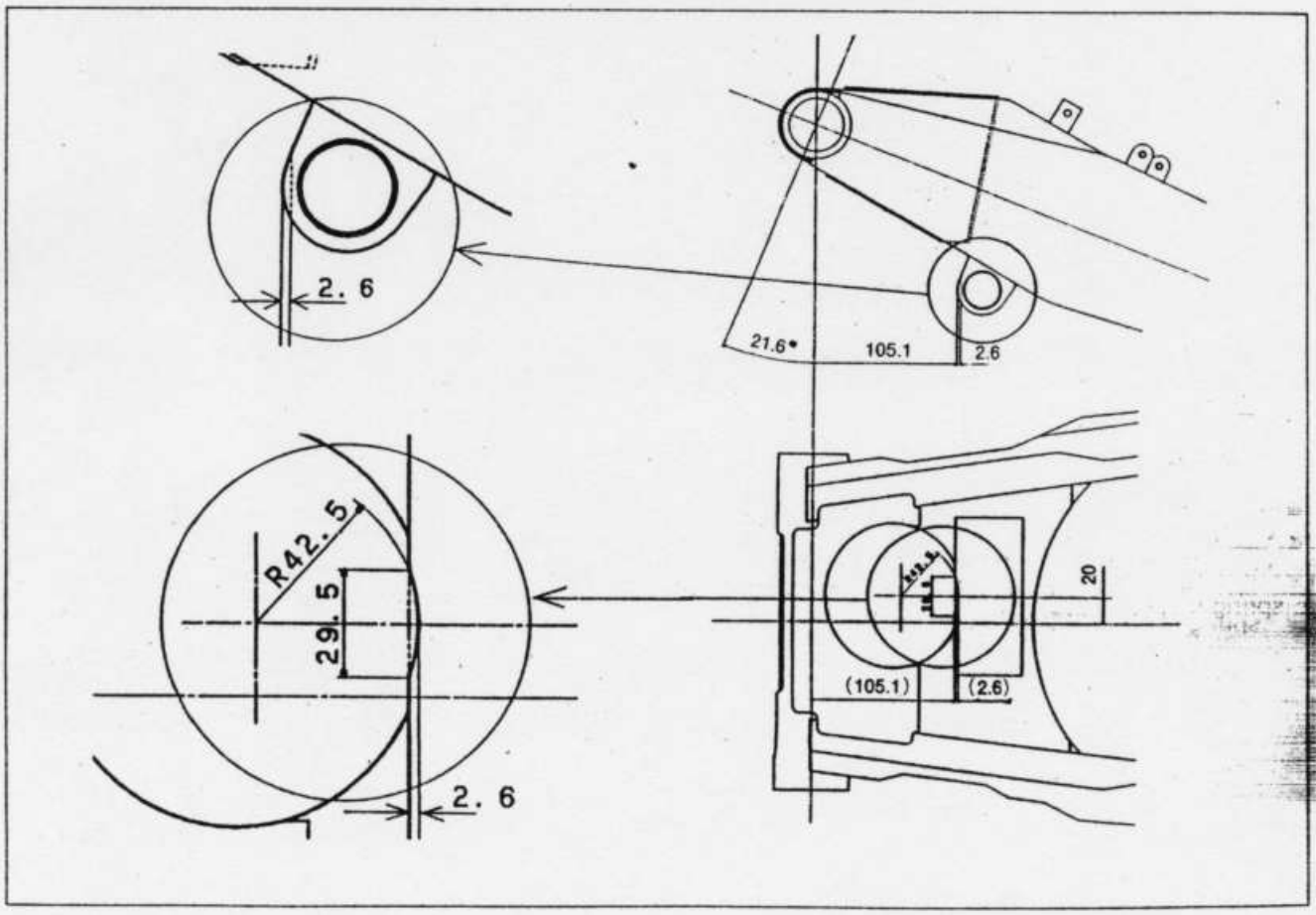
A light weight suspension arm and rods which are made by an aluminum plate are available as optional parts.

- The suspension arm lever ratio is changed from the original machine to make the suspension character more liner.



1. Suspension Arm: 39007-1214
2. Rod: 39111-1124
3. Bearing: 92046-1110
4. Bearing: 92046-1112

- The swing arm must be modified if any short suspension arm is intended to be used.
- Grind the shaded area at the suspension arm bracket of the swing arm as shown.



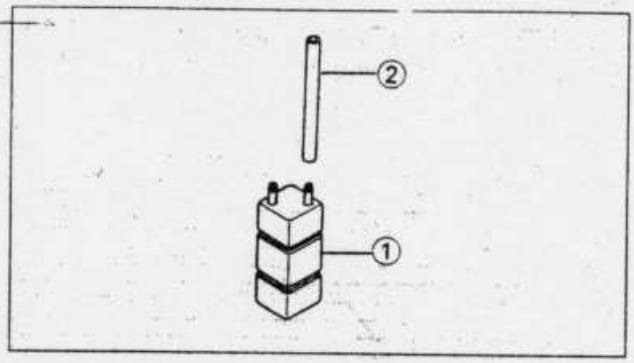
Catch Tank (Optional Parts):

The following three catch tanks are available as optional parts.

1) Fuel Reservoir Tank

- Fasten the catch tank at suitable area of coupling.
- Route one part of the tube at the outside of the frame for visual inspection by the driver.

Capacity: Approx. 320 cc

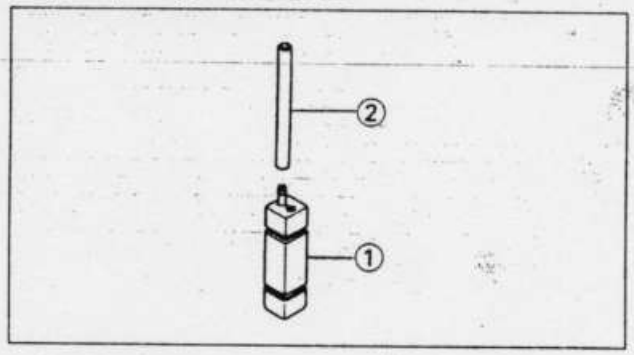


1. Catch Tank: 43078-1120 2. Tube: 700Q07600

2) Radiator Catch Tank

- Fasten the catch tank at a rear corner of the radiator.
- Route one part of the tube at the outside of the frame for visual inspection by the driver.

Capacity: Approx. 130 cc

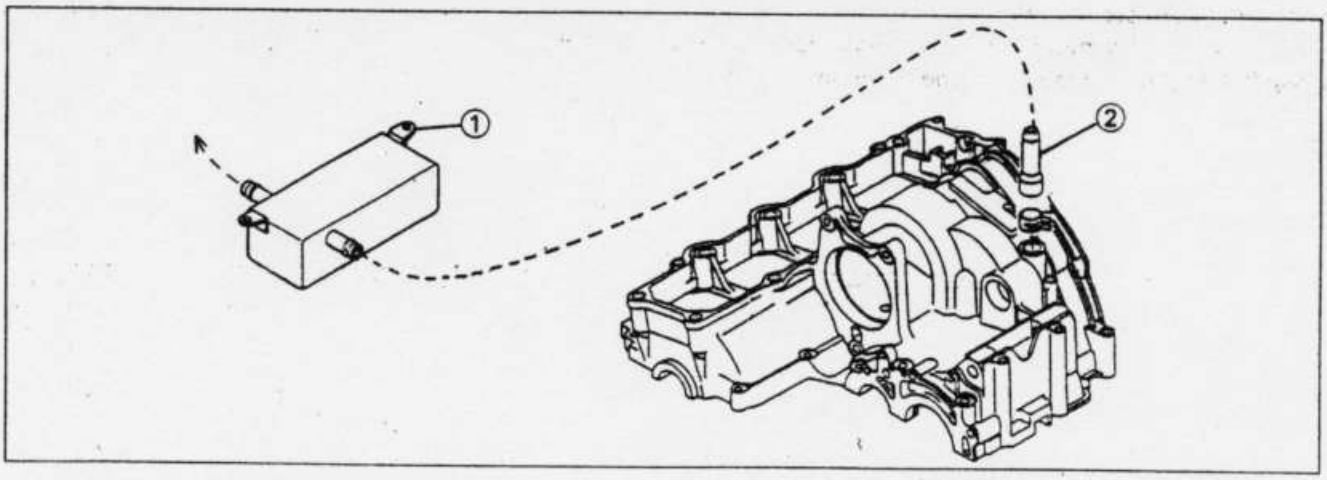


1. Catch Tank: 43078-112 2. Tube: 700Q07600

3) Engine Breather Catch Tank

Capacity: Approx. 320 cc

- Mount the engine breather catch tank below the seat.
- ○ Connect the engine breather fitting on the upper crankcase and the catch tank with any suitable clear tube to be seen breather condition.
- Route one part of the tube at the outside of the frame for visual inspection by the driver.

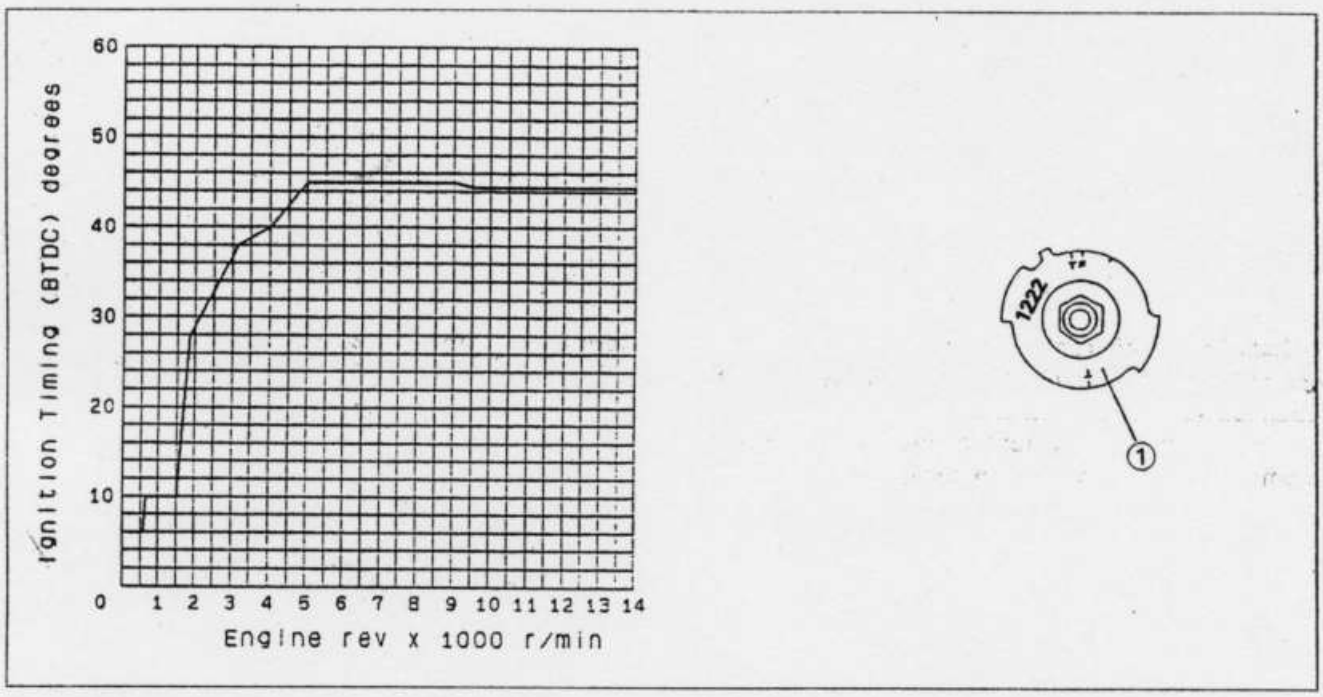


1. Breather Catch Tank: 55001-1086
2. Engine Breather Tube (Original)

Electric Parts

Igniter

- ●Use the kit igniter and the original timing rotor as a set.
- ○Replace the valve spring with the kit part when using the kit igniter.



1. Timing Rotor (Original Part): 21007-1222

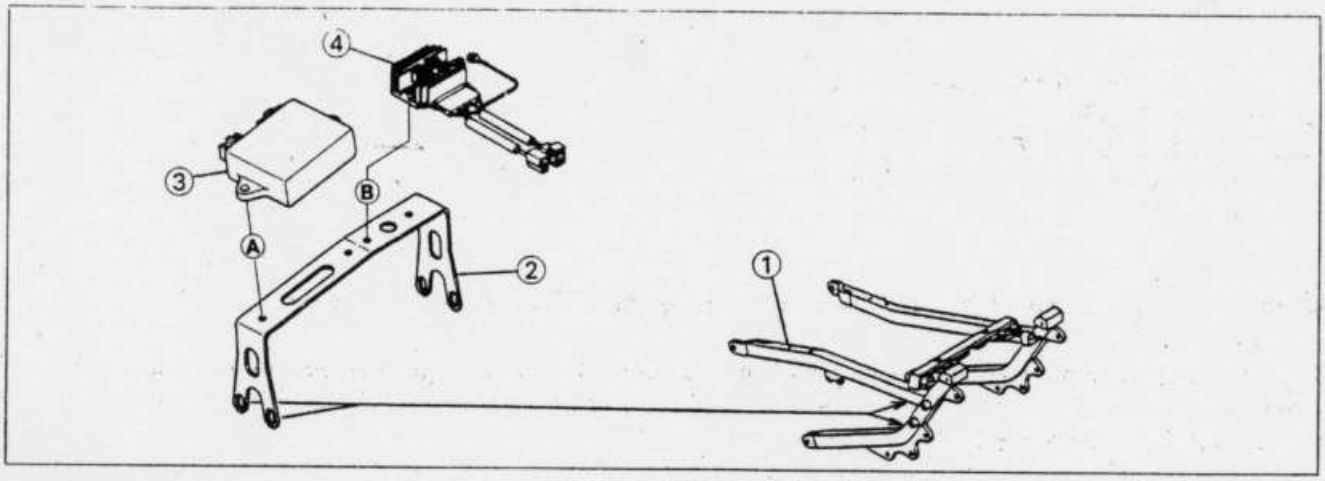
Alternator (Optional Parts):

- ●For the Enduro Racing, use either the original alternator or the kit ones.
- ○The kit alternator must be used together with the kit regulator as a set.
- ○The enduro machine should use the original oil pump gear train together with the original starter and starter clutch.

Bracket (Optional Parts):

This bracket is for mounting the kit regulator and kit igniter on it.

- ●Install the optional bracket on the frame as shown.



1. Rear Frame
2. Bracket: 11047-1487
3. Ignitor
4. Regulator

A: Position igniter on bracket and tighten it with original bolts.
B: Position regulator on bracket and tighten it with original bolts.

Battery (Optional Parts):

- Use the original battery or a battery with 12 V 7 Ah or more capacity.

Main Harness (SB)

- Replace the main harness with the kit harness. The kit harness consists of the following three harness and leads.

Main Harness
Wire Lead (Connection between Battery and Main Harness): 26011-1505
Wire Lead (Connection between Alternator and Main Harness): 26011-1508

- Removal Parts:

When using the racing kit main harness, the following parts are not required.
Standard Main Harness
Rear Brake Light Switch
Turn Signal Light Switch, Signal Relay
Side Stand Switch
Ignition Switch
Cooling Fan, Cooling Fan Switch
Oil Pressure Switch
Junction Box
Headlight, Tail/Brake Lights
High Beam Relay, Low Beam Relay
Speed Meter
Horn

- Original Parts:

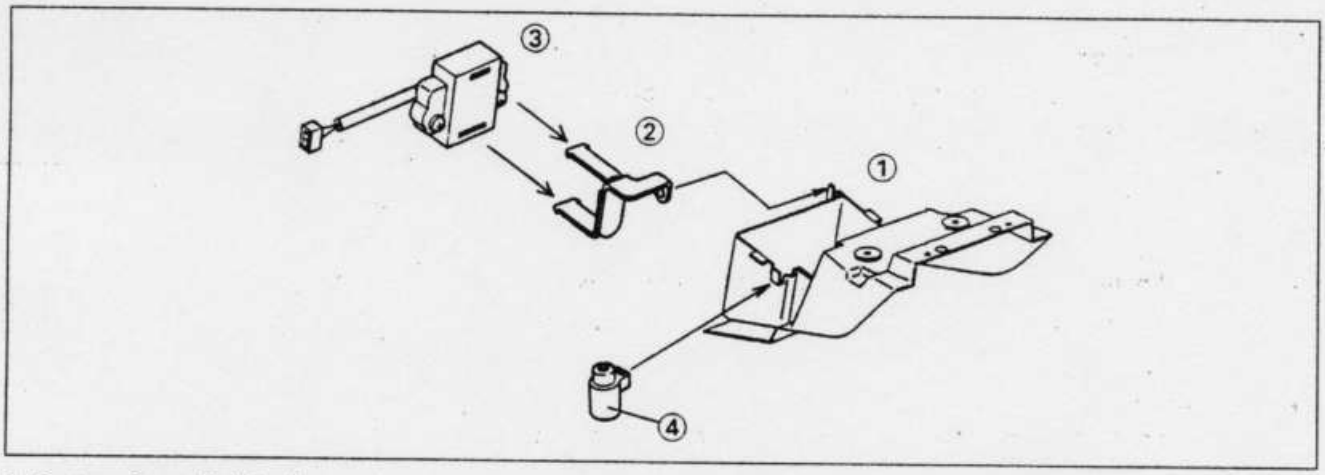
The following standard model parts are needed for the '91 racing machine.
Pickup Coil
Fuel Pump, Fuel Pump Relay
Starter Switch: use as a fuel pump switch
Water Temperature Sensor
Engine Stop Switch
Tachometer
Water Temperature Gauge

- Fuel Pump Stop Switch Kit Parts Assembly (Optional Parts)
  Sensor: 27010-1306
  Sensor Relay: 27034-1467
  Bracket: 11047-1467

Fuel Pump Stop Switch Kit Parts Assembly (Optional Parts):

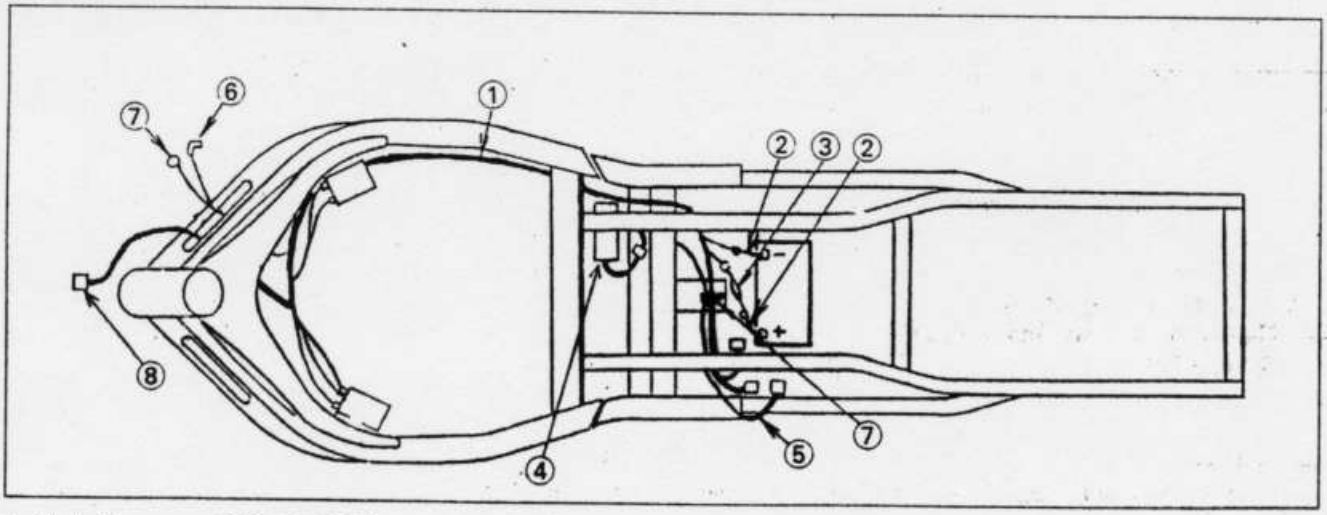
Installation

- Mount the kit bracket on the bolt hole, where the original junction box was tightened, at front right side of the battery case.
- Insert the kit sensor onto toes of the kit bracket.



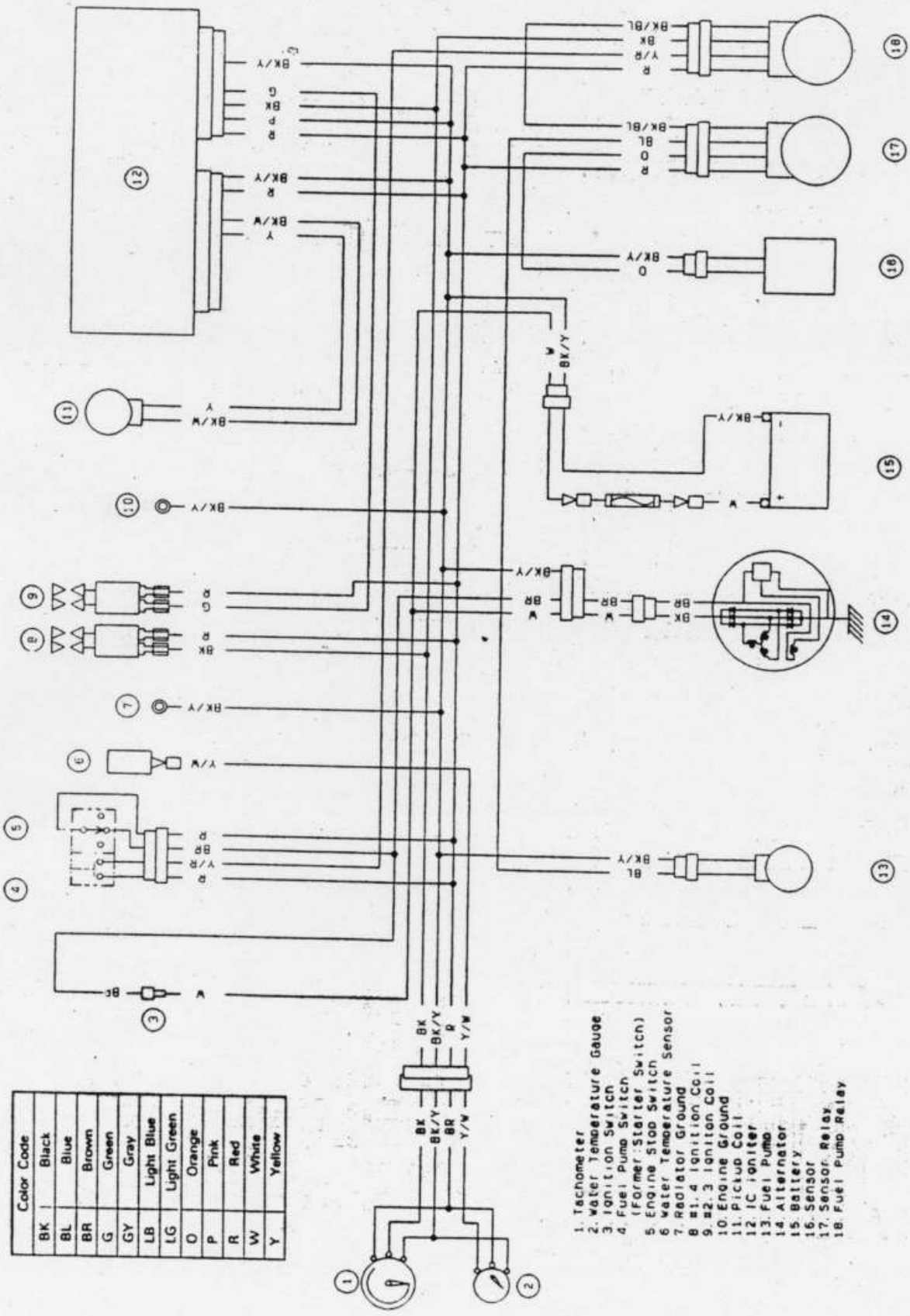
1. Battery Case (Original)
2. Bracket
3. Sensor
4. Sensor Relay

Wiring Routing



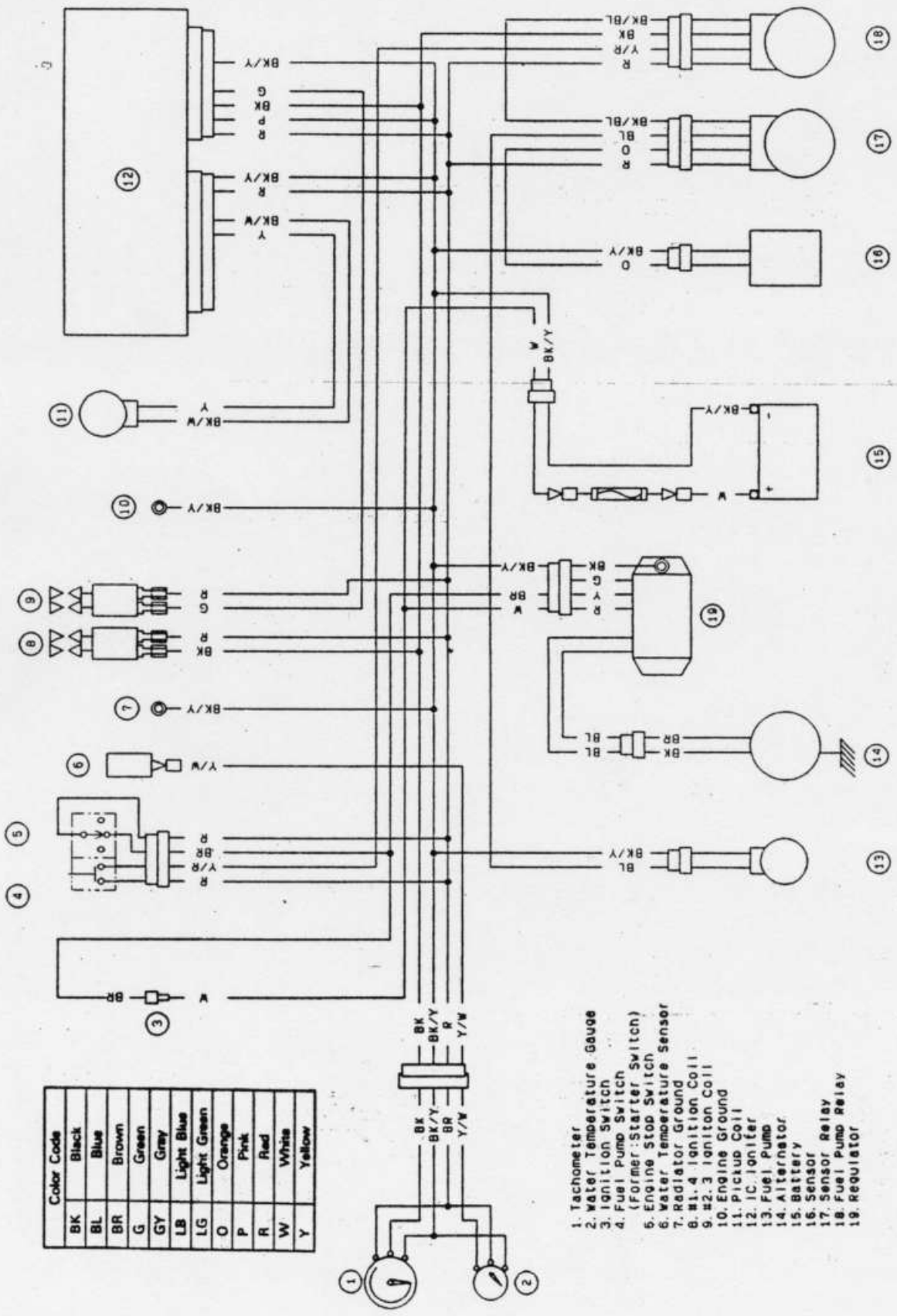
1. Main Harness: 26030-1106
2. Wire Lead: 26011-1505
3. Fuse Box
4. Fuel Pump
5. Pickup Coil Lead
6. Water Temperature Sensor Lead
7. Clamp the main harness at the white taped position.
8. Meter Unit Connector

Wiring Diagram (with Original Alternator Mounted)



Color Code	
BK	Black
BL	Blue
BR	Brown
G	Green
GY	Gray
LB	Light Blue
LG	Light Green
O	Orange
P	Pink
R	Red
W	White
Y	Yellow

Wiring Diagram (with Kit Alternator Mounted)



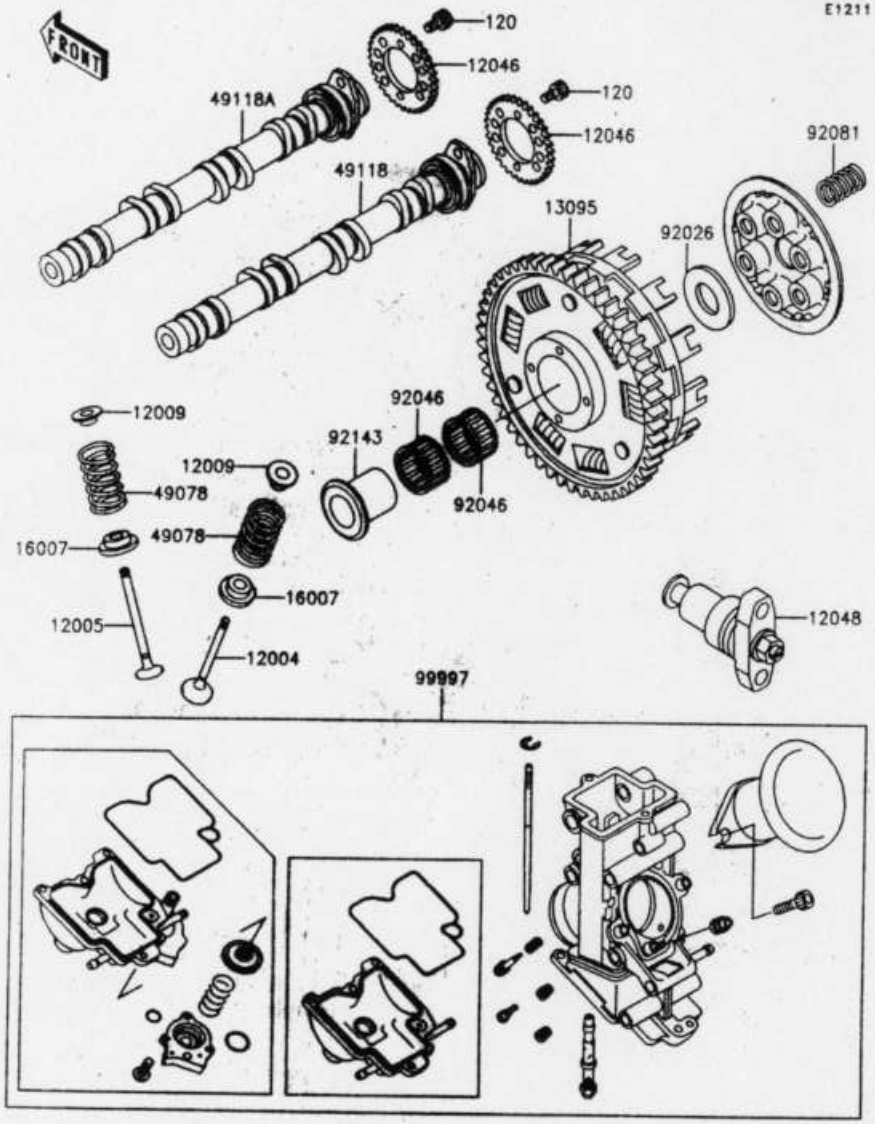
This catalog covers:

'92 ZX750-KR2 Engine

GRID NO. **B-3**

This grid covers:

Valve/Camshaft/Clutch/Carburetor



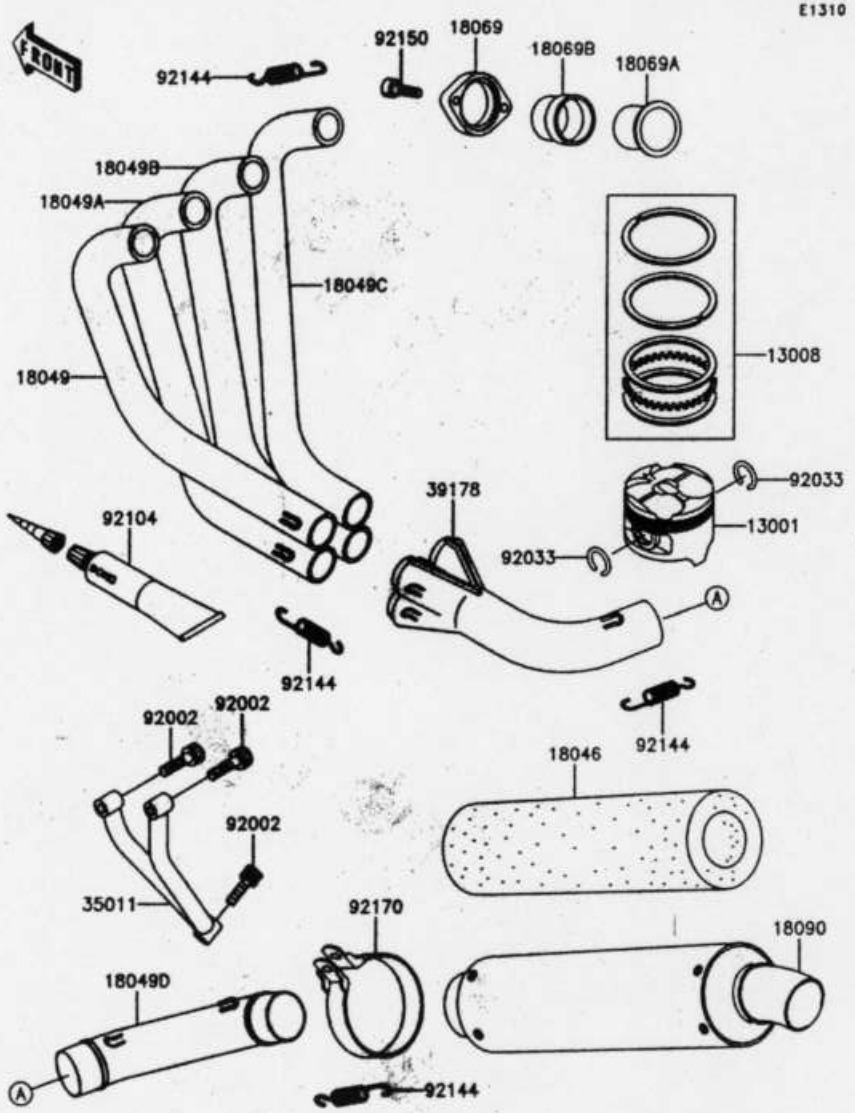
Ref. No.	Part No.	Description	Spec Code	Quantity-ZX750 '92 KR2
12004	12004-1104	VALVE-INTAKE		8
12005	12005-1164	VALVE-EXHAUST		8
12009	12009-1071	RETAINER-VALVE SPRING		16
12046	12046-1128	SPROCKET,CAMSHAFT,30T		2
12048	12048-1117	TENSIONER-ASSY,CAM CHAIN		1
13095	13095-1254	HOUSING-COMP-CLUTCH		1
16007	16007-1165	SEAT-SPRING		16
49078	49078-1118	SPRING-ENGINE VALVE		16
49118	49118-1096	CAMSHAFT-COMP,IN		1
49118A	49118-1097	CAMSHAFT-COMP,EX		1
92026	92026-1422	SPACER,CLUTCH,25X46X4.4		1
92046	92046-1215	BEARING-NEEDLE		2
92081	92081-139	SPRING,CLUTCH		6
92143	92143-1579	COLLAR		1
99997	99997-1069	KIT-CARBURETOR,SETTING PARTS		1
120	120P0610	BOLT-SOCKET,6X10		4

This catalog covers:
'92 ZX750-KR2 Engine

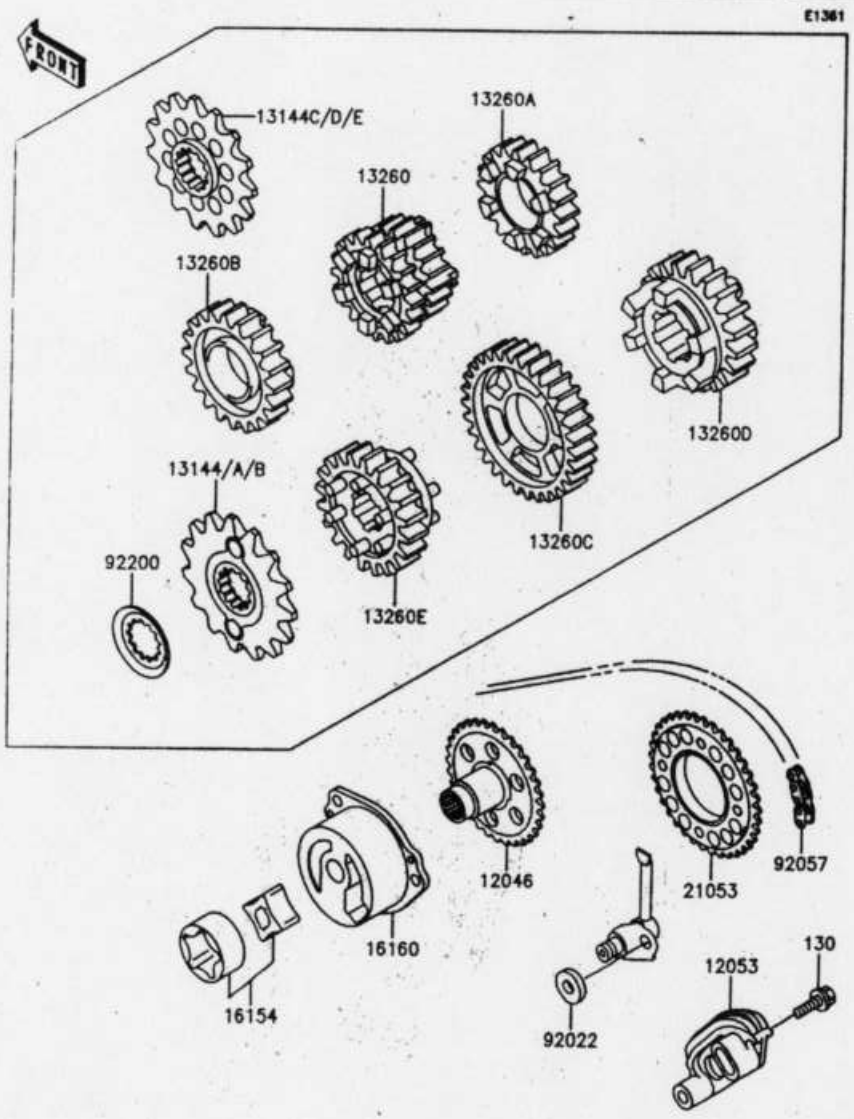
GRID NO. **B-4**

This grid covers:
Piston/Muffler

E1310



Ref. No.	Part No.	Description	Spec Code	Quantity-ZX750 '92 KR2
13001	13001-1374	PISTON-ENGINE		4
13008	13008-1136	RING-SET-PISTON,STD		4
18046	18046-1154 (OPTION)	WOOL,MUFFLER BODY		1
18049	18049-1606	PIPE-EXHAUST,#1		1
18049A	18049-1607	PIPE-EXHAUST,#2		1
18049B	18049-1608	PIPE-EXHAUST,#3		1
18049C	18049-1609	PIPE-EXHAUST,#4		1
18049D	18049-1610	PIPE-EXHAUST,JOINT		1
18069	18069-1106	HOLDER-EXHAUST PIPE,PLATE		4
18069A	18069-1107	HOLDER-EXHAUST PIPE,INNER		4
18069B	18069-1108	HOLDER-EXHAUST PIPE,OUTER		4
18090	18090-1201	BODY-COMP-MUFFLER		1
35011	35011-1562	STAY,MUFFLER		1
39178	39178-1205	MANIFOLD-COMP-EXHAUST		1
92002	92002-1178	BOLT,SOCKET,8X20		3
92033	92033-1099	RING-SNAP,20.5X1.2		8
92104	92104-1055	GASKET-LIQUID,3B#1209		1
92144	92144-1352	SPRING		12
92150	92150-1535	BOLT,SOCKET,8X20		8
92170	92170-1059	CLAMP		1

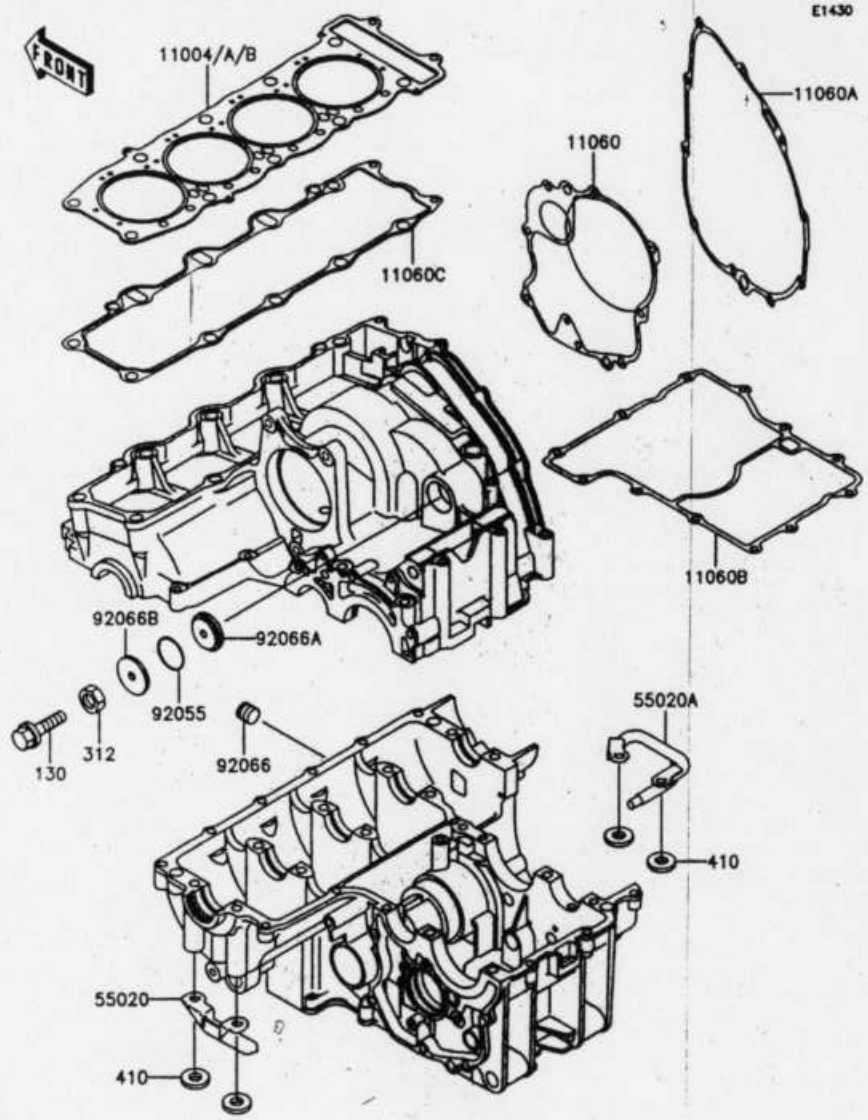


Ref. No.	Part No.	Description	Spec Code	Quantity-ZX750 '92 KR2
12046	12046-1135	SPROCKET,36T		1
12053	12053-1302	GUIDE-CHAIN		1
13144	13144-1009 (OPTION)	SPROCKET-OUTPUT,17T(#530)		1
13144A	13144-1117 (OPTION)	SPROCKET-OUTPUT,15T(#530)		1
13144B	13144-1128 (OPTION)	SPROCKET-OUTPUT,16T(#530)		1
13144C	13144-1191	SPROCKET-OUTPUT,15T(#520)		1
13144D	13144-1192	SPROCKET-OUTPUT,16T(#520)		1
13144E	13144-1193	SPROCKET-OUTPUT,17T(#520)		1
13260	13260-1268 (OPTION)	GEAR,INPUT,3RD&4TH,21T&22T		1
13260A	13260-1269 (OPTION)	GEAR,INPUT,5TH,23T		1
13260B	13260-1270 (OPTION)	GEAR,INPUT,TOP,24T		1
13260C	13260-1271 (OPTION)	GEAR,OUTPUT,4TH,33T		1
13260D	13260-1272 (OPTION)	GEAR,OUTPUT,5TH,32T		1
13260E	13260-1273 (OPTION)	GEAR,OUTPUT,TOP,31T		1
16154	16154-1102	ROTOR-PUMP,SET		1
16160	16160-1192	BODY,OIL PUMP		1
21053	21053-1060	SPROCKET-ASSY		1
92022	92022-1691	WASHER,6.5X16X3.2		1
92057	92057-1343	CHAIN,OIL PUMP,BF04M-58L		1
92200	92200-1065	WASHER		3
130	130P0630	BOLT-FLANGED,6X30		2

This catalog covers:
'92 ZX750-KR2 Engine

GRID NO. **B-6**

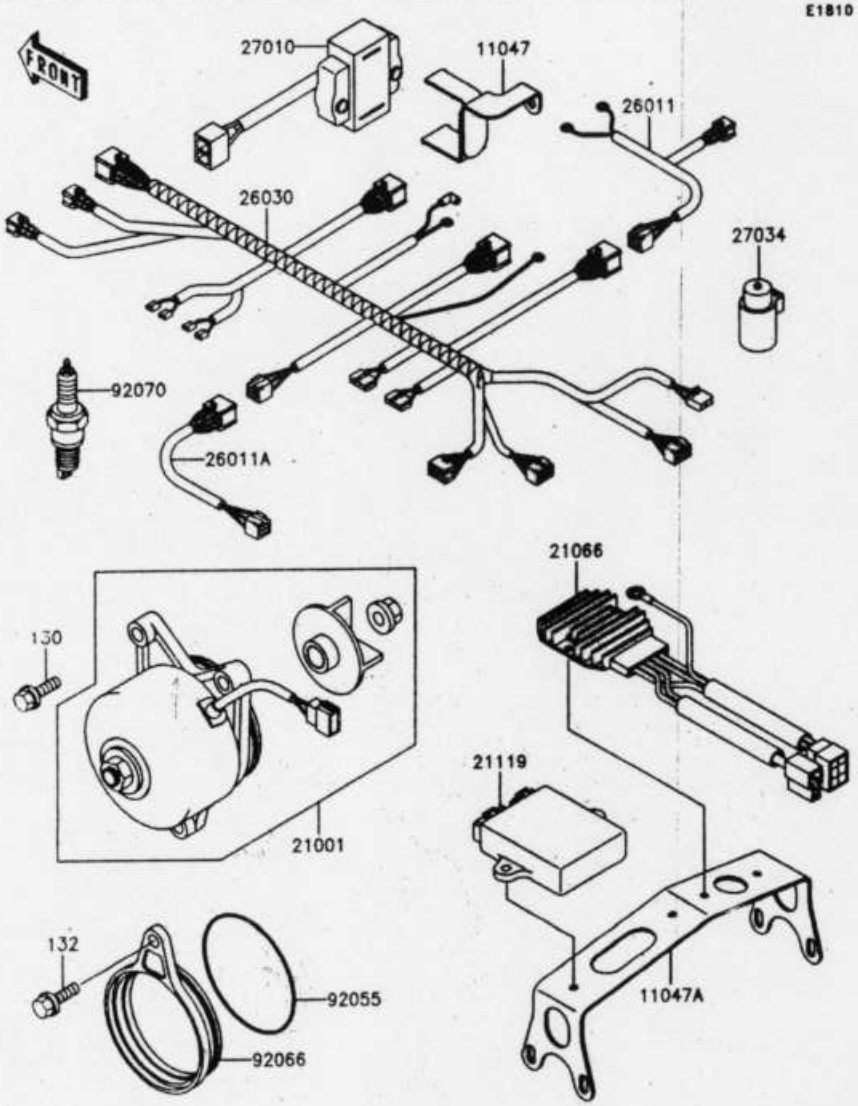
This grid covers:
Gasket/Plug



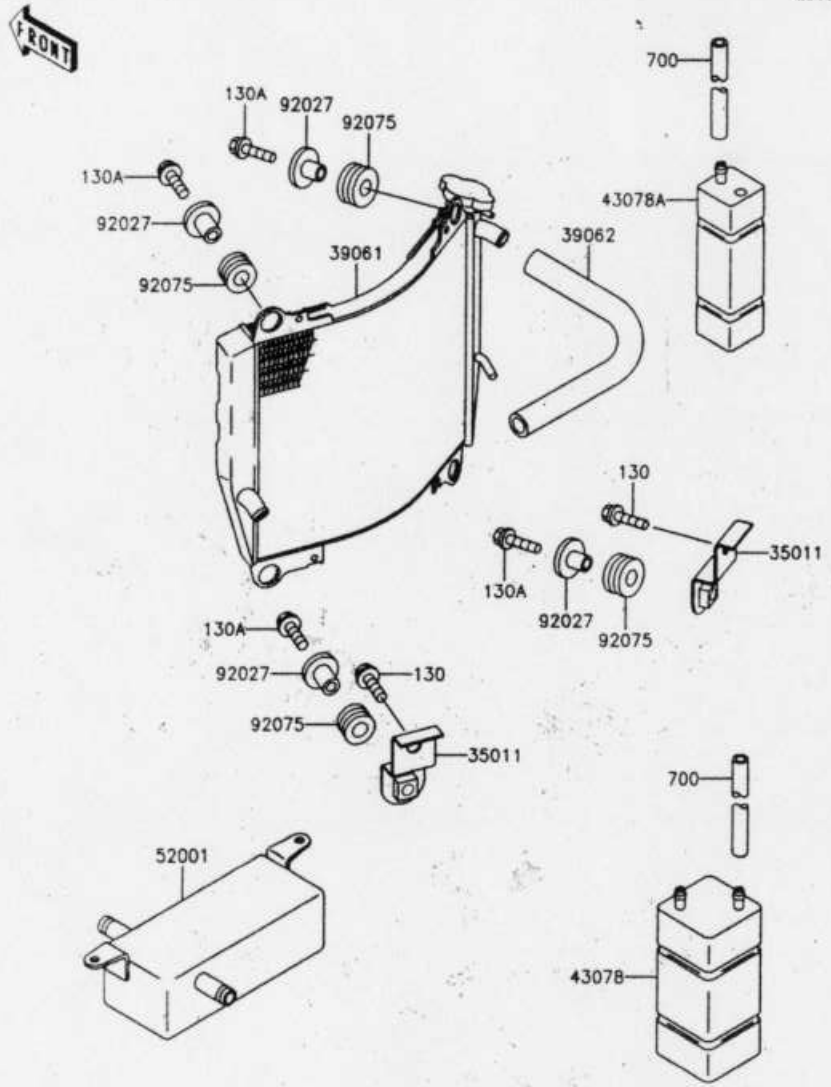
Ref. No.	Part No.	Description	Spec Code	Quantity-ZX750 '92 KR2
11004	11004-1223	GASKET-HEAD		3
11004A	11004-1242	GASKET-HEAD		3
11004B	11004-1243	GASKET-HEAD		3
11060	11060-1079	GASKET,TRANSMISSION COVER		3
11060A	11060-1080	GASKET,CLUTCH COVER		3
11060B	11060-1081	GASKET,OIL PAN		3
11060C	11060-1093	GASKET,CYLINDER BASE		3
55020	55020-1407	GUARD,CRANKCASE,LH		1
55020A	55020-1408	GUARD,CRANKCASE,RH		1
92055	92055-1262	RING-O,24.4MM		1
92066	92066-059	PLUG,OIL LINE,1/8X7		1
92066A	92066-1332	PLUG,STARTER HOLE		1
92066B	92066-1333	PLUG,STARTER HOLE		1
130	130G0625	BOLT-FLANGED,6X25		1
312	312G0600	NUT-HEX,6MM		1
410	410B0800	WASHER-PLAIN-SMALL,8MM		4

B-7 **Electrical Equipment**

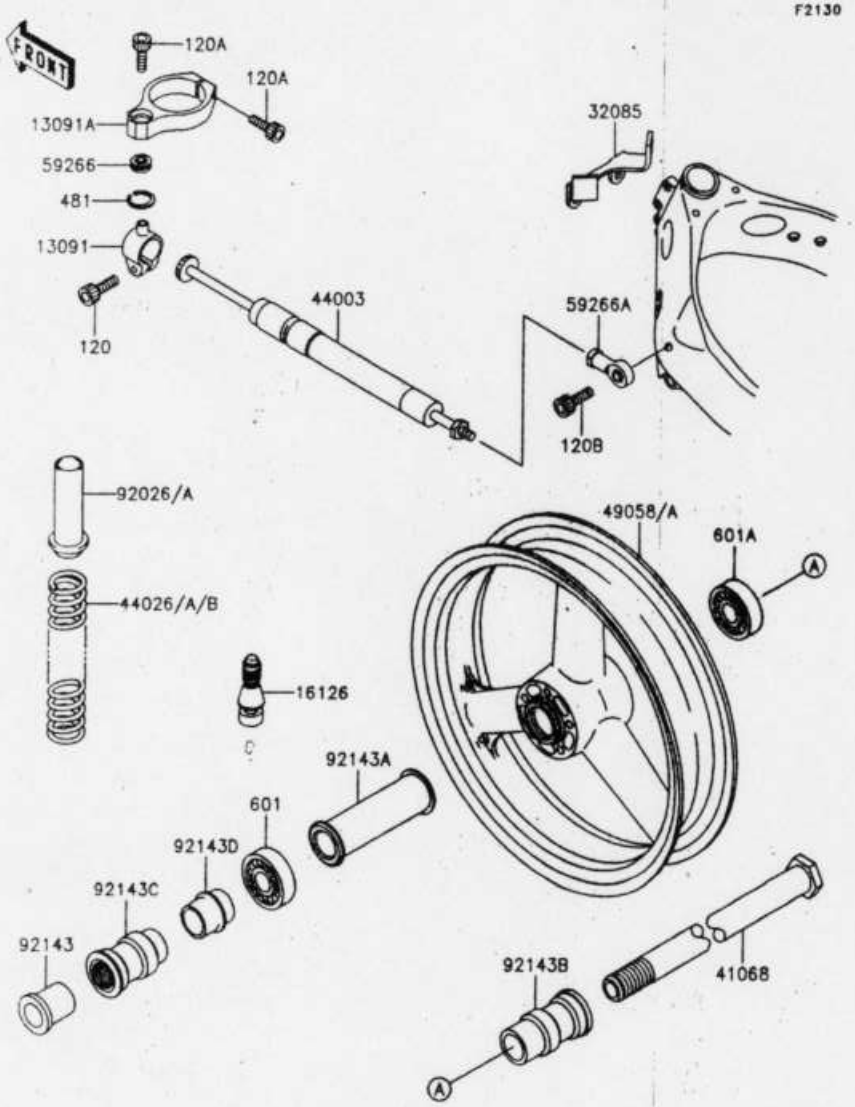
E1810



Ref. No.	Part No.	Description	Spec Code	Quantity-ZX750 '92 KR2
11047	11047-1467	BRACKET		1
11047A	11047-1487 (OPTION)	BRACKET		1
21001	21001-1119 (OPTION)	GENERATOR		1
21066	21066-1066 (OPTION)	REGULATOR-VOLTAGE		1
21119	21119-1358	IGNITER		1
26011	26011-1505	WIRE-LEAD,BATTERY		1
26011A	26011-1508	WIRE-LEAD,GENERATOR		1
26030	26030-1106	HARNESS		1
27010	27010-1306	SWITCH		1
27034	27034-1056	RELAY		1
92055	92055-1357	RING-O,74.6X2.4		1
92066	92066-1363	PLUG		1
92070	92070-1181	PLUG-SPARK,R016-10(NGK)		4
130	130G0825 (OPTION)	BOLT-FLANGED,8X25		3
132	132G0820	BOLT-FLANGED-SMALL		1



Ref. No.	Part No.	Description	Spec Code	Quantity-ZX750 '92 KR2
35011	35011-1593 (OPTION)	STAY		2
39061	39061-1170 (OPTION)	RADIATOR-ASSY		1
39062	39062-1481 (OPTION)	HOSE-COOLING		1
43078	43078-1120	RESERVOIR,FUEL TANK		1
43078A	43078-1121	RESERVOIR,RADIATOR		1
52001	52001-1086	TANK-OIL		1
92027	92027-1651 (OPTION)	COLLAR,FLANGED,L = 12.1,BLACK		4
92075	92075-277 (OPTION)	DAMPER		4
130	130J0610 (OPTION)	BOLT-FLANGED		2
130A	130J0620 (OPTION)	BOLT-FLANGED		4
700	700Q07600	TUBE-PVC		2



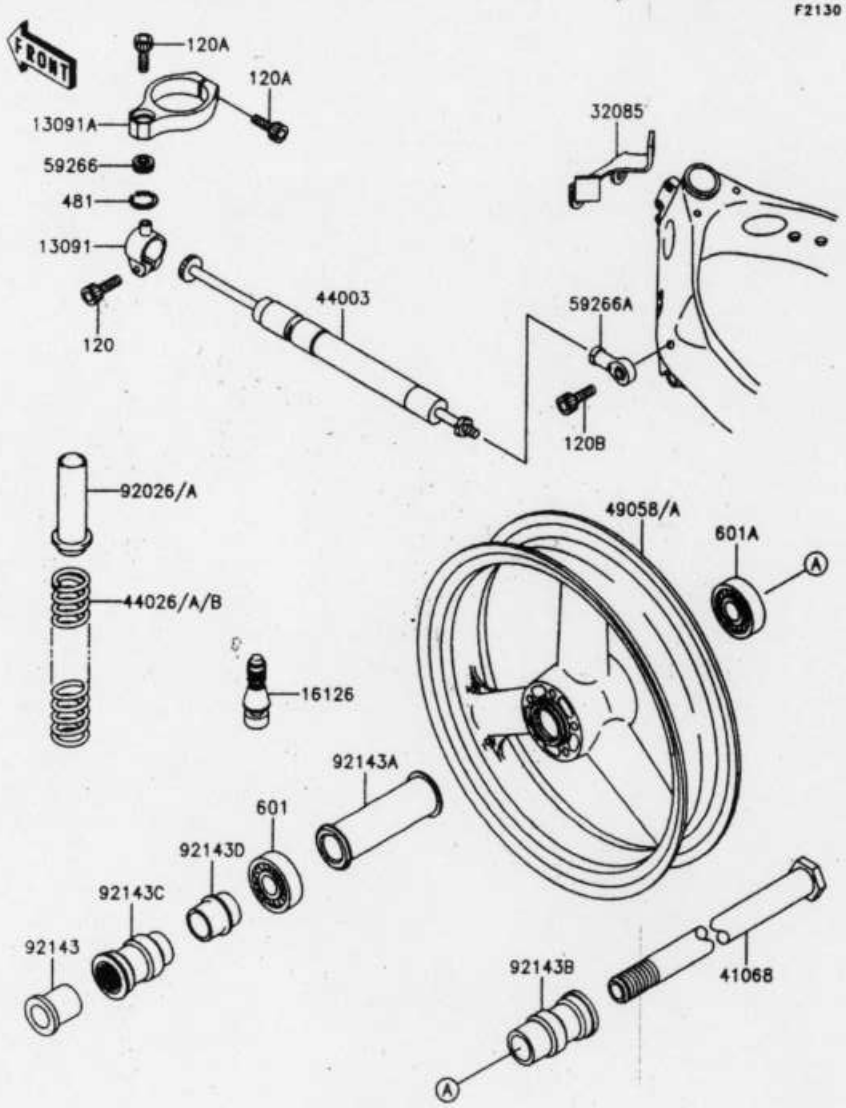
F2130

Ref. No.	Part No.	Description	Spec Code	Quantity-ZX750 '92 KR2
13091	13091-1573 (OPTION)	HOLDER,STRG DAMPER		1
13091A	13091-1758 (OPTION)	HOLDER		1
16126	16126-1136 (OPTION)	VALVE,TIRE		2
32085	32085-1336	STOPPER		1
41068	41068-1332 (OPTION)	AXLE		1
44003	44003-1903 (OPTION)	DAMPER-ASSY,STEERING		1
44026	44026-1522 (OPTION)	SPRING-FRONT FORK,K=0.85		2
44026A	44026-1523 (OPTION)	SPRING-FRONT FORK,K=0.90		2
44026B	44026-1524 (OPTION)	SPRING-FRONT FORK,K=0.95		2
49058	49058-1291 (OPTION)	WHEEL,FR,3.50X17		1
49058A	49058-1292 (OPTION)	WHEEL,FR,3.75X17		1
59266	59266-1078 (OPTION)	JOINT-BALL		1
59266A	59266-1079 (OPTION)	JOINT-BALL		1
92026	92026-1423 (OPTION)	SPACER,FR FORK,L=55MM		2
92026A	92026-1424 (OPTION)	SPACER,FR FENDER,L=60MM		2
92143	92143-1500	COLLAR,L=34.5		1
92143A	92143-1501 (OPTION)	COLLAR,L=96		2
92143B	92143-1502 (OPTION)	COLLAR,L=61.5		1
92143C	92143-1503 (OPTION)	COLLAR,L=52.5		1
92143D	92143-1504 (OPTION)	COLLAR,L=29		2
120	120S0616 (OPTION)	BOLT-SOCKET,6X16,BLACK		1
120A	120S0620 (OPTION)	BOLT-SOCKET,6X20		2
120B	120S0820 (OPTION)	BOLT-SOCKET,8X20		1

This catalog covers:
'92 ZX750-KR2 Chassis

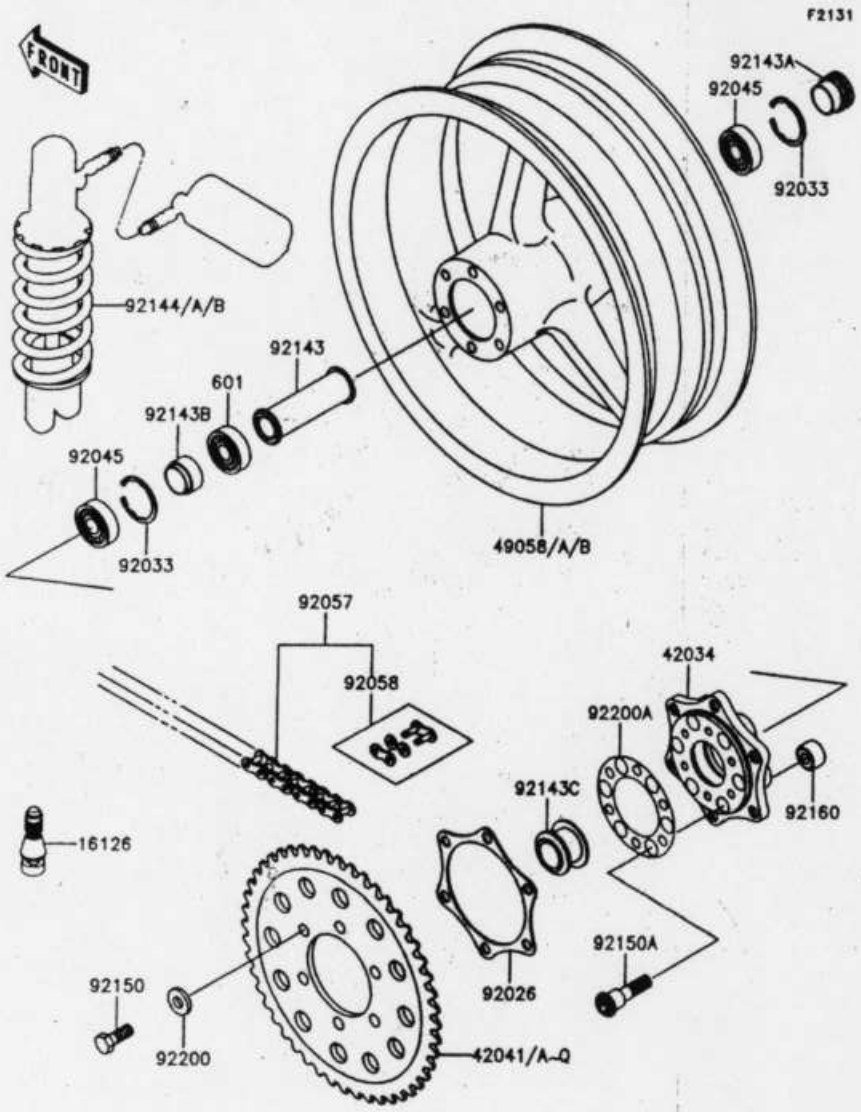
GRID NO. **C-4**

This grid covers:
Steering Damper/Front Hub(2/2)

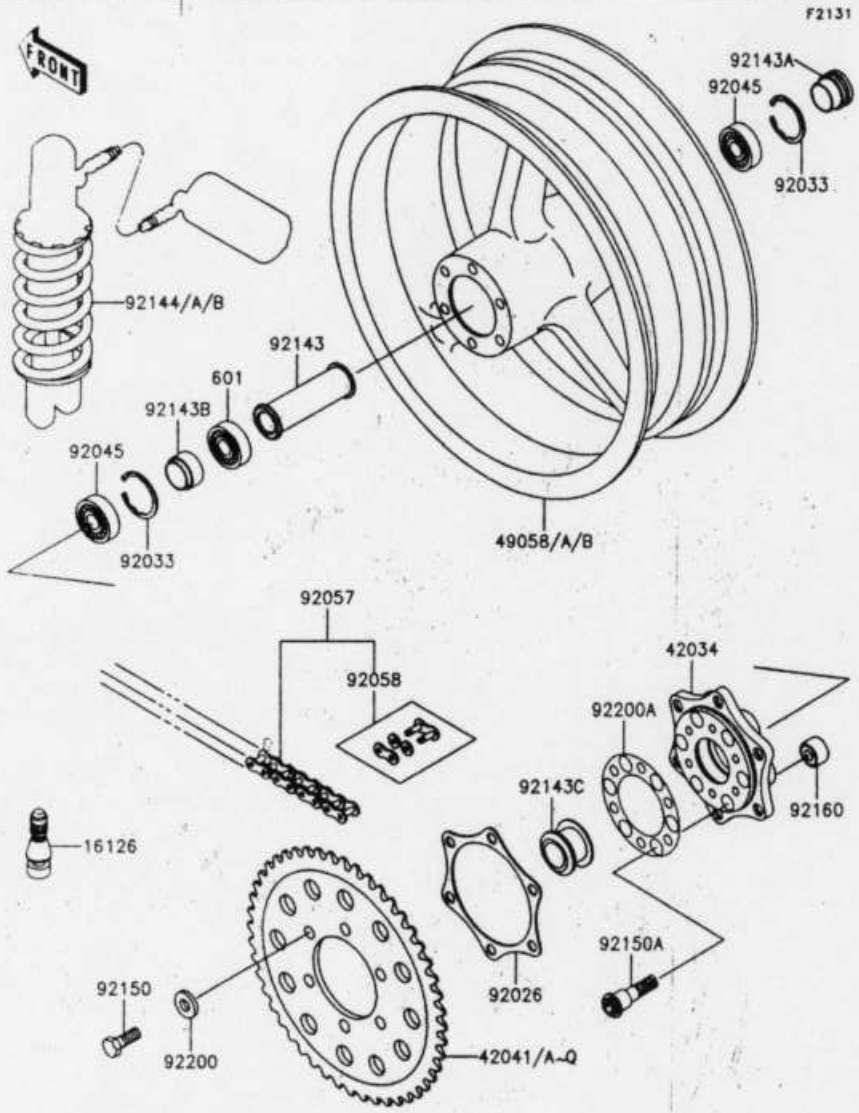


F2130

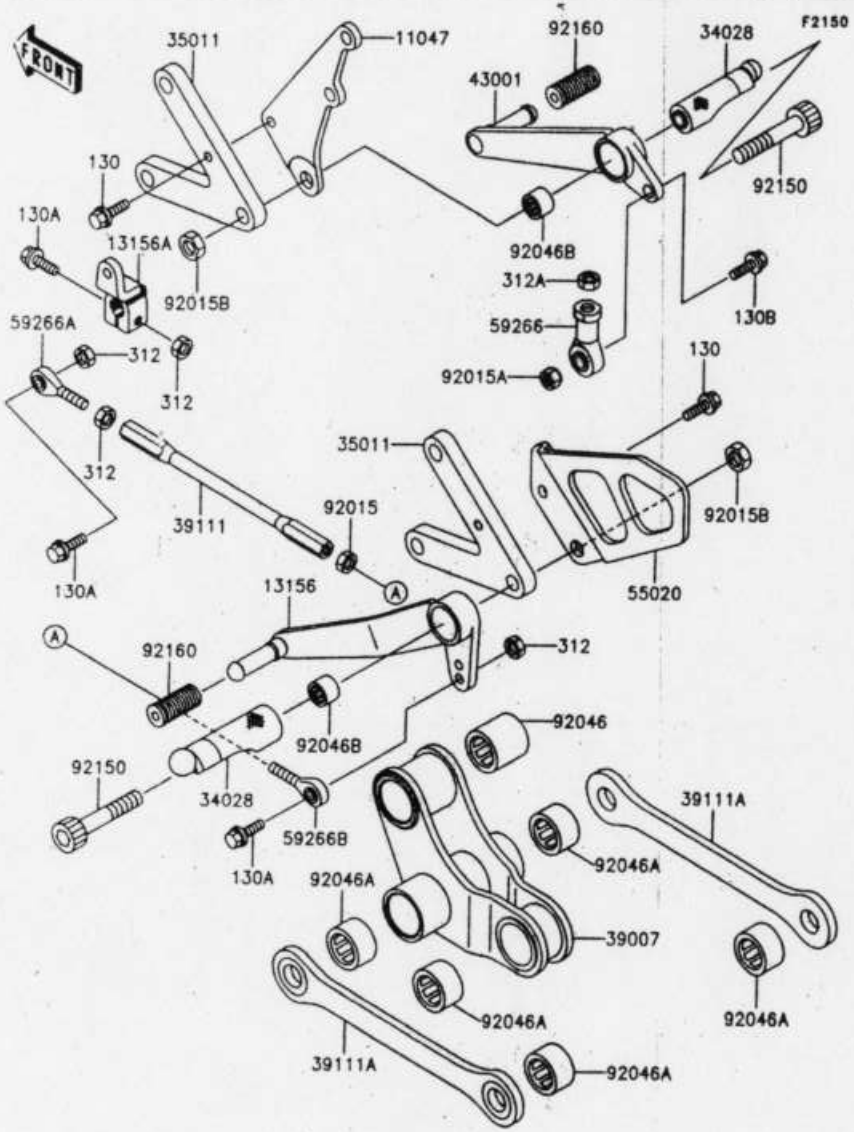
Ref. No.	Part No.	Description	Spec Code	Quantity-ZX750 '92 KR2
481	481J1800 (OPTION)	CIRCLIP-TYPE-C,18MM		1
601	601B6005UU (OPTION)	BEARING-BALL,#6005UU		2
601A	601B6204UU (OPTION)	BEARING-BALL,6204UUC3		2



Ref. No.	Part No.	Description	Spec Code	Quantity-ZX750 '92 KR2
16126	16126-1136 (OPTION)	VALVE,TIRE		3
42034	42034-1123 (OPTION)	COUPLING		3
42041	42041-1388 (OPTION)	SPROCKET-HUB,39T(#520)OP WHEEL		1
42041A	42041-1389 (OPTION)	SPROCKET-HUB,40T(#520)OP WHEEL		1
42041B	42041-1390 (OPTION)	SPROCKET-HUB,41T(#520)OP WHEEL		1
42041C	42041-1391 (OPTION)	SPROCKET-HUB,42T(#520)OP WHEEL		1
42041D	42041-1392 (OPTION)	SPROCKET-HUB,43T(#520)OP WHEEL		1
42041E	42041-1393 (OPTION)	SPROCKET-HUB,44T(#520)OP WHEEL		1
42041F	42041-1394	SPROCKET-HUB,39T(#520)		1
42041G	42041-1395	SPROCKET-HUB,40T(#520)		1
42041H	42041-1396	SPROCKET-HUB,41T(#520)		1
42041I	42041-1397	SPROCKET-HUB,42T(#520)		1
42041J	42041-1398	SPROCKET-HUB,43T(#520)		1
42041K	42041-1399	SPROCKET-HUB,44T(#520)		1
42041L	42041-1401 (OPTION)	SPROCKET-HUB,39T(#530)OP WHEEL		1
42041M	42041-1402 (OPTION)	SPROCKET-HUB,40T(#530)OP WHEEL		1
42041N	42041-1403 (OPTION)	SPROCKET-HUB,41T(#530)OP WHEEL		1
42041O	42041-1404 (OPTION)	SPROCKET-HUB,42T(#530)OP WHEEL		1
42041P	42041-1405 (OPTION)	SPROCKET-HUB,43T(#530)OP WHEEL		1
42041Q	42041-1406 (OPTION)	SPROCKET-HUB,44T(#530)OP WHEEL		1
49058	49058-1293 (OPTION)	WHEEL,RR,5.50X17		1
49058A	49058-1294 (OPTION)	WHEEL,RR,5.50X18		1
49058B	49058-1295 (OPTION)	WHEEL,RR,6.00X17		1
92026	92026-1413 (OPTION)	SPACER,#530 SPROCKET		1
92033	92033-1043 (OPTION)	RING-SNAP,52MM		6



Ref. No.	Part No.	Description	Spec Code	Quantity-ZX750 '92 KR2
92045	92045-1260 (OPTION)	BEARING-BALL		6
92057	92057-1313	CHAIN,DRIVE,120L(#520)		1
92058	92058-1067 (OPTION)	JOINT-CHAIN,DRIVE(#520)		1
92143	92143-1505 (OPTION)	COLLAR,L = 158		3
92143A	92143-1506 (OPTION)	COLLAR,L = 23		3
92143B	92143-1550 (OPTION)	COLLAR		3
92143C	92143-1551 (OPTION)	COLLAR		3
92144	92144-1657 (OPTION)	SPRING,SHOCKABSORBER,K = 6.75		1
92144A	92144-1664 (OPTION)	SPRING,RR SHOCK,K = 6.5		1
92144B	92144-1665 (OPTION)	SPRING,RR SHOCK,K = 7.0		1
92150	92150-1522 (OPTION)	BOLT		18
92150A	92150-1609 (OPTION)	BOLT		18
92160	92160-1378 (OPTION)	DAMPER		18
92200	92200-1042	WASHER,10.5X19X2.3		6
92200A	92200-1141 *(OPTION)	WASHER		8
601	601B6205UU (OPTION)	BEARING-BALL		3

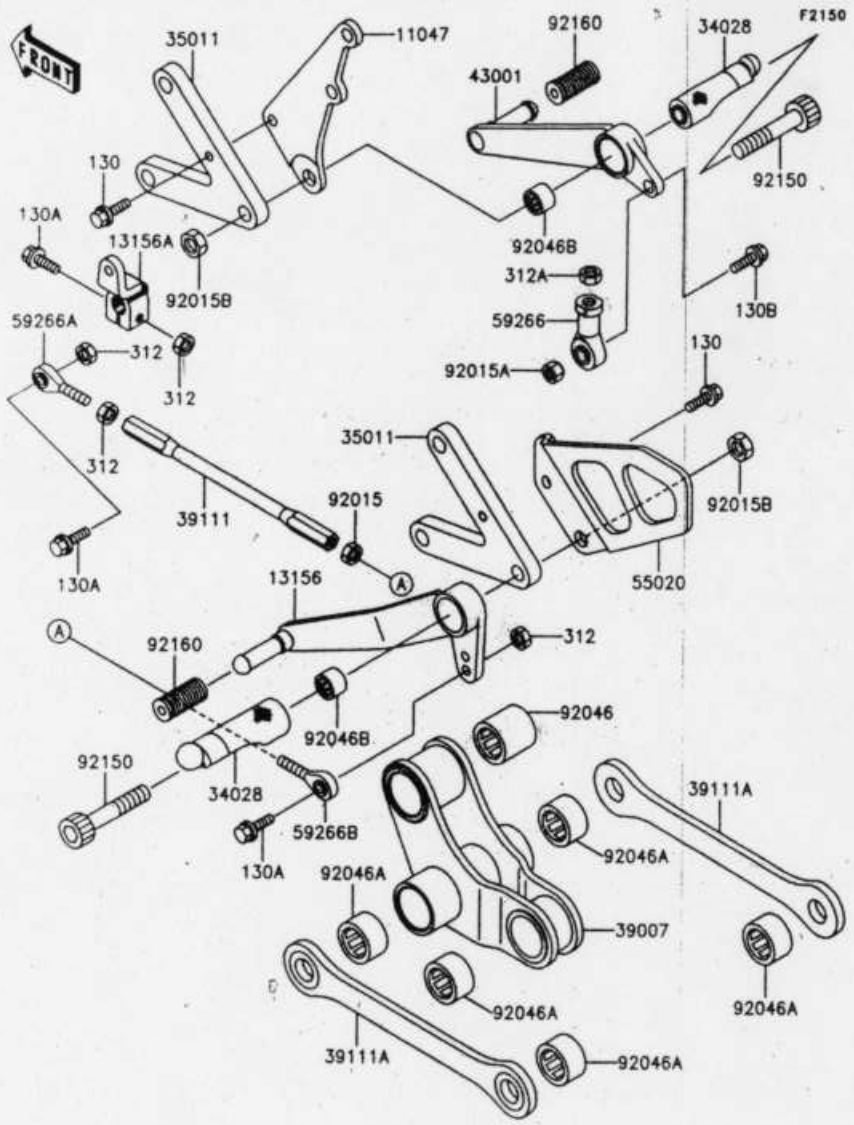


Ref. No.	Part No.	Description	Spec Code	Quantity-ZX750 '92 KR2
11047	11047-1747 (OPTION)	BRACKET		1
13156	13156-1335 (OPTION)	LEVER-CHANGE		1
13156A	13156-1336 (OPTION)	LEVER-CHANGE		1
34028	34028-1342 (OPTION)	STEP		2
35011	35011-1625 (OPTION)	STAY		2
39007	39007-1214 (OPTION)	ARM-SUSP		1
39111	39111-1123 (OPTION)	ROD-TIE		1
39111A	39111-1124 (OPTION)	ROD-TIE		2
43001	43001-1317 (OPTION)	LEVER-BRAKE		1
55020	55020-1406 (OPTION)	GUARD		1
59266	59266-1079 (OPTION)	JOINT-BALL		1
59266A	59266-1084 (OPTION)	JOINT-BALL		1
59266B	59266-1085 (OPTION)	JOINT-BALL		1
92015	92015-1178 (OPTION)	NUT		1
92015A	92015-1205 (OPTION)	NUT,U,8MM,BLACK		1
92015B	92015-1494 (OPTION)	NUT,LOCK,10MM		2
92046	92046-1110 (OPTION)	BEARING-NEEDLE,BM202726		1
92046A	92046-1112 (OPTION)	BEARING-NEEDLE,BM202715		5
92046B	92046-1197 (OPTION)	BEARING-NEEDLE		2
92150	92150-1309 (OPTION)	BOLT		2
92160	92160-1150 (OPTION)	DAMPER		2
130	130G0614 (OPTION)	BOLT-FLANGED,6X14		2

This catalog covers:
'92 ZX750-KR2 Chassis

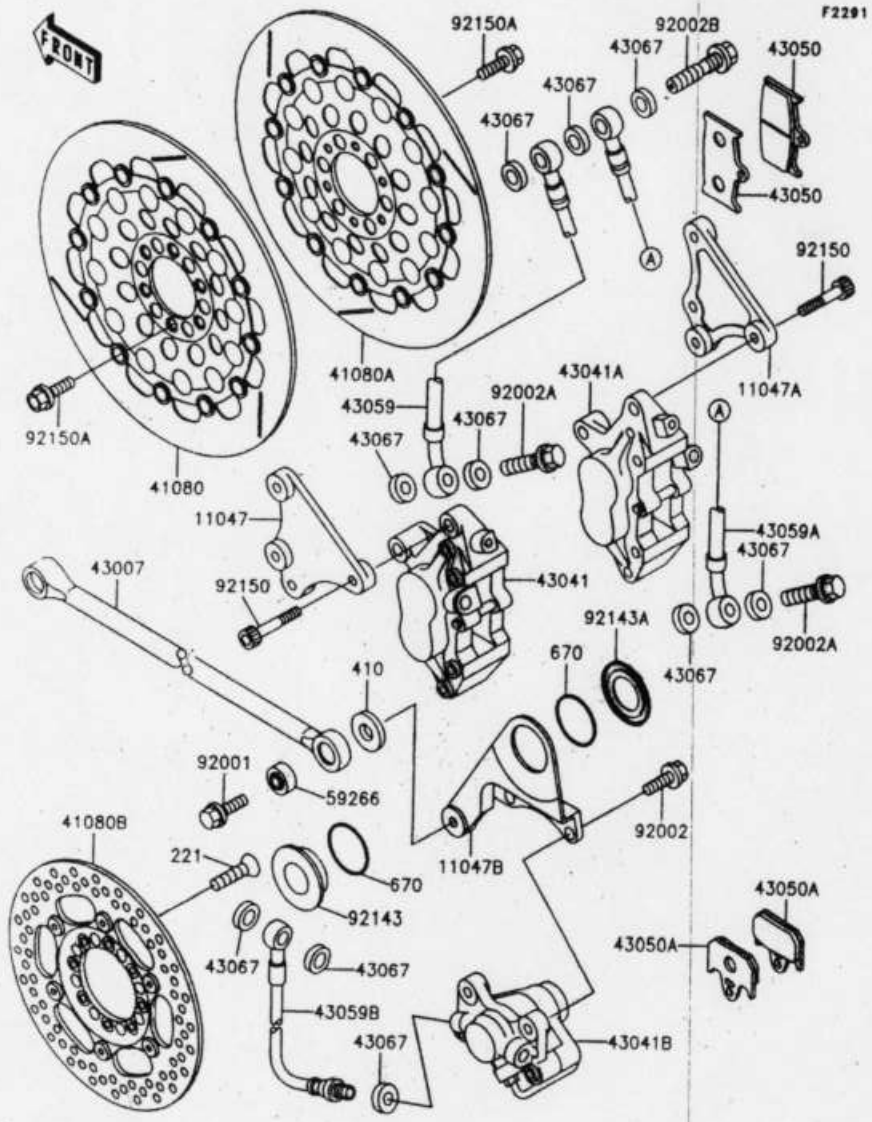
GRID NO.
C-8

This grid covers:
Suspension/Step(2/2)

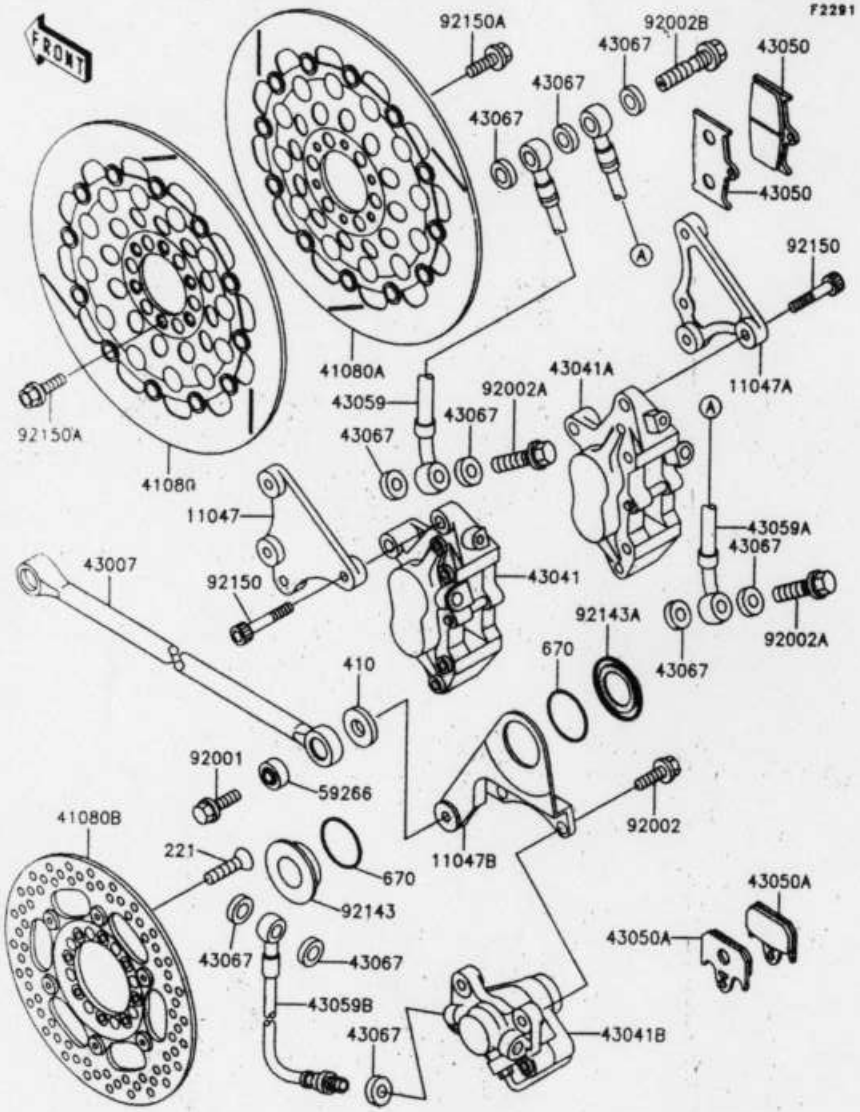


Ref. No.	Part No.	Description	Spec Code	Quantity-ZX750 '92 KR2
130A	130G0625 (OPTION)	BOLT-FLANGED,6X25		3
130B	130G0825 (OPTION)	BOLT-FLANGED,8X25		1
312	312B0600 (OPTION)	NUT-HEX,6MM		4
312A	312B0800 (OPTION)	NUT-HEX,8MM		1

C-9 Disc Brake(1/2)



Ref. No.	Part No.	Description	Spec Code	Quantity-ZX750 '92 KR2
11047	11047-1483 (OPTION)	BRACKET		1
11047A	11047-1484 (OPTION)	BRACKET		1
11047B	11047-1748 (OPTION)	BRACKET		1
41080	41080-1332 (OPTION)	DISC,FR,LH		1
41080A	41080-1333 (OPTION)	DISC,FR,RH		1
41080B	41080-1334 (OPTION)	DISC,RR		1
43007	43007-1164 (OPTION)	ROD-TORQUE		1
43041	43041-1459 (OPTION)	CALIPER-ASSY,FR,LH		1
43041A	43041-1460 (OPTION)	CALIPER-ASSY,FR,RH		1
43041B	43041-1461 (OPTION)	CALIPER-ASSY,RR		1
43050	43050-1234	PAD-BRAKE,FRONT		4
43050A	43050-1235	PAD-BRAKE,REAR		2
43059	43059-1707 (OPTION)	HOSE-BRAKE		1
43059A	43059-1708 (OPTION)	HOSE-BRAKE		1
43059B	43059-1709 (OPTION)	HOSE-BRAKE		1
43067	43067-001 (OPTION)	WASHER,10.5X15X1.5		10
59266	59266-1094 (OPTION)	JOINT-BALL		1
92001	92001-1691 (OPTION)	BOLT,FLANGED,8X25		1
92002	92002-1417 (OPTION)	BOLT,FLANGED,8X20		2
92002A	92002-1888 (OPTION)	BOLT,OIL,L=23		2
92002B	92002-1909 (OPTION)	BOLT,OIL,L=37		1
92143	92143-1583 (OPTION)	COLLAR		1
92143A	92143-1584 (OPTION)	COLLAR		1



Ref. No.	Part No.	Description	Spec Code	Quantity-ZX750 '92	Quantity-ZX750 KR2
92150	92150-1405 (OPTION)	BOLT,SOCKET,10X30			4
92150A	92150-1521 (OPTION)	BOLT			12
221	221R0625 (OPTION)	SCREW-CSK-CROS,6X25			8
410	410B0800 (OPTION)	WASHER-PLAIN-SMALL,8MM			1
670	670C3039 (OPTION)	O RING			2