AN125

MANUAL DE SERVIÇOS

99500A32190B042

INTRODUÇÃO

A SUZUKI AN125 foi projetada para proporcionar desempenho superior tendo um baixo peso, e um potente motor de quatro tempos.
A nova AN125 representa um outro grande avanço da SUZUKI em motores 4 tempos.
Este manual de serviço foi produzido especialmente para mecânicos experientes, com os treinamentos Suzuki J Toledo S1 e S2, cujo trabalho é inspecionar, ajustar, reparar e efetuar a manutenção de motocicletas SUZUKI. Mecânicos inexperientes e não profissionais também podem usar este manual como um guia de reparos extremamente útil. Este manual foi baseado nas informações mais recentes disponíveis sobre o produto no momento de sua publicação.
Reservamo-nos o direito de atualizar e efetuar correções neste manual a qualquer momento.

As figuras dispostas neste manual são meramente ilustrativas.

J. TOLEDO SUZUKI MOTOS DO BRASIL
Departamento de Serviço

ÍNDICE GERAL

Assistência Técnica

IBAMA
PROMOT
HOMOLOGADO

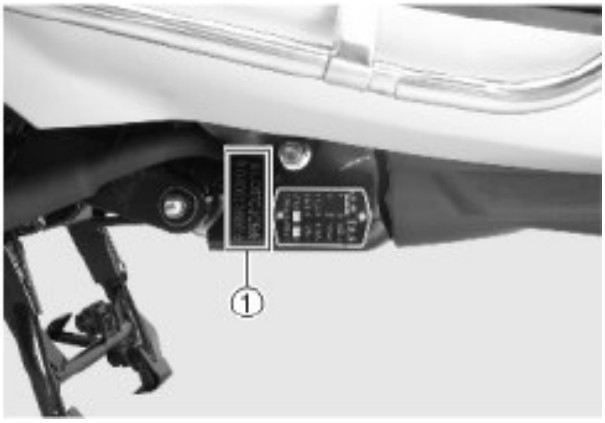
INFORMAÇÕES GERAIS

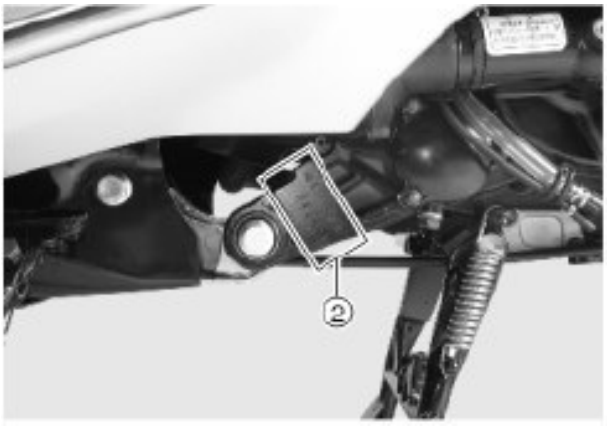
1

Índice

LOCALIZAÇÃO DO NÚMERODE SÉRIE

O número de série do chassi ou VIN (Número de LOCALIZAÇÃO DOS NÚMEROS DE SÉRIE E VIN Identificação do Veículo) ① está gravado no lado direito inferior do chassi. O número de série do motor ② está localizado no lado esquerdo da carcaça do motor. Estes números são necessários especialmente para o registro da motocicleta e solicitação de peças de reposição.





RECOMENDAÇÕES SOBRE COMBUSTÍVEL E ÓLEO

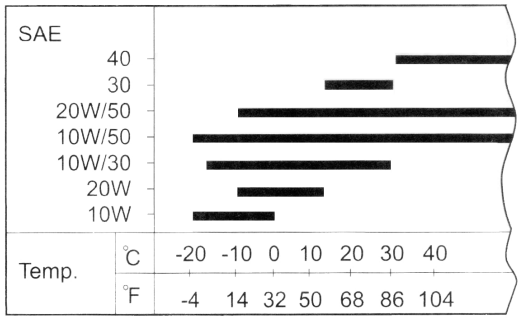
COMBUSTÍVEL

Use somente gasolina sem chumbo de octanagem 85~95 octanos pelo método $\frac{R + M.}{2}$

NOTA
O uso de gasolina sem chumbo irá aumentar a vida útil da vela de ignição.

ÓLEO PARA MOTOR

Certifique-se de que o óleo utilizado atenda a classificação de serviço API (American Petroleum Institute), SF/SG ou SH/SJ com JASO MA com viscosidade SAE 20W50. Se não houver disponibilidade, selecione um óleo alternativo, segundo o diagrama abaixo.



ÓLEO DE AMORTECEDOR DIANTEIRO

Use óleo para amortecedor n° 15

PROCEDIMENTO DE AMACIAMENTO

Durante a fabricação, somente os melhores materiais existentes são utilizados e todas as peças usinadas têm acabamento de alto padrão. Mesmo assim, ainda é necessário fazer o amaciamento das peças móveis. O rendimento futuro e confiabilidade do motor dependem do cuidado e controle mantidos durante os primeiros quilômetros de uso.

- Mantenha estes limites iniciais de rotações do motor durante o amaciamento:

800 km iniciais	Até ½ acelerador
Até 1.600 km	Até ¾ acelerador
Acima de 1.600 km	Abertura total do acelerador

- Ao atingir 1.600 km, pode-se submeter a motocicleta à abertura total do acelerador.
- Não mantenha a rotação constante durante um longo período durante o amaciamento do motor. Varie a rotação do motor ocasionalmente.

PRECAUÇÕES E INSTRUÇÕES GERAIS

Observe sempre os seguintes ítens durante os reparos de desmontagem e montagem da motocicleta.
- Não ligue o motor em locais fechados com pouca ou nenhuma ventilação.
- Certifique-se de substituir anéis, juntas, travas, anéis de vedação e cupilhas por novas.

⚠ATENÇÃO
Nunca reutilize os anéis elásticos. Após o anel elástico ser removida de um eixo, deverá ser descartado e um novo anel instalado.
Ao instalar um novo anel elástico, seja cuidadoso para não expandir suas extremidades mais do que o necessário ao deslizá-lo sobre o eixo.
Após a instalação, sempre certifique-se de que o anel esteja completamente assentado em sua ranhura e firmemente encaixado.

- Aperte parafusos e porcas, começando pelos de diâmetro maior e terminando pelos de diâmetro menor, diagonalmente de dentro para fora, com o torque de aperto especificado.
- Certifique-se de usar as ferramentas especiais quando especificado.
- Use somente peças genuínas e óleos lubrificantes recomendados.
- Quando duas ou mais pessoas trabalharem juntas, preste atenção na segurança mútua.
- Após a montagem, verifique se as peças estão apertadas e funcionando corretamente.
- Seja bastante cuidadoso ao manusear gasolina, pois esta é extremamente inflamável e altamente explosiva. Nunca utilize gasolina como solvente de limpeza.

As palavras, CUIDADO, ATENÇÃO e NOTA aparecem ocasionalmente neste manual, e apresentam os seguintes tipos de informações.

⚠CUIDADO
Indica risco em potencial ao condutor, o que poderia resultar em perigo de vida ou ferimentos pessoais.

⚠ATENÇÃO
Indica risco em potencial que poderia resultar em danos à motocicleta.

NOTA
Indica informações especiais para facilitar a manutenção e tornar os procedimentos mais claros.

PEÇAS DE REPOSIÇÃO

Ao substituir qualquer componente, use somente peças de reposição genuínas SUZUKI ou seus equivalentes.
As peças genuínas SUZUKI são de alta qualidade e foram projetadas e produzidas para motocicletas SUZUKI.

⚠ATENÇÃO
O uso de peças que não sejam equivalentes em qualidade às peças genuínas SUZUKI podem causar problemas e severos danos.

ESPECIFICAÇÕES TÉCNICAS

DIMENSÕES E PESO A SECO

Comprimento total	1772 mm
Largura total	682 mm
Altura total	1112 mm
Distância entre eixos	1255 mm
Altura mínima do solo	120 mm
Peso seco	112 g

Motor

Tipo	Quatro tempos, refrigerado a ar forçado, OHC
Número de cilindros	1
Diâmetro do cilindro	52,0 mm
Curso do pistão	58,6 mm
Cilindrada	124 cm^3
Taxa de compressão	10.2:1
Carburador	MIKUNI BS26SS, único
Filtro de ar	Elemento de papel
Sistema de partida	Elétrica com pedal de partida
Sistema de lubrificação	Carter úmido

TRANSMISSÃO

Embreagem	Centrifuga automática seca
Padrão do câmbio de marchas	Variável (CVT)
Sistema de transmissão	Correia
Redução final	8.294 (45/17x47/15)

SISTEMA ELÉTRICO

Sistema de ignição	Transistorizado
Ponto de ignição	10º APMS / 1600rpm
Vela de ignição	NGK CR6E ou NHSP LD B6RC
Bateria	12V 21.6Kc (6Ah) / 10h
Fusível	15A
Lâmpada do farol	12V 35/35W
Lâmpada da lanterna traseira/luz do freio	12V 5/21W
Lâmpada de seta	12V 10W x 4
Lâmpada indicadora da seta	12V 3,4W x 2
Lâmpada do velocímetro	12V 1,7W
Lâmpada do tacômetro	12V 1,7W
Lâmpada indicadora do farol alto	12V 1,7W
Lâmpada do bagageiro	12V 2W

CHASSI

Suspensão dianteira	Garfo telescópio, mola helicoidal, amortecida a óleo
Suspensão traseira	Braço oscilante, amortecida a óleo,
Ângulo de esterçamento	45º (direita e esquerda)
Caster	65°
Trail	96 mm
Raio de giro	1,9 m
Freio dianteiro	Disco
Freio traseiro	Expansão interna
Pneu dianteiro	3.50-10 reinf 59J TL ME1
Pneu Traseiro	3.50-10 reinf 59J TL ME1

CAPACIDADES

Tanque de combustível, incluindo reserva	7,8 L
Óleo do motor sem troca de filtro	800 ml
Óleo do motor com troca de filtro	850 ml
Óleo da redução final na troca	90 ml
Óleo da redução final na desmontagem	90 ml
Óleo do garfo dianteiro	85 ml

* Estas especificações estão sujeitas a alterações sem prévio aviso.

MANUTENÇÃO PERIÓDICA E PROCEDIMENTOS DE AJUSTE

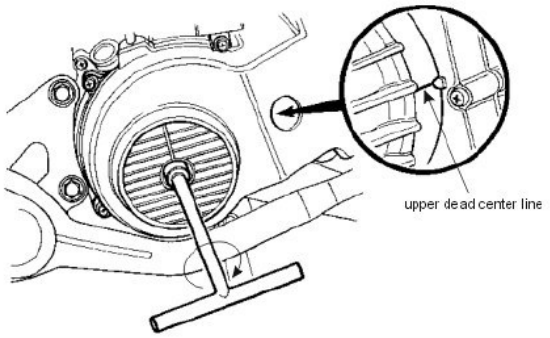
Índice

2

FOLGA DE VÁLVULAS

Inspecione inicialmente aos 1 000 Km e depois a cada 3.000 Km.

Folga de válvula excessiva causa barulho de válvula e folga de válvula insuficiente causa danos às válvulas e reduz a potência. Nas quilometragens indicadas acima, verifique e ajuste as folgas de acordo com a seguinte especificação.



O procedimento para ajustar as folgas de válvulas é o seguinte:

- Remova a tampa de manutenção do motor.
- Remova a vela de ignição, tampa de inspeção das válvulas e bujão de inspeção de ponto das válvulas.
- Remova a capa a capa plástica que fecha o orifício ao centro da hélice de refrigeração e gire a helice com uma chave soquete de 17 mm para posicionar o pistão no PMS no tempo de compressão.
  (Gire o rotor até que a marca "I" do rotor fique alinhada com o centro).
- Insira o calibrador de lâminas entre a cabeça da haste da válvula e o parafuso de ajuste do balancim.

Calibrador de lâminas	09900-20803

Especificações de folga de válvulas

ADM (IN)	0,08 ~ 0,13 mm
ESC (EX)	0,08 ~ 0,13 mm

- Reinstale a vela de ignição, a tampa de inspeção das válvulas, bujão de inspeção de ponto de válvulas e capa da tampa da hélice.

NOTA
As folgas de válvulas devem ser verificadas com o motor frio.
As válvulas de admissão e escape devem ser verificadas com o pistão no ponto morto superior (PMS) no tempo de compressão.

DIREÇÃO

Inspecione inicialmente aos 1.000 km e depois a cada 3.000 km

Os rolamentos da coluna de direção devem ser ajustados de modo a proporcionarem um giro suave do guidão e condução segura.
Uma direção muito dura faz com que a direção não gire com suavidade.
Uma direção muito folgada causará vibrações e danos aos rolamentos da direção. Verifique se há folga na fixação dos garfos dianteiros.

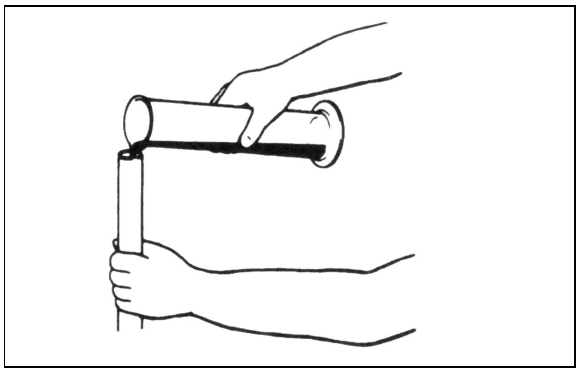
Se houver folga, faça o ajuste dos rolamentos da direção conforme descrito deste manual.

Torque de aperto

ITEM		N.m	Kg.m
Ⓐ	Parafusos dos suportes dos guidões	12 – 20	1,2 – 2,0
Ⓑ	Parafuso superior da coluna de direção	30	3,0
Ⓒ	Eixo da roda diant.	53	5,3
Ⓓ	Parafuso da mesa inferior do garfo dianteiro	23	2,3

GARFO DIANTEIRO

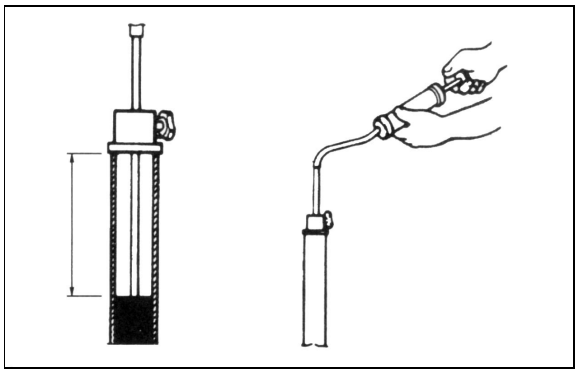
Troque o óleo a cada 6.000 km



- Remova o garfo dianteiro.
- Drene o óleo do garfo.
- Adicione a quantidade especificada de óleo na parte superior do cilindro interno.

Quantidade especificada (cada amortecedor): 85 ml

Especificação: Óleo para amortecedor n° 15



Torque de aperto

ITEM	N.m	Kg.m
Parafuso superior do garfo dianteiro	45	4,5
Parafuso da mesa inferior do garfo dianteiro	23	2,3

MOTOR

Índice

PRESSÃO DE COMPRESSÃO E PRESSÃO DE ÓLEO

PRESSÃO DE COMPRESSÃO

NOTA
Antes de medir a compressão do motor, certifique-se de que os parafusos e porcas do cabeçote estejam apertadas com o torque especificado e que as válvulas estejam ajustadas.
Aqueça o motor em marcha lenta antes da medição.

①	Medidor de compressão	09915-64510
②	Adaptador	09915-63310

- Remova a vela de ignição.
- Conecte o medidor de compressão no furo da vela, tomando cuidado para que a conexão fique bem apertada.
- Gire a manopla do acelerador para a posição totalmente aberta.
- Dê partida no motor várias vezes com o motor de partida, e tome o maior valor registrado como sendo o valor de compressão do motor.

Pressão de compressão

Padrão	Limite
14 Kg/cm²	9,8Kg/cm²

Uma pressão de compressão muito baixa pode indicar algum dos seguintes problemas:
- Camisa do cilindro excessivamente gasta
- Pistão ou anéis gastos
- Anéis presos nas canaletas do pistão
- Mau assentamento de válvula
- Defeito na junta do cabeçote

Quando a pressão de compressão estiver abaixo do limite indicado acima, o motor deve ser desmontado, inspecionado e reparado com estas 5 possibilidades de problemas em mente.

PRESSÃO DE ÓLEO

- Instale o manômetro de pressão de óleo (3) na posição mostrada na ilustração.
- Aqueça o motor conforme as instruções abaixo.
- Verão - aproximadamente 10 minutos a 2000 rpm
- Inverno - aproximadamente 20 minutos a 2000 rpm

- Após o aquecimento, aumente a rotação do motor para 3 000 rpm, e verifique a pressão do óleo.

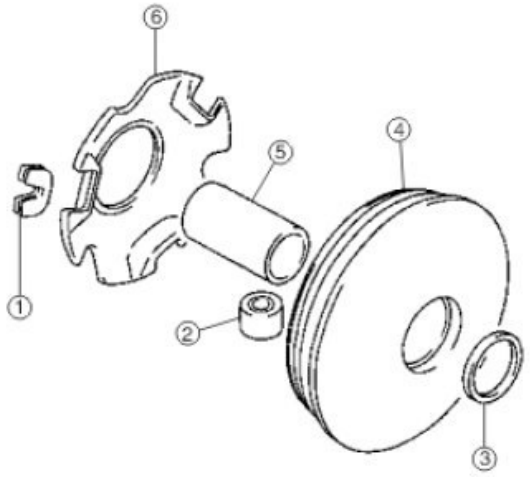
Pressão do óleo

③	Manômetro de pressão de óleo	09915-74510

Acima de 0,15 Kg/cm²
Abaixo de 0,35 Kg/cm² a 3 500 rpm

Se a pressão estiver muito baixa, isso significa que a bomba de óleo está desgastada internamente ou defeituosa e o conjunto da bomba de óleo deve ser substituído.

CVT – TRANSMISSÃO VARIÁVEL



① Deslizadores
② Roletes
③ Retentor
④ Polia
⑤ Bucha
⑥ Placa da polia

INSPEÇÃO DO RETENTOR DE ÓLEO

Inspecione o retentor quanto a desgaste e danificações. Em caso de defeitos substitua-o por um novo.

ROLETES DO VARIADOR DE VELOCIDADE

Inspecione quanto ao desgaste anormal e danificações na superfície de deslizamento e meça o diâmetro externo dos roletes com um paquímetro.Se em algum ponto a medida estiver abaixo da especificada substitua-o por um novo.

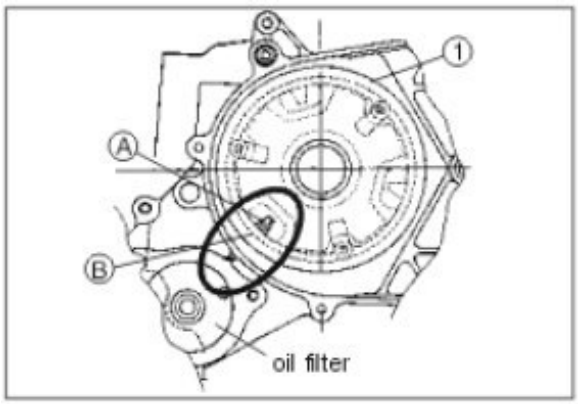
Limite de uso	16.4 mm

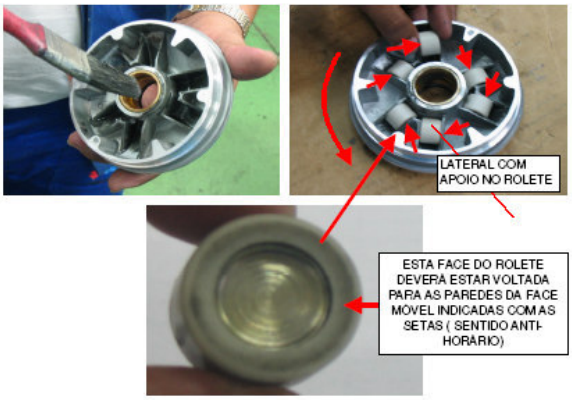
INSPEÇÃO DA POLIA

Verifique as faces da polia quanto a desgaste anormal ou coloração proveniente de superaquecimento. Em caso de qualquer defeito detectado substitua-a por uma nova.

MONTAGEM

- Aplique graxa na cavidade a polia A e no lábio do retentor B.
- Instale os seis roletes de modo que a face com a borda de plástico fique contra o sentido de rotação da polia de modo propiciar um melhor apoio e deslizamento dos roletes.
- Monte a a face móvel da polia junto ao eixo do virabrequim posicionando o motor no PMSna compressão e alinhando o deslizador Ⓐ com marca Ⓑ na carcaça do motor junto ao filtro de óleo.



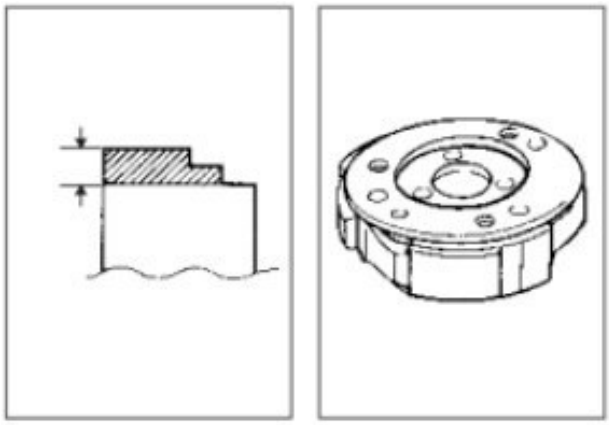


Atenção: Nunca fixe o virabrequim pela porca do magneto para apertar a porca da polia do CVT pois isto irá causar distorção no virabrequim podendo ocasionar vibração no motor e alteração do sincronismo da ignição**.**

POLIA FIXA / EMBREAGEM

Inspecione as sapatas da embreagem quanto a rachaduras desgaste ou queima.
Meça a espessura das sapatas de fricção com um paquímetro:
No caso de defeito ou desgaste acima do limite substitua a embreagem por uma nova.

LIMITE DE SERVIÇO: 2,0mm



INSPEÇÃO DA CAMPANA DA EMBRAGEM

Verifique a superfície de contato quanto a trincas, desgaste anormal descoloração causado por superaquecimento;
Meça o diâmetro :

Limite de uso	125.5

INFORMAÇÕES DE SERVIÇO

5

Índice

INFORMAÇÕES DE SERVIÇO

VÁLVULA + GUIA

Unidade: mm

ITEM	PADRÃO		LIMITE DE USO
Diâmetro da válvula	ADM.	25.5	-
	ESC.	22.5	-
Folga das válvulas (com motor frio)	ADM.	0.08 – 0.13	-
	ESC.	0.08 – 0.13	-
D.I da guia da válvula	ADM. e ESC.	5,000 - 5.012	-
D.E da haste da válvula	ADM.	4,975 - 4,990	-
	ESC.	4,955 - 4,970	-
Empenamento da haste da válvula	ADM. e ESC.	-	0,05
Espessura da cabeça da válvula	ADM. e ESC.	-	0,5
Comprimento da extremidade da haste da válvula	ADM. e ESC.	-	4,5
Largura da sede da válvula	ADM. e ESC.	0,9 - 1,1	-
Empenamento radial da cabeça da válvula	ADM. e ESC.	-	0,03
Comprimento livre da mola da válvula (ADM e ESC.)	interna	-	29.7
	externa	-	29.6
Tensão da mola da válvula (ADM. e ESC.)	interna	5.58 – 6.42 kg no comprimento de 26,78 mm	-
	interna	6.5 – 7.5kg no comprimento de 29.78 mm	-

ÁRVORE DE COMANDO + CABEÇOTE

Unidade: mm

ITEM	PADRÃO		LIMITE DE USO
Altura do ressalto	ADM.	32.970 – 33.010	32.670
	ESC.	32.850 - 32890	32.550
D.I do balancim	ADM. e ESC	12,000 - 12,018	-
D.E. do eixo do balancim	ADM. e ESC	11,966 - 11,984	-
Empenamento do cabeçote	-	-	0,05

CILINDRO + PISTÃO + ANEL DO PISTÃO Unidade: mm (pol.)

ITEM			PADRÃO	LIMITE DE USO
Pressão de compressão			14 kg/ cm²	9.8 kg/cm²
Folga entre o cilindro e o pistão			0,030 – 0,040	0,120
Diâmetro do cilindro			52,000 - 52,015	52,100
Diâmetro do pistão			51,965 - 51980 Medido a 9 mm a partir da extremidade da saia	51,880
Empenamento do cilindro	-			0,05
Folga das extremidades livres do anel do pistão	1º			4,8
	2º			4,9
Folga das extremidades do anel do pistão e a canaleta	1º		-	0,18
	2º			0,15
Largura da canaleta do anel do pistão	1º		1,01 - 1,03	-
	2º		1,01 - 1,03-	-
	Óleo		2,01 – 2.03	-
Espessura do anel do pistão	1º		0,97 - 0,99	-
	2º		0,97 - 0,99	-
Cavidade do pino do pistão	-		14,002 – 14,008	14.030
D.E. do pino do pistão	-		13.996 – 14.000	13.980

BIELA + ÁRVORE DE MANIVELAS + CONTRA PESO

ITEM	PADRÃO		LIMITE DE USO
D.I. da cabeça da biela	14.006 – 14.014	-	14.040
Deflexão da biela		-	3,0
Folga lateral do colo da biela	0,1 - 0,45	-	1,0
Largura do colo da biela	15,95 – 16,00		-
Largura entre os contrapesos da árvore de manivelas	46,0 ± 0,1		-
Empenamento da árvore de manivelas	-		0,05

BOMBA DE ÓLEO

ITEM	PADRÃO	LIMITE DE USO
Redução da bomba de óleo	1,566 (47/30)	-
Pressão do óleo (a 60º C, 140º F)	Acima de (0,15kg/ cm²) Abaixo de (0,35 kg/ cm²) a 3,000rpm	-

EMBREAGEM Unidade: mm (pol.)

ITEM	PADRÃO	LIMITE
Diâmetro da campana de embregem	125.0 a 125.2	125.5
Espessura das sapatas	3,0	2,0
Rotação de início de engate da embreagem	3000 – 3300rpm	-
Rotação de engate final da embreagem	4100 - 4900	-

TRASMISSÃO + CORREIA DE TRASMISSÃO

Unidade: mm

ITEM	PADRÃO	LIMITE DE USO
Redução primária	2.433 - 0813	-
Redução final	8.294 (45/17 x 47/15)	-
Largura da correia	18.9	18
Diâmetro externo dos roletes	17.0	16.4
Comprimento livre da mola da embreagem	75,3	71,6

CARBURADOR

ITEM	ESPECIFICAÇÃO
Tipo de carburador	BS26
Diâmetro interno	26 mm
Nº de identificação	37G0 ou 37G3
Rotações de marcha lenta	1.600 ± 100 rpm
Nível da bóia	21,4 ± 1,0 mm
Giclê principal	nº 97.5
Giclê principal de ar	0,6 mm
Giclê de agulha	4DX27-3
Giclê de partida	27.5
Giclê de baixa	40
Folga do cabo do acelerador	0,5 - 1,0 mm
Parafuso de mistura	2 e 3/8 voltas
Difusor	P-0

SISTEMA ELÉTRICO

Unidade: mm

ITEM	ESPECIFICAÇÃO		NOTA
Ponto de ignição	10º A.P.M.S. à 1.600 rpm		
Vela	Tipo	NGK: CR6E NHSP LD:	
	Folga	0,7 - 0,8	
Rendimento da vela	Acima de 8 mm a 1 atm		
Resistência da bobina de ignição	Primária	Aprox. 0.09 – 0.13Ω	
	Secundaria	Supressor de ruído - Terra Aprox. 11 - 18Ω	
Voltagem sem carga do Gerador Voltagem regulada	Acima de 60V (CA) a 5.000 rpm		
Voltagem regulada	13,5 - 16,0V a 5.000 rpm		
Relê de partida	Aprox. 2 – 6 Ω		
Bateria	Tipo		YTX7A-BS
	Capacidade		12 V 28,6 KC (8 Ah) /10HR
	Densidade do eletrólito		1.320 gr/cm^3

FREIO + RODA

Unidade: mm

ITEM	PADRÃO		LIMITE DE USO
Folga da alavanca do freio	12 - 25		-
D.I. do tambor do freio traseiro	-		120.7
Espessura da lona do freio	-		1,5
Espessura do disco do freio	Dianteiro	4,0 +/- 0,2	3,5
Empenamento do disco do freio	Dianteiro		0,30
Diâmetro interno do cilindro mestre	Dianteiro	11,000 - 11,043	3,0
Diâmetro do pistão do cilindro mestre	Dianteiro	10.957 - 10984	0,30
Diâmetro do cilindro do cáliper do freio	Dianteiro	30,230 - 30,306	-
Diâmetro do pistão do cáliper do freio	Dianteiro	30,150 – 30,200	-
Empenamento do aro da roda	Axial	-	2,0
	Radial	-	2,0
Empenamento do eixo da roda	Dianteiro	-	0,25
	Traseiro	-	0,25
Medida do pneu	Dianteiro	3.50-10 59J	-
	Traseiro	3.50-10 59J	-
Profundidade dos sucos das bandas de rodagem	Dianteiro	-	1,6
	Traseiro	-	1,6

SUSPENSÃO

Unidade: mm

ITEM	PADRÃO	LIMITE DE USO	NOTA
Curso da suspensão dianteira	95	-	-
Comprimento livre da mola do garfo dianteiro	226,5	-	-
Nível do óleo do amortecedor dianteiro	75	-	-
Curso da suspensão traseira	130	-	-

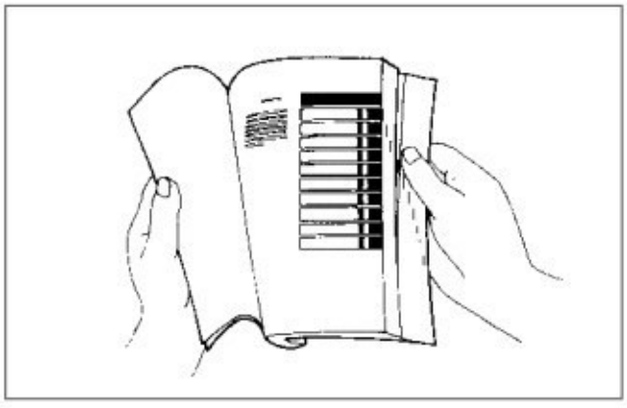
COMBÚSTIVEL + ÓLEO

ITEM	ESPECIFICAÇÃO		NOTA
Tipo de combustível	A gasolina usada deve ter 91 octanas ou mais. Recomenda-se o uso de gasolina sem chumbo ou com baixo teor de chumbo.		
Tanque de combustível.	7,8 L		
Tipo de óleo do motor	SAE 20W/50, API SF ou SG – Lubrax Moto GP		
Capacidade der óleo do motor	Troca	800 ml	
	Troca de óleo e filtro	850 ml	
	Desmontagem do motor	900 ml	
Capacidade de óleo transmissão final	Troca	90 ml	
	Desmontagem	100 ml	

HOW TO USE THIIS MANUAL

TO LOCATE WHAT YOU ARE LOOKING FOR:

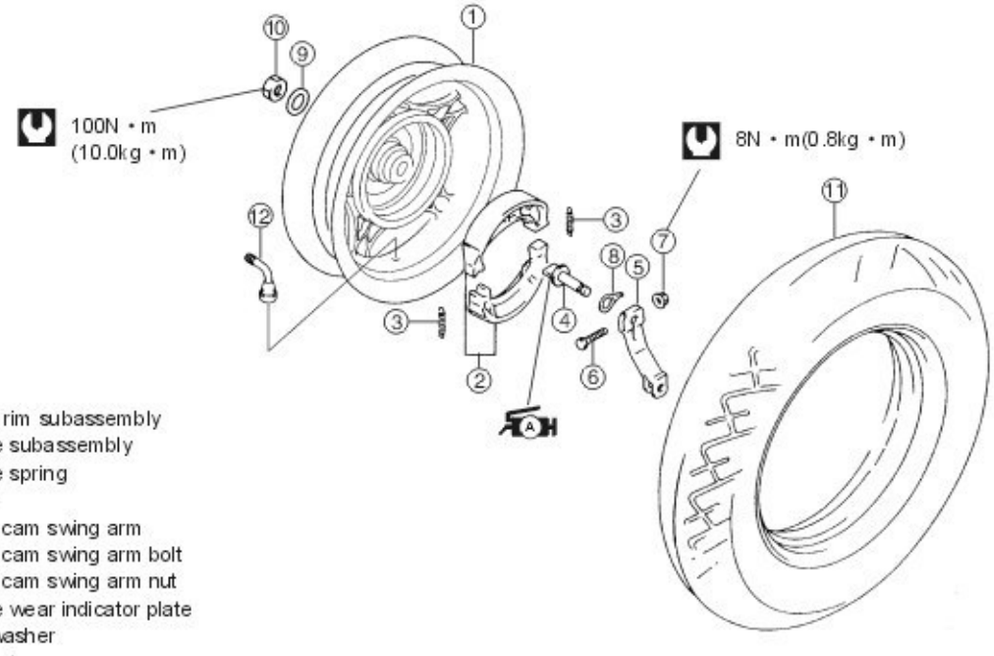
1. The text of this manual is divided into sections.
2. As the title of these sections are listed on the previous page as GROUP INDEX, select the section where what you are looking for belong.
3. Holding the manual as shown at the right will allow you to find the first page of the section easily.
4. On the first page of each section, its contents are listed. Find the item and page you need.



COMPONENT PARTS AND WORK TO BE DONE

Under the name of each system or unit, its exploded view is provided with work instruction and other service information such as the tightening torque, lubricating points and locking agent points.

Example: Rear wheel/Rear brake



① rear wheel rim subassembly
② brake shoe subassembly
③ brake shoe spring
④ brake cam
⑤ rear brake cam swing arm
⑥ rear brake cam swing arm bolt
⑦ rear brake cam swing arm nut
⑧ brake shoe wear indicator plate
⑨ rear axle washer
⑩ rear axle nut
⑪ rear tubeless tire assembly (3.50-10 5IJ)
⑫ tire valve assembly

GENERAL INFORMATION

1

CONTENTS

WARNING/CAUTION/NOTE

Please read this manual and follow its instructions carefully. To emphasize special information, the symbol and the words WARNING, CAUTION and NOTE have special meanings. Pay special attention to the messages highlighted by these signal words.

WARNING:
Indicates a potential hazard that could result in motorcycle damage.

PRECAUTION:
Indicates a potential hazard that could result in motorcycle damage.

NOTE:
Indicates special information to make maintenance easier or instructions clearer.

Please note, however, that the warnings and cautions contained in this manual cannot possibly cover all potential hazards relating to the servicing, or lack of servicing, of the motorcycle. In addition to the WARNINGS and CAUTIONS stated, you must use good judgement and basic mechanical safety principles. If you are unsure about how to perform a particular service operation, ask a more experienced mechanic for advice.

GENERAL PRECAUTION

WARNING:

- Proper service and repair procedures are important for the safety of the service mechanic and the safety and reliability of the motorcycle.
- When 2 or more persons work together, pay attention to the safety of each other.
- When it is necessary to run the engine indoors, make sure that exhaust gas is forced outdoors.
- When working with toxic or flammable materials, make sure that area you work in is well-ventilated and that you follow all of the material manufacturer' s instrucations.
- Never use gasoline as a cleaning solvent.
- To avoid getting burned, do not touch the engine, engine oil, oil cooler and exhaust system until they have cooled.
- Afer servicing the fuel, oil, exhaust or brake systems, check all lines and fittings related to the system for leaks.

CAUTION:

- If parts replacement is necessary, replace the parts with Suzuki Genuine Parts or their equivalent.
- When removing parts that are to be reused, keep them arranged in an orderly manner so that they may be reinstalled in the proper order and orientation.
- Be sure to use special tools when instructed.
- Make sure that all parts used in reassembly are clean. Lubricate them when specified.
- Use the specified lubricant, bond or sealant.
- When removing the battery, disconnect the negative cable first and then the positive cable.
  When reconnecting the battery, connect the positive cable first and then the negative cable,and replace the terminal cover on the positive terminal.
- When performing service to electrical parts, if the service procedures not require use of batery power, disconnect the negative cable the battery.
- When tightening the cylinder head and case bolts and nuts, tighten the larger sizes first.
  Always tighten the bolts and nuts diagonally from the inside working out and to the specified tightening torque.
- Whenever you remove oil seals, gaskets, packing, O-rings, locking washers, self-locking nuts, cotter pins, circlips and certian other parts as specified, be sure to replace them with new ones. Also, before installing these new parts, be sure to remove any left over material from the mating surfaces.
- Never reuse a circlip. When installing a new circilp, take care not to expand the end gap larger than required to slip the circlip over the shaft. After installing a circlip, always ensure that it is completely seated in its groove and securely fitted.
- Use a torque wrench to tighten fasteners to the specified torque. Wipe off grease and oil if a thread is smeared with them.
- After reassembling, check parts for tightness and proper operation.

- **To protect the environment, do not unlawfully dispose of used motor oil, engine coolant and other fluids: batteries tires.**
- **To protect Earth's natural resources, properly of uesd motorcycle and parts.**

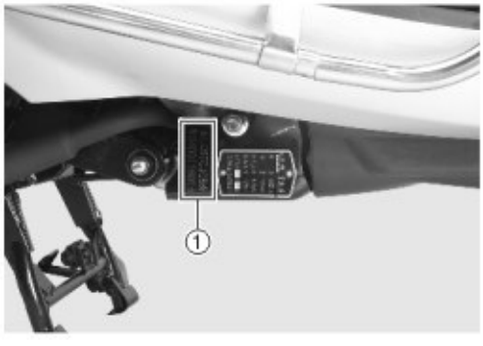
SUZUKI AN125HK

Right Side

Left Side

LOCATIONS OF ENGINE NUMBER AND FRAME NUMBER

Frame number ① is stamped on the right frame under the foot rest and engine number ② is stamped on the lower part of front left of crankcase. These numbers are needed in motorcycle registration and in ordering spare parts.



RECOMMENDED FUEL OIL AND ENGINE OIL

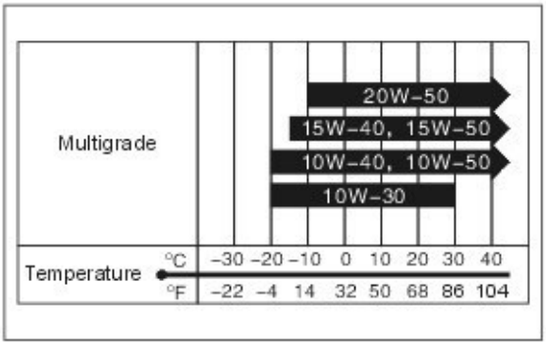
FUEL

Gasoline used should be graded 91 octane (Research Method) or higher. An unleaded gasoline is recommended.

ENGINE OIL AND GEARCASE OIL

Oil quality is a major contributor to your engine's performance and life. Always select good quality engine oil. Use SF/SG or SH/SJ with JASO MA in API (American Petroleum Institute) classification.

Suzuki recommends the use of SAE 10W-40 engine oil. If SAE 10W-40 engine oil is not available, select an alternative according to the following chart.



BRAKE FLUID

SPCIFICATION AND CLASSIFICATION: DOT4 or DOT3

WARNING:
Since the brake system of this motorcycle is filled with a glycol-based brake fliud by the manufacturer, do not use or mix different type of fluid such as silicone-based and petroleum-based fluid for refilling the system, otherwise serious damage will result.
Do not use any brake fluid taken from old or used or unsealed containers.
Never re-use brake fluid left over from a previous servicing, which has been stored for a long period.

FRONT FORK OIL

Use front fork oil #15

RUNNING-IN PROCEDURE

Despite the best materials used in manufacture and the high standard of parts machining, it is still necessary to allow moving parts to "run-in" before the engine can be fully loaded. The future performance and reliability of engine depends on proper maintenance and use of the motorcycle in the initial period. General principles are as follows:

- Observe the following principles:
  Initial 800km: < 1/2 of full throttle opening
  Last 1600km: < 3/4 of full throttle opening

- Full throttle opening is allowed when odometer reading reaches 1600km.
- In no period during the running-in process should the engine be kept at a constant speed for a long time. Throttle opening should be varied.

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Total length	1772mm
Total width	682mm
Total height	1112mm
Wheel base	1255mm
Ground clearance	120mm
Empty dry mass	108kg

ENGINE

Type	Four stroke, OHC
Number of cylinders	1
Cylinder bore	52.0mm
Stroke	58.6mm
Displacement	124cc
Carburetor	MIKUNI BS26-1305
Air cleaner	Polyurethane sponge and paper strainer composite
Starting system	Electric or kick starting
Lubrication system	Pressure splash

TRANSMISSION

Clutch	Automatic centrifugal dry clutch
Reduction ratio	2.433-0.813
Final reduction ratio	8.294 （45/17×47/15）
Transmission	V-belt transmission

BODY

Front suspension	Spring oil damping barrel type
Rear suspension	Spring oil damping barrel type
Turn angle	45° （right and left）
Kingpin caster angle	65°
Rear overhang	96mm
Turning radius	1.9m
Front brake	Hydraulic disc
Rear brake	Internal expanding drum brake
Front tire	3.50-10 5IJ, tubeless
Rear tire	3.50-10 5IJ, tubeless
Front fork travel	95mm
Rear wheel travel	130mm

ELECTRIC SYSTEM

Ignition mode	Electric ignition （CDI）
Ignition timing	10° B.T.D.C /1600rpm
Spark plug	N.G.K.CR6E,NHSP LD B6RC
Storage battery	12V （6Ah）/10h
Generator	Three-phase AC generator
Fuse	15A
Headlight	12V 35/35W
Turn signal light	12V 21W
Parking light	12V 5W
Tail light/brake light	12V 5/21W
Speedometer	12V 1.7W
Storage case light	12V 2W
High beam indicator light	12V 1.7W
Turn signal indicator light	12V 3.4W

CAPACITIES

Fuel tank	7.8L
Engine oil, Change	800ml
With filter change	850ml
Overhaul	900ml
Gearcase oil, Oil renewal	90ml
Overhaul	100ml
Front fork oil	85ml

* The specifications are subject to modification without special notice

PERIODIC MAINTENANCE

2

CONTENTS

PLANNED MAINTENANCE SCHEDULE

The chart below lists the recommendd intervals of periodic maintenance and service work necessary in maintaining excellent and economic motorcycle performance. For your convenience, the intervals are indicated in terms of kilometers and time.

NOTE:
Shorter intervals of maintenance and service are needed in case of rough riding conditions.

PERIODIC MAINTENANCE SCHEDULE

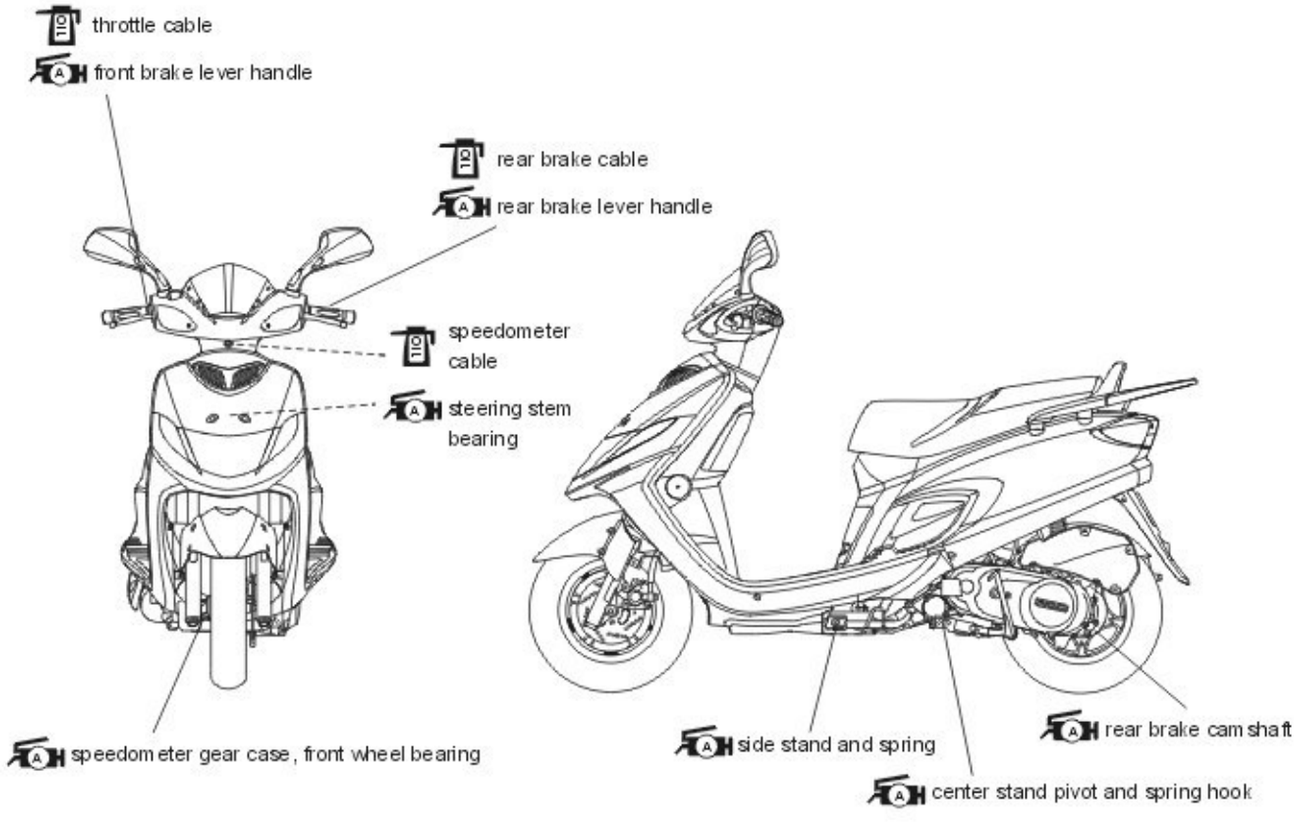
Item \ Interval	km	1000	4000	8000
	month	3	20	40
* Exhaust pipe bolt		Tighten	Tighten	–
Air filter (strainer)		clean every 3,000km		
		replace every 12,000km		
Clutch cap airing box strainer		clean every 3,000km		
		clean every 6,000km		
* Throttle play (Inlevoutlet: 0.08-0.13 cold state check)		–	check	–
Spark plug		–	check	replace
Engine oil		replace every 1,000km first time, every 3,000km afterwards		
Engine oil filter (strainer)		check every 3,000km		
Fuel oil pipe		–	check	–
		replace every 4 years		
* Fuel oil filter		–	–	clean
Engine idle speed		check	check	–
Throttle cable play		check	check	–
* lowest gear box oil		–	–	replace
* brake system		check	check	–
Brake hose		–	check	–
		replace every 4 years		
Brake oil		–	check	–
		replace every 2 years		
Tire		–	check	–
* Turning system		check	–	check
* Front fork		–	–	check
* Rear shock absorber		–	–	check
* Body frame, engine bolts and nuts		Tighten	Tighten	–
Drive belt		check every 8,000km		
		replace every 24,000km		
Clutch shoe wear		–	–	check

NOTE: (1) In case of need, certain items included in this chart are to be checked, cleaned, lubricated, adjusted or replaced.

(2) In case of long distance riding in tough road condition or high power, frequency of checks should be Increased.

LUBRICATING POINTS

Correct lubrication is of vital importance to stable performance and a longer service life of motorcycle working parts. Major lubricating points are shown in the following figures.



WARNING:
Be careful not to apply too much grease to the rear brake camshaft. If grease gets on the linings, brake slippage will result.

NOTE:

- Before lubricating each part, clean off any rusty spots and wipe off any grease, oil, dirt or grime.
- Lubricate exposed part which are subject to rust, with a rust, with a rust preventative spray whenever the motorcycle has been operated under wet or rainy conditions.

MAINTENANCE AND ADJUSTMENT PROCEDURES

This section is about periodic maintenance procedures for every item.

EXHAUST PIPE BOLTS

Tighten every 4,000km (20 months).

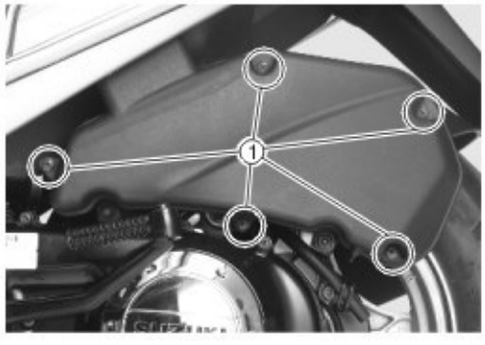
- Tighten exhaust pipe mounting bolt with torque wrench at specified torque.

Exhaust pipe clamp bolt and muffler mounting bolt: 23N.m (2.3kg.m)

AIR CLEANER

Inspect and remove dust every 6,000km and replace air cleaner every 12,000km.

- Remove air cleaner cover screw ①;
- Remove air cleaner subassembly ②;
- Carefully blow dust off air cleaner subassembly with air hose.



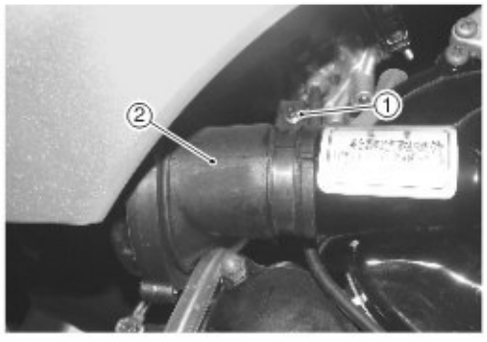
CAUTION:
Always use air pressure on the inside of the air cleaner element. If air pressure is used on the outside, dirt will be forced into the pores of the air cleaner element thus restricting air flow through the air cleaner element.

- Remount cleaned air cleaner or new air cleaner subassembly in an order reversed to that of dismounting.

CAUTION:
If driving under dusty condition, clean the air cleaner element more frequently. The surest way to accelerate engine wear is to use the engine without the element or to use ruptured element. Make sure that the air cleaner is in good condition at all time. Life of the engine depends largely on this component!

CLUTCH COVER FILTER

Clear Every 3000km.



- Remove the screw ①.
- Remove the filter ②.

- Remove the screw ③.

- Carefully use air hose to blow the dust from the filter.

- Reinstall the cleaned or new filter in the reverse order of removal.

VALVE PLAY

Inspect every 4,000km (20 months).

- Remove engine maintenance cover unit (Refer to page 5-1);
- Remove spark plug;
- Remove cylinder cover (Refer to page 3-8);

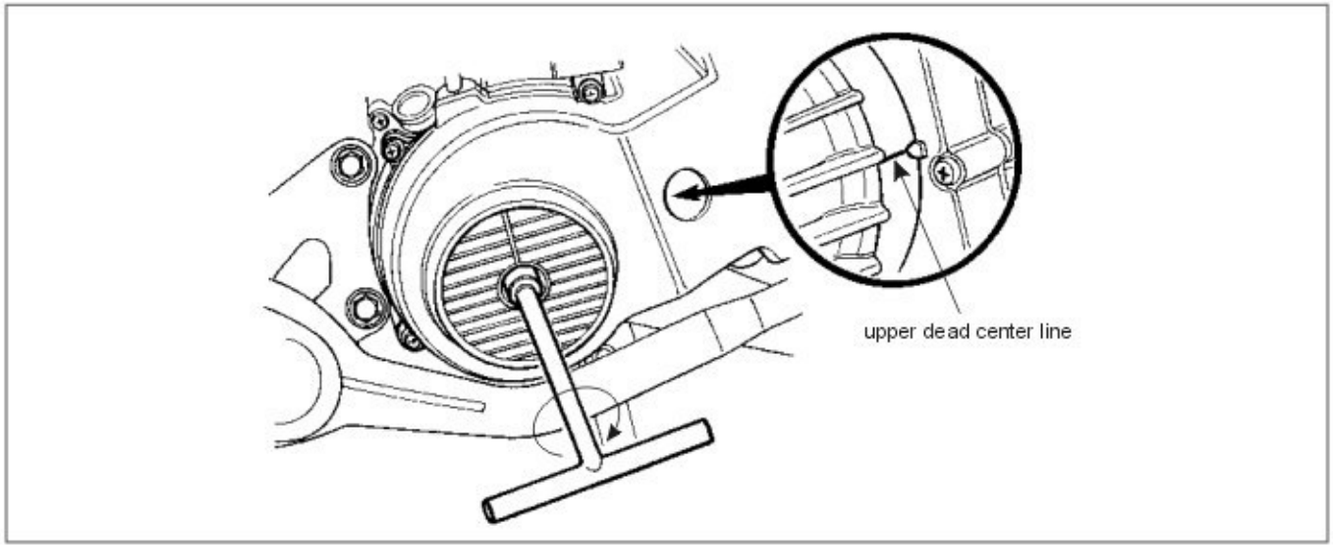
Plays of intake valve and exhaust valve are the same. Valve adjustment should be effected and inspected in the following conditions:

1)at the time of periodic inspection; 2) in the maintenance of valve unit; 3)camshaft removed in maintenance.

VALVE CLEARANCE (cold state)
Intake: 0.08~0.13mm
Exhaust: 0.08~0.13mm

NOTE:

- To facilitate inspection or adjustment of valve play, the piston must be at compression stroke's upper dead center.
- Valve play adjustment should be effected in cold state.
- To turn crankshaft for play inspection, a 17mm spanner must be used in the normal direction. Spark plug must be removed before turning crankshaft.



- Turn crankshaft to align the upper dead center with the scale mark on the engine stator;
- Insert thickness gage between valve and swing arm adjusting screw. If the play is beyond specification, adjust it to specification.

TOOL **09900-20803: Thickness gauge**
09917-14910: Valve play adjusting screw driver

SPARK PLUG

Inspect every 4,000km (20 months).
Replace every 8,000km (40 months).

- Remove engine maintenance cover subassembly (Refer to page 5-1);
- Remove spark plug.

TOOL **09930-10121: Spark plug socket string wrench kit**
09930-14530: Universal joint
09914-24510: T-shape lever

	Standard	Cold type	Hot type
NGK	CR7E	CR8E	CR6E
NHSP LD	B7RC	B8RC	B6RC

CARBON DEPOSIT

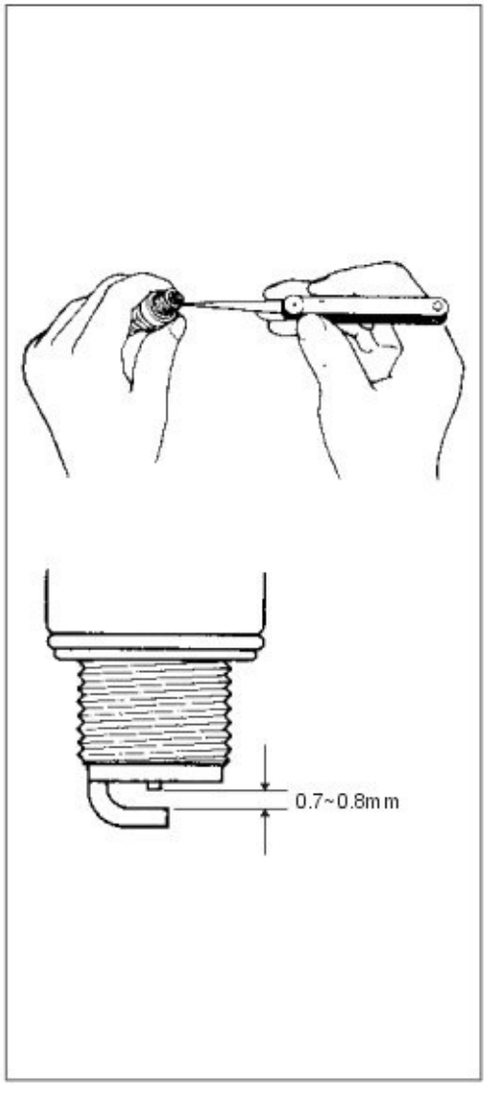
Inspect spark plug carbon deposit. In case of carbon deposit, carefully remove it with a spark plug cleaner or a pointed tool.

SPARK PLUG GAP

Measure the plug gap with a thickness gauge if it is correct.
If not, adjust it to the following gap.

	Standard
Spark plug gap	0.7~0.8mm (0.028~0.032 in)

TOOL **09900-20803: Thickness gauge**



ELECTRODE'S CONDITION

Check to see the worn or burnt condition of the electrodes. If it is extremely worn or burnt, replace the plug. And also replace the plug if it has a broken insulator, damaged thread, etc.

CAUTION:
Confirm the thread size and reach when replacing the plug. If the reach is too short, carbon will be deposited on the screw portion of the plug hole and engine damage may result.

ENGINE OIL AND ENGINE OIL FILTER

ENGINE OIL:
The first replacement is made at the initial 1,000km (3 months), followed by replacement every 4,000km (20 months).

ENGINE OIL FILTER:
The first replacement is made at the initial 1,000km (3 months), followed by replacement every 8,000km (40 months).

Engine oil replacement should be effected in hot state of engine. Replacement of engine oil strainer at the above-mentioned intervals should be effected at the time of engine oil replacement.

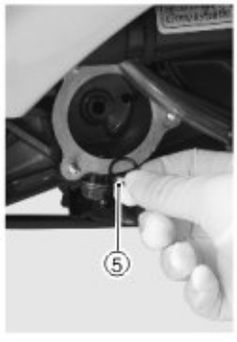
- Keep motorcycle upright;
- Place an oil tray under the motorcycle, remove oil drain screw plug ① and oiling hole plug ② to drain oil;
- Remove engine filter cover ③ by removing its nuts;
- Remove engine filter strainer ④;

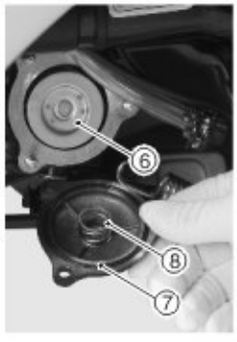
- Mount new O-ring ⑤ and new engine oil filter strainer ⑥;
- Before mounting, apply some engine oil to the new O-ring ⑦ of engine oil filter strainer cover;

NOTE:
Confirm correct fitting of new O-rings (⑤ and ⑦) and spring ⑧.

- Tighten oil drain plug ①, fill in new engine oil from oiling plug. The engine has a capacity of 0.85L. Use SF/SG or SH/SJ with JASO MA in APL (American Petroleum Institute) classification.

OIL DRAIN SCREW PLUG: 18N.m (1.8kg.m)





- Mount oiling plug ②;
- Start engine and let it run idle for a few minutes;

- Close engine and wait for one minute, inspect oil level through inspection window ⑨. If oil level is below the mark "L", add oil to bring oil to this level.

REQUIRED QUANTITY OF ENGINE OIL:

ENGINE OIL CHANGE:	**0.8L**
ENGINE OIL WITH FILTER CHANGE:	**0.85L**
ENGINE OVERHAUL:	**0.9L**

FUEL PASSAGE

Inspect every 4,000km (20 months) and replace every 4 years.

FUEL FILTER

Clean every 8,000km (40 months).

(Refer to page 4-3)

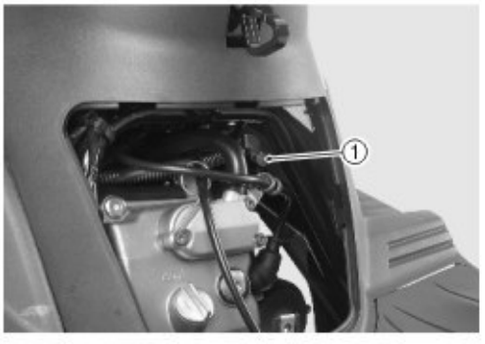
CARBURETOR

Initial inspection at first 1,000km (3 months), followed by inspection every 4,000km (20 months).

IDLE SPEED ADJUSTMENT

NOTE:
Adjust in hot engine state.

- Remove engine maintenance cover subassembly (Refer to page 5-1);
- Connect a tachometer;
- Start engine and adjust its speed to 1500～1700rpm by adjusting throttle adjusting screw ①.



ENGINE IDLE SPEED:
1600±100rpm

TOOL 09900-26006: Tachometer

THROTTLE CABLE PLAY
When gently turning throttle grip, throttle cable play Ⓐ on throttle grip should be 3-6mm. If throttle play is not correct, adjust it as follows:

- Loosen lock nut ① and turn adjusting screw ② in or out till specified play is obtained;
- Keep adjusting nut as it is and tighten lock nut ①.

THROTTLE CABLE PLAY ③: 3~6mm

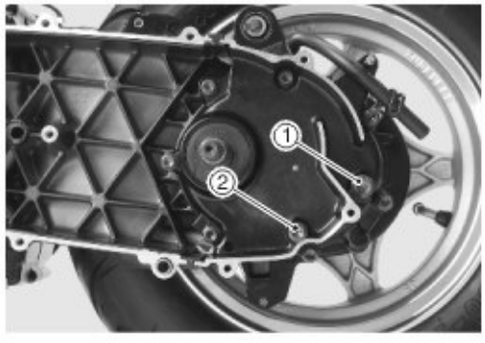
WARNING:
After the adjustment is completed, check that handlebar movement does not raise the engine idle speed and that throttle grip returns smoothly and automatically.

TRANSMISSION OIL

Inspect every 8,000km (40 months).

- Remove starting lever;
- Remove clutch cover (Refer to page 3-12);

- Remove oil level plug ① and inspect oil level. If oil level is below oil level hole, add gear oil till oil flows out from oil level hole;



Engine oil type: SAE 10W-40, APISF/SG or SH/SJ with JASO MA

- Tighten oil level plug ① to specified torque.

OIL LEVEL PLUG: 12N.M. (1.2KG.M)

NOTE:
If oil is contaminated with sludge or has been used for a long time, remove oil drain screw plug ② to drain contaminated oil, tighten oil drain screw plug to specified torque and add new oil through oil level hole.

OIL DRAIN SCREW PLUG: 5.5N.M (0.55KG.M)

REQUIRED QUANTITY OF TRANSMISSION OIL:
GEAR CASE OIL REPLACEMENT: 90ml
OVERHAUL: 100ml

BRAKE

BRAKE:
Inspect at the first 1,000km (3 months), followed by inspections every 4,000km (20 months).

BRAKE HOSE AND BRAKE FLUID:
Inspect every 4,000km (20 months) and replace hose every 4 years. Replace brake fluid every 2 years.

FRONT BRAKE OIL LEVEL

Erect motorcycle and level handlebar.
Inspect brake oil level by observing the lower limit line of front end fluid groove.
When fluid is below lower limit line, remove headlight cover, add the following specified brake fluid to specified fluid level.

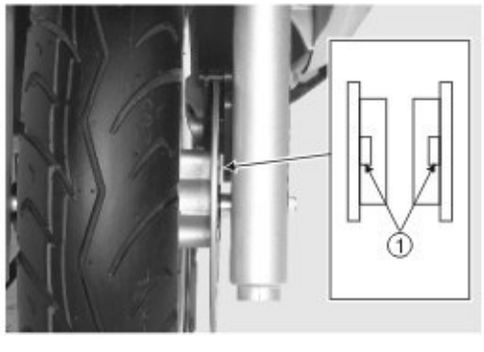
SPECIFICATIONS AND GRADES: DOT4 OR DOT3

WARNING:
The brake system of this motorcycle is filled with a glycol-based brake fluid. Do not use or mix different types of fluid such as silicone-bassed or petroleum-based. Do not use any brake fluid taken from old, used or unsealed containers. Never re-use brake fluid left over from the servicing or stored for a long period.

WARNING:
Brake fluid, if it leaks, will interfere with safe running and immediately discolor painted surfaces. Check the brake hoses and hose joints for cracks and oil leakage before riding.

BRAKE PADS (FRONT BRAKE)

The extent of brake pad wear can be checked by observing the grooved limit line ① on the pad. When the wear exceeds the grooved limit line, replace the pad with new ones. (Refer to page 5-7.)



CAUTION:
Replace the brake pad as set, otherwise braking performance will be adversely affected.

AIR EXHAUST IN BRAKE OIL RETURN LINE (FRONT BRAKE)

Air in brake oil return line absorbs most of the pressure from main oil tank as bumper pad does and thus affects the function of brake caliper. Air presents itself in the form of brake fluid bubbles or in the form of inadequate braking force. The air absorbed by brake fluid harms the motorcycle and the rider. After refitting brake and restore it to normality, exhausting air from brake oil return line as follows is a vital step to take:

- Fill main oil tank with fluid to the upper limit of the observation window, put on the cover to prevent entry of impurities;
- Connect a pipe to the caliper's oil drain screw and insert the other end into the container;
- Exhaust air from oil drain screw;
- Press and release brake lever quickly and successively, grasp brake grip fast, turn oil drain screw for 1/4 turn and let brake fluid flow into container. After that, tighten and loosen screw. Repeat this process till there is no air bubble in the fluid which flows into the container.

NOTE:

When exhausting air from brake system, add brake fluid into oil tank to ensure fluid in the groove, in case of need.

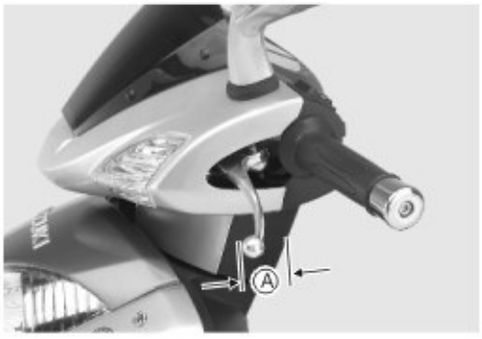
- Tighten oil drain screw and remove the pipe. Add brake fluid into main oil tank till the fluid level reaches the "upper" limit in the observation window.

OIL DRAIN SCREW: 8N.M. (0.8KG.M)

CAUTION:
Handle brake fluid with care: the fluid reacts chemically with paint, plastics, rubber materials etc.

REAR BRAKE LEVER PLAY

Adjust the illustrated play Ⓐ to 15~25mm by means of adjusting nut ①.

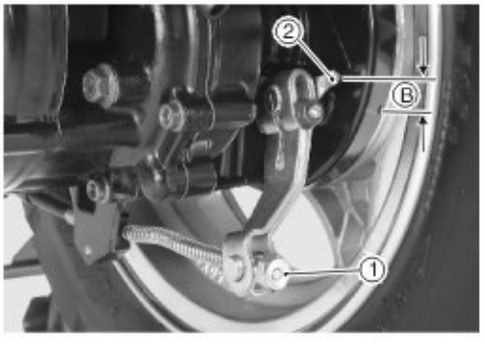


WEAR OF REAR BRAKE SHOE BLOCK

The motorcycle is equipped with a rear brake shoe block wear indicator ② on rear brake.

Inspect the wear of brake shoe block in the following procedure:

- Inspect the proper adjustment of brake system;
- When operating brake disc, inspect that arrow of brake disc ② is within the measuring range;
- In case the arrow of brake is beyond the measuring range, replace the brake shoe block subassembly.



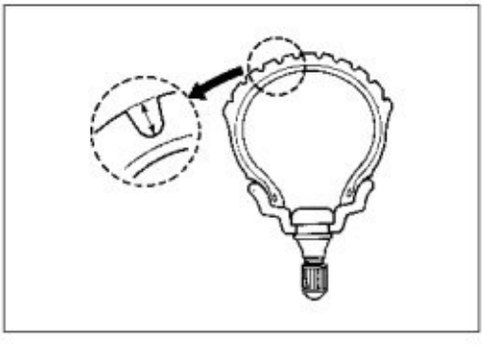
TIRE

Inspect every 4,000km (20months).

TIRE TREAD

Riding a motorcycle with seriously worn tires would be unstable and dangerous. When tire tread depth reaches the following specification, they must be replaced.

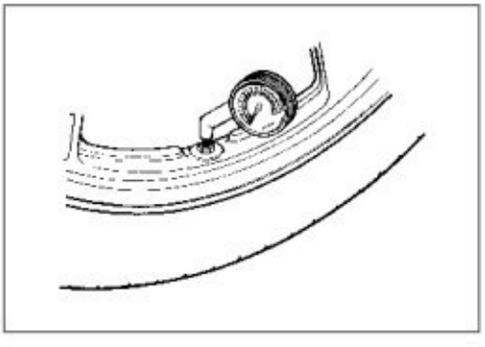
TIRE TREAD DEPTH: 1.6mm



09900-20805: TIRE TREAD DEPTH GAGE

TIRE PRESSURE

Excessive or inadequate pressure is harmful to riding and leads to increase in tire wear. Keeping proper tire pressure ensures riding stability or tire service life shall be shortened. Cold- air-inflated tire pressures are as follows:



Cold-air-inflated tire pressure	Single rider		Two riders	
	KPa	Kg/cm²	KPa	Kg/cm²
Front tire	125	1.25	125	1.25
Rear tire	200	2.00	200	2.50

CAUTION:

The standard tire fitted on this motorcycle is 3.50-10 51J for front and rear. The use of tires other than those specified may cause instability. It is highly recommended to use a Genuine Tire.

STEERING SYSTEM

Inspect at the initial 1,000km (3 months), followed by inspections every 12,000km (24 months).

The steering system is provided with ball bearings. The steering system should be correctly adjusted to ensure stable operation of handlebars and safe riding. Overtightened steering system hinders handlebar operation and loose steering system leads to poor stability.

Inspecting steering system: Lift front wheel off the ground with wheels strainght forward, grasp front fork near front wheel axle and draw front fork forward and inspect if there is play between front fork components. If play is found, adjust steering bearings in the procedure described on page 5-21.

FRONT FORK

Inspect every 8,000km (40 months).

Inspect front fork to see if there is any leakage or scratches on the surface of inner tube. In case of need, replace damanged parts. (Refer to page 5-16).

REAR SUSPENSION

Inspect every 8,000km (40 months).

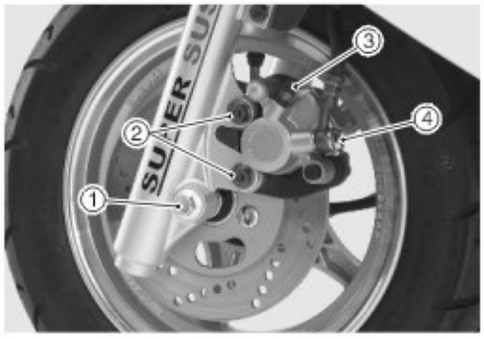
Inspect rear shock absorber to see if there is oil leakage. Inspect engine frame to see if there is wear or damage. In case of need, replace damaged parts.

BODY BOLTS AND NUTS

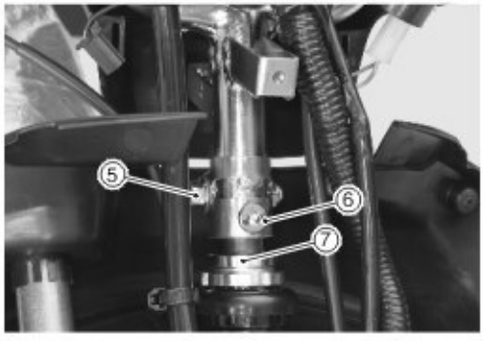
Tighten at the initial 1,000km, followed by tightening every 4,000km (20 months).

Inspect all the body bolts and nuts and tighten them to specified torque. (Refer to page 2-14 for positions of bolts and nuts of the motorcycle.)

No.	Items	N.m	Kg.m
①	Front wheel axle/nut	53	5.3
②	Front brake caliper bolt	26	2.6
③	Air bleeder valve	8	0.8
④	Front brake oil pipe connecting bolt	23	2.3
⑤	Handlebar tube tightening bolt/nut	49	4.9
⑥	Handlebar tube positioning bolt	25	2.5
⑦	Steering stem lock nut	30	3.0
⑧	Front fork end bolt	45	4.5
⑨	Front fork fixing bolt	23	2.3
⑩	Front brake master cylinder bolt	10	1.0
⑪	Rear axle nut	100	10.0
⑫	Rear shock absorber bolt (upper and lower)	29	2.9
⑬	Rear brake cam lever nut	8	0.8
⑭	Crankcase swing bracket fixing nut/bolt	102	10.2
⑮	Engine mounting nut/bolt	85	8.5

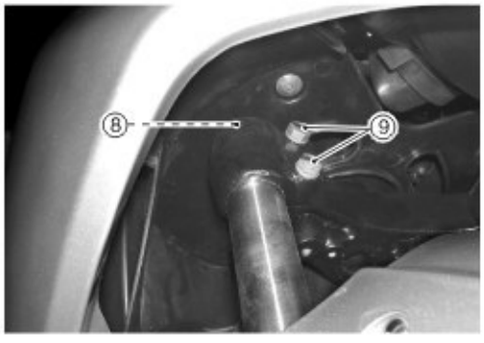

3
2
4
1

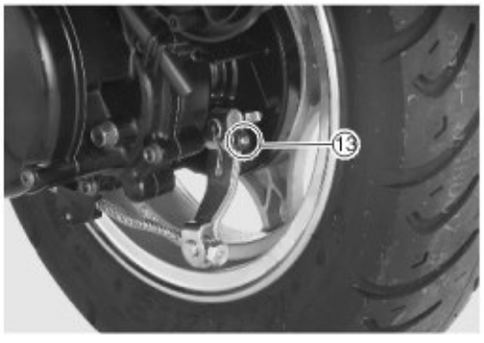

11


5
6
7


12

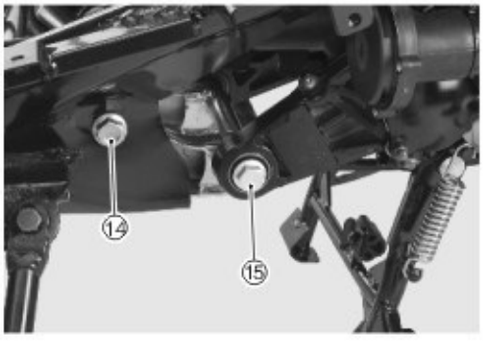

12


8
9


13


4


10


14
15

INSPECTION OF COMPRESSION PRESSURE

Cylinder compression is an indicator of its inner state. The necessity of repair depends on the result of inspection. The record of your authorized maintenance dealer should include compression pressure readings obtained in every maintenance.

SPECIFICATION OF COMPRESSION PRESSURE

Standard	Limit
1,400kPa (kPa) (14kg/cm²)	980kPa (kPa) (9.8kg/cm²)

Low compression pressure might indicate one of the following cases:

- Serious wear of cylinder inner wall
- Damage of piston or piston ring
- Poor sealing of throttle
- Piston ring in ring groove
- Cylinder sealing gasket broken or damaged

PROCEDURE OF COMPRESSION PRESSURE INSPECTION

NOTE:

- Before inspecting engine compression pressure, ensure the specific tightening torque of cylinder head nut and proper adjustment of throttle.
- Preheat engine by idle running before inspection.
- Ensure that the storage battery is fully charged.

Remove related parts and inspect compression pressure in the following process:

- Support the motorcycle with the main stand;
- Remove engine maintenance cover (Refer to page 5-1);
- Remove spark plug;
- Fit pressure gauge in the spark plug hole, paying attention to connector tightening;
- Turn throttle to full opening;
- Electrically start the motorcycle, take the maximum reading in the recording as cylinder compression pressure.

TOOL **09915-64510: Pressure gage**
09915-63310: Connector

OIL PRESSURE INSPECTION

Periodically inspect oil pressure of engine so as to ascertain the state of moving parts.

OIL PRESSURE SPECIFICATION

Above 15 kPa (0.15kg/cm²) **Below 35 kPa (0.35kg/cm²)**	**3500rpm Oil temperature 60℃**

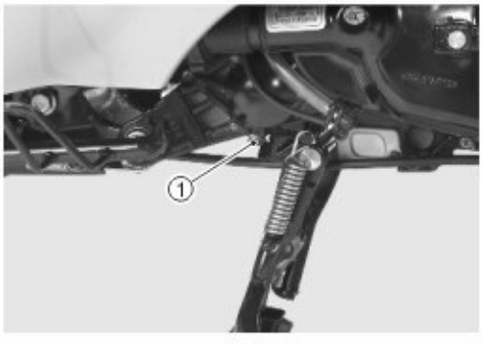
In case oil pressure is above or below the specification, the causes might be the following:

LOW OIL PRESSURE

- Engine strainer clogging
- Oil leakage at oil hole
- O-ring damage
- Engine oil pump damage
- Any concurrence of the above

HIGH OIL PRESSURE

- Excessive viscosity of engine oil
- Oil hole clogging
- Any concurrence of the above



OIL PRESSURE INSPECTION PROCEDURE

- Support the motorcycle with the main stand;
- Remove engine maintenance cover subassembly (Refer to page5-1);
- Remove oil drain plug ① under oil strainer case;
- Install oil pressure gage at the illustrated position together with the connector;
- Connect a tachometer;
- Preheat engine in the following mode:
  10 minutes at 2000rpm in summer;
  20 minutes at 2000rpm in winter;
- After preheating, increase engine speed to 3000rpm (Use tachometer) and take pressure reading.

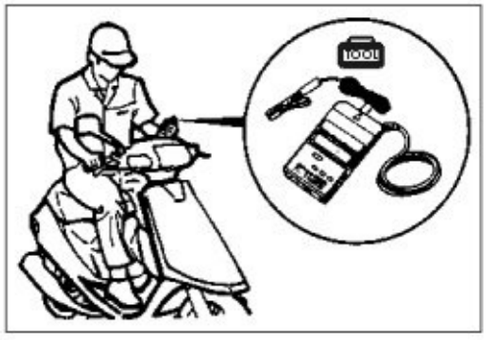
TOOL **09915-74510: Oil pressure gauge**
09915-74531: Connector
09900-26006: Tachometer

AUTOMATIC CLUTCH INSPECTION

This motorcycle is provided with an automatic clutch and a steplessly variable drive belt. The engagement of clutch is controlled by engine speed and the centrifugal device in the clutch. Gradual and stable engagement process is essential to good performance and long service life of clutch. The following inspections must be carried out:

1. STARTING ENGAGEMENT INSPECTION

- Heat engine to normal working temperature;
- Remove engine maintenance cover (Refer to page 5-1);
- Connect tachometer;
- Place the motorcycle on a level ground, sit on it and gradually increase engine speed.



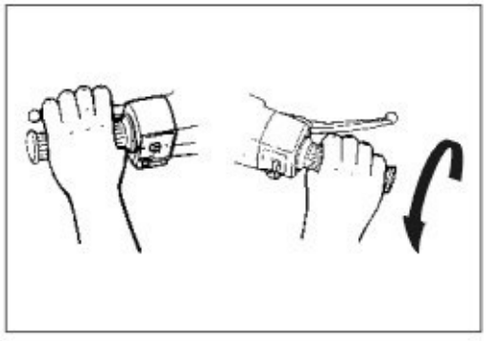
09900-26006: Tachometer

ENGAGEMENT SPEED: 2700~3300rpm

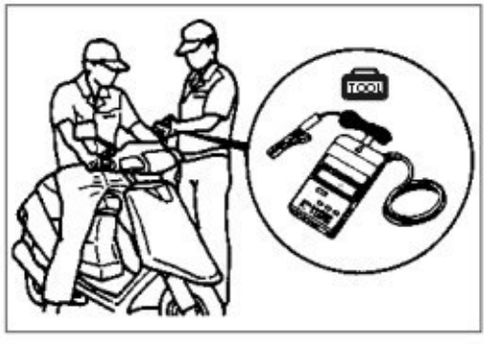
2. CLUTCH "LOCK" INSPECTION

Carry out this inspection to ascertain if clutch is fully engaged without slippage.

- Grasp rear brake control lever.
- Turn throttle to full opening and record the maximum engine speed during inspection.



CAUTION:
Do not apply full power for more than 3 seconds or damage to the clutch or engine may occur.



ENGINE LOCKING SPEED: 4,100~4,900rpm

ENGINE

3

CONTENTS

REMOVING ENGINE PARTS WITH ENGINE UNREMOVED

The following parts can be dismounted and remounted without removing the engine. Refer to sections about parts dismounting and remounting.

ENGINE PARTS

LEFT SIDE OF ENGINE

RIGHT SIDE OF ENGINE

ENGINE DISASSEMBLING AND REASSEMBLING

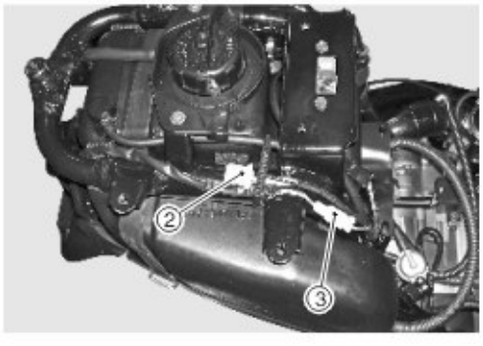
ENGINE DISASSEMBLING

ENGINE DISASSEMBLING

Before dismounting engine from motorcycle frame, clean engine with air cleaner. Engine dismounting procedure is as follows:

- Support the motorcycle with main stand;
- Remove oil plug and exhaust engine oil; (Refer to page 2-6);
- Remove storage battery case cover, disconnect storage wire terminal ⊖ (Refer to pages 5-1 and 6-5);
- Remove bolt ① and rear goods rack;
- Remove helm case (domestic market);
- Remove rear left and right strips, left and right covers and rear cover;
- Remove real tail light;
- Remove body frame rear hood (Refer to page 5-1);
- Remove foot rest (Refer to page 5-1);

- Disconnect tail light ② and license light ③ wires and remove rear tail light assembly;



- Remove bolt ④, bolt ⑤ and brake cable adjuster ⑥ and remove rear brake cable;

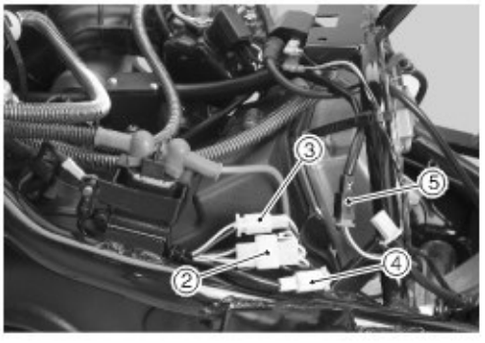
NOTE:

When rear brake cable is removed, fit fixing bolt ④ to prevent oil leakage.

- Disconnect all connecting wires and connectors:
  Engine earthing wire ⑦;

Starting motor ①;

Generator (yellow: 3-wire) ②;
Trigger (intermittent black and white) ③;
Sensor (whitish brown) ④;
Automatic priming starter (orange and black) ⑤;



Ignition coil ⑥;

- Disconnect carburetor fuel intake pipe ⑦;
- Remove carburetor negative pressure pipe ⑧ from inlet pipe;

- Remove rear shock absorber upper part bolts;

- Support the bottom with a proper jack;

- Remove engine mounting bolts and nuts;
- Move the engine slightly backward;

- Loosen clip ① and disconnect air cleaner hose from carburetor;

- Remove carburetor dust board;

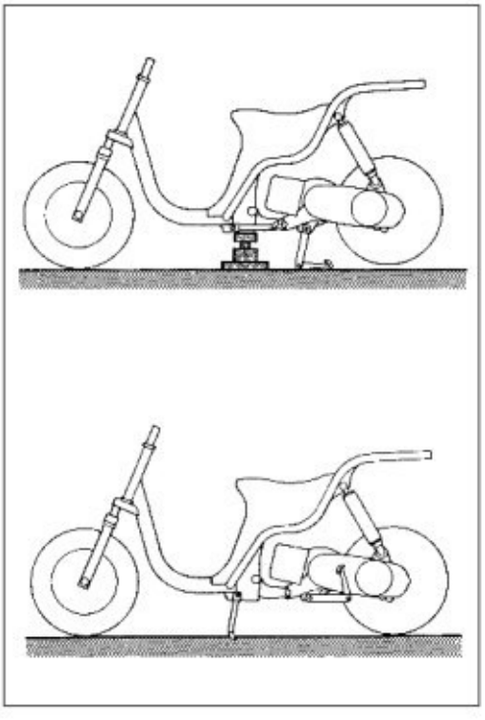
- Disconnect throttle cable;
- Remove engine assembly from behind.

ENGINE REASSEMBLING

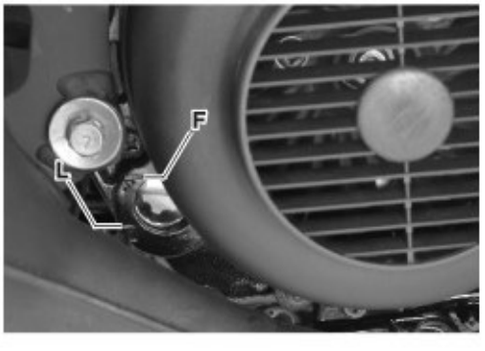
Reassemble engine in an order reversed to that of disassembling.

- Support the bottom with a proper jack;
- Support engine assembly with the main stand;
- Fit engine mounting bolt ① and rear shock absorber upper bolt ②;
- Support motorcycle with side stand and tighten rear shock absorber mounting bolt ② to specified torque.

ENGINE MOUNTING BOLT: 85N · m (8.5kg · m)
REAR SHOCK ABSORBER UPPER BOLT: 29N · m (2.9kg · m)



- After reassembling engine, lay wires, cables and hoses as illustrated in sections about wires, cables and hoses.
- Adjust the following items to specifications.



- At completion of engine servicing, add 0.9L engine oil SAE10/40 of SF grade or above in API classification.
- Start engine and let it run idle for a few minutes. A few minutes after engine stopping, inspect if oil level is between oil level marks in inspecting window.

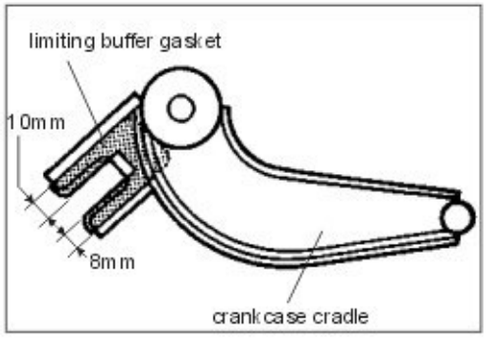
Oil replacement	800ml
Oil filter change	850ml
overhaul	900ml

CRANKCASE CRADLE MOUNTING

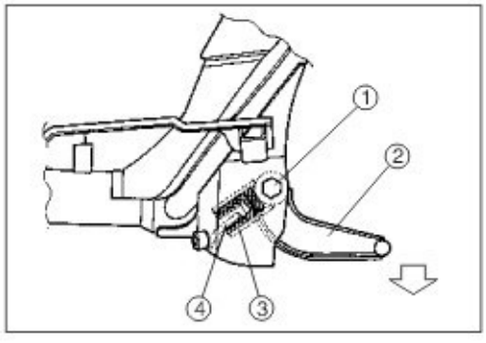
NOTE:
When servicing crankcase cradle, inspect wear and damage of limiting buffer gasket. Replace gasket in case of wear or damage.

Replacing limiting buffer gasket

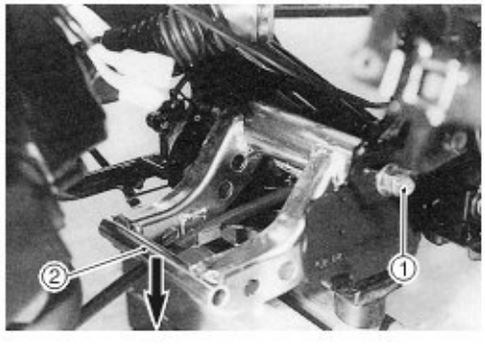
- When fitting limiting buffer gasket to crankcase cradle, coat limiting buffer gasket with bond;
- The shoulder opening (10mm) must be upward as illustrated;



- Fit crankcase cradle mounting bolt ①;
- Lower the rear end of crankcase cradle ② to contact this limiting buffer gasket ③. This limiting buffer gasket is provided with a limiting stopper ④. In this state, tighten crankcase cradle mounting bolt ① to specified torque.



CRANKCASE CRADLE MOUNTING BOLT: 102N · m (10.2kg · m)



DISASSEMBLING ENGINE

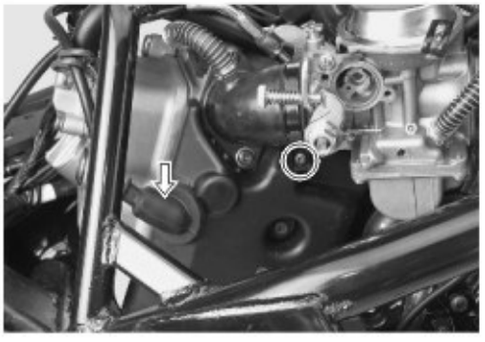
- Remove air exhaust pipe mounting bolt;

- Remove muffler mounting bolt and air exhaust pipe subassembly;

- Remove screw and fender;

- Remove mounting screw, loosen carburetor clip and remove air cleaner case;

- Loosen clip and remove carburetor;
- Remove spark plug cap;



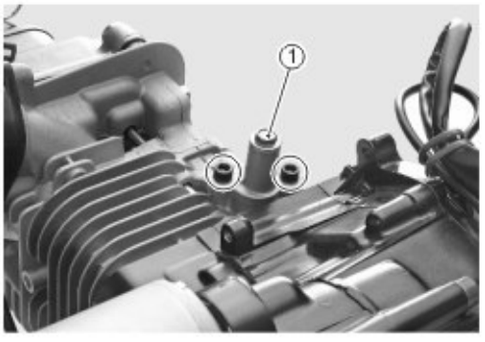
- Remove mounting bolt and rear shock absorber;

- Remove bolt and engine cooling fan guard;

- Remove bolt and cylinder draught hood;

- Remove bolt and cylinder head cover;

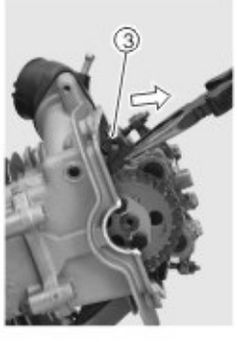
- After removing spring carrier arm screw ①, remove mounting bolt and cam chain tightening adjuster;



- Remove connecting bolt and oil pipe ②;

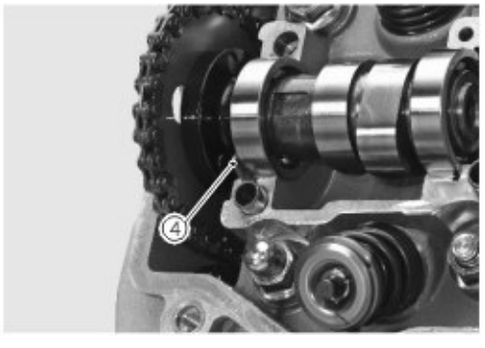
- Remove bolt and camshaft cover;

- Remove bolt and cam chain tightener ③;

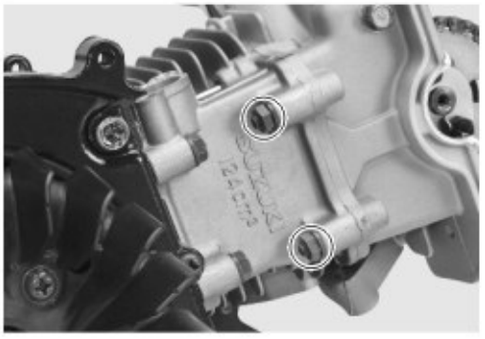


- Remove C-ring ④;
- Disconnect cam chain from cam sprocket and remove camshaft together with cam sprocket;

NOTE:
Do not leave camshaft C-ring ④ in crankcase.

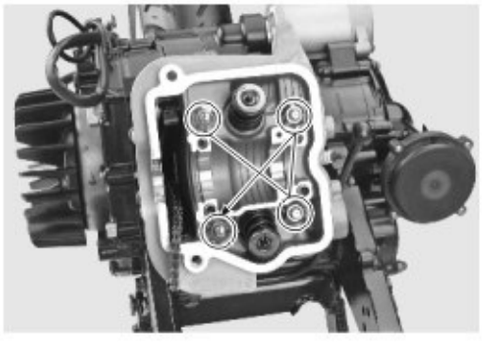


- Remove cylinder head nut (6mm);

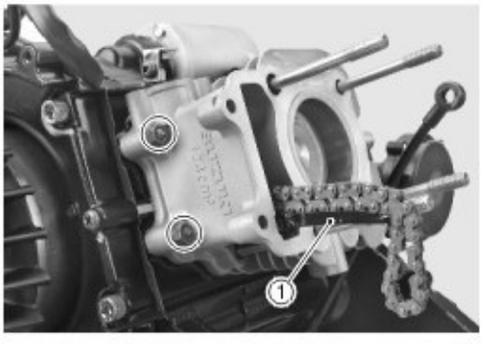


- Remove cylinder head nuts (8mm) diagonally;
- Remove cylinder head and gasket;

CAUTION:
Be careful not to damage the fins when removing the cylinder head. This precaution applies to cylinder also.

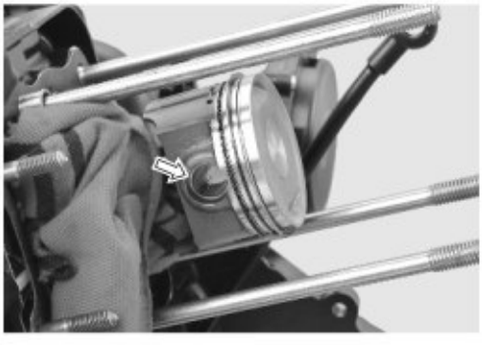


- Remove cylinder nut (6mm);
- Remove cam chain guide lever ①;
- Remove cylinder and gasket;



- Remove piston snap ring with sharp-nose pliers;
- Remove piston pin and piston;

NOTE:
Place a piece of clean cloth on the plane for cylinder mounting so as to prevent piston snap ring dropping into crankcase.



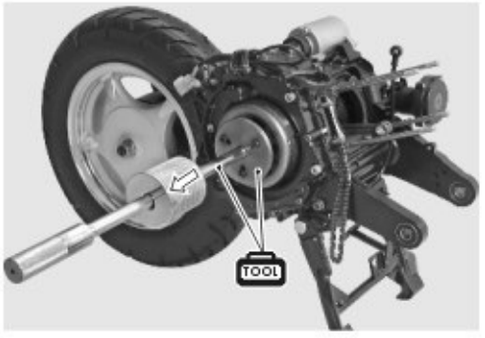
- Remove cooling fan screw and remove engine cooling fan;

- Remove magneto rotor nut with special tools;

09930-40113: Roter bracket

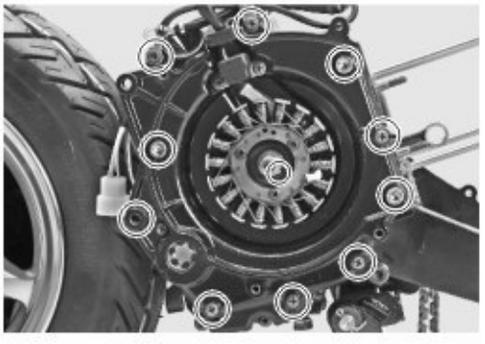
- Remove magneto motor rotor with special tools;

09930-30190: Rotor remover accessory
09930-30102: Curtain shaft



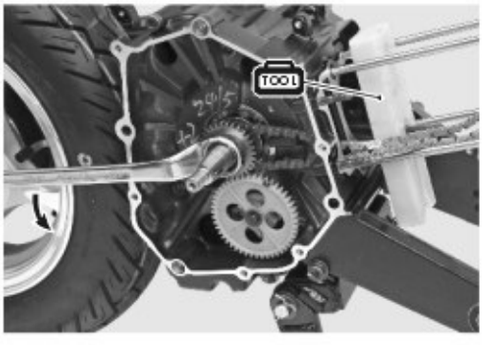
- Remove semiround key from crankshaft;
- Remove crankcase mounting screw and crankcase right cover;

NOTE:
Remove them only when replacing magneto stator coil and pickup coil.

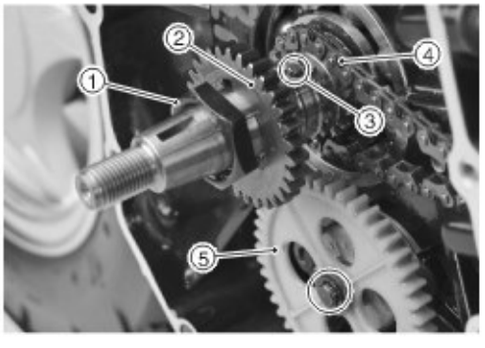


- Clamp connecting rod with connecting rod clamp and loosen oil pump drive gear nut;

09910-20016: Connecting rod bracket

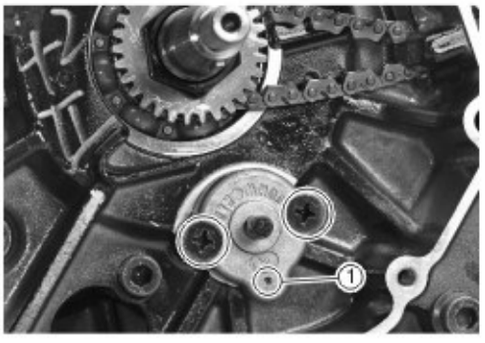


- Remove oil pump drive gear nut ①, gear ② and pin ③;
- Remove cam drive chain ④;
- Remove oil pump driven gear retaining ring and oil pump driven gear ⑤;



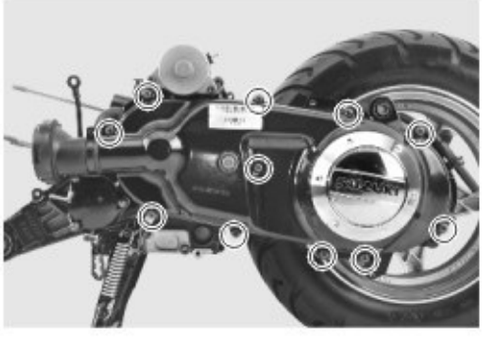
- Remove oil pump screw and oil pump;

NOTE:
Do not get oil pump position pin ① lost.



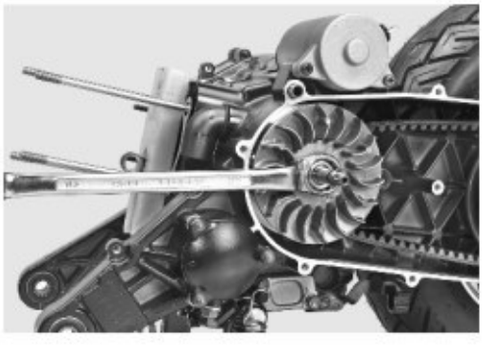
- Remove starting foot rod bolt and kickback engine starting rod;
- Remove clutch cover screw and clutch cover;

Remove and mount starting foot rod related parts. Refer to page 3-18.



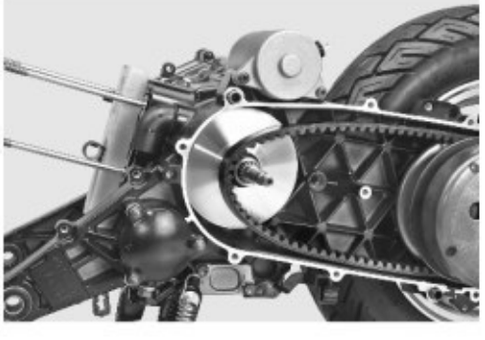
- When clamping crankshaft with connecting rod clamp, loosen fixed drive pulley nut;
- Remove nut and fixed drive pulley subassembly;

09910-20116: Connecting rod bracket



- Remove sliding drive pulley subassembly;

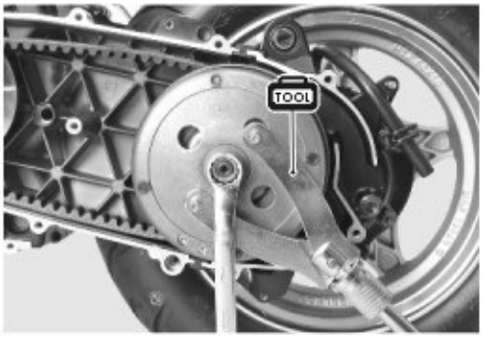
Inspect and remount sliding drive pulley subassembly. Refer to page 3-19.



- Remove clutch outer disc nut with special tools;

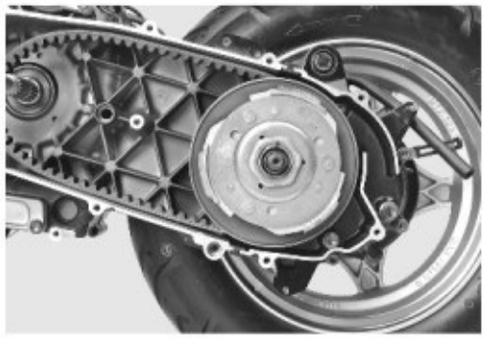
09930-40113: Stator bracket

- Remove clutch outer disc;



- Remove clutch centrifugal block, sliding driven pulley and fixed pulley subassembly;

Inspect and remount clutch centrifugal block,sliding driven pulley subassembly and fixed pulley subassembly. Refer to page 3-20.

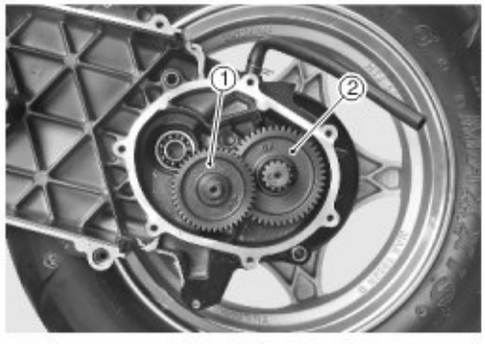


- Remove oil drain plug to drain gear oil;
- Remove bolt to remove gear case cover;
- Remove gear case gasket;

Remove, inspect and reassemble drive shaft, bearing and gear case oil seal. Refer to page 3-28.

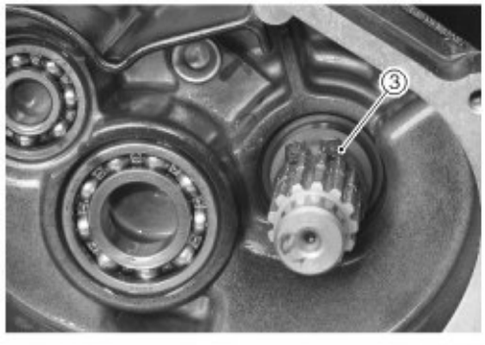
- Remove idle shaft subassembly ②;
- Remove retaining ring and final driven gear ②;

09900-06107: Snap ring pliers



- Remove retaining ring ③;

09900-06107: Snap ring pliers



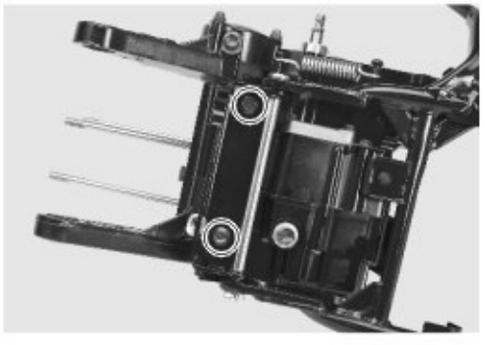
- Remove rear wheel axle nut;
- Remove real wheel;

- Remove brake shoe lining;

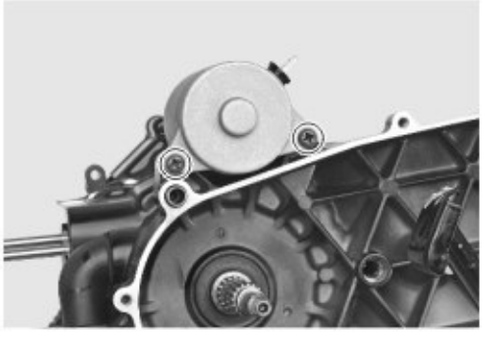
- Remove real wheel axle by knocking it with a plastic hammer;

- Remove nut, bolt, rear brake cam swing arm, brake lining wear indicator and brake cam;

- Remove bolt, main stand subassembly;



- Remove screw and engine starting motor;



- Remove screw and oil pump filter cover;

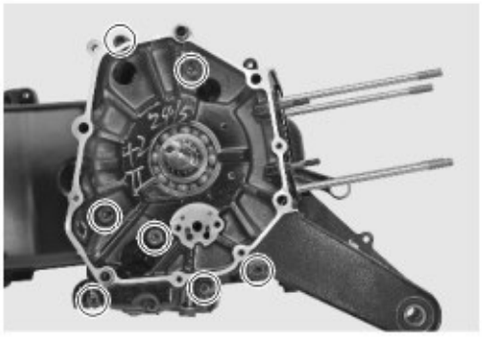
- Remove engine oil primary filter;

- Remove screw and engine oil filter cap;

- Remove engine oil filter strainer and O-ring;

- Remove crankcase screw;
- Separate crankcase into left and right two parts with special tools;

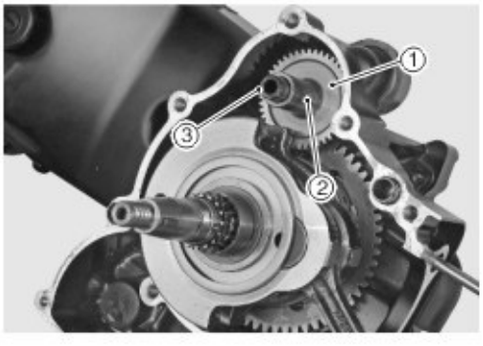
09920-13120: Crankcase separator



NOTE:
Crankcase separator should be perpendicular to crankcase end face.

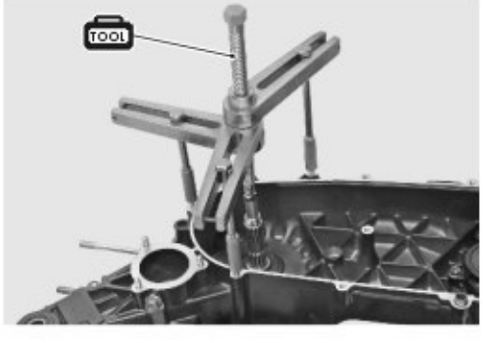
CAUTION:
The crankshaft must remain in the left crankcase half.

- Remove engine starting idle wheel ①, bush ② and axis pin ③;



- Remove crankshaft with special tool;

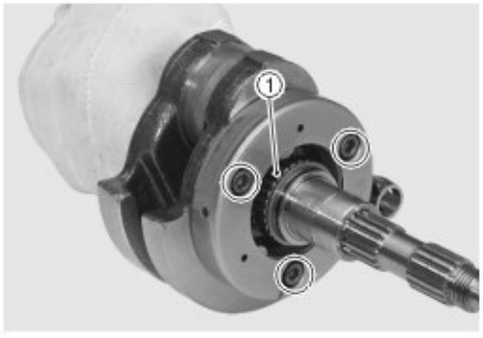
09920-13120: Crankcase/Crankshaft separator



- Remove engine driven gear ⑥ by removing retaining ring ④ and washer ⑤;

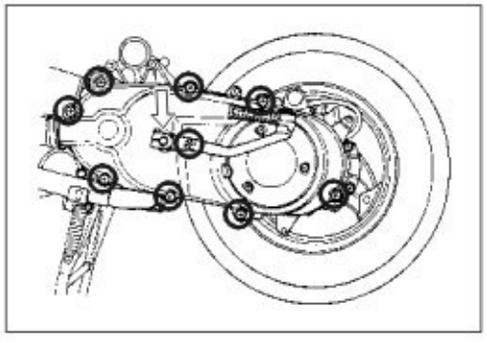
09900-06107: Snap ring pliers

- Remove engine starting clutch gear bearing ①;
- Remove engine starting clutch bolt by grasping crankshaft;



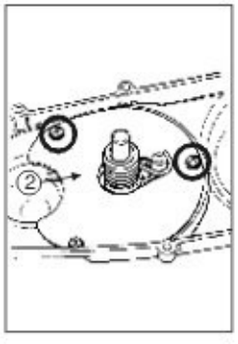
REMOVING ENGINE-RELATED PARTS

- Remove engine starting foot rod;
- Remove clutch cover;



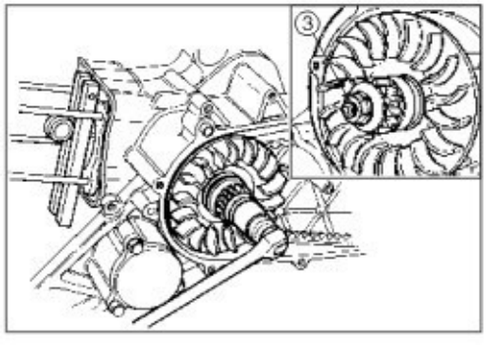
- Remove starting shaft retaining ring and washer;
- Remove intake guard ② by first disengaging starting shaft return spring ① and then removing screw;
- Remove starting shaft subassembly;

TOOL **09900-06107: Snap ring pliers**

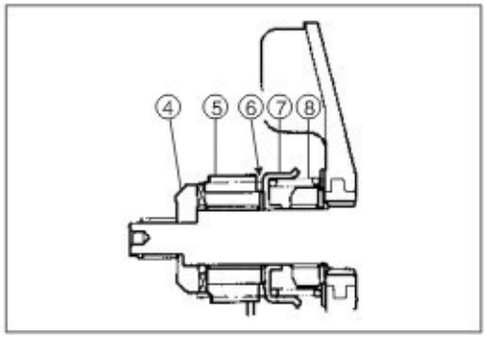


- Remove starting ratchet wheel nut ③ when clamping crankshaft with connecting rod clamp;

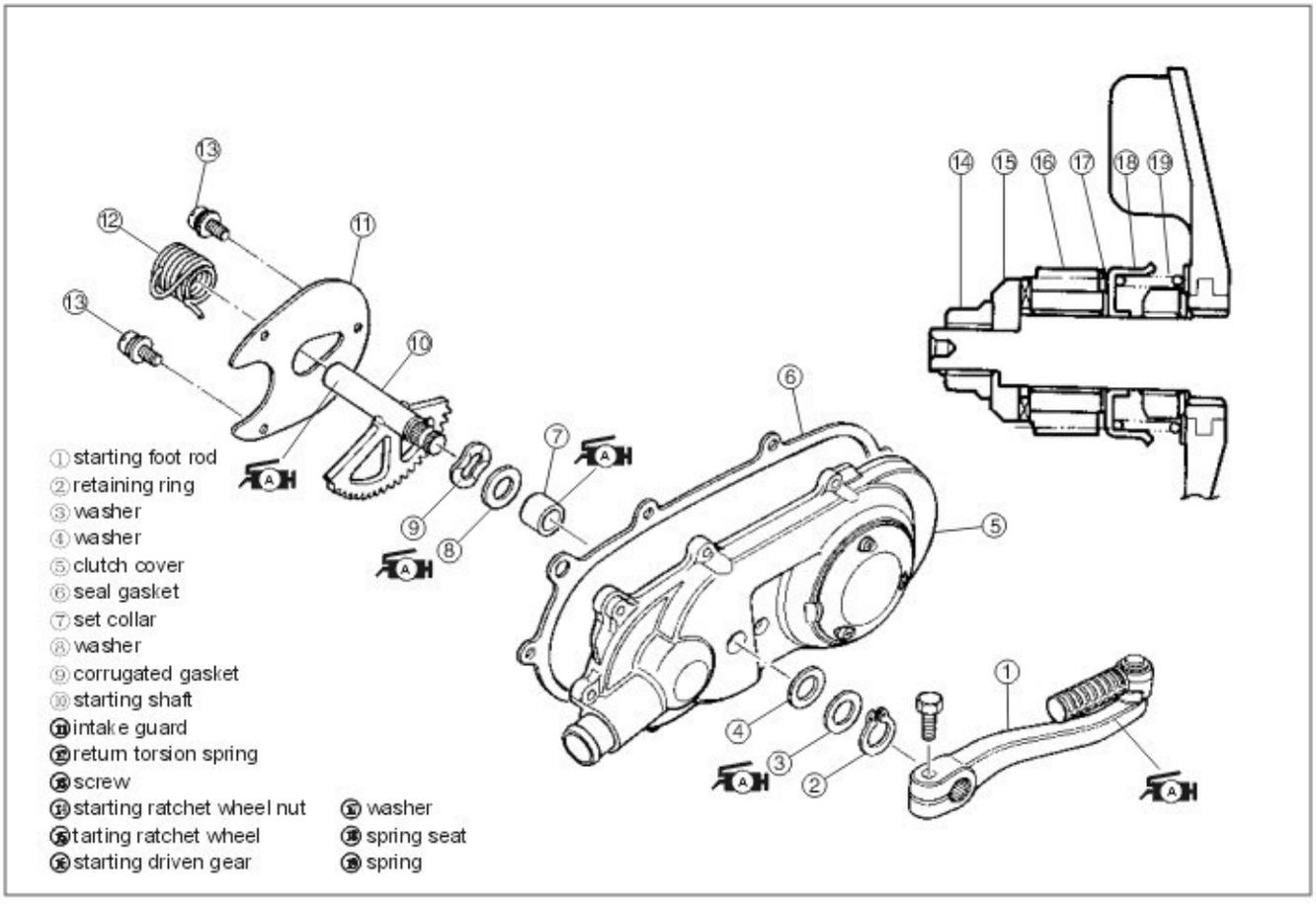
TOOL **09910-20116: Connecting rod bracket**



- Remove starting ratchet ④, starting driven gear ⑤, gasket ⑥, spring seat ⑦ and spring ⑧;



REASSEMBLING KICKSTARTER-RELATED PARTS



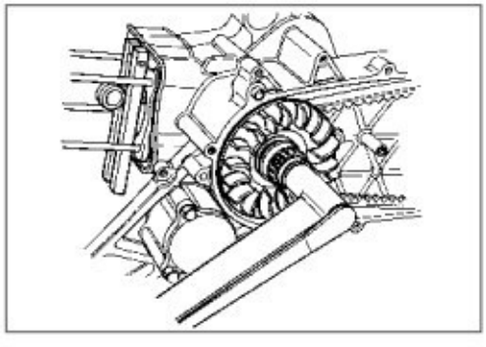
- Before reassembling, apply SUZUKI SUPER GREASE "A" to rotating and sliding parts;

99000-25010: SUZUKI SUPER GREASE "A"

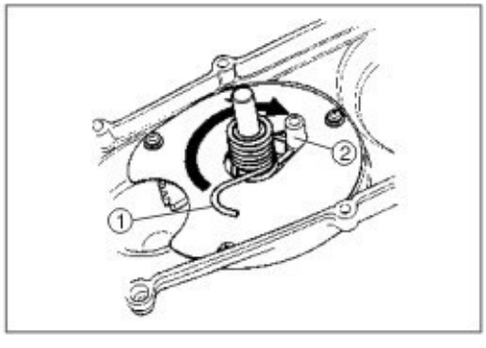
- Tighten starting ratchet wheel nut to specified torque;

KICKBACK STARTING RATCHET WHEEL NUT: 51N · m (5.1kg · m)

09910-20116: Connecting rod bracket



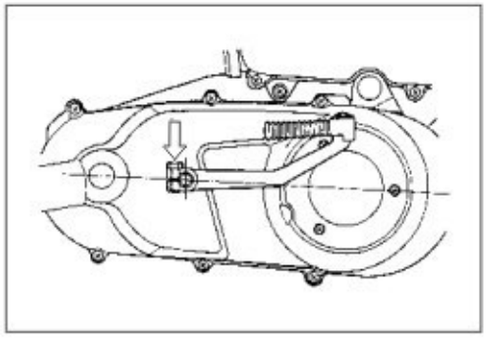
- Tighten intake guard screw;
- Fix starting shaft return torsion spring, hook torsion spring end ① to the boss ② on clutch cover;
- Fit set pin and new seal gasket on crankcase;
- Fit screw on clutch cover (Refer to page 3-55);



CAUTION:
Use new seal gasket to prevent dust.

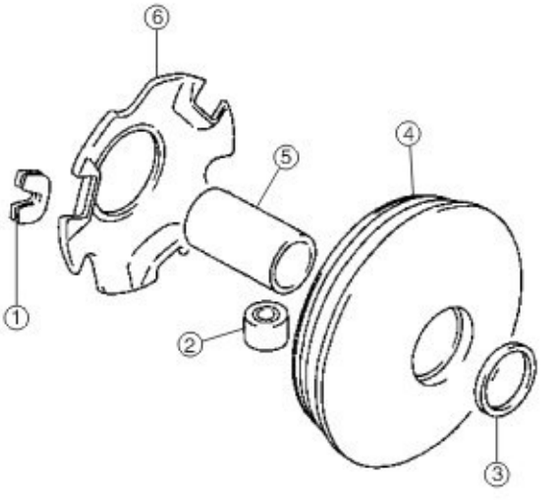
- Fix foot starting rod on starting shaft as illustrated;
- Tighten starting foot rod bolt to specified torque.

STARTING FOOT ROD BOLT: 10N · m (1.0kg · m)



INSPECTION AND MAINTENANCE OF ENGINE COMPONENTS

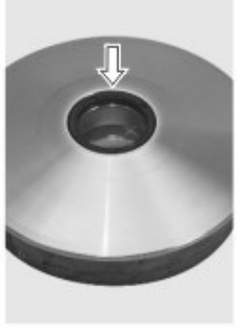
SLIDING DRIVE PULLEY SUBASSEMBLY



① shock pads
② roller
③ oil seal
④ pulley
⑤ bush
⑥ pulley drive plate

OIL SEAL INSPECTION

Inspect wear and damage of oil seal. In case of defect, replace oil seal with a new one.

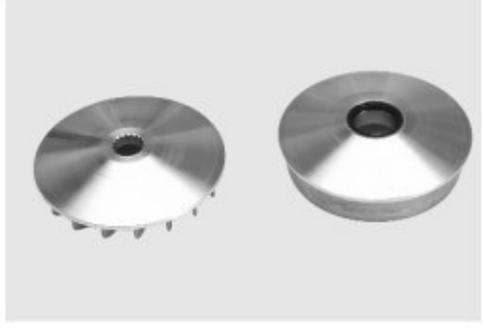


ROLLER INSPECTION

Inspect if there is any abnormal wear or damage in the sliding surface and measure the diameter of roller with a vernier caliper. In case of defect or measurement beyond specified value, replace it with a new set of roller.

LIMIT OF USE: 16.4mm

TOOL 09900-20102: Vernier caliper

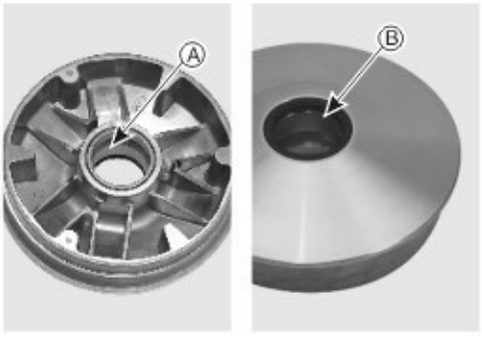


PULLEY INSPECTION

Inspect if there is scrape or fading of color in pulley belt surface. In case of defect, replace pulley with a new one.

REASSEMBLING

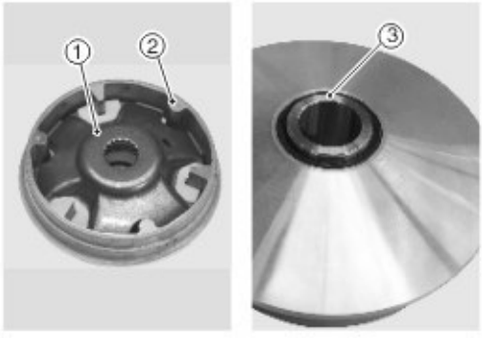
- Gently apply SUZUKI SUPER GREASE "A" to the inner cavity Ⓐ of pulley and oil seal lip Ⓑ;



99000-25010: SUZUKI SUPER GREASE "A"

- Install 6 rollers;

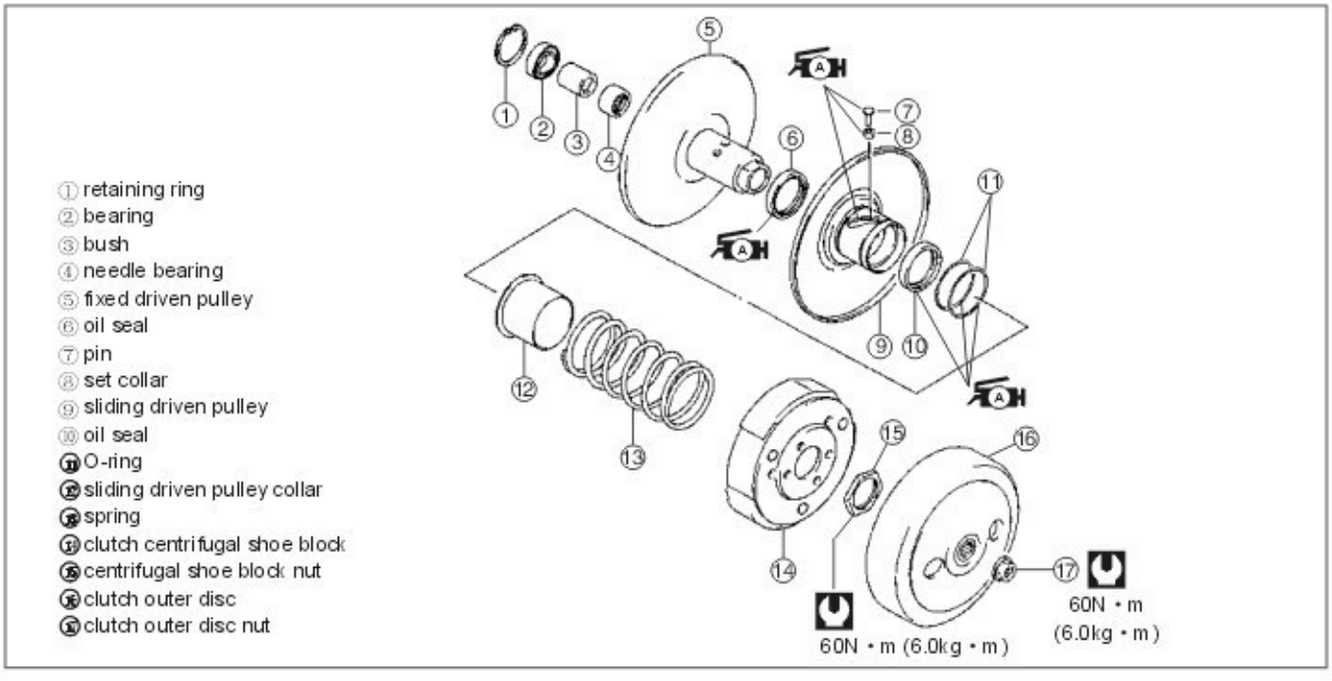
- Install pulley drive plate ① on pulley ②;
- Install bush ③;



PRECAUTION:
Drive belt surface of pulley should be free of grease.

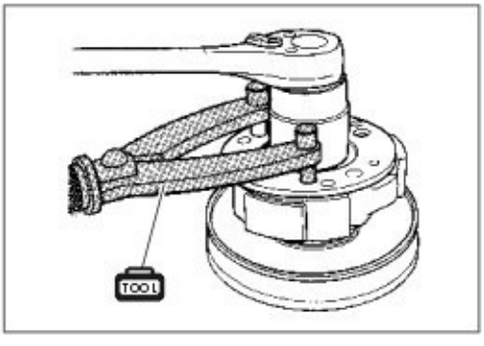
Refer to page 3-54 for pulley assembling.

CLUTCH CENTRIFUGAL SHOE BLOCK AND SLIDING DRIVEN PULLEY SUBASSEMBLY



REMOVING

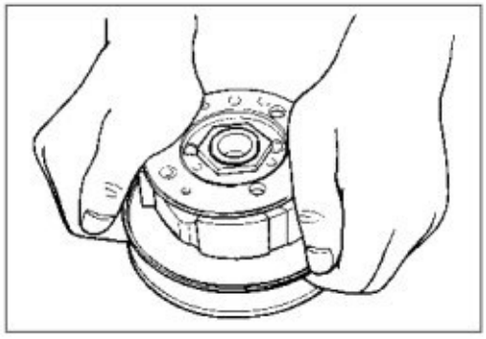
- Loosen clutch centrifugal shoe block nut with tool;



09930-40113: Rotor bracket

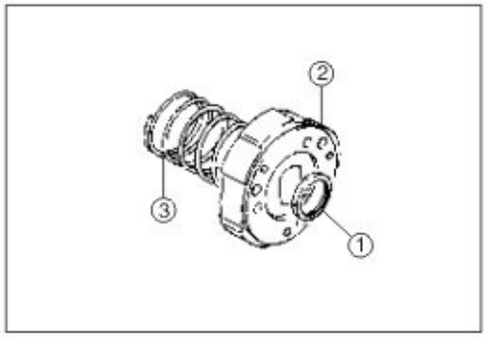
CAUTION:
Do not remove the clutch shoe nut at this time.

● Remove clutch centrifugal shoe block subassembly, pressing down with hand the clutch centrifugal shoe block.



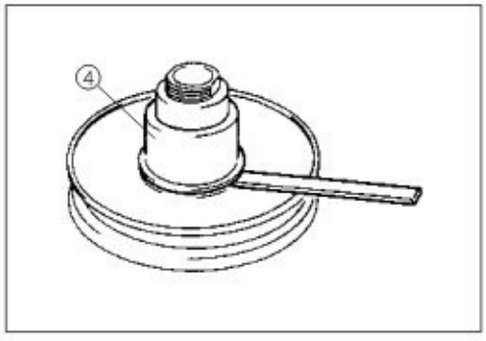
WARNING:
Gradually back off the clutch shoe assembly pressed down by hand to reduce the clutch spring load.
Releasing the hand suddenly may cause the parts to fly apart.

① Clutch shoe nut
② Clutch shoe assembly
③ Spring

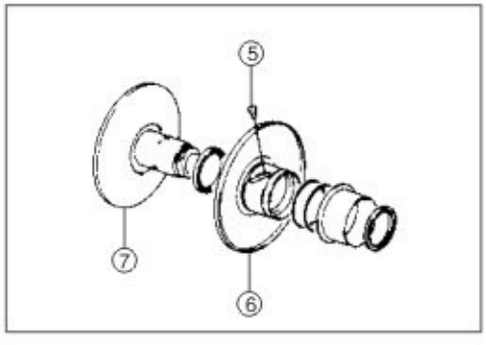


CAUTION:
Do not attempt to disassemble the clutch shoe assembly.

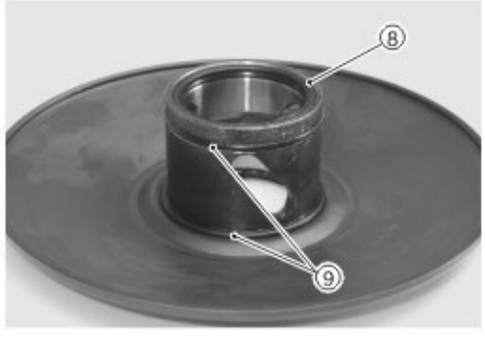
● Remove sliding driven pulley collar ④ with a "—" screw driver;



● Remove the 3 pins ⑤ and the sliding driven pulley ⑥ from the fixed driven pulley ⑦;

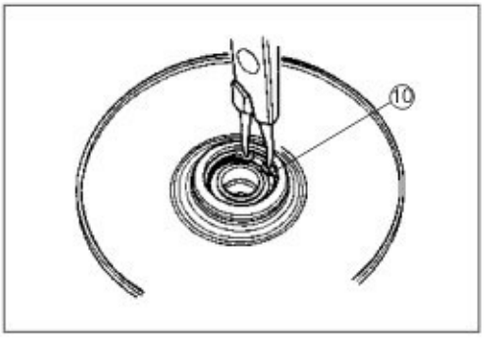


● Remove oil seal ⑧ and O-ring ⑨;



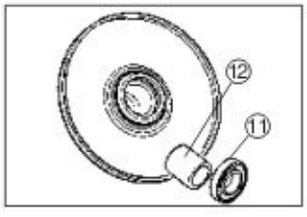
● Remove retaining ring with inner retaining ring caliper ⑩;

TOOL **09900-06108: Inner retaining caliper**



● Remove bearing ⑪ and bush ⑫ together with proper tools;

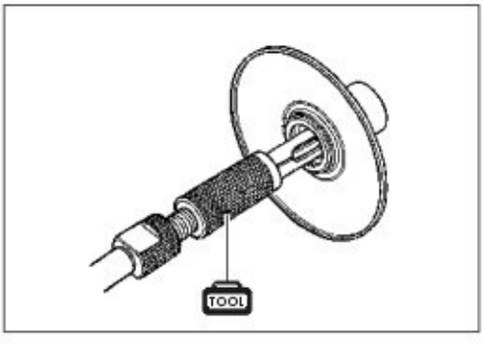
NOTE:
If there is no abnormal noise, it is not necessary to remove bearing.

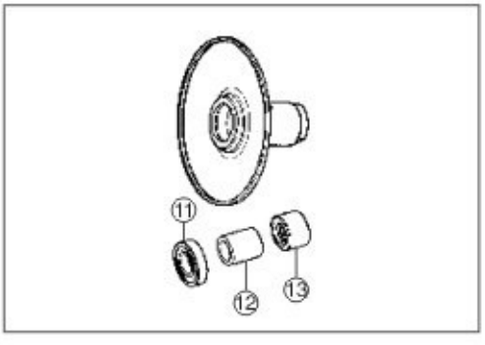


● Remove needle bearing ⑬ with special tool.

TOOL **09923-73210: Bearing remover**
09930-30102: Slide shaft

NOTE:
If there is no abnormal noise, it is not necessary to remove bearing.





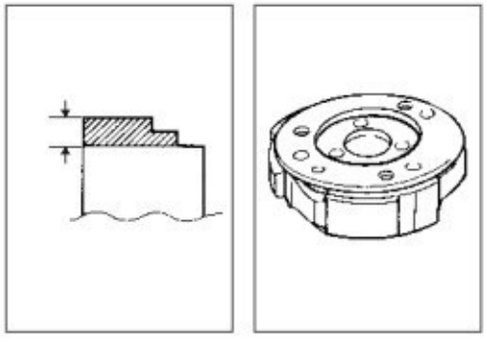
CAUTION:
The removed bearings, ⑫ and ⑭ , should be replaced with new ones.

CLUTCH CENTRIFUGAL SHOE BLOCK INSPECTION

Inspect if there is any crack, uneven wear or burn in the friction position;
Measure thickness of friction position with a vernier caliper;
In case of defect or oversize, replace clutch with a new clutch.

SIZE LIMIT: 2.0mm

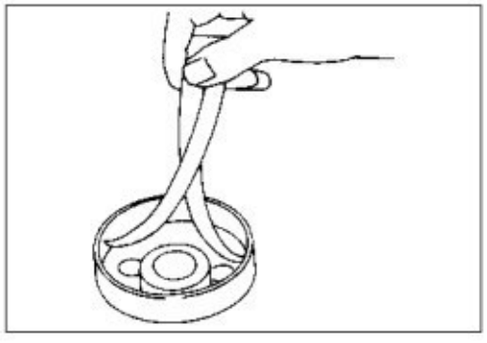
09900-20102: Vernier caliper



CLUTCH OUTER DISC INSPECTION

Inspect if there is any deep scuffing or color degradation caused by burn in the inner surface of clutch outer disc;
Measure clutch outer disc inside diameter with inside calipers;
In case of defect or oversize, replace clutch outer disc with a new one.

SIZE LIMIT: 125.50mm

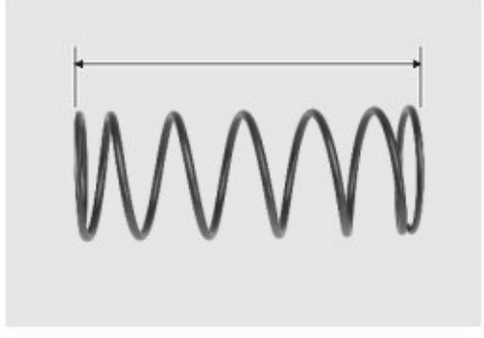


SLIDING DRIVEN PULLEY SPRING INSPECTION

Measure the free length of sliding driven pulley spring. In case it is shorter than the size limit, replace it with a new one.

SIZE LIMIT: 71.6mm

09900-20102: Vernier caliper

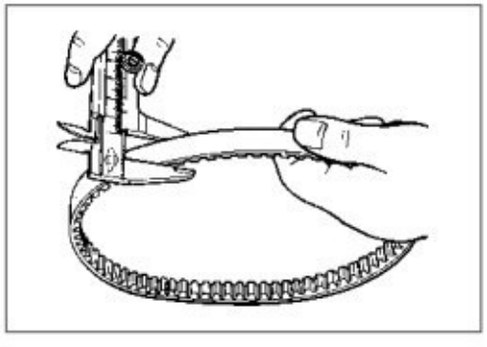


DRIVE BELT INSPECTION

Inspect if there is any crack, scraping, abnormal wear or oily dirt;
Measure belt width with vernier calipers;
In case of defect or width smaller than the size limit, replac the belt with a new drive belt.

SIZE LIMIT: 18.0mm

0900-20102: Vernier caliper



CAUTION:
Always keep the drive belt away from any greasy matter.
If drive belt is contaminated with grease or oil, clean it with neutral detergent.

REMOUNTING

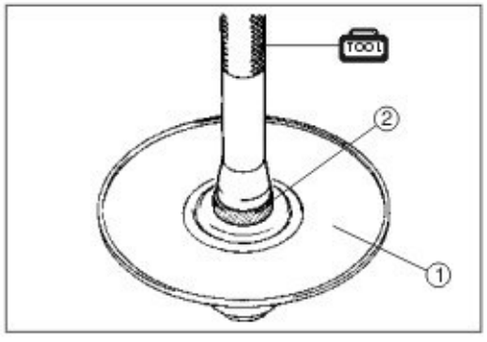
- Mount needle bearing ② on fixed driven pulley ① with special tool;

09943-88211: Bearing mounting device

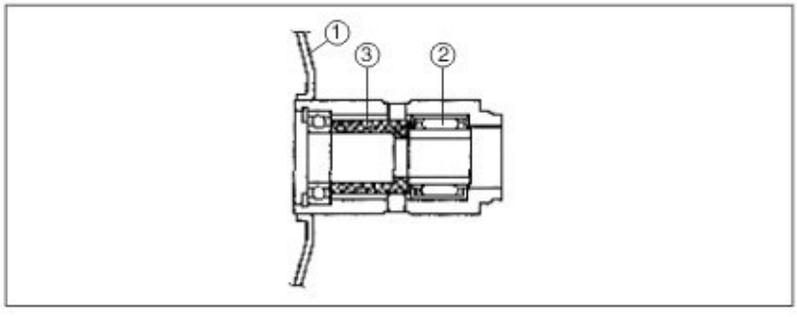
- Apply SUZUKI SUPER GREASE "A" to needle bearing ②;

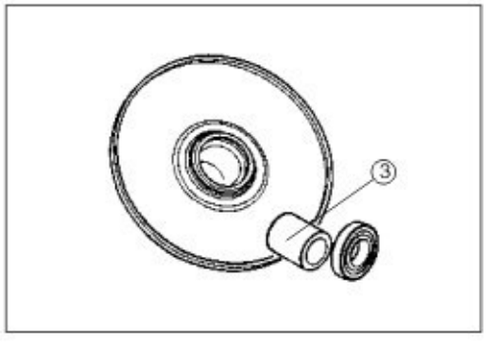
99000-25010: SUZUKI SUPER GREASE "A"

- Mounting bush ③;



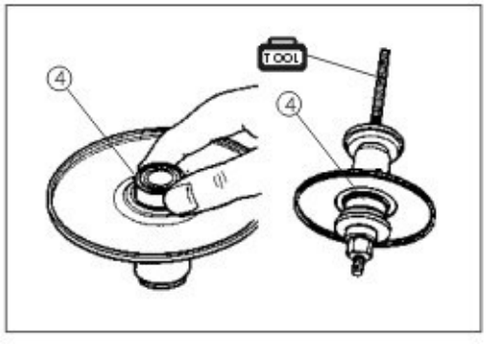
NOTE:
Ensure that the bored side of bush ③ faces inward.





- Mount bearing ④ with special tool;

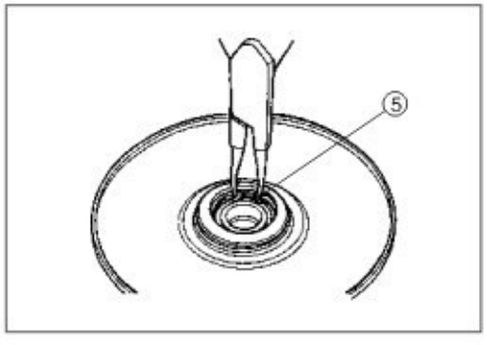
09941-34513: Steering race mounting device



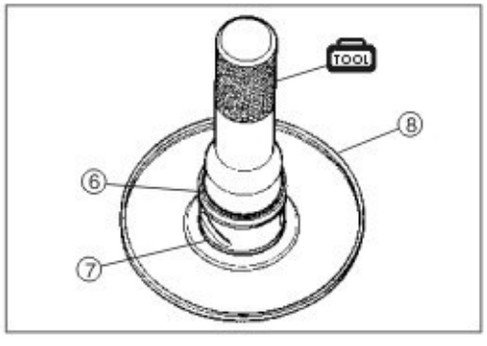
- Mount retaining ring with inner retaining ring caliper ⑤;

09900-06108: Snap ring pliers

NOTE:
Ensure that the straight side of retaining ring face outward.



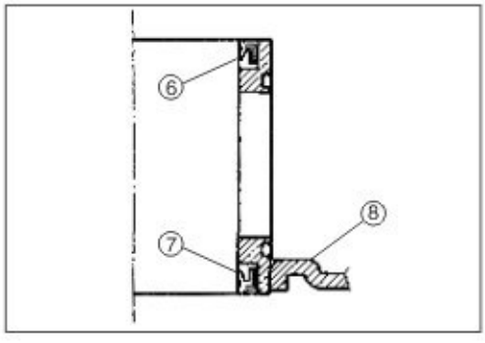
- Mount new oil seal ⑥ and oil seal ⑦ on the two sides of sliding driven pulley ⑧ with special tool;

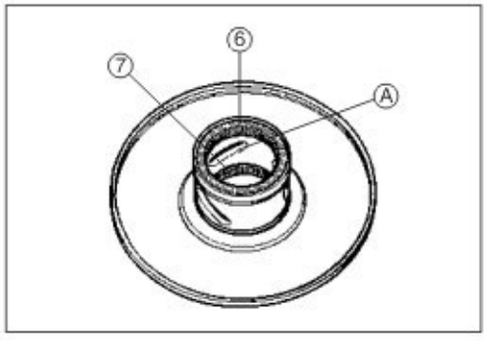


09913-76010: Bearing mounting device

- Apply SUZUKI SUPER GREASE "A" to the rim and groove Ⓐ of oil seal ⑥ and oil seal ⑦;

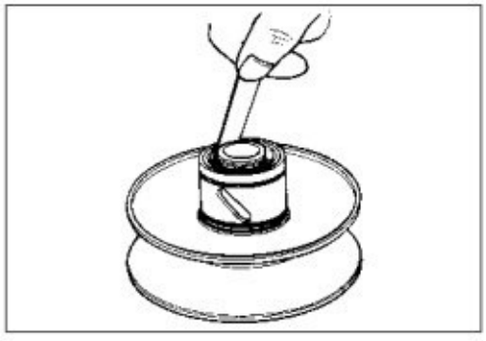
99000-25010: SUZUKI SUPER GREASE "A"





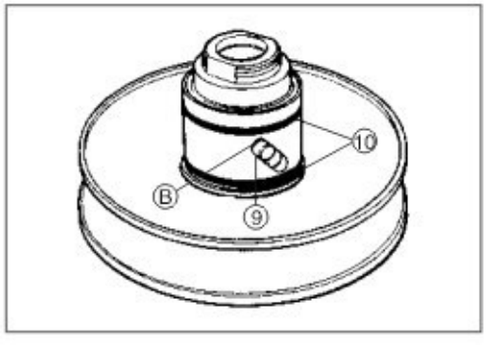
- Mount sliding driven pulley on fixed driven pulley;

CAUTION:
When installing the movable driven face, insert it while using a 0.1mm thickness gauge as a guide to prevent the damage of the oil seal lip.

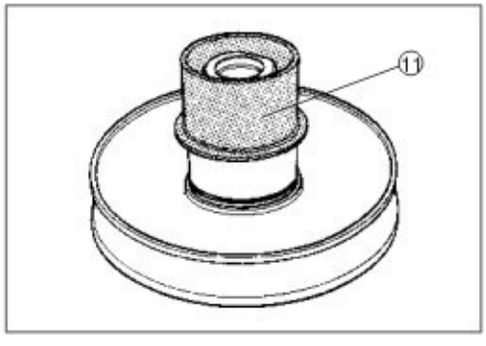


- Mount 3 pins ⑨ and new O-ring ⑩;
  Apply SUZUKI SUPER GREASE "A" to pin groove Ⓑ and O-ring ⑩;

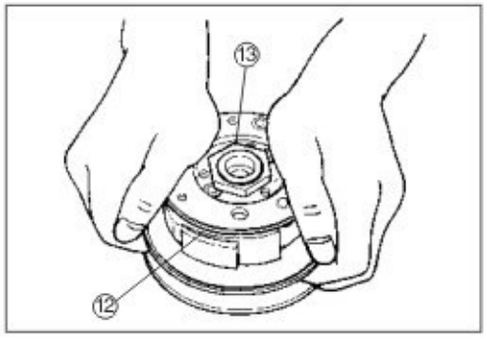
99000-25010: SUZUKI SUPER GREASE "A"



- Mount sliding driven pulley collar ⑪;



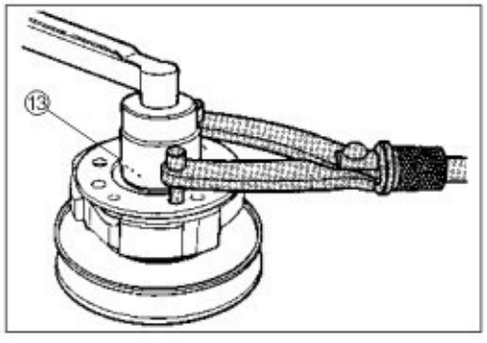
- Mount spring and clutch centrifugal shoe block subassembly ⑫;
- Mount clutch centrifugal shoe block nut ⑬ while pressing down clutch centrifugal shoe block subassembly;



- Tighten clutch centrifugal shoe block nut ⑬ to specified torque with special tool.

09930-40113: Rotor bracket

CLUTCH CENTRIFUGAL SHOE BLOCK NUT: 60N · m (6.0kg · m)

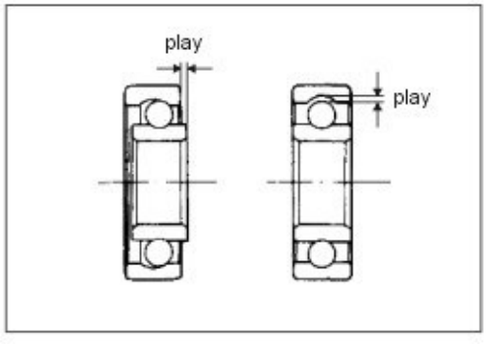


Refer to page 3-53 for mounting of sliding driven pulley and clutch.

CRANKCASE OIL SEAL, BEARING AND BUSH

BEARING INSPECTIN

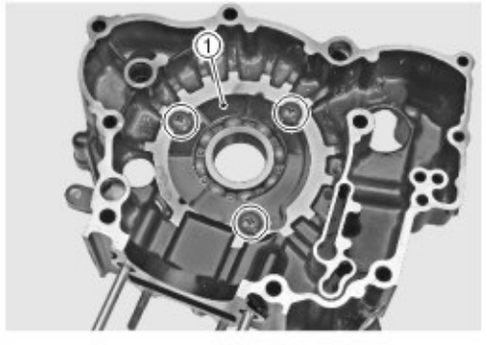
Turn bearing inner ring with fingers to inspect its play, noise and smooth rotation of bearing on crankcase.
In case of abnormality, replace bearing in the following procedure.



CRANKSHAFT RIGHT BEARING REMOVING

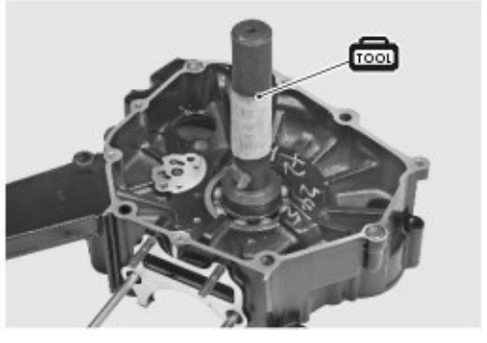
- Remove screw to remove bearing engine oil guide board ①;

09900-09003: Shock driver



- Remove crankshaft right bearing with special tool;

09913-76010: Bearing remover

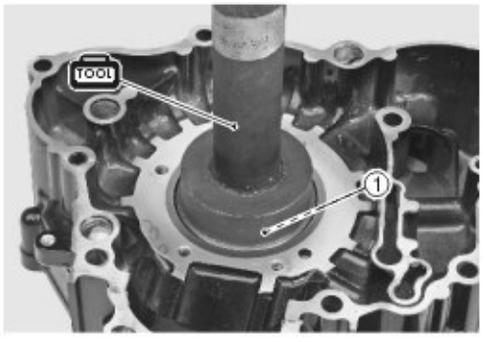


NOTE:
In case of no abnormal noise, it is not necessary to remove bearing.

CRAMKSHAFT RIGHT BEARING REMOUNTING

● Mount crankshaft right bearing ① in right crankcase;

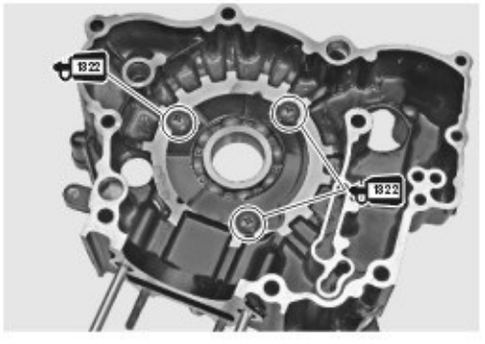
09913-75520: Bearing mounting device



● Mount engine oil guide board.

NOTE:
Apply a small amount of thread lock super bond "1322" to screw.

99000-32110: Thread lock super bond "1322"

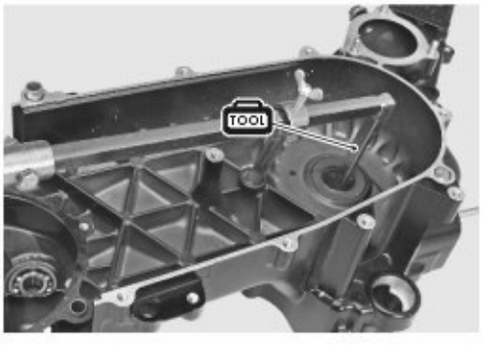


CRANKSHAFT LEFT BEARING REMOVING

● Remove crankshaft left bearing oil seal with special tool;

09913-50121: Oil seal remover

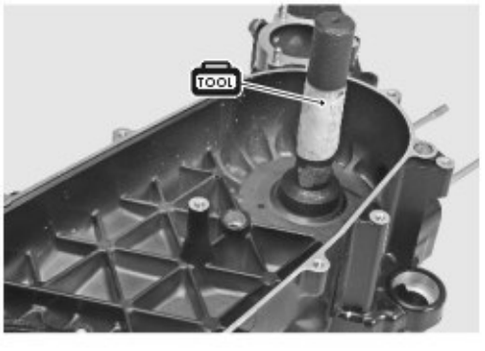
CAUTION:
The removed oil seal should be replaced with a new one.



● Remove crankshaft left bearing with special tool.

09922-55131: Bearing remover

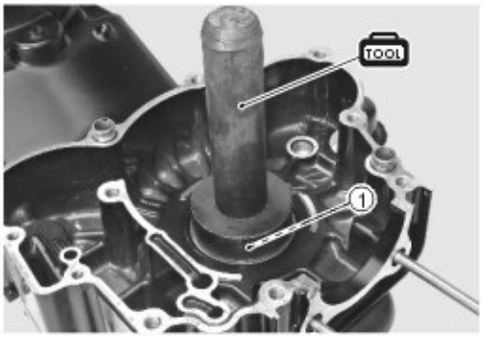
NOTE:
If there is no abnormal noise, it is not necessary to remove bearing.



CRANKSHAFT LEFT BEARING REMOUNTING

● Mount crankshaft left bearing ① in crankcase with special tool.

09913-75520: Bearing mounting device

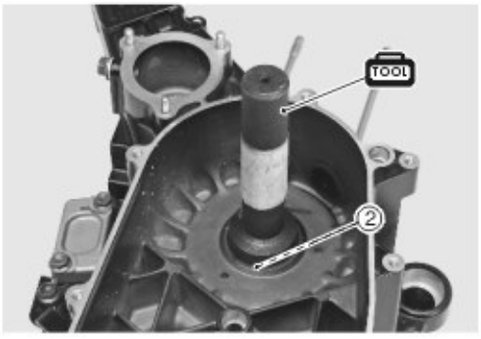


● Mount crankshaft left oil seal ② with special tool;

09922-55131: Bearing remover

● Apply a small amount of SUZUKI SUPER GREASE "A" to oil seal rim.

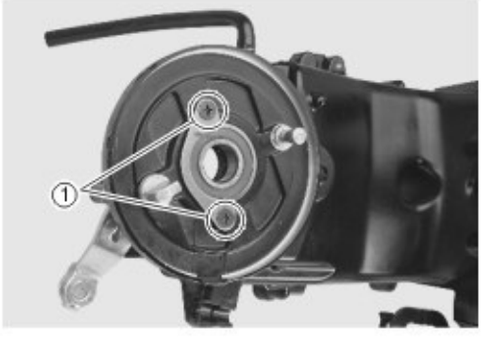
99000-25010: SUZUKI SUPER GREASE "A"



REAR WHEEL LEFT BEARING REMOVING

● Remove screw to remove rear wheel right bearing positioning plate ①;

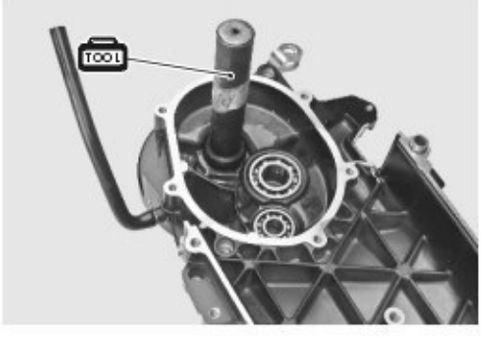
09900-09003: Shock driver



● Remove rear wheel right bearing together with its oil seal with special tool.

09913-75821: Bearing mounting device

NOTE:
If there is no abnormal noise, it is not necessary to remove bearing.



CAUTION:
The removed oil seal should be replaced with a new one.

REAR WHEEL RIGHT BEARING REMOUNTING

● Mount rear hub oil seal ① with special tool;

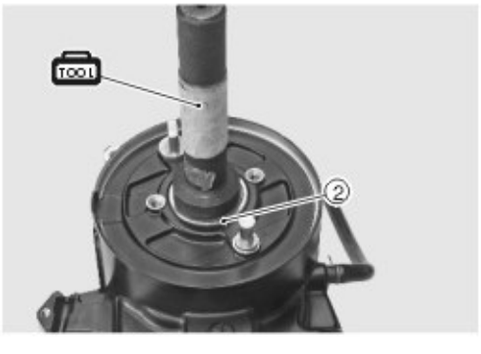
09913-75830: Bearing mounting device

● Apply a small amount of SUZUKI SUPER GREASE "A" to oil seal rim;

99000-25010: SUZUKI SUPER GREASE "A"

● Mount rear right bearing ② with special tool;

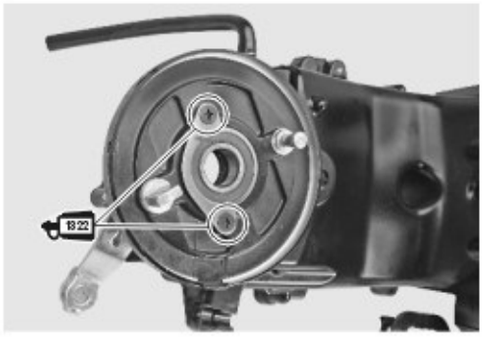
09922-55131: Bearing remover



● Mount bearing positioning board with 2 screws.

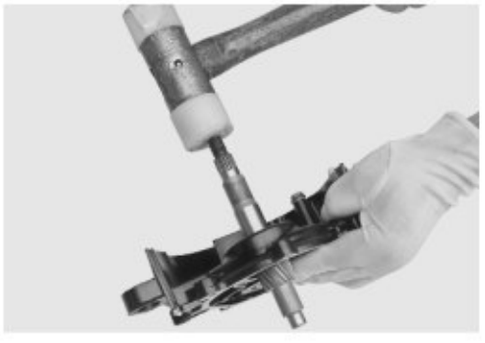
NOTE:
Apply a small amount of thread lock super bond "1322".

99000-32110: Thread lock super bond "1322"



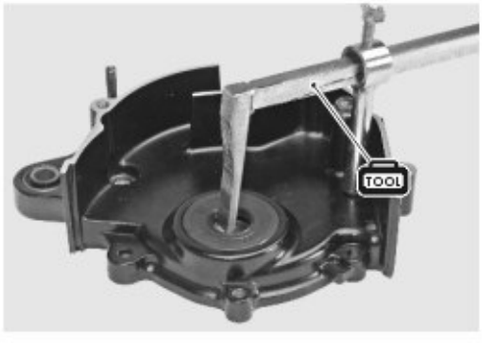
DRIVE SHAFT, IDLER SHAFT BEARING REMOVING

● Remove drive shaft by knocking it gently with a plastic hammer;



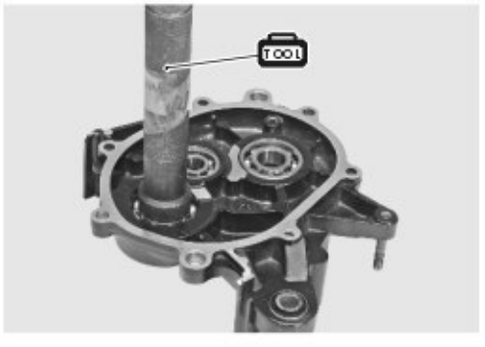
● Remove drive shaft oil seal with special tool:
● Remove retaining ring;

09913-50121: Oil seal remover



CAUTION:
The removed oil seal should be replaced with a new one.

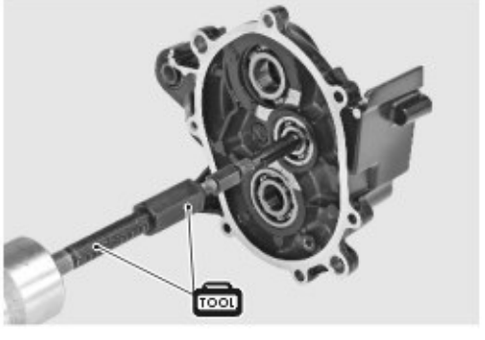
● Remove drive shaft left bearing with special tool;



NOTE:
If there is no abnormal noise, it is not necessary to remove bearing.

● Remove idler shaft left bearing and rear shaft left bearing;

09921-20210: BEARING REMOVER
(USED FOR IDLER SHAFT BEARING)
09923-73210: BEARING REMOVER
(USDED FOR REAR WHEEL BEARING)
09930-30102: SLIDE SHAFT

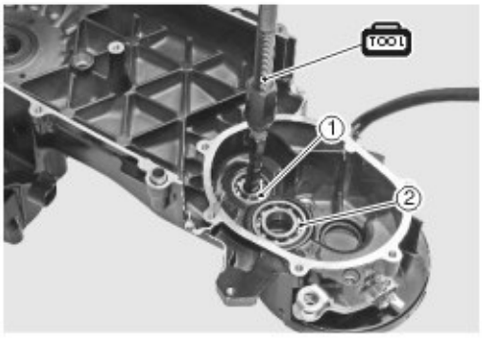


NOTE:
If there is no abnormal noise, it is not necessary to remove bearing.

● Remove drive shaft right bearing ① and idler shaft right bearing ②;

09921-20210: Bearing remover
(Used for drive shaft bearing)
09923-74510: Bearing remover
(Used for idler shaft bearing)
09930-30102: Slide shaft

NOTE:
If there is no abnormal noise, it is not necessary to remove bearing.



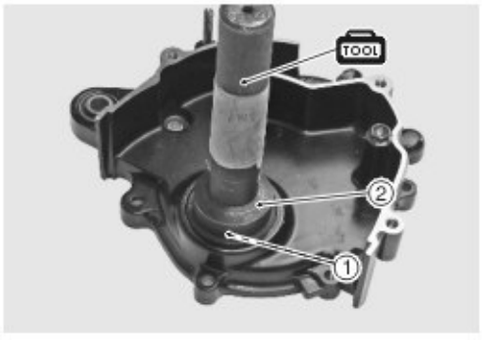
DRIVE SHAFT, IDLER SHAFT BEARING REMOUNTING

● Mount drive shaft left bearing ①;
● Mount retaining ring;
● Mount drive shaft oil seal with special tool ②;

09951-76010: Bearing mounting device

● Apply a small amount of SUZUKI SUPER GREASE "A";

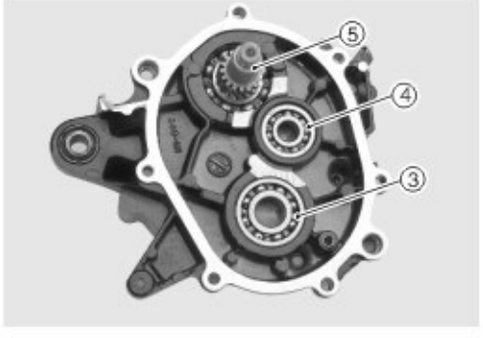
99000-25010: SUZUKI SUPER GREASE "A"



● Mount rear wheel shaft left bearing ③ and idler shaft left bearing ④;

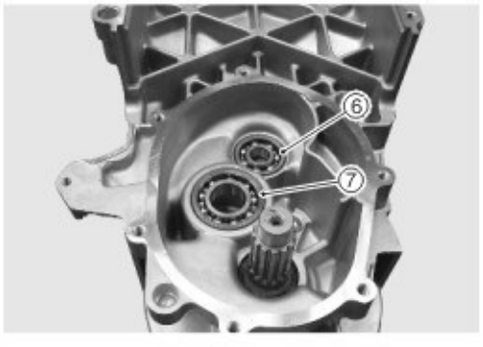
09922-55131: Bearing mounting device
(Used for rear wheel shaft bearing)
09913-75821: Bearing mounting device
(Used for idler shaft bearing)

● Mount drive shaft ⑤ by knocking it with a plastic hammer;



● Mount drive shaft right bearing ⑥ and idler shaft right bearing ⑦;

09913-75821: Bearing mounting device
(Used for drive shaft bearing)
09951-76010: Bearing mounting device
(Used for idler shaft bearing)

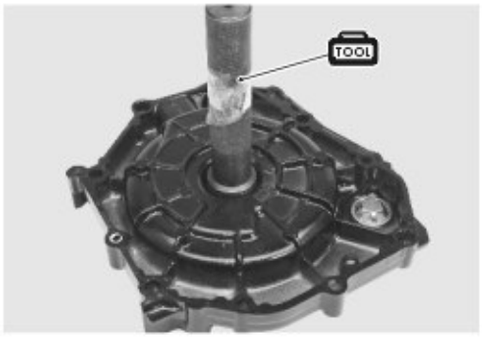


CRANKCASE RIGHT COVER OIL SEAL DISMOUNTING AND REMOUNTING

● Remove crankcase right cover oil seal with special tool;

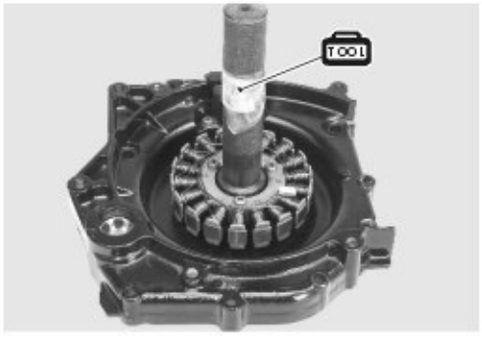
09943-88211: Bearing remover

CAUTION:
The removed oil seal should be replaced with a new one.



- Mount crankcase right cover oil seal with special tool;

09925-98221: Bearing mounting device

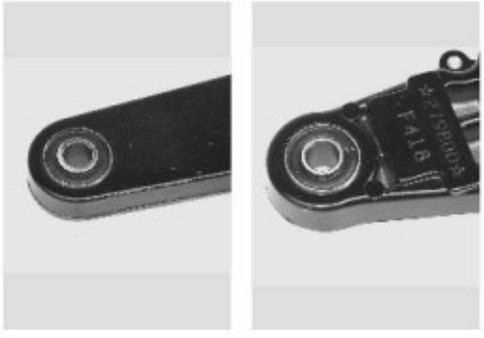


- Apply a small amount of SUZUKI SUPER GREASE "A" to oil seal rim.

99000-25010: SUZUKI SUPER GREASE "A"

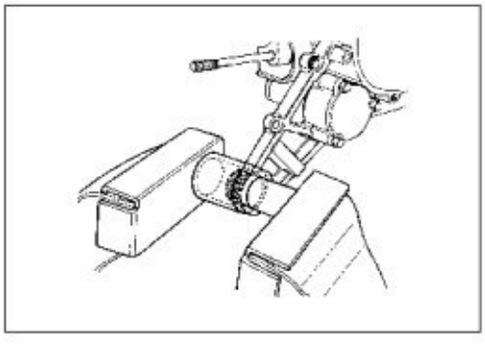
INSPECTION OF ENGINE MOUNTING BUSH AND REAR SHOCK ABSORBER BUSH

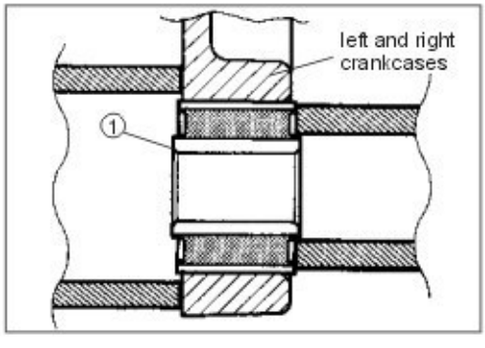
Inspect wear or damage of bush.
In case of defect, replace it with a new one.

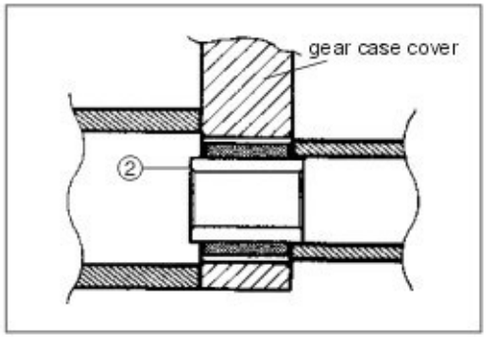


REMOVING ENGINE MOUNTING BUSH AND REAR SHOCK ABSORBER BUSH

- Press out bush ① and bush ② with a proper steel tube as illustrated.





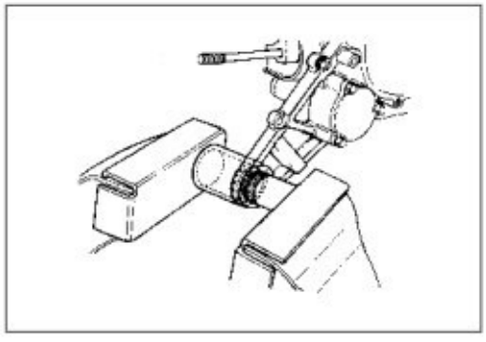


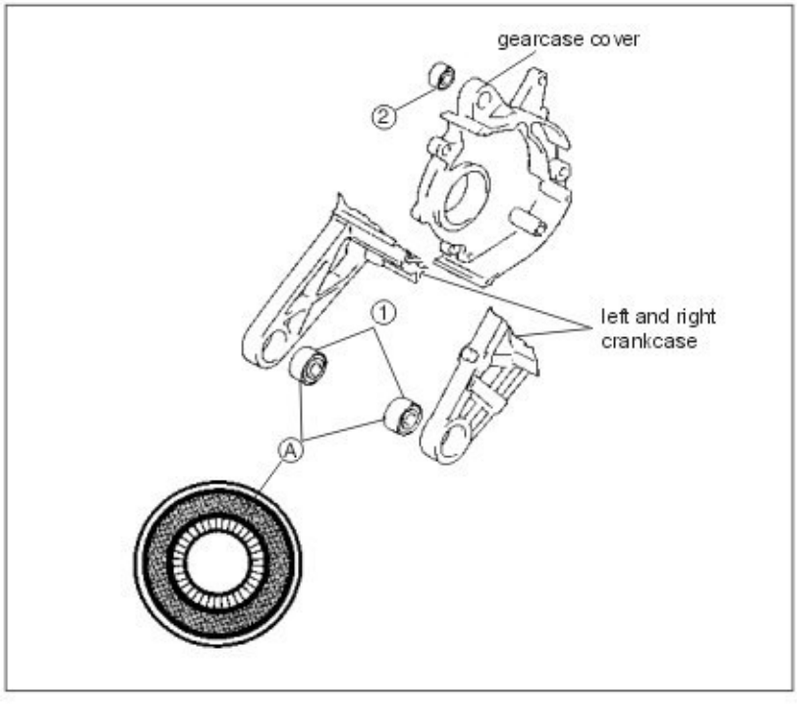
REMOUNTING ENGINE MOUNTING BUSH AND REAR SHOCK ABSORBER BUSH

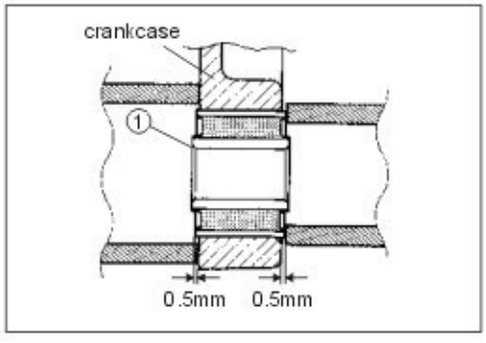
- Press engine mounting bushes ① and ② into right and left crankcases and gearcase cover with a proper steel tube and bench vice as illustrated.

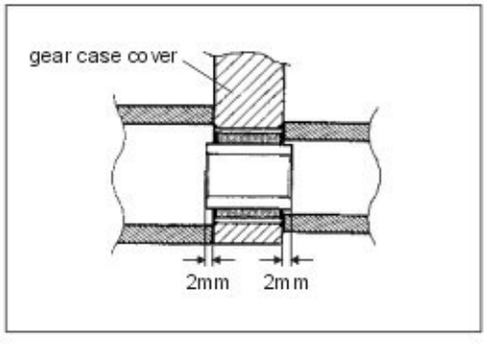
NOTE:

- When pressing bushes in right and left crankcase, bushes ① knurled sides Ⓐ should be mounted face to face.
- The sizes of bush bosses should be the same.

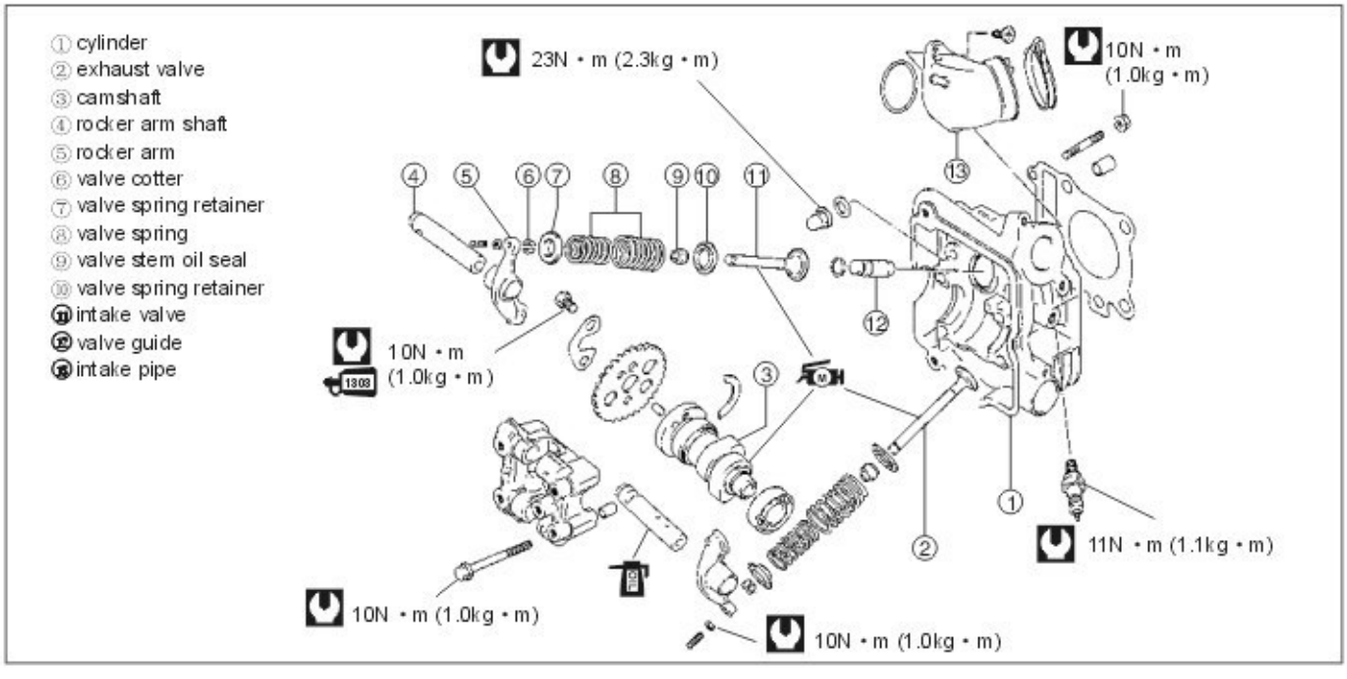








RELATED PARTS OF CYLINDER HEAD



SWING ARM AND SWING ARM SHAFT

REMOVING

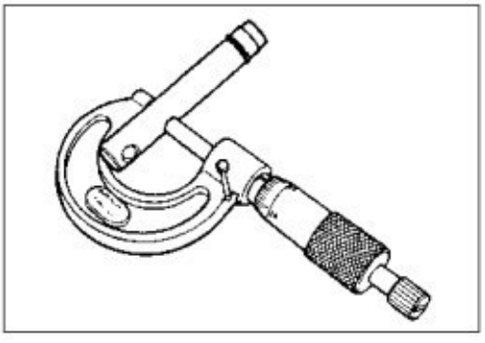
- Pull out swing arm shaft from camshaft cover.

INSPECTION

Measure swing arm diameter with micrometer calipers.

STANDARD: 11.966~11.984mm

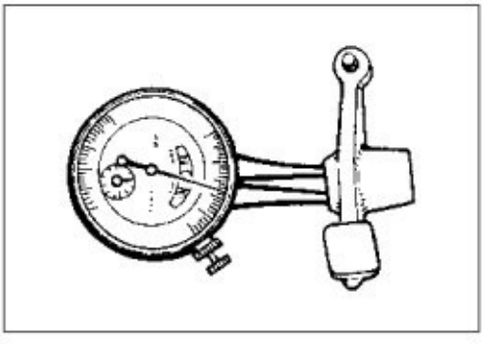
09900-20205: Micrometer calipers (0~25mm)



When inspecting swing arm, swing arm inside diamter and camshaft contact face wear should be inspected.

STANDARD: 12.00~12.018mm

09900-20605: Scale calipers



REMOUNTING

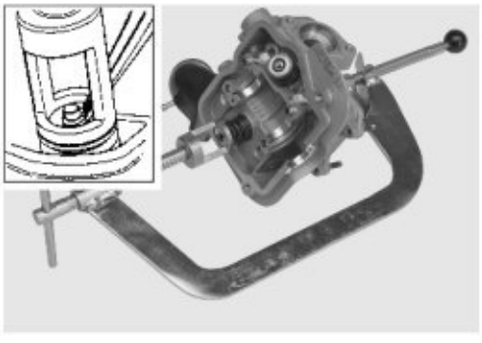
- Apply engine oil to swing arm shaft;
- Mount swing arm and swing arm shaft in camshaft cover.

VALVE AND VALVE SPRING REMOVING

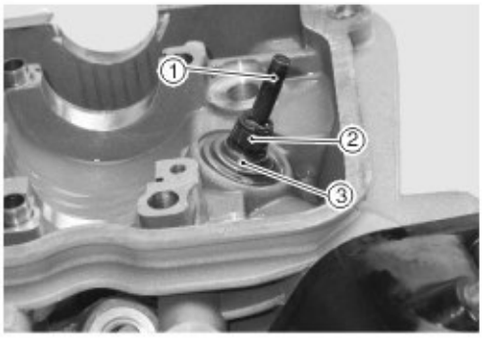
- Compress spring with valve remover;
- Remove valve lock clamp from valve stem.

09916-14510: Valve lifter
09916-14521: Valve lifter attachment
09916-84511: Tweezers

- Remove valve spring and valve spring disc;



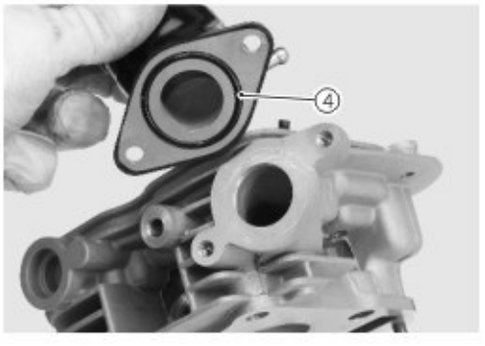
- Remove air valve ① from the other end;
- Remove air valve rod oil seal ② with sharp nose pliers;
- Remove air valve spring seat ③.



INTAKE PIPE

- Remove intake screw to remove intake pipe.

CAUTION:
Use a new O-ring ② to prevent sucking air from the joint .

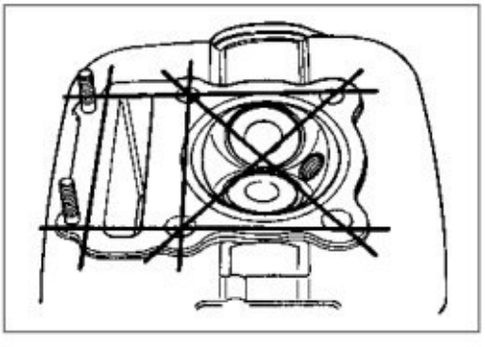


DEFORMATION OF CYLINDER HEAD

- Remove combustion chamber carbon deposit;
- Inspect deformation of cylinder head with ruler and thickness gauge and collect play reading as illustrated.
  In case the maximum reading at any point of the rim exceeds the limit, the cylinder head should be replaced.

LIMIT OF USE: 0.05mm

TOOL 09900-20803: Thickness gauge

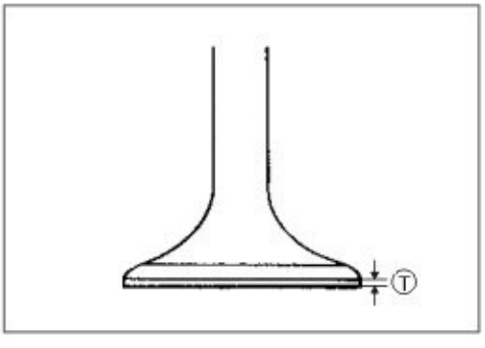


WEAR OF VALVE FACE

Measure thickness Ⓣ, and replace valve in case of maximum wear of thickness.

NOTE:
Carry out visual inspection of every valve face and replace it in case of abnormal wear.

LIMIT OF THICKNESS Ⓣ USE: 0.5mm

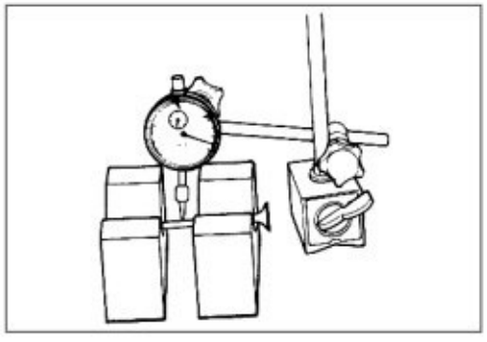


VALVE STEM BENDING

Support valve with V-block as illustrated and inspect bending with micrometer. In case of excessive bending, replace valve.

LIMIT OF USE: 0.05mm

09900-20701: Magnetic table
09900-20606: Micrometer (1/100mm)
09900-21304: V-block (100mm)

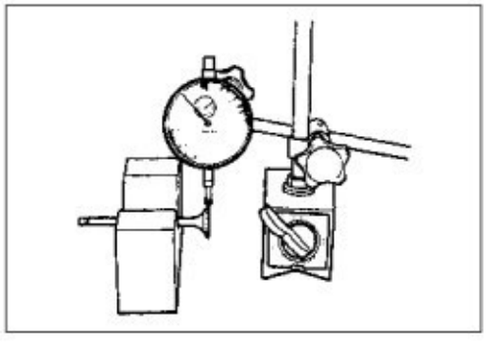


VALVE HEAD RADIAL DEFLEXION

Place micrometer at valve head right angle and measure valve head deflectivity. Replace valve in case the measurement reading exceeds the limit.

LIMIT OF USE: 0.03mm

09900-20606: Micrometer (1/100mm)
09900-20701: Magnetic table
09900-21304: V-block (100mm)

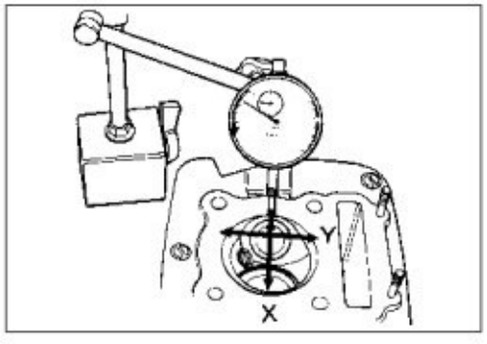


VALVE STEM RUNOUT

Lift valve by 10mm from valve seat. Position micrometer as illustrated with "X" and "Y" perpendicular to each other and measure valve stem runout in two directions. If the measured runout is beyond the limit, decide if a new air valve collar or air valve should be used for replacement.

LIMIT OF USE:
INTAKE AND EXHAUST VALVE: 0.35mm

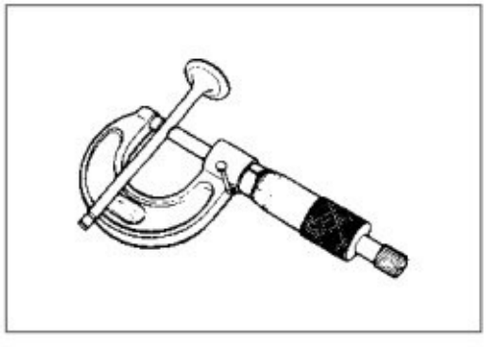
09900-20606: Micrometer (1/100mm)
09900-20701: Magnectic table



VALVE STEM WEAR

If micrometer-measured valve stem wear is below the limit and the play between valve stem and valve collar is beyond the limt, valve replacement should be effected. If valve wear is within the limit, air valve collar should be replaced. After replacement of valve or air valve collar, play should be re-inspected.

OUTSIDE DIAMETER OF VALVE STEM
STANDARD: INTAKE: 4.975~4.990mm
EXHAUST: 4.955~4.970mm
09900-20205: Micrometer calipers (0~25mm)

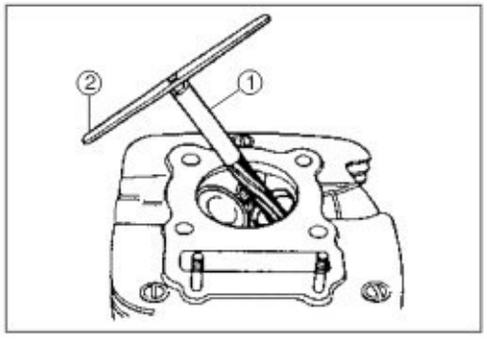


VALVE GUIDE SERVICE

- Remove air valve collar with air valve remover;

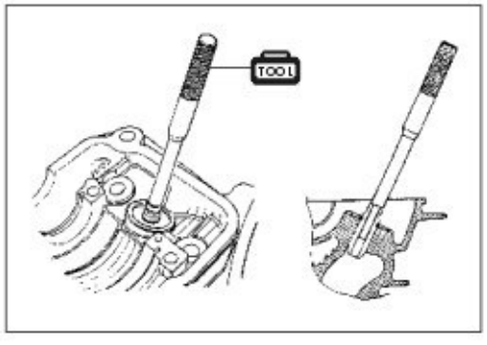
09916-44310: Valve guide remover

- Trim cylinder head valve collar hole with reamer ① and reamer holder ②;



09916-34580: Valve guide reamer (10.8mm)
09916-34542: Reamer holder

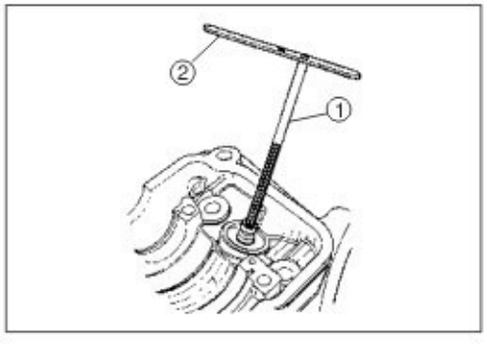
- Each valve guide is provided with a ring;
- Lubricate each valve guide with oil and mount valve guide in guide hole with valve guide replacer;



09916-44310: Valve guide replacer

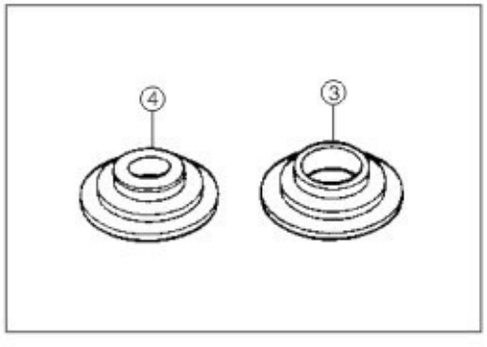
CAUTION:
Be sure to use new ring and valve guide.

- When valve guide is in position, trim valve guide hole with reamer ① and reamer holder ②. After trimming, clean and lubricate valve guide.



09916-34570: Valve guide reamer (5.0mm)
09916-34542: Reamer holder

- Mount valve spring seat ③. Do not confuse lower seat with spring cap ④.

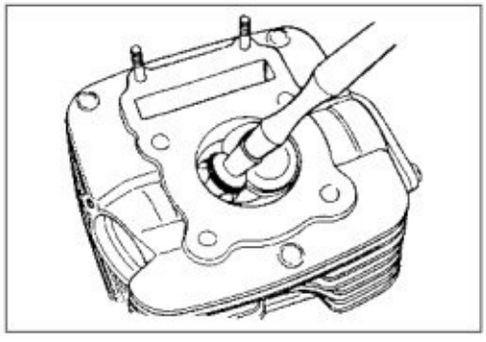


- Lubricate valve guide oil seal and press oil seal in position with hand.

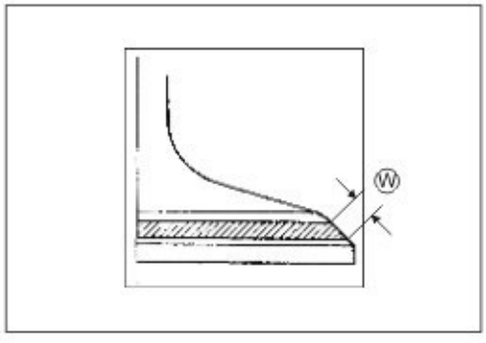
CAUTION:
Do not reuse the stem seals.

VALVE SEAT WIDTH

- Evenly apply prussian blue to valve seat. Turn valve face to tap valve seat with prussian blue to obtain a clear trace of contact. This operation should be performed with valve lapper clamping valve cap.



- There must be a continuous trace of color on valve face. The width of colored ring, i.e., the visual width of valve "width", must be within the following standard range.



STANDARD

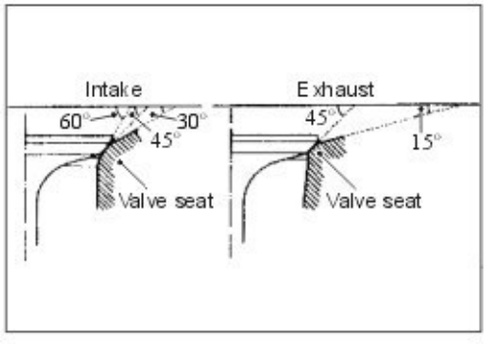
VALVE SEAT WIDTH Ⓦ: 0.9~1.1mm

In case any of them is not up to standard, rectify valve seat as illustrated below.

VALVE SEAT SERVICE

The seats of intake valve and exhaust valve should be machined into 4 different angles. (Valve seat contact face should be machined to 45°.)

	Intake end		Exhaust end
45°	N-122 or N-116	45°	N-122 or N-116
30°	N-126	15°	N-121 or N-120
60°	N-111		

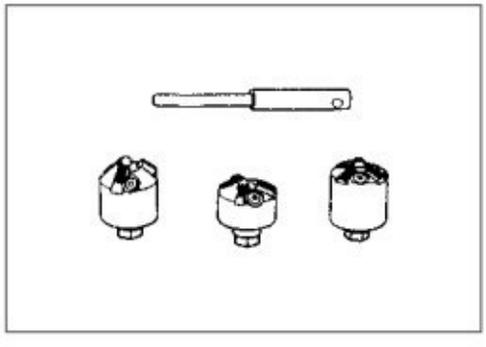


TOOL **Valve seat reamer: (N-111), (N-126), (N-121), (N-122), (N-166) and (N-120)**

Pilot bar: (N-100-5.0)

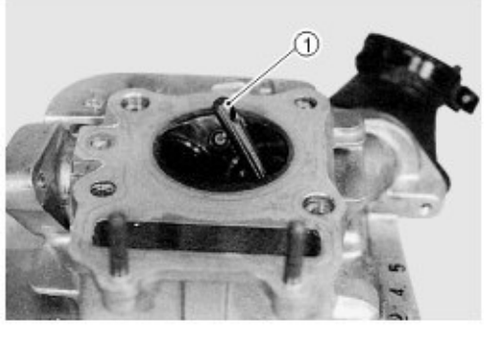
NOTE:

Inspection must be carried out after every reaming of valve seat contact face.



TOOL **09916-20610: Valve seat reamer (N-121)**
09916-20620: Valve seat reamer (N-122)
09916-20630: Valve seat reamer (N-126)
09916-24311: Guide rod (N-100-5.0)
09916-21110: Valve reamer set

- Insert guide rod ① by gently turning it to position. Mount 45° reamer, accessory and T-bar;
- Turn 45° reamer for 1-2 revolutions and clean valve seat;
- Inspect valve seat in the procedure of valve width measurement illustrated above. In case there is any indent or burn, trim valve seat with 45° reamer.

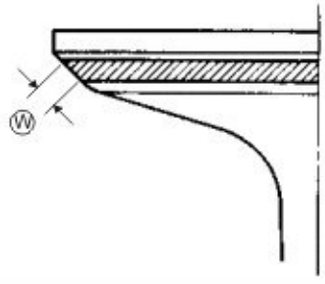


NOTE:

To ensure correct valve contact angle, only a slight cutting of valve seat is permitted so as to prevent valve stem being too close to swing arm.

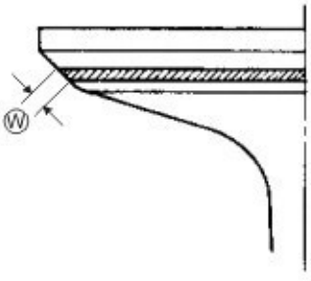
In case contact face on valve is too high or too wide, lower or narrow contact face by means of 15° reamer (exhaust) and 30°/60° reamer (intake end).

Contact face on valve seat is too high or too wide.



In case contact face on valve is too low or too narrow, elevate or widen contact face by means of 45° reamer.

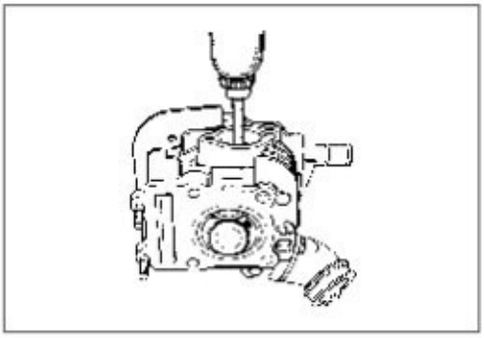
Contact face on valve seat is too low or too narrow.



- Gently clear burrs left over from previous reaming by means of 45° reamer when ideal valve seat position and width are obtained.

CAUTION:
DO NOT use lapping compound after the final cut is made. The finished valve seat should have a velvety smooth finish and not a highly polished or shiny finish. This will provide a soft surface for the final seating of the valve which will occur during the first few seconds of engine operation..

- Clean and mount valve stem and valve set. Inspect oil leakage with intake hole and exhaust hole filled with gasoline. In case of leakage, inspect valve seat and valve face to see if there is any burr or other impurities that affect valve sealing.

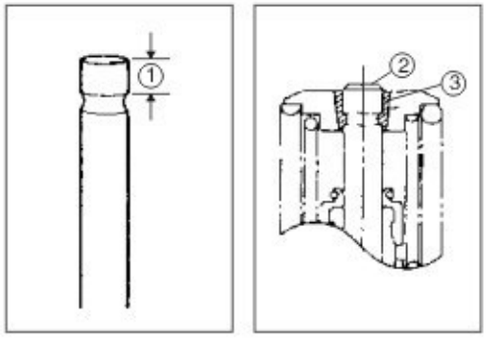


WARNING:
Always use extreme caution when handling gasoline.

NOTE:
At the completion of valve seat mounting, inspection of valve play must be performed after remounting of cylinder head (See page 2-4).

VALVE STEM END FACE

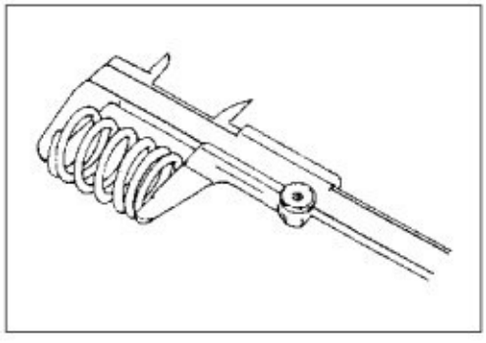
Inspect if there is any indent or wear. If there is, trim valve stem end face provided that its minimum length ① is 4.5mm. Valve shorter than 4.5mm must be replaced. When mounting valve, ensure that valve end face is above clamp ③.



VALVE SPRING

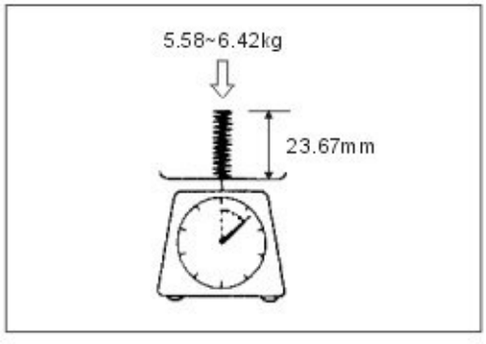
Inspect spring strength by measuring spring free length and the force compressing spring to a certain length. Replace inner and outer springs together in case spring free length reading is below the illustrated limit or the measured force is below the lower limit.

VALVE SPRING FREE LENGTH
LIMIT OF USE
INNER: 29.7mm
OUTER: 29.6mm



09900-20102: Vernier caliper

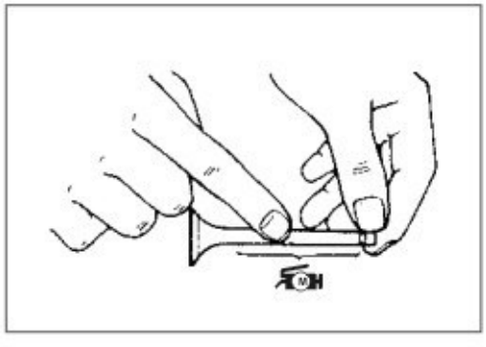
VALVE SPRING TENSION
STANDARD
INNER: 5.58~6.42KG/23.67mm
OUTER: 6.5~7.5KG/26.67mm



REMOUNTING OF VALVE AND VALVE SPRING

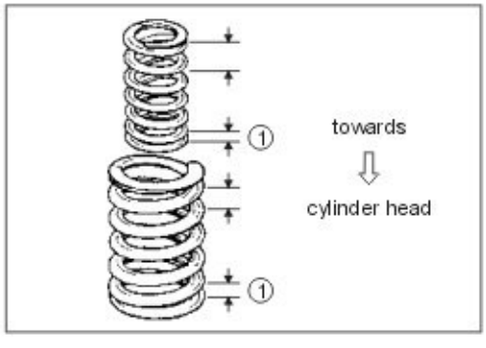
- Insert valve. Apply SUZUKI MOYL PASTE to the full lenth of valve stem without fail;
- The same paste should be applied to valve stem oil seal front rim.

99000-25140: SUZUKI MOLY PASTE

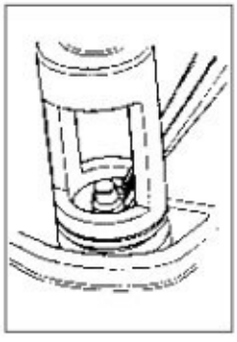


CAUTION:
When inserting each valve, take care not to damage the lip of the stem seal.

- When mounting valve spring, ensure that the end ① with smaller pitch is towards cylinder head. The variation of spring coil pitch is as follows: decreasing downwards as illustrated.



● When mounting valve spring cap, mount clamp into valve stem end by compressing spring with valve mounting and removing device.



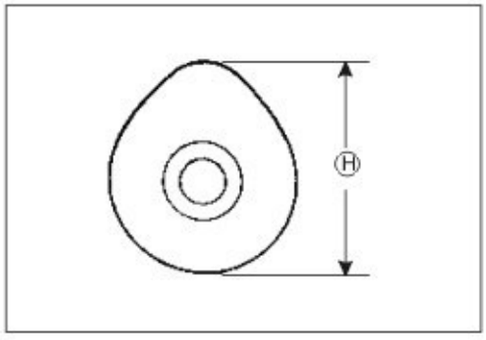
09916-14510: Valve lifter
09916-14521: Valve lifter attachment
09916-84511: Tweezers

CAMSHAFT CAM WEAR

Worn cam often leads to poor performance of valve and lower power output.
The height Ⓗ of cam, wear limit of intake and exhaust cams are specified and should be measured by means of micrometer.
In case wear reaches the limit, camshaft should be replaced.

HEIGHT Ⓗ OF CAM

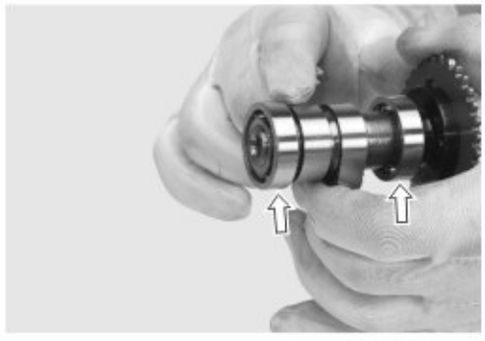
LIMIT OF USE **INTAKE CAM: 32.670mm**
EXHAUST CAM: 32.550mm



09900-20202: Micrometer (25~50mm)

CAMSHAFT BEARING

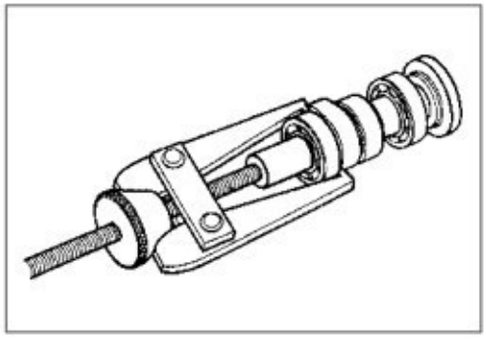
Turning camshaft bearing outer ring with hand to inspect if rotation is stable and sound is normal.
In case of abnormality, replace bearing in the following procedure:



● Flatten lock gasket tongue and remove sprocket bolt;

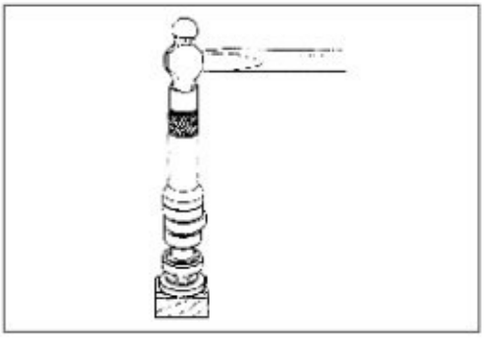
● Remove bearings and camshat sprocket flange with bearing remover;

NOTE:
This component is an interference fit. Unless absolutely necessary, removing of camshaft sprocket flange and right bearings should be avoided.



● Mount bearings with bearing mounting device;

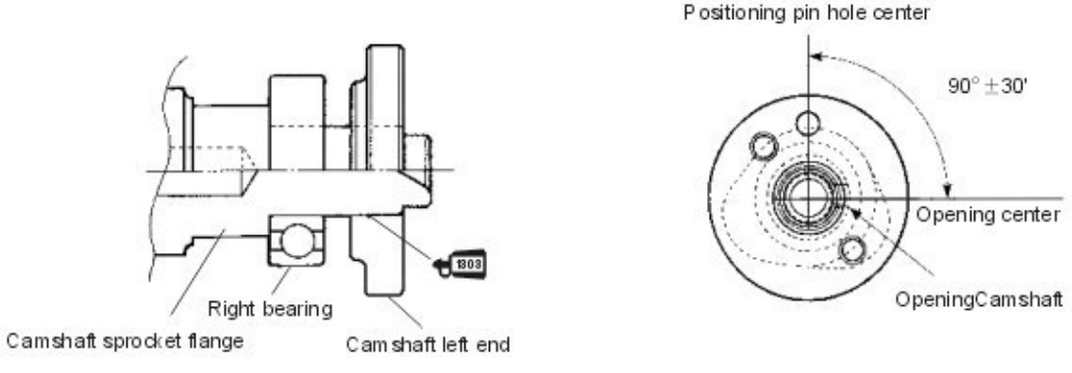
TOOL 09951-76010: Bearing mounting device



NOTE:

- Before mounting camshaft sprocket flange onto camshaft, apply thread lock super bond "1303" to the surface of camshaft sprocket flange.
- Only one time of this operation should be performed before it is necessary to replace camshaft;
- Mounting of camshaft sprocket flange should ensure accurate timing of valve.

● Press camshaft sprocket flange on camshaft as illustrated;

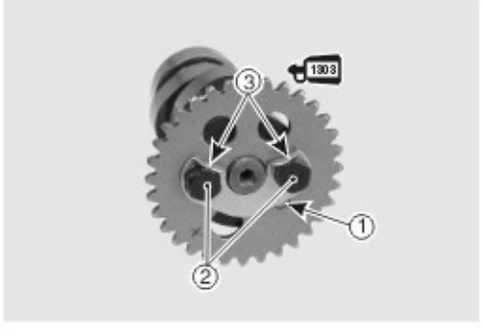


● Position camshaft sprocket and camshaft with positioning pin ①;
● Mount lock gasket to cover position pin ①;
● Apply thread lock super bond "1303" to bolt ② and tighten it;

CAMSPROCKET BOLT: 10N · m (1.0kg · m)

1303 99000-32030: Thread lock super bond "1303"

● Bend the front of lock gasket tongue ③ to lock bolt.

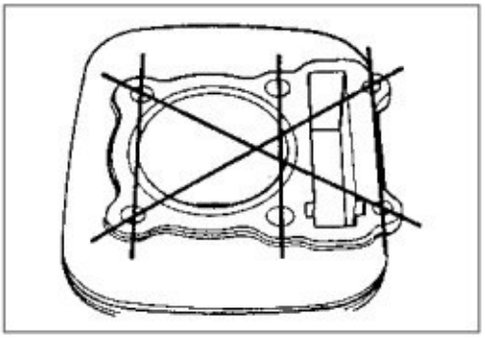


CYLINDER DEFORMATION

Inspect with a ruler and thickness gauge to see if there is any deformatin in cylinder surface and collect play readings at different positions as illustrated. If reading at any position exceeds the limit, cylinder should be replaced.

LIMIT OF USE: 0.05mm

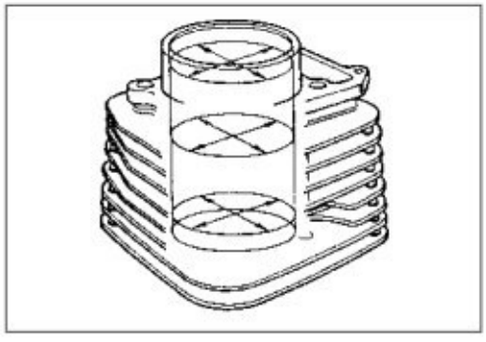
TOOL 09900-20803: Thickness gauge



CYLINDER BORE

Measure cylinder block diameter at 6 positions. If any of the measured values exceeds the limit, the cylinder should be maintenanced, replaced with a new one or its piston should be replaced with one of a bigger size.

LIMIT OF USE: 52.100mm

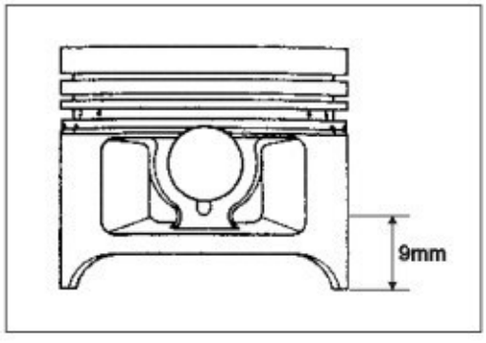


09900-20508: Cylinder bore meter set

PISTON DIAMETER

Measure piston diameter with a micrometer at the position of 9mm of piston lower skirt as illustrated. If the measured value is below the limit, replace the piston.

LIMIT OF USE: 51.880mm



09900-20203: Micrometer (50~75mm)

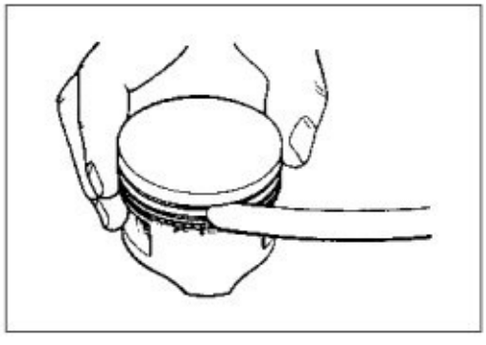
PISTON-CYLINDER CLEARANCE

If the measured piston-cylinder play exceeds the specification, cylinder should be maintenanced with a piston and a piston ring of a larger size or both cylinder and piston should be replaced.

LIMIT OF USE: 0.120mm

PISTON RING-GROOVE CLEARANCE

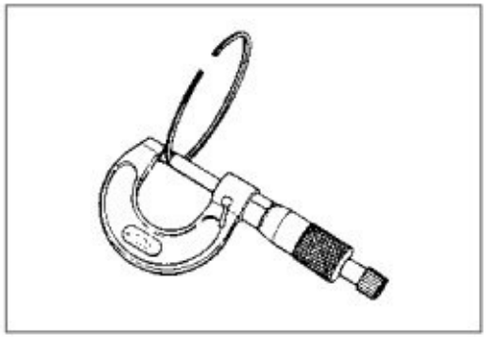
Insert piston ring into piston ring groove, measure side play of first ring and second ring. In case any measured value exceeds the specified value, both piston and piston ring should be replaced.



PISTON RING GROOVE CLEARANCE
LIMIT OF USE
FIRST RING: 0.180mm
SECOND RING: 0.150mm

PISTON RING GROOVE WIDTH
STANDARD
FIRST RING: 1.01~1.03mm
SECOND RING: 1.01~1.03mm
OIL RING: 2.01~2.03mm

PISTON THICKNESS
STANDARD
FIRST RING AND SECOND RING: 0.97~0.99mm



09900-20803: Thickness gauge

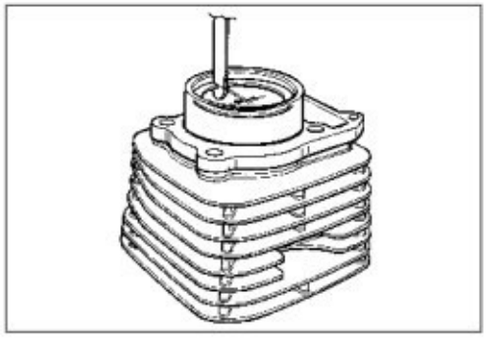
NOTE:
Remove carbon deposit on piston top with a soft metal knife and clean ring groove likewise.

PISTON END CLEARANCE

Mount ring in cylinder with ring face perpendicular to cylinder central line and measure every end play with thickness gauge.
In case any ring's end play exceeds the specified value, replace piston ring.

PISTON RING END CLEARANCE
LIMIT OF USE
FIRST RING AND SECOND RING: 0.50mm

09900-20803: Thickness gauge



OVERSIZE RING

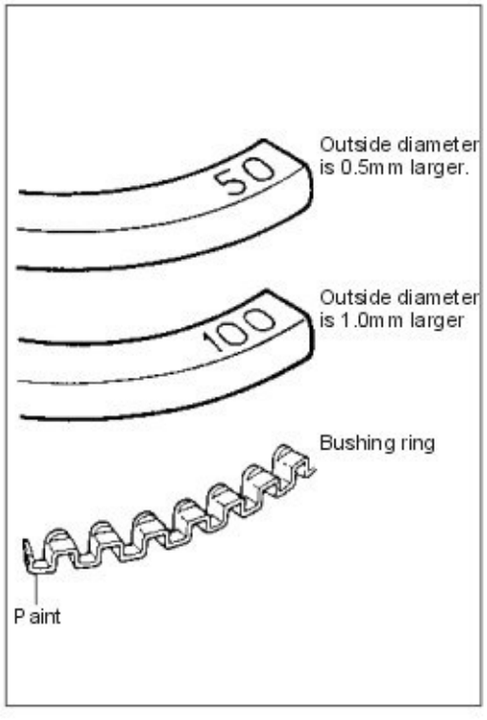
- **OVERSIZE PISTON RING**
  Use the following two oversize rings with identification marks.

  PISTON 1 AND PISTON 2
  0.5mm: 50
  1.0mm: 100

- **OVERSIZE BUSHING RING**
  Use the following oversize bushing rings with identification marks.

  OIL RING
  0.5mm: Painted red
  1.0mm: Painted yellow

- **OVERSIZE SHEET RING**
  The measurement of outside diamater alone is enough for the identification of sheet ring as there is no identification mark or identification numbers on the sheet ring.



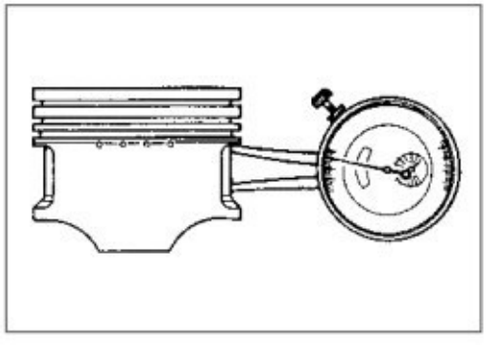
PISTON PIN AND PINHOLE

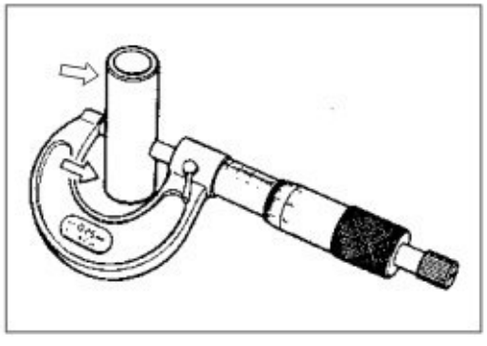
Piston pin bore can be measured with scale caliper and piston pin outside diameter can be measured with micrometer. In case the difference between these two measurement readings exceeds the specified value, replace both piston and piston pin.

PISTON PINHOLE
LIMIT OF USE: 14.030mm

PISTON OUTSIDE DIAMETER
LIMIT OF USE: 13.980mm

09900-20605: Scale caliper
09900-20205: Micrometer (0~25mm)





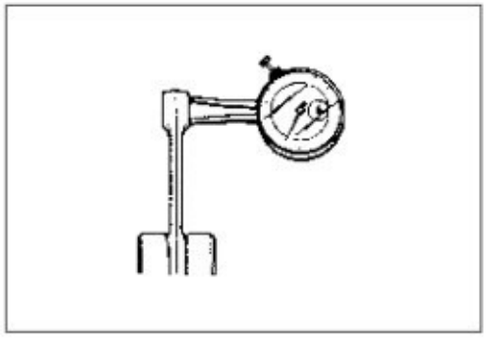
CONNECTING ROD SMALL END INSIDE DIAMETER

Measure connecting rod inside diameter with a scale caliper.

LIMIT OF USE: 14.040mm

09900-20605: Scale caliper

In case the small end inside diameter exceeds the specified value, replace connecting rod.

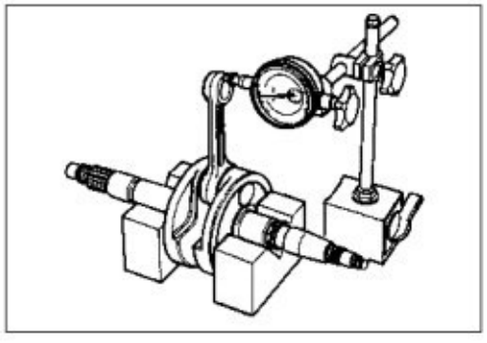


CONNECTING ROD SWING AND CONNECTING ROD LARGE END SIDE PLAY

Wear of connecting rod large end can be estimated by inspecting connecting rod small end axial displacement.

LIMIT OF USE: 3.0mm

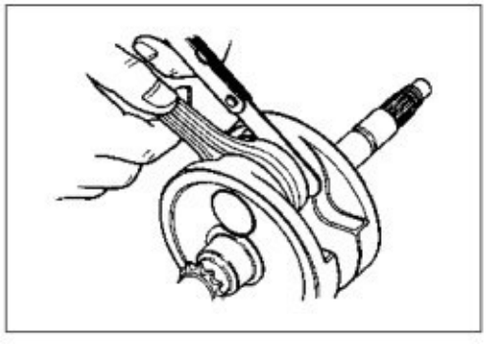
09900-20701: Magnetic bracket
09900-20606: Micrometer (1/100mm)
09900-21304: V-positioning block



Push connecting rod large end aside and measure side play with thickness gauge.

STADARD: 0.10~0.45mm
LIMIT OF USE: 1.00mm

09900-20803: Thickness gauge



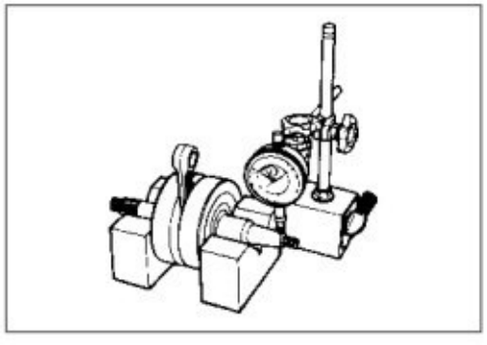
If the limit is exceeded, replace crankshaft subassembly or replace worn parts so as to reduce runout and side play and reach the specified range.

CRANKSHAFT CONCENTRICITY

Support crankshaft with V-positioning block as illustrated. Place journals at both ends in V-block. Mount micrometer as illustrated, slowly turn crankshaft so as to take concentricity. In case concentricity exceeds specified value, calibration or replacement should be effected.

LIMIT OF USE:0.05mm

09900-20701: Magnetic table
09900-20606: Micrometer (1/100mm)
09900-21304: V-positioning block



STARTING CLUTCH AND STARTING CLUTCH GEAR SUBASSEMBLY

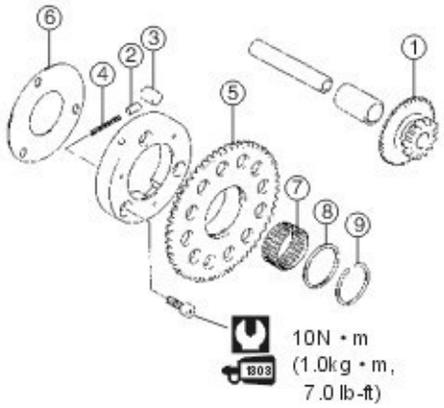
STARTING CLUTCH

Mount starting clutch gear subassembly on starting clutch, turn starting clutch gear subassembly with hand and inspect for stable rotation of starting clutch. Turn gear subassembly in one direction. If resistance is felt in turning gear subassembly, inspect if starting clutch is damaged or inspect if there is any wear or damage in the contact face between starting clutch and starting clutch gear subassembly. In case of damage, replace it with a new one.

STARTING CLUTCH SUBASSEMBLY

Mount starting clutch subassembly on crankshaft, turn starting clutch gear subassembly with hand to see if there is any abnormal sound.

In case of abnormal sound, replace starting clutch gear subassembly.



① starter idle gear
② push piece
③ roller
④ spring
⑤ starter driven gear
⑥ starter clutch hub shim
⑦ bearing
⑧ washer
⑨ circlip

REASSEMBLING ENGINE

Engine reassembling procedure is reversed to that of disassembling as illustrated blow.

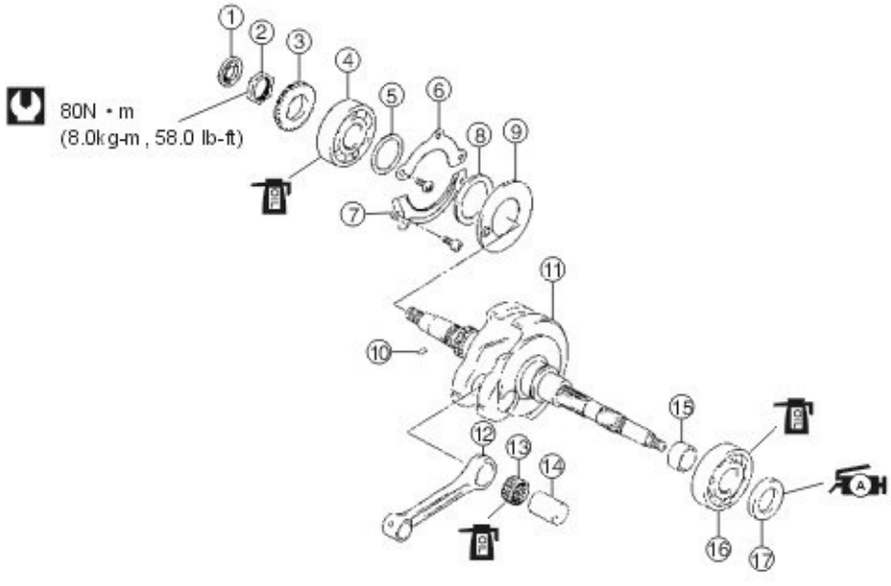
NOTE:

Apply engine oil to each running and sliding part before reassembling .

CAUTION:

Always keep the drive belt, drive faces and driven faces away from any greasy matter.

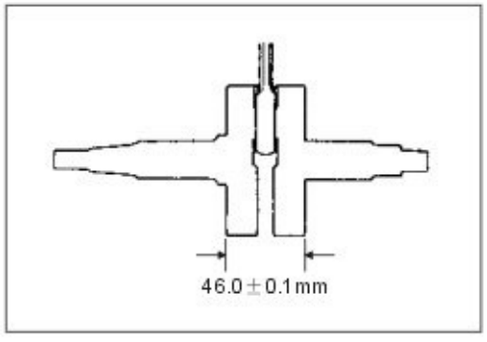
CRANKSHAFT



① oil seal
② oil pump drive gear nut
③ oil pump drive gear
④ bearing
⑤ crankshaft shim
⑥ bearing retainer
⑦ oil reservoir plate
⑧ oil guide plate retainer
⑨ oil guide plate
⑩ pin
⑪ crankshaft
⑫ conrod
⑬ bearing
⑭ crank pin
⑮ spacer
⑯ bearing
⑰ oil seal

● When reassemblying crankshafts, ascertain the width between crankshaft arms as illustrated.

STANDARD OF WIDTH BETWEEN CRANKSHAFT ARMS: 46.0±0.1mm

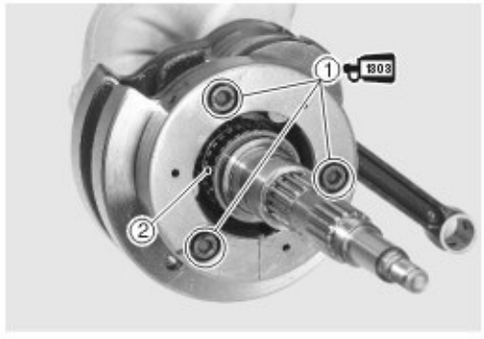


STARTING CLUTCH AND STARTING CLUTTH GEAR SUBASSEMBLY

● Apply a small amount of thread lock super bond "1303" to starting clutch set bolt ①, grip crankshaft and tighten bolt to specified torque.

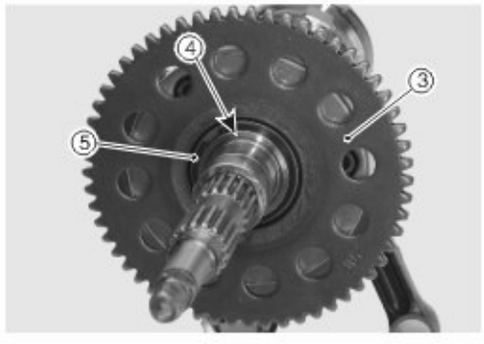
1303 99000-32030: Thread lock super bond "1303"

STARTING CLUTCH SET BOLT: 10N · m (1.0kg · m)



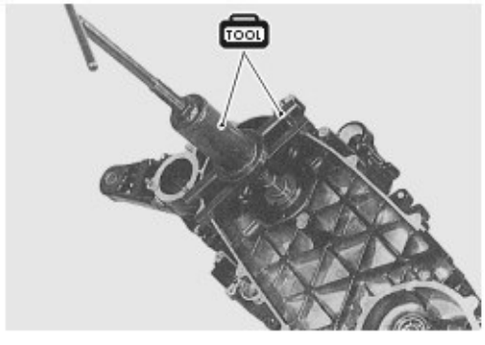
● Mount camshaft on starting clutch bearing ② and apply engine oil to bearing;
● Mount starting clutch gear subassembly ③ and washer ④;
● Fix starting clutch gear subassembly ③ with spring retaining ring ⑤.

TOOL 09910-06107: Outer retaining ring caliper



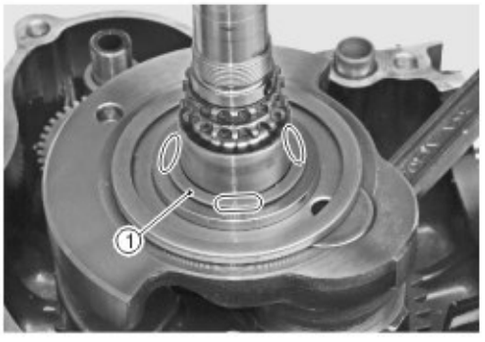
● When mounting crankshaft in crankcase, crankshaft left side must be pressed into crankcase by means of special tool.

TOOL 09910-32812: Crankshaft mounting device
09910-20116: Connecting rod bracket



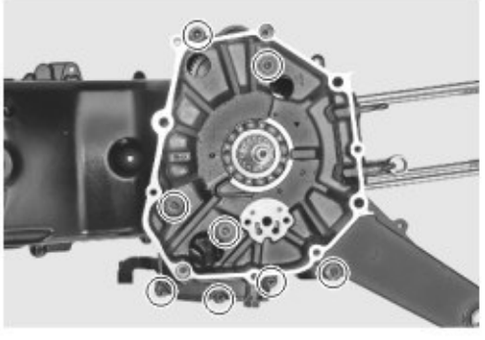
CAUTION:
Never install the crankshaft into the crankcase by striking it with a plastic hammer. Always use the special tool, otherwise crankshaft alignment accuracy will be affected .

CHOICE OF CRANKSHAFT RIGHT GASKET



- Apply oil to crankshaft right connecting plate, gasket and crankshaft right bearing inner ring;
- Place gasket ① in right crankshaft;
- Place plastic gap gauge (special tool) at the position of 10mm on gasket as illustrated;

TOOL 099000-22302: Plasti-gauge

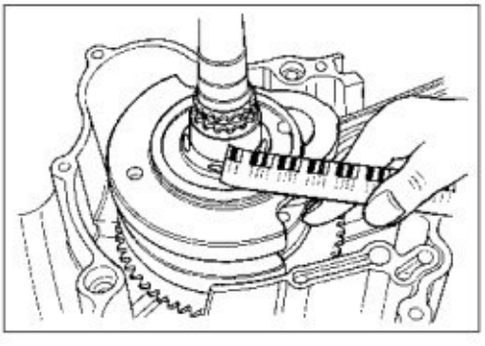


- Mount right crankcase and tighten right crankcase screw;
- Remove crankcase screw, separate crankcase into right part and left part (Use special tool as illustrated on page 3-16);

TOOL 09920-13120: Crankcase separator

- Measure width of the compressed plastic gap gauge by means of outer scale;

CLEALANCE:0.01～0.07mm



- If gap is not within specified range, choose gasket of proper thickness. The specifications of gaskets are stamped on the gaskets.
- Mount chosen specified gasket on right crankshaft.

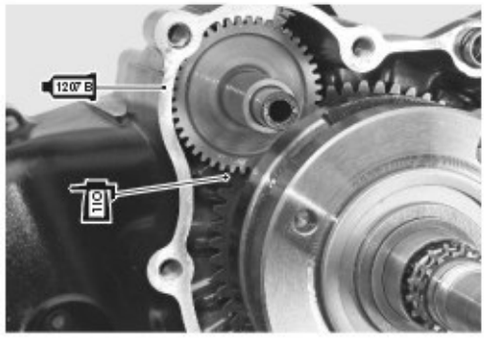
GASKET SPECIFICATIONS

PART NO.	GASKET SPECIFICATION NO.	GASKET THICKNESS	PART NO.	GASKET SPECIFICATION NO.	GASKET THICKNESS
09181-32016	60	0.60mm	09181-32025	05	1.05mm
09181-32017	65	0.65mm	09181-32026	10	1.10mm
09181-32018	70	0.70mm	09181-32027	15	1.15mm
09181-32019	75	0.75mm	09181-32028	20	1.20mm
09181-32020	80	0.80mm	09181-32029	25	1.25mm
09181-32021	85	0.85mm	09181-32030	30	1.30mm
09181-32022	90	0.90mm	09181-32031	35	1.35mm
09181-32023	95	0.95mm	09181-32032	40	1.40mm
09181-32024	00	1.00mm	09181-32033	45	1.45mm

CRANKCASE

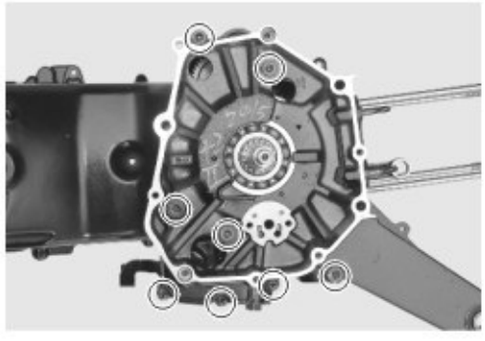
- Mount starting idle wheel, axis pin and bush;
- Clean contacting faces (both faces) of crankcase with detergent;
- Insert crankcase pin into crankcase left half;
- Apply engine oil to large end of connecting rod and starting wheel;
- Apply bond "1207B" to contacting faces of left crankcase;

99000-31140: SUZUKI BOND "1207B"



- Assemble crankcase in a few minutes.

NOTE:
Inspect for smooth rotation of crankshaft after tightening crankcase connecting bolt.



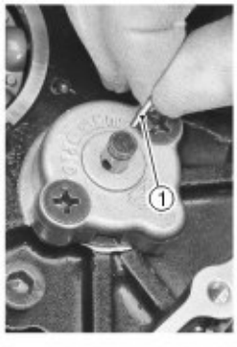
OIL PUMP

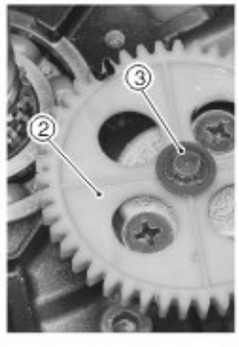
- Before mounting oil pump, evenly apply engine oil to crankcase sliding surfaces, outer rotor, inner rotor and shaft;
- Apply a small amount of thread lock bond "1322" to oil pump screw;

99000-32110: Thread lock super bond "1322"

- Tighten oil pump screw;

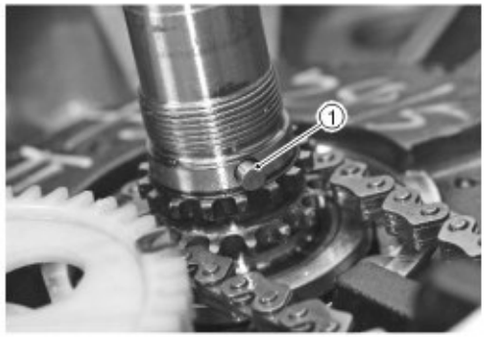
- Mount oil pump driven gear positioning pin ①;
- Mount oil pump driven gear ② and washer;
- Fix oil pump driven gear with spring retaining ring.





CAM DRIVE CHAIN AND OIL PUMP DRIVE GEAR

- Mount cam drive chain on cam drive sprocket;
- Mount pin ① in crankshaft pin hole and mount oil pump drive gear and nut;



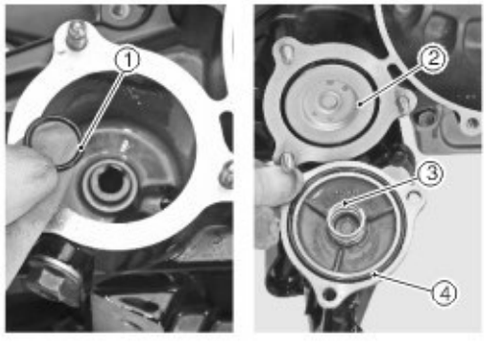
- Tighten oil pump drive gear nut to specified torque by means of connecting rod.

OIL PUMP DRIVE GEAR NUT: 80N · m (8.0kg · m)

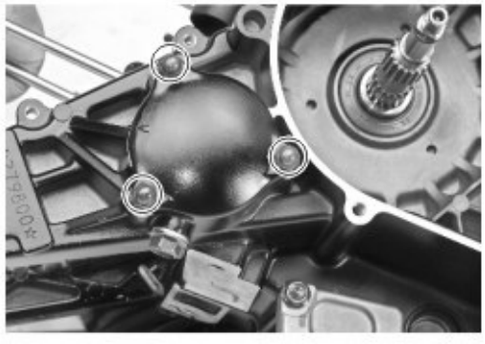
ENGINE OIL FILTER

- Mount new O-ring ① before mounting engine oil strainer;
- Mount engine oil filter strainer ②;
- Before mounting engine oil filter, correctly mount spring ③ and a new O-ring ④;
- Coat O-ring ④ with engine oil;

CAUTION:
Use a new gasket to prevent oil leakage.



- Tighten engine oil strainer nut.



ENGINE OIL PRIMARY FILTER

- Mount engine oil primary filter;
- Tighten engine oil primary filter cap fixing bolt.

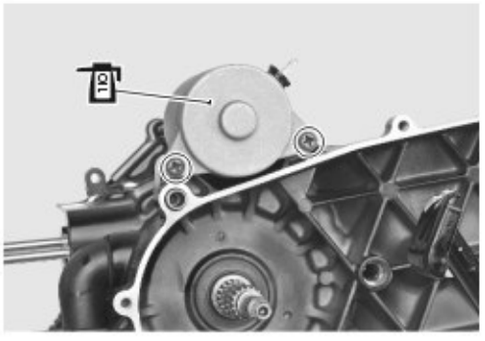
CAUTION:
Use a new O-ring to prevent oil leakage.

STARTING MOTOR

- Coat O-ring with engine oil before mounting starting motor;

CAUTION:
Use a new O-ring to prevent oil leakage.

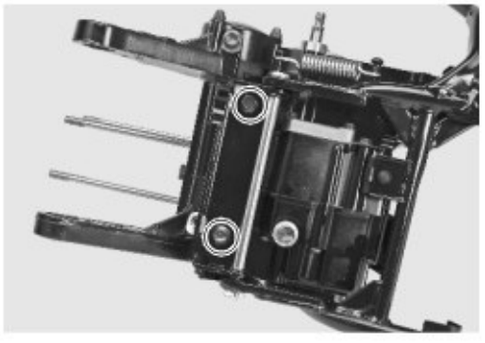
- Mount motor with 2 bolts.



MAIN STAND

- Mount main stand and tighten mounting bolt to specified torque.

MAIN STAND BOLT: 23N · m
(2.3kg · m)

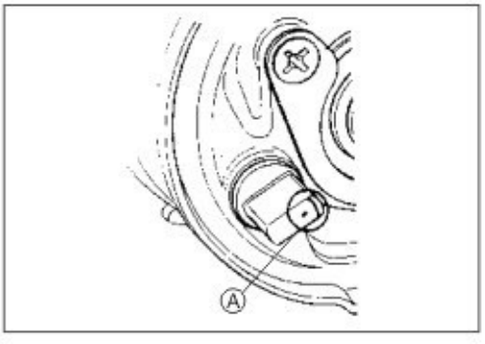


REAR BRAKE AND REAR DRIVE SHAFT

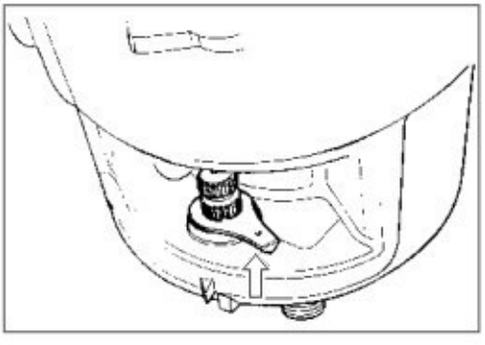
- Coat rear brake camshaft with grease and mount it on crankcase;

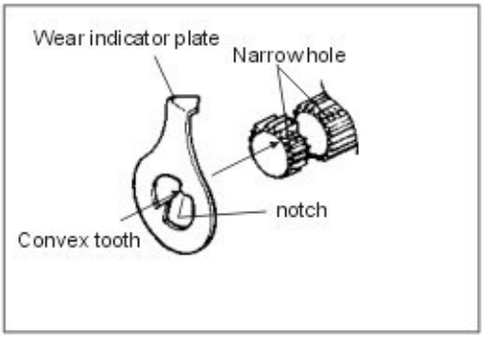
99000-25010: SUZUKI SUPER GREASE "A"

- Turn cam to align the stamped mark Ⓐ with rear drive shaft center;

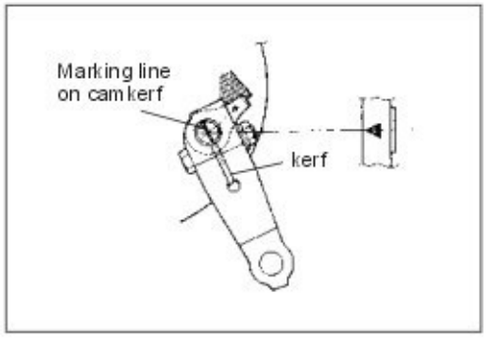


- Align convex tooth of wear indicator plate to rear brake cam serration end and mount indicator plate on cam serrations.





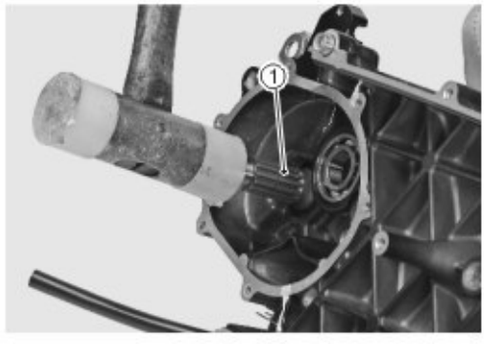
- When mounting cam swing arm on cam, align the marking line on the cam with the narrow cut-off on the cam swing arm;



- Tighten cam swing arm nut to specified torque;

REAR BRAKE CAM SWING ARM NUT: 8N · m (0.8kg · m)

- Mount rear drive shaft ① in crankcase by gently knocking drive shaft;

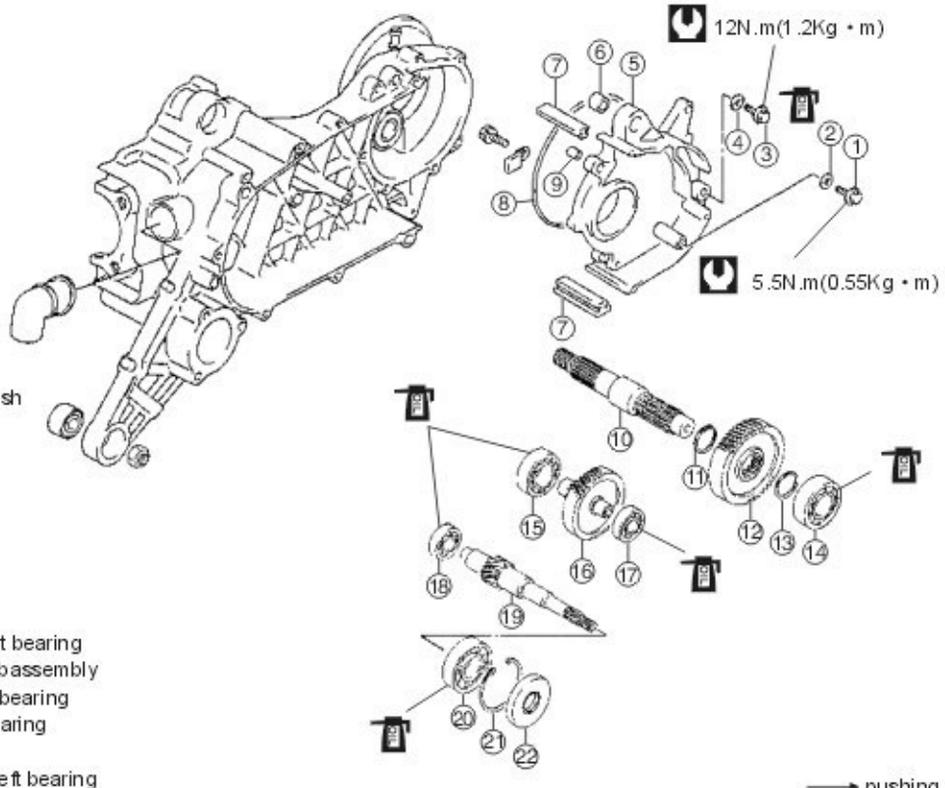


- Mount brake shoe lining;

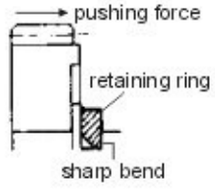
- Mount rear wheel.
  Tighten rear wheel axle nut to specified torque.

REAR WHEEL AXLE NUT: 100N · m (10.0kg · m)

TRANSMISSION

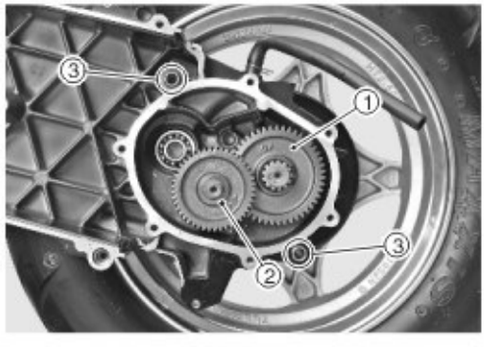


① oil drain plug
② washer
③ oil level hole plug
④ washer
⑤ gearcase cover
⑥ rear shock absorber bush
⑦ shock absorber
⑧ gasket
⑨ positioning pin
⑩ rear wheel axle
⑪ retaiing coil
⑫ final driven gear
⑬ retaining ring
⑭ rear wheel left bearing
⑮ rear drive idle gear right bearing
⑯ rear drive idler shaft subassembly
⑰ rear drive idle gear left bearing
⑱ rear drive shaft right bearing
⑲ rear wheel drive shaft
⑳ rear drive driven shaft left bearing
㉑ retaining ring
㉒ oil seal



NOTE:
Note the direction of retaining ring when mounting it.
Mount it on the side of pushing force as illustrated.

- Mount final driven gear ① on rear wheel axle;
- Mount idler shaft subassembly ②;
- Mount position pin ③;

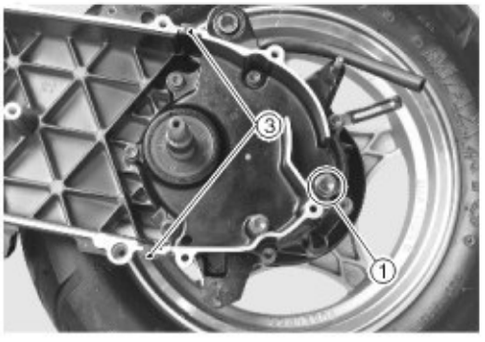


- Mount gasket on positioning pin ③ and mount gearcase cover.

CAUTION:
Use a new O-ring to prevent oil leakage.

● Tighten gearcase cover bolt to specified torque;

GEARCASE COVER BOLT: 10N · m (1.0kg · m)



● Apply gear oil to the oil level of gearcase through oil hole;

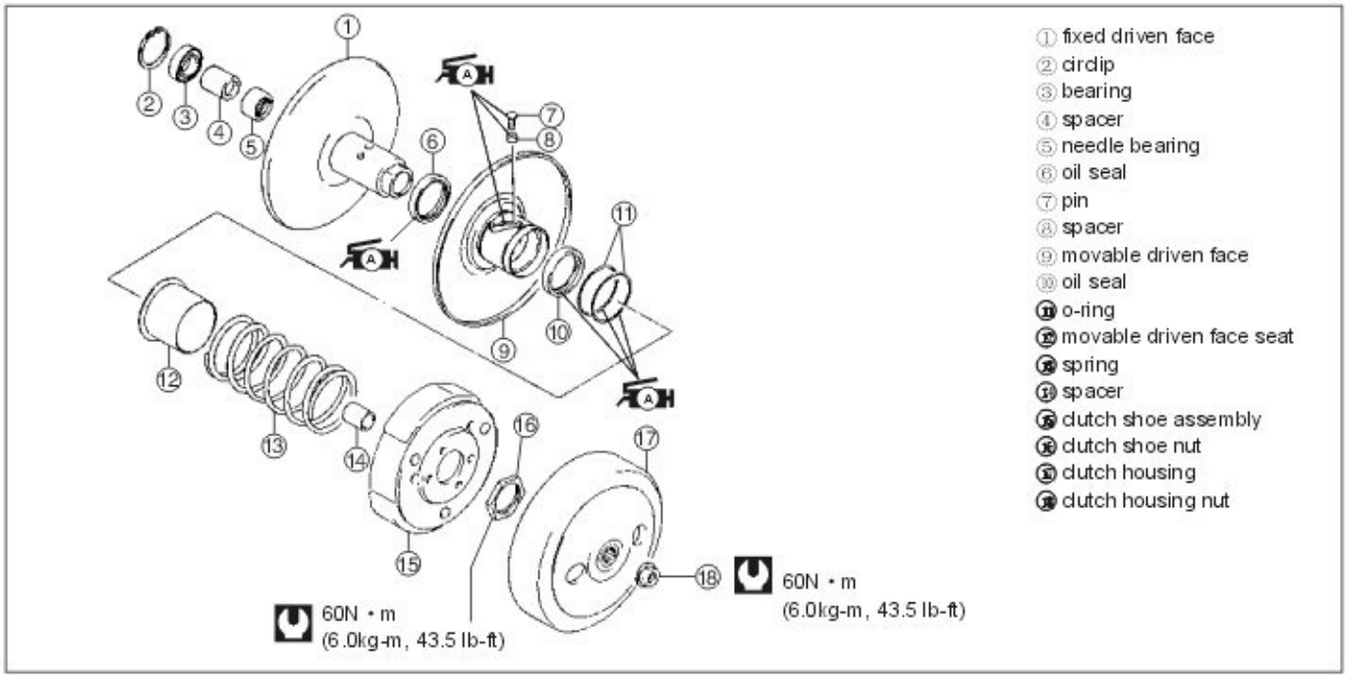
OIL VOLUME: 90ml
(SAE 100W-40, API SF/SG or SH/SJ with JASO MA)

● Tighten oil level plug to specified torque;

OIL LEVEL PLUG: 12N · m (1.2kg · m)

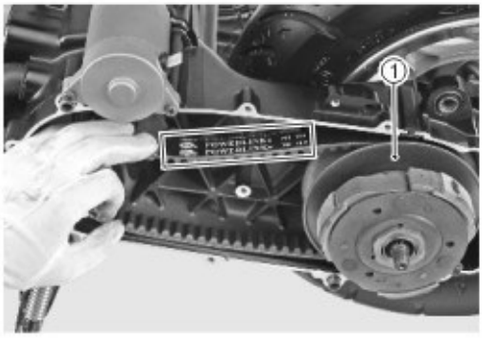
● Mount shock gasket ③ correctly.

SLIDING DRIVEN PULLEY SUBASSEMBLY AND CLUTCH CENTRIFUGAL SHOE BLOCK



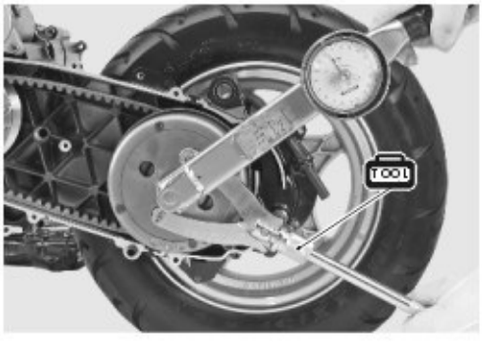
● Insert drive belt as deeply as possible between driven pulleys and press sliding driven pulley outwards to obtain maximum drive belt play;

- Mount clutch centrifugal shoe block together with sliding driven pulley subassembly and drive belt;



CAUTION:
The drive belt should be positioned so that the arrows on the drive belt periphery point the normal turning direction.
The drive belt contact surfaces of the driven face should be thoroughly cleaned to be free from oil.

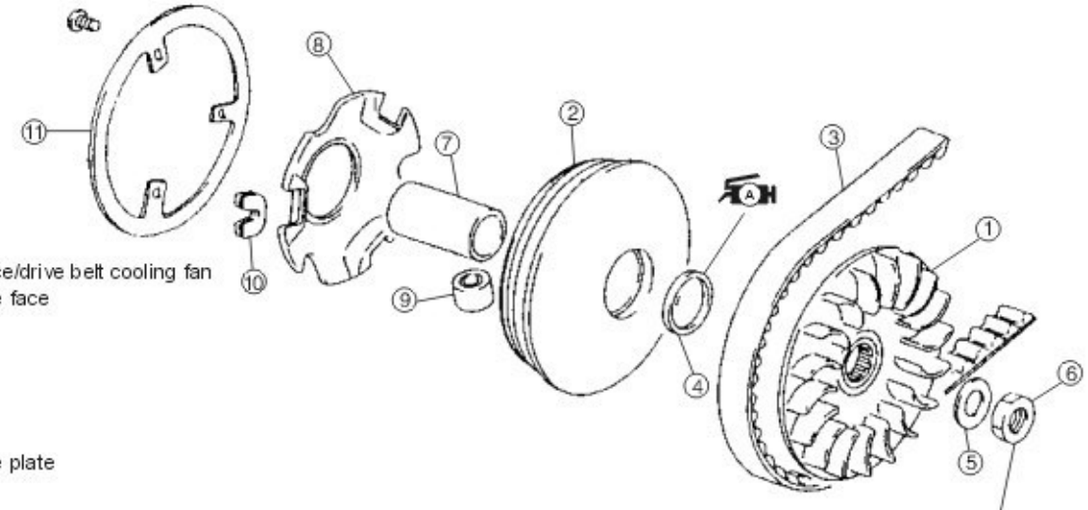
- Clean clutch outer dics, remove greasy dirt and mount it in clutch centrifugal shoe block subassembly;
- Tighten clutch outer dics nut to specified torque with special tool.



09930-40113: Rotor bracket

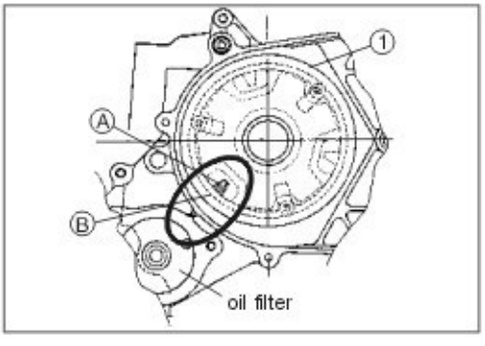
CLUTCH OUTER DISC NUT: 60N · m (6.0kg · m)

SLIDING DRIVE PULLEY SUBASSEMBY

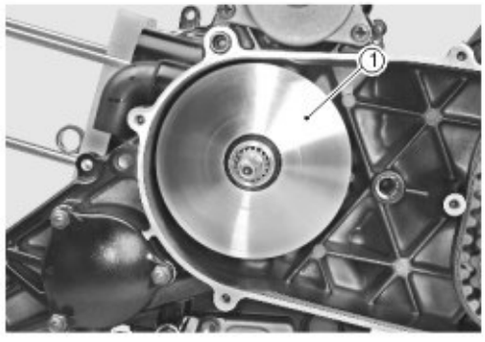


① fixed drive face/drive belt cooling fan
② movable drive face
③ drive belt
④ oil seal
⑤ washer
⑥ nut
⑦ spacer
⑧ movable drive plate
⑨ roller
⑩ damper
⑪ movable drive cover

NOTE:
When installing the movable drive face subassembly ① onto the crankshaft, set the piston at "TDC" on the compression stroke and align the damper stopper Ⓐ of the movable drive face with the rib Ⓑ of the case.



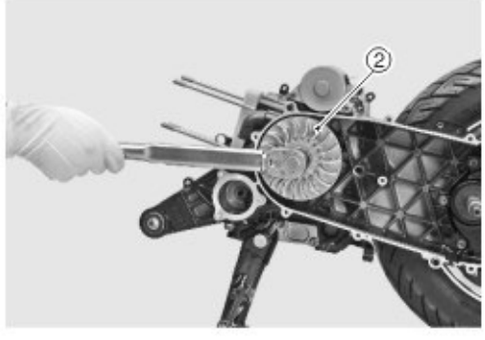
- Mount sliding drive pulley subassembly ① on crankshaft;
- Thoroughly remove greasy dirt on sliding drive pulley which contacts drive belt and on the surface of fixed drive pulley;



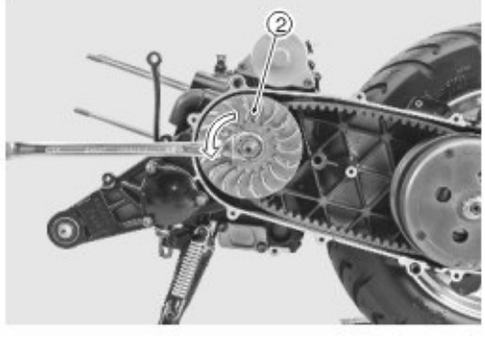
- Mount fixed drive pulley ②, clamp connecting rod small end with connecting rod bracket or clamp oil pump drive gear nut with wrench and tighten fixed drive pulley nut to specified torque.

FIXED DRIVE PULLEY NUT: 60N · m (6.0kg · m)

09910-20116: Connecting rod bracket

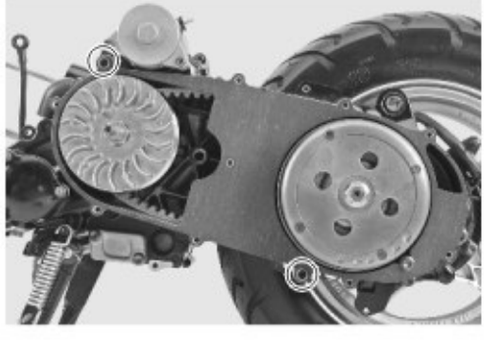


- Turn fixed drive pulley ② till drive belt is in position and drive pulley and driven pulley are engaged without slippage.



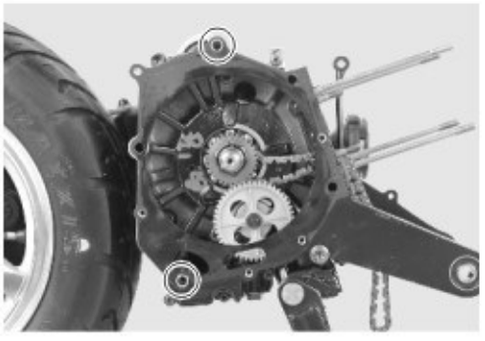
- Mount positioning pin and new washer on crankcase;

CAUTION:
Use a new gasket to prevent dust.



- Mount clutch cover (See page 3-12);

CRANKCASE RIGHT COVER SUBASSEMBLY

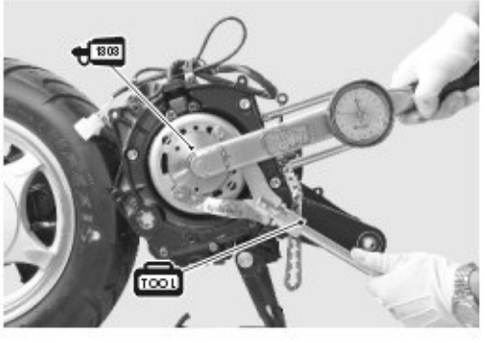


- Mount positioning pin and new washer on right crankcase;

CAUTION:
Use a new gasket to prevent oil leakage.

- Mount crankcase right cover subassembly;
- Clean crankshaft and generator rotor joints with detergent;
- Fix semicircular key on crankshaft key seat.

GENERATOR ROTOR



- Mount generator rotor, applying a small amount of thread lock super bond "1303" to threaded part of rotor nut;

99000-32030: Thread lock super bond "1303"

- Tighten generator rotor nut to specified torque with special tool;

09930-40113: Rotor bracket

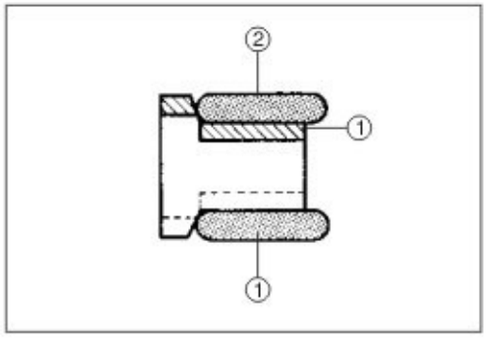
GENERATOR ROTOR NUT: 80N · m (8.0kg · m)

GENERATOR COOLING FAN

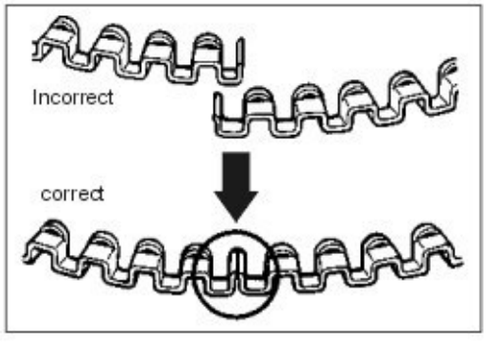
- Mount generator cooling fan.

OIL RING

- Mount bush ring ① in piston oil ring groove and mount flat ring ② on each side of bush ring. New bush rings and flat ring have no distinction of top and bottom.
  When remounting used parts, proceed at the original positions and in the original directions.

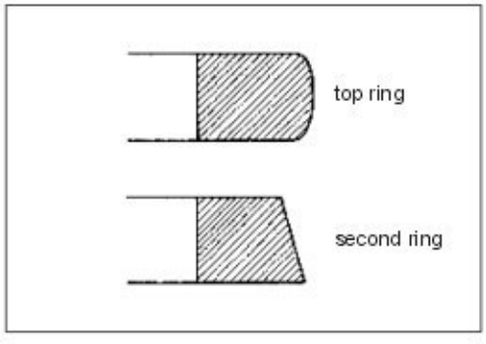


CAUTION:
When installing the spacer, be careful not to allow its two ends to overlap in the groove.

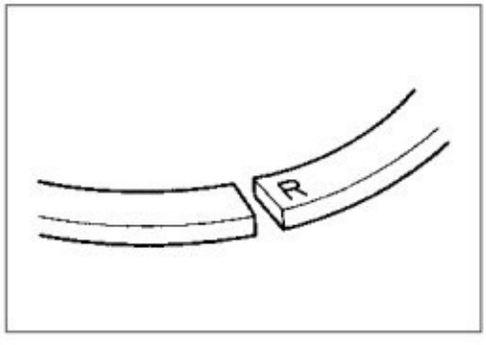


TOP RING AND SECOND RING

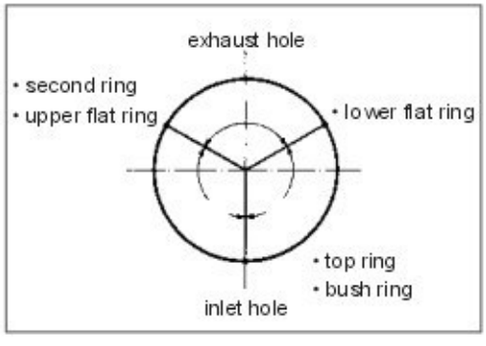
- Top ring and second ring are different in surface appearance. Top ring is chrome-plated while second ring is not. Second ring has a shade darker than that of top ring;



- Top ring and second ring are marked "R" on their end faces. When mounted on piston, the side with letter is upward;



- The positioning angles of ring notches are as illustrated. Before mounting piston in cylinder, inspect if mounting is effected to ensure correct angle.



PISTON

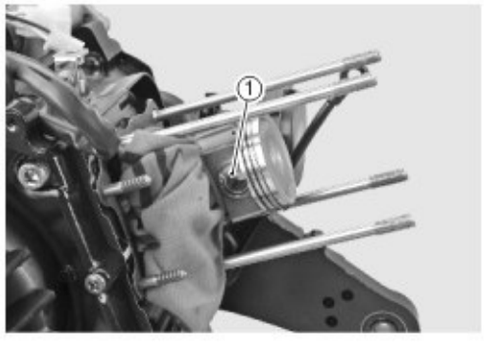
When mounting piston, please observe the following points;

- Coat piston pin with a small amount of SUZUKI MOLY PASTE;
- Place a piece of clean cloth at crankcase opening to prevent dropping of piston pin into crankcase;
- When mounting piston, align the arrow mark on piston top Ⓐ to the side of exhaust hole;

99000-25140:SUZUKI MOLY PASTE

- Mount piston retaining ring ① with sharp-nose pliers.

CAUTION:
Use a new piston pin circlip ① to prevent circlip failure which will occur with a bent one.

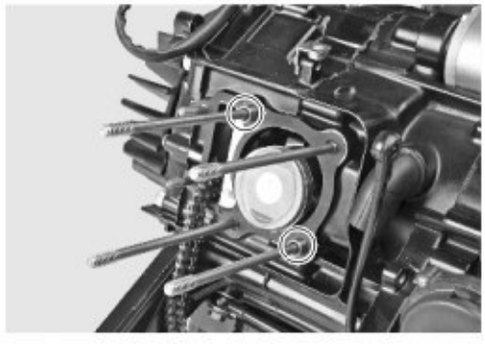


CYLINDER

Before mounting cylinder, apply a small amount of oil to connecting rod big end and small end as well as to piston sliding face.

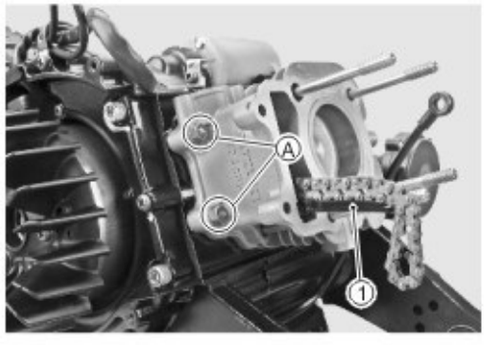
- Mount position pin and new washer;

CAUTION:
Use a new gasket to prevent oil leakage.



- Mount piston in cylinger, pressing down every piston ring at correct positions.
- Tighten cylinder nut Ⓐ;

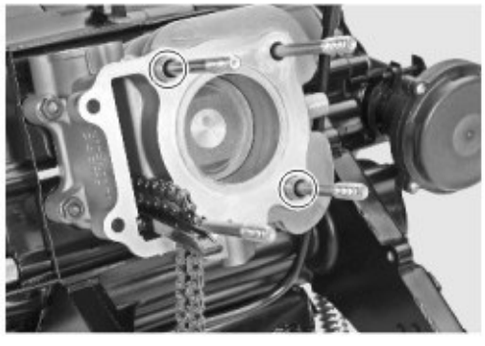
NOTE:
When mounting cylinder, pull camshaft drive chain. While crankshaft is rotating, camshaft drive chain can not be jammed.
In crankcase is a cast holding seat for mounting cam chain guide rod bottom. Cam chain guide rod ① must be correctly mounted in it.



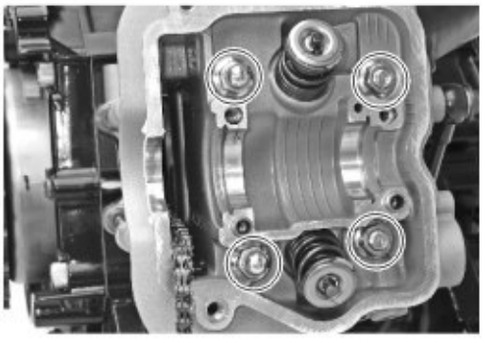
CYLINDER HEAD

- Mount positioning pin and new washer;

CAUTION:
Use new cylinder head gasket to prevent gas leakage.

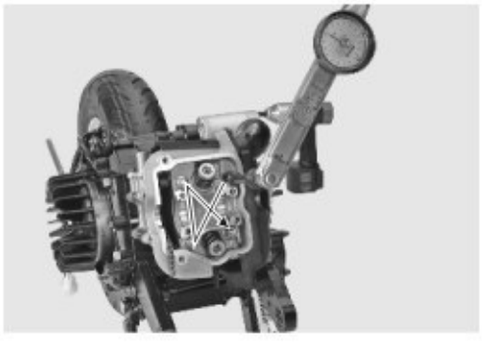


- Mount cylinder head on cylinder with cylinder head nut and gasket fixed at correct positions.



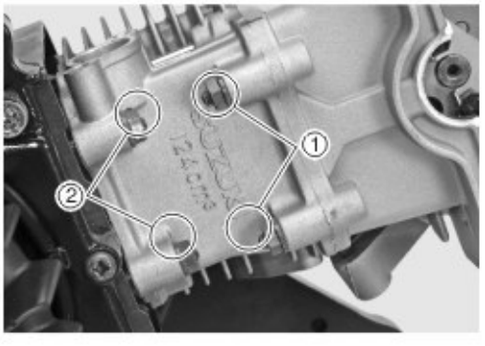
- Diagonally tighten cylinder head nut to specified torque, using torque wrench;

CYLINDER HEAD NUT(8mm): 23N · m (2.3kg · m)



- After tightening cylinder head nut, tighten cylinder head bottom nut ① and cylinder seat nut ② to specified torque.

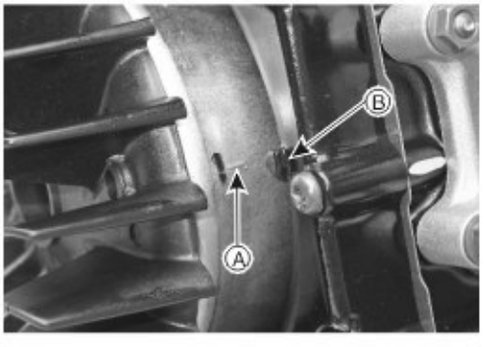
CYLINDER HEAD NUT (6mm): 10N · m (1.0kg · m)
CYLINDER SEAT NUT (6mm): 10N · m (1.0kg · m)



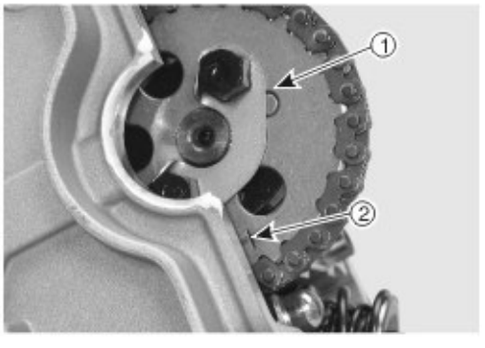
CAMSHAFT

- Turn crankshaft clockwise with socket wrench, align "TOP" line Ⓐ on generator rotor with mark Ⓑ on generator stator case and straighten camshaft drive chain upward;

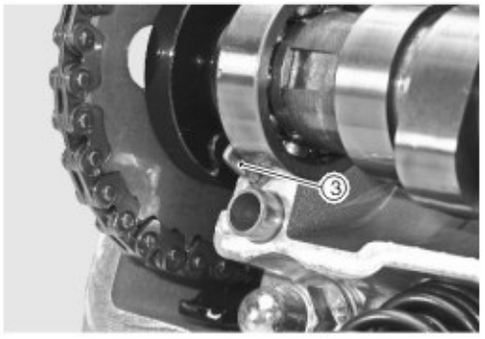
CAUTION:
If crankshaft is turned without drawing the camshaft drive chain upward, the chain will be caught between crankcase and cam chain drive sprocket.



- Align reticle mark ② on cam sprocket to make it parallel to cylinder head surface;
- Mount cam chain when positioning pin ① is at upper position;



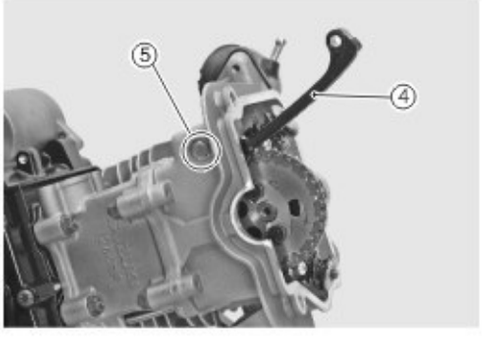
● Mount C-ring ③ on cylinder head ring groove;



NOTE:
At this time do not turn generator rotor.

● Mount cam chain tensioner ④ with bolt ⑤;

CAUTION:
Use a new washer gasket to prevent oil leakage.



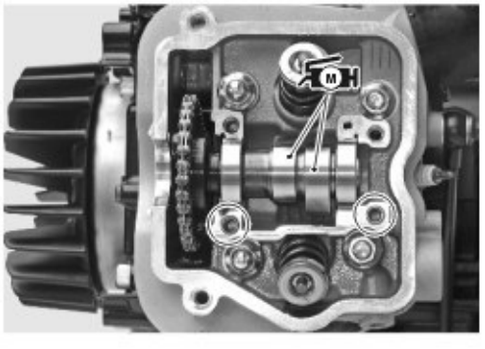
● Tighten cam chain tensioner set bolt ⑤ to specified torque.

CAM CHAIN TENSIONER SET BOLT: 10N · m (1.0kg · m)

CAMSHAFT COVER

● Mount positioning pin on cylinder head side;
● Apply SUZUKI MOLY PASTE to cam surface;

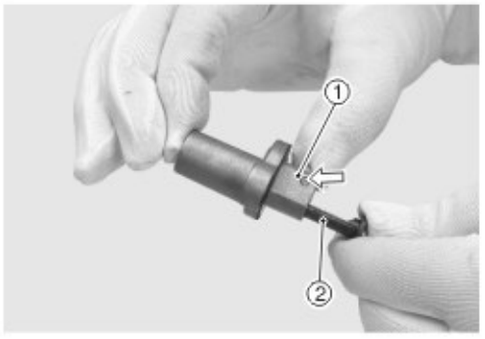
99000-25140: SUZUKI MOLY PASTE



● Mount camshaft cover and tighten camshaft cover bolt to specified torque.

CAMSHAFT COVER BOLT: 10N · m (1.0kg · m)

CAMSHAFT CHAIN TENSIONER

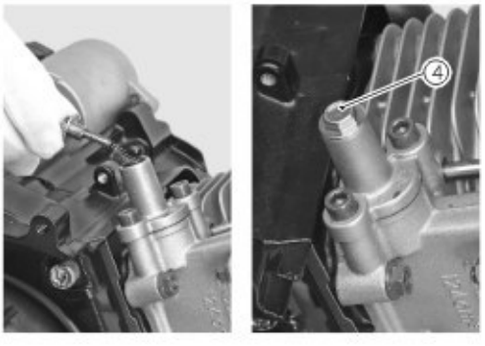


- Remove tensioner and spring, loosen ratchet subassembly ① and push push rod ② home;

NOTE:
Before mounting cam chain tensioner, loosen ratchet subassembly ①, plate push rod ② at a proper position and inspect for easy sliding.

- Mount cam chain tensioner with bolt ③, using new washer, and tighten them to specified torque;

CAM CHAIN TENSIONER MOUNTING BOLT: 10N · m (1.0kg · m)



- Mount spring in cam chain tensioner and tighten spring seat bolt ④ to specified torque.

SPRING SEAT BOLT: 8N · m (0.8kg · m)

OIL PIPE

- Mount new washer at both ends of oil pipe bolt;
- Mount oil pipe and tighten oil pipe bolt to specified torque.

CAUTION:
Use a new washer gasket to prevent oil leakage.

OIL PIPE BOLT
CYLINDER HEAD SIDE: 12N · m (1.2kg · m)
CRANKCASE SIDE: 18N · m (1.8kg · m)

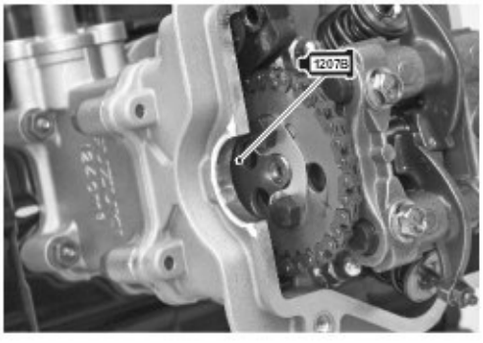
VALVE PLAY

● Inspect and adjust valve play. Refer to page 2-4 for details.

CYLINDER HEAD COVER

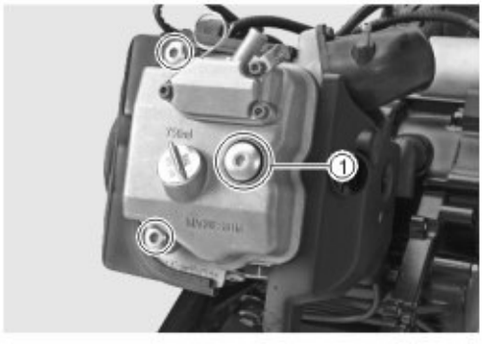
● Apply bond "1207B" to engaging surface of washer cam top.

1207B 99000-31140: SUZKI BOND "1207B"



● Place cylinder head cover on cylinder head.
● Cylinder head cover bolt ① must be mounted with new washer.

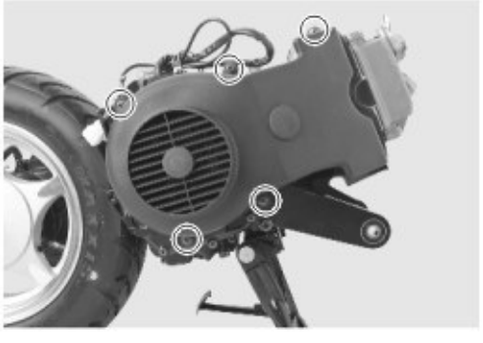
CAUTION:
Use a new gasket to prevent oil leakage.



● Tighten cylinder head bolt to specified torque.

CYLINDER HEAD BOLT: 14N · m
(1.4kg · m)

● Mount engine cylinder draught hood and cooling fan hood.



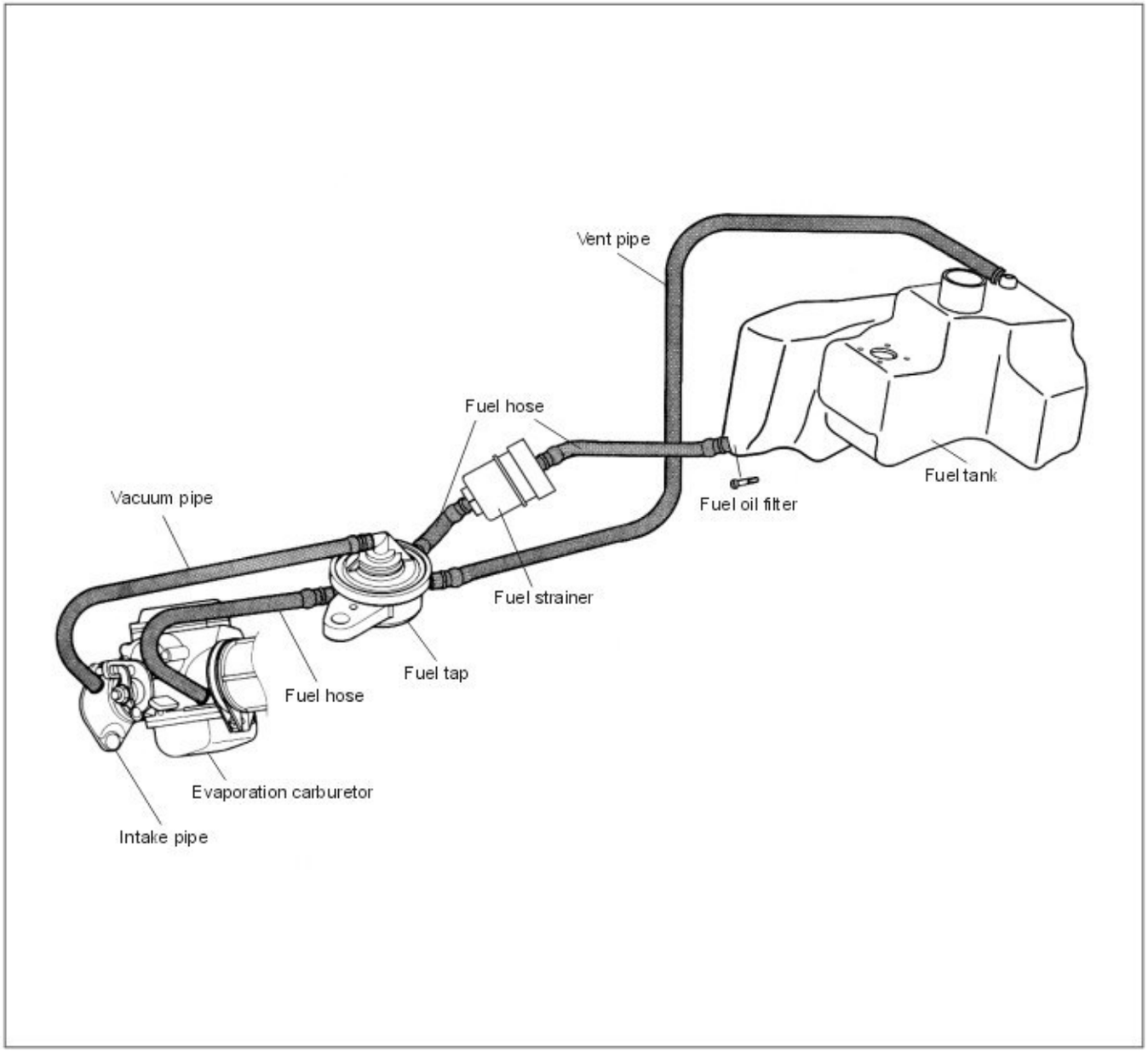
FUEL OIL AND LUBRICATION SYSTEM

4

CONTENTS

FUEL OIL SYSTEM

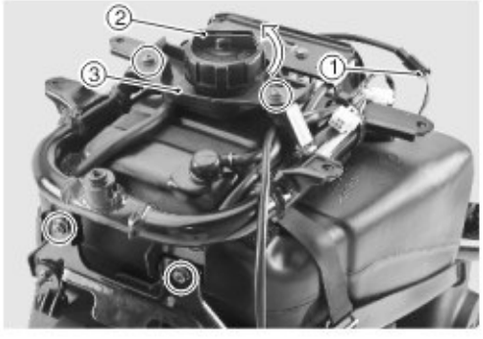
When starting motor starts running, negative pressure occurs in combustion chamber. This negative pressure actuates fuel valve diaphragm through negative pressure tube (through carburetor intake pipe passage) so that negative pressure behind fuel valve diaphragm increases till it exceeds valve springs pressure. Thus, fuel valve in fuel is forced open (actuated by diaphragm) and enables fuel to flow into carburetor float bowl.



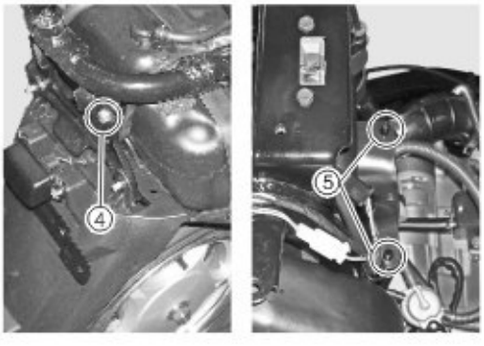
FUEL TANK, FUEL FILTER, FUEL TAP AND FUEL LEVEL GAUGE

REMOVAL

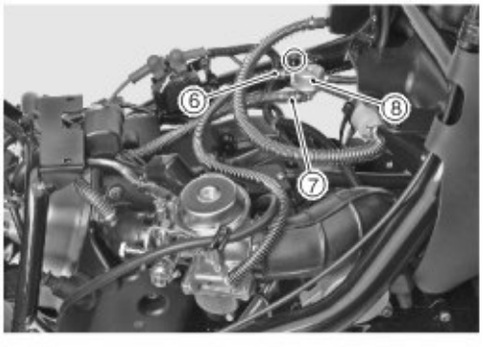
- Remove rear goods rack;
- Remove rear tail light screw;
- Remove right and left fillet, right and left cover, tail cover and tail fillet (Refer to page 5-1);
- Draw out fuel sensor wire coupler ①;
- Remove fuel tank cover ②;
- Remove fuel overflow pallet ③;



- Remove screw ④ , remove tail plate subassembly, remove hanger ⑤, remove rear fender and oil tank subassembly;

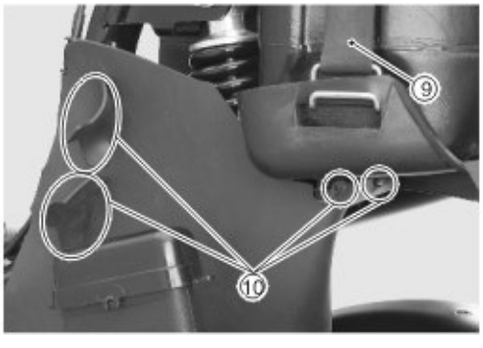


- Pull off fuel pipe ⑥ and negative pressure pipe from fuel tap ⑧;
- Remove fuel tap mounting bolt and nut;



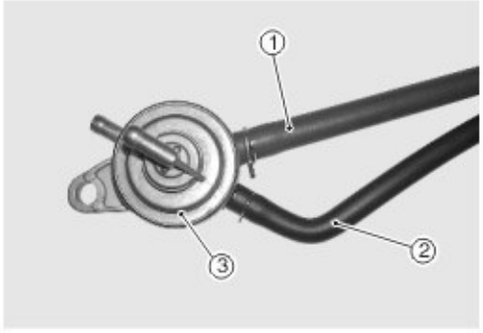
WARNING:
Gasoline is very explosive. Extreme care must be taken.

- Remove fuel tank fixing belt ⑨ and dustproof rubber boards ⑩;
- Remove fuel tank together with fuel tap;
- Drain fuel;

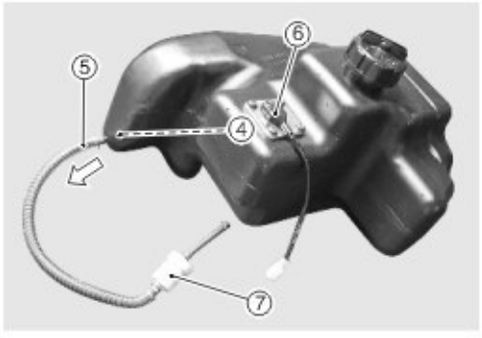


WARNING:
Gasoline is very explosive. Extreme care must be taken.

- Pull off fuel pipe ① and vent pipe ② from fuel tap ③;



- Pull off fuel pipe ⑤, fuel filter ④ and strainer ⑦;
- Remove fuel level gauge ⑥ to facilitate fuel level gauge inspection (Refer to page 6-16).

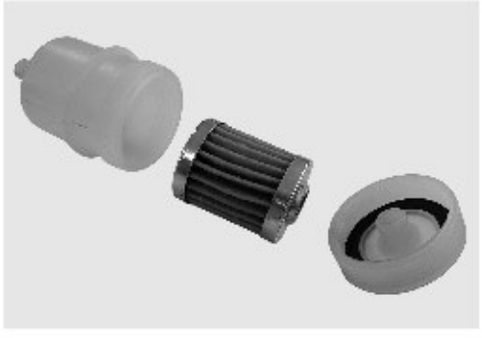


INSPECTION AND CLEANING

FUEL FILTER AND STRAINER

If fuel filter is contaminated by dregs or dust, fuel flow is affected and engine power decreased. So, fuel filter must be cleaned with compressed air.

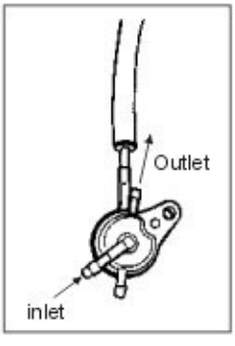
- Disassemble fuel filter and inspect paper filter strainer. Replace it if it is obviously dirty.

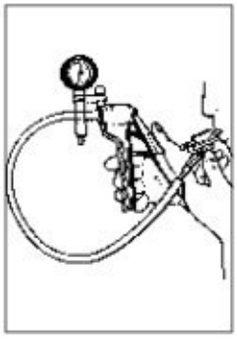


FUEL TAP

Connect vacuum indicator to fuel tap vacuum passage as illustrated. Actuate fuel tap with negative pressure to blow fuel in. If air does not flow out, replace fuel.

SPECIFICATION OF VACUUM: 22mmHg

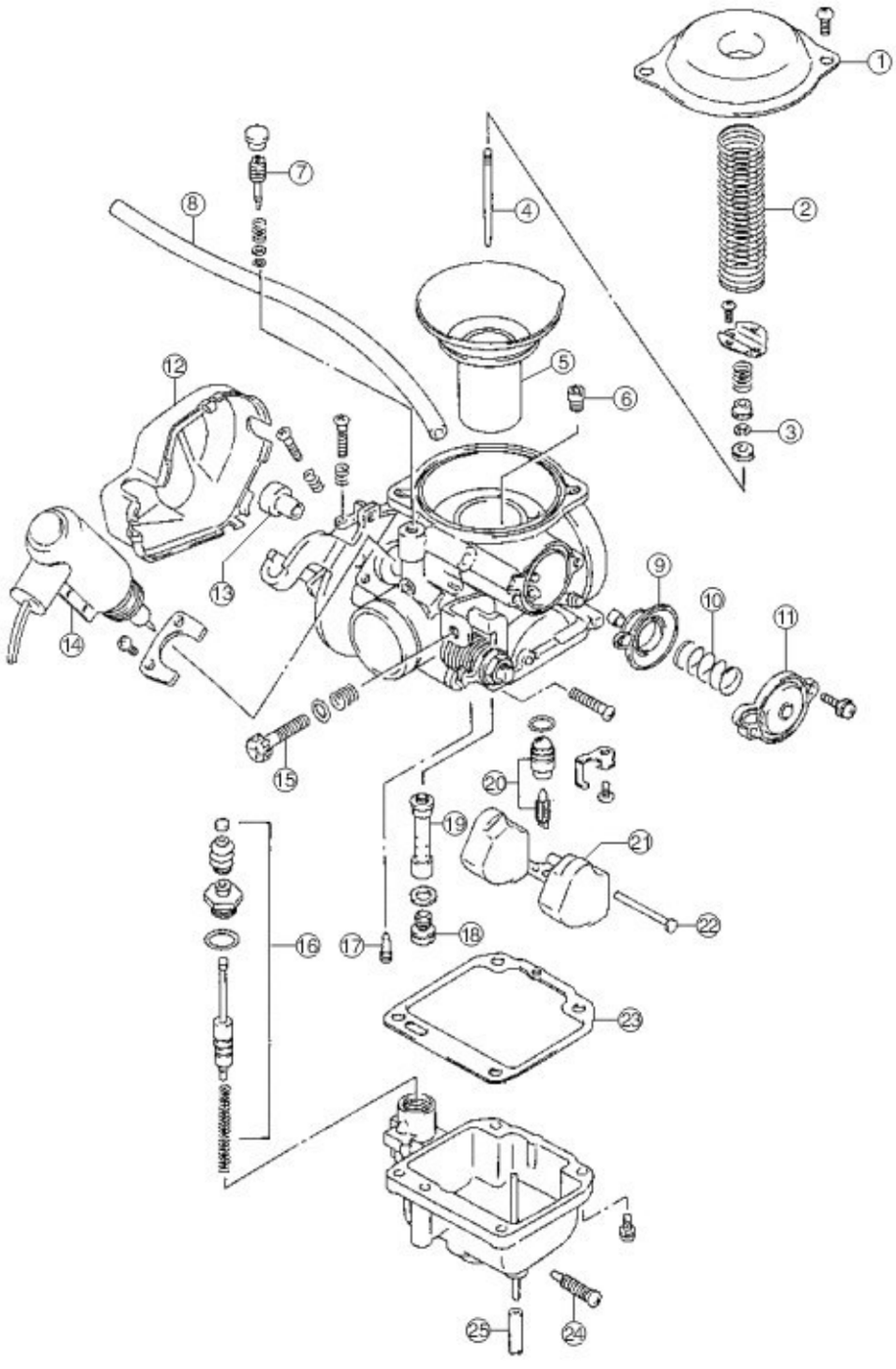




CAUTION:
Use a hand operated vacuum pump. Do not apply high negative pressure to prevent the fuel tap damage.

CARBURETOR

STRUCTUR



① top cap
② spring
③ e-ring
④ jet needle
⑤ piston valve
⑥ pilot air jet
⑦ pilot screw
⑧ Air vent hose
⑨ diaphragm
⑩ spring
⑪ cap
⑫ mud guard
⑬ air filter
⑭ automatic enrichener (pic heater)
⑮ throttle stop screw
⑯ accelerator pump ass'y
⑰ pilot jet
⑱ main jet
⑲ needle jet
⑳ needle valve ass'y
㉑ float
㉒ float pin
㉓ gasket
㉔ fuel drain screw
㉕ fuel drain hose

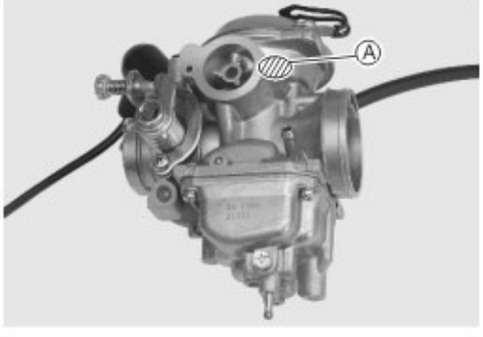
SPECIFICATIONS

CARBURETOR

ITEM	SPECIFICATION	DESIGNATION	SPECIFICATION
Carburetor type	BS26	Jet needle (J.N.)	4DX27-3
Bore	26mm	Needle jet (N.J.)	P-0
I.D.number	37G0 or 37G3	Throttle valve (Th.V.)	1100
Idle rpm	1600±100 rpm	Pilot jet (P.J.)	#40
Float height	21.4±1.0mm	Starter jet (G.S.)	#27.5
Main jet (M.J.)	#97.5	Pilot screw (P.S.)	Preset (23/8)
Main air jet (M.A.J.)	0.6mm	Throttle cable play	3-6mm

I.D. NUMBER POSITION

- Carburetor has I.D. number Ⓐ stamped on carburetor, as stipulated.

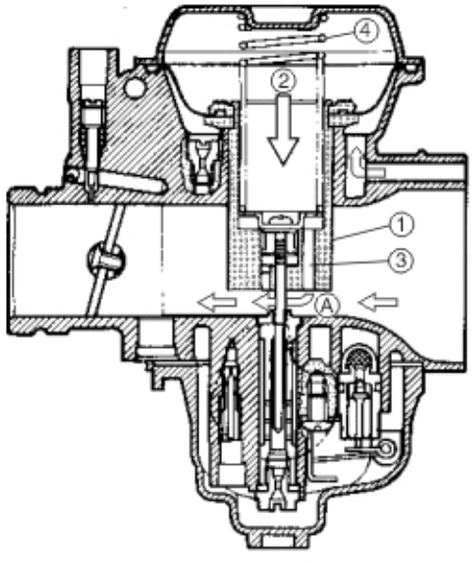


DIAPHRAGM AND PLUNGER FUNCTIONS

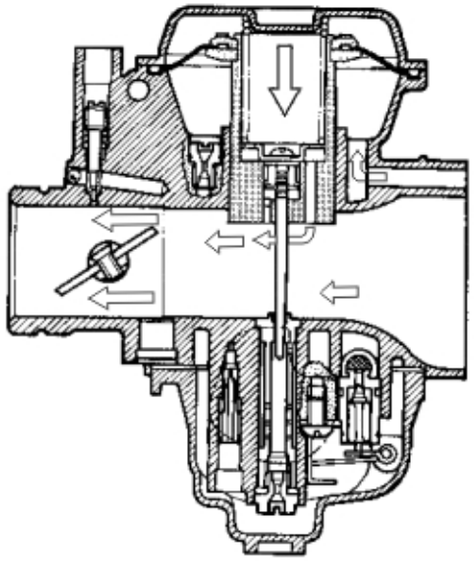
Carburetor is of a variable Venturi tube type. Its Venturi tube cross section automatically varies in size according to the actuation of plunger ① which acts according to the amount of vacuum actuating on Venturi tube Ⓐ. Vacuum enters diaphgragm ② through vent hole③ in plunger ①.

Increase of vacuum overcomes the force of spring ④, lifts piston plunger ①, increases lateral area and thus prevents increase in air flow speed. Air speed in Venturi tube is thus kept relatively constant, an improved fuel mixture ratio and an optimal fuel/air mixture ratio obtained.

piston plunger lower position



piston plunger upper position

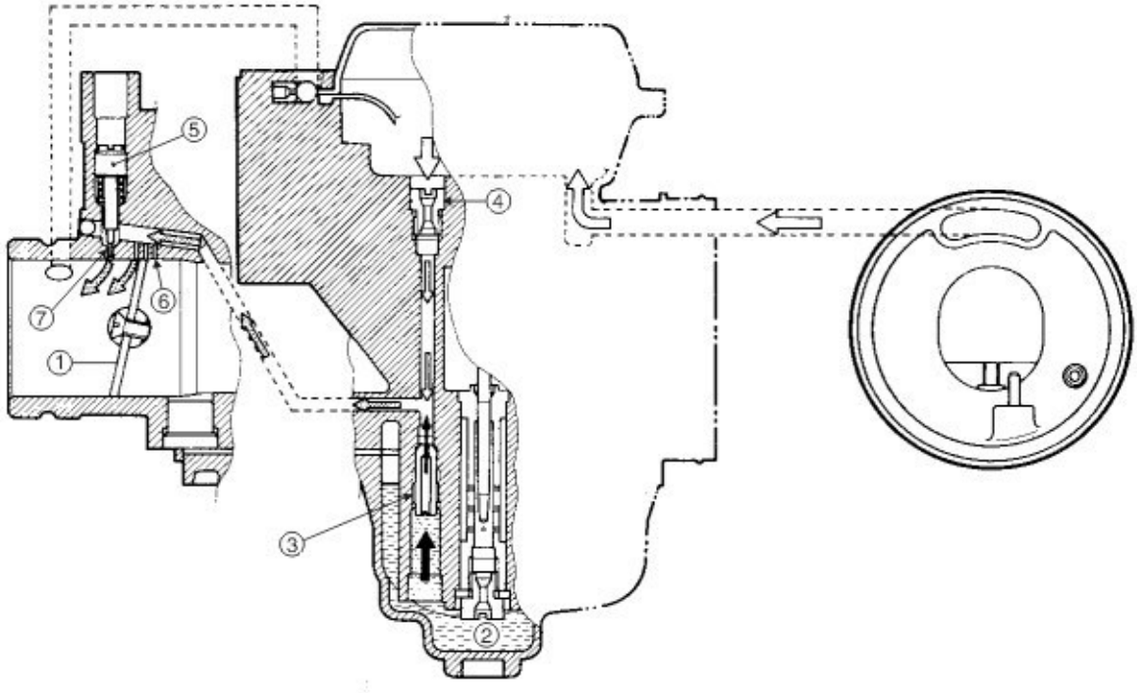


① plunger
② diaphragm chamber
③ vent
④ spring
Ⓐ Venturi tube

⟸ vacuum

IDLE SYSTEM

This system supplies fuel when butterfly valve ① is closed or slightly opened. The fuel comes from float bowl ②, is measured by idle jet nozzle ③ and is mixed with air from idle air nozzle ④. This mixture, with a fair concentration of fuel, flows to air adjusting screw ⑤ through idle passage. Part of the mixture enters main jet outside the transition jet ⑥, the rest of the mixture is measured by air adjusting screw ⑤ and is jetted into main jet through idle jet ⑦.



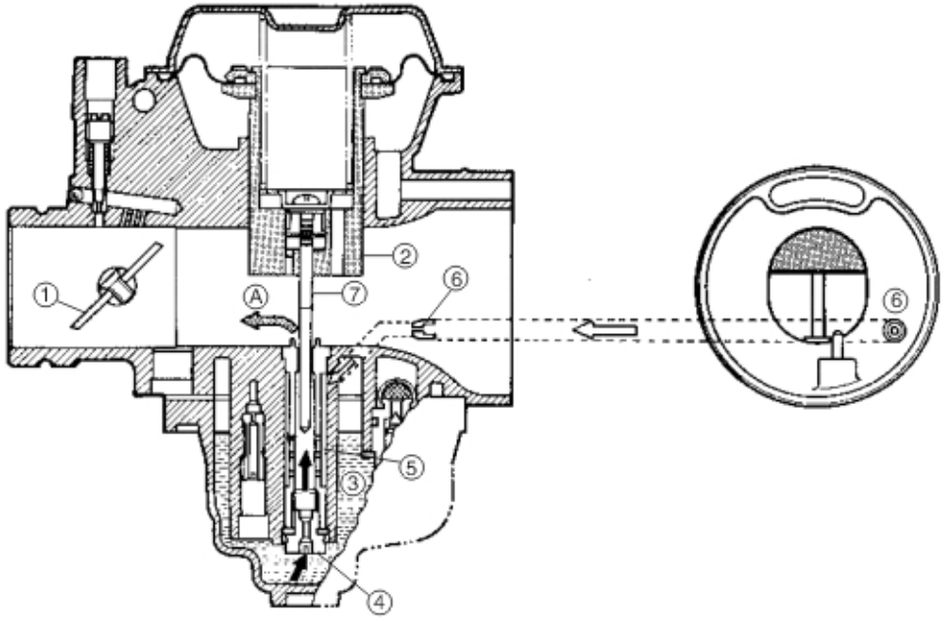
① butterfly valve
② float bowl
③ idle jet nozzle
④ idle air nozzle
⑤ air adjusting screw
⑥ transition jet
⑦ guide jet

air (negative pressure)
fuel/air mixture
fuel

MAIN SYSTEM

When throttle valve ① is opened, engine speed increases to increase negative pressure in Venturi tube Ⓐ . As a result, piston plunger ② moves upward.

At the same time, fuel in float bowl ③ is measured by main fuel jet ④ and the measured fuel enters main jet nozzle ⑤ where fuel is mixed with air from main air nozzle ⑥ to form an emulsion. The emulsified fuel, through the play between main jet nozzle ⑤ and fuel needle ⑦, enters Venturi tube Ⓐ , where fuel contacts air flow extracted by engine. Composition of the mixture is effected in main jet nozzle ⑤, the amount of emulsified fuel flowing through the play which, large or small, depends on the position of throttle valve.



① throttle valve
② piston plunger
③ float chamber
④ main jet
⑤ main jet nozzle
⑥ main air nozzle
⑦ fuel needl
Ⓐ Venturi tube

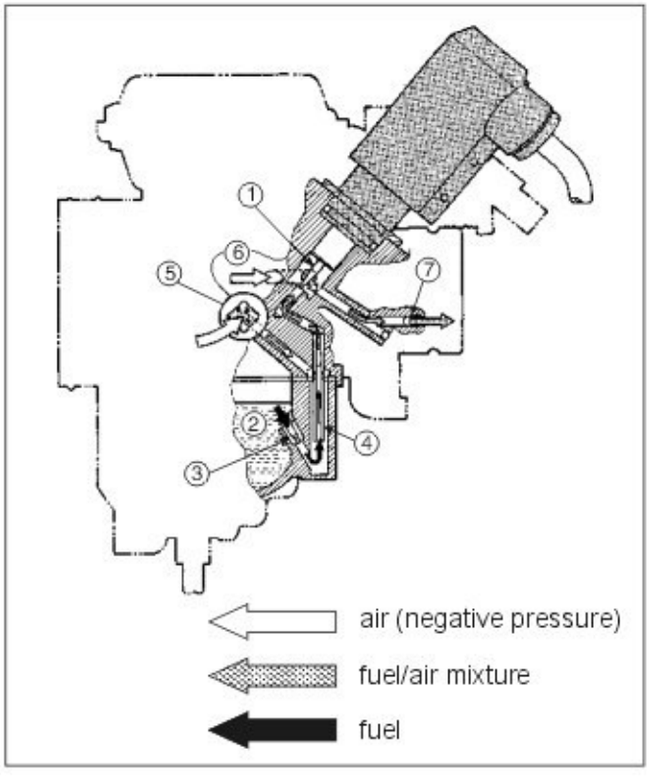
air (negative pressure)
fuel/air mixture
fuel

AUTOMATIC PRIMING SYSTEM

Automatic priming system includes priming heater, hot wax and needle. When hot wax cools, needle ① moves upward and fuel enters priming return pipe from float bowl ②.

Fuel, measured by priming nozzle ③, enters fuel pipe ④ and is mixed with air from air filter ⑤. Mixture with rich concentration of fuel reaches needle ① and is mixed again with air from main jet ⑥.

The two successive full mixing of fuel and air ensures optimal mixing of fuel and air for engine starting as the mixture splashes into main chamber through jet ⑦.

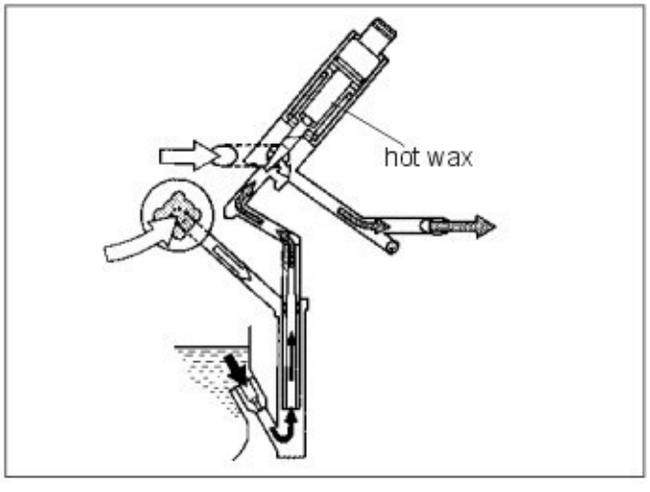


NOTE:

The actuation of primer is basically the same as that of plunger.

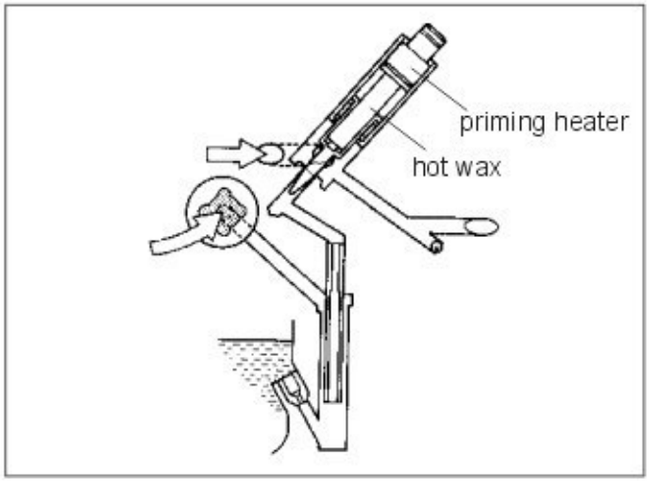
When engine is cool:

Automatic priming passage is always open. Hot wax is at ambient temperature.



When engine is at work:

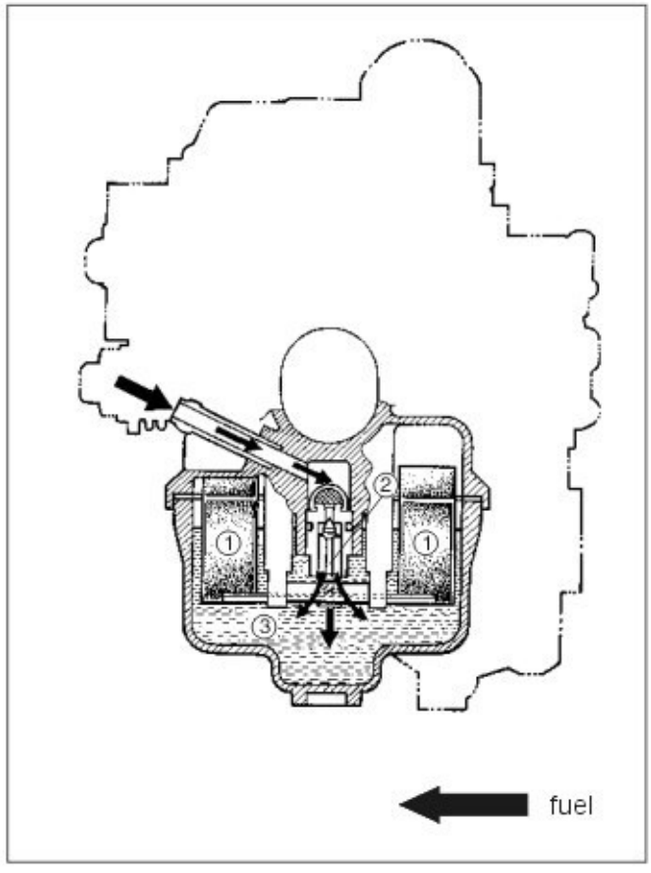
As automatic priming heater heats, hot wax gradually expands and the needle closes priming passage.



FLOAT BOWL SYSTEM

Float bowl ① and float needle valve ② are an integral subassembly. When float ① moves up or down, float needle valve ② acts accordingly.

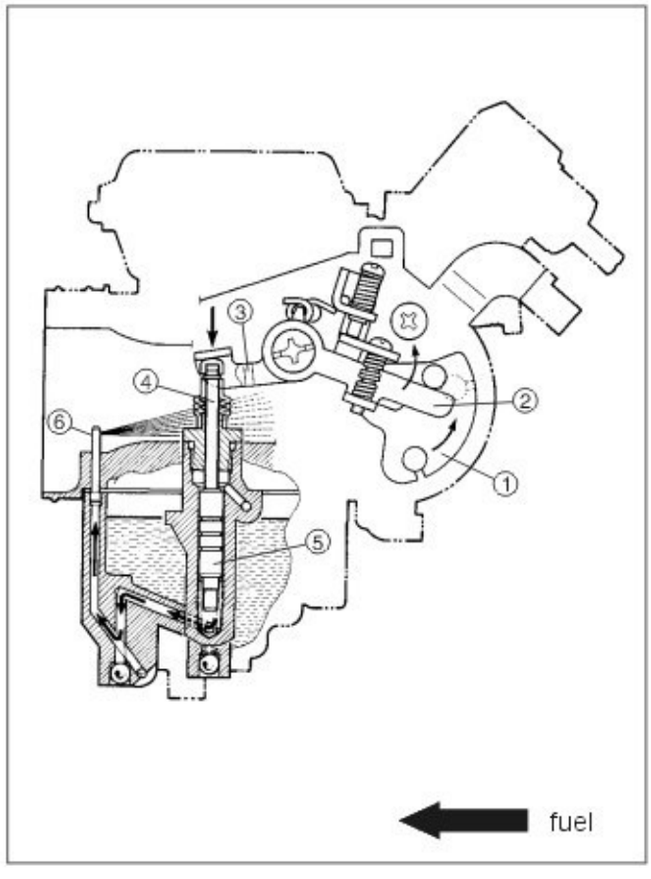
As fuel level in float bowl ③ rises, float ① rises and float needle valve ② rises towards valve seat. At this time, fuel can not flow into float bowl ③; as fuel level lowers, float ① lowers and float needle valve ② is opened for fuel to enter float bowl ③. The alternative opening and closing of float needle valve ② ensures stable fuel level in float bowl ③.



ACCELERATING PUMP

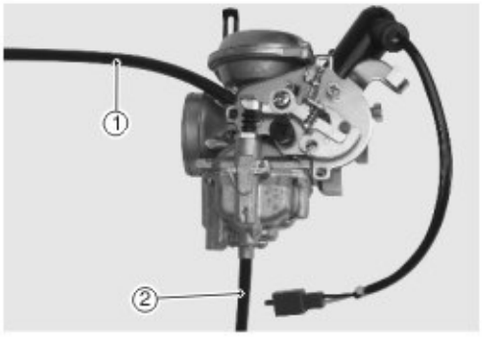
When throttle grip is turned, the volume of air taken in increases, air flow speed at the bottom of plunger decreases and amount of fuel taken in decreases. At this time accelerating pump begins working to supply adequate amount of fuel to carburetor.

Throttle valve rod ① pushes rod ②, lever ③ rotates and pushes rod ④. Rod ④ pushes plunger ⑤. This plunger pushes fuel out and jets it into main chamber through outlet jet ⑥.



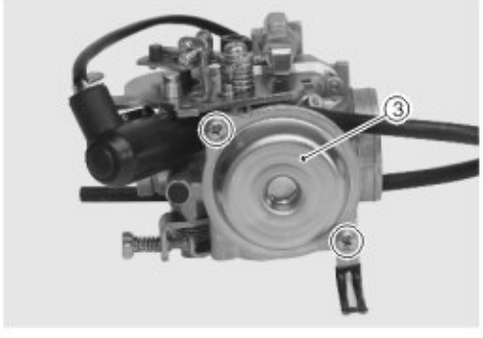
DISASSEMBLING

- Remove carburetor subassembly (Refer to papes 3-3 to 8);



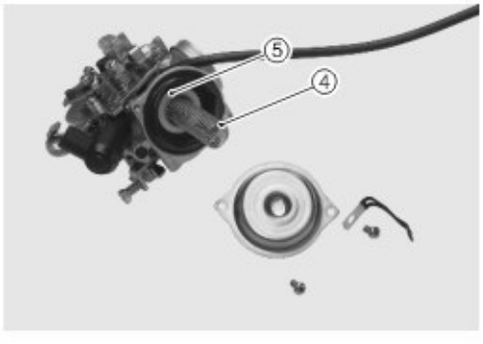
- Disconnect vent pipe ① and overflow hose ②;

- Remove carburetor spring cover ③;

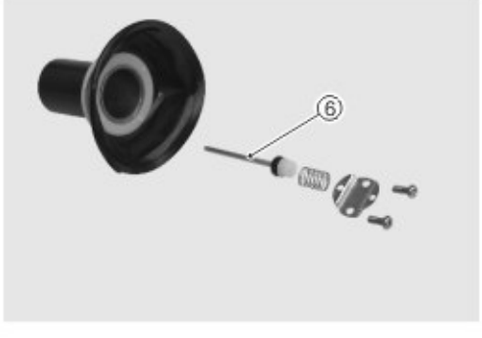


CAUTION:
Do not blow the carburetor body with compressed air, before removing the diaphragm. It May cause a damage to the diaphragm.

- Remove plunger return spring ④ and plunger with diaphragm ⑤;



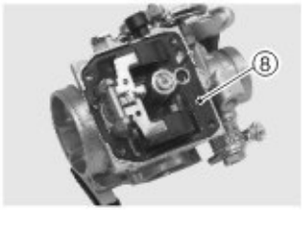
- Remove plunger fuel needle ⑥;

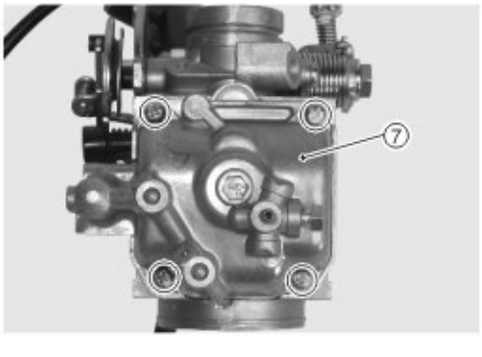


- Remove float bowl subassembly ⑦;

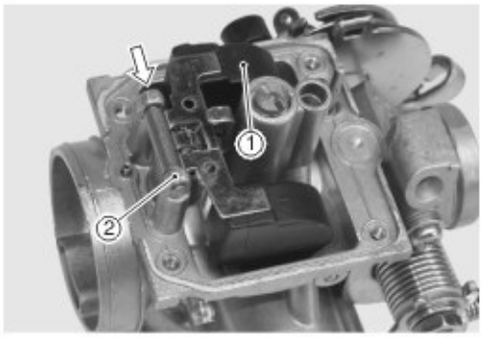
99000-09003: Shock driver subassembly

- Remove gasket ⑧;

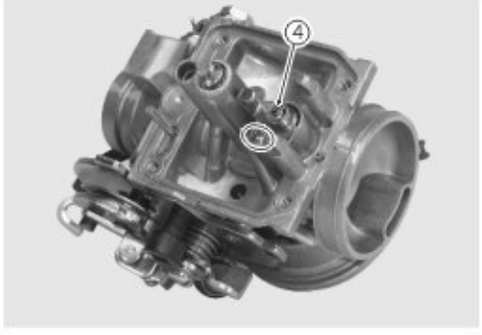




- Remove float pin ② and float subassembly ①;
- Remove needle valve subassembly;
  Needle valve ③;
  Valve seat ④;

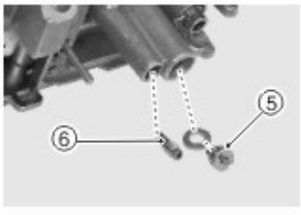


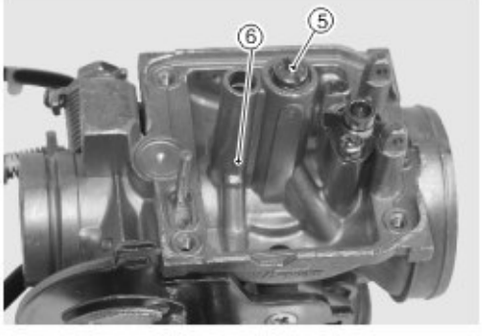
CAUTION:
Do not use a wire for cleaning the valve seat.



- Remove main jet ⑤ and idle jet nozzle ⑥;

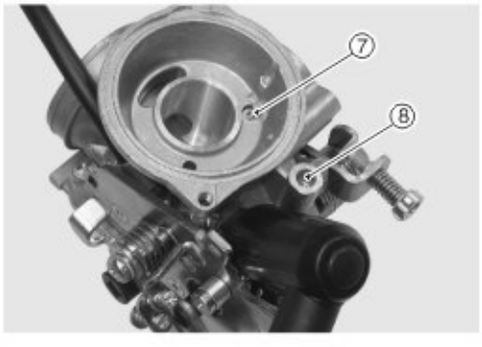
CAUTION:
Do not use wire for cleaning of passage and jets.



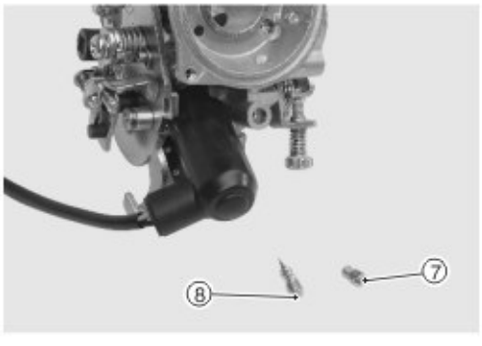


- Remove idle air jet nozzle ⑦ and air adjusting screw ⑧;

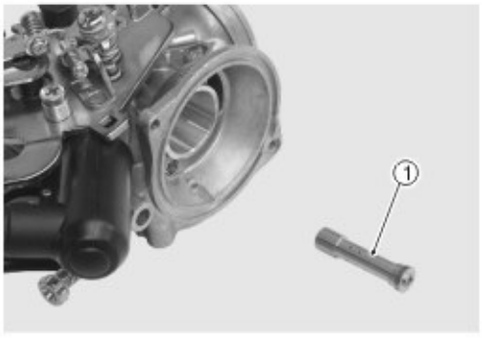
CAUTION:
Do not use a wire for cleaning of passage and jets.



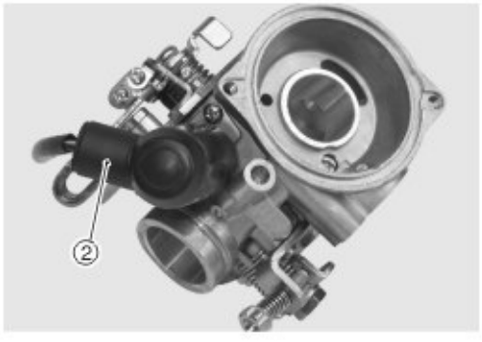
NOTE:
Before removing air adjusting screw ⑧, turn screw clockwise slowly to bring it into position and at the same time remember the number of turns needed in positioning as remounting air adjusting screw to original position is very important.



● Remove carburetor main jet ①;



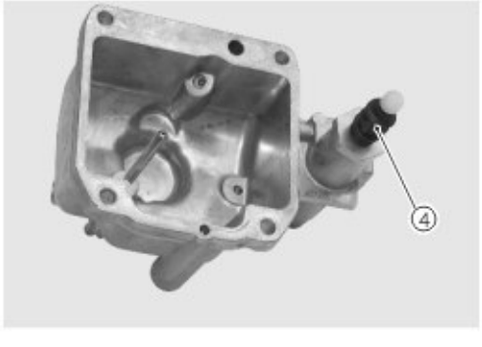
● Remove automatic priming subassembly ②;



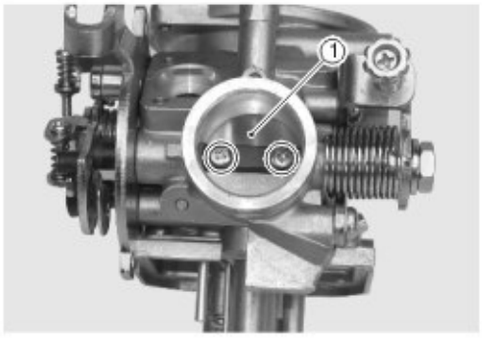
● Remove automatic priming subassembly air filter ③;

● Remove accelerating pump plunger ④;

CAUTION:
Replace the O-ring fitted on the plunger with a new one.



● Remove screw and butterfly valve ①.



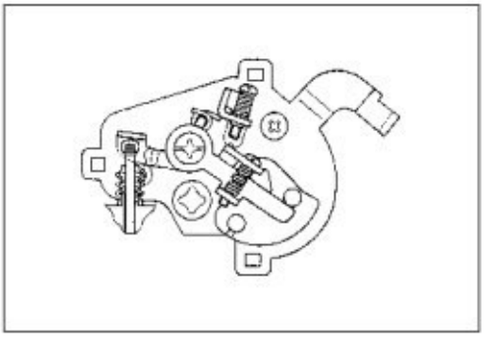
CAUTION:
These two screws are locked by punching these ends.
Once removing the screws, they will be damaged.

NOTE:
When mounting butterfly valve, apply a small amount of thread lock bond "1342".

99000-32050: Thread lock bond "1342"

CAUTION:
Face the stamped side of throttle valve to outside.

NOTE:
Avoid removing butterfly device from carburetor unless absolutely necessary.



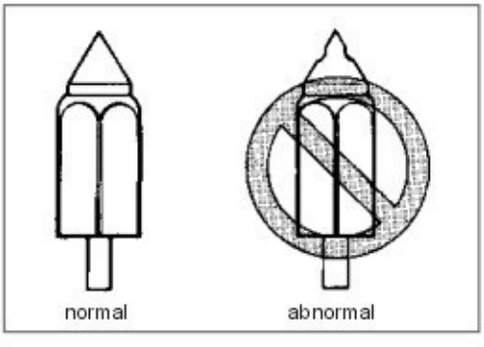
CARBURETOR NOZZLE INSPECTION

Inspect the following items to see if there is any damage or clogging.

- idle jet nozzle
- main jet
- main air nozzle
- idle air jet
- main jet nozzle vent
- float
- float needle valve
- primer nozzle
- gasket and O-ring
- butterfly valve shaft oil seal
- diaphragm
- idle jet and transition jet

FLOAT NEEDLE VALVE INSPECTION

If there is impurity between valve seat and needle, gasoline shall continue to flow and cause overflow. If valve seat wear or needle wear exceeds specified limit, the same problem shall occur. On the contrary, if needle is clogged, gasoline shall not flow into float bowl. In that case, clean float bowl and float subassembly with gasoline. If needle is as illustrated, it is necessary to replace needle together with valve seat. Clean fuel passage with compressed air.

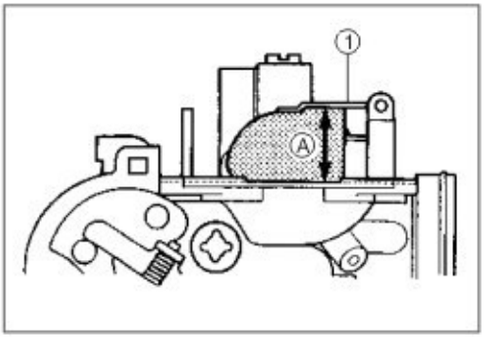


FLOAT HEIGHT ADJUSTMENT

To inspect float height, turn carburetor body to set float arm free. When float arm touches needle valve, measure its height Ⓐ with vernier caliper. In case of need, bend tongue ① to reach illustrated height Ⓐ.

FLOAT HEIGHT Ⓐ : 21.4±1.0mm

09900-20102: Vernier caliper

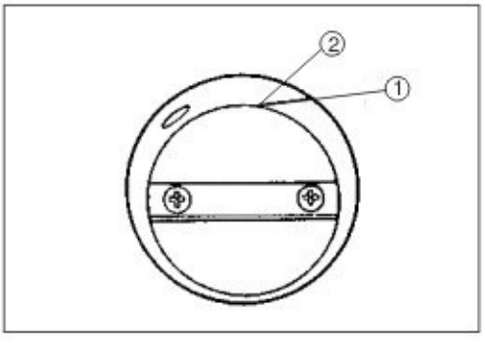


AUTOMATIC ENRICHENER INSPECTION (PTC HEATER AND PTC CONTROL UNIT)

Refer to page 6-14.

REMOUNTING

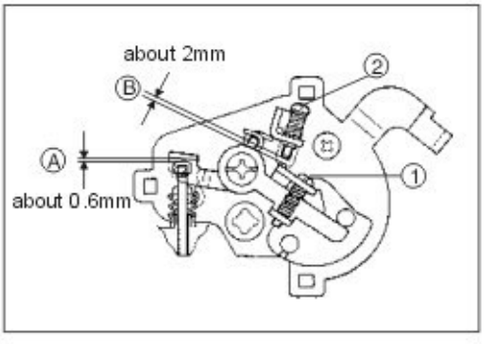
Mount carburetor in an order reversed to that of disassembling. When mounting, observe the following points:



- Butterfly valve positioning: Align top end ① with main bypass ②. This can be done by turning idle adjusting screw.

NOTE:

Avoid dismounting butterfly valve device from carburetor body. In case of dismounted butterfly valve, adopt the following method to adjust accelerating rod play Ⓑ and accelerating stopper end gap Ⓐ.



- Turn screw ① to adjust accelerating rod play Ⓐ;
- Turn screw ② to adjust accelerating stopper end gap Ⓑ;

PLAY Ⓐ: 0.6mm
GAP Ⓑ: 2mm

- After adjusting butterfly valve device, inspect for its stable actuation.
  - * Engine idle speed ····· Page 2-7
  - * Throttle cable play ····· Page 2-7

LUBRICATION SYSTEM

OIL PRESSURE

Refer to page 2-16.

ENGINE FILTER

Refer to page 2-16

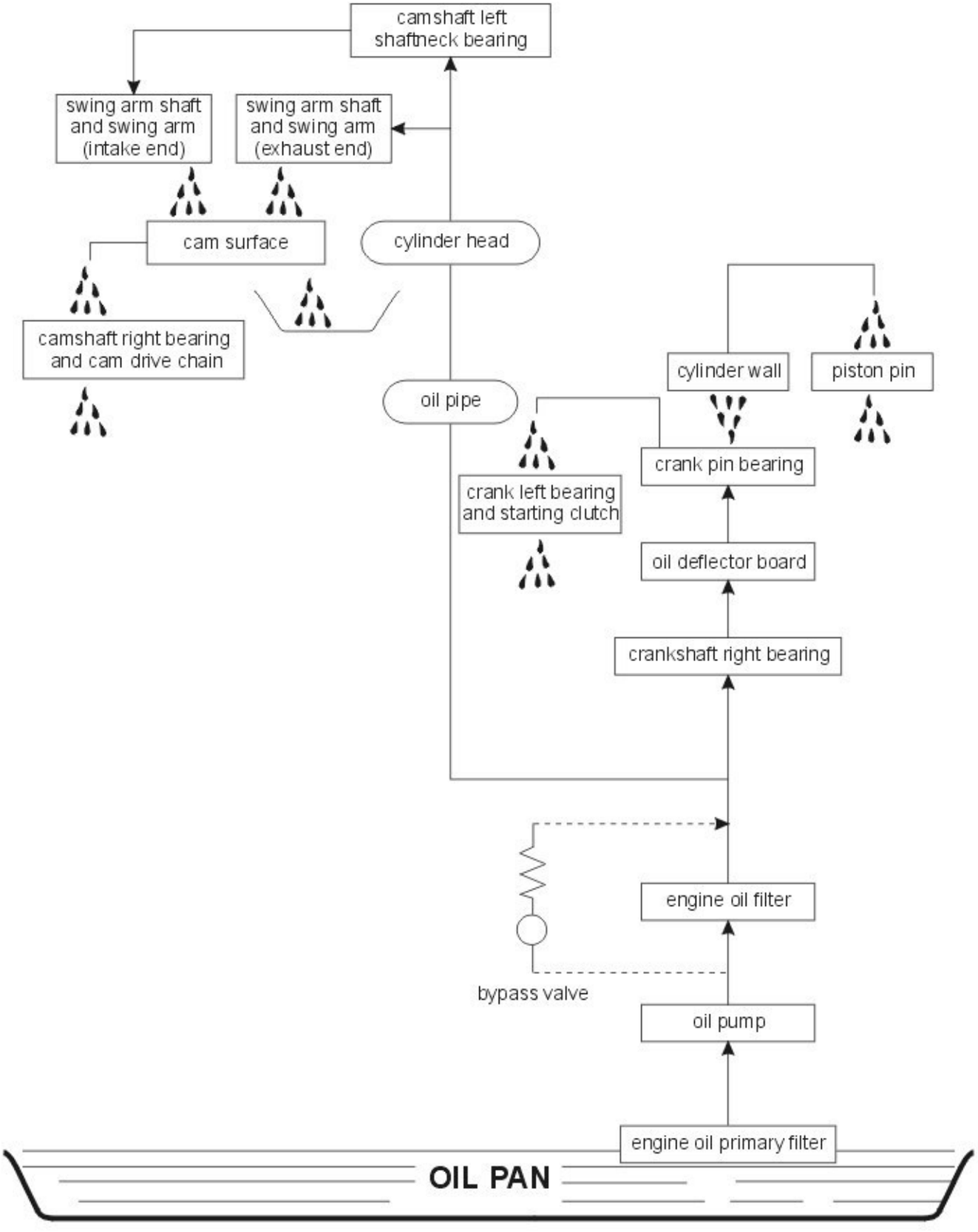
ENGINE OIL PRIMARY FILTER

When draining engine oil, engine oil primary filter should be inspected to ensure that there is no crack in strainer and strainer, too, should be cleaned at intervals.

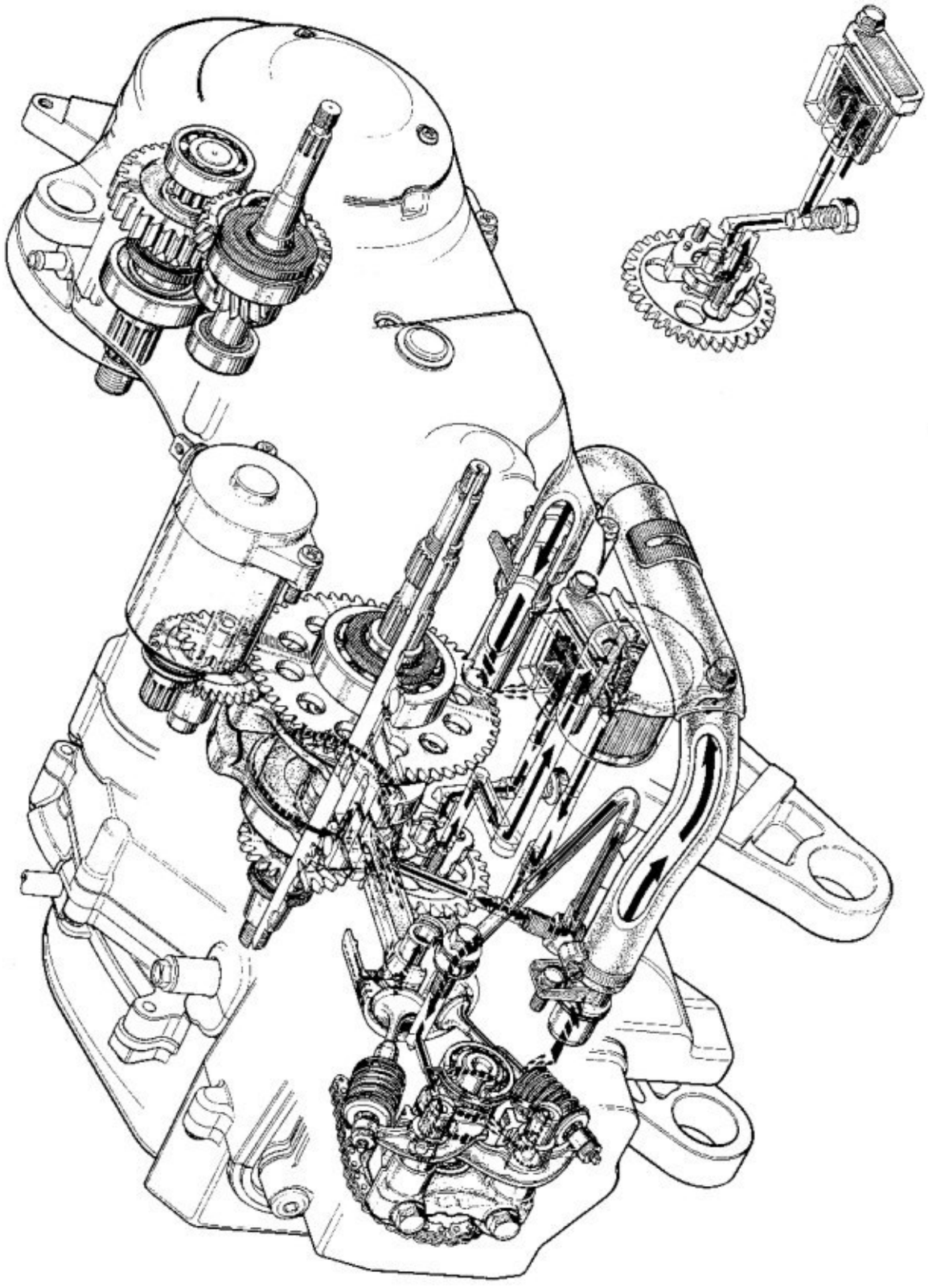
Refer to page 3-49.

CAUTION:
Replace the oil sump filter cap gasket with a new one to prevent oil leakage.

ENGINE LUBRICATION ILLUSTRATION



ENGINE LUBRICATION SYSTEM

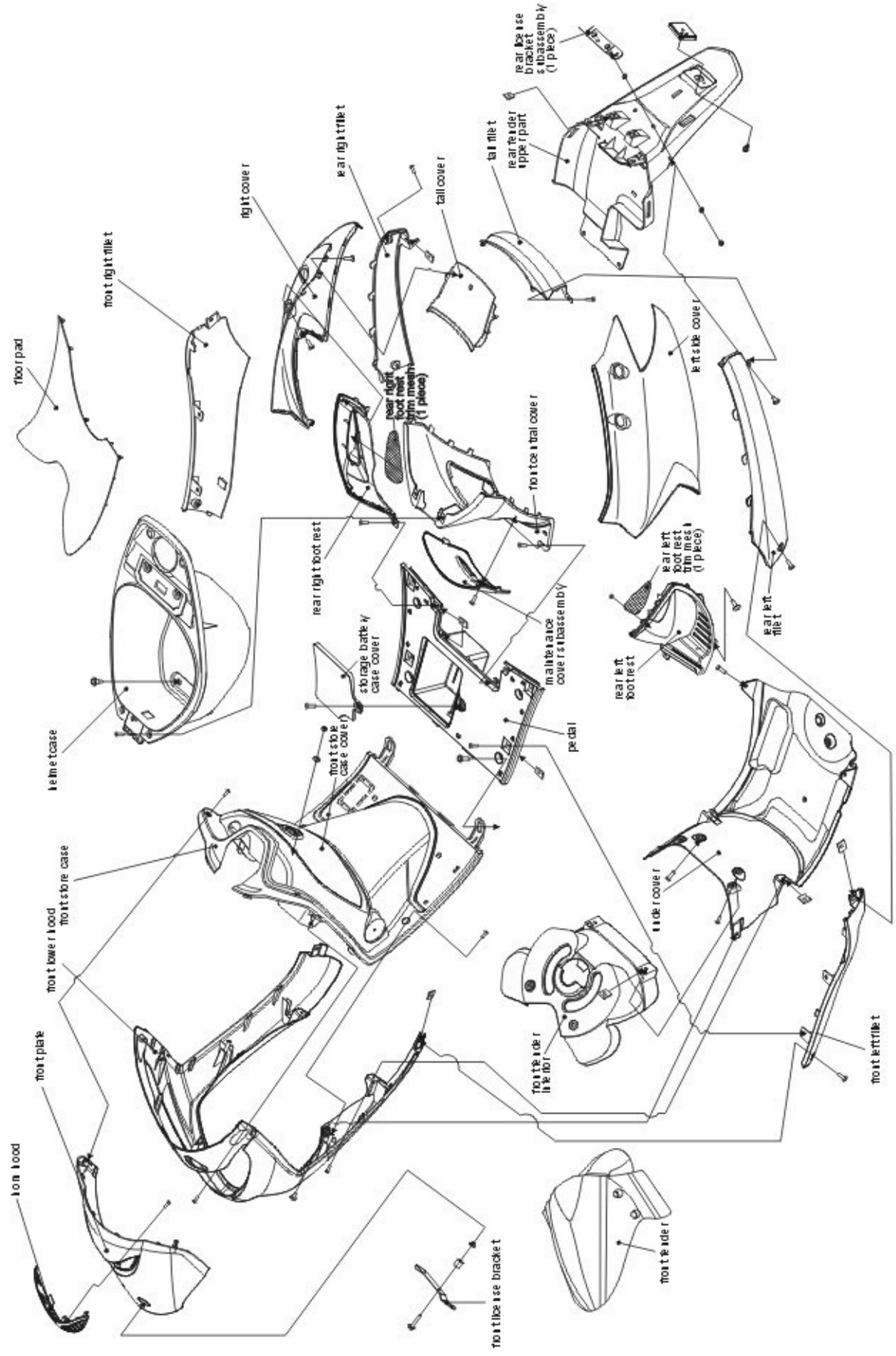


BODY

5

CONTENTS

EXTERIOR PARTS DISASSEMBLING AND ASSEMBLING (AN125HK)



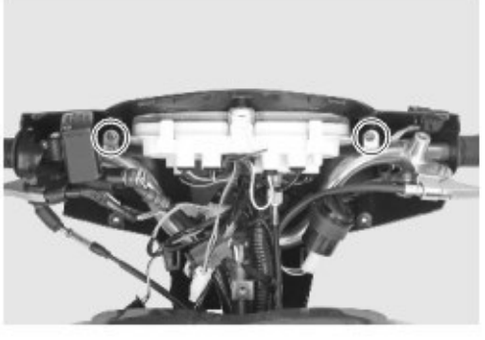
HANDLEBAR FRONT HOOD

- Remove left and right rearview mirror;
- Remove handlebar front hood mounting screw;

- Remove screw and hanger hook.
- Remove handlebar front hood;

INSTRUMENT FRAME

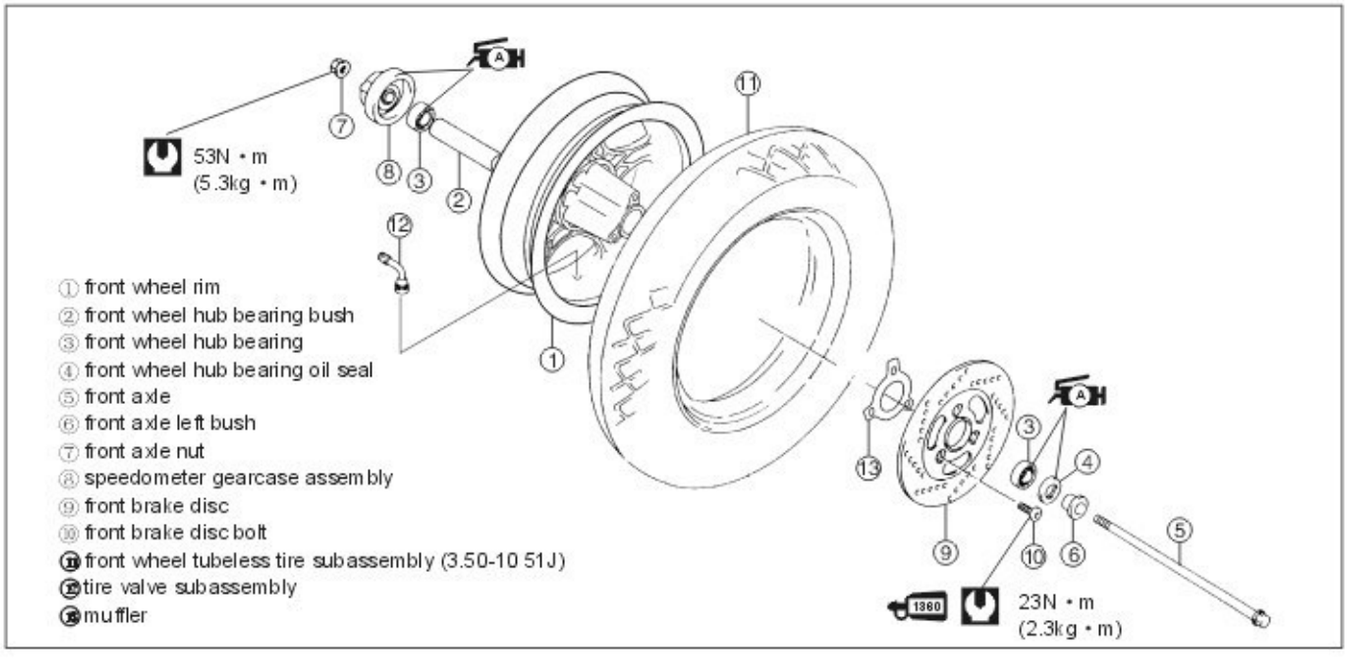
- Remove instrument frame set screw.
- Remove instrument frame.



REAR GOODS BRACKET

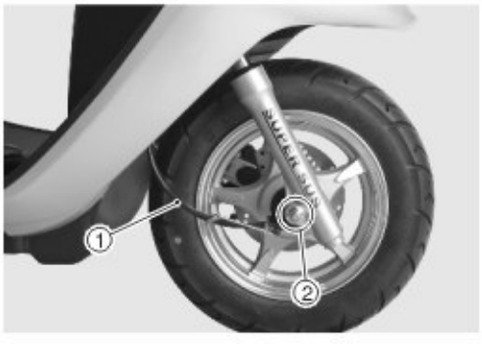
- Remove set screw and rear goods bracket.

FRONT WHEEL



DISMOUNTING

- Support motorcycle with jack or wooden block to lift front wheel off ground;
- Dismount speedometer flexible cable ①;
- Remove axle nut ②;
- Dismount front axle and front wheel;



- Dismount brake disc from front wheel;

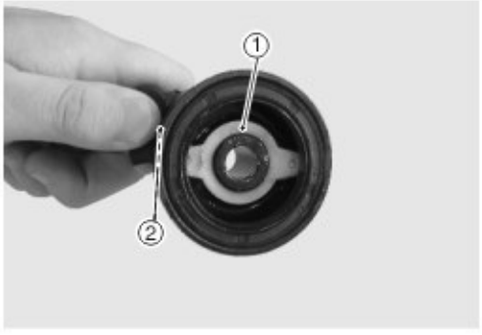
- Remove oil seal with oil seal remover ③;

09913-50121: Oil seal remover

INSPECTION

SPEEDOMETER GEARCASE ASSEMBLY

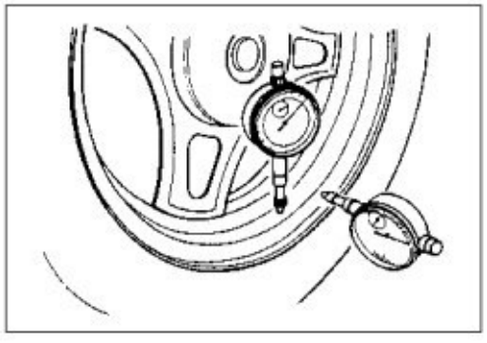
Turn speedometer gear ① and inspect gear to see that speedometer pinion ② is in good engagement.



FRONT WHEEL

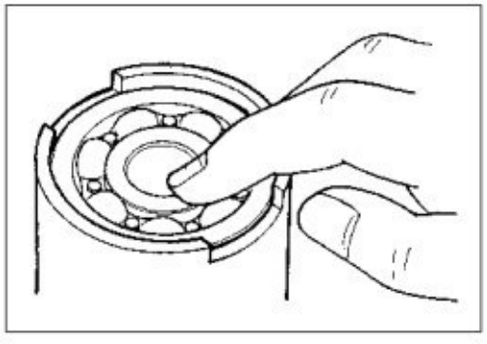
Inspect if there is any wheel rim runout.
Excessive deflection is usually caused by looseness of wheel rim bearings and can be eliminated by replacing the bearings with new ones. In case replacement of bearing doesn't serve the purpose, the wheel rim should be replaced.

DEFLECTION LIMIT (AXIAL AND RADIAL): 2.0mm



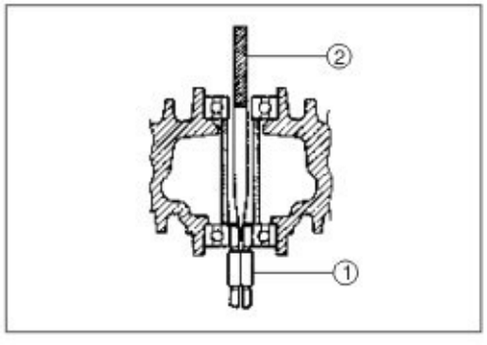
WHEEL HUB

Turn bearing inner ring to see that bearings are free from abnormal noises and are in smooth rotation.
In case of abnormal noises, replace bearings in the following procedure:



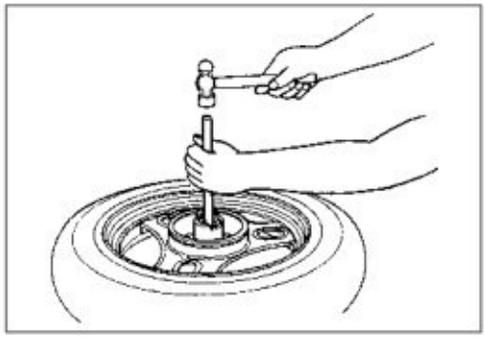
- Insert bearing replacer collar ① into the position as illustrated;
- Insert wedge board ② of bearing replacer into collar from the other side and lock it tightly in the collar opening;

09941-50111: Bearing remover



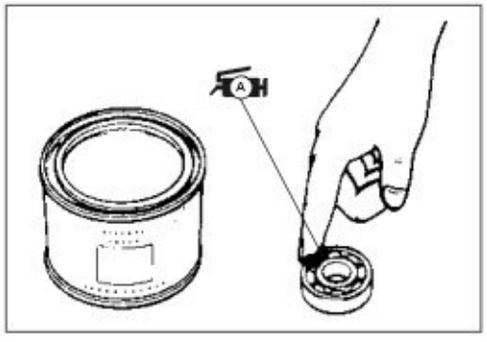
- Drive bearings out by knocking wedge board with a hammer;
- Remove bearings on the other side by means of a suitable rod.

CAUTION:
Removed bearings should be replaced by new ones.



REMOUNTING

Front wheel mounting is effected in an order reversed to that of removing. Please observe the following points:



WHEEL HUB BEARING

- Apply SUZUKI SUPER GREASE "A" to bearings.

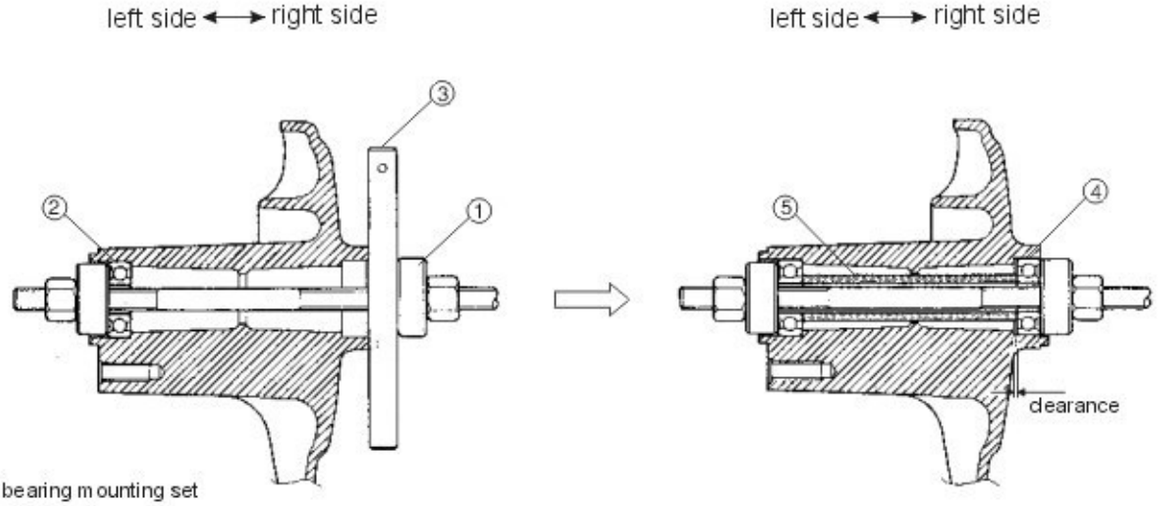
99000-25010: SUZUKI SUPER GREASE "A"

- Force bearings into wheel hub by means of bearing mounting set ① and connecting rod bracket ②. Mount wheel hub left bearings first before mounting right bearings.

09924-84521: Bearing mounting set
09910-20116: Connecting rod bracket

- Refer to the following instructions for mounting bearings.

CAUTION:
The seal side of the bearing should be faced to outside.



① bearing mounting set
② left bearing
③ connectong rod bracket
④ right bearing
⑤ bush

BRAKE DISC

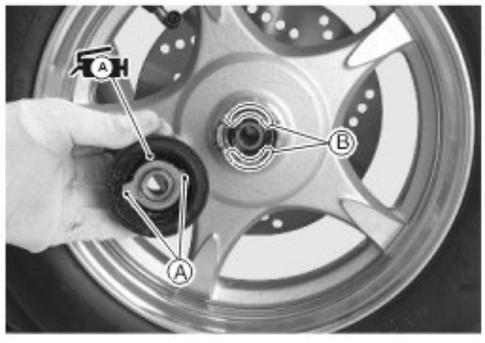
See to it that brake disc is kept clean and free from grease. Apply thread lock super bond "1360" to bolt and fasten it to specified torque.

99000-32130: Thread lock super bond "1360"

BRAKE DISC BOLT: 23N · m (2.3kg · m)

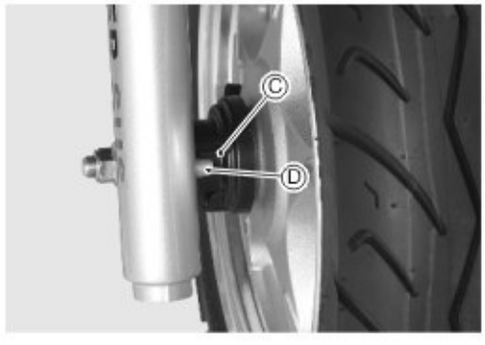
SPEEDOMETER GEARCASE ASSEMBLY

- Before mounting speedometer gearcase assembly, apply SUZUKI SUPER GREASE "A" to sealing lip;
- Mate drive ledge Ⓐ and wheel hub Ⓑ and mount speedometer gearcase assembly on wheel hub;



99000-25010: SUZUKI SUPER GREASE "A"

- Mount stopper Ⓒ on speedometer gearcase assembly on ledge Ⓓ on the right side of front wheel.



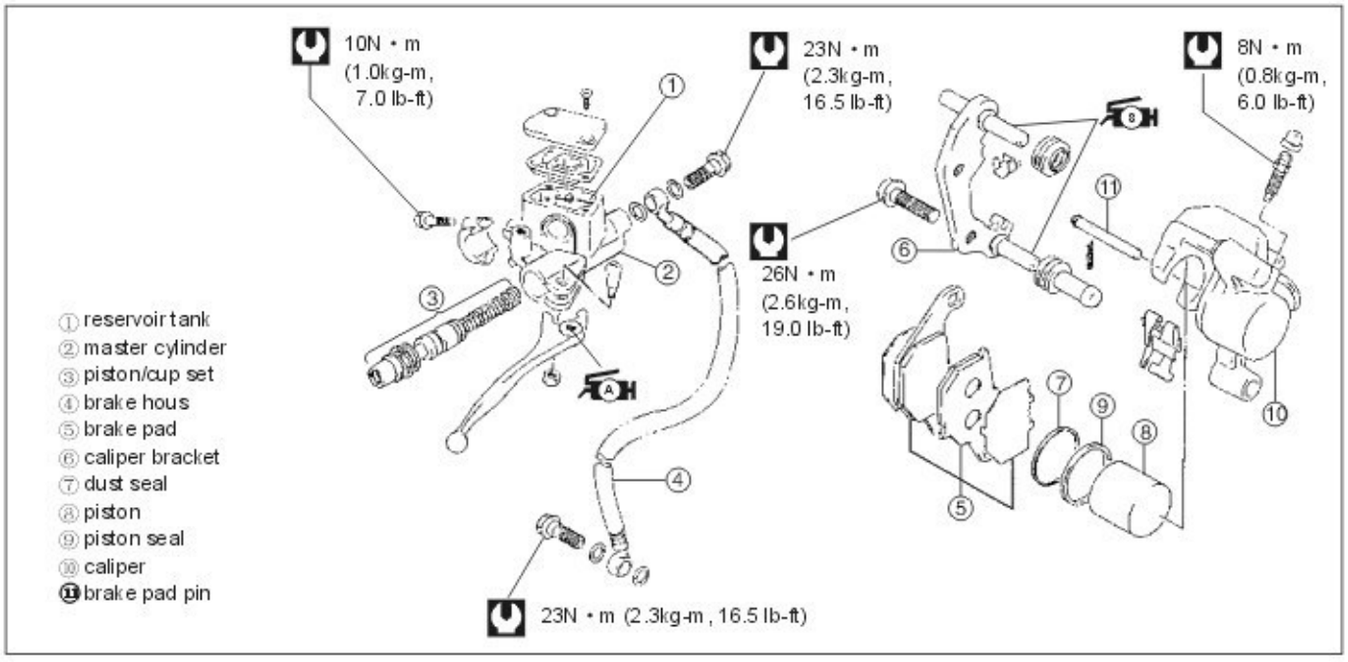
- Connect speedometer flexible shaft ①.
  Turn wheel rim to inspect for smooth rotation and normal actuation of speedometer;

CAUTION:
Make sure that the drive lugs of the speedometer gear fit to the recesses of the wheel hub or it may cause damage of the speedometer gear.

- Tighten front axle nut ② to specified torque.

FRONT AXLE NUT: 53N · m (5.3kg · m)

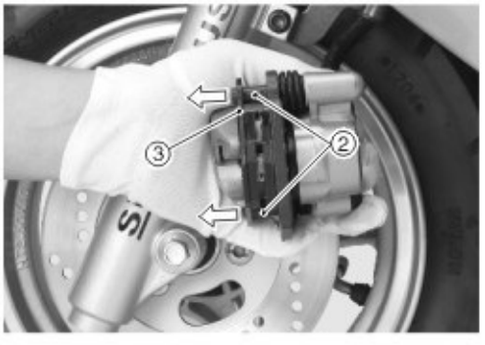
FRONT BRAKE



BRAKE FRICTION LINING REPLACING

- Remove brake caliper fixing bolt ① to remove brake caliper subassembly;

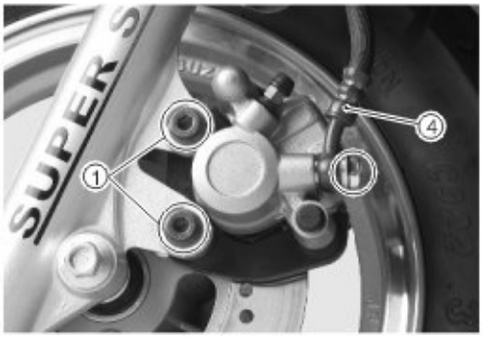
CAUTION:
Hang the brake caliper on the frame with a string etc., taking care not to bend the brake house.



- Remove brake caliper friction lining ③ from fixing bracket subassembly ②;

CAUTION:
- Do not operate the brake lever while dismounting the pads.
- Replace the brake pads as a set, otherwise braking performance will be adversely affected .

BRAKE CALIPER SUBASSEMBLY REMOVING



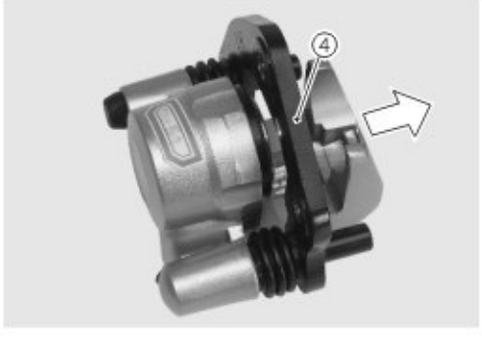
- Disconnect brake hose ④ from brake caliper and keep brake fluid in a suitable container;
- Remove brake caliper set bolt ①;

CAUTION:
Never reuse the brake fluid left over from previous servicing and stored for long periods.

- Remove brake caliper subassembly;

- Remove brake caliper friction lining (Refer to pages 5-8);
- Remove brake caliper elastic gasket ③;

- Remove brake caliper bracket ④;



- Use an air gun to push piston out. Place a cloth over piston to prevent it from springing out;

CAUTION:
Do not use high pressure air to prevent piston damage.

- Remove the dust seal ⑤ and piston seal ⑥;

CAUTION:
Do not reuse the piston seal and dust seal to prevent fluid leakage.

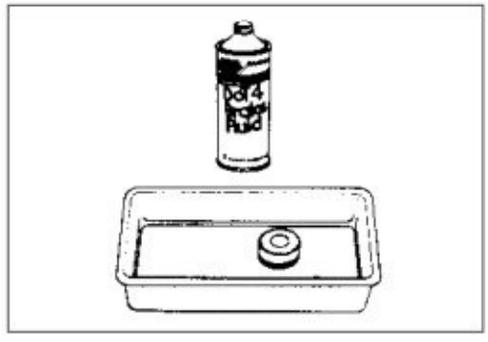
BRAKE INSPECTION

- Inspect piston surface and brake caliper piston wall to see if there is fissure, scratch or other damages;
- Removed seal ring should be replaced with new seal rings;

BRAKE CALIPER REMOUNTING

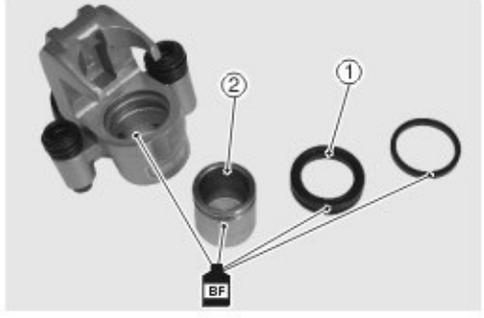
Assemble brake caliper in an order reversed to that of removal. Observe the following points:

- Clean caliper hole and piston with specified brake fluid, paying particular attention to cleaning seal ring groove;



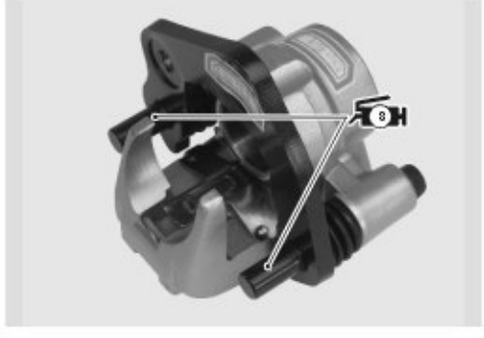
BF SPECIFICATION AND CLASSIFICATION: DOT4 OR DOT3

CAUTION:
- Wash the caliper components with fresh brake fluid before reassembly.
- Do not wipe the brake fluid off after washing the components. When washing the components, use the specified brake fluid.
- Never use different types of fluid or cleaning solvent such as gasoline, kerosene or the others.
- Replace the piston seal and dust seal with new ones when reassembly. Apply the braked fluid to both seals when installing them.



- Mount seal ring ①;
- Mount piston ②;
- Apply SUZUKI SILICON GREASE to brake caliper;

99000-25100: SUZUKI SILICON GREASE



- Mount brake friction lining;

- Tighten brake caliper set bolt ③ to specified torque;
- Tighten connecting bolt ④ to specified torque;

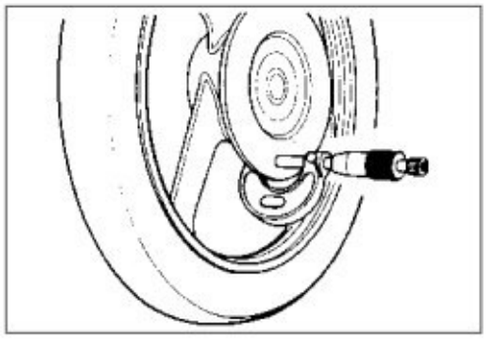
BRAKE CALIPER SET BOLT ③: 26N · m (2.6kg · m)
BRAKE HOSE CONNECTING BOLT ④: 23N · m (2.3kg · m)

NOTE:
Before mounting brake calipers, push piston home into brake calipers.

- After mounting brake calipers, drain air from oil drain screw (Refer to page 2-10).

BRAKE DISC INSPECTION

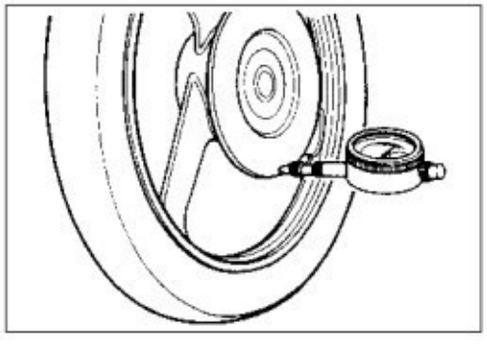
Carry out visual inspection to see if there is any fissure or other defect. Measure brake disc thickness by means of a micrometer. Replace brake disc with a new one in case thickness is under specified thickness or defect is found.



THICKNESS LIMIT OF BRAKE DISC: 3.5mm

09900-20205: Micrometer (0~25mm)

Inspect deflection of brake disc. Replace brake disc in case deflection exceeds specified limit.



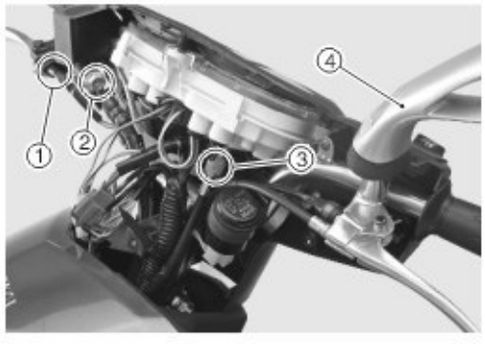
BRAKE DISC DEFLECTION: 0.3mm

09900-20606: Micrometer (1/100mm)
09900-20701: Magnectic dial gauge bracket

MAIN OIL CYLINDER DIDASSEMBLING AND ASSEMBLING

Disassemble main oil cylinder block in the following procedure;

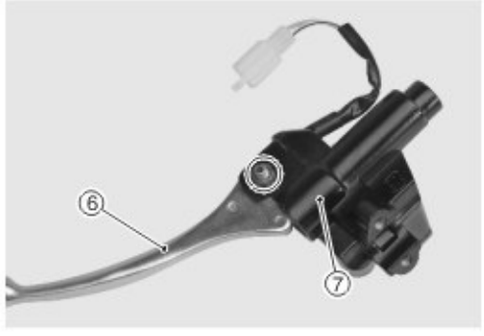
- Remove instrument frame (Refer to page 5-3);
- Remove brake switch duct ①;
- Drain brake fluid;
- Remove brake hose connecting bolt ②;
- Remove speedometer flexible shaft ③;
- Remove rearview mirror ④;



CAUTION:
The fluid reacts chemically with paint, plastics and rubber materials, est. and will damage them severely.

- Remove main oil cylinder block mounting bolt ⑤;

- Remove brake actuating lever ⑥;
- Remove brake switch ⑦;

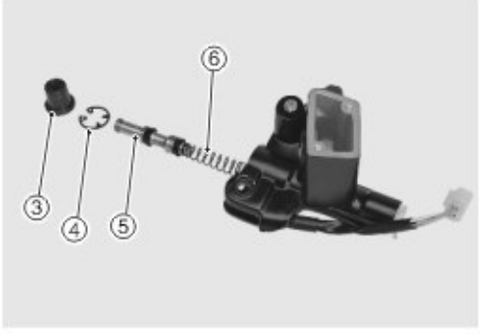


- Remove oil cylinder cover ① and aneroid ②;

- Remove dust sealer ③;
- Remove retaining ring with special tool ④;

09900-06108: Inner retaining ring caliper

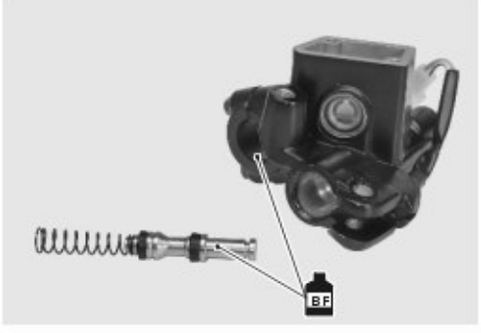
- Remove piston, hood ⑤ and return spring ⑥.



MAIN OIL CYLINDER INSPECTION

Inspect main oil cylinder inner wall and piston surface to see if there is any scratch or other damage.

Inspect piston cap and dust sealer to see if there is any scratch or other damage.

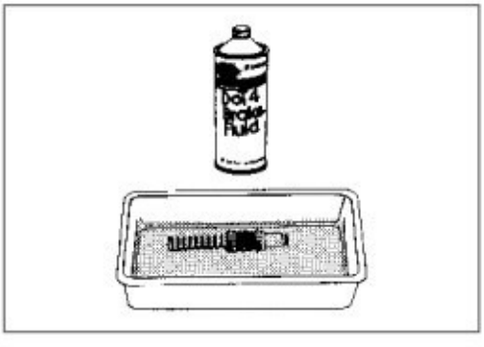


MAIN OIL CYLINDER BLOCK ASSEMBLING

Assemble main cylinder block in an order reversed to that of disassembling. Please observe the following points:

CAUTION:

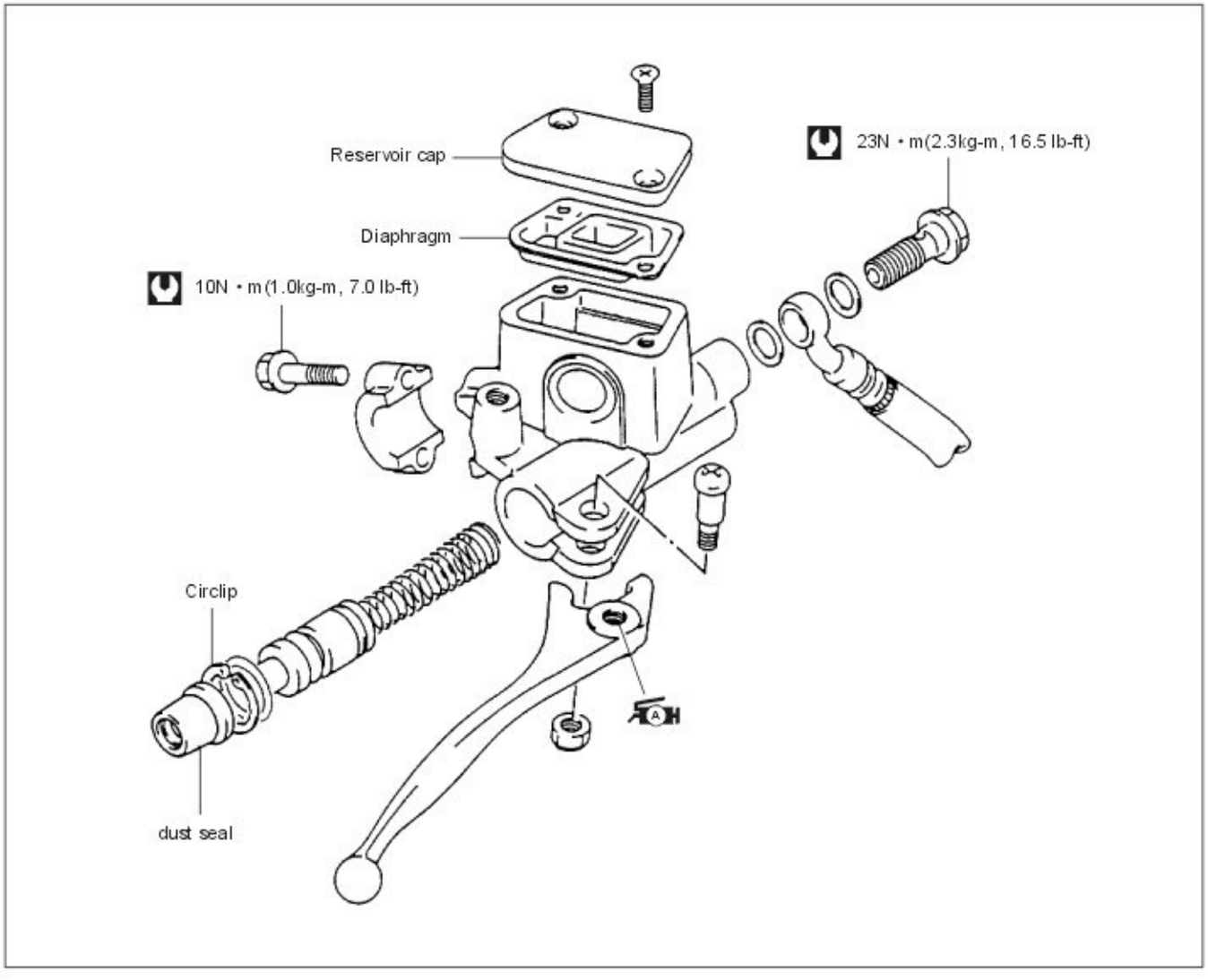
- Wash the master cylinder components with fresh brake fluid before reassembly. Never use cleaning solvent or gasoline to wash them.
- Do not wipe the components with a rag.
- Apply brake fluid to the cylinder bore and all the component to be inserted into the bore.



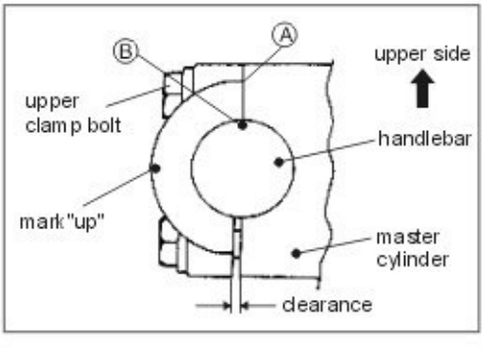
SPECIFICATION AND CLASSIFICATION: DOT4 OR DOT3

NOTE:

When mounting retaining ring, see that the sharp edge of retaining ring faces outward.



- When remounting the master cylinder on the handlebar, align the master cylinder holder's mating surface Ⓐ with punched mark Ⓑ on the handlebar and thghten the upper clamp bolt first as shown.



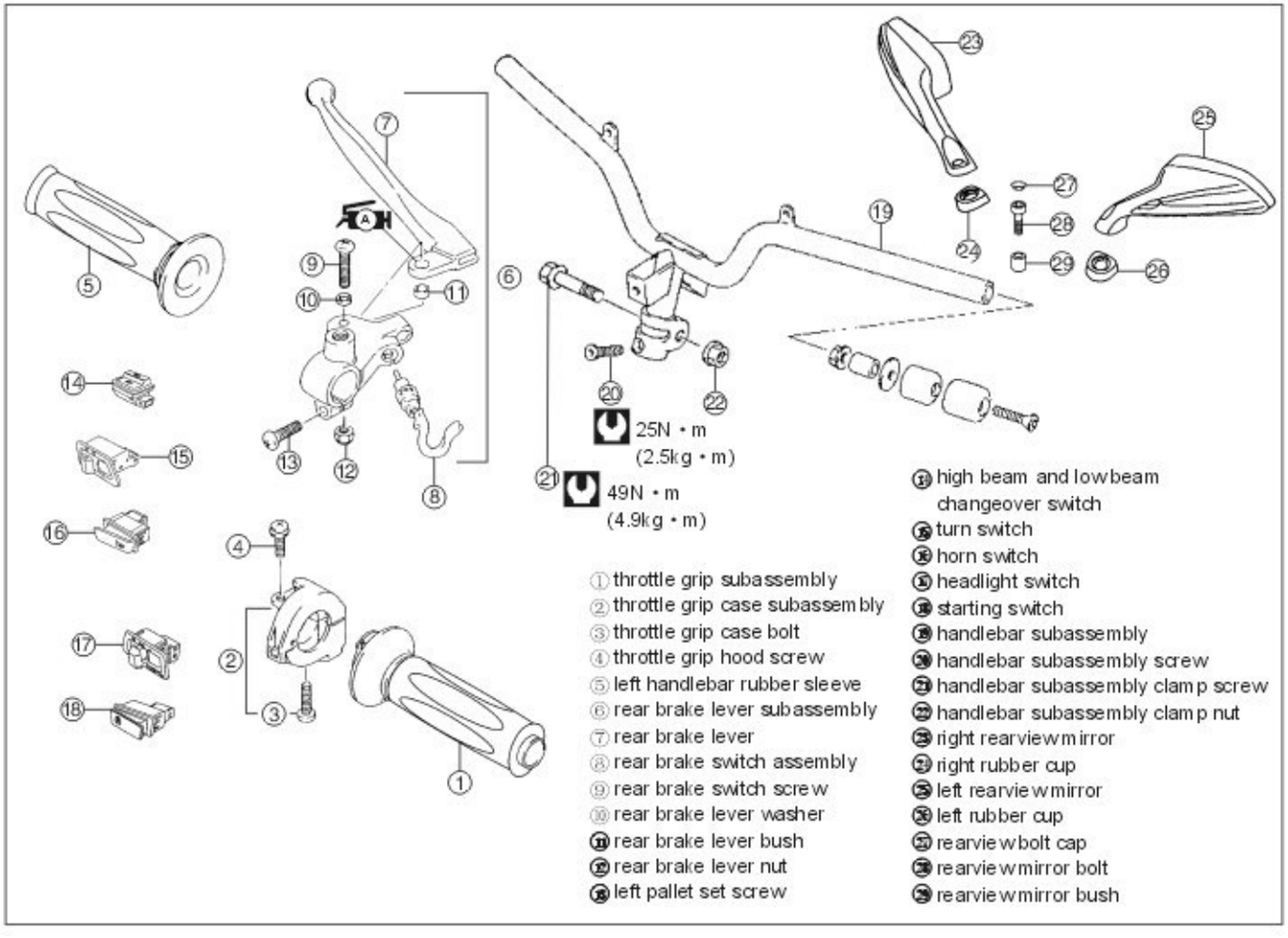
Tightening torque:10N-m(1.0kg-m.7.0lb-ft)

NOTE:
Be sure to face the "up" mark on the holder to the up-side.

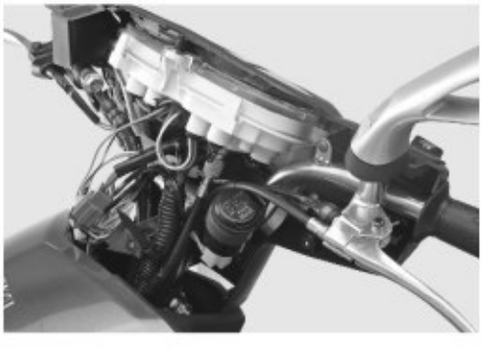
CAUTION:
Bleed air from the air bleeder valve after reassembling master cylinder. (Refer to page 2-10).

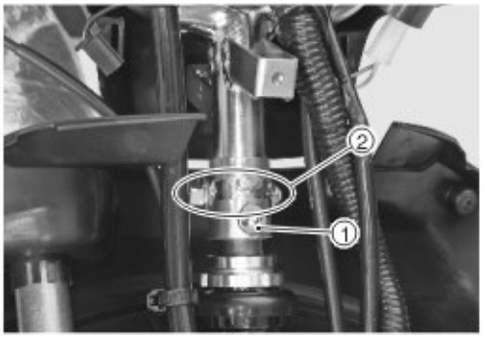
HANDLEBAR SUBASSEMBLY

DISASSEMBLING



- Remove handlebar front hood (Refer to page 5-3);
- Remove instrument frame (Refer to page 5-3);
- Disconnect speedometer flexible shaft;
- Disconnect brake light switch wire;
- Remove left actuating lever unit;
- Remove main brake cylinder (Refer to page 5-11);
- Remove right actuating lever unit;
- Remove handlebar set bolt ①;
- Remove handlebar fastening bolt ②;
- Remove actuating lever.





ASSEMBLING

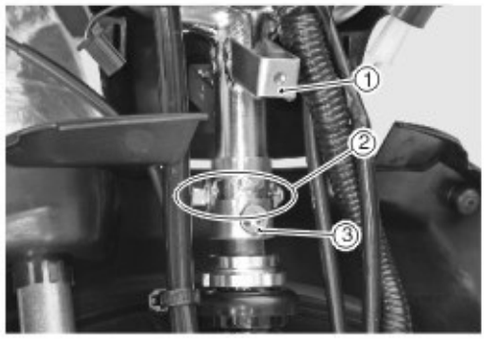
Remount actuating lever in an order reversed to that of disassembling. Please observe the following points:

- Mount handlebar ①;
- Mount handlebar fastening bolt ② and set bolt ③;
- Tighten handlebar fastening bolt/nut ② to specified torque;

HANDLEBAR FASTENING BOLT/NUT ②: 49N · m (4.9kg · m)

- Tighten handlebar set bolt ③ to specified torque;

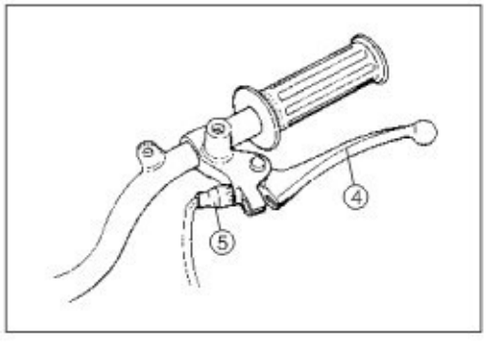
HANDLEBAR SET BOLT ③: 25N · m (2.5kg · m)



- Mount rear brake lever ④;

NOTE:

Before mounting rear brake lever ④, apply a small amount of SUZUKI SUPER GREASE "A" to rear brake pivot.

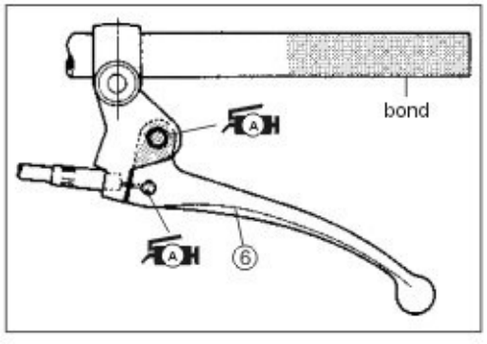


99000-25010: SUZUKI SUPER GREASE "A"

- Mount rear brake switch assembly ⑤;
- Mount rear brake cable;

NOTE:

Apply a small amount of SUZUKI SUPER GREASE "A" to rear brake cable terminal.

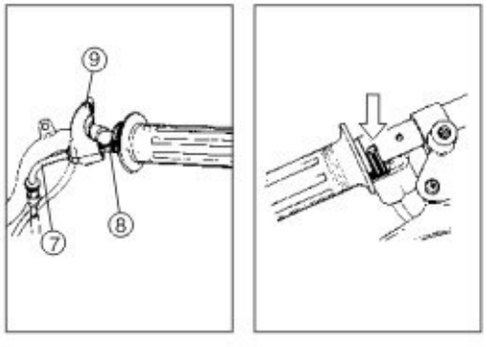


99000-25010: SUZUKI SUPER GREASE "A"

- Coat handlebar left side with bond and mount front brake lever ⑥;
- Mount throttle cable ⑦;
- Connect throttle cable ⑧ terminal to throttle grip, mount throttle grip case ⑨ and tighten throttle case bolt;

NOTE:

Apply a small amount of SUZUKI SUPER GREASE "A" to throttle cable terminal.



99000-25010: SUZUKI SUPER GREASE "A"

WARNING:
After tightening the throttle case screw, make sure that the throttle grip turns smoothly.

- Mounting main cylinder (Refer to page 5-12);

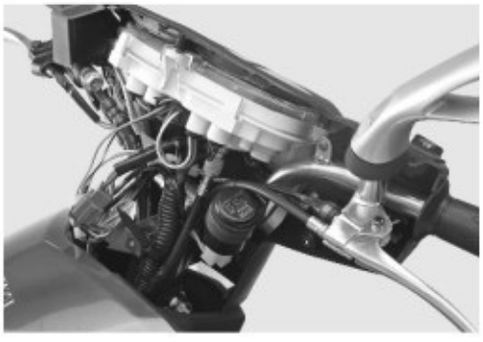
NOTE:

- Ensure that the mark "UP" on seat ⑩ faces upward.
  Before mounting front brake lever, apply a small amount of
- SUZUKI SUPER GREASE "A" to front brake lever pivot.

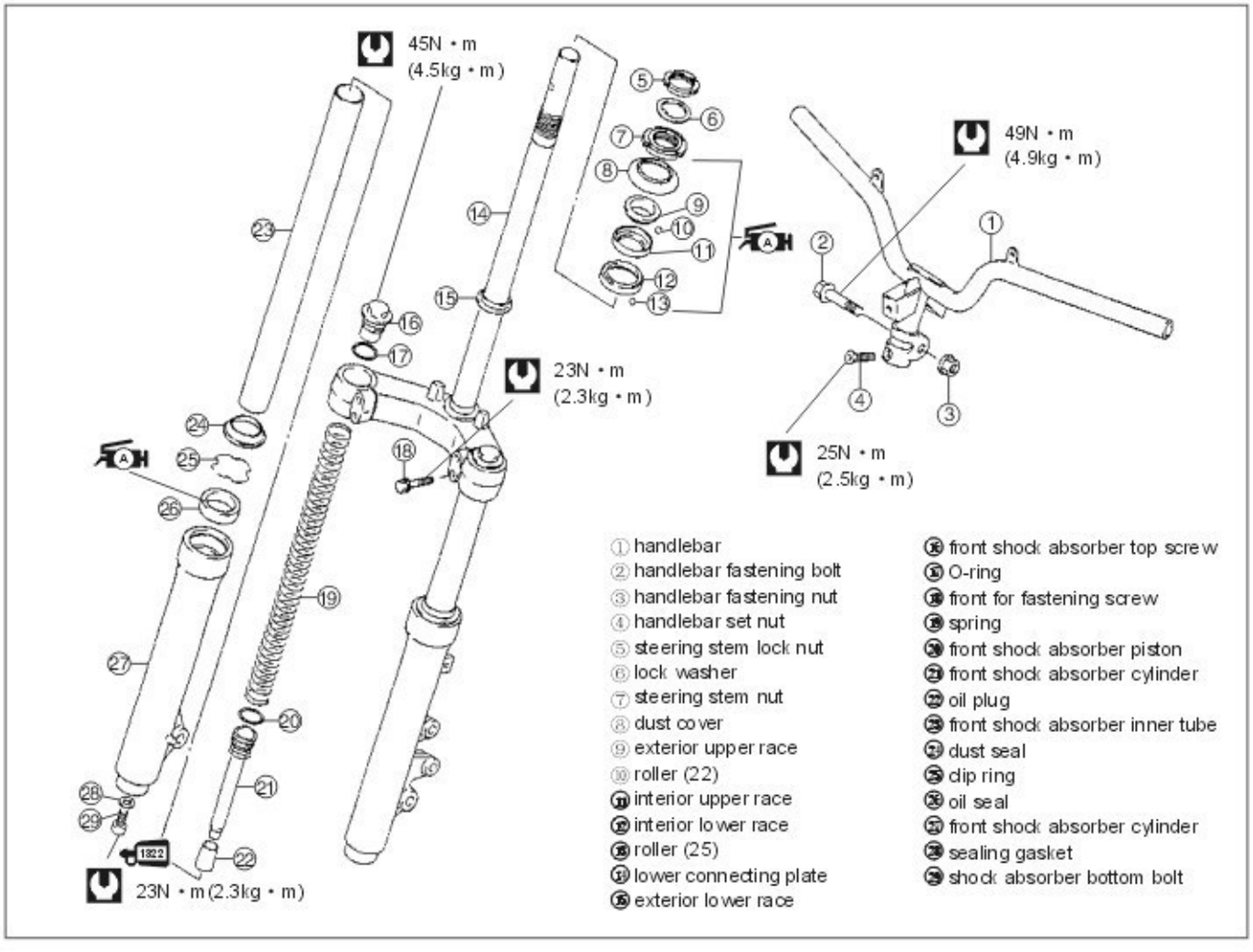
99000-25010: SUZUKI SUPER GREASE "A"

- Connect front brake switch wires;

- Connect each wire;
- Connect speedometer flexible shaft;
- Mount instrument frame;
- Mount handlebar front hood.



FRONT FORK, STEERING DEVICE

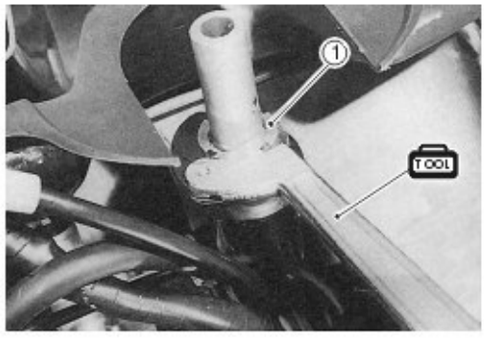


DISASSEMBLING AND REMOVING

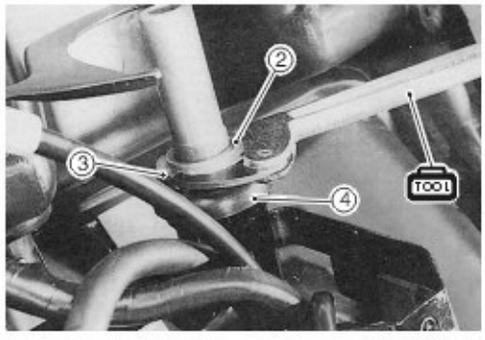
- Remove handlebar front hood (Refer to page 5-3);
- Remove instrument frame (Refer to page 5-3);
- Remove front wheel (Refer to page 5-4);
- Remove brake caliper (Refer to page 5-8);
- Remove handlebar (Refer to page 5-14);

- Remove steering stem lock screw ① with universal clamp wrench;

09910-60611: Universal clamp wrench



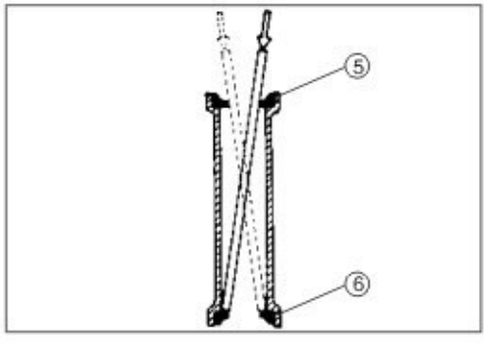
- Remove lock washer ② and steering stem nut ③;
- Remove dust guard ④ and top race;



- Remove connecting plate along front fork;
- Remove upper balls (22 pieces);
- Remove lower balls (25 pieces);

CAUTION:
Do not drop ball bearings.

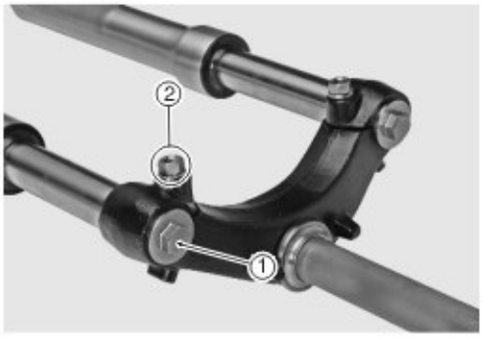
- Push out steering bearing upper race ⑤ and lower race ⑥;



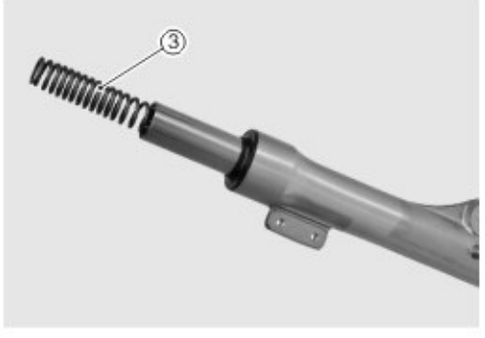
- Remove lower race with a thin chisel or a screw driver;

CAUTION:
- The outer race is pressed to the steering stem. If the lower race is removed, replace is with a new one.
- It is not necessary to remove the outer lower race if corrosion, dents or damage on the race have not occured.

- Remove front shock absorber top bolt ①;
- Remove lower connecting plate clamp bolt ②;
- Remove front fork from lower connecting plate;

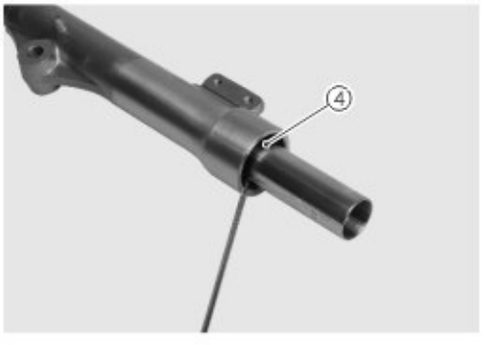


- Remove spring ③;



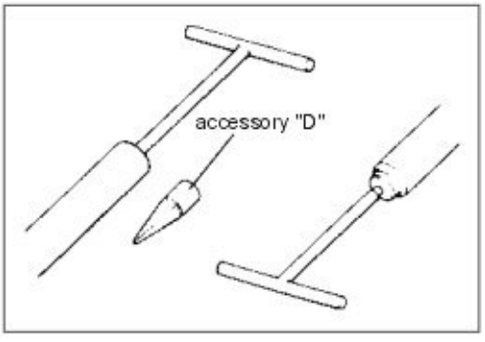
- Tilt and knock fork head several times and drain front fork oil;
- Hold the fork upside down and drain oil;

- Remove dust guard ④ and washer ⑤;

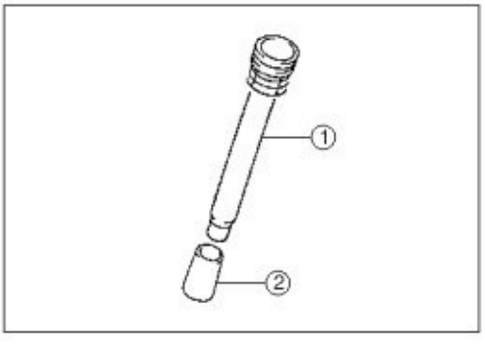


- Remove buffer rod bolt with special tool;
- Remove inner buffer tube from shock cylinder;

TOOL **09940-34520: T-lever**
09940-34561; Accessory
09900-00410: Hexagon wrench



- Remove shock cylinder subassembly ① and oil plug ②;



- Remove oil seal ③.

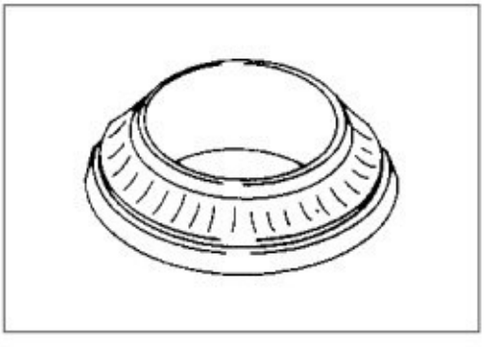
CAUTION:
If the guide bush is removed, replace it with a new one.

INSPECTION

STEERING RACE AND BALL BEARINGS

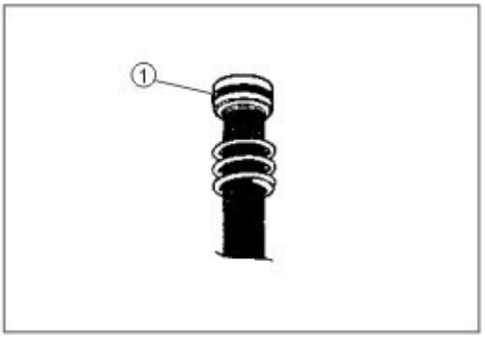
Inspect upper race, lower race and ball bearings to see if there is any corrosion, dint or other damage.

CAUTION:
If dents are noticed on the race, replace the balls and races as a set.



BUFFER ROD SEAL RING

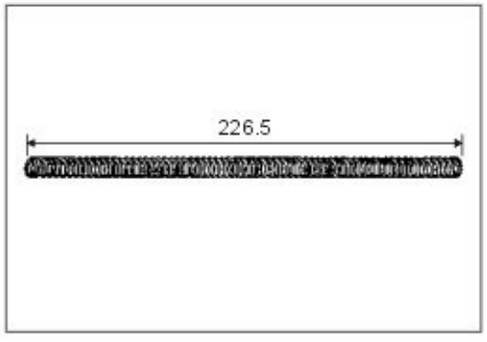
Inspect buffer rod seal ring ① to see if there is wear or other damage.



FRONT FORK SPRING

Measure front fork spring's free length. If free length is less than specification, replace spring.

LIMIT OF USE: 226.5mm

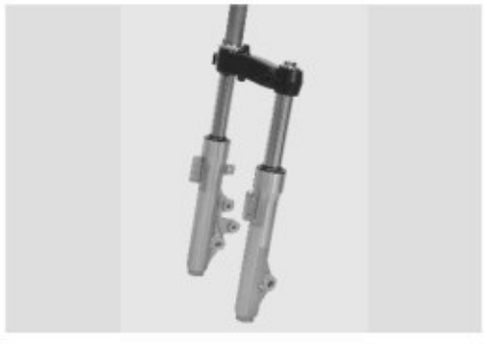


CYLINDER BUSH, INNER TUBE

Inspect if there is scratch in inner tube slide surface and cylinder bush surface.

REMOUNTING

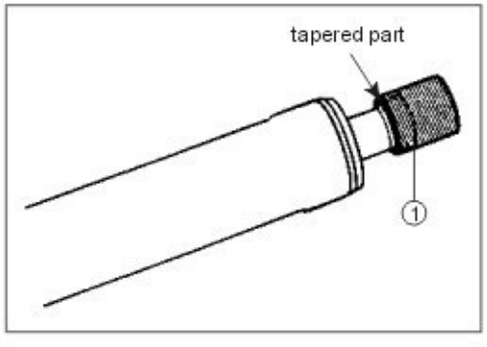
Remount front fork/steering device in an order reversed to that of disassembling. Please observe the following points:



CAUTION:

- Wash each metal part with cleaning solvent before reassembly.
- Never re-use fork oil left over from the last servicing.
- Replace the oil seal and dust seal with new ones when reassembly.
- Use special care to prevent damage to the guide bush surface (guide bush surface is coated with the "TEFLON").

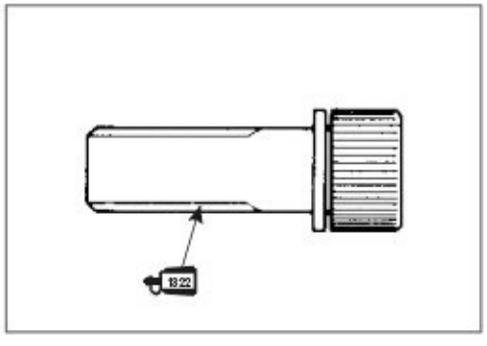
- When mounting oil plug ①, the tapered end is up;



- Apply thread lock super bond "1322" and tighten the element with special tool to specified torque.

BUFFER ROD BOLT: 23N · m (2.3kg · m)
99000-32110: Thread lock super bond "1322"

TOOL **99000-00410: Hexagon wrench set**
09940-34520: T-bar
09940-34561: Attachment



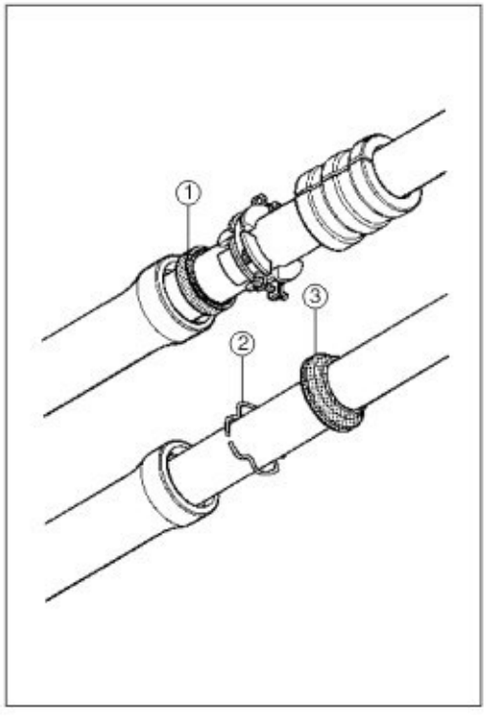
● Mount oil seal with special tool ①;

NOTE:
Before mounting oil seal ①, apply a small amount of SUZUKI SUPER GREASE "A" to oil seal lip rim.

99000-25010: SUZUKI SUPER GREASE "A"
09940-50113: Front fork mounting device

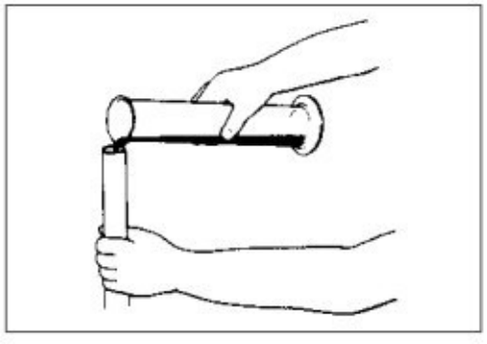
● Mount clip ring ② and dust guard ③;

CAUTION:
Make sure that the stopper ring ③ fitted securely.



● Fill inner tube with specified front fork oil;

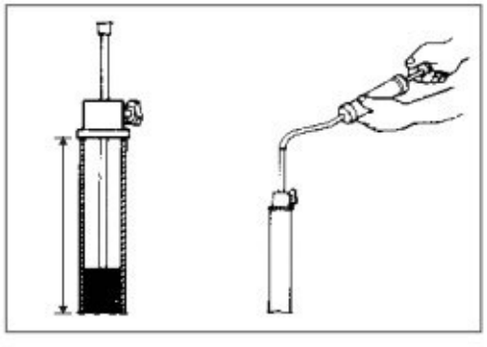
FRONT FORK OIL TYPE: 15"
99000-99044-15G: SUZUKI FRONT FORK OIL 15"
VOLUME (PIECE): 85ml



● Fix front fork in an vertical position and adjust front fork oil level with special tool;

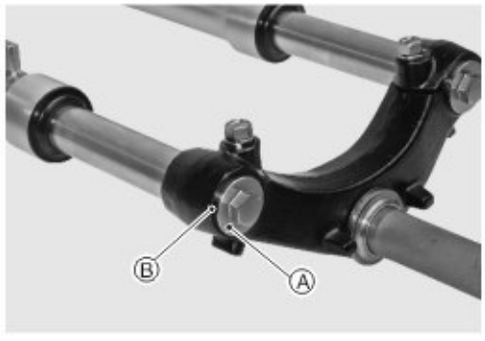
09943-74111: Front fork oil level gauge
OIL LEVEL: 75mm

NOTE:
When adjusting oil level, remove front fork spring and lock inner tube by pressure.



● Ensure that closed pitch of front fork spring reaches top;
● Adjust inner sleeve upper surface Ⓐ to lower connecting plate upper surface Ⓑ;
● Tighten lower connecting plate fastening bolt and front fork top bolt to specified torque;

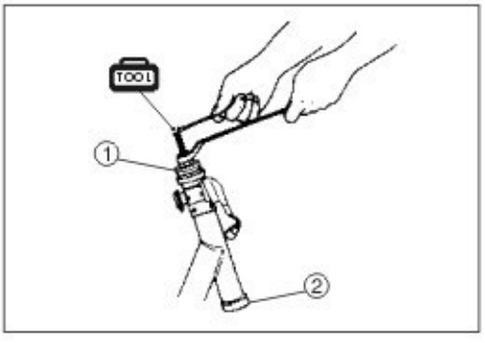
LOWER CONNECTING PLATE FASTENING BOLT: 23N · m (2.3kg · m)
FRONT FORK TOP BOLT: 45N · m (4.5kg · m)



● Press race in with suitable tool;

● Press in steering stem upper race ① and lower race ②;

09941-34513: Steering race mounting device

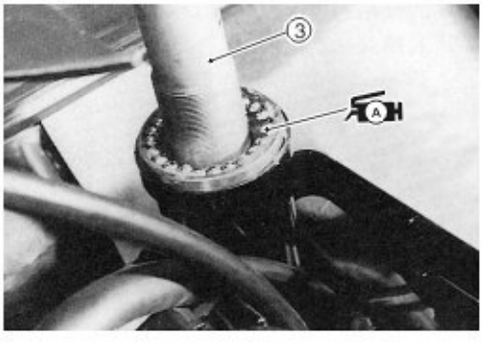


● Apply enough SUZUKI SUPER GREASE "A" to upper race and lower race and place in balls of specified number;

NUMBER OF BALLS: (Upper) 22
(Lower) 25

99000-25010: SUZUKI SUPER GREASE "A"

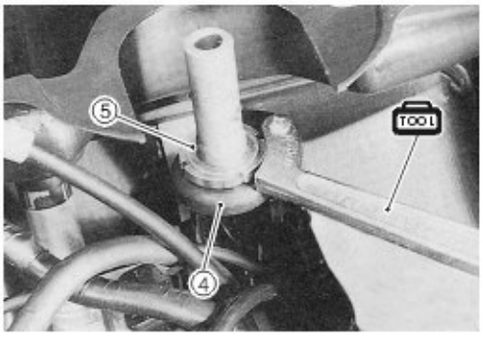
● Mount lower connecting place along front fork ③;



● Mount dust guard ④;
● Tighten steering stem nut ⑤ till resistance is felt and then release 1/8-1/4 turn;

09910-60611: Universal fastening wrench

NOTE:
Extent of adjustment varies with different motorcycle types. Ensure easy and stable rotation of steering devices.

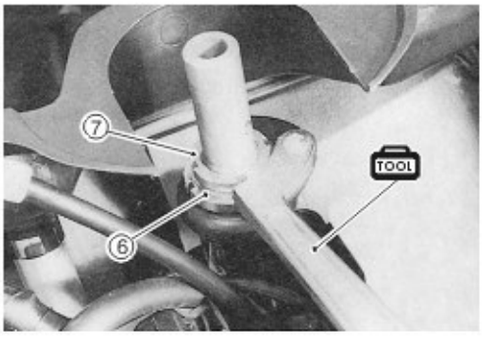


● Mount lock washer ⑥;
● Tighten steering stem nut ⑦;

09910-60611: Universal fastening wrench

STEERING STEM LOCK NUT: 30N · m (3.0kg · m)

NOTE:
After tightening steering stem nut, inspect steering movement again.



- Mount handlebar (Refer to page 5-15);

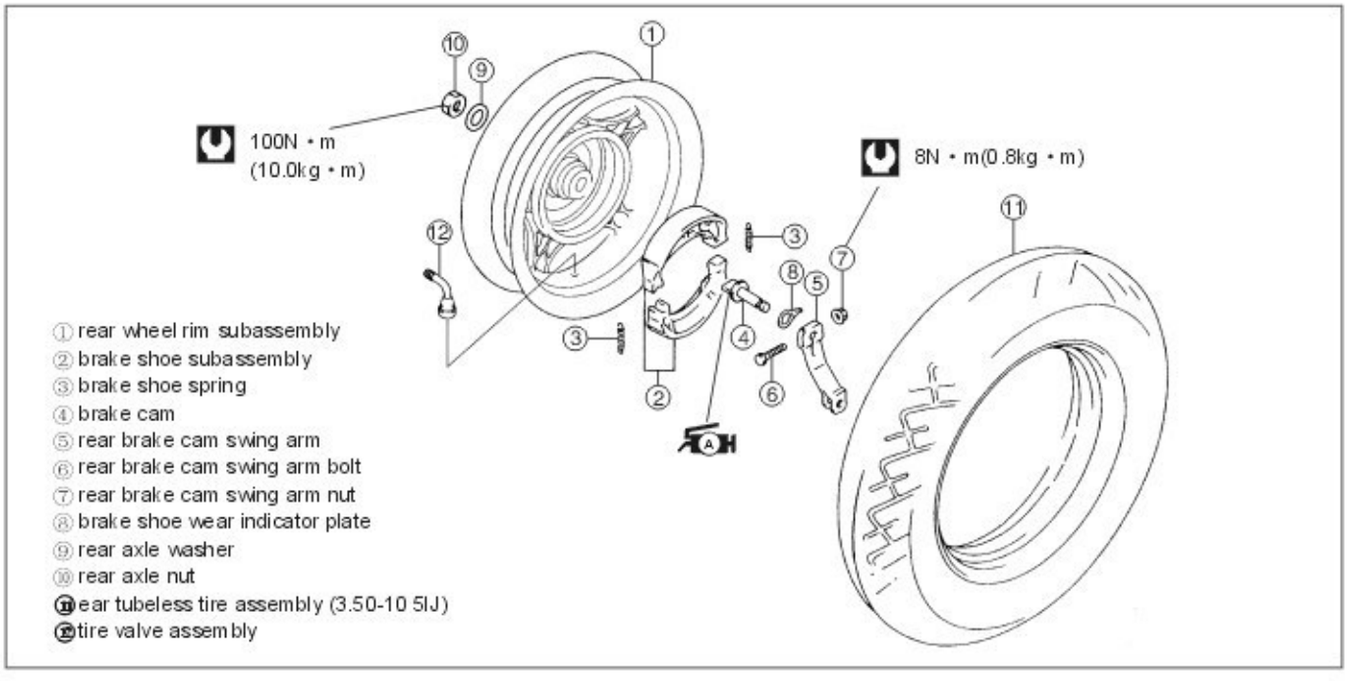
HANDLEBAR FASTENING BOLT/NUT: 49N · m (4.9kg · m)
HANDLEBAR POSITIONING BOLT: 25N · m (2.5kg · m)

- Mount front wheel (Refer to page 5-6);

FRONT AXLE NUT: 53N · m (5.3kg · m)

- Mount handlebar front sleeve and instrument frame (Refer to page 5-3);

REAR WHEEL, REAR BRAKE

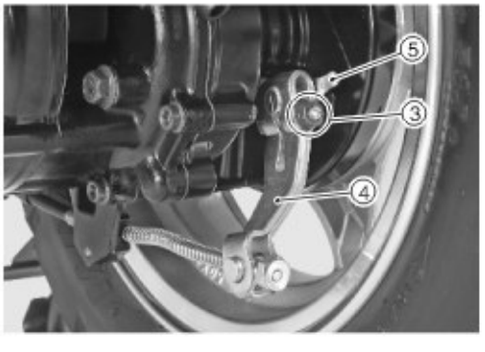


DISMOUNTING

- Support motorcycle with main stand;
- Remove rear axle nut ① and discharge tire;
- Loosen muffler mounting bolt ②;

NOTE:
In case of difficulty in removing rear tire, remove muffler mounting bolt ②.

- Remove brake cam swing arm bolt and nut ③;
- Remove brake cam swing arm ④ and brake shoe wear indicator plate ⑤;

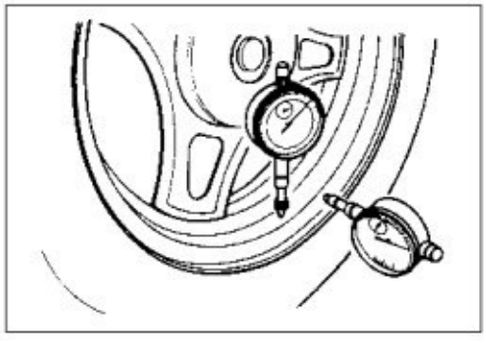


● Remove brake shoe subassembly ①;

INSPECTION

REAR WHEEL

(Refer to page 5-5)



WHEEL HUB

Measure wheel hub inside diameter and ascertain its wear extent. In case wear exceeds wear limit, replace wheel hub.

09900-20102: Vernier caliper

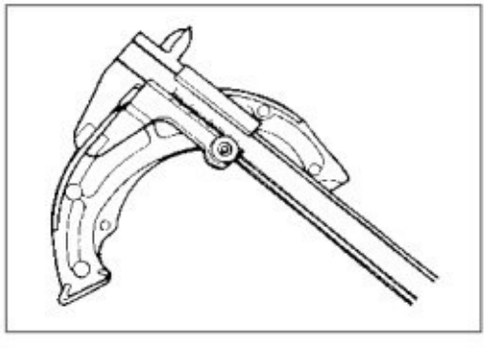
LIMIT OF USE: 120.7mm

BRAKE SHOE

Inspect brake shoe lining and measure its thickness to ascertain whether to replace brake shoe.

SPECIFIED THICKNESS: 1.5mm

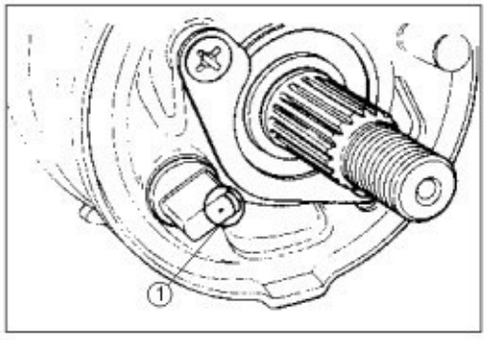
CAUTION:
Replace the brake shoe as a set, otherwise braking performance will be adversely affected.



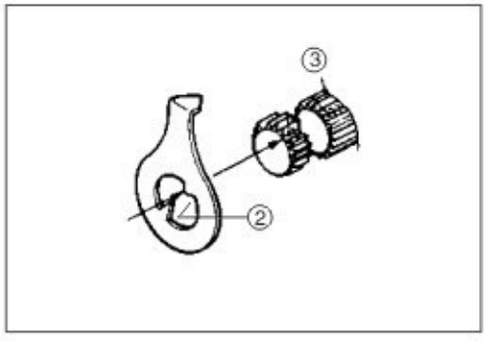
REMOUNTING

Remount rear wheel and brake in an order reversed to that of dismounting. Please observe the following points:

- Turn mark ① on brake cam to the line pointing to the central line of rear axle;

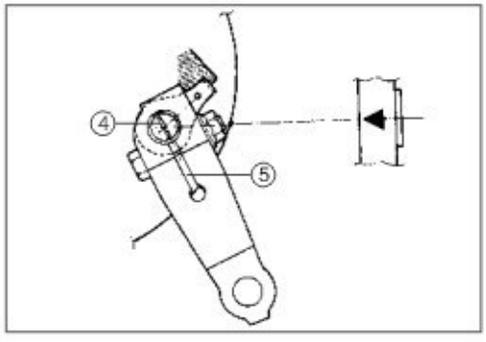


- Insert projection ② of indicator plate into camshaft groove ③;



- When mounting brake cam swing arm, camshaft groove ④ should be flush with cam swing arm slot ⑤;

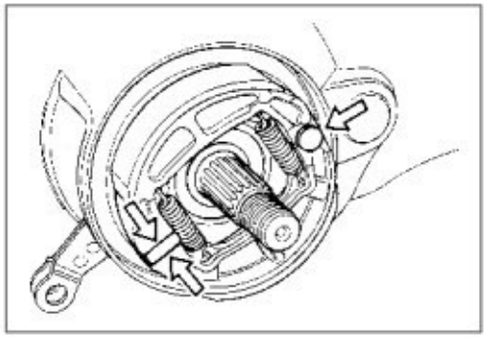
BRAKE CAM SWING ARM NUT: 8N · m (0.8kg · m)



- Before mounting brake shoe, apply grease to camshaft swing arm and pin;

99000-25010: SUZUKI SUPER GREASE "A"

CAUTION:
Be careful not to apply too much grease to the camshaft and pin. If grease gets on the lining, brake effectiveness will be lost.



- Tighten rear axle nut ① and muffler mounting bolt ② to specified torque;

REAR AXLE NUT: 100N · m (10.0kg · m)

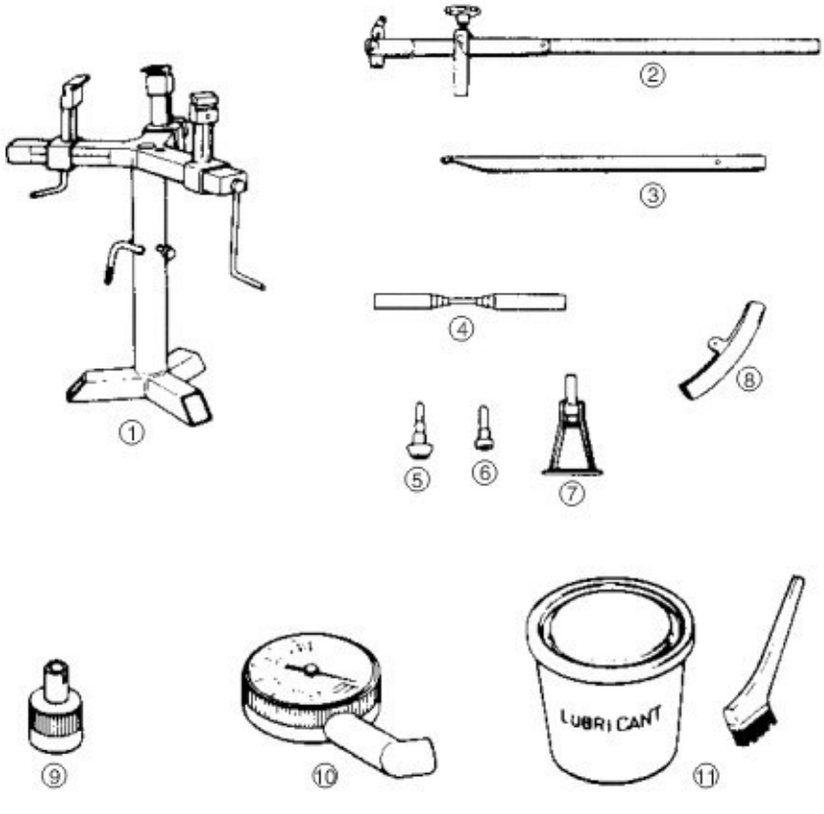
MUFFLER MOUNTING BOLT: 23N · m (2.3kg · m)

- Adjust tension and play of rear brake cable (Refer to page 2-11).

TIRE AND WHEEL RIM

TIRE DISASSEMBLING

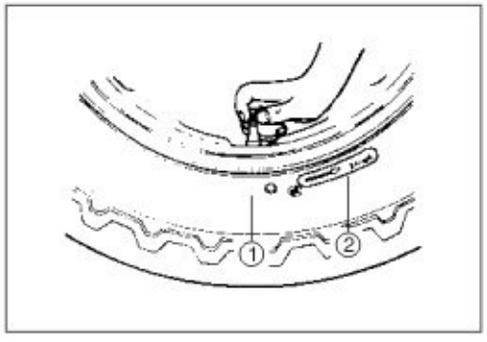
Sealing between wheel rim and tire bead is of vital importance to tubeless tire. Therefore, tire dismounting bracket is recommended for dismounting tire as it helps effectively dismount tire. Tools for tire dismounting are as follows.



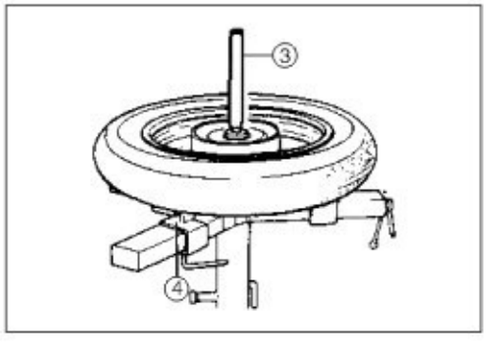
① tire replacing bracket
② actuating arm
③ tire lever
④ center shaft
⑤ tire bead propeller
⑥ wheel rim guide
⑦ tire bead separator
⑧ wheel rim guard
⑨ tire valve remover
⑩ barometer
⑪ tire lubricant

● Pull out tire valve and discharge tire;

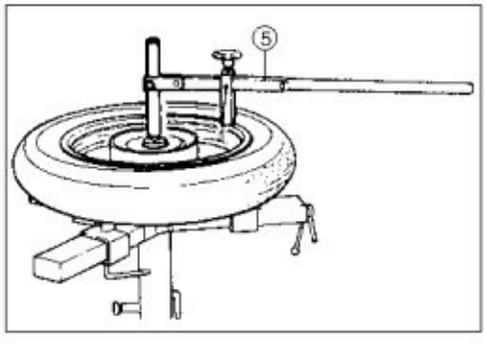
NOTE:
Mark out in chalk position ① and rotating direction ② of tire on wheel rim;



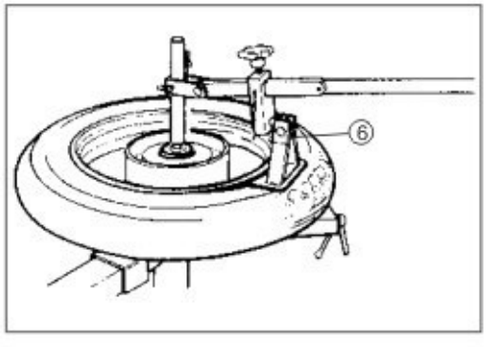
● Place center shaft ③ on wheel and fix wheel with tire replacer ④;



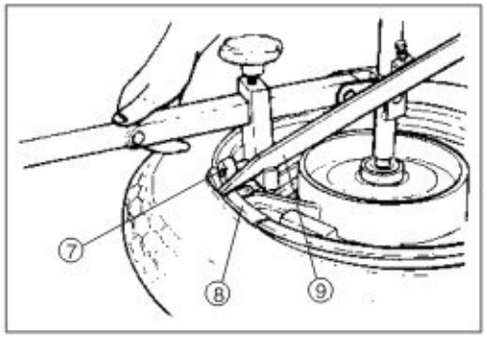
● Fix actuating arm ⑤ on center shaft;



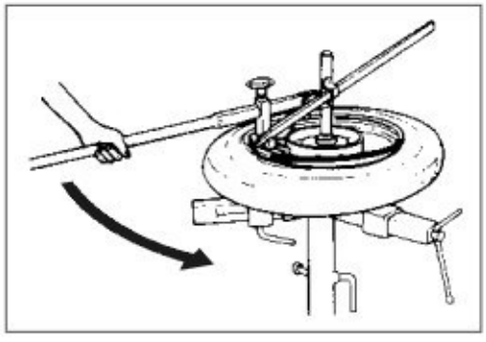
● Fix tire bead separator ⑥ on actuating arm and separate tire bead and wheel rim; turn the wheel over and separate tire bead of the other side;



● Mount wheel rim guide roller ⑦;
● Mount wheel guard plate ⑧ and lift tire bead with tire lever ⑨;



- Place tire lever against actuating arm, turn tire lever round wheel rim to separate tire bead, turn tire over and in the same way separate tire bead from wheel rim on the other side.

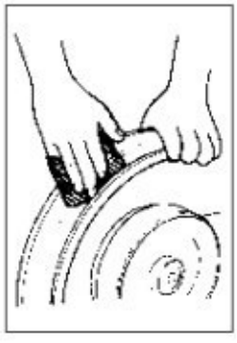


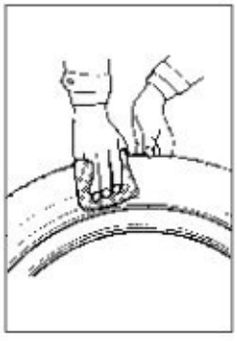
INSPECTION

WHEEL

Wipe out rubber chips or dust on wheel with a cloth and inspect wheel rim. If any of the following problems is found, replace wheel rim with a new one;

- Wheel rim deformation or fissure;
- Scratch or manufacturing defect on the part of tire bead which contacts wheel rim;
- Wear of wheel (axial and radial) exceeds 2.0mm.





TIRE

Thoroughly inspect dismounted tire. In case of any of the following problems, replace tire with a new one. There is no need to mend it;

- Crack or fissure total length or diameter exceeds 6.0mm;
- Scratch or fissure on tire side wall;
- Tire tread depth below 1.6mm.

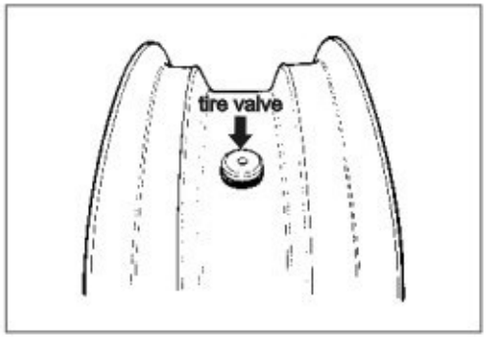
09900-20805: Tire tread depth gauge

- Layers of wire gauze of tire in separation;
- Tire tread patterns in separation;
- Serious wear of tread pattern;
- Scratch on tire bead;
- Tire cord disconnected;
- Wear due to braking and sliding (plane part);
- Disordered linings;

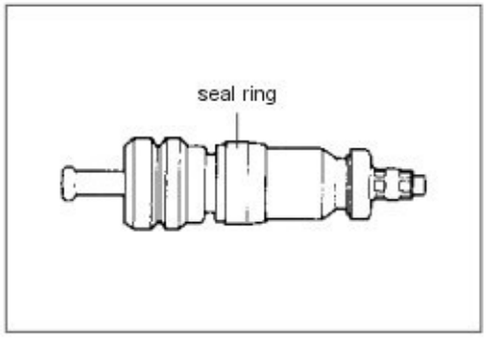
NOTE:
When mending deflated tires, observe mending specifications and adopt specially recommended tire-mending materials;

TIRE VALVE INSPECTION

Inspect tire valve after tire is removed from wheel rim. In case of fissure in seal rubber, replace tire valve with a new one.



Inspect removed tire valve. In case of abnormal deformation or wear, replace valve with a new one.

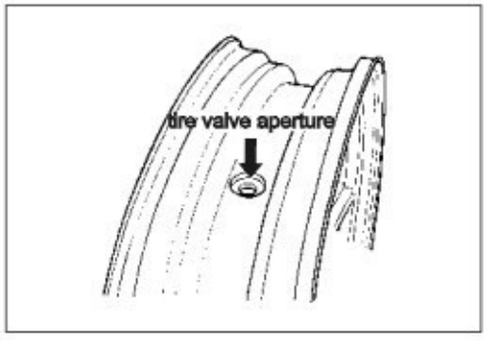


TIRE VALVE MOUNTING

Remove dust and rust around tire valve aperture and mount tire valve in wheel rim.

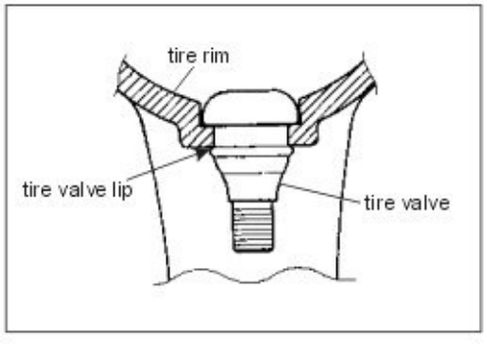
NOTE:

Fit tire valve properly in tire valve aperture and apply special tire lubricant or neutral suds.



CAUTION:

Be careful not to damage the lip of valve.

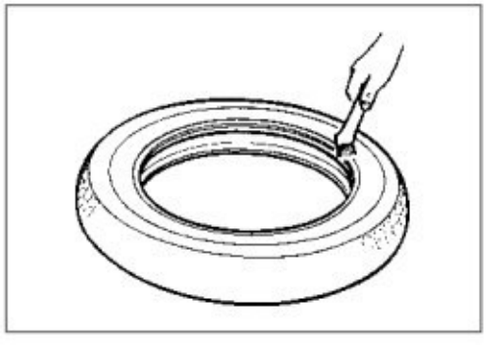


WHEEL MOUNTING

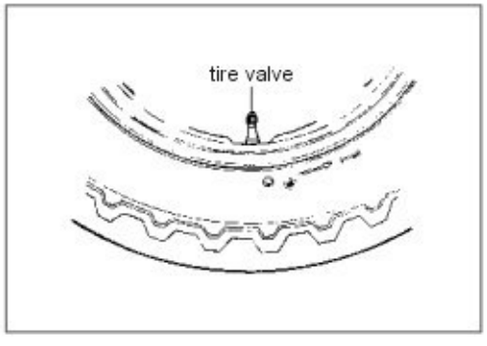
- Apply special lubricant or neutral soap suds to tire bead;

CAUTION:

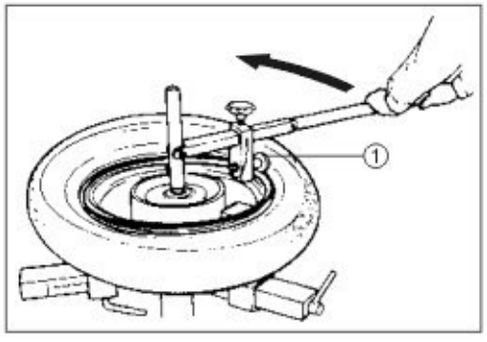
Never apply grease, oil or gasoline to the tire bead.



- When mounting tire, ensure that the arrow points to the direction of tire rotation and that tire balance mark is aligned with tire valve as illustrated.

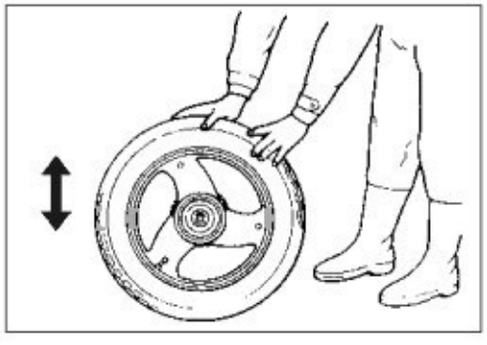


- Fix tire bead propeller roller ①;
- Completely fit in tire by turning actuating arm around wheel rim;
- Remove wheel from wheel replacing bracket and insert valve core into tire valve;



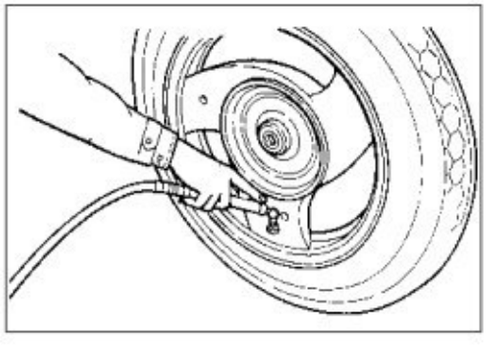
NOTE:
Insert valve core into tire valve at the completion of valve core inspection.

- Roll and pat tire to extend tire bead to facilitate inflation;



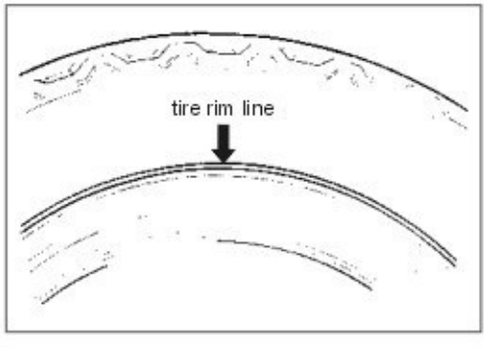
NOTE:
Before inflating tire, inspect if balance mark is aligned with tire valve.

- Inflate tire with air pump;



WARNING:
Do not inflate the tire to more than 400kpa (4.0kg/cm², 56 psi). The tire could burst with sufficient force to cause severe injury. Never stand directly over the tire while inflating it.

NOTE:
Before inflating tire, inspect if balance mark is aligned with tire valve.



- At the completion of remounting, inflate tire to recommended pressure. In case of need, rectify wheel balance.

WARNING:
Do not run a repaired tire more than 50km/h (30mph) within 24 hours after tire repairing, since the patch may not be completely cured.

TIRE PRESSURE

Tire pressure in cold state	Single rider		Two riders	
	kPa	Kg/cm²	kPa	Kg/cm²
Front wheel	125	1.25	125	1.25
Rear wheel	200	2.00	250	2.50

ELECTRIC SYSTEM

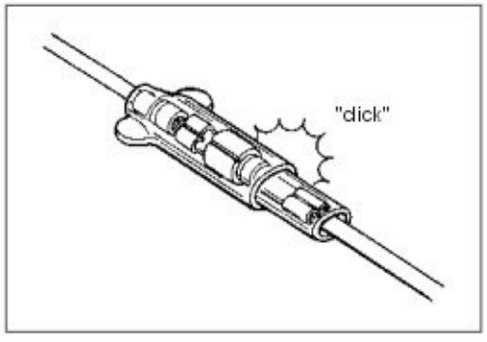
6

CONTENTS

SERVICING PRECAUTIONS

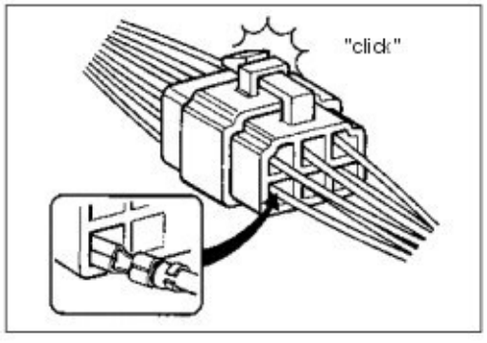
JOINT

- When connecting a joint, push it till a "click" is heard;
- Inspect joint to see if there is corrosion, dirt or fissure;



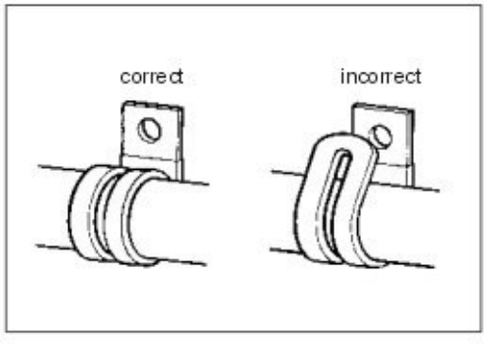
CONNECTOR

- Use a locking connector. Before removing, remove locking device. When effecting connection, press it till the locking device actuates;
- When connecting connector, be sure to hold connector proper instead of pulling wires;
- Inspect every terminal of connector to see if there is any loosening or bending;
- Inspect every terminal to see if there is corrosion or dirt.



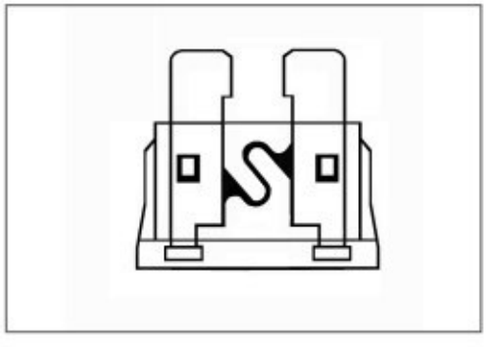
CLIP

- Clip wires at the position shown in "wiring diagram" (Refer to page 7-10);
- Bend clip correctly so as to clip wires fast;
- Do not let wire droop when clipping them;
- Do not substitute wires with other wires or other substitutes;



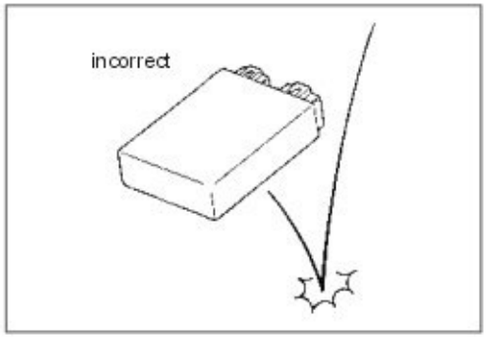
FUSE

- When a fuse is burnt, inspect the cause and replace it with a new one;
- Do not use fuses of different specifications;
- Do not use wire as substitute or use other substitutes.

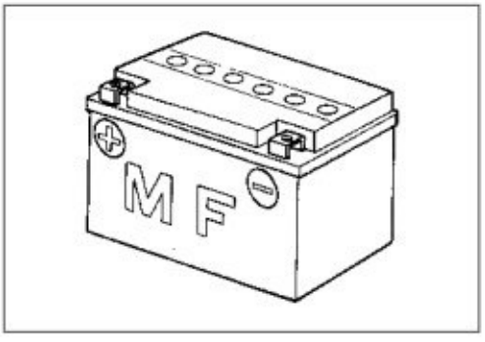


SEMICONDUCTOR ELEMENTS

- Take care not to drop to the ground subassemblies with semiconductor such as CDI elements or stabilized rectifiers;
- When inspecting these subassemblies, strictly observe inspection specifications. Neglecting correct procedure might result in damaging these elements.

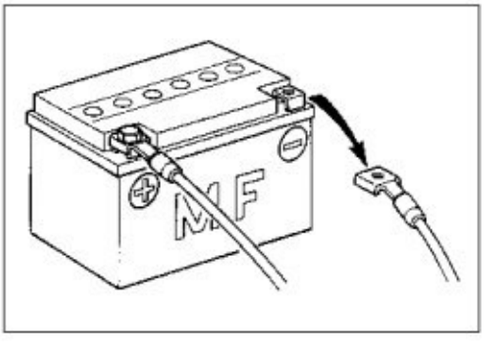


STORAGE BATTERY

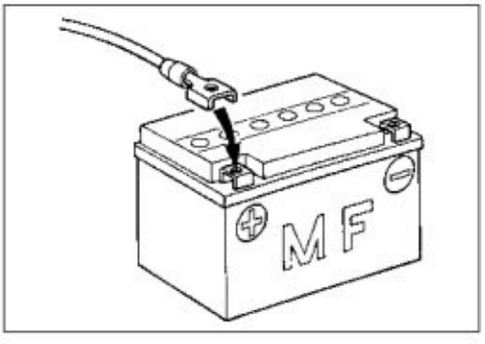


- This motorcycle uses MF maintenance-free storage battery; In correct charging of storage battery, hydrogen will not be produced, but it will when storage battery is overcharged.
- Therefore, no fire should be close to storage battery when charging;
- MF storage battery charge system is different from that of ordinary battery. Storage battery is not to be substituted by ordinary battery.

DISMOUNTING AND MOUNTING STORAGE BATTERY



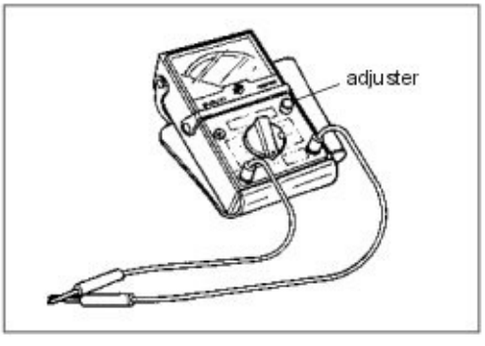
- When removing storage battery terminals for replacement or inspection, be sure to remove negative (⊖) terminal first;
- When connecting terminals to storage battery, be sure to connect positive (⊕) terminal first;
- If corrosion is found at terminals, move storage battery away, flush terminals with hot water and clean them with steel wire brush;
- Apply a thin coating of grease at the completion of connection;
- Cover positive (⊕) terminal with positive terminal cap.



PROCEDURE OF WIRE CONNECTION

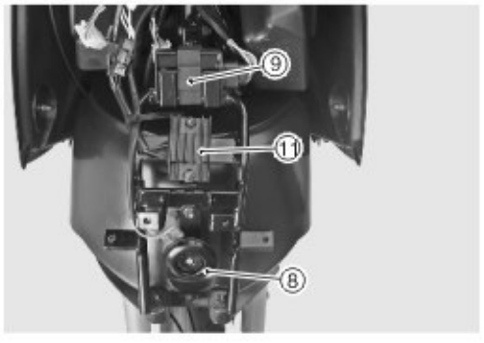
- Lay wires correctly in accordance with "wiring diagram" (Refer to page 7-10).

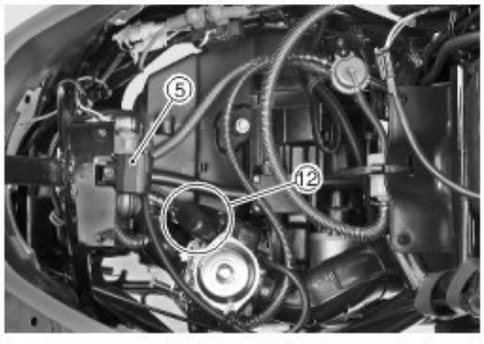
USE OF CIRCUIT TESTER

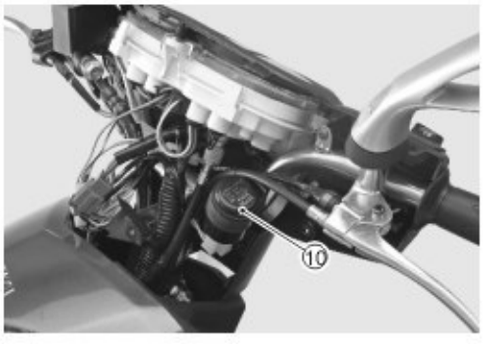


- Be sure to correctly use circuit tester's positive (⊕) and negative (⊖) probes. Wrong use of circuit tester shall result in damage;
- If voltage and current value are not known, begin measurement in a higher measurement range;
- Before measuring resistance and changing resistance measurement range, O ohm should be adjusted (as shown in the illustration);
- Measurement of resistance with voltage shall damage circuit tester. When measuring resistance, inspect if there is voltage;
- Turn switch to "OFF" position after using circuit tester.

POSITIONS OF ELECTRIC ELEMENTS







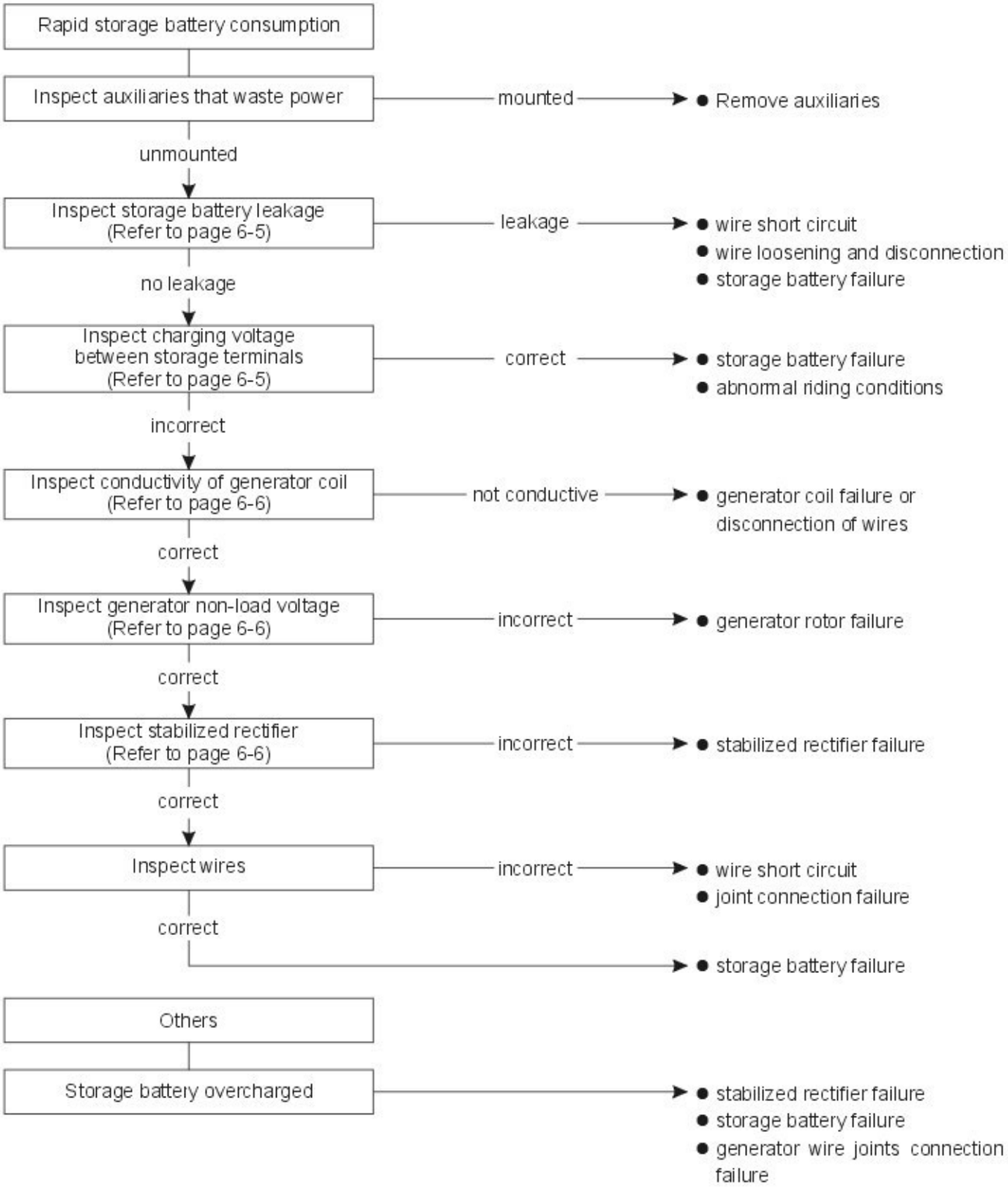
① Battery
② fuse
③ starting relay
④ magneto
⑤ ignition coil
⑥ fuel sensor
⑦ starting motor
⑧ horn
⑨ CDI unit
⑩ turn relay
⑪ stabilized rectifier
⑫ automatic primer

CHARGE SYSTEM

GENERAL DESCRIPTION

Charge system includes AC generator, stabilized rectifier and storage battery.
AC produced by AC generator is converted into DC through stabilized rectifier and is used to charge storage battery.

TROUBLE SHOOTING

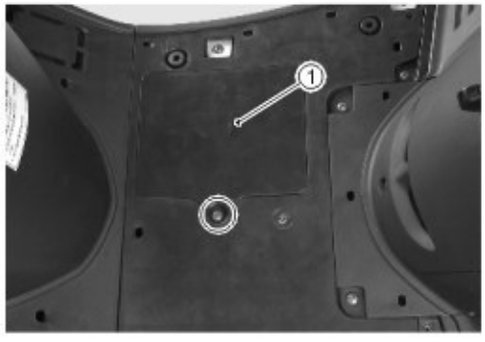


INSPECTION

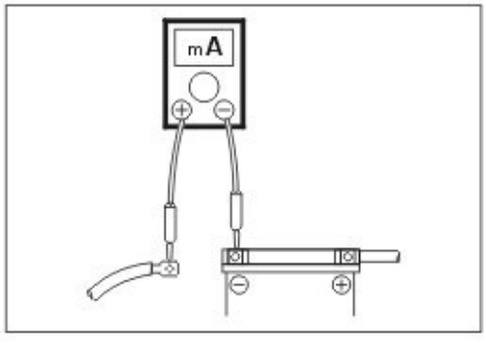
STORAGE BATTERY LEAKAGE INSPECTION

- Remove storage battery cover ① (Refer to page 5-1);
- Turn ignition switch to "OFF" position;
- Disconnect storage battery ⊖ wire.

Connect one end of circuit tester to ⊖ terminal and the other end to storage battery wire. A slight deviation of milliampere meter hand indicates electricity leakage.



09900-25002: Circuit tester



CAUTION:

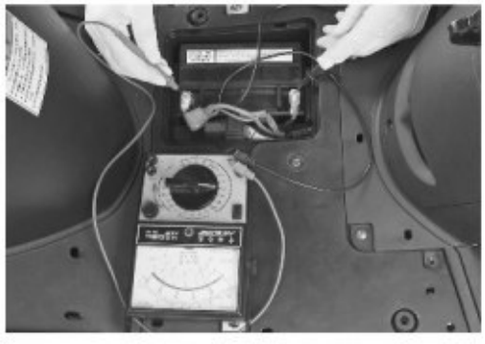
- Because the leak current might be large, turn the tester to high range first when connecting an ammeter.
- Do not turn the ignition switch to the ON position when measuring current.

When leakage is found, find out by means of connector the area in which hand does not deflect and remove joints one by one.

CHARGE OUTPUT INSPECTION

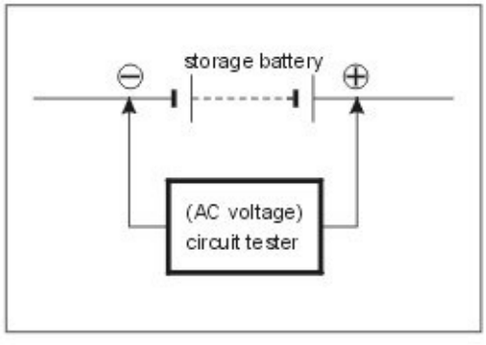
- Remove storage battery case cover;
- Start engine and keep its speed at 5,000 rpm. with lighting switch adjusted to position "ON" and dimmer switch adjusted to "HI" position.

Measure storage battery AC voltage between terminal ⊕ and terminal ⊖ . In case circuit tester reading is below specification, inspect generator coil and stabilized rectifier.



CAUTION:

If the pocket tester is set to read current or resistance and a voltage is applied across the test probes, damage will result. Therefore, it is important that the tester knob on the pocket tester be set proper position before making any measurements.



NOTE:

When inspecting, ensure that storage battery is fully charged.

09900-25002: Circuit tester

CIRCUIT TESTER POSITION: AC 25V

CHARGE OUTPUT

STANDARD: 13.0-16.0V at 5,000rpm.

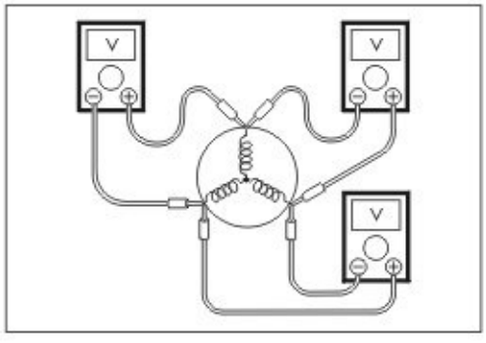
GENERATOR NO-LOAD PERFORMANCE INSPECTION

- Remove lower cover, motorcycle right cover and helmet case;
- Remove generator connector ①;
- Start motor and keep it running at 5,000 rpm.

Measure voltage between 3 wires by means of circuit tester.
If reading of circuit tester is below specification, inspect conductivity of generator coil.

09900-25002: Circuit tester

CIRCUIT TESTER POSITION: AC 250V



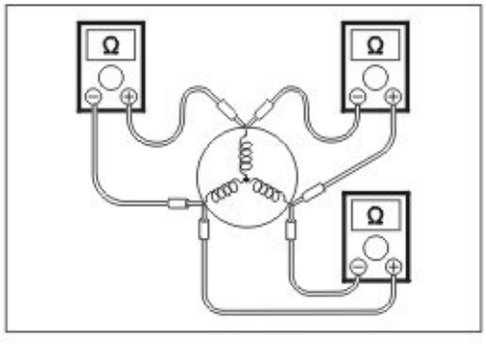
GENERATOR NO-LOAD PERFORMANCE:
Over 60V/5,000rpm (in cold engine condition)

GENERATOR COIL CONDUCTIVITY INSPECTION

Inspect conductivity between 3 wires by means of new circuit tester. In case coil is found nonconducting, use a new rotor for replacement.

09900-25002: Circuit tester

TESTER KNOB INDICATION: ×1 OHM

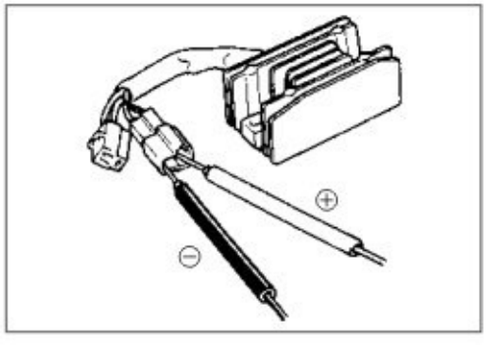


STABILIZED RECTIFIER INSPECTION

- Remove front hood;
- Remove stabilized rectifier connector;
  Measure resistance between wires listed in the following table at circuit tester (× 1 ohm) position.
  In case of incorrect resistance, replace stabilized rectifier.

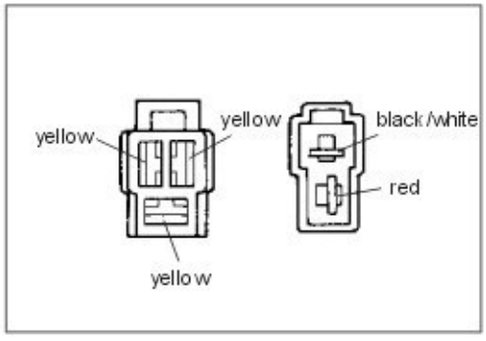
09900-25002: Circuit tester

CIRCUIT TESTER POSITION: ×1 OHM



Unit: Ohm

Circuit tester probe ⊖ \ Circuit tester probe ⊕	red	yellow	yellow	yellow	black/white	earth lead
red		∞	∞	∞	∞	∞
yellow	ON (7)		∞	∞	∞	∞
yellow	ON (7)	∞		∞	∞	∞
yellow	ON (7)	∞	∞		∞	∞
black/white	ON(30)	ON (7)	ON (7)	ON (7)		∞
earth lead	∞	∞	∞	∞	∞	



NOTE:

As this stabilized rectifier uses diode and thyristor, different circuit testers present different readings of resistance

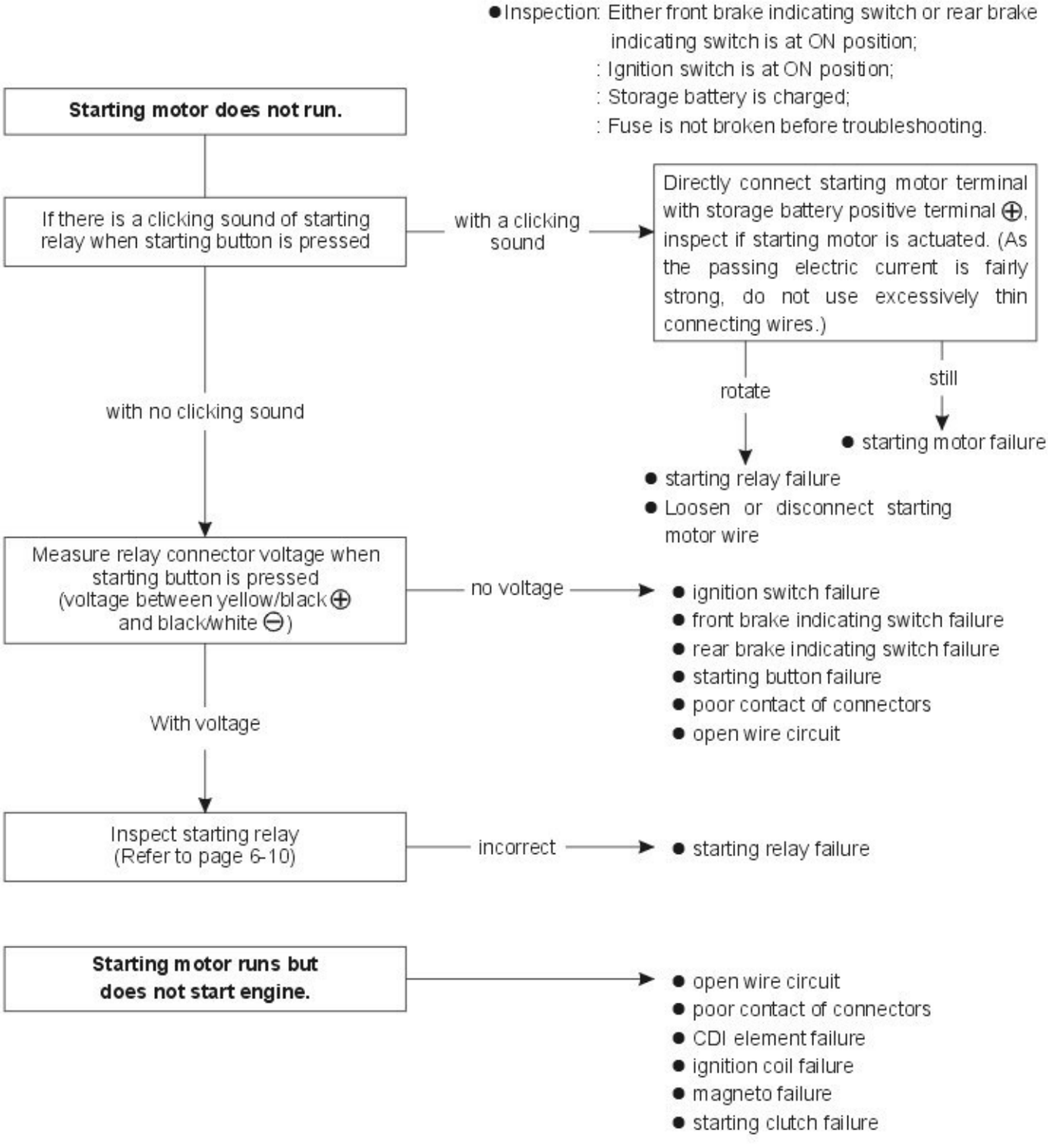
STARTING SYSTEM

STARTING SYSTEM GENERAL DESCRIPTION

Starting system, as is illustrated below, includes starter motor, starting relay, front brake switch, rear brake switch, starting switch, ignition switch and storage battery.

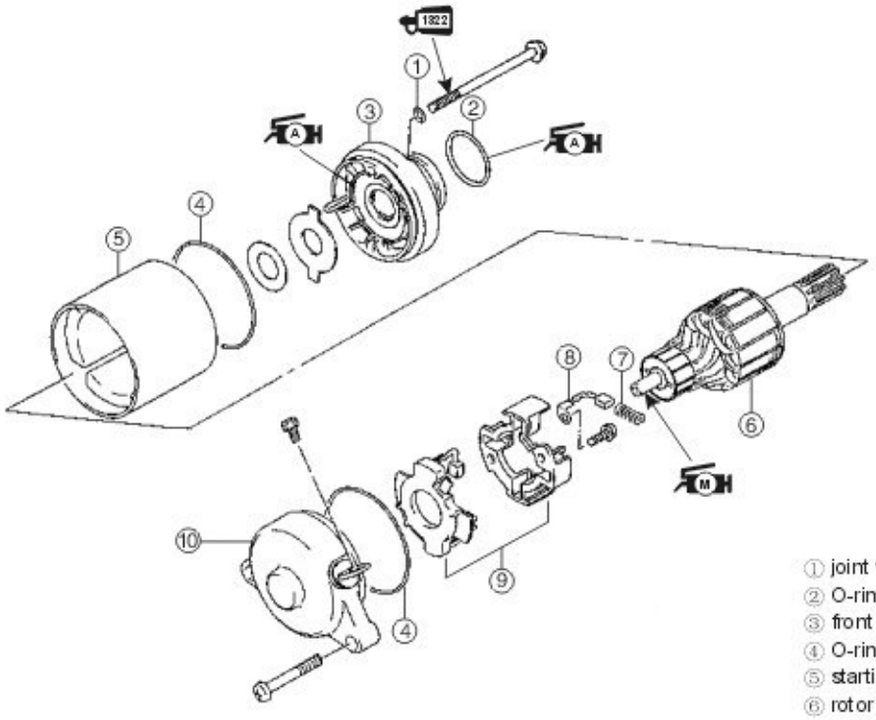
Press starting switch (on right handlebar switch box) to actuate starting relay which closes contact points to connect starting motor and storage battery, with starting motor started by 70-ampere current.

TROUBLESHOOTING



STARTING MOTOR DISASSEMBLING

- Loosen starting motor connecting wires, unscrew starting motor mounting bolt and remove starting motor (Refer to page 3-14);
- Disassemble starting motor as illustrated below.

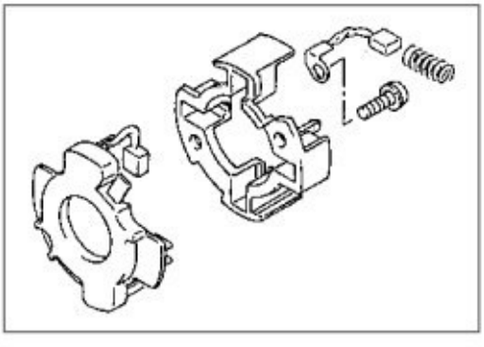


① joint washer (2 pieces)
② O-ring
③ front end cover (interior)
④ O-ring
⑤ starting motor case
⑥ rotor
⑦ carbon brush springs (4 pieces)
⑧ carbon bruch (2 pieces)
⑨ carbon brush holder
⑩ rear end cover (exterior)

STARTING MOTOR INSPECTION

CARBON BRUSH

Inspect carbon abnormal wear, carbon brush holder fissure or smoothness. In case of damage, replace carbon subassembly.

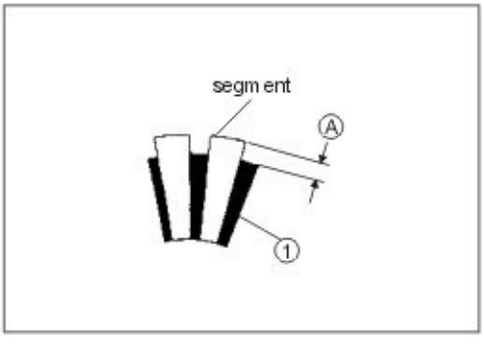


REVERSER

Inspect reverser fading, abnormal wear or lower dent Ⓐ.

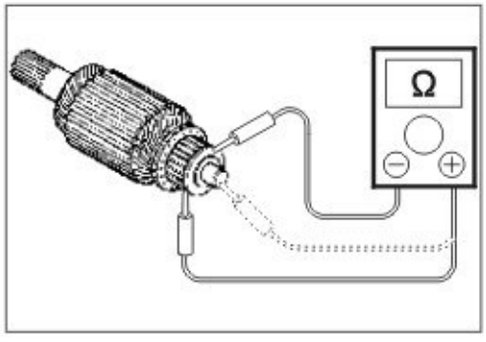
In case of reverser abnormal wear, replace rotor. In case of decoloration in the surface, polish it with abrasive paper and clean it with dry cloth.

If there is no dent in the lower part, scrape insulator disc ① with a saw blade.



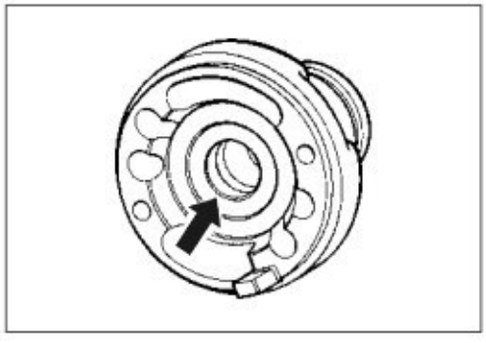
ROTOR COIL INSPECTION

Inspect conductivity between reverser segments;
Inspect conductivity between reverser segments and rotor shaft;
In case of disconnection between reverser segments and between reverser segment and rotor shaft, replace rotor with a new one.



OIL SEAL INSPECTION

Inspect oil seal lip to see if there is damage or leakage. If there is, replace bracket.



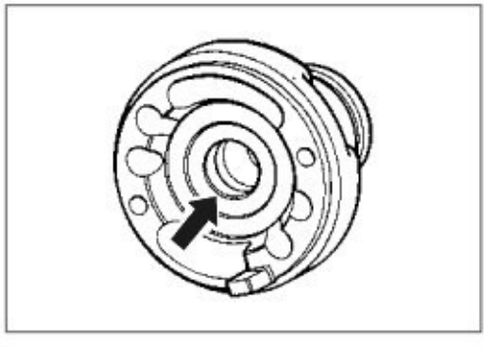
STARTING MOTOR MOUNTING

Remount motor in an order reversed to that of dismounting. Observe the following points:

CAUTION:
Replace the O-rings with new ones to prevent oil leakage and moisture.

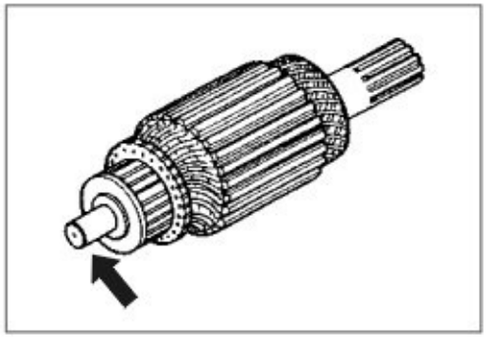
- Apply SUZUKI SUPER GREASE "A" to oil seal lip.

99000-25010: SUZUKI SUPER GREASE "A"



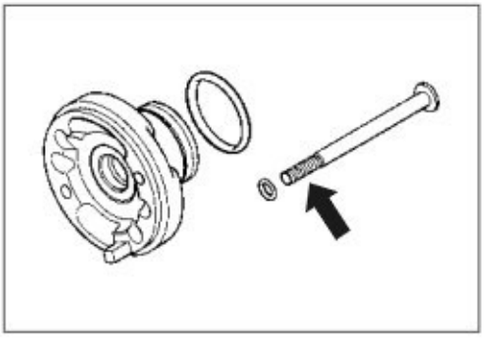
- Apply SUZUKI SUPER GREASE "A" to rotor shaft.

99000-25010: SUZUKI SUPER GREASE "A"



- Apply a small amount of thread lock super bond "1322" to starting motor case thread.

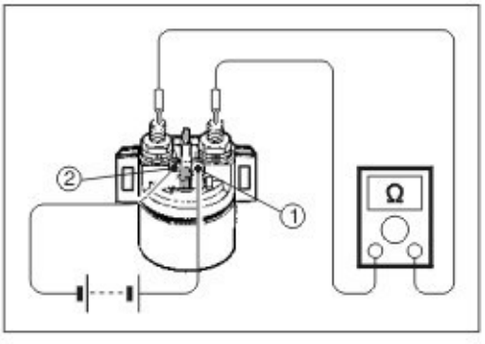
99000-32110: THREAD LOCK SUPER BOND "1322"



STARTING RELAY INSPECTION

- Remove right fillet and right cover (Refer to page 5-2);
- Loosen starting motor wire and storage battery wire on starting relay behind right case;
- Loosen starting relay wire.

Connect terminals ① and ② to 12V voltage, inspect conductivity between connectors, positive and negative terminals.
Starting relay is inspected to be conductive if it is free from damage.

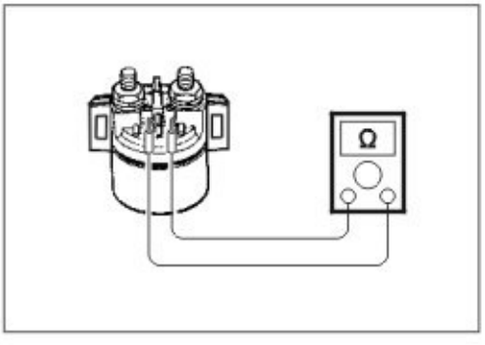


09900-25002: Circuit tester

CIRCUIT TESTER POSITION: ×1

CAUTION:
Do not apply a battery voltage more than 5 seconds to the starter relay as it may overheat and cause damage to the relay coil.

Inspect "off " and "earthing" resistance of coil.
If it is not damaged, resistance should be as follows:



09900-25002: Circuit tester

CIRCUIT TESTER POSITION: ×1

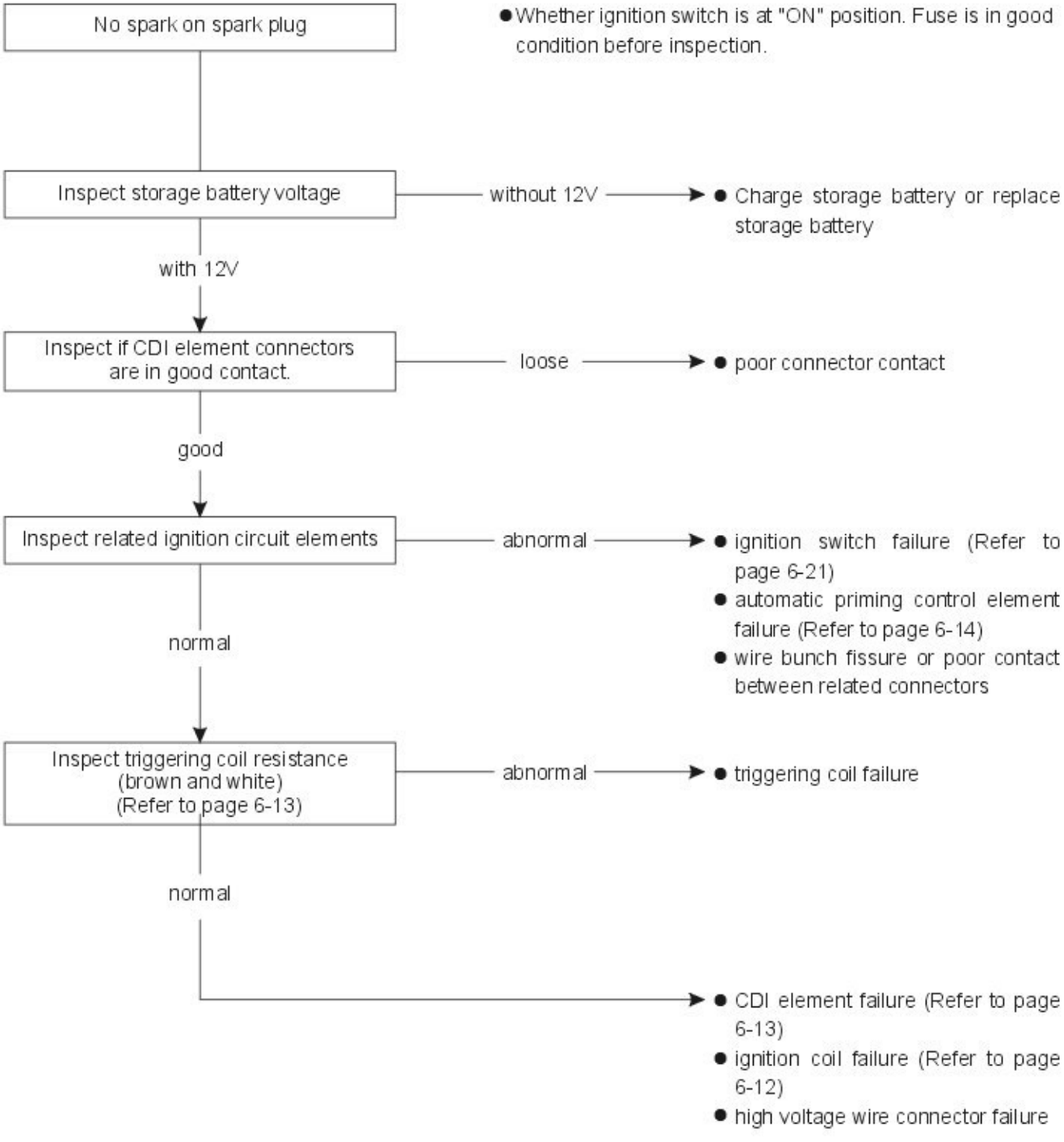
STARTING RELAY COIL RESISTANCE
STANDARD: 2-6 OHM

IGNITION SYSTEM

DESCRIPTION:

In this condenser discharge ignition system, storage battery supplies CDI element with working power, DC voltage is converted in CDI into high voltage for condenser charging. This energy, at the specified ignition time, triggers SCR through single pulse from magneto triggering coil to release the energy from condenser through ignition coil primary winding and induces high voltage through ignition coil secondary winding and produces strong sparks in the spark plug gap.

TROUBLESHOOTING

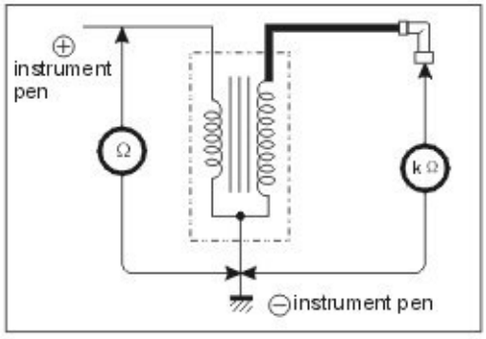


INSPECTION

IGNITION COIL (INSPECT WITH CIRCUIT TESTER)

- Inspect the conductivity of primary and secondary coils with circuit tester. The inspection does not demand exact reading. If coil winding is in good condition, record their approximate readings.

09900-25002: Circuit tester



IGNITION COIL RESISTANCE

PRIMARY: 0.09~0.13 OHM (INSTRUMENT ⊕ - INTRUMENT PEN ⊖)

CIRCUIT TESTER POSITION: ×1 OHM

SECONDARY: 11~18 KOHM (SPARK PLUG CAP - INSTRUMENT PEN ⊖)

CIRCUIT TESTER POSITION: ×1 KOHM

TRIGGER COIL

- Remove right side fillet, right side cover and trigger coil ① wire connector. Measure resistance between coil wires. If resistance is infinite or below specification, replace trigger coil.

09900-25002: Circuit tester

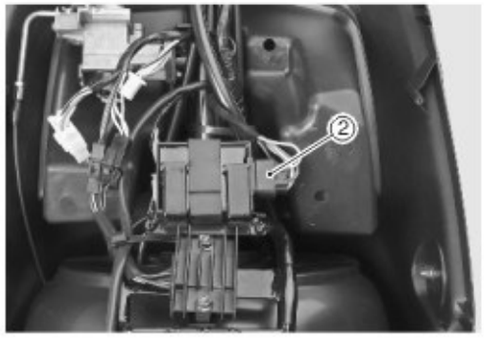
TRIGGER COIL RESISTANCE: :157~235 OHM (BROWN-WHITE)

CIRCUIT TESTER POSITION: ×1 KOHM

CDI ELEMENT

- Remove front guard hood (Refer to page 5-1);
- Disconnect CDI element connector ②;

Measure resistance between terminals. If resistance is infinite or below specification, replace CDI coil.



NOTE:

As this CDI element uses capacitor, thyristor and diode, different circuit testers present different readings of resistance.

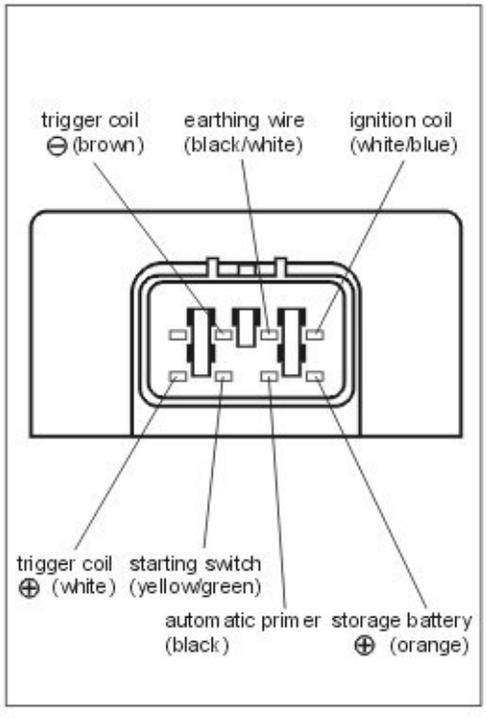
09900-25002: CIRCUIT TESTER

CIRCUIT TESTER POSITION: ×1 KOHM

Unit: kohm

Tester probe ⊖ \ Tester probe ⊕	orange	black	yellow/green	white	white/blue	black/white	brown
orange		3-10	∞	3-10	∞	1-6	1-6
black	∞		∞	∞	∞	∞	∞
yellow/green	1-6	300-100		10-30	∞	10-30	10-30
white	3-10	5-20	∞		∞	1-6	1-6
white/blue	∞	∞	∞	∞		∞	∞
black/white	1-6	1-6	∞	1-6	∞		Close to 0
brown	1-6	1-6	∞	1-6	∞	Close to 0	

CON: When capacitor is in discharging state, tester deflects and returns to infinity (∞).



SPARK PLUG

- Remove engine maintenance cover subassembly (Refer to page 5-1);
- Remove spark plug.

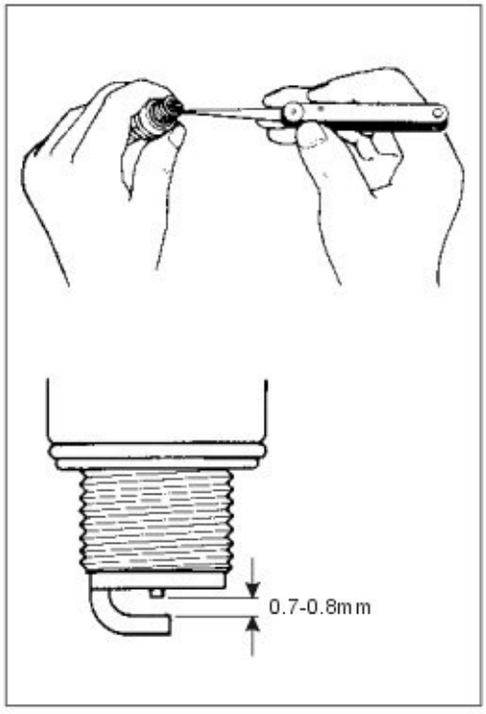
9930-10121: Spark plug box wrench
09930-14530: Universal joint
09914-24510: T-wrench

CARBON DEPOSIT

Inspect if there is carbon deposit on spark plug.
If there is carbon deposit, remove it carefully with a spark plug cleaner or a pointed tool.

SPARK PLUG PLAY

Inspect correctness of spark plug play by means of thickness gauge. In case of incorrect play, adjust it to the following play.



09900-20803: Thickness gauge

SPARK PLUG PLAY

STANDARD: 0.7~0.8mm

ELECTRODE CONDITION

Inspect electrode wear or burn. If there is wear or burn, replace spark plug. If insulator or thread is damaged or burnt, spark plug should be replaced, too.

HEATING SPECIFICATION

Use NGK CR6E as standard spark plug, but proper heating value range should be selected to mate speed, actual load and fuel. Dark brown insulators indicate proper spark plug heating value; in case of white insulators, replace them with NGK CR7E/CR8E or NHSP LD B7RC/B8RC cold spark plugs.

	Standard	Cold type	
NGK	CR6E	CR7E	CR8E
NHSP LD	B6RC	B7RC	B8RC

CAUTION:
Confirm the thread size and reach when replacing the plug. If the reach is too short, carbon will be deposited on the screw portion of the plug hole and engine damage may result.

AUTOMATIC PRIMER

INSPECTION

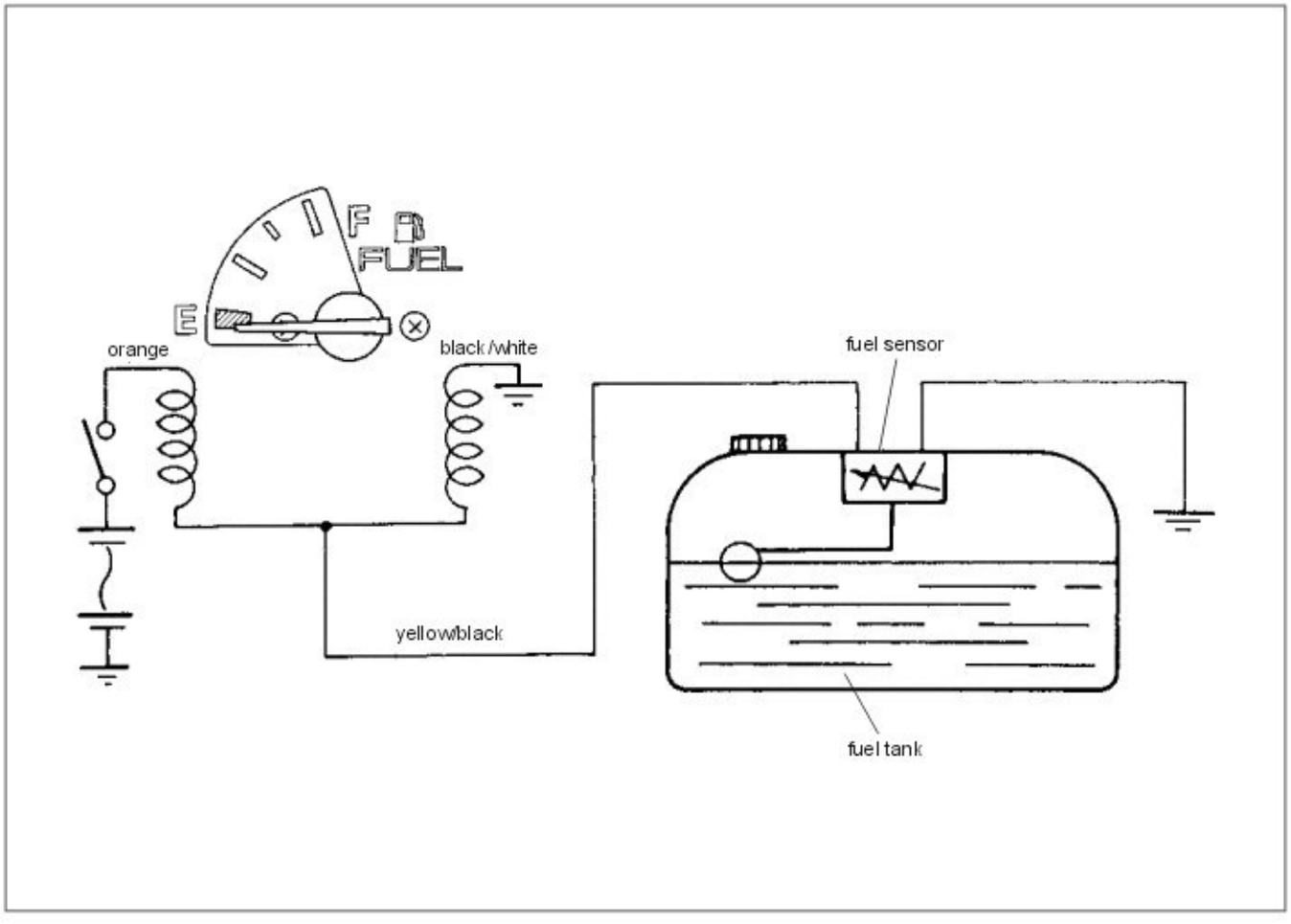
- Remove right side fillet and right side cover (Refer to page 5-1);
- Disconnect connector ①;
- Connect 12V storage battery to automatic primer terminal, 3 minutes later, inspect if automatic primer start is warm. If case automatic primer does not warm up, replace it with a new one.

NOTE:

Ensure that engine is in cold state in this inspection.

OIL LEVEL GAUGE

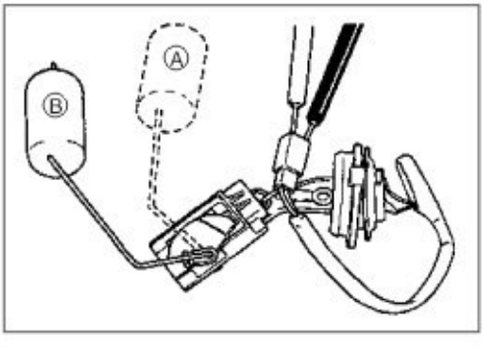
OIL LEVEL GAUGE CIRCUIT



INSPECTION

FUEL SENSOR

- Remove fuel tank and fuel sensor (Refer to page 4-3).
  Inspect every float position resistance by means of circuit tester.
  If the measured resistance is incorrect, replace fuel sensor subassembly with a new one.
  The relation between fuel sensor float position and resistance is as illustrated in the following table.



float position	resistance
Ⓐ full	4-10 Ω
Ⓑ empty	90-100 Ω

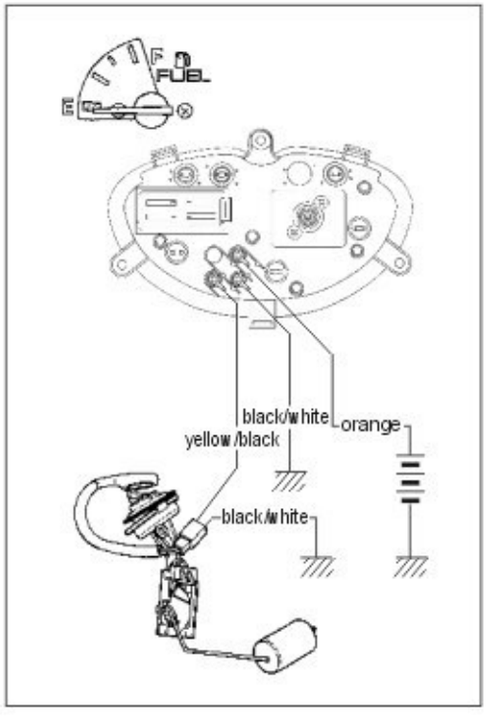
09900-25002: Circuit tester

CIRCUIT TESTER POSITION: ×1 OHM

FUEL LEVEL GAUGE

- Disconnect fuel oil connector (Refer to page 4-2)

Two methods can be used to inspect fuel level gauge. The first method: connecting a jumper cable between black/white and yellow/black of main line. When ignition switch is at ON position, oil meter should point to "F". The second method can be used to inspect oil level gauge accuracy when it is at full tank position and at empty position. Connect a new fuel sensor as illustrated.
If rated resistance is adopted in the circuit, the hand should point to E (empty), if the hand points to F (full) with resistor changed to 4～10 ohm, oil meter is accurate. If any of the two readings or both readings are abnormal, replace oil meter with a new one.



resistance	4-10Ω	90-100Ω
float state	full	empty

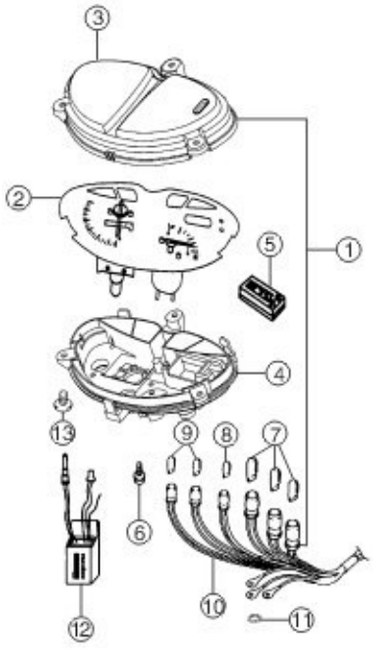
CAUTION:
When inspecting the gauge resistance, be sure to disconnect the battery lead wire, or a pocket tester may be damaged.

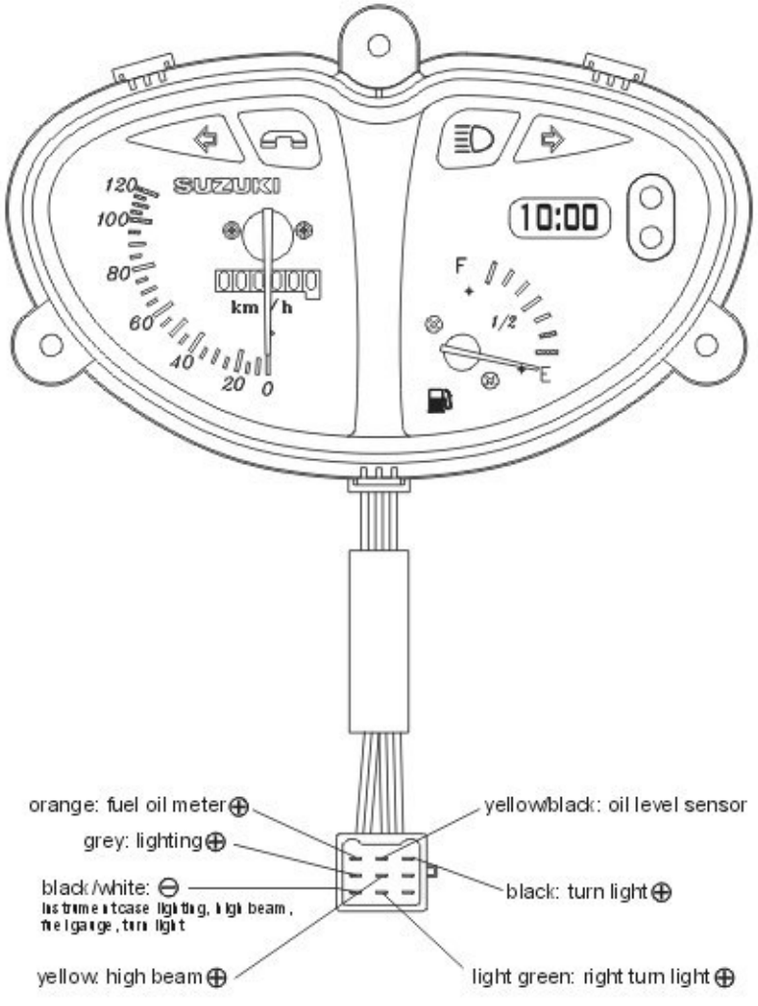
ODOMETER

DISASSEMBLING

- Disassemble odometer components as illustrated.

① instrument assembly
② instrument core
③ instrument face case
④ instrument bottom case
⑤ instrument electronic clock
⑥ odometer core case mounting screw
⑦ instrument lighting bulb (12V,2W)
⑧ high beam signal indicating bulb (12V 2W)
⑨ turn signal indicator bulb (12V, 2W)
⑩ instrument subassembly wire bunch
⑪ instrument fixing nut
⑫ cell phone indicator
⑬ instrument mounting screw





INSPECTION

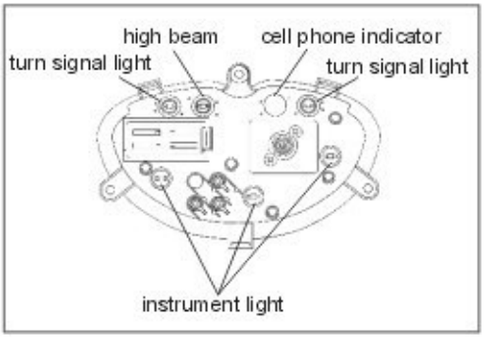
Inspect conductivity between wires with circuit tester.
If conductivity inspected is incorrect, relevant elements should be replaced.

09900-25002: Circuit tester

CIRCUIT TESTER POSITION: 1 OHM

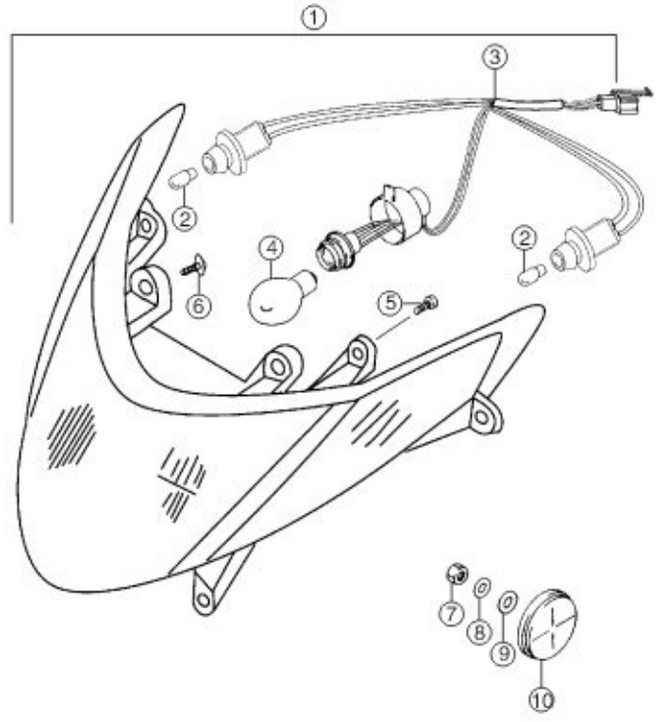
NOTE:

When inspecting this item, odometer needn't be removed.



LIGHTINGS

HEADLIGHT, POSITION LIGHT AND TURN SIGNAL LIGHT (AN125HK)



① headlight assembly
② front position light bulb (12V,5W)
③ bulb holder and wire cluster harness
④ headlight bulb (12V,35/35W)
⑤ headlight mounting screw
⑥ headlight mounting screw
⑦ reflector nut
⑧ reflector spring washer
⑨ reflector washer
⑩ reflector subassembly

HEADLIGHT BULB REPLACING

- Remove headlight hood in the front;
- Remove rubber boot ①, push bulb holder ③ inward, remove bulb holder by turning it counterclockwise and draw out bulb.

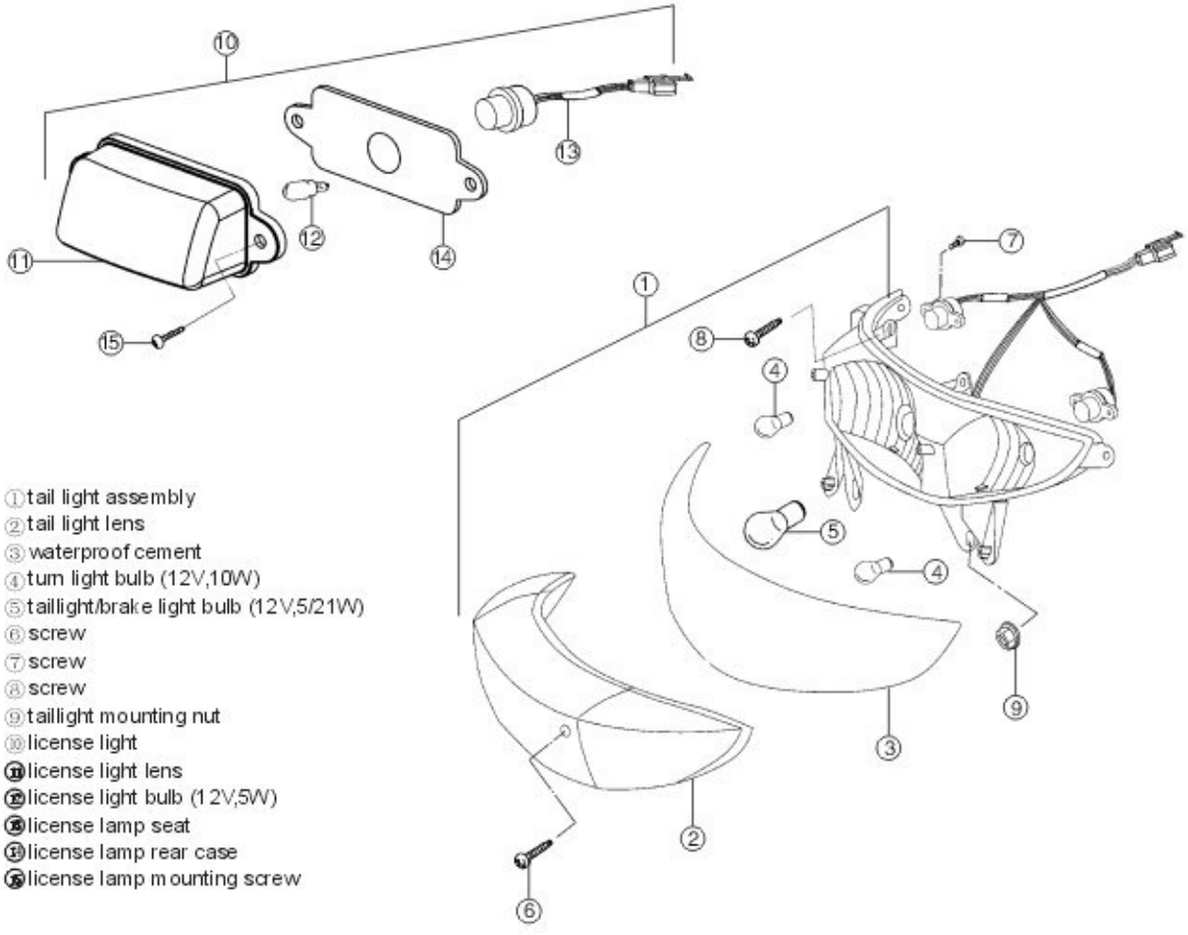
CAUTION:
When replacing the headlight bulb, do not touch the glass. Grasp the new bulb with a clean cloth.

REPLACING POSITION LIGHT AND TURN SIGNAL LIGHT BULB

- Turn position light holder ② counterclockwise and remove position light;
- Remove turn signal light lens ④ and draw out bulb.

CAUTION:
Do not overtighten the lens fitting screws.

TAILLIGHT, BRAKE LIGHT, LICENSE LIGHT AND TURN SIGNAL LIGHT



REPLACING TAILLIGHT, BRAKE LIGHT, LICENSE LIGHT AND TURN SIGNAL LIGHT

- Remove taillight, brake light, lecense light and taillight lens of turn signal light;
- Push bulb inward, turn it counterclockwise and draw out bulb.
- Remove license light hood and replace license light.

CAUTION:
Do not overtighten the lens fitting screws.

TURN RELAY

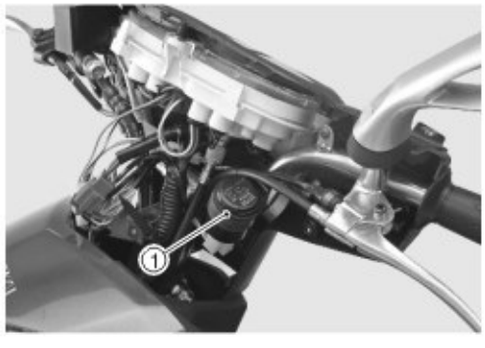
Turn relay ① is behind front guard.

If turn signal light is not on, inspect connection of bulb or circuit.

If bulb and circuit connections are correct, there might be a turn relay failure and turn relay should be replaced with a new one.

NOTE:

Make sure that storage battery in use is fully charged.



SWITCHING DEVICE

Inspect conductivity of every switch by means of circuit tester. In case of abnormality, relevant switch elements must be replaced.

09900-25002: Circuit tester

CIRCUIT TESTER POSITION: ×1 OHM

IGNITION SWITCH

state \ color	black/yellow	black/white	red	orange
lock	○	○		
off	○	○		
on			○	○

Note:
Special tools must be used for mounting and dismounting ignition switch.

LIGHTING SWITCH

state \ color	orang	egrey	yellow/white
off			
S	○	○	
on	○	○	○

DIMMER SWITCH

state \ color	yellow/white	white	yellow
high beam	○		○
low beam	○	○	

TURN SIGNAL SWITCH

state \ color	light green	light blue	black
left		○	○
pressed			
right	○	○	

STARTING BUTTON

state \ color	white/black	yellow/white
●		
pressed	○	○

HORN BUTTON

state \ color	green	black/white
●		
pressed	○	○

FRONT BRAKE SWITCH

state \ color	orange	white/black
off		
on	○	○

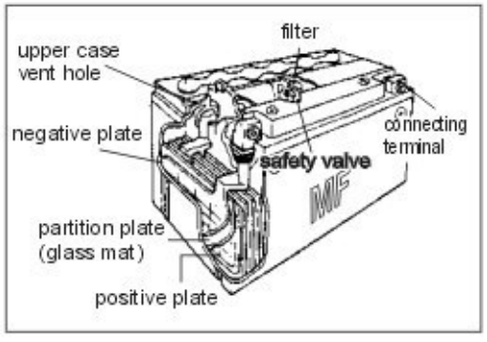
REAR BRAKE SWITCH

state \ color	orange	white/black
off		
on	○	○

STORE BOX SWITCH

state \ color	red	black/white
off (pressed)		
on	○	○

STORAGE BATTERY



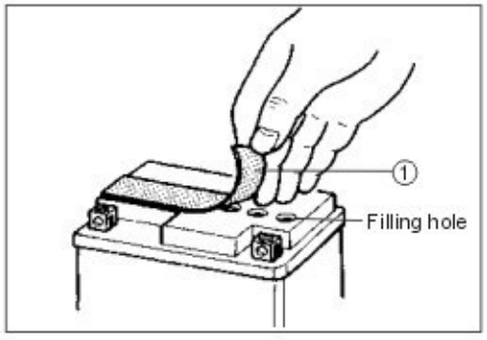
SPECIFICATION

type	YTX7A-BS or equivalent
rated power	12V(6Ah)/10HR
Standard electrolyte specific gravity	20℃/1.320

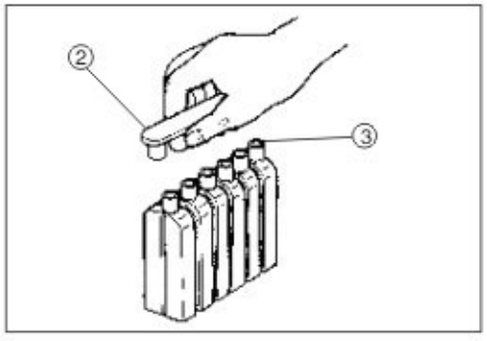
INITIAL CHARGE

FILLING ELECTROLYTE

- Remove aluminium strip ① which seals storage battery electrolyte filling hole;



- Remove special electrolyte cover ②;

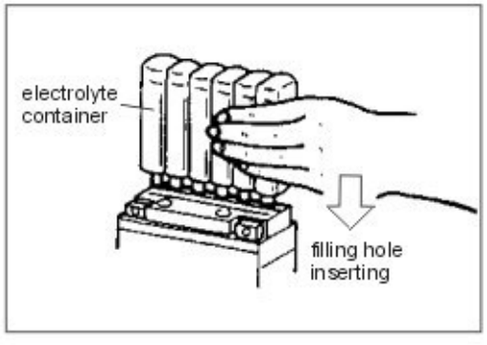


NOTE:

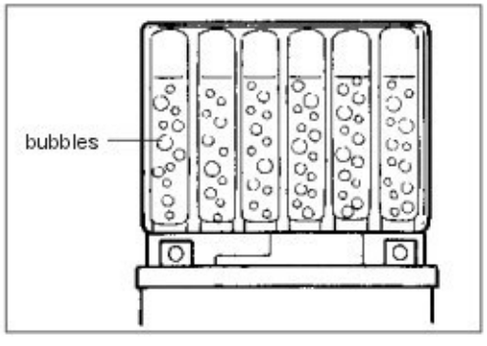
- After filling electrolyte, seal storage battery filling hole with the removed cover ②.
- Do not remove or pierce sealing part ③ of electrolyte bottle.

- Insert electrolyte container port into storage battery electrolyte filling hole, holding bottle fast to prevent dropping.

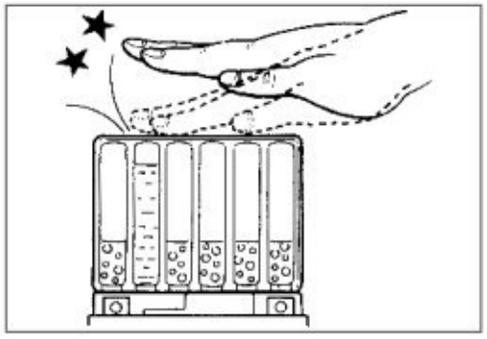
CAUTION:
Do not splash the fluid.



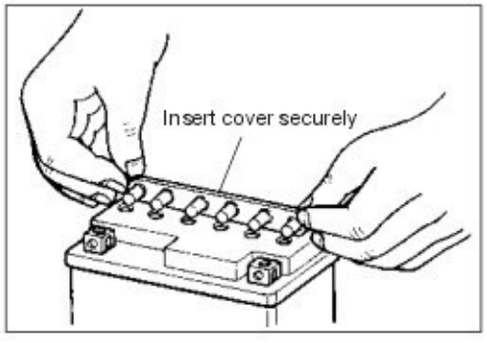
- Ensure that there are bubbles coming up in every electrolyte container and keep this state for over 20 minutes;



NOTE:
If there are no bubbles coming up the filling hole, pat the bottle bottom for twice or three times. In so doing, there is no need to remove electrolyte container from storage battery.

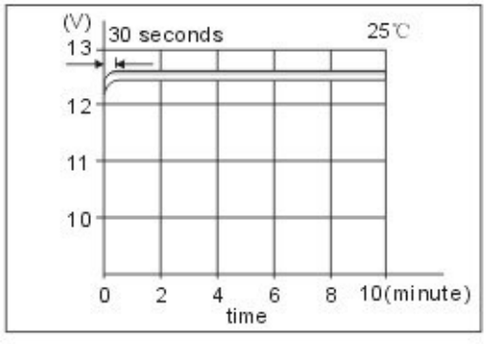


- After ascertaining that electrolyte is fully filled into storage battery, remove electrolyte container from storage battery and wait for about 20 minutes;
- Insert cover into filling hole, press it hard to make cover surface flush with storage battery upper surface;



CAUTION:
- Never use anything except the specified battery.
- Once install the caps to the battery; do not remove the caps.

Inspect storage battery voltage by means of circuit tester. Circuit tester reading should reach 12.5～ 12.6V as illustrated (DC). If storage battery voltage is below specified value, charge storage battery with charger (Refer to recharge operation).



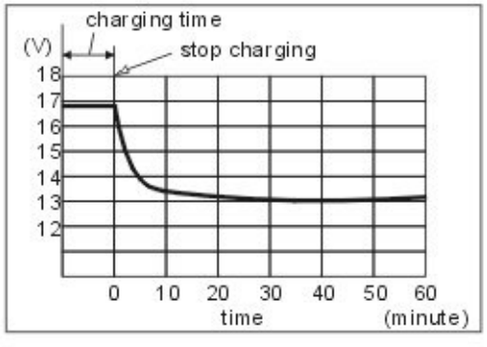
NOTE:
If production date is two years ago, it is advised to effect initial charge of the new storage battery.

SERVICING

Inspect storage battery surface visually. If there are fissures round storage battery or there is electrolyte leakage traces, the new storage battery should be replaced. If storage battery connecting terminal is covered with rust or an acidic powdery sludge, remove it with sandpaper.

RECHARGE OPERATION

Inspect storage battery voltage by means of circuit tester. If voltage reading is below 12.0V (DC), charge storage battery with charger.

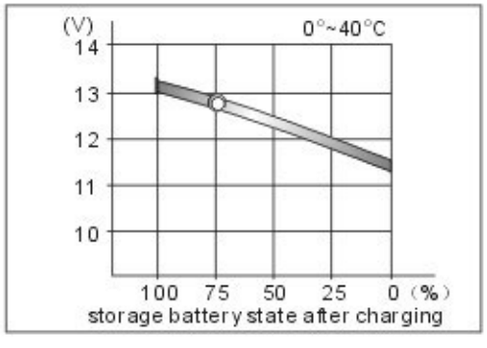


CAUTION:
When recharging the battery, remove the battery from the motorcycle.

NOTE:

Do not remove the cover on storage battery when charging.

CHARGING TIME: 1 HOUR (3A), 5 HOUR (0.7A).



CAUTION:
Be carful not o permit the charging current to exceed 3A at any time.

- After recharging, wait for over 30 minutes before inspecting storage battery voltage with circuit tester;
- If storage battery voltage is below 12.5V, charge storage battery again;
- If measured voltage is still below 12.5V, use a new storage battery for replacement;
- In case motorcycle is not in use for a long time, storage battery should be inspected once a month to prevent storage battery discharge.

MAINTENANCE INFORMATION

7

CONTENTS

TROUBLESHOOTING

ENGINE

TROUBLE	CAUSE	TROUBLESHOOTING
ENGINE STARTING FAILURE OR DIFFICULT STARTING	**EXCESSIVELY LOW COMPRESSION RATIO**	
	1.improper throttle play	Adjust
	2.throttle bush wear or poor valve seat	Repair or replace
	3.poor throttle timing	Adjust
	4.excessive wear of piston ring	Replace
	5.cylinder wear	Replace or re-bore cylinder
	6. starting motor speed excessively slow	Refer to electric section
	7.poor spark plug seat	Refasten
	SPARKLESS SPARK PLUG	
	1.spark plug carbon deposit	Clean
	2.wet spark plug	Clean or use hot-type spark plug
	3.poor ignition coil	Replace
	4.high voltage wire short-circuited or off	Replace
	5.poor trigger coil or poor CDI element	Replace
	NO FUEL ENTRY INTO CARBURETOR	
	1.fuel tank cover hole clogging	Clean or replace
	2.poor switch or switch clogging	Clean or replace
	3.poor needle valve	Replace
	4.clogging of fuel pipe, fuel filter or vacuum pipe	Clean or replace
ENGINE MISFIRE	1.spark plug carbon deposit	Clean
	2.poor trigger coil or CDI element	Replace
	3.fuel pipe clogging	Clean
	4.carburetor nozzle clogging	Clean
	5.improper throttle play	adjust
ENGINE ABNORMAL NOISE	**EXCESSIVE VALVE VIBRATION**	
	1.excessive throttle play	Adjust
	2.reduced elasticity or damage of valve spring	Replace
	3. swing arm wear or cam surface wear	Replace
	4 camshaft neck wear or damage	Replace
	ABNORMAL NOISE IN CYLINDER	
	1.piston wear or cylinder wear	Replace
	2.serious carbon deposit in combustion chamber	Clean
	3.piston pin wear or piston pin hole wear	Replace
	4.piston ring wear or ring groove wear	Replace
	ABNORMAL NOISE OF CAMSHAFT DRIVE CHAIN	
	1.stretched drive chain	Replace
	2.worn sprocket gear teeth	Replace
	3.tension adjuster failure	Repair or replace
	ABNORMAL NOISE OF CLUTCH	
	1.wear or slippage of drive belt	Replace
	2.wear of driving pulley roller	Replace
	ABNORMAL NOISE OF CRANK LEVER	
	1.crank rod bearing wear or burn	Replace
	2.crank rod big end bearing wear or burn	Replace
	3.crank bearing wear or burn	Replace
	4.excessive thrust play	Replace or adjust thrust pad

TROUBLE	CAUSE	TROUBLESHOOTING
ENGINE ABNORMAL NOISE	**TRANSMISSION SYSTEM ABNORMAL NOISE**	
	1.gear wear or gear damage	Replace
	2.serious wear of spline	Replace
	3.serious wear of bearing	Replace
CLUTCH SLIPPAGE	1.wear or damage of clutch centrifugal shoe block	Replace
	2.reduced elasticity of clutch spring	Replace
	3.wear of clutch outer disc	Replace
	4.wear or slippage of drive belt	Replace
UNSTABLE ENGINE IDLE SPEED	1.improper throttle play	Adjust
	2.poor valve interfacing	Replace or repair
	3.poor throttle bushing	Replace
	4.wear of swing arm or cam surface	Replace
	5.excessive spark plug play	Adjust or repair
	6.poor ignition coil	Replace
	7.poor trigger coil CDI element	Replace
	8. improper oil level of carburetor float bowl	adjust
POOR HIGH SPEED RUNNING OF ENGINE	1.reduced elasticity of valve spring	Replace
	2.camshaft wear	Replace
	3.improper throttle timing	Adjust
	4.spark plug play too small	Adjust
	5.poor wire of ignition coil	Replace ignition device
	6.poor ignition coil	Replace
	7.poor trigger coil CDI element	Replace
	8.float chamber oil level too low	Adjust
	9.air strainer clogging	Clean
	10.inadequate oil in carburetor due to fuel hose clogging	Clean
	11.poor accelerator pump piston	Replace
HIGH VOLUME OF FUME EXHAUST OR EXHAUST OF BLACK FUME	1.excessive amount of oil in engine	Inspect from inspection window, drain surplus oil.
	2.piston ring wear or cylinder wear	Replace
	3.wear of throttle bushing	Replace
	4.cylinder wall scratch or abrasion	Re-bore cylinder or replace
	5.valve wear or valve lever wear	Replace
	6.poor oil seal of valve lever	Replace
	7.oil ring wear	Replace
LOW POWER OF ENGINE	1.improper throttle play	Adjust
	2.reduced elasticity of valve spring	Replace
	3.improper throttle timing	Adjust
	4.piston ring wear or cylinder wear	Replace
	5.poor valve interfacing	Repair
	6.spark plug carbon deposit	Clean or replace
	7.incorrect spark plug	Adjust or replace
	8.clogging of carburetor nozzle	Clean
	9.improper oil level of float bowl	Adjust
	10.air strainer clogging	Clean
	11.slippage or wear of drive belt	Replace
	12. air intake pipe leakage	Retighten or replace
	13. excessive amount of oil in engine	Drain surplus oil
	14.poor engine oil pump or ignition element	Replace

TROUBLE	CAUSE	TROUBLESHOOTING
ENGINE OVERHEATING	1.serious carbon deposit on piston top 2.inadequate engine oil in engine 3.poor oil pump or clogging of oil passage 4.float bowl oil level too low 5.air intake pipe leakage 6.incorrect engine oil 7.air strainer clogging by dust	Clean Refuel Replace or clean Adjust Retighten or replace Change oil Clean

CARBURETOR

TROUBLE	CAUSE	TROUBLESHOOTING
DIFFICULT STARTING	1.primer nozzle clogging 2.fuel pipe clogging 3.primer air strainer clogging 4.air leakage at carburetor joint or vacumm tube joint 5.poor priming plunger performance	Clean Clean Clean or replace Inspect and adjust Inspect, adjust or replace
UNSTABLE IDLE SPEED OR LOW SPEED	1.clogging or looseness of starting nozzle or idle air nozzle 2.air leakage at carburetor joint, vacuum tube joint or primer 3.clogging of idle outlet 4.incomplete closing of priming plunger	Inspect and clean Inspect and adjust Inspect and clean Inspect and adjust
UNSTABLE MEDIUM SPEED OR HIGH SPEED	1.clogging of main jet or primary air jet 2.clogging of main jet nozzle 3.poor throttle valve operation 4.clogging of fuel filter 5.poor accelerator pump piston	Inspect or clean Inspect or clean Inspect throttle valve operation Inspect and clean replace
OIL FLOOD OR UNSTABLE OIL LEVEL	1.wear or damage of needle valve 2.damage of needle valve spring 3.improper performance of float 4.impurities with needle valve 5.oil level too high or too low	Replace Replace Inspect and ajust Clean Adjust float height

BODY

TROUBLE	CAUSE	TROUBLESHOOTING
HARD STEERING	1.overtightened steering stem nut 2.damaged steering bearing 3.bent steering stem 4.inadequate tire pressure	Adjust Replace Replace Adjust
HANDLEBAR SWING	1.imbalance between right front fork and left front fork 2.bent front fork 3.bent front wheel axle or tilted tire	Replace Repair or replace Replace
FRONT WHEEL SWING	1.wheel rim deformation 2.wear of front wheel axle 3.incorrect or poor front wheel 4.loose wheel axle nut 5.improper oil level of front fork	Replace Replace Replace Retighten Adjust
FRONT FORK TOO SOFT	1.reduced elasticity of spring 2.inadequate front fork oil	Replace Refuel
FRONT FORK TOO STIFF	1.excessive front oil viscosity 2.excessive amount of front fork oil	Replace Drain surplus oil
FRONT FORK ABNORMAL NOISE	1.inadequate front fork oil 2.loose suspension bolt	Refuel Retighten
REAR WHEEL SWING	1.wheel rim deformation 2.wear of rear wheel bearing 3.incorrect or poor tire 4.wear of crankcase bush 5.loose rear axle nut or engine mounting nut	Replace Replace Replace Replace' Retighten
REAR SHOCK ABSORBER TOO SOFT	1.reduced elasticity of spring 2. oil leakage of shock absorber	Replace Replace
REAR SHOCK ABSORBER TOO SOFT	1.wear of crankcase bush	Replace
REAR SHOCK ABSORBER ABNORMAL NOISE	1.loose engine mounting nut or bolt 2.wear of crankcase bush 3.loose shock absorber bolt	Retighten Replace Retighten

BRAKE

TROUBLE	CAUSE	TROUBLESHOOTING
POOR BRAKING (FRONT, REAR)	1.brake fluid leakage	Repair or replace
	2.wear of brake caliper lining	Replace
	3.sticky oily friction lining surface	Clean brake disc and friction lining
	4.wear of brake disc	Replace
	5.air in hydraulic system	Exhaust air
	6.wear of brake shoe lining	Replace
	7.oily brake shoe lining	Replace
	8.excessive wear of wheel hub	Replace
	9.brake rod play too large	Adjust
SHRILL BRAKING NOISE	1.friction lining with hard matter	Rub surface with sandpaper
	2.brake caliper friction lining tilted	Adjust or replace friction lining
	3.damage of wheel bearing	Replace
	4.loose front axle or rear axle	Tighten to specified torque
	5.wear of friction lining	Replace
	6.foreign matter in brake fluid	Replace brake fluid
	7.clogging of main oil cylinder return port	Disassemble and clean main oil cylinder
	8.smoothening of brake shoe	Rub surface with sandpaper
	9.wear of brake shoe	Replace
EXCESSIVE TRAVEL OF BRAKE LEVER	1.air in hydraulic system	Exhaust air
	2.inadequate brake fluid	Add brake oil to specified oil level; exhaust air and replace brake fluid with qualified brake fluid
	3.unqualified brake fluid	
	4.wear of brake lever cam	Replace
	5.excessive wear of brake shoe lining or wheel hub	Replace
BRAKE FLUID LEAKAGE	1.inadequate fastening of joint	Tighten to specified torque
	2.fissure in hose	Replace
	3.wear of piston or wear of piston seal ring	Replace piston or piston seal ring

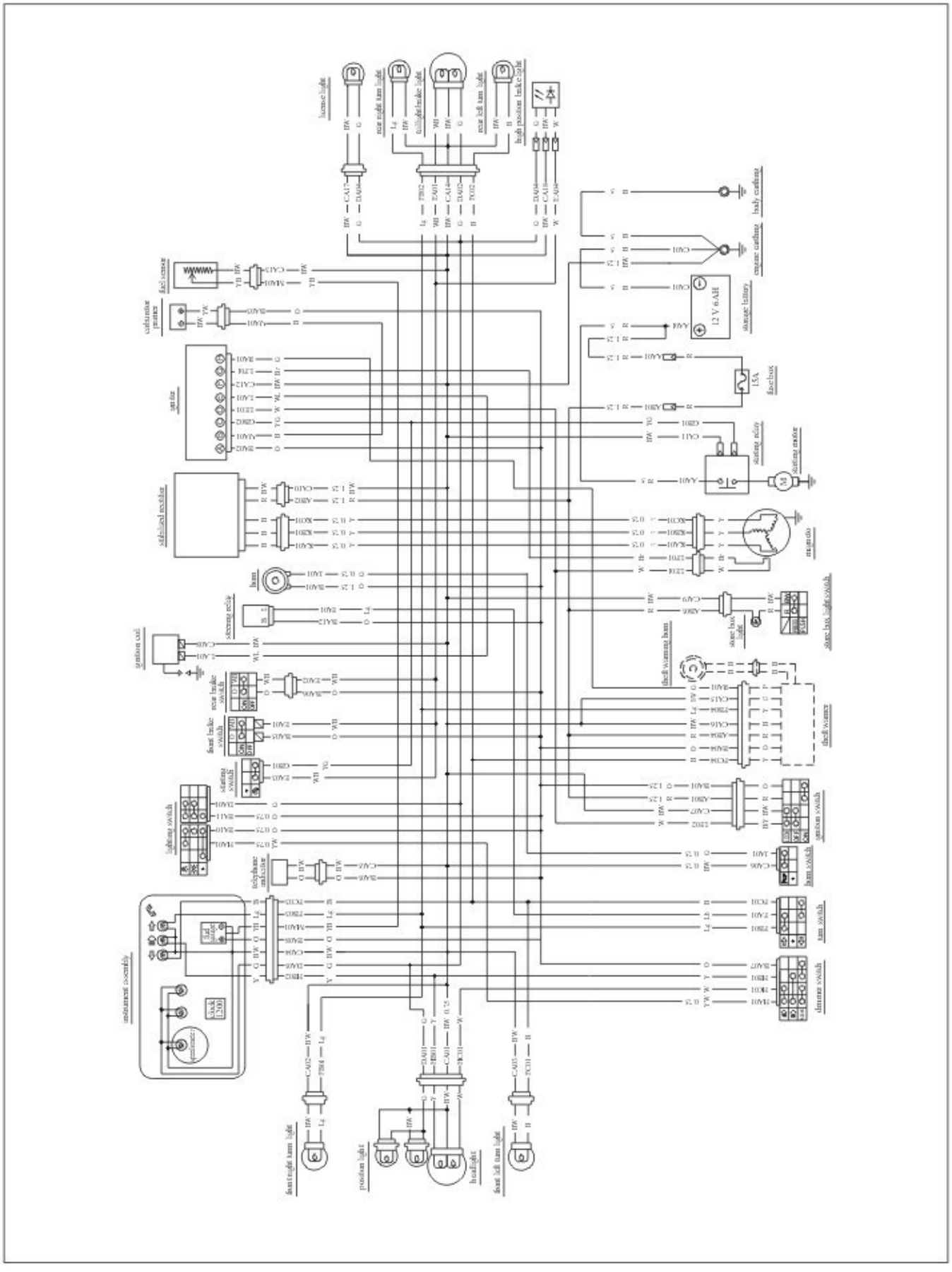
STORAGE BATTERY

TROUBLE	CAUSE	TROUBLESHOOTING
STORAGE BATTERY PLATE SURFACE WITH WHITE ACIDIC POWDERY SUBSTANCE OR STAINS	1.storage battery case with fissure	Replace storage battery
	2.long period of battery storage	Replace storage battery
STORAGE BATTERY CONSUMPTION TOO FAST	1.incorrct charging system	Inspect generator, stabilized rectifier and electric terminals, effect necessary adjustment to ensure specified charging
	2.battery plate with no active substance due to overcharging	Replace storage battery and rectify charging system
	3.short circuit in storage battery	Replace storage battery
	4.storage battery voltage too low	Recharge storage battery
	5.stale storage battery	Replace storage battery
STORAGE BATTERY SULPHATION	1.overcharging or undercharging (When storage is not in use, inspect it at least once a month to prevent it from sulphation)	Replace battery
	2.storage battery not in use for a long time in cold weather	In case of serious sulphation, replace storage battery
STORAGE BATTERY DISCHARGE TOO QUICK	dirty battery top and flanks	clean

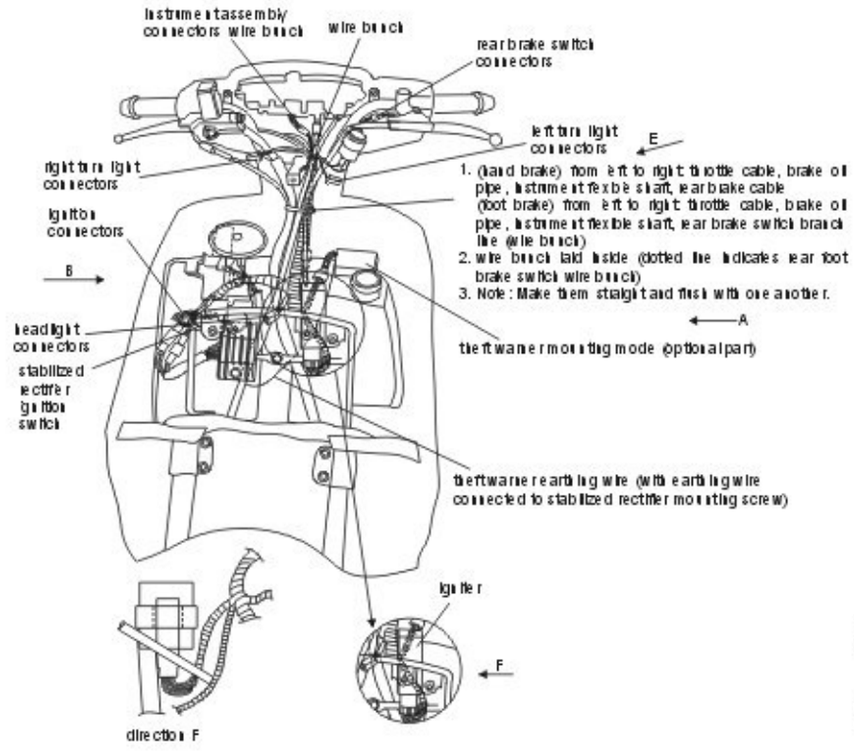
ELECTRIC SYSTEM

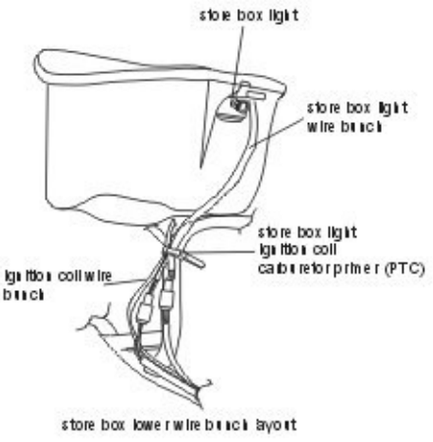
TROUBLE	CAUSE	TROUBLESHOOTING
SPARK PLUG WITH NO SPARK OR WITH WEAK SPARK	1.poor ignition coil or poor CDI 2.poor spark plug 3.poor trigger coil 4 .loose wire connection	Replace Replace Replace Tighten
EASY CARBON DEPOSIT OF SPARK PLUG	1.excessive mixture density 2.excessive idle speed 3.improper gasoline brand 4.dirty air strainer 5.spark plug heat value too low	Adjust carburetor Adjust carburetor Change brand Clean Replace with hot-type spark plug
EASY OILY DIRT ON SPARK PLUG	1.wear of piston ring 2.wear of piston or wear of cylinder 3.excessive play between valve bushing and valve stem 4.wear of valve oil seal	Replace Replace Replace Replace
OVERHEATING OR BURN OF SPARK PLUG	1.overheating of spark plug 2.overheating of engine 3.loose spark plug 4.gas mixture too thin	Replace with cold-type spark plug Adjust Retighten Adjust carburetor
GENERATOR FAILURE IN CHARGING	1.wire short circuit or loose wire connection 2.generator short circuit, open circuit or earthing 3.short circuit of stablilized rectifier	Repair, replace or retighten Replace Replace
GENERATOR CHARGE BELOW SPECIFICATION	1.short circuit, open circuit or loose connection 2.earthing of generator stator coil or open circuit 3.poor stabilized rectifier 4.poor battery plate in storage battery	Repair or retighten Replace Replace Replace storage battery
GENERATOR OVERCHARGING	1.short circuit in storage battery 2.poor or damaged resistance elements in storage battery 3.poor earthing of stabilized rectifier	Replace storage battery Replace Clean and tighten earthing connector
UNSTABLE CHARGING	1.wear of wire insulation and intermittent short circuit due to vibration 2.short circuit in generator 3.poor stabilized rectifier	Repair or replace Replace Replace
INEFFECTIVE STARTING BUTTON	1.exhaustion of battery electricity 2.poor switch contact 3.improper mounting of commutator brush of starting motor 4.poor starting relay	Repair or replace Replace Repair or replace Replace

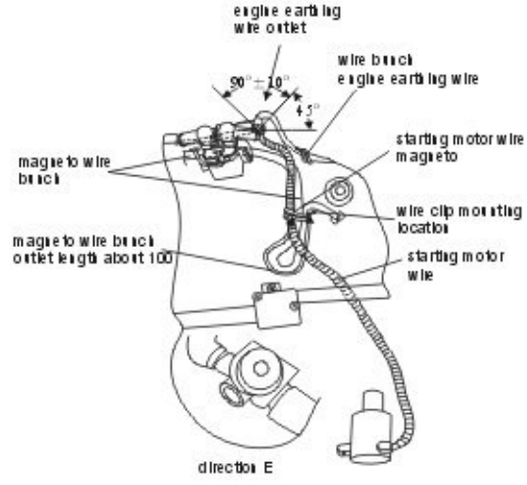
CIRCUIT DIAGRAM

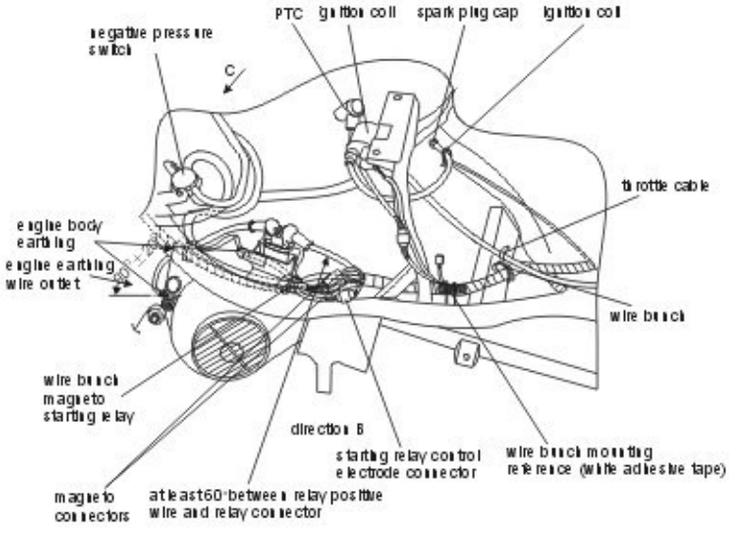


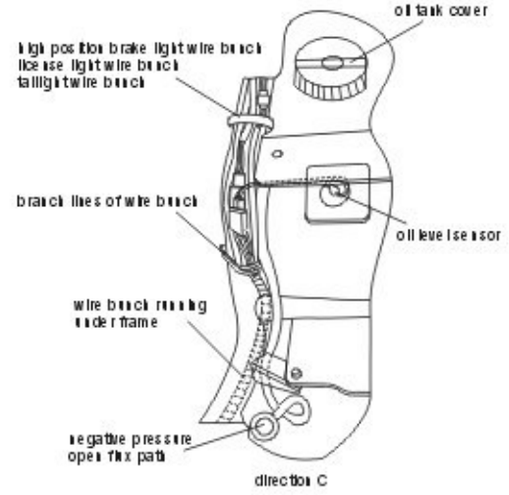
WIRES AND CABIES

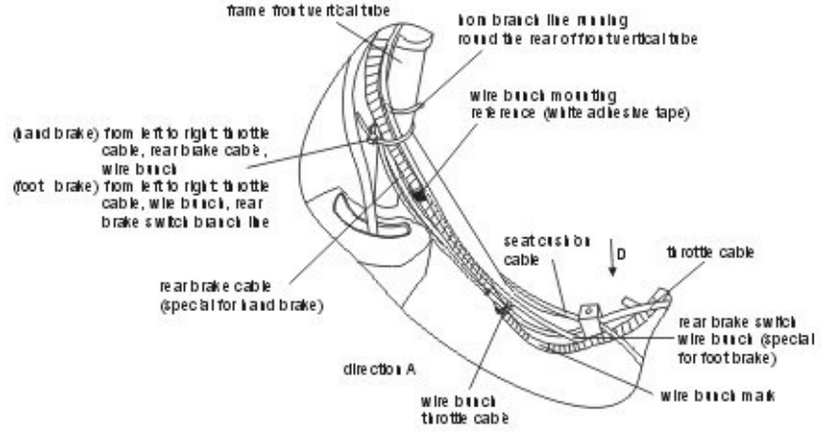


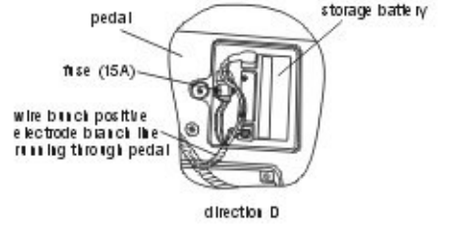




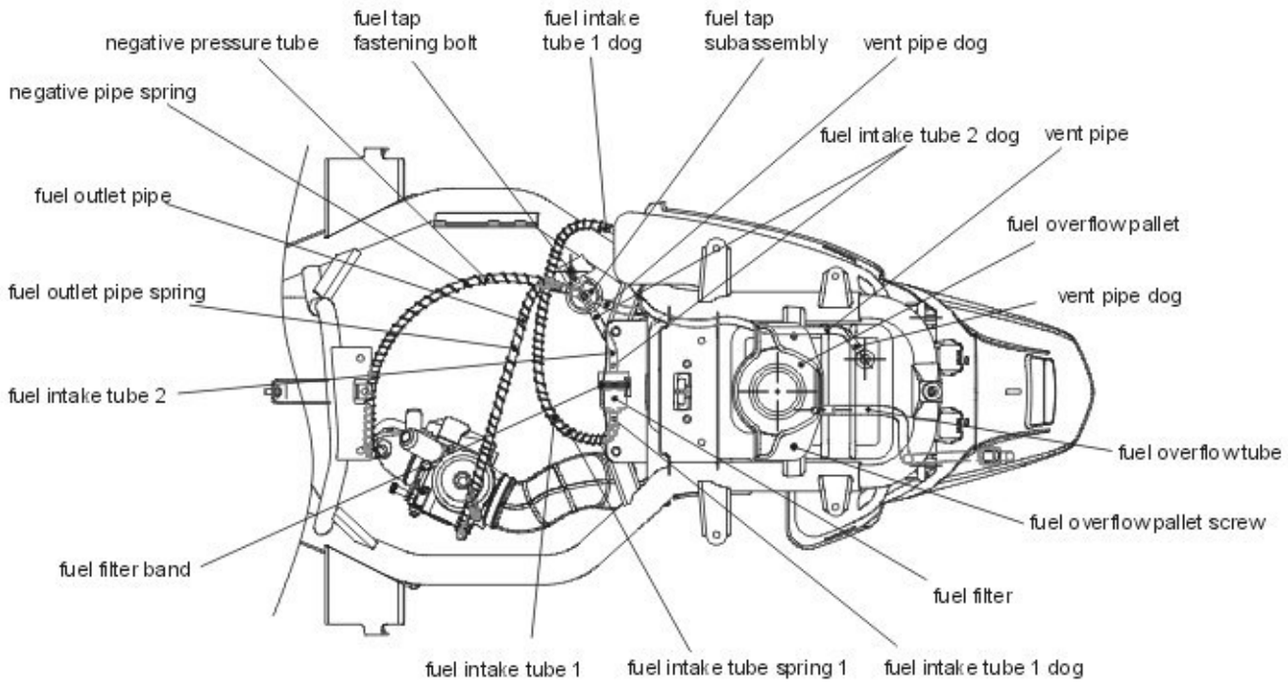


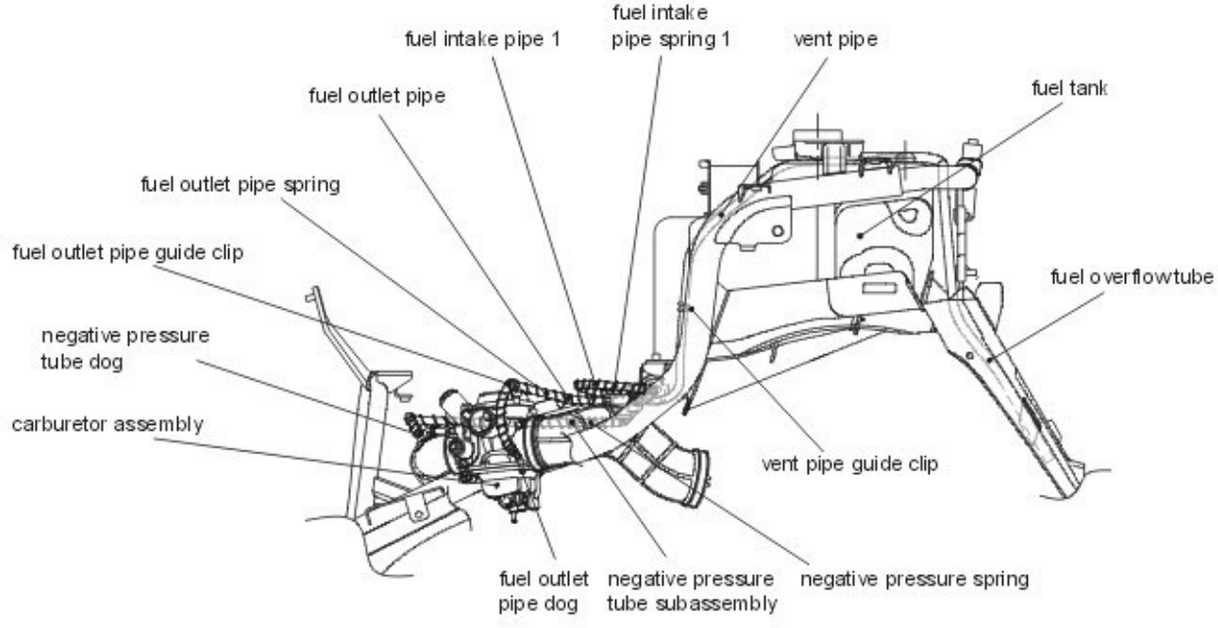




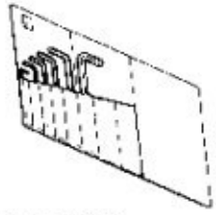
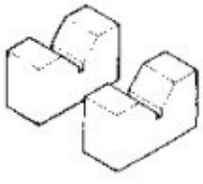
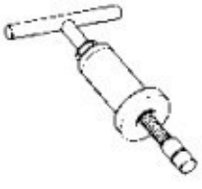


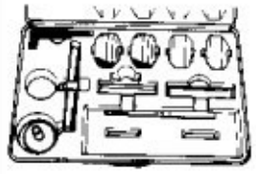
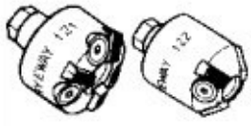
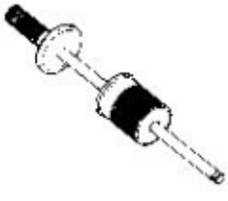
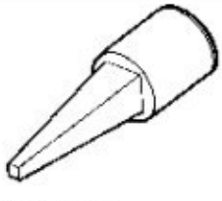
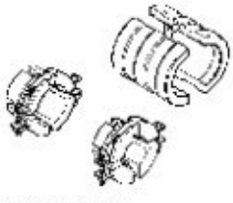
FUEL OIL PIPING





SPECIAL TOOLS

 09000-00401 "L" hexagon wrench kit	 09900-00410 hexagon wrench kit	 09900-06107 snapring pliers	 09900-06108 snapring pliers	 09900-09003 screw driver kit
 09900-20102 vernier caliper (1/20mm,200mm)	 09900-20202 micrometer (1/100mm,25~50mm)	 09900-20203 micrometer (1/100mm,50~75mm)	 09900-20205 micrometer (1/1000mm,0~25mm)	 09900-20508 cylinder bore gauge kit (1/100mm,40~80mm)
 09900-20602 dial gauge (1/1000mm,1mm)	 09900-20605 dial calipers (1/100mm,10~34mm)	 09900-20606 dial gauge (1/100mm,10mm)	 09900-20701 magnetic gage bracket	 09900-20803 thickness gauge
 09900-20805 tire depth gage	 09900-21304 V-block (set) (100mm)	 09900-22302 plasti-gauge	 09900-22401 small bore gauge (10~18mm)	 09900-25002 circuit tester
 09910-20116 connecting rod bracket	 09910-32812 crankshaft mounting device	 09910-60611 universal clamp spanner	 09913-50121 oil seal remover	 09913-75520 bearing mounting device
 09913-75821 bearing mounting device	 09913-75830 bearing mounting device	 09913-76010 bearing mounting device	 09914-24510 T-bar	 09915-64510 pressure gage 09915-63310 (adapter)

 09915-74510 oil pressure gage	 09915-74531 oil pressure gage adapter	 09916-14510 valve lifter	 09916-14521 valve lifter attachment	 09916-21110 valve seat cutter kit
 09916-24311 solid guide rod (N-100-5.0)	 See page 3-37valve seat cutter (N-121,122,126)	 09916-34542 throttle bush reamer arm	 09916-34570 throttle bush reamer (5.0mm)	 09916-34580 throttle bush reamer (10.8mm)
 09916-44310 throttle bush replacer	 09916-84511 tweezers	 09917-14910 throttle play adjusting screwdriver	 09920-13120 crankcase separator	 09921-20210 bearing remover
 09922-55131 bearing replacer	 09923-73210 bearing remover (17~20mm)	 09923-74510 bearing remover (20~35mm)	 09924-84521 bearing mounting kit	 09925-98221 bearing mounting device
 09930-10121 spark plug socket wrench kit	 09930-11910 Torx wrench	 09930-14530 universal joint	 09930-30102 slide shaft	 09930-30190 rotor remover spare part
 09930-32420 rotor bracket	 09930-40113 rotor bracket	 09940-34520 T-bar	 09940-34561 front fork mounting tool attachment	 09940-50113 front fork oil seal mounting device

 09941-34513 steering race mounting device	 09941-50111 bearing remover	 09941-74910 steering disc bearing mounting device	 09943-74111 front fork oil level gage	 09943-88211 bearing mounting device
 09951-76010 bearing replacer				

Note:

When ordering special tools, ascertain if supply is available.

TIGHTENING TORQUE

ENGINE

Designation	N · m	kg · m
Cylinder head cover bolt	14	1.4
Cylinder head nut [M: 8]	23	2.3
Cylinder head nut [M: 6]	10	1.0
Cylinder nut [M: 6]	10	1.0
Camshaft cap bolt	10	1.0
Cam sprocket bolt	10	1.0
Oil pipe connecting pipe bolt [cylinder head side]	12	1.2
Oil pipe connecting pipe bolt [crankcase side]	18	1.8
Cam chain tension adjuster bolt	10	1.0
Cam chain spring bracket bolt	8	0.8
Starting clutch bolt	10	1.0
Oil pump drive gear nut	80	8.0
Engine oil drain plug	18	1.8
Main geear oil level hole plug	12	1.2
Main gear oil drain plug	5.5	0.55
Gearcase cover bolt	10	1.0
Fixed drive pulley	60	6.0
Centrifugal shoe fixing nut	60	6.0
Clutch outer disc nut	60	6.0
Generator rotor nut	80	8.0
Air exhaust bolt	23	2.3
Engine mounting bolt	85	8.5
Crankcase swing arm mounting bolt	102	10.2

FRAME

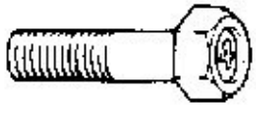
Designation	N • m	kg • m
Front axle nut	53	5.3
Steering stem lock nut	30	3.0
Handlebar fastening nut/bolt	49	4.9
Handlebar positioning bolt	25	2.5
Front fork top bolt	45	4.5
Front fork fastening bolt	23	2.3
Front brake main cylinder cover bolt	10	1.0
Front brake pipe connecting pipe bolt	23	2.3
Front brake caliper mounting bolt	26	2.6
Front brake oil drain screw	8	0.8
Wheel rim bolt/nut	23	2.3
Rear axle nut	100	10.0
Rear shock absorber bolt (upper part and lower part)	29	2.9
Rear brake cam lever nut	8	0.8
Crankcase bracket mounting nut/bolt	102	10.2
Engine mounting nut/bolt	85	8.5

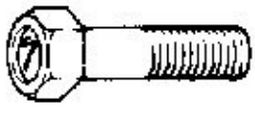
TIGHTENING TORQUE REFERENCES

Refer to the following table for bolt and nut tightening torque:

Bolt diameter Ⓐ (mm)	Regular bolts or bolts marked "4"		Bolts marked "7"	
	N • m	kg • m	N • m	kg • m
4	1.5	0.15	2	0.2
5	3	0.3	5	0.5
6	6	0.6	10	1.0
8	13	1.3	23	2.3
10	29	2.9	50	5.0
12	45	4.5	85	8.5
14	65	6.5	135	13.5
16	105	10.5	210	21.0
18	160	16.0	240	24.0

regular bolt


bolt marked "4"


bolt marked "7"

SERVICE DATA

VALVE SUSASSEMBLY

Unit mm

Designation	Standard		Limit
Valve diameter	Intake	25.5	—
	Exhaust	22.5	—
Throttle play	Intake, exhaust	0.08-0.13	—
Play between throttle bush and valve lever	Intake	0.010-0.037	—
	Exhaust	0.030-0.057	—
Valve lever deflection	Intake and exhaust	—	0.35
Throttle bush bore	Intake and exhaust	5.000-5.012	—
Valve lever outside diameter	intake	4.975-4.990	—
	exhaust	4.955-4.970	—
Valve lever runout	Intake and exhaust	—	0.05
Valve head thickness	Intake and exhaust	—	0.5
Valve lever end length	Intake and exhaust	—	4.5
Valve seat width	Intake and exhaust	0.9-1.1	—
Valve head radial runout	Intake and exhaust	—	0.03
Valve spring free length (intake and exhaust)	inside	—	29.7
	outside	—	29.6
Valve spring tension (intake and exhaust)	inside	5.58-6.42kg length 23.67mm	—
	outside	6.5-7.5kg length 26.67mm	—

CAMSHAFT, CYLINDER HEAD

Unit mm

Designation	Standard		Limit
Cam height	Intake	32.970-33.010	32.670
	Exhaust	32.850-32.890	32.550
Swing arm inside diameter	Intake and exhaust	12.000-12.018	—
Swing arm outside diameter	Intake and exhaust	11.966-11.984	—
Cylinder head deformation		—	0.05

CONNECTING ROD, CRANKSHAFT

Unit mm

Designation	Standard	Limit
Small end play	14.006-14.014	14.040
Deflection	—	3.0
Big end play	0.10-0.45	1.00
Big end width	15.95-16.00	—
Crank bar width	46.0±0.1	—
Crankshaft runout	—	0.05

CYLINDER, PISTON, PISTON RING

Unit mm

Designation	Standard			Limit
Compression pressure	1400kPa 14kg/cm²			980kPa 9.8kg/cm²
Piston and cylinder clearance	0.030-0.040			0.120
Cylinder bore	52.000-52.015			52.100
Piston OK	51.965-51.980 measured at 9mm from lower skirt			51.880
Cylinder deformation	—			0.05
Piston ring opening gap (free state)	First	R	6.0	4.8
	Second	R	4.9	3.9
Piston ring end gap	First		0.15-0.030	0.5
	Second		0.15-0.30	0.5
Piston ring and ring groove clearance	First		—	0.18
	Second		—	0.15
Piston ring groove width	First		1.01-1.03	—
	Second		1.01-1.03	—
	Oil ring		2.01-2.03	—
Piston ring thickness	First		0.97-0.99	—
	Second		0.97-0.99	—
Piston pin bore	14.002-14.008			14.030
Piston pin outside diameter	13.996-14.000			13.980

OIL PUMP

Unit mm

Designation	Standard	Limit
Oil pump reduction ratio	1.566(47/30)	—
Oil pressure (60℃,140℉)	Over 15kPa (0.15kg/ cm²) Under 35kPa(0.35 kg/ cm²) 3,000rpm	—

CLUTCH

Unit mm

Designation	Standard	Limit
Clutch outer disc inside diameter	125.0-125.2	125.5
Clutch friction lining thickness	3.0	2.0
Clutch engagement	3000-3300rpm	—
Clutch lock-up	4100-4900rpm	—

TRANSMISSION

Unit mm

Designation	Standard	Limit
Reduction ratio	2.433-0.813	—
Final reduction ratio	8.294 (45/17×47/15)	—
Drive belt width	18.9	18.0
Roller O.D.	17.0	16.4
Sliding driven pulley spring free length	75.3	71.6

CARBURETOR (REFER TO PAGE 4-5)

ITEM	SPECIFICATION	DESIGNATION	SPECIFICATION
Carburetor type	BS26	Jet needle (J.N.)	4DX27-3
Bore	26mm	Needle jet (N.J.)	P-0
I.D.number	37G0 or 37G3	Throttle valve (Th.V.)	1100
Idle rpm	1600±100 rpm	Pilot jet (P.J.)	#40
Float height	21.4±1.0mm	Starter jet (G.S.)	#27.5
Main jet (M.J.)	#97.5	Pilot screw (P.S.)	Preset (23/8)
Main air jet (M.A.J.)	0.6mm	Throttle cable play	3-6mm

ELECTRIC SYSTEM

Unit mm

Designation		Standard		Note
Ignition timing		at 1600rpm 10°B.T.D.C.		
Spark plug		type	NHSP LD：B6RC NGK：CR6E	
		play	0.7-0.8	
Spark performance		Over 8mm at 1 atmospheric pressure unit		
Ignition coil resistance		primary	0.09-0.13Ω	electroprobe ⊕ electroprobe ⊖
		secondary	11-18KΩ	spark plug cap electroprobe ⊖
Engine nonload voltage		Over 60V/5000rpm (AC)		In cold engine state
Voltage adjustment		13.0-16.0V/5000rpm		
Starting relay resistance		2-6Ω		
Storage battery	type	YTX7A-BS		
	capacity	12V 21.6 KC(6AH)/10h		
	standard electrolyte S.G.	20℃ specific gravity 1.32		
Fuse specification		15A		
Oil level gauge resistance		Full	4-10Ω	
		Empty	90-100Ω	

WATTAGE

Unit: Watt

Designation		Standard	Designation	Standard
Headlight	high	35	Odometer light	1.7
	low	35	Turn signal indicator light	3.4
Position light		5	High beam indicator light	1.7
Taillight/brake light		5/21	Store box light	2
Turn signal light		21		

BRAKE WHEEL

Unit mm

Designation	Standard		Limit
Brake lever play	rear	12-25	—
Brake hub bore	rear	—	120.7
Brake shoe lining thickness	rear	—	1.5
Brake disc thickness	front	4.0±0.2	3.5
Brake disc runout	front	—	0.30
Main cylinder bore	front	11.000-11.043	—
Main cylinder piston diameter	front	10.957-10.984	—
Brake caliper cylinder port	front	30.230-30.306	—
Brake caliper piston diameter	front	30.150-30.200	—
Wheel rim runout	axial	—	2.0
	radial	—	2.0
Axle runout	front	—	0.25
Tire specification	front	3.50-10 51J	—
	rear	3.50-10 51J	—
Tire tread depth	front	—	1.6
	rear	—	1.6

SUSPENSION

Unit mm

Designation	Standard	Range	Note
Front fork stroke	95	—	
Front fork spring free length	—	226.5	
Rear wheel travel	130	—	
Front fork oil level	75	—	

TIRE PRESSURE

Cold state	Single rider		Two riders	
Tire pressure	KPa	kg/cm²	KPa	kg/cm²
Front tire	125	1.25	125	1.25
Rear tire	200	2.00	250	2.50

FUEL OIL

Designation	Standard		Note
Fuel type	Gasoline used should be graded 91 octane or higher. An unleaded gasoline type is recommended.		
Fuel tank capacity	7.8L		
Engine oil	SAE10W-40, API SF/SG or SH/SJ with JASO MA		
Engine oil quantity	Change	800ml	
	Filter change	850ml	
	Overhaul	900ml	
Gearcase oil quantity	Change	90ml	
	Overhaul	100ml	
Front fork oil type	#15 front fork oil		
Front fork oil quantity (each leg)	85ml		
Brake fluid type	DOT4 or DOT3		