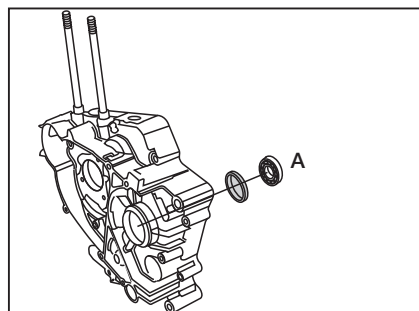
**Dismantling of Oil Seals and Bearings :****Crankcase Clutch Side :****Using Special Tool :****Bearing Driver set - 37 1030 61****Remove :**

- Bearing (A) for input shaft assembly from crankcase RH

**Using Special Tool : Bearing Extractor - 37 10DJ 77****Remove:**

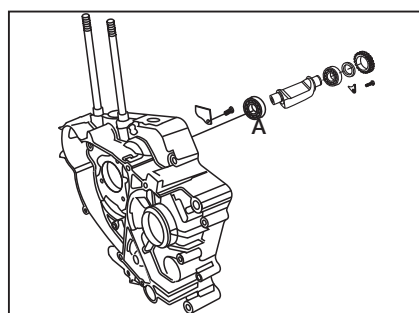
- Bearing (B) for output shaft assembly from crankcase RH

**Crankcase Magneto Side :****Remove :**

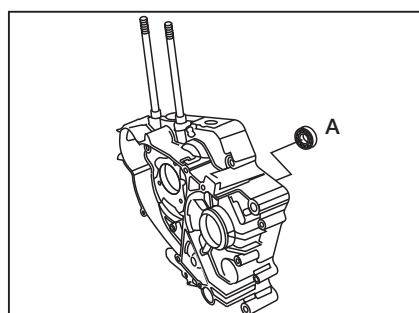
- Oil seal

Using Special Tool : Bearing Extractor - 37 10DJ 77**Remove :**

- Bearing (A) for output shaft assembly from crankcase LH

**Using Special Tool : Bearing Extractor - 37 10DJ 77****Remove :**

- Bearing (A) for body balancer gear bearing from crankcase LH

**Using Special Tool : Bearing Extractor - 37 10DJ 76****Remove :**

- Bearing (A) for input shaft assembly from crankcase LH

**Remove :**

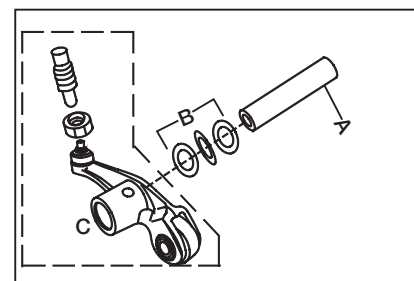
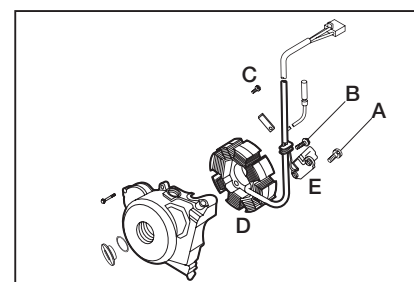
- Bolt (A)
- Bearing stopper

Using Special Tool : Bearing Driver Set - 37 10BA 61**Remove:**

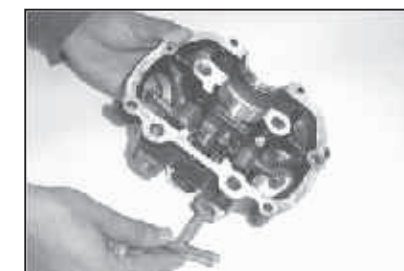
- Bearing for gear drum from RH crankcase

**Dismantling of Subassemblies :****Magneto Cover****Remove :**

- 2 Phillips head screws (A) of pulsar coil (E) mounting.
- Bolts (B) of stator assembly.
- 1 Phillips head screw (C) of stopper.
- Stator coil assembly (D) along with pulsar coil.

**Cylinder Head Cover****Using Sp. Tool Rocker Pin remover 37 10DH 35****Remove :**

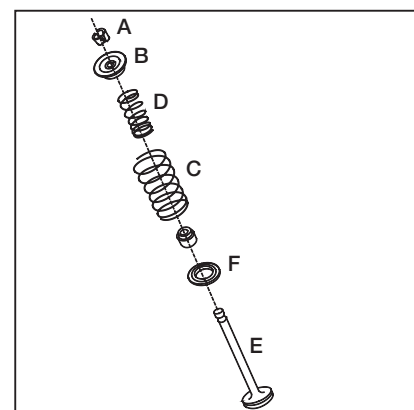
- Rocker shaft (A)
- Rocker arm
- Set of washers (1 wave and 2 plane) (B)
- Rollers 20 nos. (C)



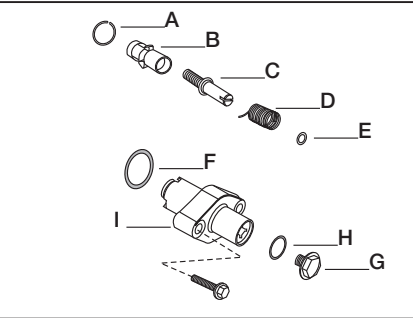
Note : Similarly remove the other Rocker shaft & Rocker Arm from head over

Top End :**Cylinder Head****Using Sp. Tool Valve Spring Compressor 37 1031 07 & Adapter 37 10DJ 78****Remove :**

- 2 Cotter valve (A)
- Valve spring retainer (B)
- Springs inner (D)
- Spring outer (C)
- Valve from below (E)
- Washer (F)
- Valve steam seal (G)



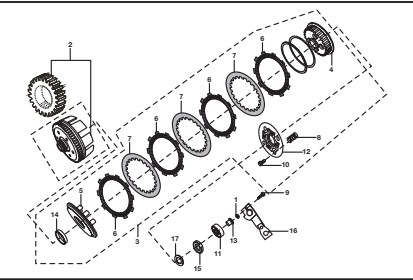
Similarly carry out the same procedure to dismantle the other valve from the cylinder head assembly.



Chain Tensioner Assembly

Remove :

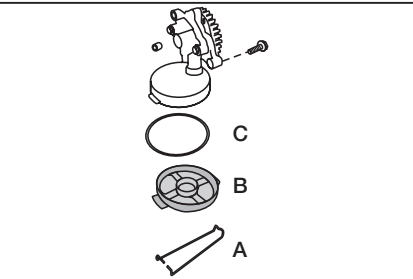
- Circlip (A) from the body (I)
- Cap (B) along with screw internal and screw external (C)
- Spring (D)
- Thrust washer (E)
- 'O' ring (F)
- Bolt (G) and 'O' ring (H)



Clutch Assembly

Remove :

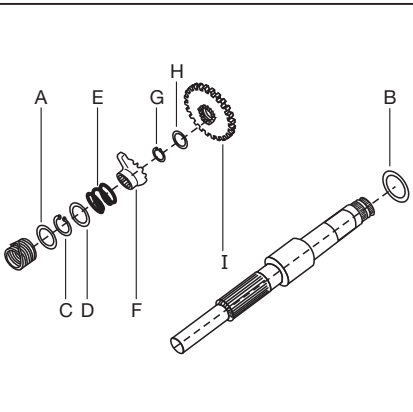
- 4 bolts (A)
- Holder clutch (B)
- 4 springs (C)
- Clutch center (D)
- Plain washer
- Bellivellie washer
- Disc clutch friction (E) (Qty. 6 for 180cc / Qty. 5 for 150 cc)
- Plate clutch (F)
- Plate clutch pressure (G) (Wheel clutch)
- Clutch housing
- Thrust washer - conical from inner ID



Oil Pump

Remove :

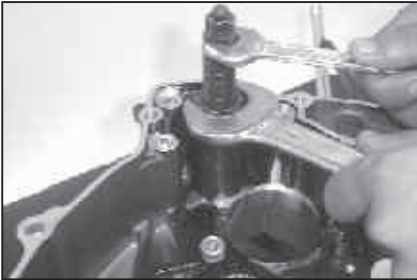
- Clip (A)
- Oil strainer element (B) with 'O' ring (C)



Kick Shaft Assembly

Remove :

- Thrust washer (A)
- Washer thrust (B)
- Circlip (C) & thrust washer (D)
- Spring kick starter ratchet (E)
- Ratchet kick starter (F)
- Circlip (G)
- Washer (H)
- Pinion complete kick starter (I)

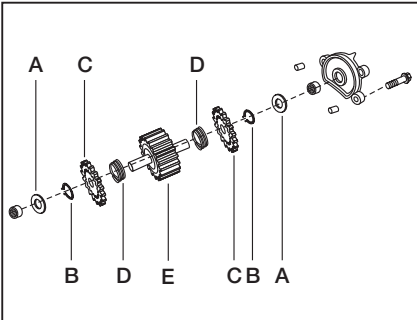


Bearing Removal from Assly Balancer Idler Gear Cover and Crankcase RH

Using Sp. Tool : Bearing Extractor - 37 10CD 30

Remove :

- Needle roller bearing from RH crankcase.



Assembly Balancer Idler Gear

Remove :

- Thrust washers (A)
- Circlip (B) from any one side of the gear
- Scissor gear (C)
- Torsion Spring (D)

Similarly carry out the same procedure on other side of the gear to dismantle the idler gear completely.



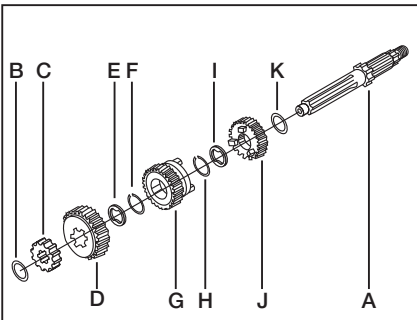
Gear Complete Starter Counter Assembly

- Place the gear comp. starter counter assly on the arbor press as shown in the figure.

- Using Bearing driver set (P. No. 37 1030 61)

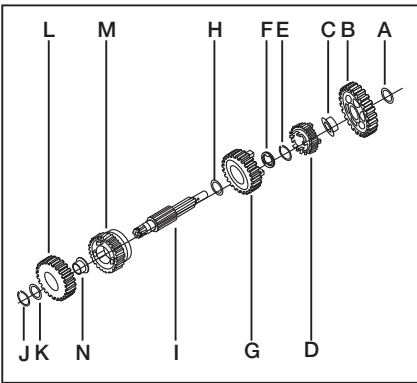
Remove :

- Needle roller bearing



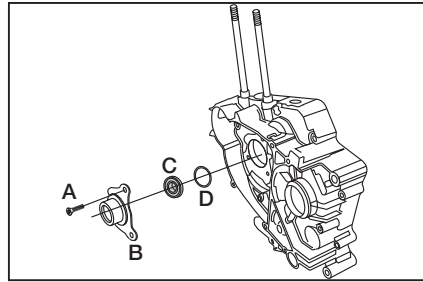
Input Shaft Assembly

- 1st gear is integral with the shaft (A)
- Remove thrust washer (B) and slide out gear 2nd drive (C)
- Remove gear 5th drive (D) and collect the splined washer (E) behind it.
- Remove circlip (F) and remove gear 3rd drive (G)
- Remove circlip (H) and collect the splined washer (I)
- Remove gear 4th (J) and collect the thrust washer (K) behind it.



Output Shaft Assembly

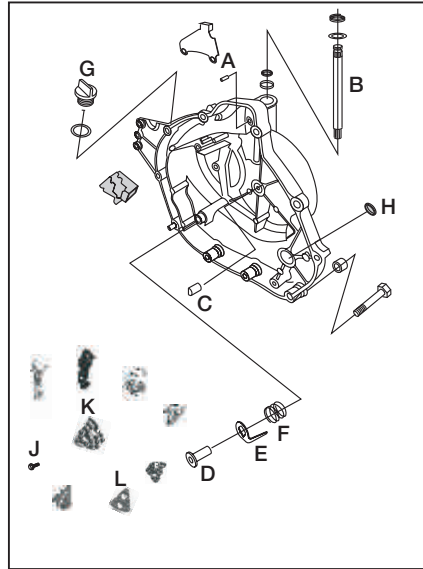
- There are no integral gears on output shaft.
- Remove thrust washer (A) and slide off the gear 1st driven (B) and collect the steel bush (1st driven gear is mounted on steel bush (C) with shoulder ring
- Slide off the gear 4th driven (D).
- Remove circlip (E) and spline washer (F). Remove the gear 3rd driven (G).
- Collect the thrust washer (H) behind the 3rd gear on output shaft (I)
- Remove circlip (J) and collect the washer (K)
- Remove gear 2nd driven (L) mounted on bush (N) with shoulder ring
- Slide out gear 5th driven (M)



Crankcase Magneto Side

Remove :

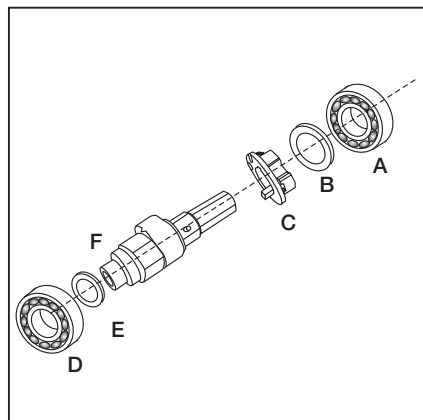
- 3 Screws **(A)**
- Guide starter assembly **(B)** on which oil seal is mounted.
- Oil seal **(C)**
- Damper **(D)**



Clutch Cover

Remove :

- Parallel Pin **(A)**
- Clutch shaft release completely **(B)** by slightly rotating it so,
- Rack **(C)**
- Plunger oil **(D)**
- Plate plunger oil **(E)**
- Spring joint 'A' **(F)**
- Oil filler plug **(G)**
- Oil seal kick shaft **(H)**
- Wire clip **(I)**
- Oil inspection window
- Flanged bolt (8 Nos.) **(J)**
- Set of damper **(K)**
- Set of plate **(L)**
- Grommet **(M)**



Camshaft Dismantling

Using Special Tool :

Bearing Pullers:

3710DJ 74 for Bearing 39227020

3710DJ75 for Bearing 39148520

Remove :

- Bigger Bearing using sp. tool from camshaft assembly **(A)**
- Collar de-comp **(B)**
- Decompression unit **(C)**
- Small Bearing **(E)**
- Lock washer **(D)**
- Parallel pin **(F)**



Gear Starter Clutch

Remove :

- Place the gear starter clutch on arbor press as shown in photo
- Using Bearing Driver Set (P. No.: 37 1030 61)

Remove :

- Needle roller bearing

**Spark Plug :**

- Type / Heat value - RG 4 HC/Bosh UR3DC (Resistive)
- Gap between electrodes - 0.7 to 0.8 mm
- Electrode condition - No erosion
- Colour at the electrodes tip - Brownish
- Threads of reach portion - Ok / No damage

**Cylinder Head :**

- Mating surface : No warpage / No scratches (Service limit for warpage: 0.05mm)
- Identification mark - DJ mark embossed on casting
- No fins breakage
- Spark plug hole threads - Ok / No damage
- Carbon built up in combustion chamber cavity- Clean it
- Valve seat : No pitting / No carbon deposition
- Proper fitment of Dampers (4 Nos)
- Proper fitment of 'O'rings
- Proper fitment of valve stem oil seals on valve guide
- Valve guide for crack if any
- Silencer mounting studs threads - Ok / No damage

**Cylinder Block :**

- No fins breakage
- No Scoring marks
- No Seizure marks
- Ok Seating – mating surfaces
- Smooth Honing pattern
- Correct / Same grouping mark w.r.t. piston (A & B group)
- Inner diameter of block as mentioned in service data.
- Ovality - Not more than 0.05 mm.
- 3 Nos. of damper rubbers Properly fitted on fins
- Proper fitment of 'O' ring on bottom side

**Piston :**

- Grouping mark with respect to cylinder block must be same.
- Diameter of the piston - As mentioned in service data
- No scoring marks on the skirt
- No blow by marks
- No seizure marks.
- Manufacturing / Identification code and date code
- Piston pin - scratches dent marks

**Rings :**

- No uneven wear around circumference / breakage.
 - Discoloration at working face.
 - Carbon built up on inner face if any.
 - Piston ring end gap - As per Service data
 - Piston ring width (thickness) - As per Service data
 - Free rotation of Rings in Piston grooves - No stickyness.
 - Piston ring identification mark
- Top Ring : TOP 1, Second Ring : TOP 2**

**Crankshaft :**

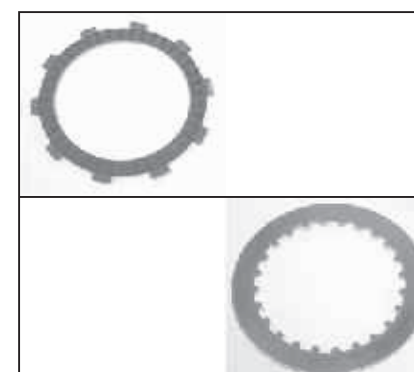
- Big end axial/radial play : As per Service data.
- Runout : As per Service data.
- Threading condition : Ok / No damages.
- Key way condition : Ok / No damages.
- Big end bearing : Free rotation / Jam
- Con-rod : No bending / twisting
- Oil passage : No blockage.
- Square slot key way for primary gear

**Crankcase :**

- Mating surface : Smooth / No scratches.
- No Cracks, damages, breakage.
- Bearing seat, oil seal seat & proper pressing / positioning of oil seals, needle roller, ball bearings freely rotating
- No Blow holes in casting
- Breather pipe / hole : No clogging
- Oil passage : Clean / No clogging
- Threads of holes & studs : Ok / No damages
- Visible number punching on LH Crank Case

**Bearings :**

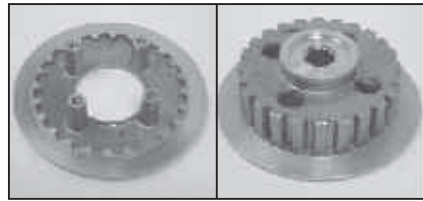
- Axial play : Ok / Not excessive
- Radial play : Ok / Not excessive
- Bearing Seat : No sign of high spot on seating area.
- Bearing class & code : As per specification numbers
- Bearing Rotation : Free Rotation

**Clutch :**

- Clutch plates / Steel plates - Thickness as per service data
- Warpage as per service data
- No Seizure / Damaged bonding of friction material
- Tangs (Lugs) / Teeth - No wearing
- Thrust plate cracked
- No Foreign material embedded
- Colour change / Signs of overheating if any
- No uneven wear pattern
- Steel plates planishing
- Conical face machining for spacer clutch

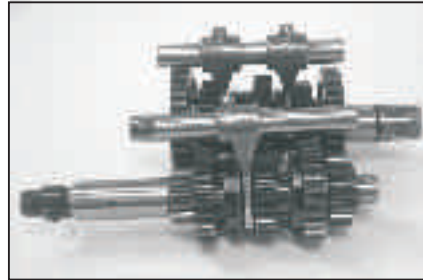
**Clutch Housing :**

- No Wear marks on slots.
- Clearance between clutch plate tangs and slot in the clutch housing should not be excessive
- Free movement of plates in clutch housing slots.
- Rivets of clutch housing should not be loose.
- Free rotation of housing on Input shaft



Clutch Hub / Clutch Wheel :

- Contact surface for friction plates-should not be worn out excessively
- Pressure Plate free movement in clutch hub splines
- Holes for lubrication
- Clutch hub height
- Smoothness in ID of clutch wheel
- Spacer free movement on clutch wheel
- Presence of plain and wave washer in 1st clutch plate



Transmission :

- No Teeth breakage or crack
- No Wear pattern on teeth
- No Wear of dog teeth & dog holes on gear
- No Seizure mark on gear seat.
- Free movement of gears on the shaft (1st Output, 2nd Output, 3rd Output, 4th Input and 5th input gears are free on the respective shaft)
- Free movement of Fork shift on the fork shaft
- Gear shift drum groove profile - Ok / No damage - Wear
- Free movement of Fork shift guide roller in the drum groove



Drum :

- Presence of Neutral rivet on the Drum
- Free rotation of Drum in LH crankcase parent hole.
- Inner hollow portion must be free from casting dust / burr
- Groove profile width as per Service Data
- Hole available for parallel pin
- Drum profile free from Hi-Spot for free sliding of bush



Carburettor :

- Float
 - No puncture
 - Alignment w.r.t float pin - Ok
 - Not touching to bowl walls
- Needle Valve
 - No groove formation on the tip
 - Smooth action of spring loaded pin,
 - Smooth movement in its seat.
- Volume Control Screw
 - Not bent / Threads OK. / Not jammed / Presence of Spring Washer and 'O' ring.
- Jets
 - Correct size, No wear of jet hole, No clogging
- Piston Valve
 - Smooth free sliding, clearance in its seat, no excess wear mark.
- Choke Operation - Smooth (Push and pull type)



Guide Kick :

- No presence of any burr & flashes
- Face to face fitment on Crankcase after tightening.
- Application of loctite 638 to securing allen bolts



Camshaft :

- Presence of locating washer
- Free rotation of bearing
- Lobe height - as per Service Data
- No cut / wear marks on cam
- De-comp mechanism stickiness

Notes :

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Compression Pressure



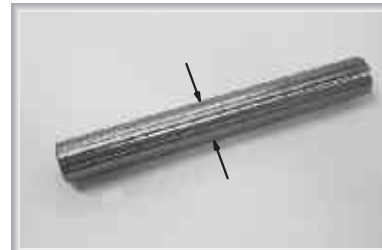
Std. Limit	6.0 ~ 10.0 Kg/cm ²
Serv. Limit	5.0 ~ 10.0 Kg/cm ²

Valve Clearance



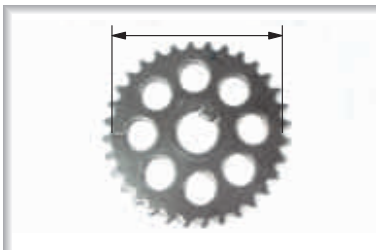
	Inlet	Exhaust
Std. Limit	0.05	0.10
Serv. Limit	0.05	0.15

Rocker Arm Shaft Dia.



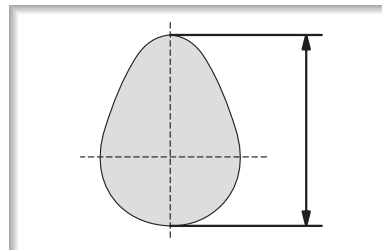
Std. Limit	7.994 ~ 8.0
Serv. Limit	7.98

Cam Sprocket Diameter



Std. Limit	61.48 ~ 61.36
Serv. Limit	61.30

Cam Height



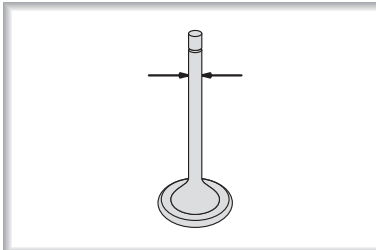
	Inlet	Exhaust
Std. Limit	31.0	30.4
Serv. Limit	30.8	30.2

Valve Spring Free Length



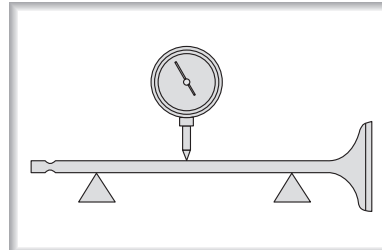
	Inner	Outer
Std. Limit	39.10	43.6
Serv. Limit	39.00	42.6

Valve Stem Diameter



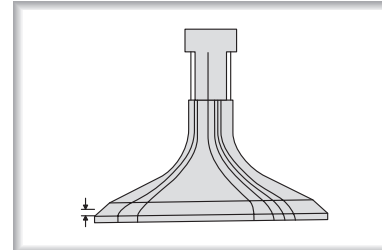
	Inlet	Exhaust
Std. Limit	4.48	4.46
Serv. Limit	4.40	4.41

Valve Stem Bend



Std. Limit	TIR 0.01
Serv. Limit	TIR 0.03

Valve Head Thickness



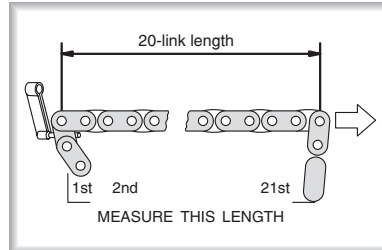
	Inlet	Exhaust
Std. Limit	0.5	0.8
Serv. Limit	0.3	0.6

Cylinder Head Warp



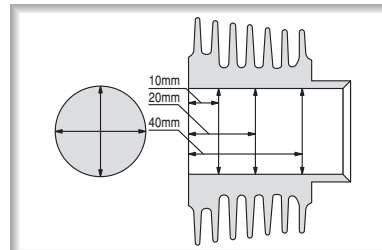
Serv. Limit	0.05
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Camshaft Chain Lth. 20 Links



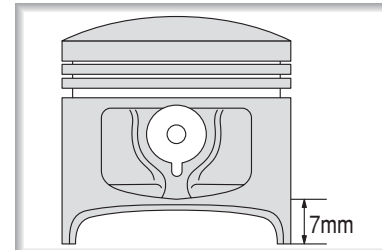
Std. Limit	127.00 ~ 127.20
Serv. Limit	128.0

Cylinder Inside Diameter



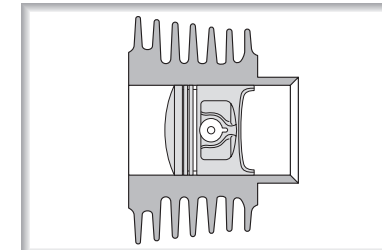
Std. Limit	63.50 ~ 63.508
Serv. Limit	63.508 ~ 63.515

Piston Diameter



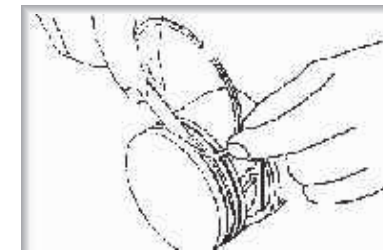
Std. Limit	63.478 ~ 63.488
Serv. Limit	63.488 ~ 63.498

Piston / Cylinder Clearance



Std. Limit	0.012 ~ 0.030
Serv. Limit	—

Piston Ring / Groove Clean.



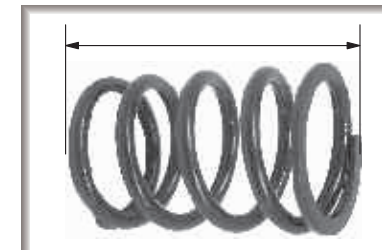
	TOP	SECOND
Std. Limit	0.02~0.06	0.01~0.05
Serv. Limit	0.16	0.15

Piston Ring End Gap



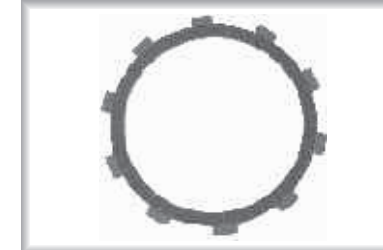
	TOP	SECOND
Std. Limit	0.15~0.30	0.30~0.45
Serv. Limit	0.55	0.70

Clutch Spring Free Length



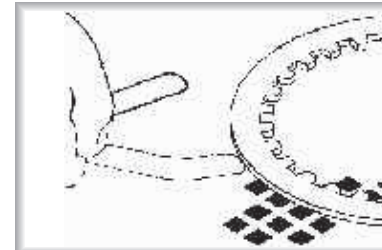
Std. Limit	30.0
Serv. Limit	29.0

Friction Plate Thickness



Std. Limit	2.9 ~ 3.1
Serv. Limit	2.75

Pressure Plate Warp



Std. Limit	0.2
Serv. Limit	0.3

Shift Fork Guide Pin Dia.



Std. Limit	4.4
Serv. Limit	4.2

Shift Drum Groove Width



Std. Limit	7.15
Serv. Limit	7.0

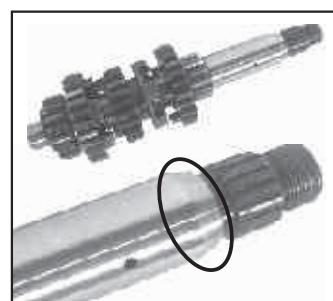
Crankshaft Run Out



Std. Limit	0.02 Max.
Serv. Limit	0.05

Parts Identification - Engine

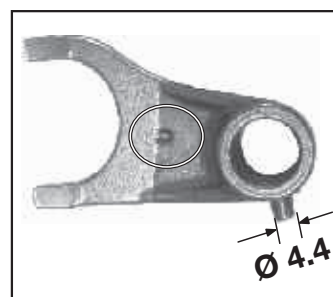
UG-III



Part Name	Shaft Input Transmission
Part No.	DK 1011 25
Description	Better clamping of clutch assly is ensured on Input Shaft for effective torque transmission with this new clutch mechanism.
Identification Mark	Taper provided on shaft near clutch mounting end.



Part Name	Guide Gear Shift
Part No.	DK 1011 58
Description	Guide Gear with 6 pins is meshed with gear change lever & transmits reciprocating motion into rotary motion & thus rotates drum change.
Identification Mark	Guide Gear is having 6 pins.



Part Name	Fork Gear Shift (Input & Output)
Part No.	Input : DK 1011 33 Output : DK 1011 34
Description	The roller in fork gear shift roll in the drum profile smoothly as & when drum rotates & guides to transmit To & Fro motion to fork gear shift for matching respective gears.
Identification Mark	• Pin diameter is 4.4 mm • 'U' mark on fork shift.



Part Name	Gear Drum Change Assembly
Part No.	DK 1011 32
Description	It has a wide profile (groove) for smooth rolling of fork gear shift roller in drum profile for smooth shifting of gear.
Identification Mark	Profile width is 7.15 mm. It has a square window parallel to neutral stopper locator.



Part Name	Lever Comp Gear Shift
Part No.	DH 1017 05
Description	Lever comp. gear shift is meshed with guide gear shift constantly. Thus helps in transmitting reciprocating motion to guide gear.
Identification Mark	Selector lever operates radially. Selector lever is short in length.

Parts Identification - Engine

UG-II



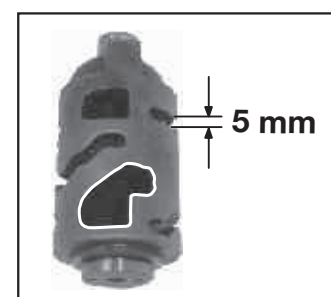
Part Name	Shaft Input Transmission
Part No.	DH 1015 19
Description	Effective clamping of clutch assembly is ensured on Input Shaft by using guide plate clutch in between shaft & clutch assembly.
Identification Mark	No Taper provided on shaft near clutch mounting end.



Part Name	Guide Gear Shift
Part No.	DJ 1011 48
Description	Guide Gear with 4 pins is meshed with gear change lever & transmits reciprocating motion into rotary motion & thus rotates drum change.
Identification Mark	Guide Gear is having 4 pins.



Part Name	Fork Gear Shift (Input & Output)
Part No.	DH 1011 30 - Input DH 1011 32 - Output
Description	The fork gear shift pin slides in the drum profile as & when drum rotates & guides to transmit To & Fro motion to fork gear shift for matching respective gear.
Identification Mark	Pin dia. = 5 mm. I/P shaft fork mark = S 32. O/P shaft fork mark = S 95 & S 92 respectively.




Part Name	Gear Drum Change Assembly
Part No.	DJ 1011 46
Description	It has a wide profile (groove) for smooth sliding of fork gear shift pin in drum profile for shifting of gears.
Identification Mark	Profile width is 5 mm. It has a odd shape window parallel to neutral stopper locator.




Part Name	Lever Comp Gear Shift
Part No.	DH 1011 34
Description	Lever comp. gear shift is meshed with guide gear shift constantly. Thus helps in transmitting reciprocating motion to guide gear.
Identification Mark	Selector lever operates To & Fro. Selector lever is more in length.

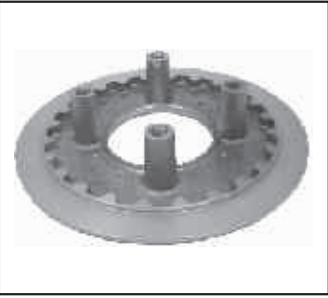
Parts Identification - Engine UG-III

	Part Name	Clutch Cover
	Part No.	DJ 1012 41
	Description	It houses the entire clutch side assemblies.
	Identification Mark	Clutch cover has Engine oil inspection window.

	Part Name	Holder Clutch (Thrust Plate)
	Part No.	DK 1010 78
	Description	Holder clutch holds the clutch bearing & plunger.
	Identification Mark	Holder clutch has 4 holes for mounting.


	Part Name	Clutch Spring
	Part No.	DH 1017 43
	Description	Clutch spring helps smooth engaging & disengaging the clutch mechanism.
	Identification Mark	Clutch spring height is 30.8 mm.


	Part Name	Clutch Center
	Part No.	DK 1010 01
	Description	Clutch center holds the set of clutch plate & pressure plate.
	Identification Mark	Step for spacer is provided. Clutch center height is 26 mm.

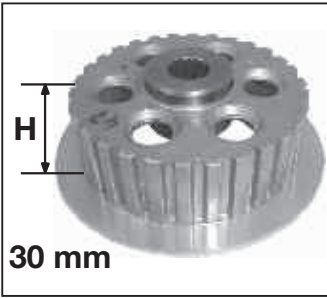
	Part Name	Clutch Wheel
	Part No.	DK 1011 63
	Description	Clutch wheel holds the set of clutch plate & pressure plate.
	Identification Mark	Clutch wheel has 4 legs for mounting clutch springs.


Parts Identification - Engine UG-II

	Part Name	Clutch Cover
	Part No.	DH 1011 49
	Description	It houses the entire clutch side assemblies.
	Identification Mark	Clutch cover does not have Engine oil inspection window.

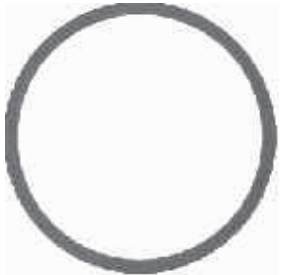
	Part Name	Holder Clutch (Thrust Plate)
	Part No.	DH 1014 84
	Description	Holder clutch holds the clutch bearing & plunger.
	Identification Mark	Holder clutch has 6 holes for mounting.


	Part Name	Clutch Spring
	Part No.	DH 1014 83
	Description	Clutch spring helps smooth engaging & disengaging the clutch mechanism.
	Identification Mark	Clutch spring height is 29.3 mm.

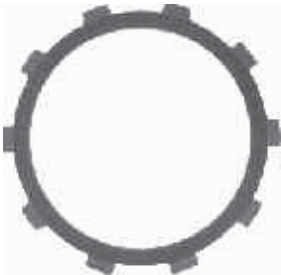
	Part Name	Clutch Center
	Part No.	DJ 1011 79
	Description	Clutch center holds the set of clutch plate & pressure plate.
	Identification Mark	No step for guide plate provided. Clutch center height is 30 mm.

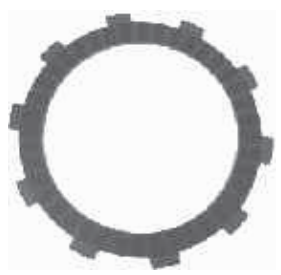
	Part Name	Clutch Wheel
	Part No.	DH 1013 44
	Description	Clutch wheel holds the set of clutch plate & pressure plate.
	Identification Mark	Clutch wheel has 6 legs for mounting clutch springs.


Parts Identification - Engine UG-III

	Part Name	Clutch Plain Washer
	Part No.	39 2161 11
	Description	New part added for preventing clutch judder.
	Identification Mark	Plain washer with no Identification Mark.

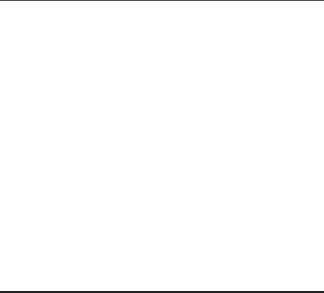
	Part Name	Clutch Belleville Washer
	Part No.	39 2167 12
	Description	New part added for preventing clutch judder.
	Identification Mark	Clutch Belleville Washer is concave in shape.

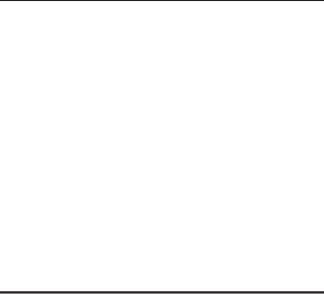
	Part Name	Disc Clutch Friction Plate
	Part No.	DK 1011 49
	Description	Clutch plate ID is smaller than regular clutch plate because to accommodate the plain washer & wave washer of anti judder mechanism. This plate is fitted facing the clutch hub side.
	Identification Mark	<ul style="list-style-type: none">• Internal diameter is 109.5 mm.• Friction material cubs are 48 nos.

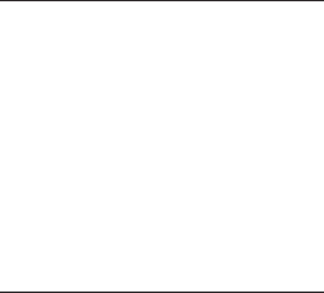
	Part Name	Clutch Plate Pressure
	Part No.	DK 1011 63
	Description	New part added. This plate is fitted facing the clutch wheel side.
	Identification Mark	Friction material cubs = 40 nos. Clutch plate appears to be in Brownish colour.


	Part Name	Clutch Plate (4 Nos.)
	Part No.	DK 1011 51
	Description	New part added. 4 clutch plates of same specifications are sandwiched in between LH & RH clutch plates for torque transmission.
	Identification Mark	Friction material cubs 36 nos. Clutch plate appears to be in Greenish colour.

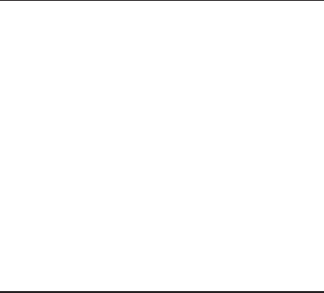
Parts Identification - Engine UG-II

	Part Name	NA
	Part No.	NA
	Description	NA
	Identification Mark	NA

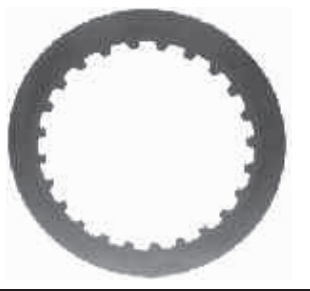
	Part Name	NA
	Part No.	NA
	Description	NA
	Identification Mark	NA

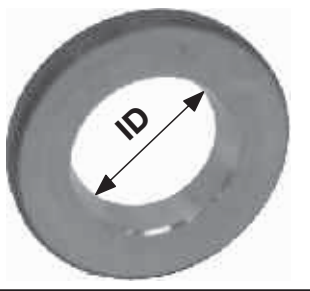
	Part Name	NA
	Part No.	NA
	Description	NA
	Identification Mark	NA


	Part Name	Clutch Plate Pressure (6 Clutch Plates)
	Part No.	DH 1013 44
	Description	Total 6 clutch plates of same specifications are housed in clutch assembly for torque transmission.
	Identification Mark	All clutch plates are Brown in colour.


	Part Name	NA
	Part No.	NA
	Description	NA
	Identification Mark	NA

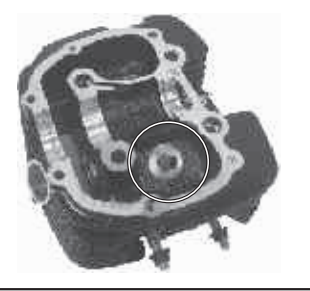
Parts Identification - EngineUG-III

	Part Name	Plate Clutch (Pressure Plate)
	Part No.	DK 1011 63
	Description	Pressure plate are housed in between clutch plates.
	Identification Mark	Pressure plate is more wide. Pressure plate width = 17 mm.


	Part Name	Spacer
	Part No.	DK 1011 26
	Description	New part added for adding is better face clamping of clutch assembly on Input Shaft.
	Identification Mark	Internal diameter (ID) is in conical shape.


	Part Name	Clutch Housing
	Part No.	DK 1010 74
	Description	Clutch housing holds the entire clutch assembly & the slots helps for effective lubrication.
	Identification Mark	Slots provided in clutch housing.


	Part Name	Head Cover
	Part No.	Cylinder head cover is a part of Cylinder Head Comp
	Description	Head cover houses the complete OHC system.
	Identification Mark	‘U’ mark embossed in casting.


	Part Name	Cylinder Head Comp
	Part No.	DJ 1012 69
	Description	Cylinder head comp houses the complete OHC system with valve train.
	Identification Mark	‘DJ’ mark along with ‘U’ mark embossed in casting. Valve springs fitment groove is deep.


Parts Identification - EngineUG-II

	Part Name	Plate Clutch (Pressure Plate)
	Part No.	DH 1015 57
	Description	Pressure plate are housed in between clutch plates.
	Identification Mark	Pressure plate is not wide as compared with regular. Width = 14 mm.

	Part Name	Guide Plate Clutch
	Part No.	DH 1013 74
	Description	Guide plate clutch helps in better clamping of clutch assly. on Input shaft.
	Identification Mark	Guide Plate clutch has a stainless steel finish with internal splines.

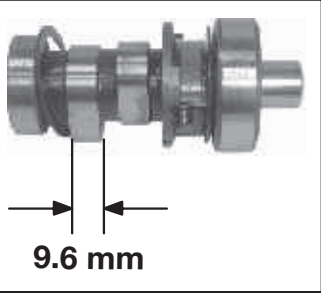
	Part Name	Clutch Housing
	Part No.	DH 1015 58
	Description	Clutch housing holds the entire clutch assembly.
	Identification Mark	No slots in clutch housing.


	Part Name	Head Cover
	Part No.	Cylinder head cover is a part of Cylinder Head Comp
	Description	Head cover houses the complete OHC system.
	Identification Mark	‘DJ’ mark embossed in casting.


	Part Name	Cylinder Head Comp
	Part No.	DH 1016 00
	Description	Cylinder head comp houses the complete OHC system with valve train.
	Identification Mark	‘DJ’ mark embossed in casting. Valve springs fitment groove is not deep.

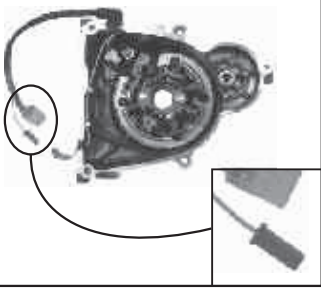
Parts Identification - Engine

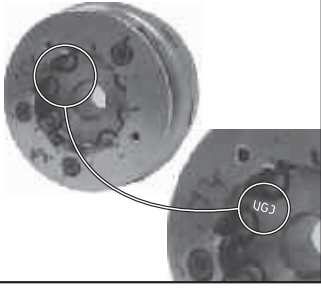
UG-III

 <div>9.6 mm</div>	Part Name	Camshaft Assembly
	Part No.	DH 1017 03
	Description	Camshaft assly is housed in between cylinder head cover & cyl. head comp. It drives the entire valve train assly as per enhanced valve timing.
	Identification Mark	Cam (track) width is less. Track width = 9.6 mm.

	Part Name	Valve Spring Outer
	Part No.	DH 1017 30
	Description	Valve spring helps in smooth closing of valves without any noise as per enhanced valve timing.
	Identification Mark	It is more in length. Length = 43.6 mm. Spring is marked with White oil paint.

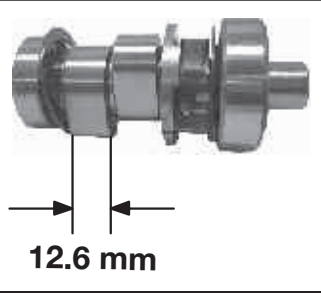
	Part Name	Valve Spring Inner
	Part No.	DH 1017 31
	Description	Valve spring helps in smooth closing of valves without any noise as per enhanced valve timing.
	Identification Mark	It is more in length. Length = 39.1 mm. Spring is marked with White oil paint.


	Part Name	Stator Plate
	Part No.	DJ 1110 21
	Description	All Electrical coils like Pick-up, Exciter, Lighting, Battery charging coils with enhanced ignition timing values are fitted on this plate.
	Identification Mark	Stator plate harness neutral coupler is having square shape.


	Part Name	Magneto Assembly (Rotor)
	Part No.	DJ 1110 20
	Description	Magneto assembly rotor is having analog ignition timing for initial starting for avoiding back kicking.
	Identification Mark	UG-3 mark embossed on the body viewed from tail side.

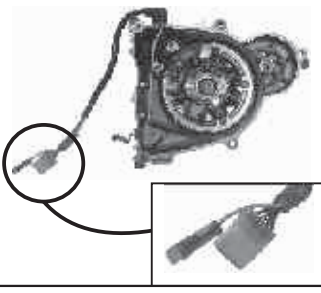
Parts Identification - Engine

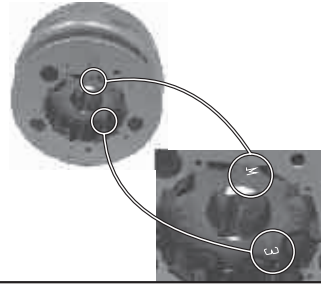
UG-II

 <div>12.6 mm</div>	Part Name	Camshaft Assembly
	Part No.	DH 1016 17
	Description	Camshaft assly is housed in between cylinder head cover & cyl. head comp. It drives the entire valve train assly.
	Identification Mark	Cam (track) width is more. Track width = 12.6 mm.

	Part Name	Valve Spring Outer
	Part No.	DS 1011 11
	Description	Valve spring helps in smooth closing of valves without any noise.
	Identification Mark	It is short in length. Length = 42 mm. Spring is marked with Blue oil paint.


	Part Name	Valve Spring Inner
	Part No.	DS 1011 10
	Description	Valve spring helps in smooth closing of valves without any noise.
	Identification Mark	It is short in length. Length = 38 mm. Spring is marked with Blue oil paint.

	Part Name	Stator Plate
	Part No.	DJ 1110 04
	Description	All Electrical coils like Pick-up, Exciter, Lighting, Battery charging coils are fitted on this plate.
	Identification Mark	Stator plate harness neutral coupler is having bullet type terminal.

	Part Name	Magneto Assembly (Rotor)
	Part No.	DJ 1110 57
	Description	Magneto assly rotor is having only Digital Ignition Timing.
	Identification Mark	'E' & 'M' mark embossed on the body viewed from tail side.

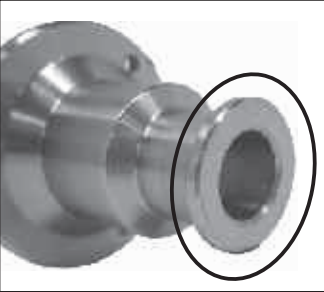
Parts Identification - Engine

UG-III

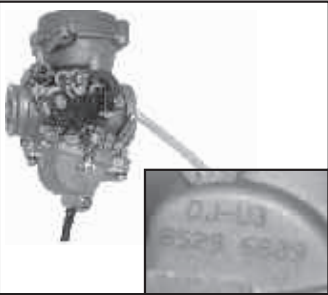
	Part Name	Centrifugal Oil Filter
	Part No.	DH 1010 64
	Description	The centrifugal oil filter body wall thickness has been increased by reducing the internal diameter for getting better strength.
	Identification Mark	The centrifugal oil filter has a cut mark on tail end.

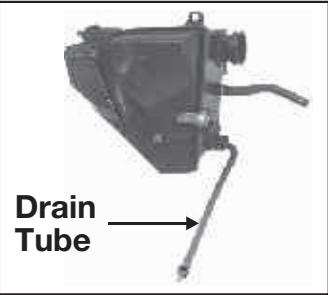
Parts Identification - Engine


UG-II


	Part Name	Centrifugal Oil Filter
	Part No.	DH 1010 64
	Description	The centrifugal oil filter body internal diameter is more as compared to UG-III filter.
	Identification Mark	The centrifugal oil filter does not have cut mark on tail end.

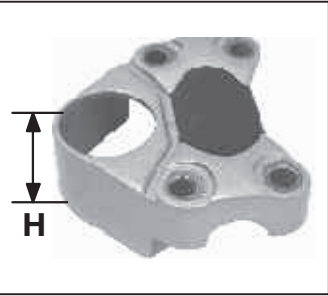
Parts Identification - Chassis UG-III

	Part Name	Carburettor Assembly
	Part No.	DJ 1012 32
	Description	With enhanced valve timing & to achieve better engine performance the carburettor assembly is retuned.
	Identification Mark	On RH side of Carburettor body BS-29, DJ-U3 mark is embossed.


	Part Name	Air Filter Assembly
	Part No.	DJ 1210 40
	Description	The new large volume air filter with fine & coarse filter foam is incorporated to provide torque on demand with optimised intake system.
	Identification Mark	Drain tube is provided on bottom side to discharge the condensed engine oil.


	Part Name	Silencer Assembly
	Part No.	DJ 1012 43
	Description	The silencer has been further optimised to match the changes done incorporating the new camshaft & air filter assembly.
	Identification Mark	Flanged bolt on ExhaustTEC is facing on LH side.


	Part Name	Head Light Assembly
	Part No.	DJ 2011 32
	Description	The parking lamps are projected out with a new aggressive look & together with the mask that gives a real 'Phantom' look. H/L facing has been lowered to give balanced looks.
	Identification Mark	Parking lamps are projected out. Provision for mask fitment.


	Part Name	Handle Holder Assembly
	Part No.	DH 1810 53
	Description	Handle holder assembly height has been increased to accommodate new speedo console.
	Identification Mark	Height of handle holder is more i.e. 31.5 mm.

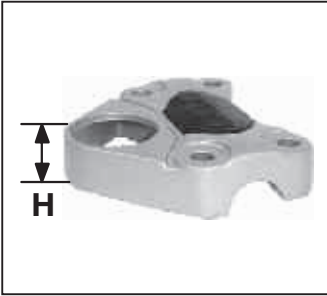
Parts Identification - Chassis UG-II

	Part Name	Carburettor Assembly
	Part No.	DJ 1210 20
	Description	To meet the requirement of UG-II engine specifications the carburettor is tuned.
	Identification Mark	On RH side of Carburettor body BS-29, DJ-U2 mark is embossed.






	Part Name	Air Filter Assembly
	Part No.	DJ 1211 05
	Description	A large volume air filter is introduced to provide torque on demand with optimised intake system.
	Identification Mark	No drain tube is provided on bottom side to discharge the condensed eng. oil.

	Part Name	Silencer Assembly
	Part No.	DJ 1011 61
	Description	The silencer has been optimised to meet the performance of Pulsar UG-II with ExhaustTEC introduction.
	Identification Mark	Flanged bolt on ExhaustTEC for measuring CO% is facing perpendicular to steering.



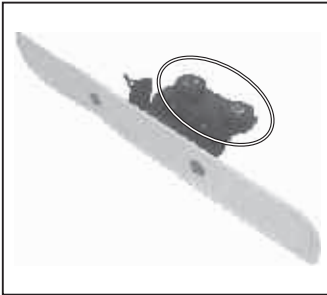


	Part Name	Head Light Assembly
	Part No.	DJ 2011 04
	Description	The parking lamps are in line with the head light body line.
	Identification Mark	Parking lamps are inline with head light body. No provision for mask fitment.

	Part Name	Handle Holder Assembly
	Part No.	DJ 1810 38
	Description	Handle holder assembly height is been designed low to accommodate twin pod speedo console.
	Identification Mark	Height of handle holder is less i.e. 18.5 mm.


Parts Identification - Chassis UG-III


	Part Name	Holder Fork Upper
	Part No.	DH 1810 56
	Description	Holder fork upper cover clamps the fork pipes & handle holder.
	Identification Mark	No bracket for holding speedo console.
	Part Name	Brace Fender
	Part No.	DH 1613 04
	Description	Brace fender gives reinforcement to mud guard & also guides the wire / hose going to wheel sensor & caliper assembly respectively.
	Identification Mark	2 nos. of brackets provided for a) Speedometer wire. b) For disc brake hose.
	Part Name	Front Number Plate Bracket
	Part No.	DH 1612 92
	Description	The front number plate bracket holds the number plate & for firm fitment 3 point mounting is given.
	Identification Mark	<ul style="list-style-type: none">• 3 holes for mounting on lower 'T'.• 1 hole is oblong.
	Part Name	Speedometer Assembly
	Part No.	DJ 2011 44
	Description	Easy to read digital speedometer displaying speed in kmph, odometer displaying distance covered & trip meter displaying distance covered per trip with resetting facility.
	Identification Mark	Digital speedometer with analogue type tachometer.
	Part Name	Wheel Sensor Unit
	Part No.	DK 1011 63
	Description	New part added. It is a sensor sensing the vehicle speed and is a non contact type wheel sensor.
	Identification Mark	NIL


Parts Identification - Chassis UG-II

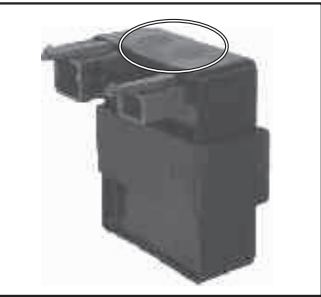
	Part Name	Holder Fork Upper
	Part No.	DJ 1810 17
	Description	Holder fork upper cover clamps the fork pipes, handle holder & twin pod speedometer assembly.
	Identification Mark	To mount the twin pod speedo console there is a bracket provided.
	Part Name	Brace Fender
	Part No.	DH 1612 58
	Description	Brace fender gives reinforcement to mud guard & also guides the brake hose going towards caliper assembly.
	Identification Mark	No bracket provided for disc brake hose / speedo cable.
	Part Name	Front Number Plate Bracket
	Part No.	DJ 1811 11
	Description	The front number plate bracket holds the number plate & is mounted with 2 point mounting.
	Identification Mark	<ul style="list-style-type: none">• 2 holes for mounting on lower 'T'.
	Part Name	Speedometer Assembly
	Part No.	DJ 1910 48
	Description	Twin pod analogue type speedometer displaying vehicle speed, engine rpm, odometer & trip meter. With trip meter adjustment facility.
	Identification Mark	Twin pod analogue type speedometer.
	Part Name	Case Meter
	Part No.	DJ 1510 57
	Description	Case meter assly houses the speedometer worm gear & the pinion gear assly to drive speedometer.
	Identification Mark	Provision for mounting pinion gear & speedometer gear.


Parts Identification - Chassis UG-III

	Part Name	Control Switch LH
	Part No.	DH 2010 48
	Description	The switches operate without any physical contact & thus has no wear & tear of parts. Also these have illumination of tell-tale icons through LED's which glows Bluish-White during night driving.
	Identification Mark	Coupler colour is White.


	Part Name	Control Switch RH
	Part No.	DH 2010 49
	Description	The switches operate without any physical contact & thus has no wear & tear of parts. Also these have illumination of tell-tale icons through LED's which glows Bluish-White during night driving.
	Identification Mark	Provision of engine kill switch.


	Part Name	Battery
	Part No.	DJ 2011 25
	Description	A low maintenance battery with a unique vent mechanism that allows only gas / vapours to escape & not the electrolyte. Hence electrolyte level inspection interval is less.
	Identification Mark	Battery top side mould has orange colour. Battery has vent valve on RH side.


	Part Name	CDI Unit
	Part No.	DJ 1110 23
	Description	For easy kick starting the ignition timing has been optimised by introducing analogue signaling to CDI unit till 3000 rpm & thereafter digital signaling.
	Identification Mark	Two green colour dot marks on CDI unit.


	Part Name	Side Stand Switch
	Part No.	DH 2010 55
	Description	Side stand switch assembly coupler mounting position shifted hence cable is longer in length.
	Identification Mark	Side stand switch cable length is more.

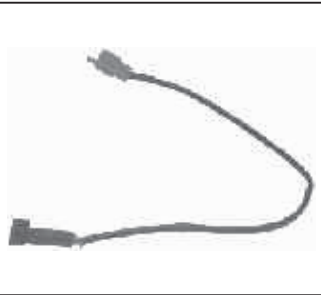
Parts Identification - Chassis UG-II

	Part Name	Control Switch LH
	Part No.	DJ 2010 24
	Description	These are conventional switches & operate on physical make & brake mechanism causing more wear & tear of parts.
	Identification Mark	Coupler colour is Red.

	Part Name	Control Switch RH
	Part No.	DJ 2010 12
	Description	These are conventional switches & operate on physical make & brake type mechanism causing more wear & tear of parts.
	Identification Mark	No engine kill switch available.

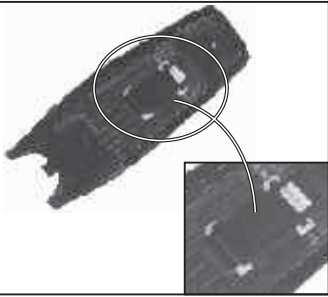
	Part Name	Battery
	Part No.	DJ 2010 36
	Description	Conventional type of battery with overflow tube mechanism. Electrolyte level inspection interval is more as compared to low maintenance battery.
	Identification Mark	Battery top side mould has black colour. Battery have a vent plug on RH side.


	Part Name	CDI Unit
	Part No.	DJ 1110 17
	Description	CDI unit has only digital signaling.
	Identification Mark	One green colour dot marks on CDI unit.


	Part Name	Side Stand Switch
	Part No.	DJ 2011 05
	Description	NIL
	Identification Mark	Side stand switch cable length is less.

Parts Identification - Chassis UG-III

	Part Name	Side Stand Magnet
	Part No.	
	Description	NIL
	Identification Mark	Side stand magnet body has green passivation.

	Part Name	Seat Assembly
	Part No.	DJ 2110 03
	Description	For proper locking & proper fitment of tool kit the seat assembly is redesigned.
	Identification Mark	No rib at tool kit mounting area. Seat locking stud is located at extreme tail end.

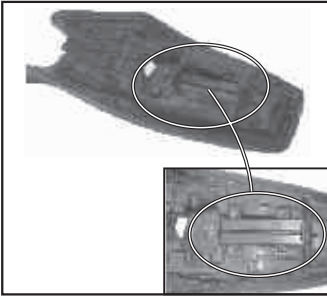
	Part Name	Seat Lock Assembly
	Part No.	DJ 2110 06
	Description	Since seat lock is shifted to tail end of the seat.
	Identification Mark	Seat lock cable length is more.


	Part Name	Gear Change Pedal
	Part No.	DJ 1011 49
	Description	The gear change pedal has more curved shape for proper placing of foot & to avoid foot fouling with step holder.
	Identification Mark	Gear pedal has more curved shape.


	Part Name	Holder RH Step & LH Step
	Part No.	DJ 1612 57 & DJ 1612 56
	Description	Holder step provided for resting pillion rider's foot.
	Identification Mark	Additional projected step is provided for better aesthetic look.

Parts Identification - Chassis UG-II

	Part Name	Side Stand Magnet
	Part No.	
	Description	NIL
	Identification Mark	Side stand magnet body is black in colour.


	Part Name	Seat Assembly
	Part No.	DJ 2110 01
	Description	NIL
	Identification Mark	Rib at tool kit mounting area. Seat locking stud is located in central part of seat assly.

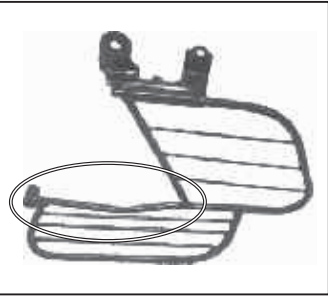
	Part Name	Seat Lock Assembly
	Part No.	DH 1610 46
	Description	The seat lock is located at center of the seat.
	Identification Mark	Seat lock cable length is short as compared to UG-III cable.

	Part Name	Gear Change Pedal
	Part No.	DH 1011 49
	Description	NIL
	Identification Mark	Gear pedal has less curved shape.


	Part Name	Holder RH Step & LH Step
	Part No.	DJ 1611 12 & DJ 1611 11
	Description	Holder step provided for resting pillion rider's foot.
	Identification Mark	No additional projected step is provided.


Parts Identification - Chassis UG-III

	Part Name	Rear Fender
	Part No.	DJ 1612 54
	Description	The rear fender is located below the rider seat for arresting dust / dirt & water splashing on.
	Identification Mark	On rear fender a step is provided at rear end RH side.

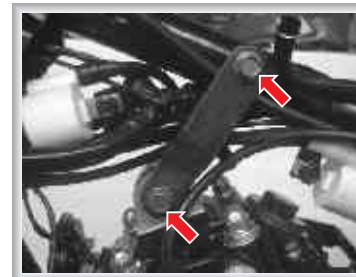
	Part Name	Saree Guard
	Part No.	DH 1612 94
	Description	Saree guard is mounted on chassis as a safety feature for arresting the possibility of saree getting entangled into rear wheel while riding the bike.
	Identification Mark	Saree guard has a less curve shape near ladies foot step as compared to UG-II. Saree guard mounting allen bolt is short in length.

Parts Identification - Chassis UG-II

	Part Name	Rear Fender
	Part No.	DJ 1610 51
	Description	The rear fender is located below the rider seat for arresting dust / dirt & washer splashing on.
	Identification Mark	On rear fender no step is provided.

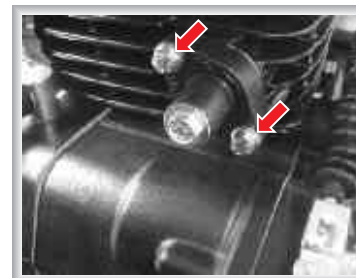
	Part Name	Saree Guard
	Part No.	DJ 1612 15
	Description	Saree guard is mounted on chassis as a safety feature for arresting the possibility of saree getting entangled into rear wheel while riding the bike.
	Identification Mark	Saree guard has more curve shape near ladies foot step as compared with Pulsar UG-III. Saree guard mounting allen bolt is more in length.

Cyl. Head Bkt. Mtg. Bolts



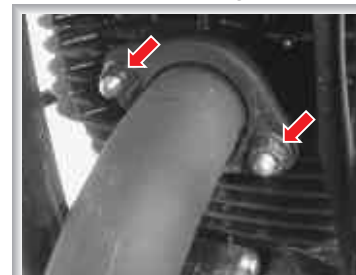
M8: 2.2 Kg.m

Chain Tensioner Mtg. Bolts



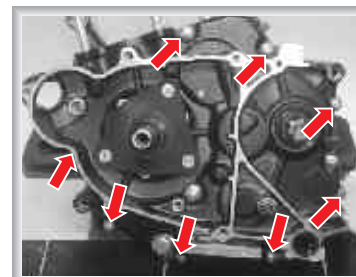
1.1 Kg.m

Silencer Mounting Nuts



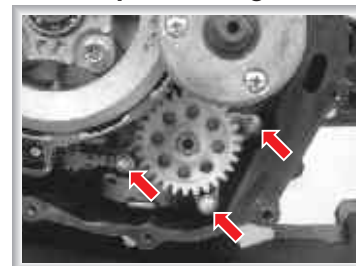
1.4 ~ 1.9 Kg.m

Crankcase Joining Bolts



1.1 Kg.m (Loctite 243)

Oil Pump Mounting Bolts



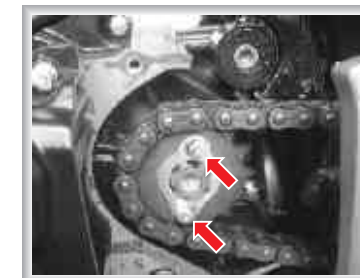
1.1 Kg.m (Loctite 243)

Engine Mounting Bolts



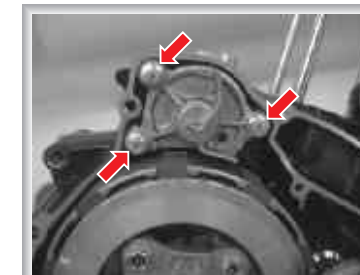
M8: 2.2 Kg.m M10: 2.4 Kg.m

Output Sprocket Bolts



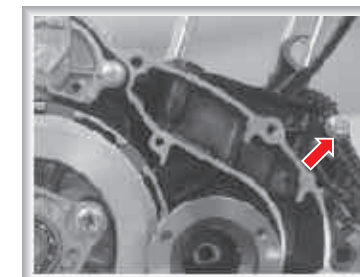
1.1 Kg.m (Loctite 243)

Balancer Gear Cover Bolts



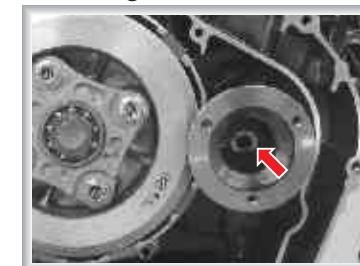
1.0 ~ 1.1 Kg.m (Loctite 243)

Crankcase Joining Bolt



1.1 Kg.m (Loctite 243)

Centrifugal Oil Filter Nut



5.5 Kg.m

Engine Mounting Nuts



M8: 2.2 Kg.m M10: 2.4 Kg.m

Silencer Mounting Bolt



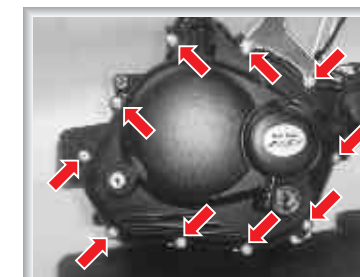
3.5 ~ 4.0 Kg.m

Crankcase Joining Bolt



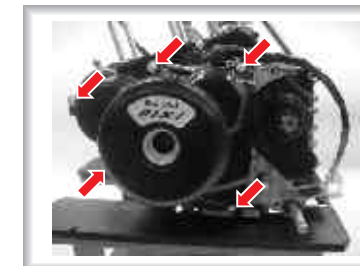
1.2 Kg.m (Loctite 243)

Clutch Cover Bolts



1.1 Kg.m

Rotor Cover Bolts



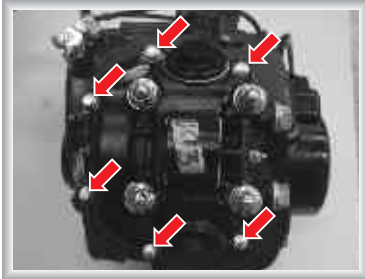
1.1 Kg.m

Clutch Nut (LH Threads)



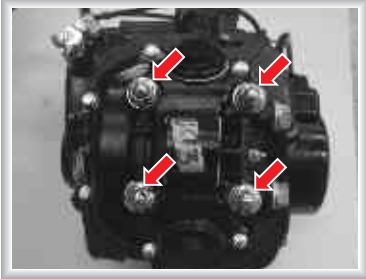
5.0 Kg.m

Cylinder Head Cover Bolts



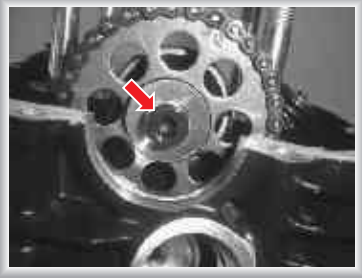
3.5 Kg.m

Cylinder Head Cover Nuts



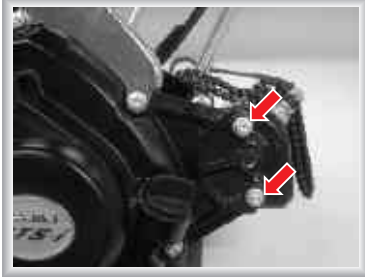
1.0 ~ 1.5 Kg.m

Camshaft Sprocket Allen Bolt



1.4 Kg.m (Loctite 243)

Starter Motor Mounting Bolts



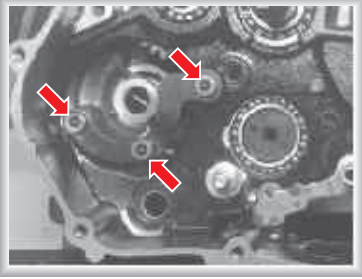
1.1 Kg.m

Rotor Mounting Bolt



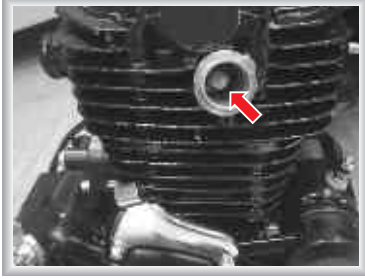
4.5 Kg.m

Kick Guide Allen Bolts



1.2 Kg.m

Spark Plugs (2 Nos.)



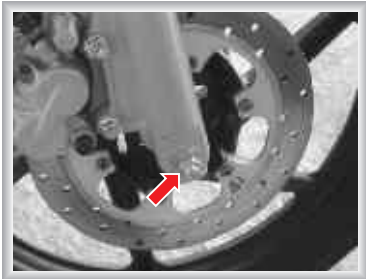
1.4 Kg.m

Drain Bolt



2.5 Kg.m

Front Axle Nut



4.0 ~ 5.0 Kg.m

Rear Axle Nut



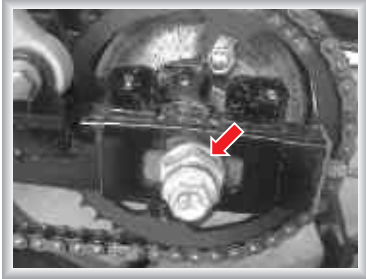
8.0 ~ 10.0 Kg.m

Torque Rod Nut



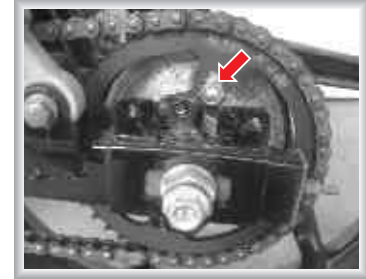
3.0 ~ 4.0 Kg.m

Sleeve Nut



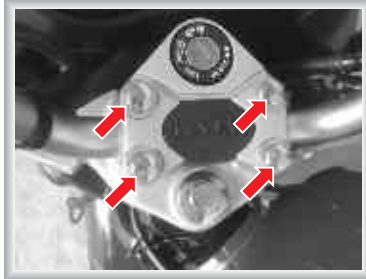
7.0 ~ 8.0 Kg.m

Rear Sprocket Mtg. Nut



1.8 ~ 2.5 Kg.m (Loctite 243)

Handle Bar Holder Bolts



2.0 ~ 2.2 Kg.m

Steering Top Cap Bolt



3.5 Kg.m

Stg. Stem Nut (slotted)



0.5 Kg.m

Upper Clamp Allen Bolt



1.8 ~ 2.0 Kg.m

Lower Clamp Bolt



2.5 ~ 3.5 Kg.m

RSA Mounting Dome Nut



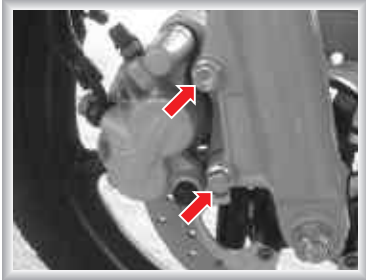
3.5 ~ 4.0 Kg.m

Swing Arm Pivot Nut



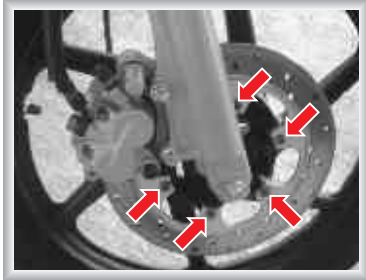
8.0 ~ 10.0 Kg.m

Caliper Install Bolts



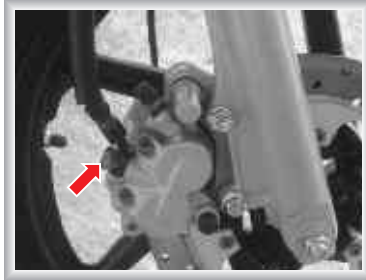
2.2 ~ 2.8 Kg.m

Brake Disc Allen Bolts

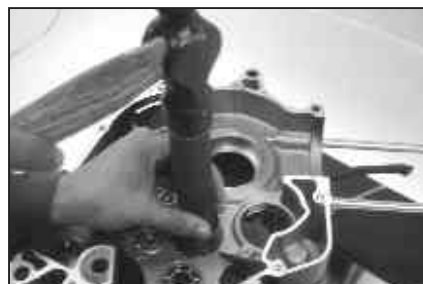


0.9 ~ 1.1 (Loctite 243)

Banjo Bolt Caliper



2.2 ~ 2.8 Kg.m

**Fitting of Oil Seals and Bearings :****Crankcase RH (Clutch Side)**

Use Bearing Driver set (P. No. 37 1030 61)

Fit :

- Bearing for 'Input Shaft Assembly'



Use Bearing Driver set (P. No. 37 1030 61)

Fit :

- Bearing for 'Output Shaft Assembly'

**Crankcase LH (Magnetor Side)**

Use Bearing Driver set (P. No. 37 1030 61)

Fit :

- Bearing for 'Output Shaft'



Use Bearing Driver set (P. No. 37 1030 61)

Fit :

- Bearing for 'Input Shaft'

Note : Do not use inner guide while fitting the bearing for 'Input Shaft' in 'Crankcase LH' as this will damage the protruding lug of crankcase casting. Shield of brg. must be on crankcase side/protruding lug side.



Use Bearing Driver set (P. No. 37 1030 61)

Fit :

- Bearing for 'Body Balancer gear Assembly'



Use Bearing Driver set (P. No. 37 1030 61)

Fit :

- Oil seal on 'Guide Starter Assembly'
- 'O' ring on 'Guide Starter Assembly'.
- Damper



Fit :

- Oil seal for 'Output Shaft'



Fit :

- Oil seal for 'Gear Changer Lever'

**Clutch Cover**

Fit :

- Oil seal for 'Kick Shaft Assembly'



Fit :

- Oil seal for 'Clutch Lever' on 'Clutch Cover'

**Assembly of Sub assemblies :****Magnetor Cover**

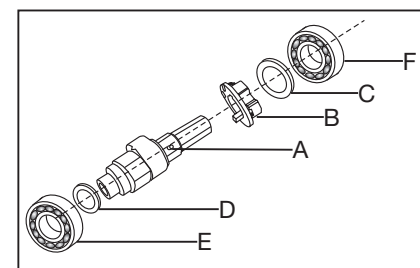
Fit :

- 'Harness' in the 'Cover'
- 'Stopper' and tighten the 'Screw' (Use Loctite 243)
- 'Pulsar Coil' and tighten 2 'Screws' (Use Loctite 243)
- 'Stator Assembly' and tighten 2 'Bolts' (Use Loctite 243)
- 2 'Dowel Pins'

Camshaft Assembly

Fit :

- Parallel Pin (A)
- De-compression Mechanism (B)
- 'Washer' (C)
- Washer (D)





- Using Arbour Press

Fit :

- 'Bigger Bearing' (E)
- 'Small Bearing' (F)

Note : Apply thin layer of oil on sliding surfaces of parts for smooth fitting.



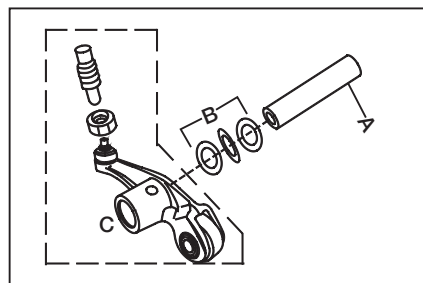
Head Cover

Fit :

- Roller rocker arm
- Tappet Screw
- Tappet Nut
- 20 Rollers in cage outer

Note :

- There are 2 cages in roller rocker arm each cage holds 20 rollers
- Inner cage in Absent
- Multipurpose grease is to be applied in outer cage to hold the roller firmly while assembling

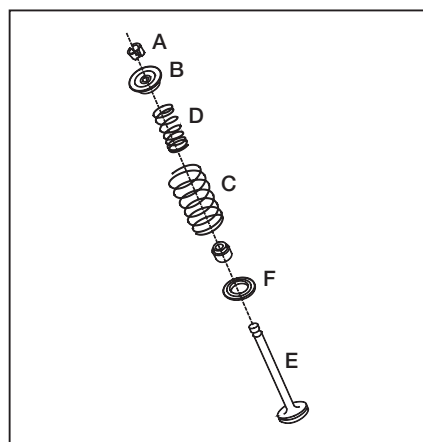


Assembling Head Cover

Fit :

- Roller Rocker Arm
- Set of Plan and Wave Washer
- Rocker arm shaft
- Gaskets
- Dummy Plugs

Note : Repeat the same procedure for fitment of other roller rocker arm



Cylinder Head

Fit :

- Valve steam seals
- Slide the 'Valve' from below.
- Place the 'Valve Springs' (C&D) (Inner and outer closed coiled ends placed at the bottom side)
- Valve Spring Retainer' (B)

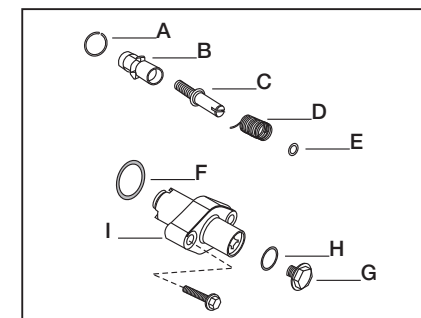
Using the sp. tool Valve Spring Compressor 37 1031 07 & Adaptor 37 10DJ 78

- Press the valve springs
- Fit the cotter valves (A) & release the special tool



Similarly carry out the same procedure to assemble the other 'Valve' in the 'Cylinder Head'.

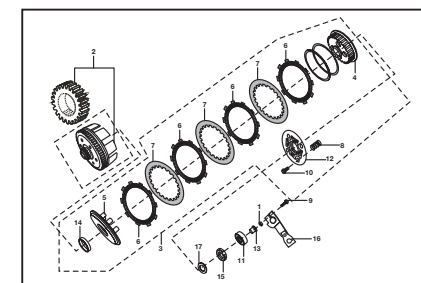
Note : Ensure that there is no valve leakage. If required pour the petrol in intake and Exhaust manifold and observe leakage at valve head.



Chain Tensioner Assembly

Fit :

- 'O' ring (F) in the body (I)
- 'Thrust Washer' (E)
- 'Spring' (D)
- 'Cap' (B) along with 'Screw Internal' and 'Screw External' (C) (Keep the 'Spring' and 'Screw Terminal' fully compressed inside)
- 'Circlip' (A)



Clutch Assembly

Assemble the clutch plates and friction plates in clutch center / clutch hub.

Fit :

- 'Plain Washer' in 'Clutch Center' / 'Clutch Hub'
- 'Bellivelli Washer'
- 'Clutch Plate'(A) 1 Nos
- 'Pressure Plate' 5 Nos
- 'Clutch Plate' (B) 4 Nos
- 'Clutch Plate' (C) 1 Nos
- 'Wheel Clutch'
- 'Springs' 4 Nos.
- 'Thrust Plate'
- 'Bolt'

Using Special Tool T101168

Align the clutch assly into the clutch housing.

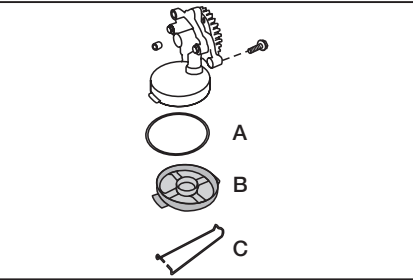
Fit :

- 'Spacer'
- 'Clutch Assly'



Note :

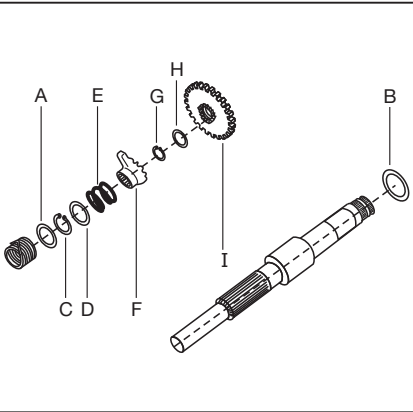
- Ensure concentricity of 'Thrust Plate' w.r.to 'Clutch Wheel', 'Clutch Center', 'Clutch Housing'. Using Special Tool -
- The Special Tool can also helps in preventing the cracking / Bending of 'Thrust Plate' while removing and refilling the thrust plate.



Oil Pump

Fit :

- 'O' ring (A) on the 'Oil Strainer' (B)
- 'Clip' (C)



Kick Shaft Assembly

Fit :

- 'Pinion Complete Kick Starter' (I)
- 'Washer' (H)
- 'Circlip' (G)
- 'Ratchet Kick Starter' (F)

Note : Match the dot mark of 'Ratchet Kick Start' with respect to 'Spindle Kick Start Assembly' and then slide 'Ratchet Kick Starter' (F) on 'Spindle Kick Start'

- 'Spring Kick Starter Ratchet' (E)
- 'Washer Thrust' (D)
- 'Circlip' (C)
- 'Washer Thrust' (B)
- 'Thrust Washer' (A)



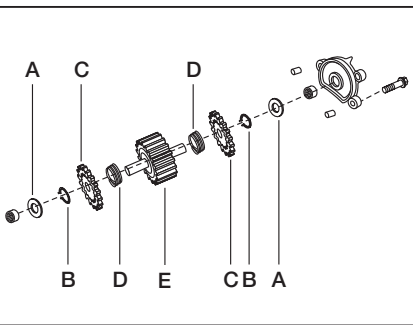
Assembly Balancer Idler Gear Bearing

Using Bearing Driver set (P. No.: 37 1030 61)

Fit :

- Needle roller bearings in crankcase RH and Cover

Note : Apply oil on bearing OD before pressing bearings for smooth bearing



Fit :

- 'Springs' (D)
- 'Scissor Gears' (C)
- 'Circlip' (B)
- Thrust washer

Similarly carry out the same procedure on other side of the gear to assemble the 'Balancer Idler Gear' completely.

Note : Ensure that one spring end butts against spring dowel in 'Balancer Idler Gear' & the other end of spring should butt against the lug on 'Scissor Gear'



Loading the assembly Balancer Idler Gear

Using Special Tool - Balancer Gear Holder 37 10DJ 63

- Slide the 'Assembly Balancer Idler Gear' in special tool (A)
- Rotate the 'Scissor Gear' anticlockwise till the lug contacts the torsion spring.
- Using a marker, mark the 'Balancer Idler Gear' and 'Scissor Gear Tooth'

Using Special Tool

- Turn the 'Scissor Gear' anticlockwise such that 2 teeth pre-load is achieved. This can be confirmed by the markings done previously.
- Holding the 'Scissor Gear' pre-loaded in the above position slide the 'Scissor Gear' into the special tool completely.

Repeat the same procedure for loading the other 'Scissor Gear'.

Note : Keep this Assembly balancer idler gear in loaded condition with special tool.



Gear Complete Starter Counter Assembly

Using Arbour Press

Fit :

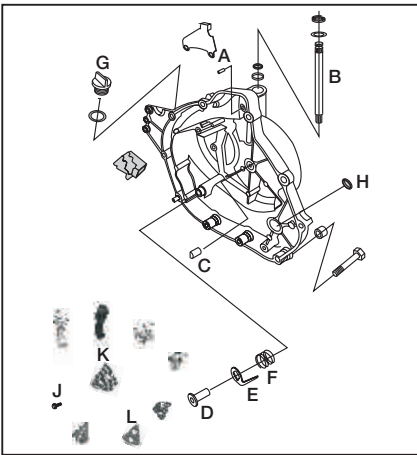
- 'Needle Roller Bearing'



Crankcase LH (Magneto Side)

Fit :

- 'Guide Starter Assembly'
- 3 'Screws' (A) (Use loctite 243)



Clutch Cover

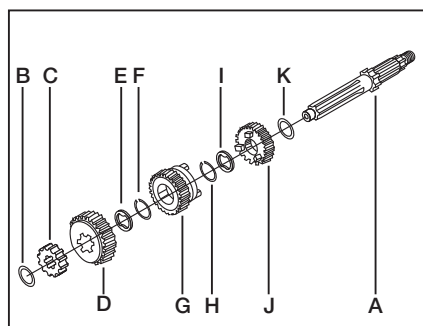
Fit :

- Kick shaft oil seal (H)
- Oil inspection window
- Wire clip (I)
- Set dampers (K)
- Set of plates (L)
- Bolts (J)
- 'Rack' (C)
- 'Shaft Clutch Release' (B) in 'Clutch Cover' by rotating it slightly to match the teeth.
- 'Parallel Pin' (A) to lock the 'Shaft Clutch Release'
- Washer

- 'Spring' torsion clutch lever
- External lever
- 'Bolt'
- Spring joint 'A' (F)
- 'Plunger Plate' (E)
- 'Plunger oil' (D)
- 2 'Dowel Pins'
- 'Grommet' (M)
- Oil feeler plug (G)

Apply loctite 243 to all damper fitment bolts.

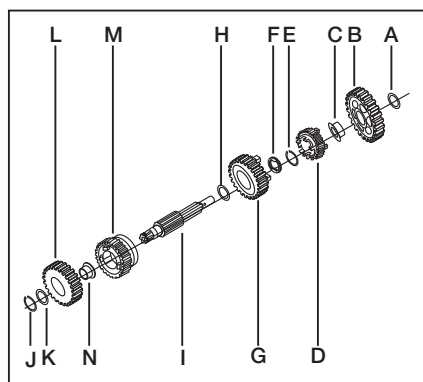
Note : Ensure fitment of set of dampers and plate before fitting the above.



Input Shaft Assembly

Fit : From LH side of shaft (A)

- Thrust washer (K)
- Gear 4th (J)
- Splined washer (I)
- Circlip (H)
- Gear 3rd drive (G)
- Circlip (F)
- Splined washer (E)
- Gear 5th drive (D)
- Gear 2nd drive (C)
- Thrust washer (B)



Output Shaft Assembly

Fit : from LH side of shaft

- Gear 5th driven (M)
- Bush (N) with shoulder ring
- Gear 2nd driven (L)
- washer (K)
- Circlip (J)

Fit : from RH side of shaft

- Thrust washer (H) behind the 3rd gear on output shaft
- Gear 3rd driven (G)
- Spline washer (F).
- Circlip (E)
- Gear 4th driven (D)
- Steel bush (C) with shoulder ring
- Gear1st driven (B)
- Thrust washer (A)

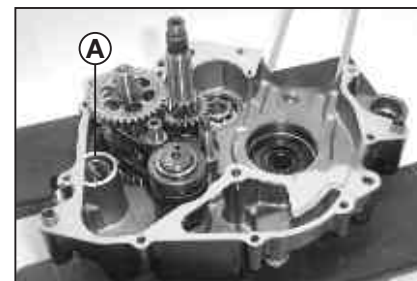
Engine Assembling

Engine Central Part

Fit : (In Magneto side Crankcase)

- 'Input and Output Shaft Assembly' simultaneously.
- 'Fork shifts' along with rollers on 'Input and Output Shaft Assembly' (2 bigger fork shifts on output shaft and 1 smaller on input shaft).

Note : For ease of assembly of gears, remove gear 1st driven and insert both the input and output shaft assemblies with gears in mesh into their respective bearings. The gear box should be in neutral gear before 'RH Crankcase' is assembled on to 'LH Crankcase'.



Fit :

- 'Drum Change'
- 'Shaft Gear Shift'
- 'Kick Spring' (A)
- 2 Dowels
- 'Gasket'

Caution : Use a sharp blade or knife to cut off any protruding 'Gasket'. This is very important for preventing any oil leakage from 'Crankcase' and 'Cylinder Block Joint'. Don't apply grease / any adhesive to 'Crankcase Gasket' as these 'Gasket' when comes in contact with oil expands and seals hidden cavities.

Fit :

- Crankshaft

Caution : Check oil supply to big end bearing by pumping oil in the clutch side end of crankshaft and lets oil dribble out of con-rod big end sides.



Fit :

- Crankcase RH
- Bolts (LH & RH Side)

Clutch Side

Fit :

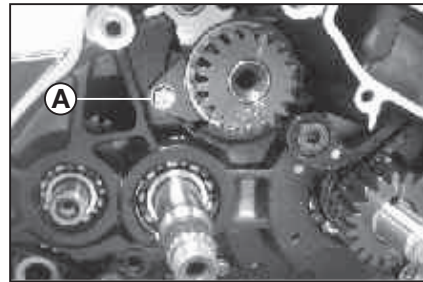
- 'Parallel Pin'.
- 'Sprocket Cam Drive'
- 'Cam Chain'

Note : Hold the cam chain upright using a soft copper wire or a thread.

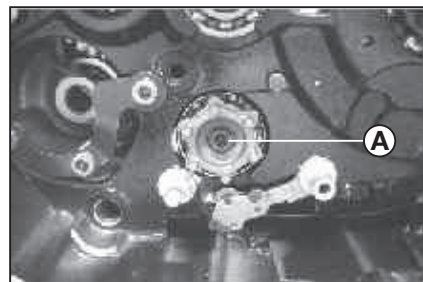


- Fit :**
- 'Square Key
 - 'Primary Gear'.

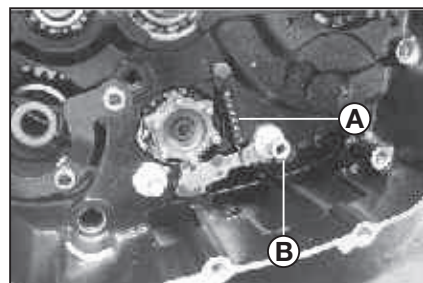
Note : Ensure fitment of 2 'Plain Washers' on either side of 'Kick Shaft Assembly'.



- Fit :**
- 'Body Balancer Gear'.
 - 'Lock'.
 - 'Bolt' (A) (Use Loctite 243)



- Fit :**
- 'Parallel Pin'.
 - 'Spacer'
 - 'Guide gear shifter'
 - 'Allen Bolt' (A)



- Fit :**
- 'Spring' (A)

Note :

- Apply Loctite 638 at 'Bolt Shift Change' (B) if removed.
- Ensure free movement on 'Stopper Gear Shift' in 'Bolt Shift Change'.

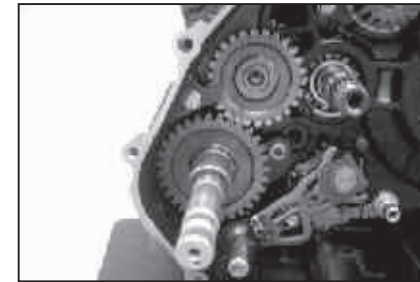


- Fit :**
- 'Gear change lever assly'



- Fit :**
- 'Gear kick Idler'
 - Stopper
 - Stopper bolt (A) (Use loctite 243)

Note : Ensure loctite 638 on 'Kick Guide' allen bolts, if removed



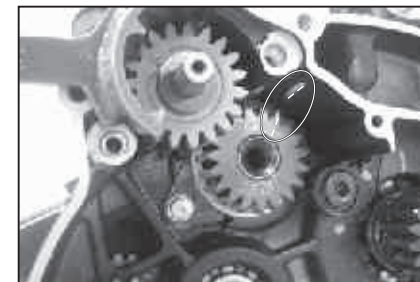
- Fit :**
- Washer
 - 'Kick Shaft Assembly'
 - Washer

Note :

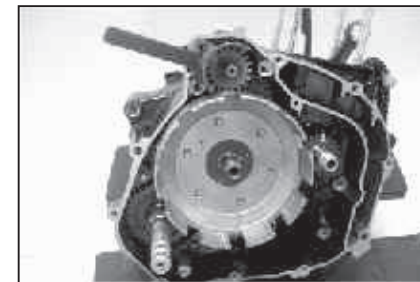
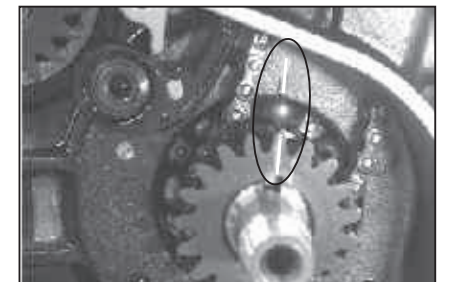
- Ensure fitment of 2 'Plain Washers' on either side of 'Kick Shaft Assembly'
- Refer Skill tip for fitment procedure on page no....



- Fit :**
- 'Thrust Washer'
 - 'Assly Balancer Idler Gear' with Special Tool
 - Thrust washer



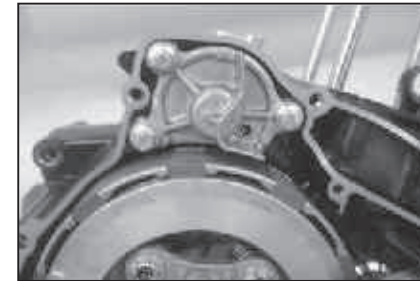
- Fit :**
- Align gear timing marks of ..
- Primary gear mark w.r.t crankcase mark
 - Body balancer assly mark w.r.t crankcase mark



- Fit :**
- Clutch housing

Note :

- Ensure perfect matching of gear alignment marks w.r.to crankcase marks.
- Refer the skill tips section for understanding procedure for gear alignment marks given on page no 52.



- Fit :**
- 2 'Dowels'
 - 'Assly Balancer Idler Gear Cover'
 - 3 'Bolt'



Using Special Tool - Primary gear holder 37 10DJ 28 & Special Nut 37 10DJ 43

- Fit :**
- 'Spacer'.
 - 'Clutch Assembly Complete'
 - 'Washer'
 - 'Special Nut'





Note : Special nut for input shaft has LH threads.

Fit :

- 'Bearing with plunger'.



Using Special Tool : Primary Gear Holder - 37 10DJ 28

Using Sp. Tool : Centrifugal Oil Filter Nut - 37 10DJ 43

Fit :

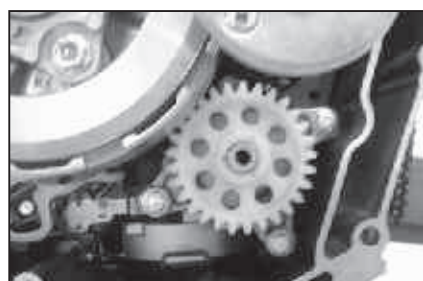
- 'Centrifugal Oil Filter'.
- Washer
- 'Special Nut'.



Using Special tool : Primary gear holder 37 10DJ 28

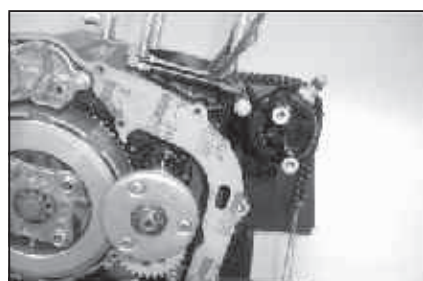
Fit :

- 'Gasket'
- 3 screws
- Cover



Fit :

- 2 Dowels
- 'Oil Pump Assembly'
- 3 'Bolts'



Fit :

- 'Starter Motor'
- Clutch cover gasket'
- '2 Dowels'

Note : Do not apply any grease to stick 'Gaskets' to the 'Clutch Cover / Magneto Cover' or 'Crankcase'. As grease deteriorates the gasket material and reduces sealing efficiency.



Fit :

- 'Clutch Cover'
- 10 'Bolts'
- 'Bracket clutch cable'
- 'Starter Motor Cap'
- 'Screw'
- 'Kick starter lever'

Note : When assembling the 'Clutch Cover' always remember that the entry of 'Kick Shaft' into the 'Clutch Cover' is the tightest as the tolerances are tightly controlled. One should concentrate on aligning the kick shaft bore and kick shaft first, rather than concentrating on the possibility of the plunger falling down. When working on vehicle It is advisable to loosen the 'RH Rider Footrest' which helps in the above and helps also in loosening and tightening of the 2 M6 bolts partially masked by the 'Footrest'.



Magneto Side

Fit :

- 'Shaft Starter Counter'.
- 'Gear complete starter counter assly'.
- 'Collar'

Note : Always apply a thin layer of grease on to the roller bearing of starter counter gear.

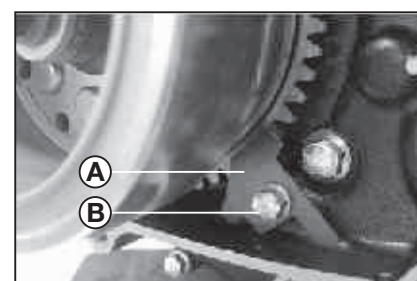


Fit :

- 'Woodruff key'
- 'Magnet along with gear starter clutch'.

Note :

- Always apply a thin layer of grease to the roller bearing of gear starter clutch.
- Add few drops of oil on OD of gear starter clutch for lubrication.



Fit :

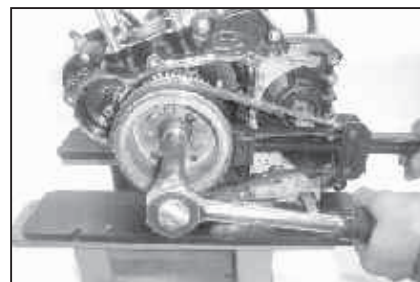
- 'Plate starter clutch return (A)
- 'Bolt' (Use loctite 243) (B)



Using Special Tool : Rotor Holder H6 0721 00

Fit :

- 'Washer'
- 'Bolt'



Fit :

- '2 Dowel'
- 'Gasket'



Fit :

- 'Magneto Cover'
- 5 'Bolts'
- Neutral switch coupler



Using Special Tool : Output sprocket holder 37 1030 53

Fit :

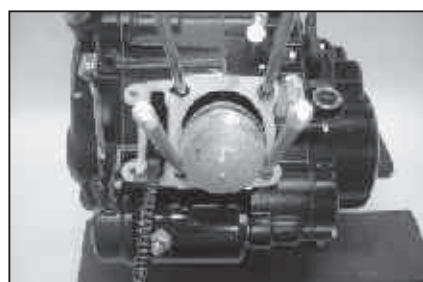
- 'Bush'.
- 'Sprocket'.
- 'Plate drive Sprocket'.
- 2 'Bolts' (Use loctite 243).



Top End

Fit :

- 2 'Dowels'
- Block Base Gasket



Using Special Tool : Drift 74 9309 89

Fit :

- 'Piston'
- 'Piston Pin'
- 'Circlip'



Note : Place clean piece of cloth on the 'Crankcase' bottom end because there is chance of ring snap falling down while fitment.



Using Special Tool : Piston Ring Holder 37 10DJ 30

Fit :

- Slide the 'Cam Chain' upright with soft copper wire / Thread into cylinder
- Slide the piston assly into cylinder



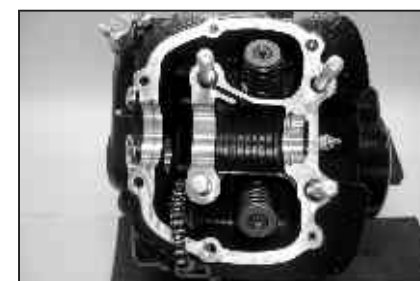
Note : Apply thin layer of oil in cylinder bore and piston assly when sliding inside for ease in fitment.



Fit :

- Head gasket
- 2 'Dowels (A)'
- 'Chain Guide' (Non tensioner side)

Note : Holding the chain firmly bring the piston assly to TDC position and Ensure 'T' mark on the rotor is matching with generator cover mark.



Fit :

- 'Cylinder Head Assly'.
- 2 Dowels



Fit :

- 'Spark Plug Sleeve'.
- 'Grub Screw'.
- 'Spark Plug'

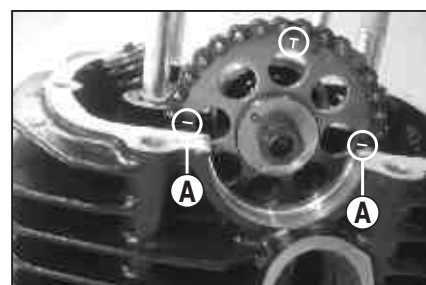
Note : Before fitting the sleeve spark plug apply thin layer of molybdenum disulphide grease on the entry chambers for the 'O' rings.



- Fit :**
- 'Cam Shaft'.
 - 'Collar'.



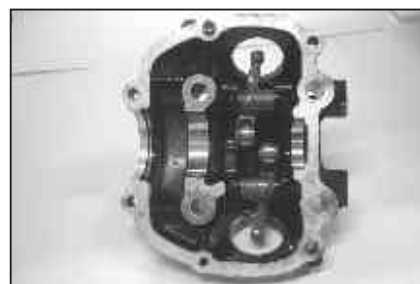
- Using Sp. Tool - 37 10DH 36**
- Fit :**
- 'Cam Sprocket'.
 - 'Special Washer'.
 - 'Allen Bolt'



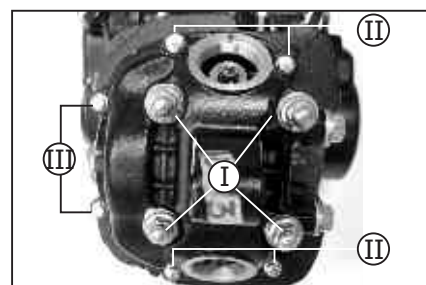
- Note :**
- Ensure the sprocket marks are aligned horizontally with cylinder head top machined face and the piston is at TDC.
 - Secure the 'Cam Chain Sprocket' in the special tool firmly and then tighten the sprocket allen bolt.
 - Ensure that the 'O' mark on washer always faces outwards when tightening the allen bolt.



- Fit :**
- 'Cam Shaft Cap'.
 - Apply thin layer of liquid gasket to head cover
 - 'Head Cover'



- Note :**
- Do not apply liquid gasket on to the cam shaft cap and other inside mounting areas.
 - Refer Skill Tip for more details



- Fit :**
- 'Copper Plated Washer'
 - Tighten bolts as per sequence
- Ist : 4 Domed cap nut
IIInd : 4 Long bolts of Head Cover
IIIrd : 2 Longest bolts of Head cover

Note : Improper tightening sequence of bolts may cause permanent warpage in cylinder head cover and it can get damaged permanently.



- Fit :**
- 'Cam Chain Tensioner'
 - 2 'Bolt'
 - Release the tensioner plunger bolt
 - 'Dust cap' and 'O' ring'



- Adjust :**
- Check and adjust the tappet clearance

Inlet Valve : 0.05 mm

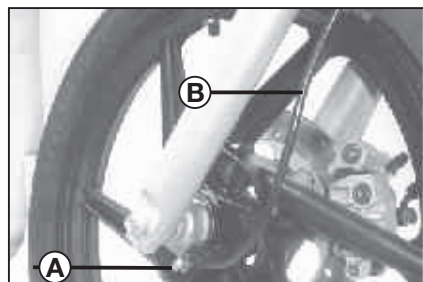
Exhaust Valve : 0.1 mm



Note : Always ensure that the piston is at the end of compression stroke and 'T' is seen from 'Timing Inspection Window' at generator cover. When adjusting tappet clearance.



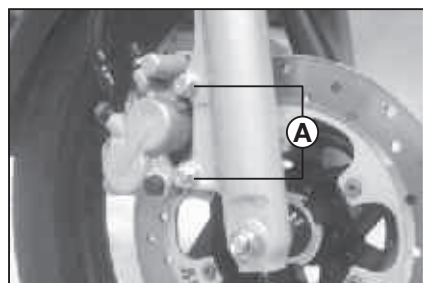
- Fit :**
- Tappet cap with 'O' ring
 - Cap magneto cover



Remove :

- Speedometer sensor cable from wheel (A) and from fender clamp (B)

Skill Tip : Keep it aside safely



Remove :

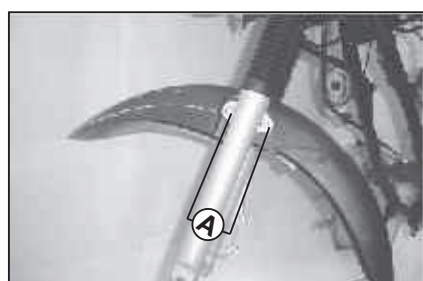
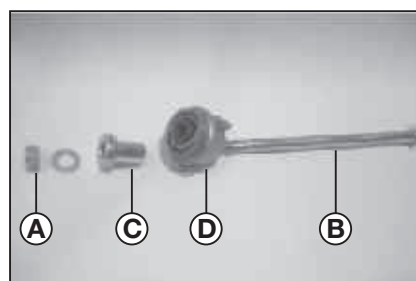
- Caliper assembly front mounting bolt (A)

Skill Tip : Place wedge between pads. Remove front brake lever.



Remove :

- Front axle self locking nut(A)
- Front axle (B)
- Distance piece (C)
- Wheel sensor (D)
- Pull out front wheel assly



Remove :

- 2 allen bolts (A) (on either side)
- Front mudguard assembly

Skill Tip : Painted parts should be handled with utmost care to avoid scratches



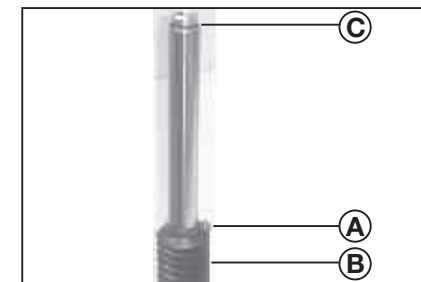
Remove :

- Rubber grommet (A)
- 2 Allen bolts (B)



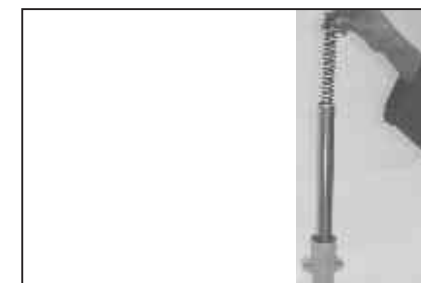
Remove :

- Loosen bolt (C)
- Pull down fork leg assembly by slowly rotating it
- Similarly carry out the same procedure to take out other side fork leg



Remove :

- Bellow clamp (A)
- Bellow (B)
- Bolt fork (C) from the top of front fork assembly along with the 'O' ring



Remove :

- Seat fork spring (8 Allen bolt)
- Spacer tube
- Washer
- Spring
- Fork oil in a container
- The dust seal and the snap ring over the oil seal

Recommended Oil Capacity per fork tube

Approx 145 + 2.5 ml. (Drain and refill)



Using Special Tool : Fork for Cylinder Holder Handle - 37 1830 06 & Adapter for Fork - 37 1830 11

Remove :

- Allen screw that is located at bottom with the help of allen key (A) by holding the fork piston with the help of a adapter (B) and holder
- Piston assembly



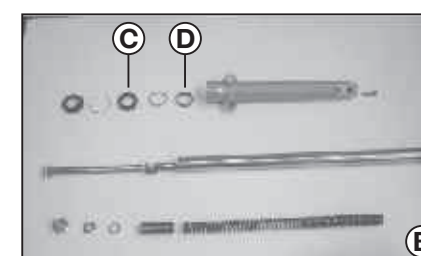
Using Special Tool : Front Fork Tube Extractor - 74 9310 15

Remove :

- The inner tube assembly will not come itself because of two DU bushes fitted. One bush is fitted on inner tube and other bush is fitted in outer tube.
- Fit the front fork tube on the vehicle by assembling the special tool (A) and lock it at number plate mounting screw.
- Rotate the special tool handle to separate the inner tube from outer tube as shown in the fig.

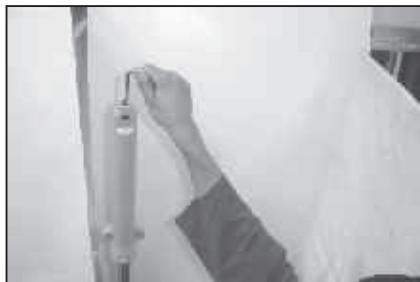
Skill Tip :

- Fit the fork tube without touching head light fairing
- Rotate special tool without hitting number plate.



Remove :

- Inner tube (B) of front fork with DU bush
- Oil seal (C) for outer tube
- Guide bush washer (D)
- Spacer
- Bushing



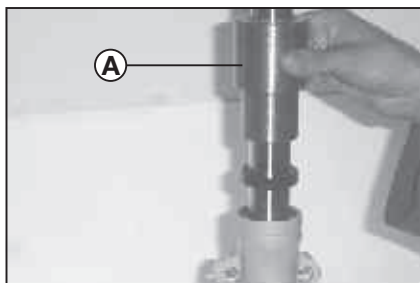
Using Sp. Tool : Fork for cylinder holder adapter - 37 1830 08/11

Fit :

- Place Fork cylinder set in the inner tube, cylinder base & place it in outer tube. Hold the piston with the help of special tool.
- Bolt it from lower side of outer tube with Allen key.
- Guide bush, washer
- Oil seal using special tool (A)
- Snap Ring
- Dust seal
- Spring and fill oil.
- Seat fork spring and Collar fork.
- Bolt

Similarly carry out the same procedure to assemble the other fork.

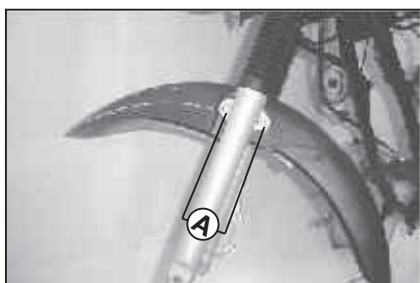
Skill Tip : The Part Name & No written on oil seal should face up side i.e. towards technician while fitting.



Fit :

- Slide the front fork assly in the fork holder
- Allen bolts
- Bolt fork at the top end

Similarly carry out the same procedure for fitment of the other shock absorber.



Fit :

- Front fender
- 2 Allen bolts (A) (2 on either side)

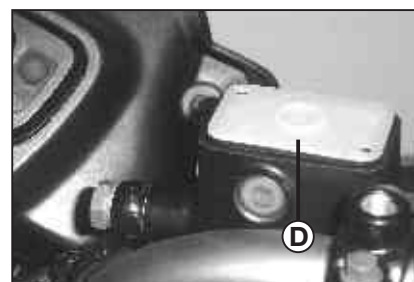
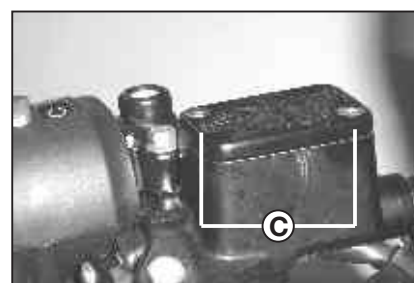
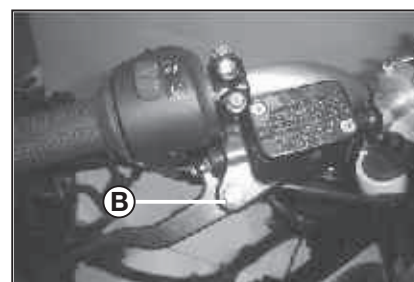
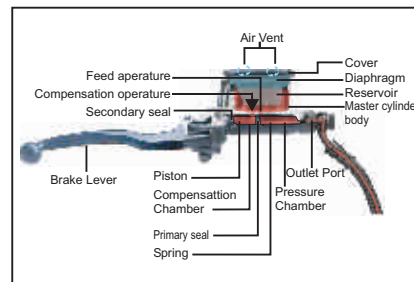


Fit :

- Front wheel assembly.
- Front axle (A)
- Tighten self lock nut
- Calliper assembly and tighten 2 bolts
- Speedometer sensor cable connection.



Caution : Don't apply excess grease or any other lubricant on the wheel sensor case.



Master Cylinder

Working:

When the brake lever is in idle condition, there is no pressure inside the cylinder. The feed & compensation aperture are open & connect the pressure chamber & compensation chamber to reservoir.

When the brake lever is operated, the push rod pushes the piston inside the cylinder. A small quantity of fluid returns from pressure chamber to reservoir before primary seal completely blocks the feed aperture. Once this condition is achieved, any force exerted on the lever is transformed into pressure in the brake circuit.

When the brake lever is released, the piston is pressed back quickly by the return spring to its idle position. Due to this, a vacuum is generated in the pressure chamber & the fluid in the compensation chamber flows to pressure chamber through the primary seal, the external edges of which flex approximately to allow fluid to pass to pressure chamber. After return of the master cyl. piston, the caliper retracts (after some relative time delay). This causes the fluid in the pressure chamber to return to the reservoir through feed aperture.

Master Cylinder Dismantling and Assembling

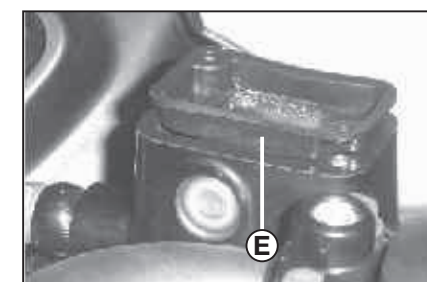
Dismantling :

- Remove front brake switch and its connection (A)

- Remove front brake lever by removing the nut and pivot bolt (B)
- The push rod boot (One end of the boot is held in a groove in the push rod and its other (larger) end is held in a groove in the cylinder body).

- Top cover by removing 2 screws (C)

- Nylon Cap (D)
- Rubber diaphragm (E)





- Brake fluid from the reservoir with the help of syringe/syphon pump



- Master cylinder along with hose assembly from handle bar by removing the 2 flanged 8 bolts (F) on the clamp.
- Brake hose from master cylinder outer by removing banjo bolt (G)
- Wipe out clearly the outer surface of master cylinder.

Skill Tip :

- Ensure that there should not be any spillage of brake fluid on painted parts

Safety Tip :

- Take care of your eyes while working with brake fluid.



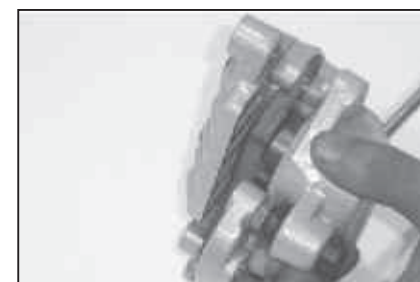
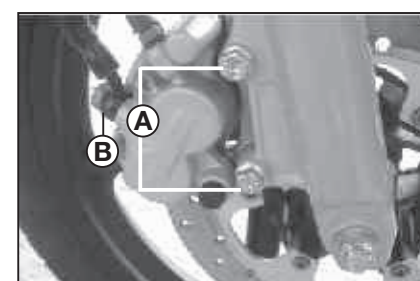
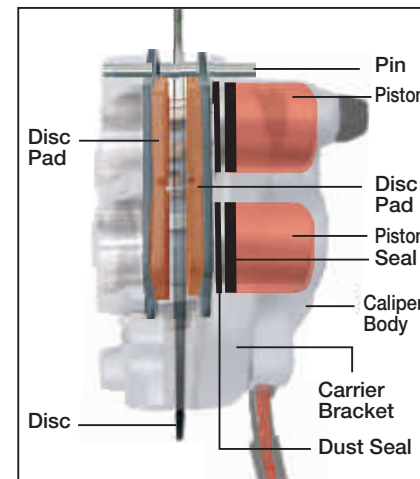
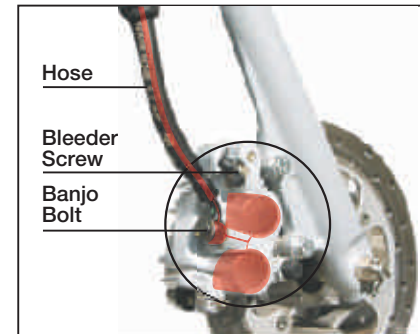
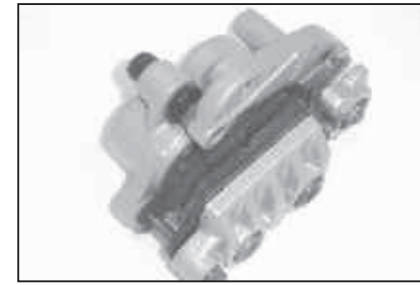
- Hold the master cylinder in a soft jaw vice.
- Remove circlip with the help of a plier, by pressing the piston slightly inside the bore, with a nylon or wooden rod.
- Take out the piston assembly along with the Return spring by pulling it out.

If transparent window in the cylinder body for level indication needs replacement (due to damage, etc.) proceed as follows:-

- Remove Lock Ring on the window with screw driver
- Remove window and 'O' ring.

**Master Cylinder Assembly :**

- Never allow mineral oil to come in contact with seal or other rubber parts of disc brake, since it will cause damage to these parts.
- Free play at the end of the lever is provided to ensure that in the free condition, the piston does not remain in the pushed condition, This ensures that there is no pressure in the system when the brake is not applied.

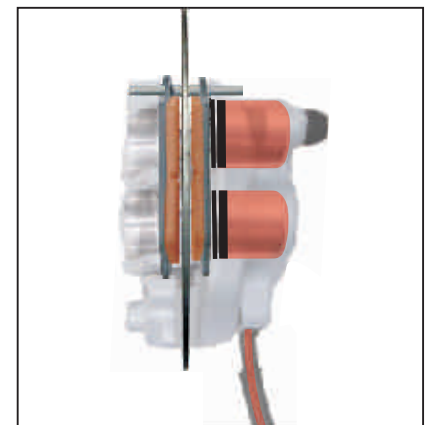
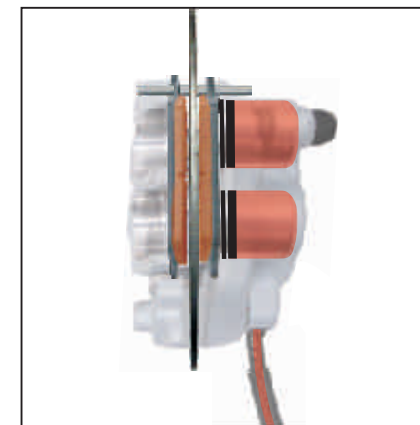
**Caliper Assembly****Working :**

In the brake released condition, the brake fluid inside the caliper is at atmospheric pressure and the disc rotates freely as the pads do not press against it.

When the brake lever is operated, the pressure generated in the hydraulic circuit acts on the caliper pistons. The caliper in turn push the friction pad on the side of the caliper body against the rotating disc. The friction pad on the other side of the disc also presses against the disc due to reaction force on caliper body. Thus both the friction pads press against the disc, thereby generating braking torque.

When the lever is released, the pressure in the hydraulic circuit return to atmospheric level. The friction pads return to idle position due to return of the caliper pistons which is due to the spring action of the seals.

When the pads wear, the pistons move further towards the Disc during brake application, but after release of pressure they retract only to the extent allowed by the spring action of the seal. The pistons therefore take up new positions in idle condition, and thus provide automatic adjustment to compensate for pad wear. Due to this reason, there is no need for free play adjustment in the Brake Lever in Master Cylinder.

**Dismantling of Caliper****Dismantling the Assembly**

- Remove caliper mounting bolts (A)
- Remove banjo bolt (B)
- Remove caliper from fork

Removal of Pads :

- Remove the pad retaining body's Allen bolt
- Remove the pads
- Remove the pad spring from the caliper body with a screw driver

Piston and Piston Seal Removal :

- Wipe out cleanly, the outer surface of the caliper.
- Remove LH pad retaining case by removing allen bolts
- Put a wooden wedge in between the piston and caliper.
- Blow compressed air into cylinder through benzo bolt hole where the brake hose was fitted, with the air pressure, the piston will be pushed out of cylinder.



Warning : Do not apply high pressure compressed air, which will cause the piston to jump out of the cylinder. The piston should be taken out gradually with moderately compressed air. Care to be taken not to damage the sealing surface of the inlet port while applying air pressure.

- Do not place your finger in front of the piston while applying compressed air to push it out.
- Remove piston seal using a thin part like a thickness gauge, etc.

Caution : Be careful not to damage inside (bore side) of the cylinder.

Skill Tip : While assembling use loctite paste 243 on allen bolt for mounting LH pad retainer case.

- Assemble the caliper assly in reverse order of dismantling



Air Bleeding of Disc Brake System :

- For air bleeding from front Hydraulic brake system first top up the master cylinder with hydraulic oil.
- Operate the brake lever slowly in order to get filled the oil in the circuit.
- Connect transparent tube to the bleeder screw at caliper or syphon pump
- Operate the brake lever and keeping in pressed position loosens the bleeder screw so that some oil escapes with the air bubbles.
- Keep on operating the brake lever till the air bubble escape out completely through bleeder screw, and top up the master cylinder if required.
- Once the air escapes out from the hose pipe the brake lever meets resistance, which indicates completion of air bleeding
- After completing the bleeding, top up the master cylinder up to the maximum level mark.
- Also syphon pump can be used for air bleeding

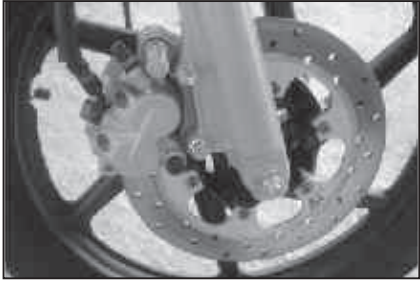
Brake Fluid for Disc Brakes

Always use only recommended brake fluid from sealed container to ensure durability of the system. Never reuse brake fluid removed from a system.

Important points on 2 wheeler disc brake system :

1. Since front disc brake is more powerful than drum brake, apply front and rear brake together gradually. Avoid braking during turning.
2. Use only DOT 3 or DOT 4 brake fluid from a sealed container from recommended makes.
3. Do not apply mineral oil for cleaning any brake parts. Use only brake fluid for cleaning the seals.
4. Do not apply mineral based grease on bore, pistons and seals of master cylinder and caliper. Apply only recommended assembly fluid.
5. Do not use cotton cloth to wipe cylinder bore, fibres of cloth will remain in cylinder bore surface.
6. Ensure dust free condition during assembly.
7. Do not polish friction disc with sand paper, as hard particles deposited in the lining may damage steel disc.
8. While filling the reservoir after bleeding, ensure that drops or splashes do not remain on the painted surface or plastic surface, since brake fluid is corrosive.

Inspection and Maintenance Frequency



Check Points	Frequency
Brake Fluid Level / Leakage	Inspect during every service / every 2500 Km refil up to upper limit (till step on the inner side of the reservoir) if level is low. Replace brake fluid every two years. (In severe operating conditions, replace in a year.)
Brake Lever Operation	Inspect during every service/every 2500 Km
Brake Pads	Inspect during every 2500 Km thereafter for wear and condition of linings.
Brake Disc	Inspect during every 5000 Km. and every 2500 Km thereafter. Check for excessive scoring marks on friction surface of disc, and run out.
Master Cylinder & Caliper	Inspect every 5000 Km for leakage.
Brake Hose	Inspect for leakage & damage during every service / every 2500 Km.

Battery

Technical Specification :

• Type & Capacity	12V - 9 AH
• Specific gravity of electrolyte for initial filling of new battery	1.24 for use above 10°C
• Specific gravity of electrolyte for initial filling of new battery	1.28 for use above 10°C
• Initial charging duration	10 ~ 15 hrs
• Initial charging current	0.9 to 1 Amp



Initial Charging Procedure

1. Fill each cell with battery grade sulfuric acid of the correct Sp. gravity (1.24 at room temp. for use above 10°C and 1.28 at room temp. for use below 10°C).
2. Allow the battery to stand for 30 min. after filling.
3. Keep vent plugs open. Connect battery to charger and charge at 0.9 Amp.
4. Charge continuously for 10~15 hours taking Sp. gravity readings every hour. Fully charged condition is indicated when all cells are gassing freely and evenly and show no rise in specific gravity over 3 successive readings.
5. After charging push vent plugs strip firmly into place and wash off acid spillage with water and dry the battery.

Checking the Specific Gravity

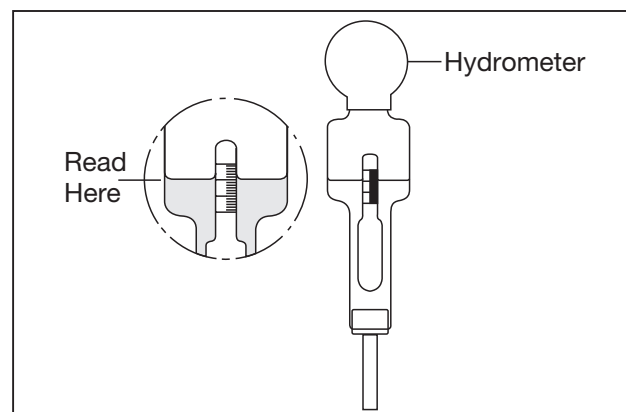
The charge condition of the individual cell can be checked by measuring Sp. gravity of electrolyte in that cell. The specific gravity of electrolyte can be checked by using Hydrometer having small diameter spout.

For measuring the Sp. gravity bring the electrolyte in the Hydrometer to eye level, and read the graduations on the float scale bordering on the lower meniscus (i.e. curved down portion of electrolyte surface) as shown in the figure. After charging is over, fit the filling caps strip, wash acid spillage with water. Dry the battery. Ensure terminals are clean.

Battery Installation:

Install the battery on vehicle as described below

- a. Ensure that in all six cells the level of electrolyte is near the maximum level mark.
- b. To clean and dry the surface wipe the top of the battery with a clean cloth. Install the



battery inside the box provided on floor board. Fasten the battery firmly with bracket & allied fasteners.

- c. Connect cables to the positive and negative terminals properly. Reverse connections will damage the charging system permanently.
- d. Always connect the “negative (earthling) terminal” at last.
- e. Clean the battery terminals and cable connections. Smear them with petroleum jelly to avoid corrosion
- g. Check that the battery cable connections are firm and cables do not rub against any metal components.

Battery Charging Procedure :

This is a M.F (Maintenance Free) battery. This battery is not having any exhaust tube instead it has a unique vent mechanism.

The electrolyte level in this M.F. battery needs to be topped up with distilled water once in a year. In case battery is discharged and needs to be charged using battery charging procedure is as follows :

- Remove battery from vehicle
- Clean battery thoroughly

- Remove vent plug strip
- Top up level with distilled water in between Min and Max. level
- Connect battery to charge and ensure respective terminal are connected properly
- Set charging current at 0.9 A DC
- Charge battery for 3/4 hrs., then check voltage and special gravity.
- Voltage should be 12.5 volts and special gravity in all 6 cells should be 1.240. This is a confirmation check for a fully charged battery.
- Disconnect the battery from the charger.
- Fit vent plug strip firmly.
- Connect battery on to vehicle.
- Apply petroleum jelly on to the battery terminal.

Battery Maintenance

For the optimum performance and longer battery life the maintenance of battery is important.

- a. Always keep the battery clean and dry.
- b. Visually inspect the surface of the battery container. If there are any signs of cracking or electrolyte leakage from battery, replace the battery.

Never add acid or ordinary tap water for topping up since this will shorten Battery life.

Non Use Maintenance

When the vehicle is likely to remain off-road for longer, time (say more than a month) then Non Use Maintenance should be carried out as follows otherwise the battery may get sulphated and permanently damaged.

- a. Remove the battery from vehicle.
- b. Maintain electrolyte at ‘Upper Level’.
- c. During off service period, battery should be charged once a month.
- d. Keep the battery fully charged.
- e. Store the battery in cool, dry place.
- f. Keep the battery away from rain, dew, moisture and direct sunlight.

Battery Sulphation

A sulphated battery is one which has been left standing in a discharged condition or undercharged to the point where abnormal lead sulphate has formed on the plates (Sulphate cells look like white crystal like sugar). Where this

happens, the chemical reactions within the battery are affected and results in loss of capacity. Mostly the causes of sulphation are as under :

- a. Undercharging.
- b. Standing in a partially or completely discharge condition for long time.
- c. Low electrolyte level : If electrolyte level is permitted to fall below the top of the battery plates, then the exposed surfaces will harden and will become sulphated.
- d. Adding acid : If acid is added to a cell in which sulphation exists the condition will be aggravated.
- e. High specific gravity : If specific gravity is higher than the recommended value, then sulphation may occur.
- f. High temp.: High temperature accelerates sulphation, particularly of an idle, partially discharged battery.

Voltage of the sulphated battery : -

Cells of the sulphated battery will show low specific gravity. Follow the procedure given below.

- Check voltage before charging.
- Charge for 2 hours
- Check voltage every 1 hour. If voltage increases then continue charging. But if voltage does not increase, discontinue charging. Otherwise battery charger will get permanently damaged. If battery is not badly sulphated (i.e. voltage more than 9 volts), then battery can be revived by special treatment. In such case it is advisable to give sulphated battery to authorised dealer of battery manufacturer for necessary special treatment.

How to Determine Condition of Battery

Specific gravity check: - Whether battery is fully charged or partially charged, it will always show same “no load voltage” of 12 volts or more (unless battery cells are damaged due to sulphation etc). But specific gravity of the fully charged battery and partially charged battery will be different. Fully charged battery will show Sp. gravity of 1.240 while partially charged battery will show less specific gravity. Therefore, specific gravity check is very important to know condition of the battery.

Switches :**a. Front Brake Light Switch Inspection :**

- Turn ON the ignition switch.
- The brake Light LED Blank should get on when the front brake (Lever is pressed) is applied.
- If it does not, check the Front brake switch.

	Brown	Blue
Lever Pressed	●	●
Lever Released	●	●

b. Rear Brake Light Timing Inspection :

- Turn ON the ignition switch.
- Check the operation of the rear brake coils light switch by depressing the brake pedal
- If it does not operate as specified, adjust the brake light switch or check Rear brake switch

	Brown	Blue
Pedal Pressed	●	●
Pedal Released	●	●

c. Fuel Level Indicator :

- For knowing then quantity of fuel inside the fuel tank at a glance, is provided on Speedo consle. The fuel gauge works on the principle of 'variable resistance'. The fuel gauge works on D.C supply.
- For checking the resistance across the sender and across the gauge, make the connections verify the readings, make the connections verify the readings as tabulated below

Connection	Tank (Float)	Resistance
White / Yellow Meter	Full (Highest position)	4 - 10
Black / Yellow 10	Empty (Lowest position)	95~105

d. Neutral Switch :

- The neutral switch will be in ON position only when the engine is in neutral position.
- The neutral light will not glow when vehicle is in geared position

	Brown	Blue
'ON' (Vehicle in neutral)	●	●
'OFF' (Vehicle in gear)	●	●

e. Ignition Switch :

	Brown	White	Black / White	Black / Yellow
'OFF'	●	●	●	●
'ON'	●	●	●	●

g. Stator Plate Coils Inspection :

- Disconnect stator plate coupler
- Set multimeter on ohm range. (Ohm Meter)

• Pickup Coil Resistance :

Range	Connections		Reading
2 K	Meter +ve	Meter -ve	200±22 ohm
	White/Red	Black/Yellow	

• Excitor Coil :

Range	Meter +ve	Meter -ve	Reading
200	Red	Black/Yellow	14±1.4

• Battery Charging Coil :

Range	Meter +ve	Meter -ve	Reading
200	Blue/White	Blue/White	1.3±0.13

• Lighting Coil :

Range	Meter +ve	Meter -ve	Reading
200	Yellow/Red	Black/Yellow	0.7±0.07

**CDI Unit and H. T. Coil Inspection :**

- CDI unit can be checked using OK H.T. coil on Electronic Test jig
- Similarly H.T. Coil can be checked using OK CDI unit on electronic Test jig

H.T. Coils : (Inspection Using Multimeter)

- Measure the primary winding resistance as follows
- Connect the hand tester between the coil terminals.
- Measure the secondary winding resistance as follows
- Remove the plug cap by turning it counter clockwise.
- Connect the tester between the spark plug leads.
- Measure primary winding resistance.
- Measure secondary winding resistance.
- If the valve does not match as per, replace the coil.

Primary Winding	0.40 to 0.49 Ohms
Secondary Winding	4.23 to 5.17 K Ohms

- If the meter reads as specified, the ignition coil windings are probably good. However, if the ignition system still does not perform as it should after all other components have been checked test replace the coil with one known.
- Visually inspect the secondary winding lead.
- If it shows any damage, replace the coil.

**Fuse Inspection (Capacity = 10 Amp)**

- Inspect the fuse element
- If it is blown out, replace the fuse.
- If a fuse fails during operation, the electrical system to determine the cause, and then replace it with a new fuse of proper amperage.

Caution : When replacing a fuse be sure the new fuse matches the specified fuse rating for that circuit. Installing of a fuse with a higher rating may cause damage to wiring and components.

Relay (Inspection Using Multimeter) :

Coil Resistance	Meter +ve	Meter -ve	Reading
X 200 Ohm	Brown	Green/White	55±5.5 Ohm

- Also this relay can be checked on electronic Test jig.



Rectifier & Regulator Assembly :

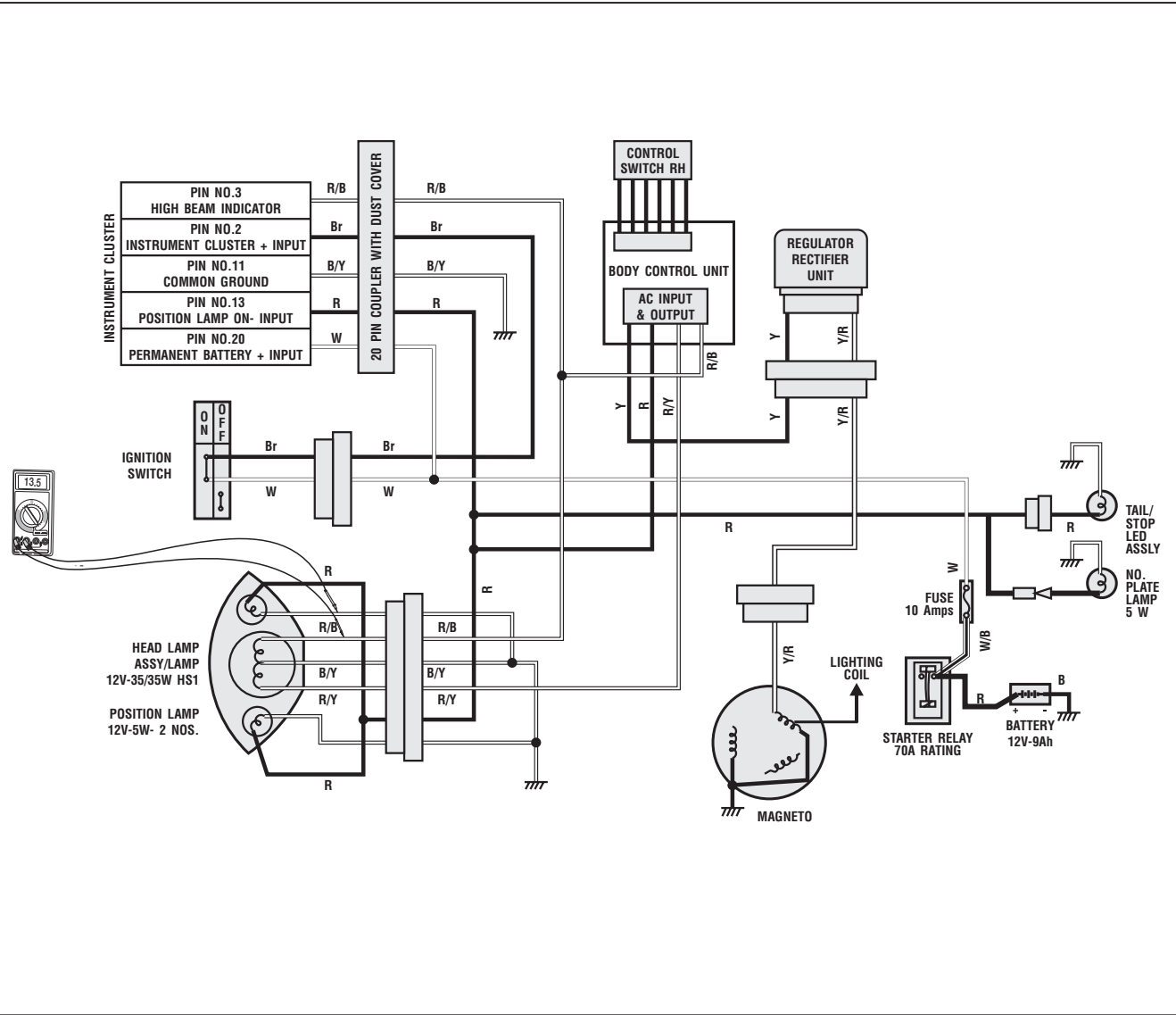
AC Voltage Measurement :

To measure AC voltage, open the headlight housing. Start the engine and set it at 4000±25 RPM. Ensure that the headlight, tail light, Speedometer light are 'ON' and the dipper switch is at 'Hi beam' position. Connect AC voltmeter in parallel across the AC circuit load by connecting the +ve meter lead to red/black lead from the dipper switch and the -ve meter lead to ground.

Measure AC lighting voltage at 4000±25 RPM. The voltage should be 13.5±0.5 V. Stop the engine. Disconnect the meter leads. Reassemble the headlight housing.

Meter Range	Specification at 4000±25 RPM
AC 2o Volt	13.7 ± 0.3 V

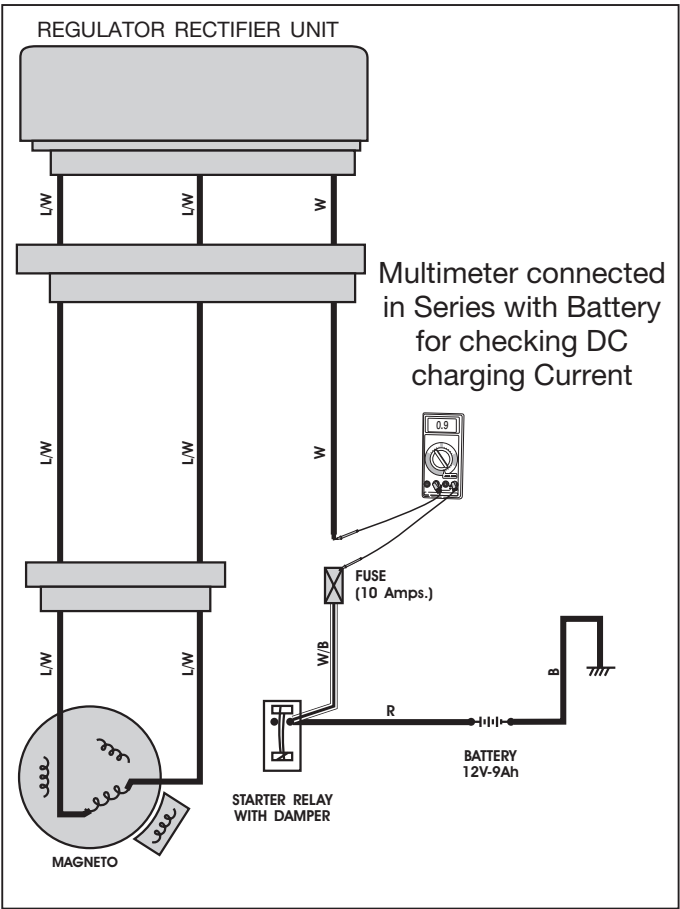
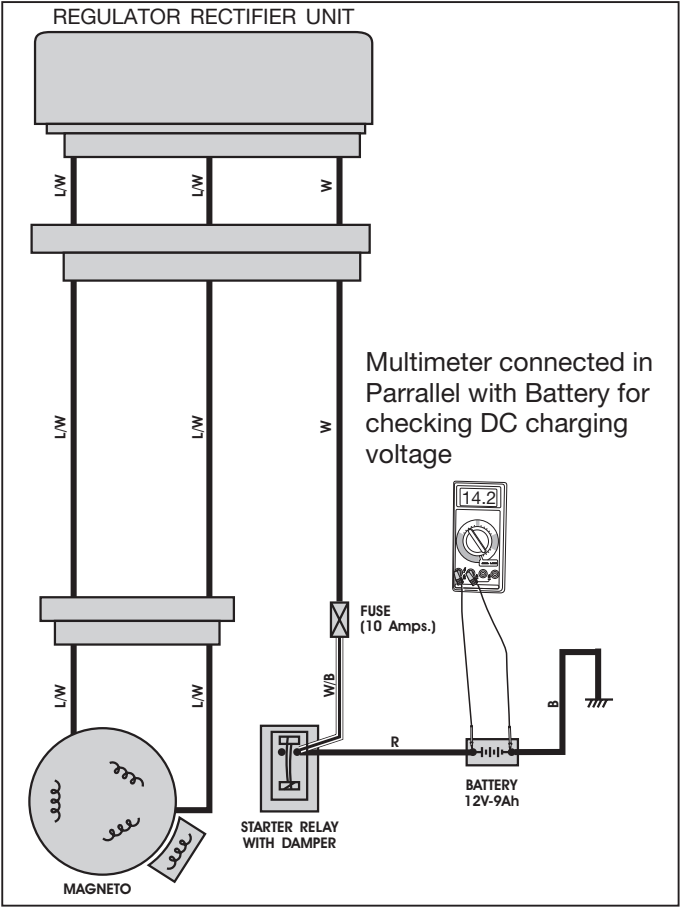
AC Lighting Circuit :



DC Charging Voltage Measurement :
(Use fully charged battery while measuring)

To measure the DC voltage; set the meter at 20VDC range. Connect the meter +ve lead to white from RR unit and meter -ve lead to ground. Start the engine and set it at 4000±25 RPM. Measure the voltage with and without headlight switch to the ON position. Stop the engine disconnect the meter leads.

Meter Range	Specification at 4000±25 RPM
DC 20 Volt	14 ~ 15 V



Battery DC Charging current : (Use fully charged battery while measuring)

To measure the DC charging current, set the meter at 20ADC. Connect meter+ve lead to White/black lead from RR Unit and meter -ve lead to battery +ve lead.

Start the engine and set it at 4000±25 RPM. Measure the DC charging current. The DC charging current should be 2 A max stop the engine and disconnect meter leads. Connect the RR unit and battery

Meter Range	Connection	Specification
DC10A	Meter +ve White/Black terminal of R/R Meter -ve Battery (+) lead (White)	2 A max at 4000+25 RPM



Speedometer/Tachometer Console

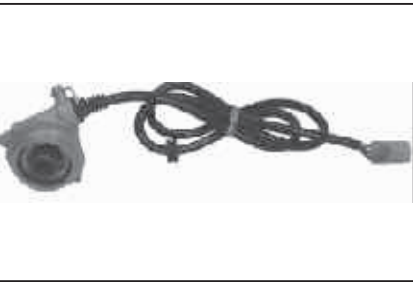
The speedometer has a wide Digital LCD screen with a orange backlit display mode for superb visibility of display during night riding condition.

This entire speedo console houses following :

- A large analogue tachometer with self testing mechanism.
- A red LED indicator showing low fuel level inside the fuel tank. And also indicates a flashing signal when engine RPM exceeds above 9000 RPM. Thus ensuring safety of rider and engine.
- Digital Displays for
 - Odometer
 - Trip meter (Unique facility of resting the trip meter 1 & 2 respectively)
 - Fuel level indicator
- A row of indication LED displaying functioning of
 - Neutral Light
 - High beam
 - Turn signal
 - Side stand ON

with a unique Day-Night mode functioning feature for riders convenience and safety.

Note : The speedometer console has a unique builtin memory logic function which stores all the data like distance covered etc. in its memory even if DC supply is disconnected.



Vehicle Speed Sensor

- **Non Contact Wheel Sensor :** In LCD speedo console there are no physical moving parts as sensing of wheel speed is through a Non Contact hall effect Sensor. The hall sensor is a electronic switch which operates due to magnetic field. The sensor has 3 wires supply, earth and output whenever during rotations of wheel magnet passes through sensor. A signal is given to speedometer through a wire to speedometer which displays speed of vehicle in km/hr.

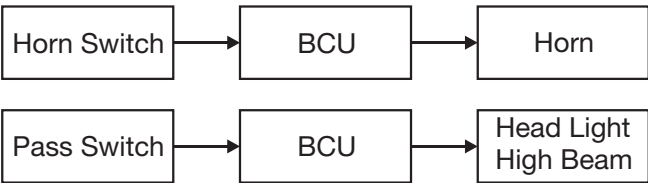


- **Tail Lamp :** The illumination for Tail lamp and Brake lamp are done through 2 rows of LED's each. These are high intensity LED's the main advantage of these LED's is they consume very less power. i.e LED consumes 3W power against 21 W power of a conventional brake lamp. When you operate light control switch to glow but intensity will be very low. As soon as you operate brake switch the brightness of LED increases to size you bright light.

This changeover of intensity is maintained with the help of electronic circuit placed inside Tail Lamp Console assly and is a totally sealed unit.

- **Back-lit, Non-contact Handlebar switches :** The control switches on both sides of the handlebar are conventional to look as, in terms of switch positioning. The main features of these are ...
 - Operation is based on non-contact
 - Switching is done without physical contact
 - There is no wear and tear
 - Life would be equal to that of the bike itself.
 - The operational force required for the switches has been kept as low as possible to give a light feel and reduce fatigue for the rider.

Working of Switches : These are non-contact type switches, so instead of contact set it consists of hall sensor and magnet combination. Whenever any handlebar switches is pressed the hall sensor gets operated and its output signal is gives to a BCU (Body Control Unit) and BCU further calculates and gives precise signal to the respective unit for functioning. e.g.



- **Self Indicator Switch :** In the conventional type of switches the rider has to manually depress the Turn Indicator knob or return the Turn indicator knob to its non-signalling position. In UG III there is no separate press to off buttons for cancelling side indicator signal. This feature is achieved by providing a self cancelling hall sensor and magnet fitted on steering column assembly. This cancellation signal is processed through BCU and then side indicators are switched off. The self cancelling feature automatically turns of the indicator of the indicator under 3 conditions.
 - The first indication is when after the turn has been completed and the handlebar comes to a straight ahead position, the indicators switch off by themselves.
 - The second condition is when the rider has selected a right or left turn but not physically done the turn and is continuing to go straight ahead and may be unaware of the enabled turn signal too. A timer function gets enabled which switches off the indicators after a pre-set time.
 - The third condition is when the rider has selected for eg. a left turn, but changes his

mind and wants to continue straight ahead. The rider has only to re-select the opposite side indicator again to cancel the previously selected indication. (There is no depress to cancel function)

The other feature which has been incorporated in the switches is the illumination of the tell-tale icons. The illumination is backlit by LED's which again are long-life and have a pleasant bluish-white glow to them. All the icons like the turn indicators, low beam, high beam, horn, starter etc. glow when the Parking or Headlight switches are put ON.

Checking of switches on handle bar : As like in conventional switches, since switch is not having any electrical contact, We can't check the switch functioning (Continuity) by multimeter. But it can be checked on electronic test jig.

- **Clutch Switch :** The clutch switch has 3 wires and it has contact configuration of
This vehicle is not having interlock relay Instead its working is taken care of by clutch

	Light Green	Yellow/Green	Black/Yellow
OFF Clutch Lever Released			
ON Clutch Lever Released			

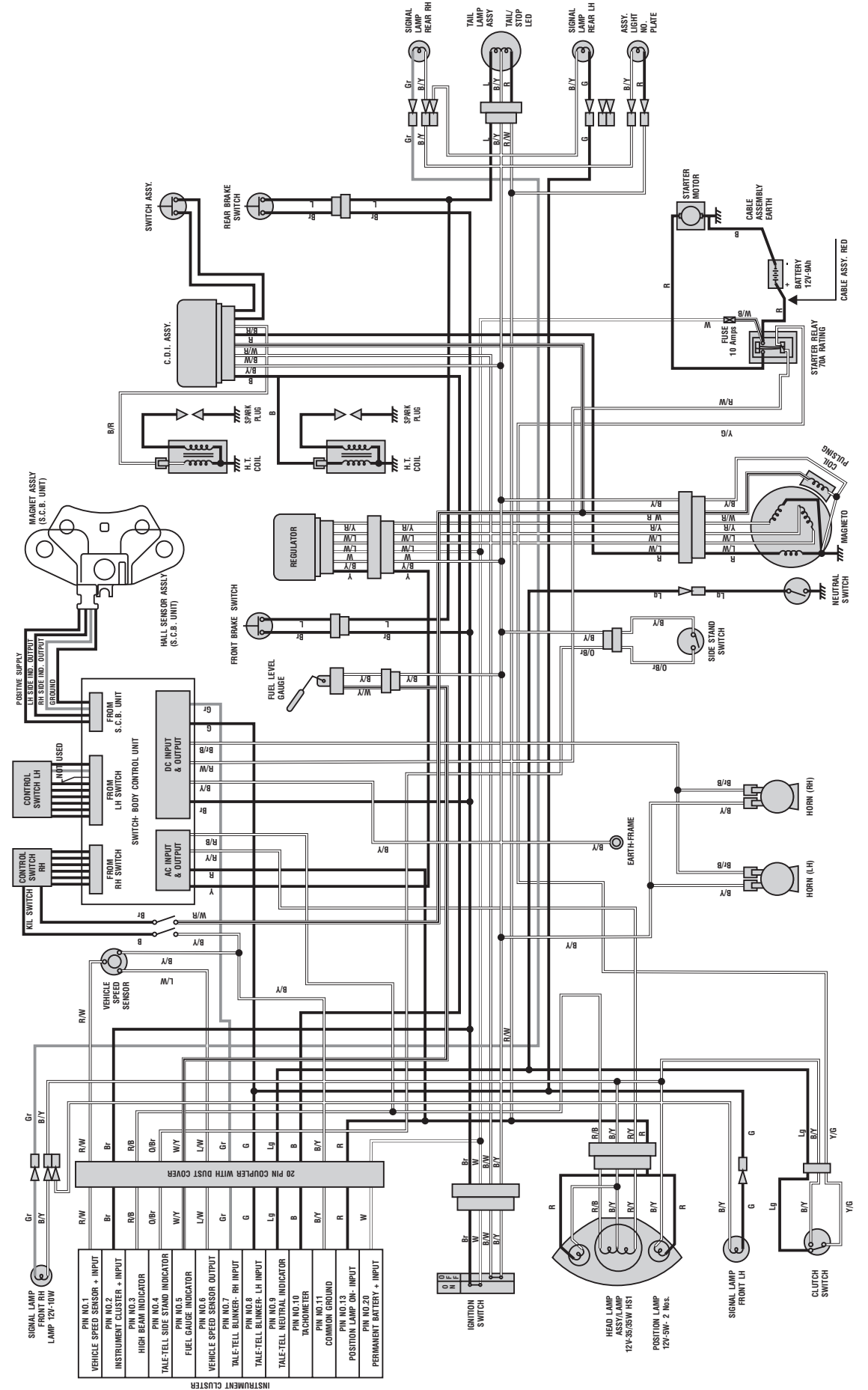
- **Body Control Unit (BCU) :** This is a sealed Electric Control Unit located inside head light assly.
 - In case of overload or short circuit, BCU has a short circuit/overload prevention facility.
 - This vehicle does not have a flasher. The flasher operation is carried out by BCU only.
 - In case of failure of one of the filaments of head lamp. The BCU will automatically changeover to IInd filament. This is provided for safety rider during night driving conditions.
 - If customer operated starter switch contunuously 3 times in a go for 4 th cranking BCU will disable cranking operation and next cranking would be possible after 20 second only. This feature is added which gives better battery life.

Maintenance :

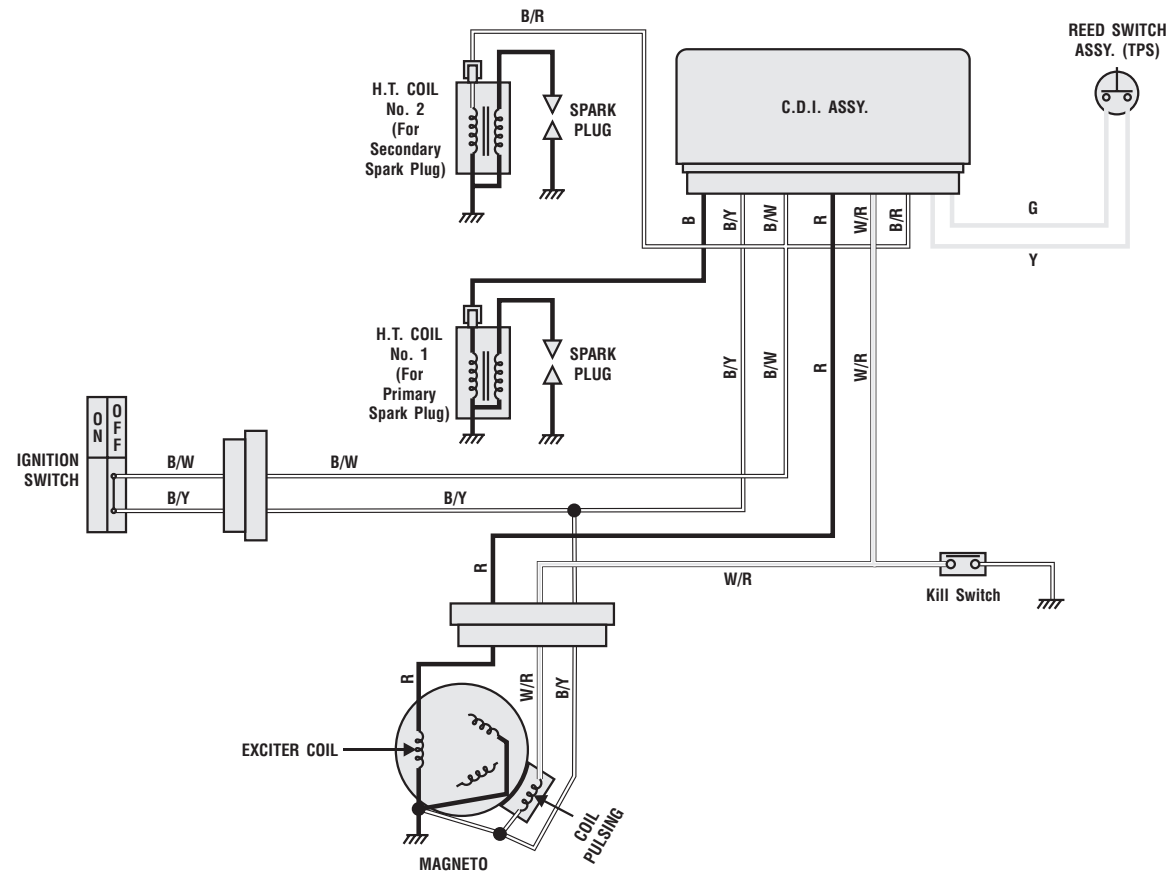
- Ensure no direct high pressure water water is applied on Speedo console and wheel sensor.

- Speedo console should not be kept inverted
- Ensure there are no scratches/breakage on console cover
- Don't open rubber pins located on back side of speedo under any under any circumstances.
- Ensure speedo console and harness mating coupler is always covered by rubber cover.
- Handle wheel sensor carefully while working on front brake drum relating problems.
- Ensure sensor cable is intact.
- Do not apply in grease or lubricant in between the rotating parts.
- Do not open control switches and don't apply any grease or lubricant.

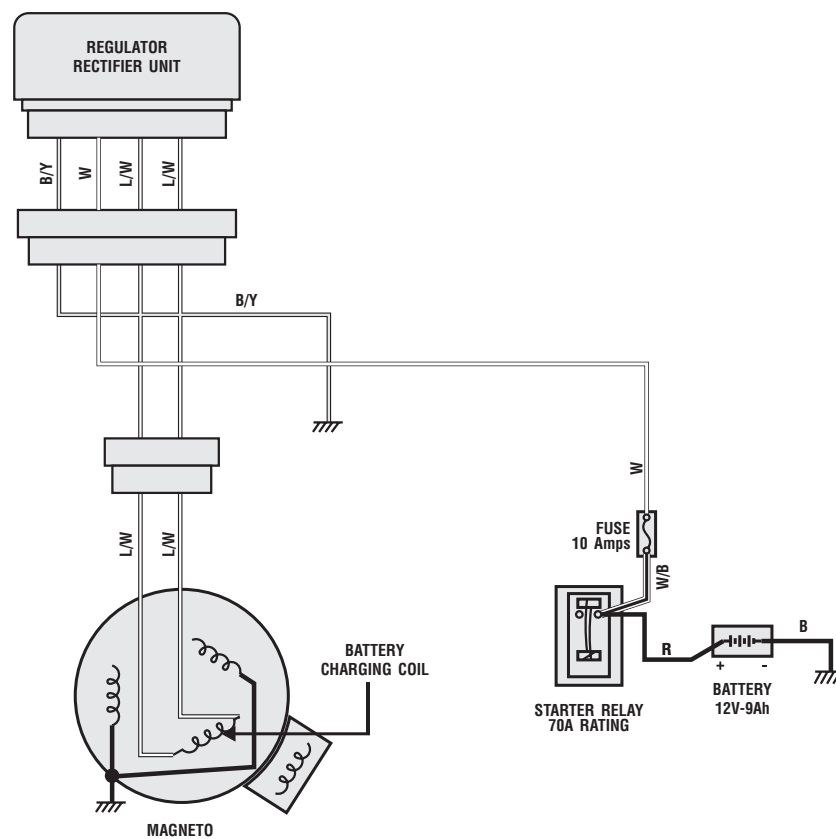
Notes :

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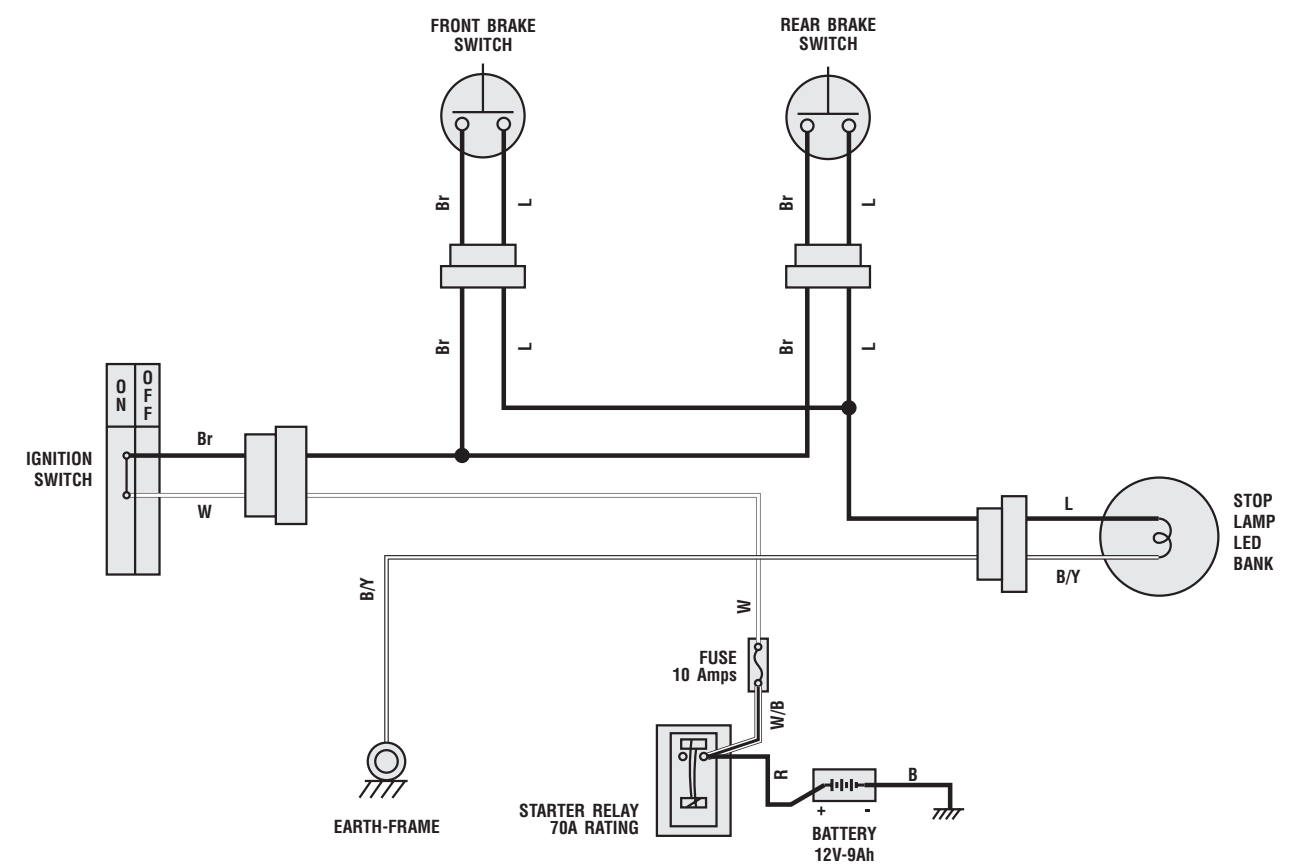
Ignition Circuit :



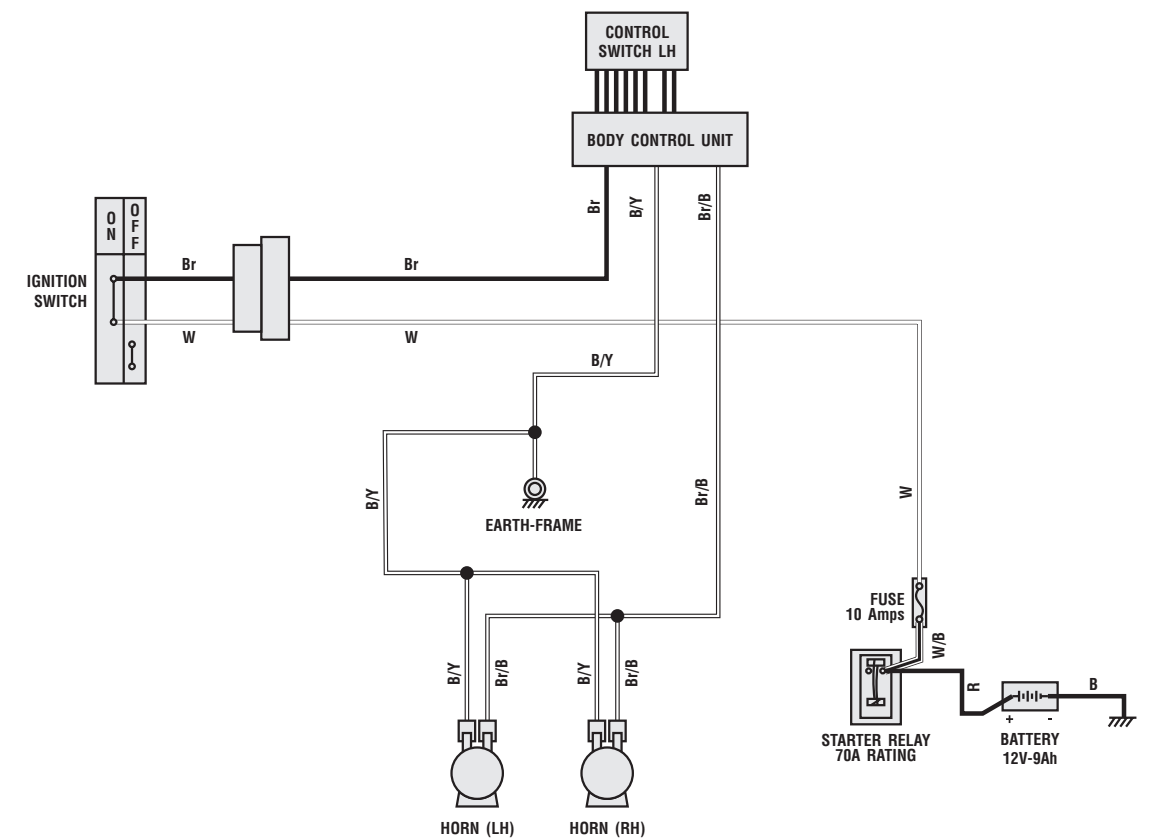
Battery Charging Circuit :



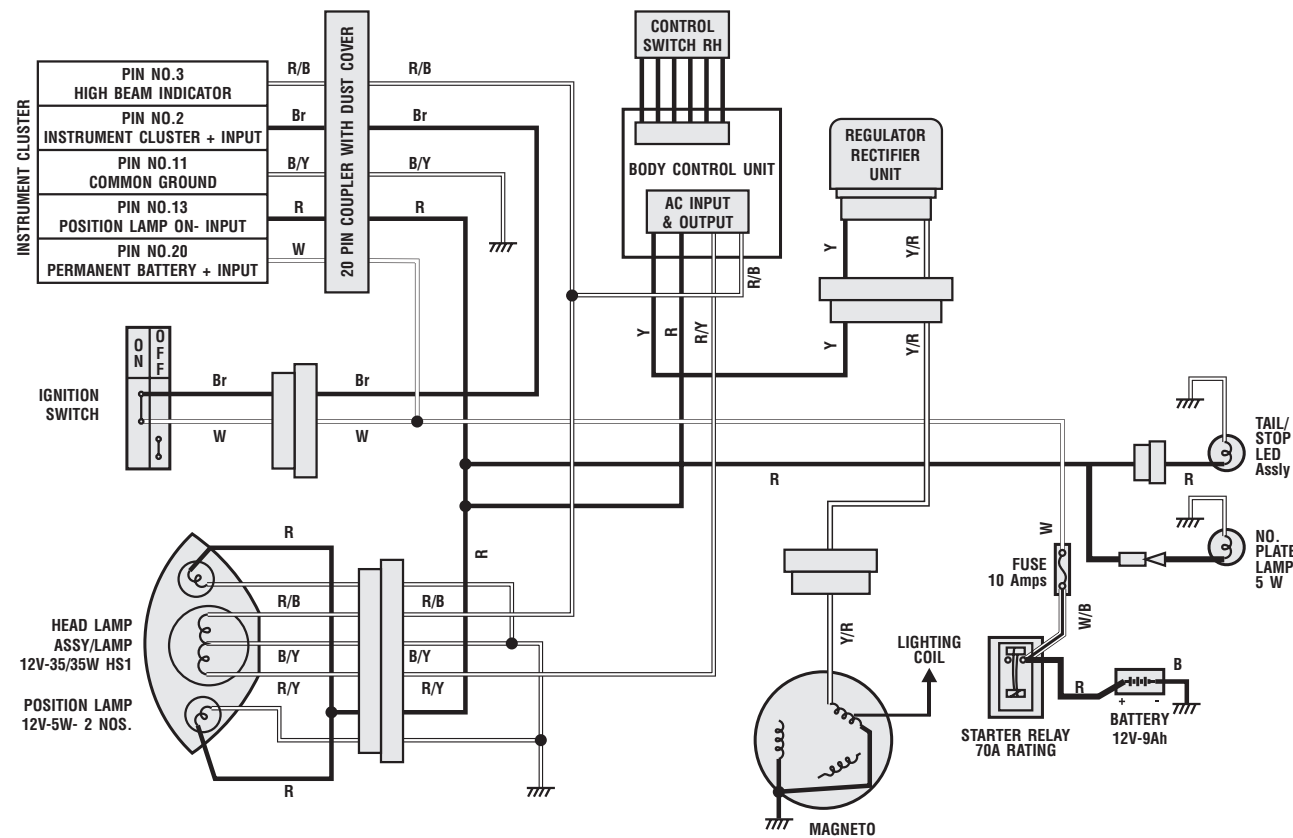
Brake Light Circuit :



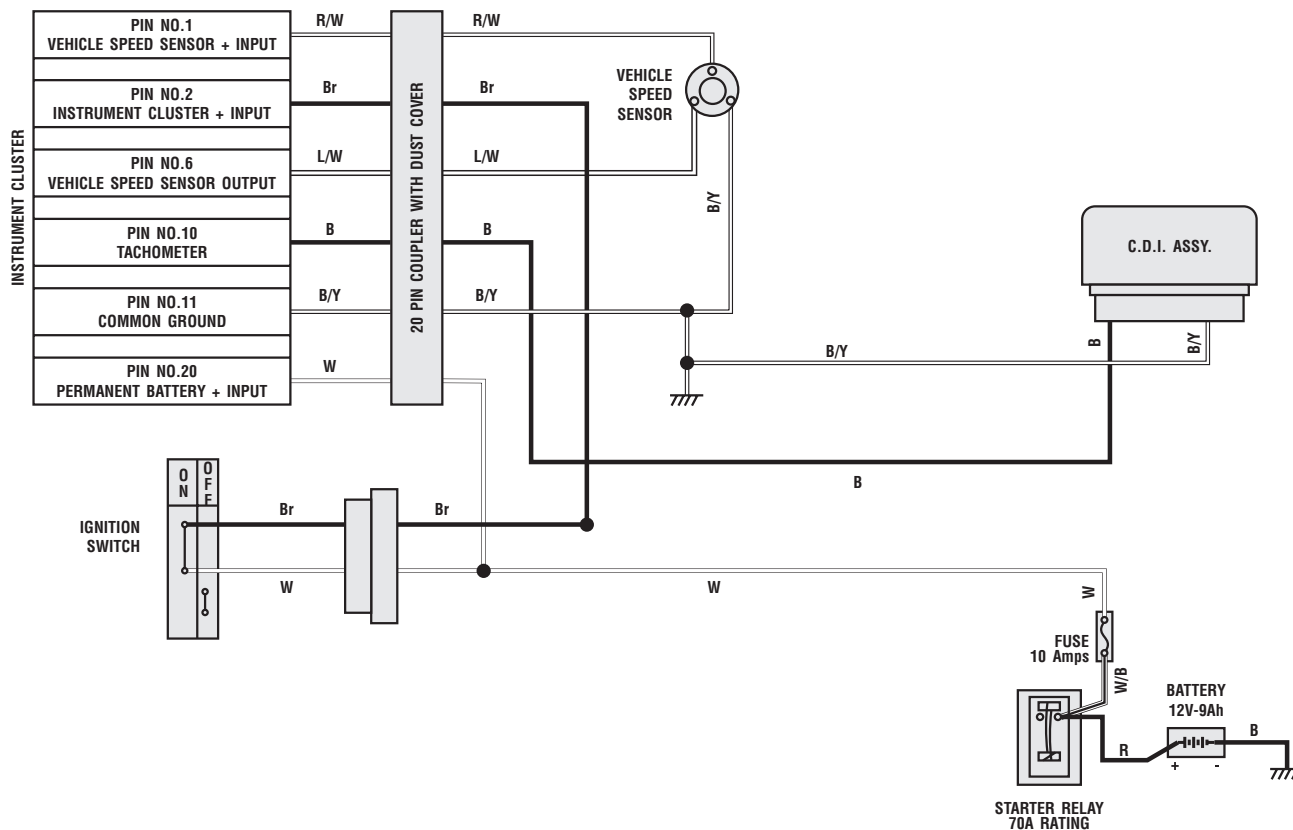
Horn Circuit :



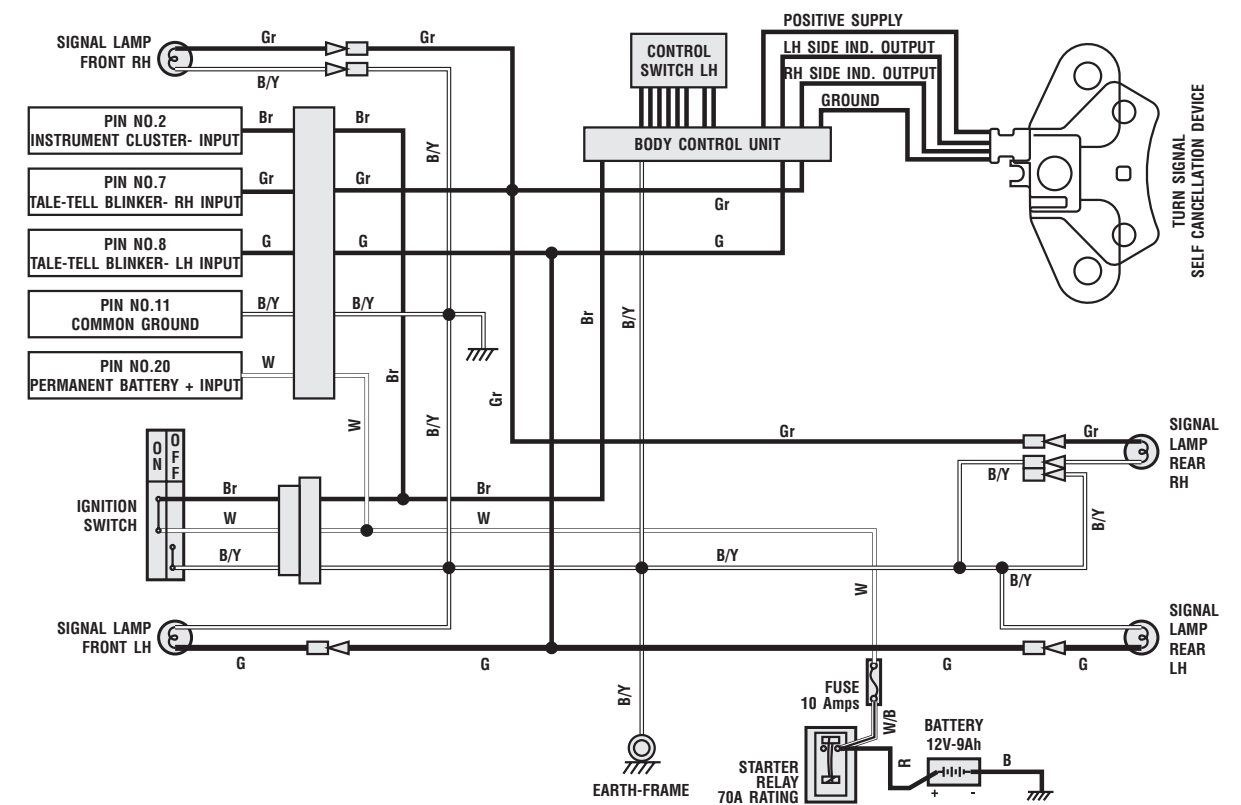
AC Lighting Circuit :



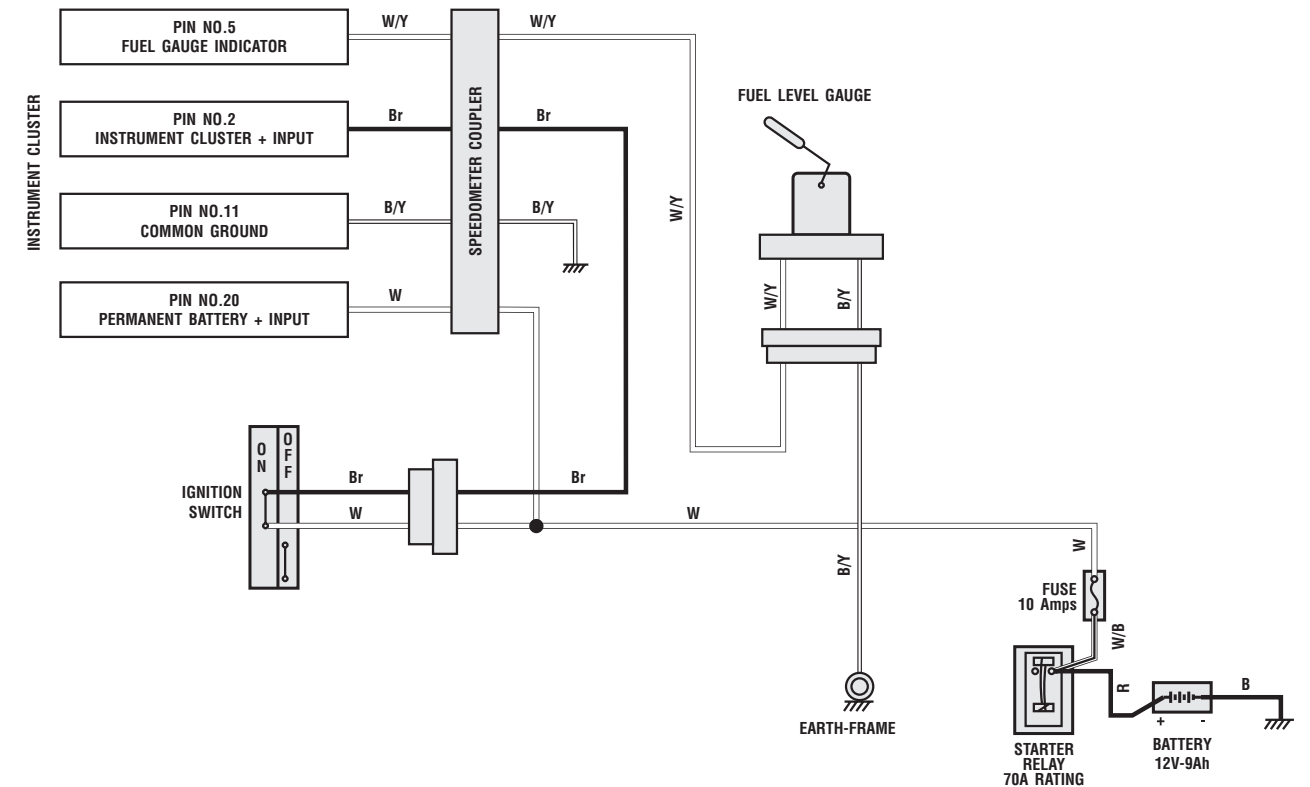
Speedometer and Tachometer Circuit :



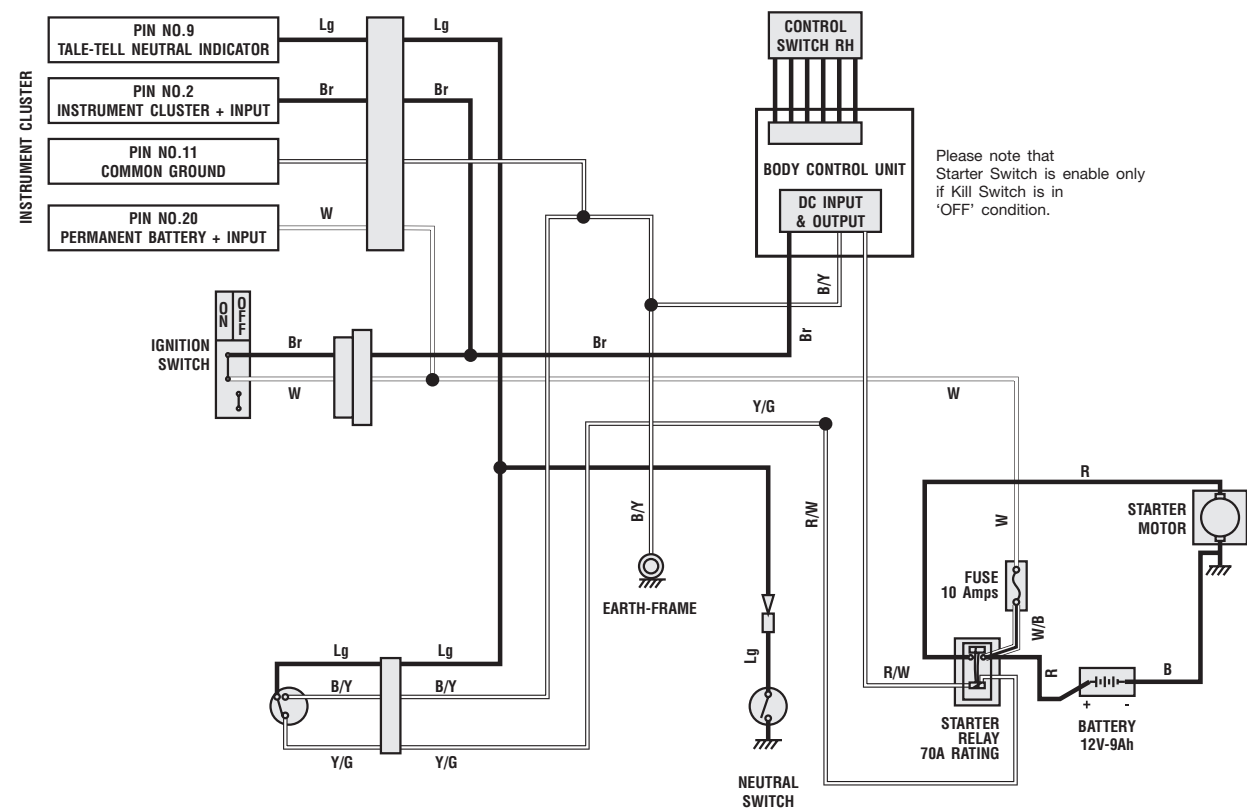
Side Indicator Circuit :



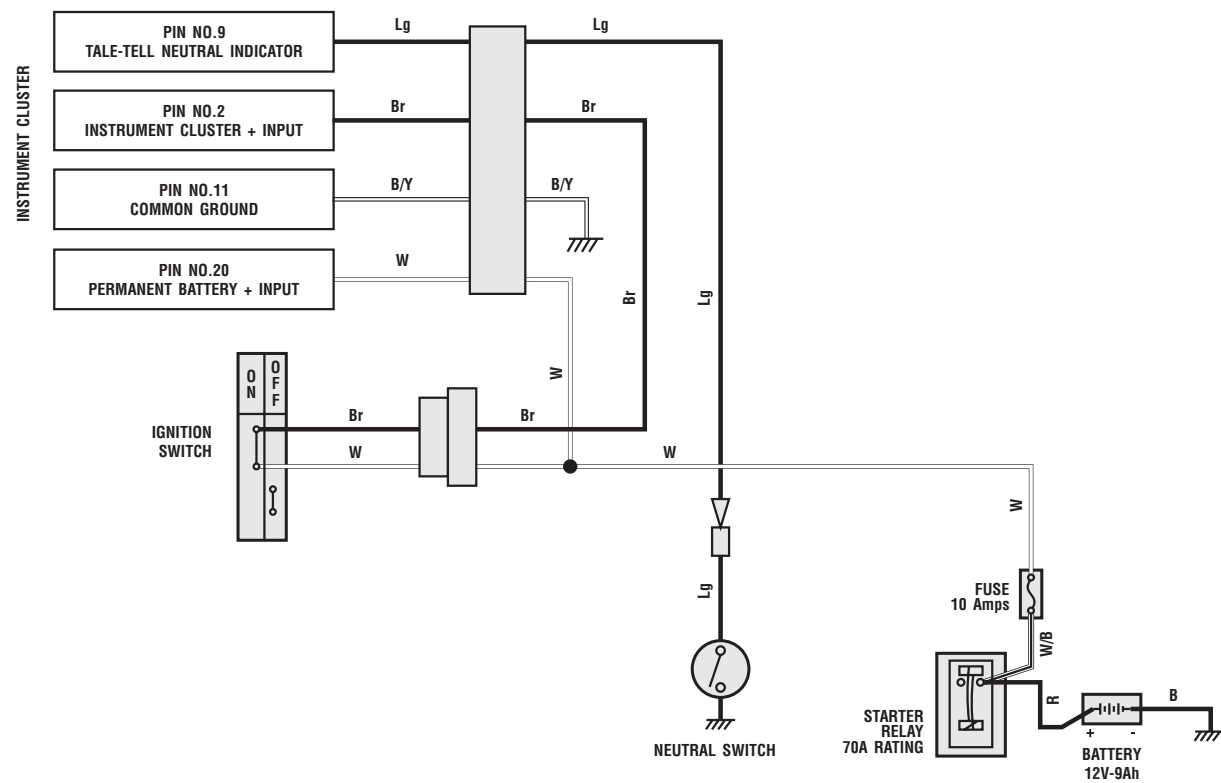
Fuel Indicator Circuit :



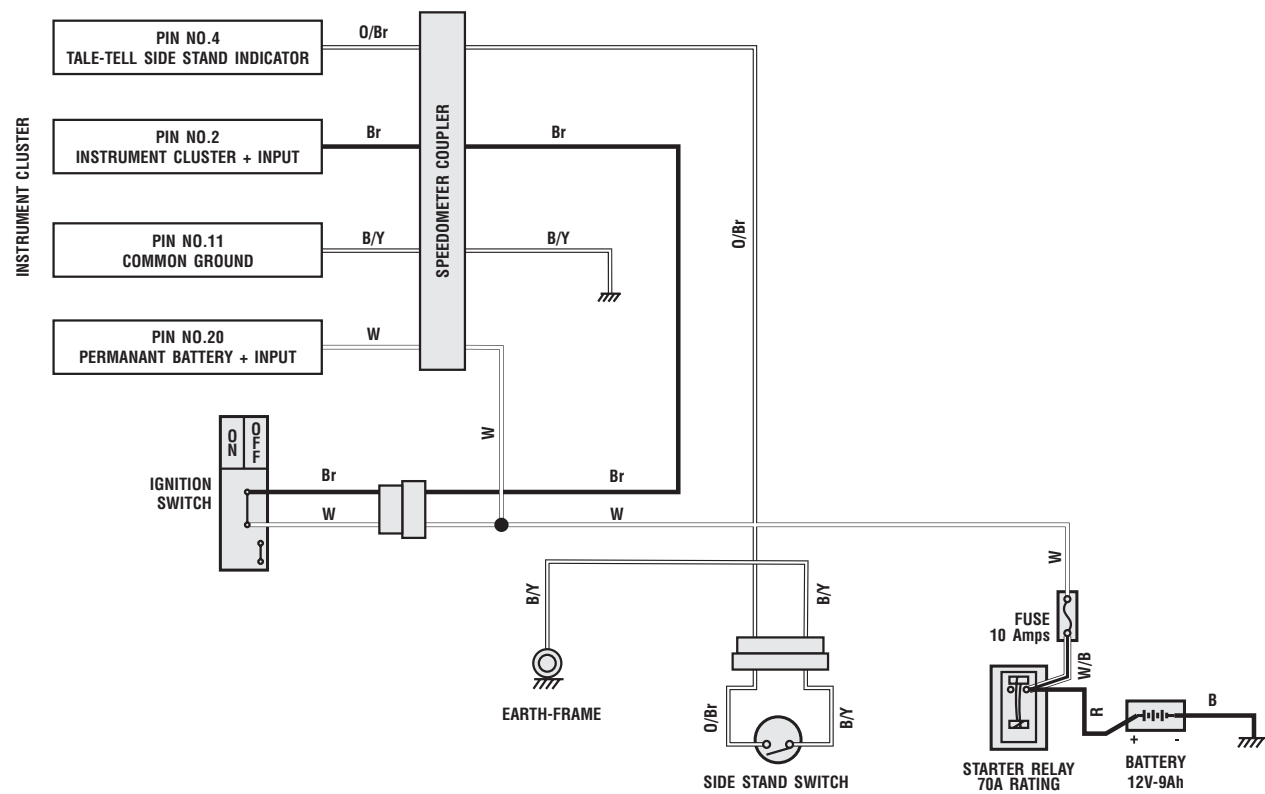
Stator Motor Circuit :

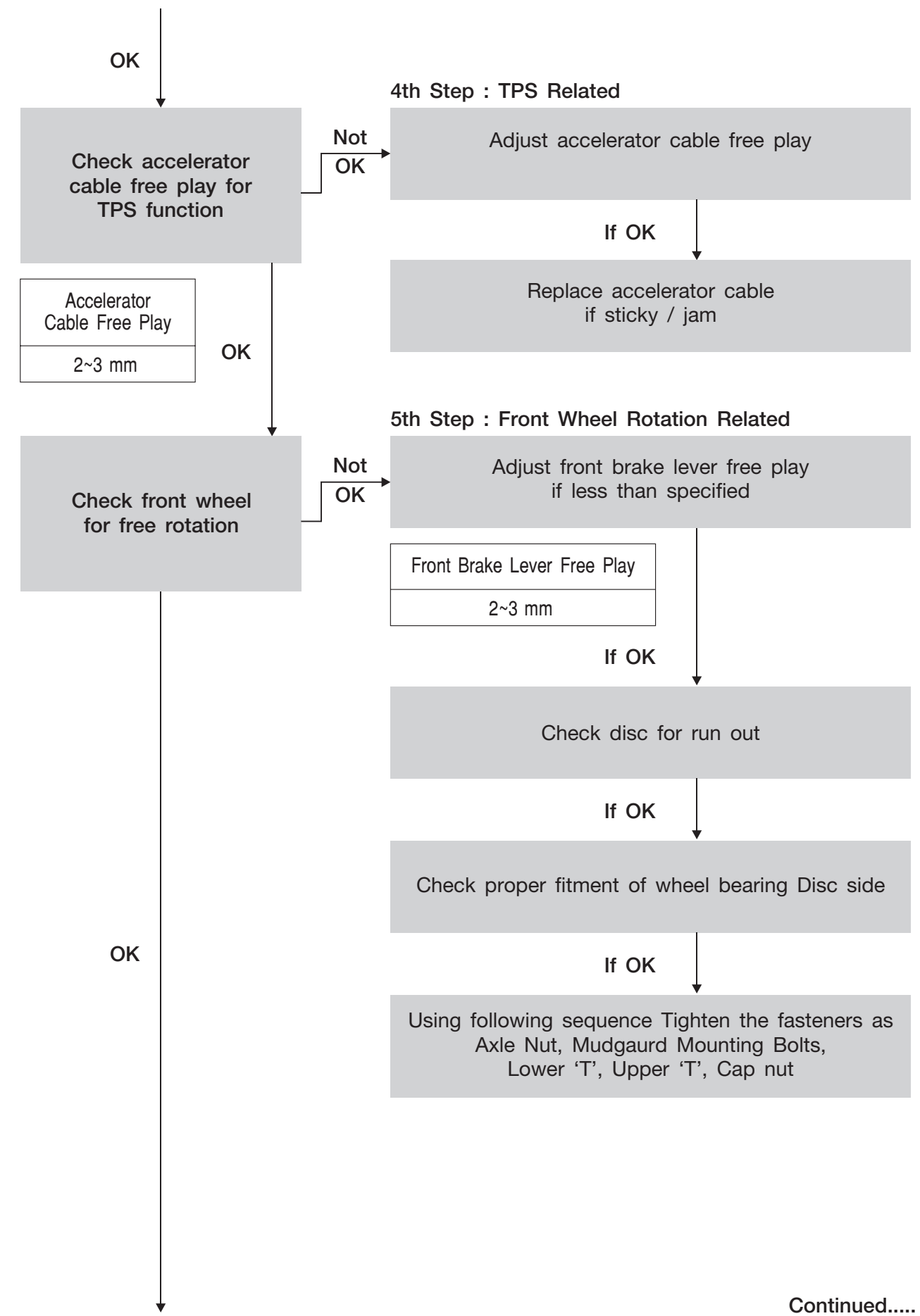
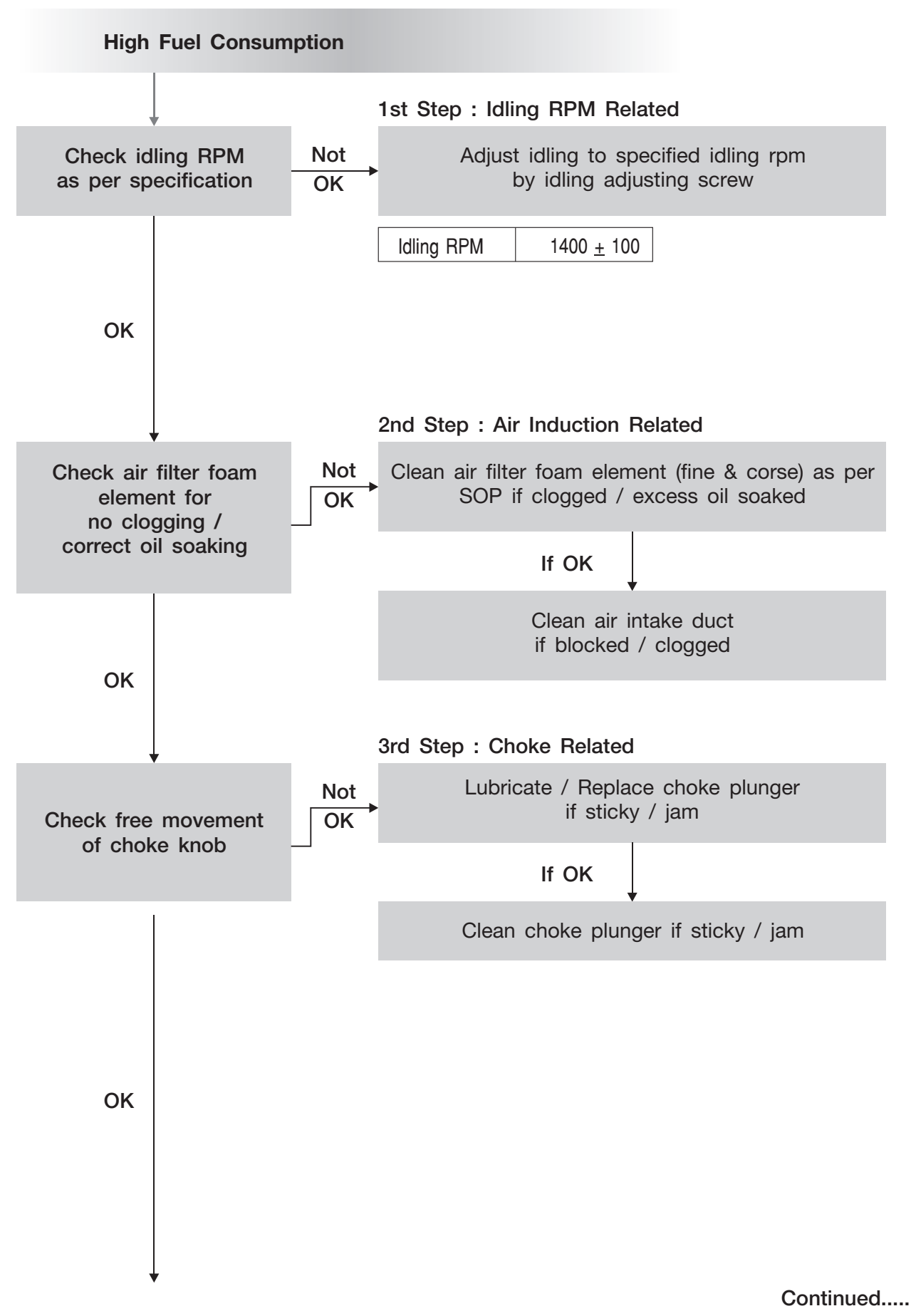


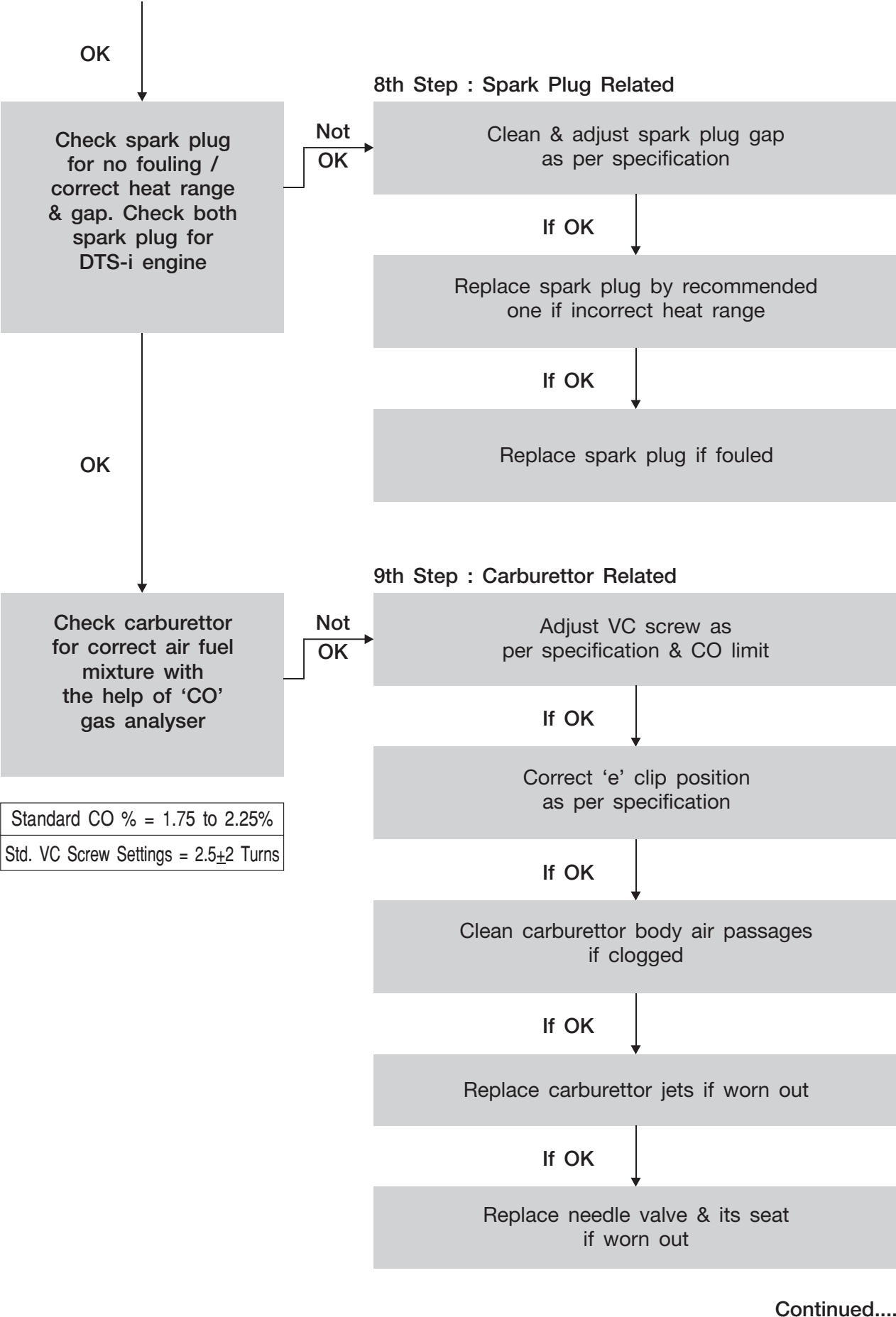
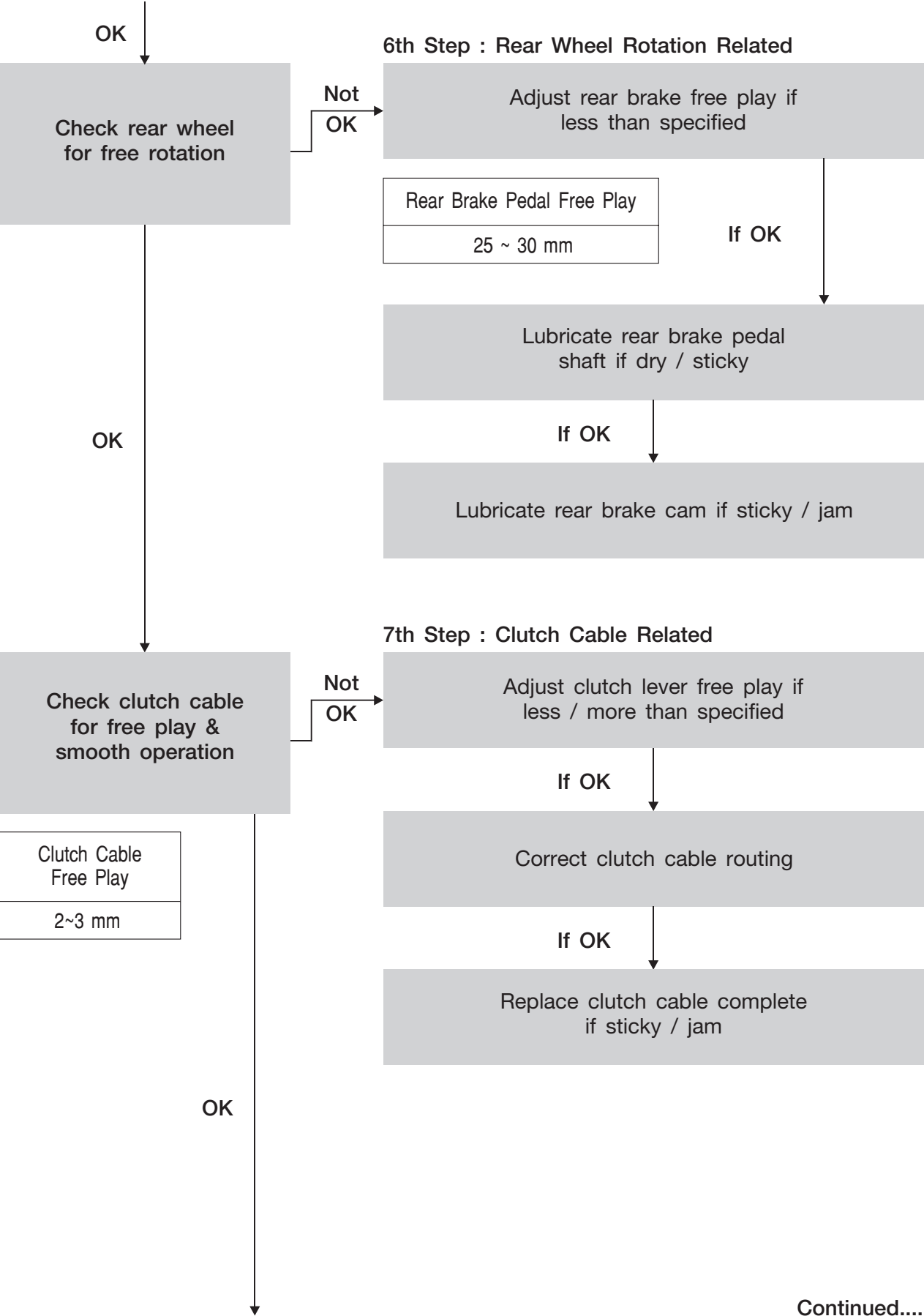
Neutral Light Circuit :

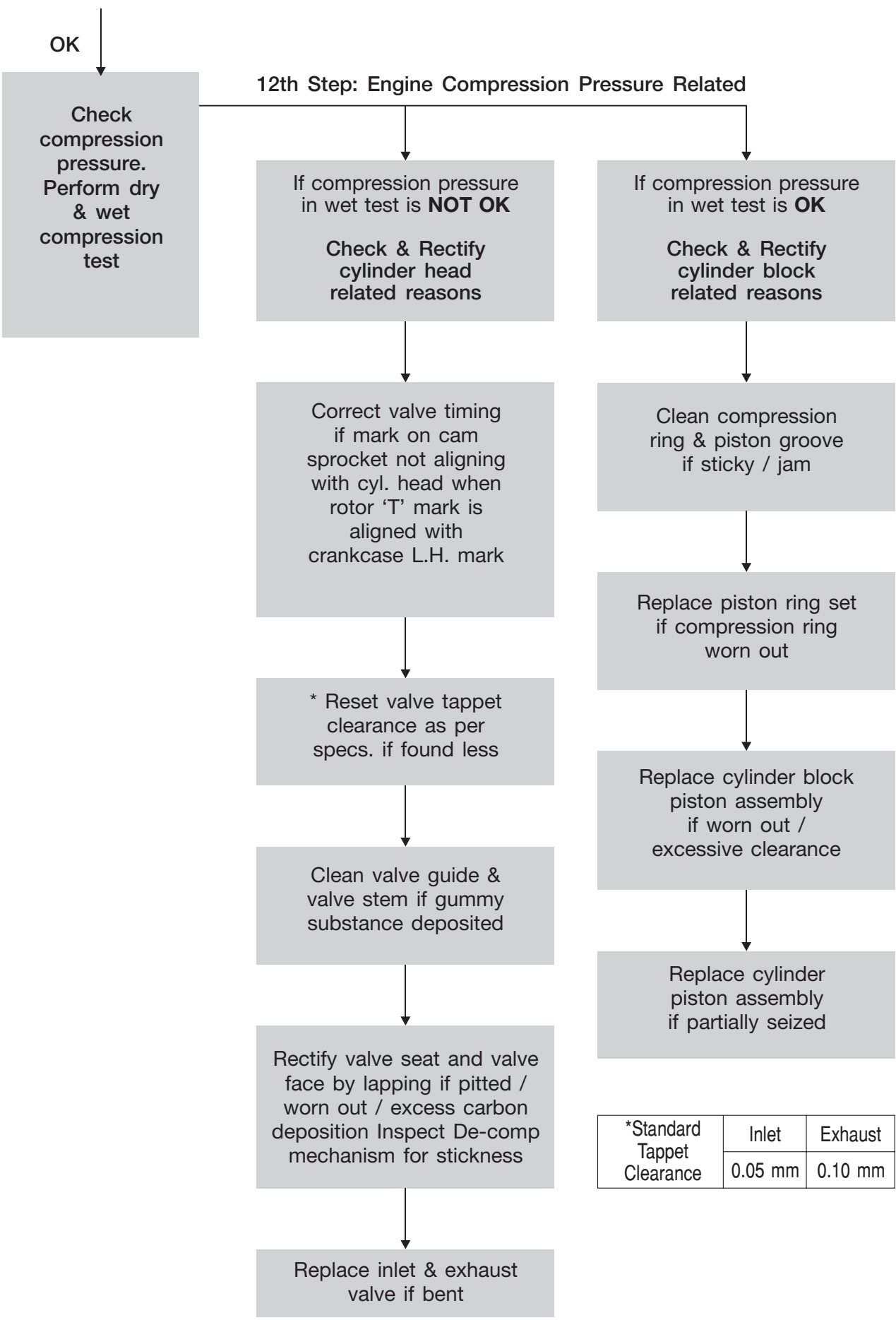
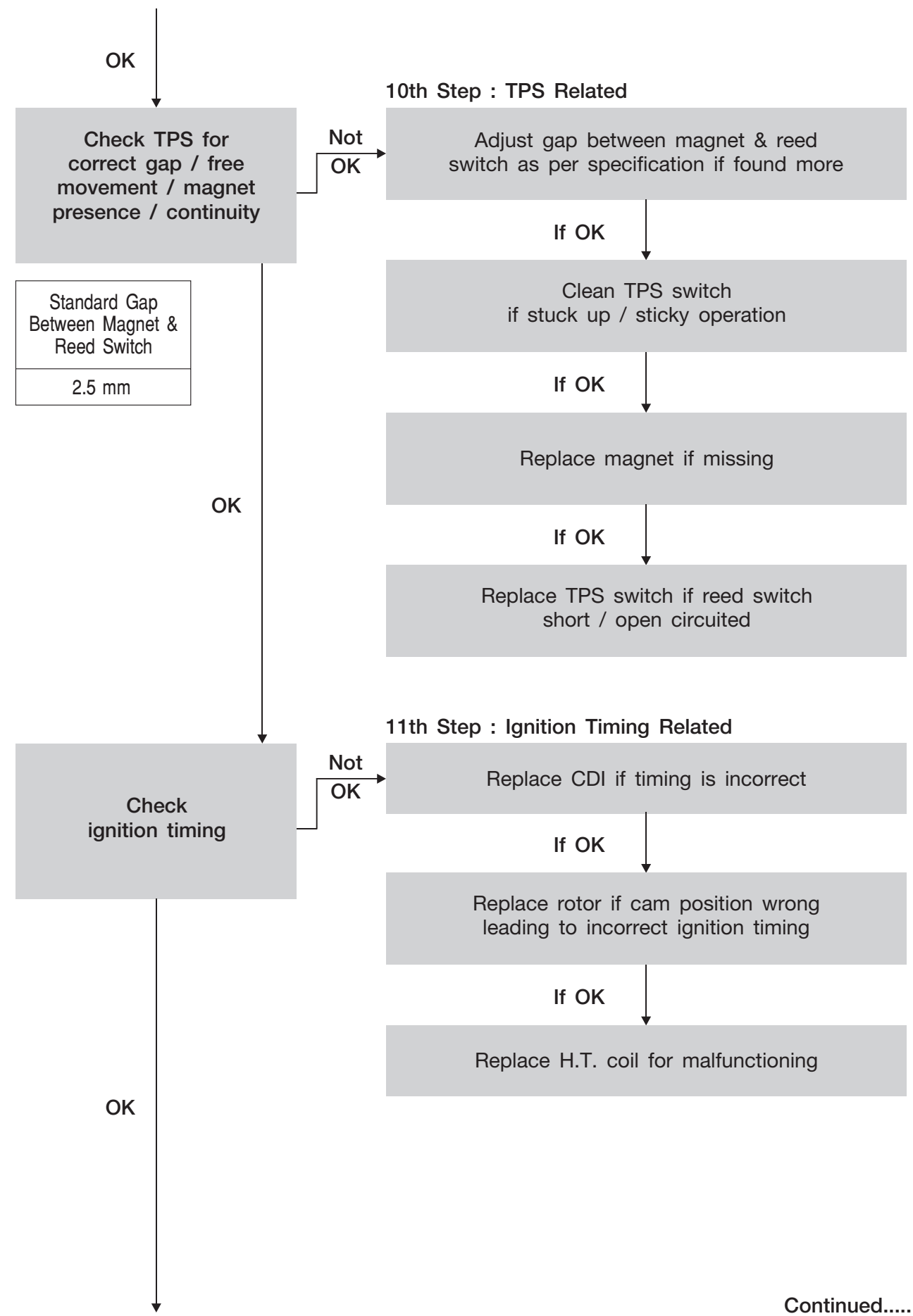


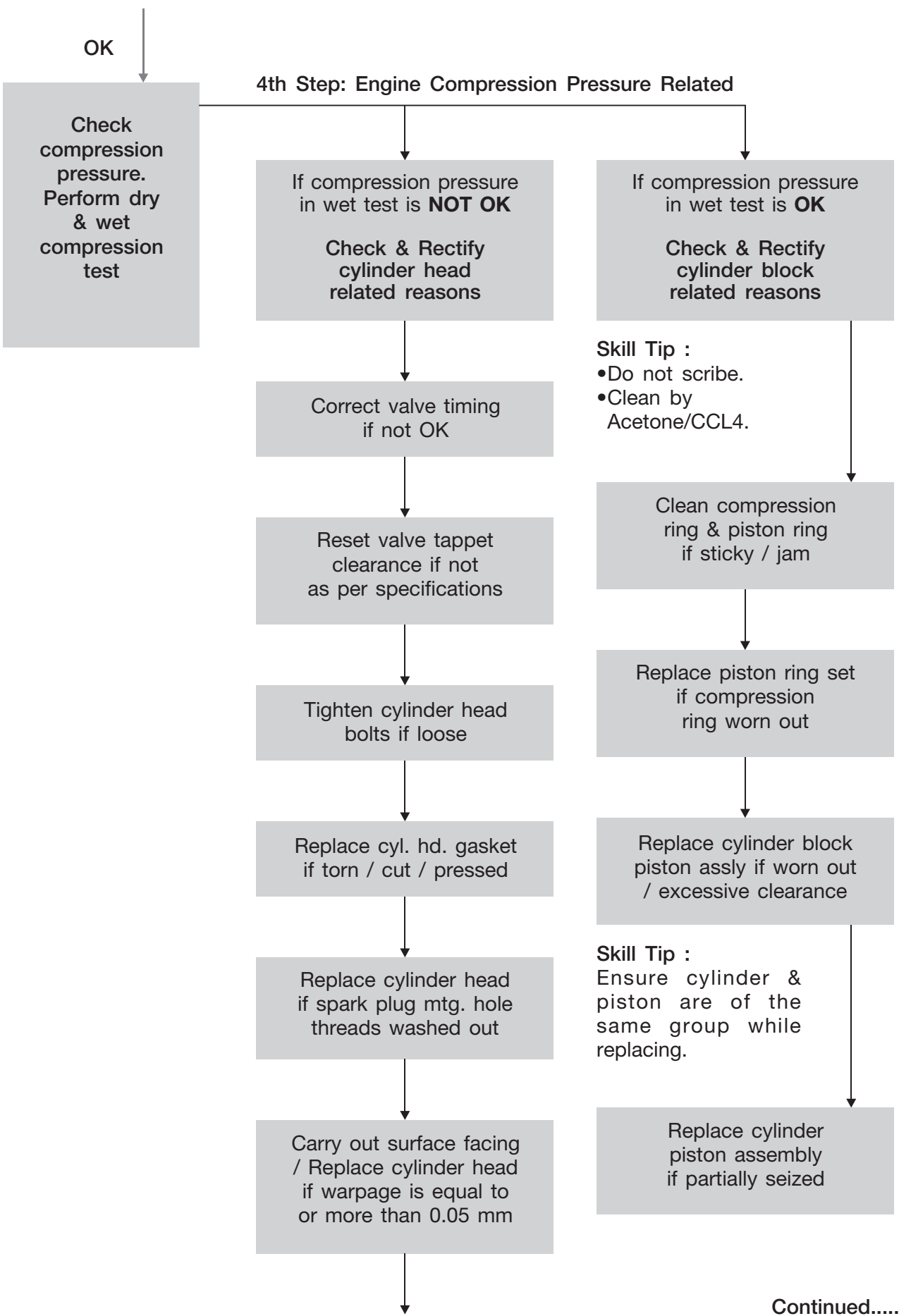
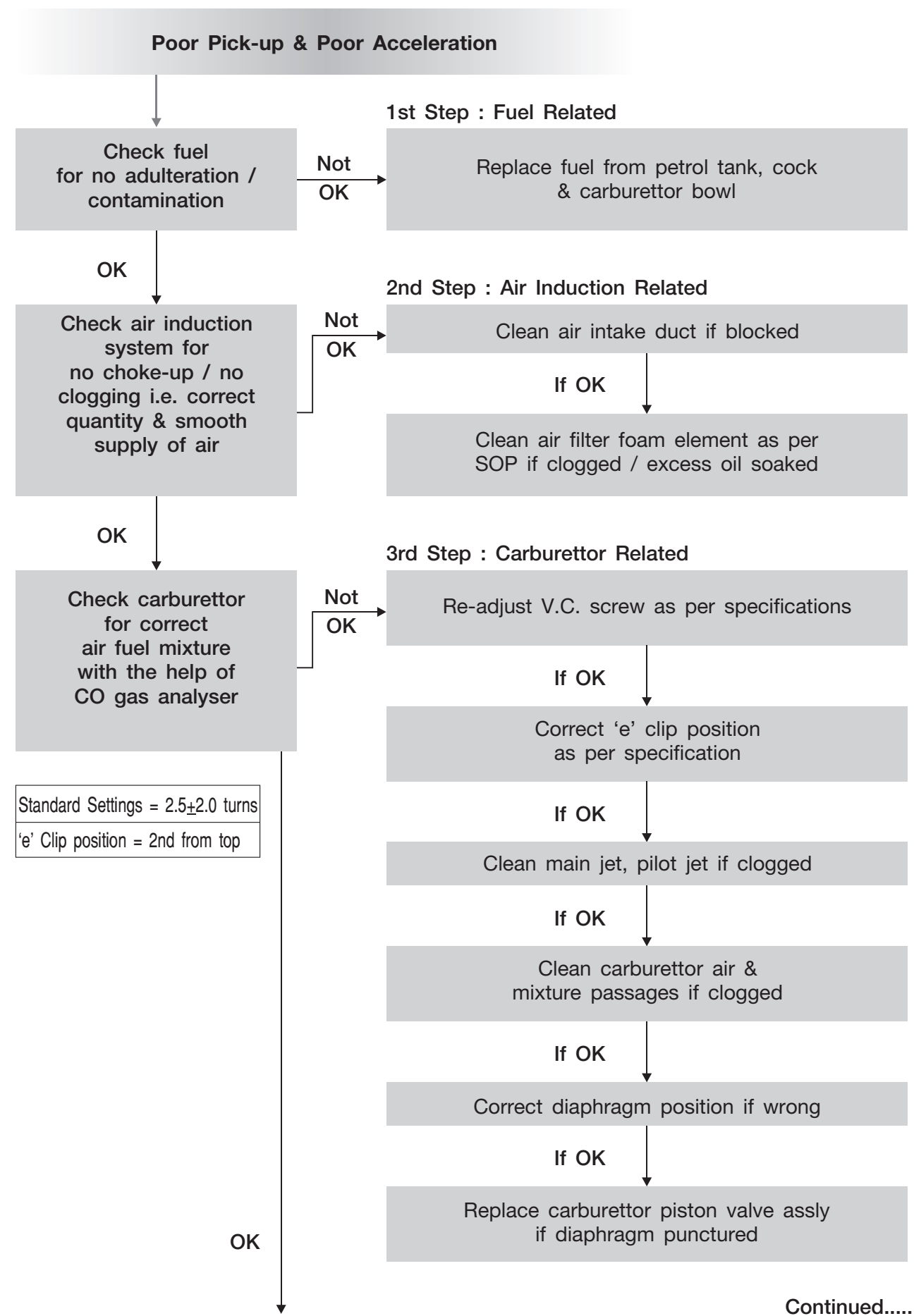
Side Stand Indication Circuit :

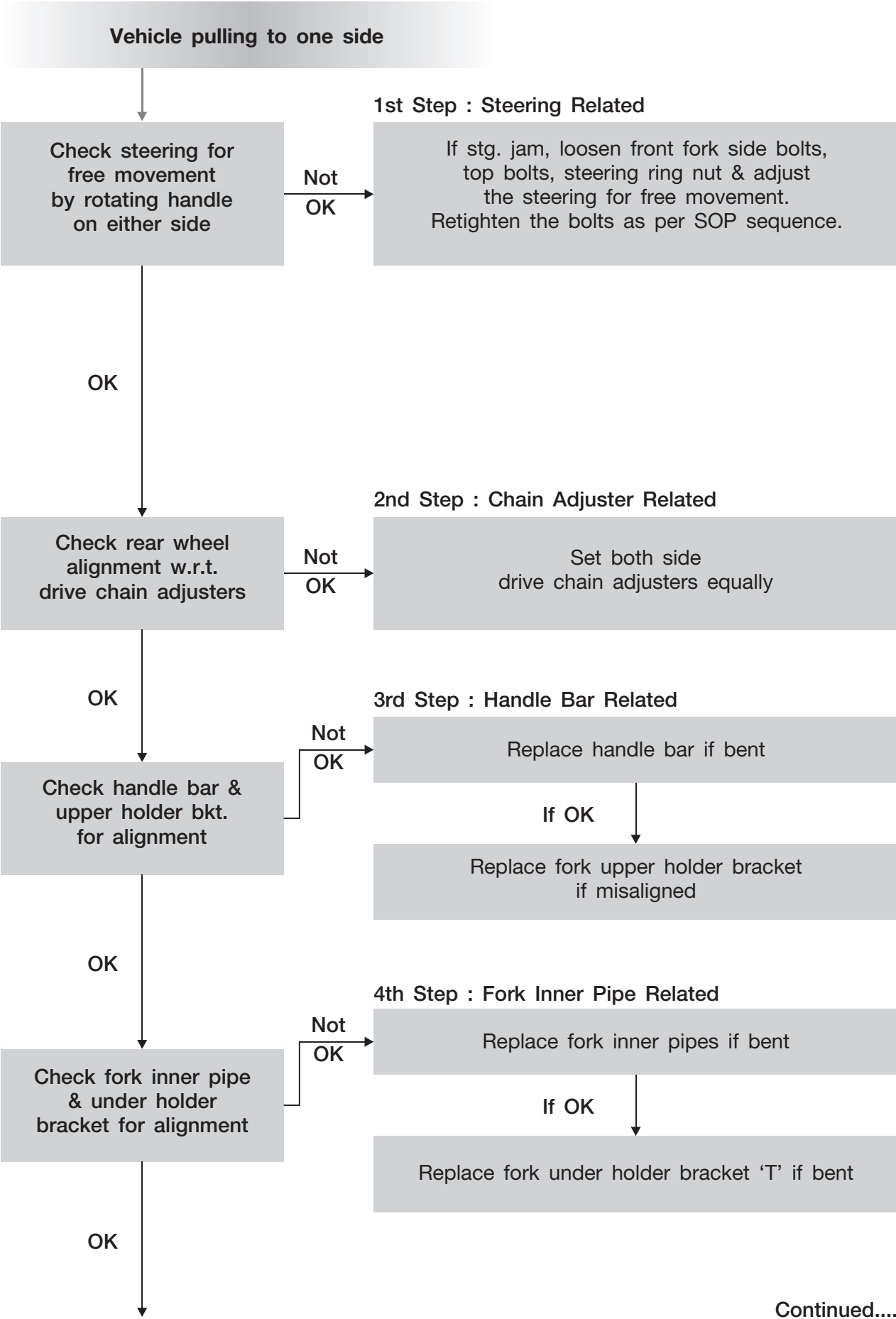
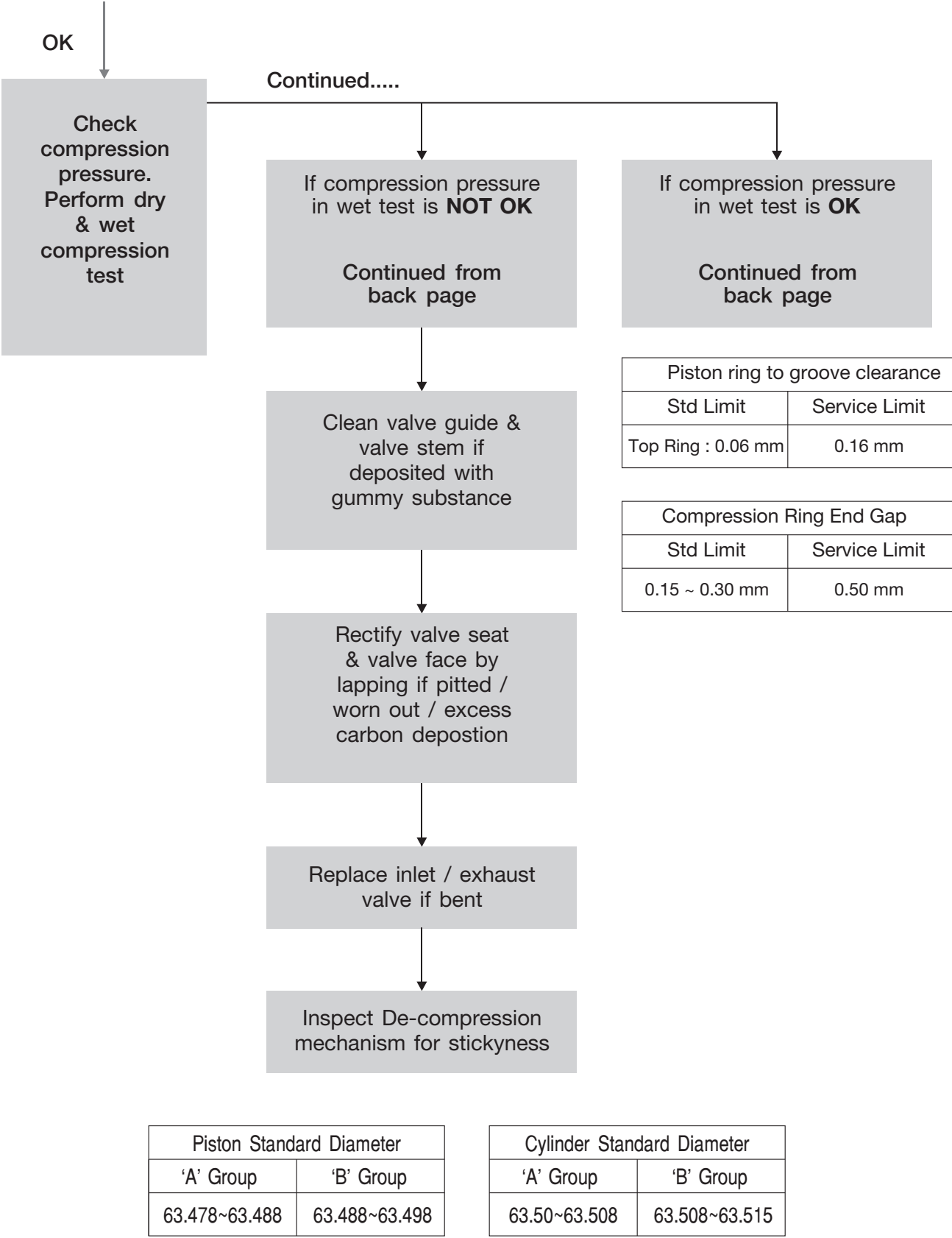


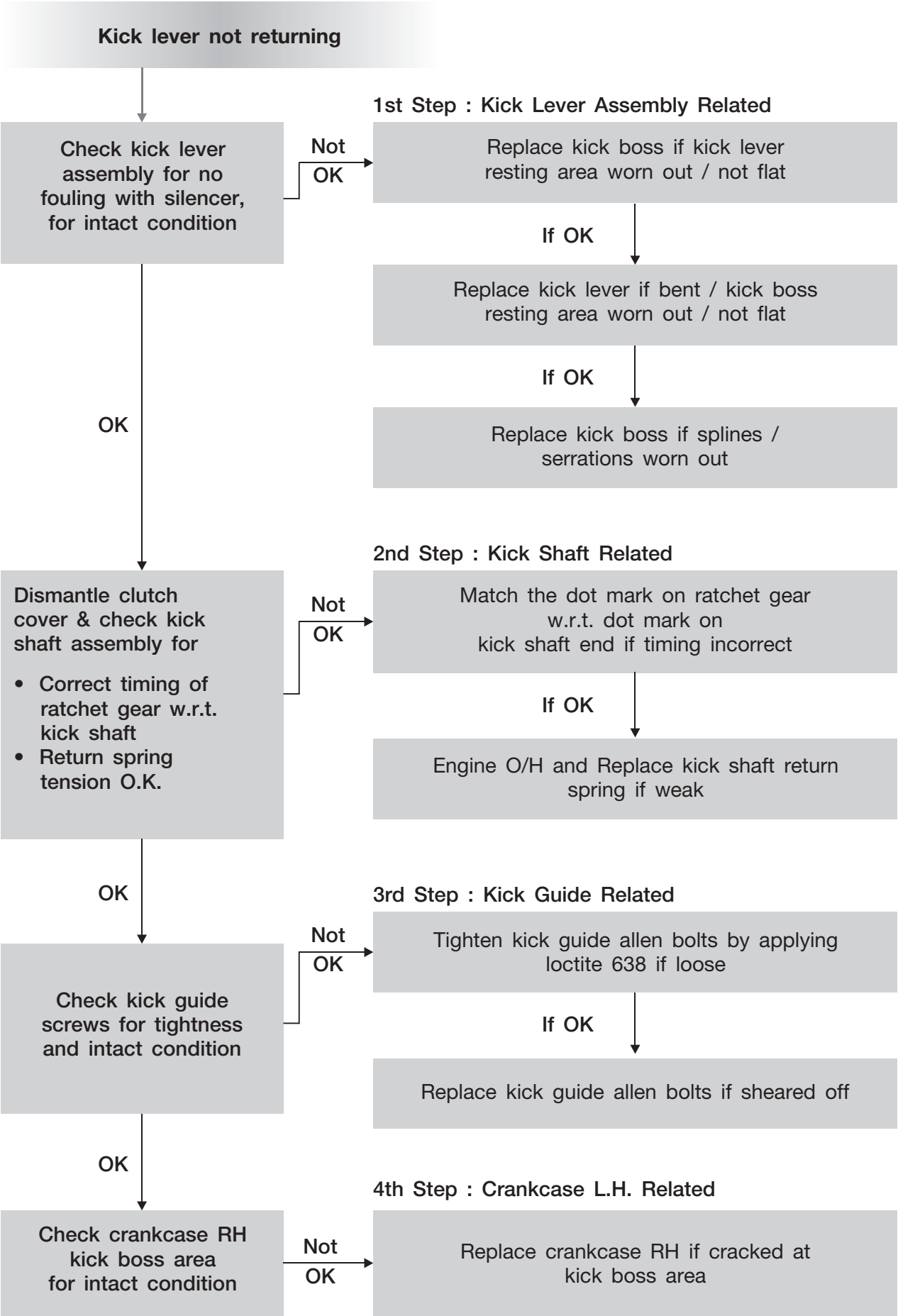
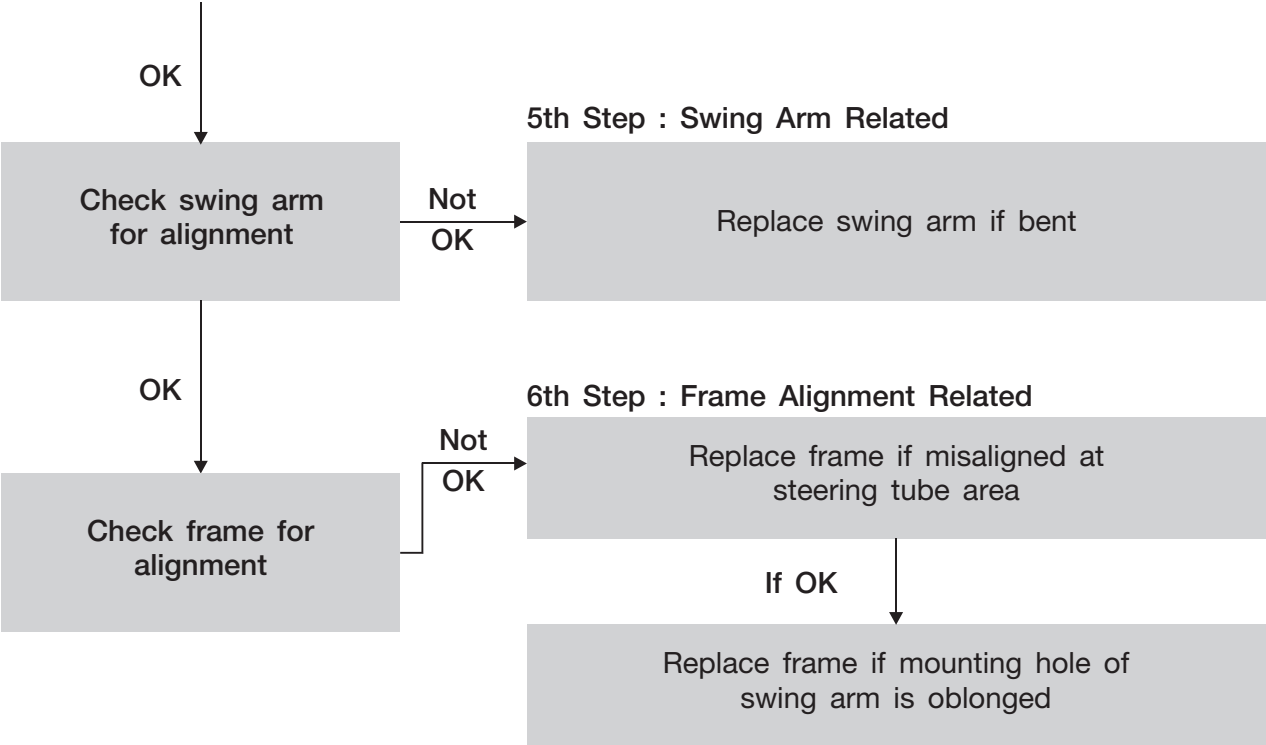


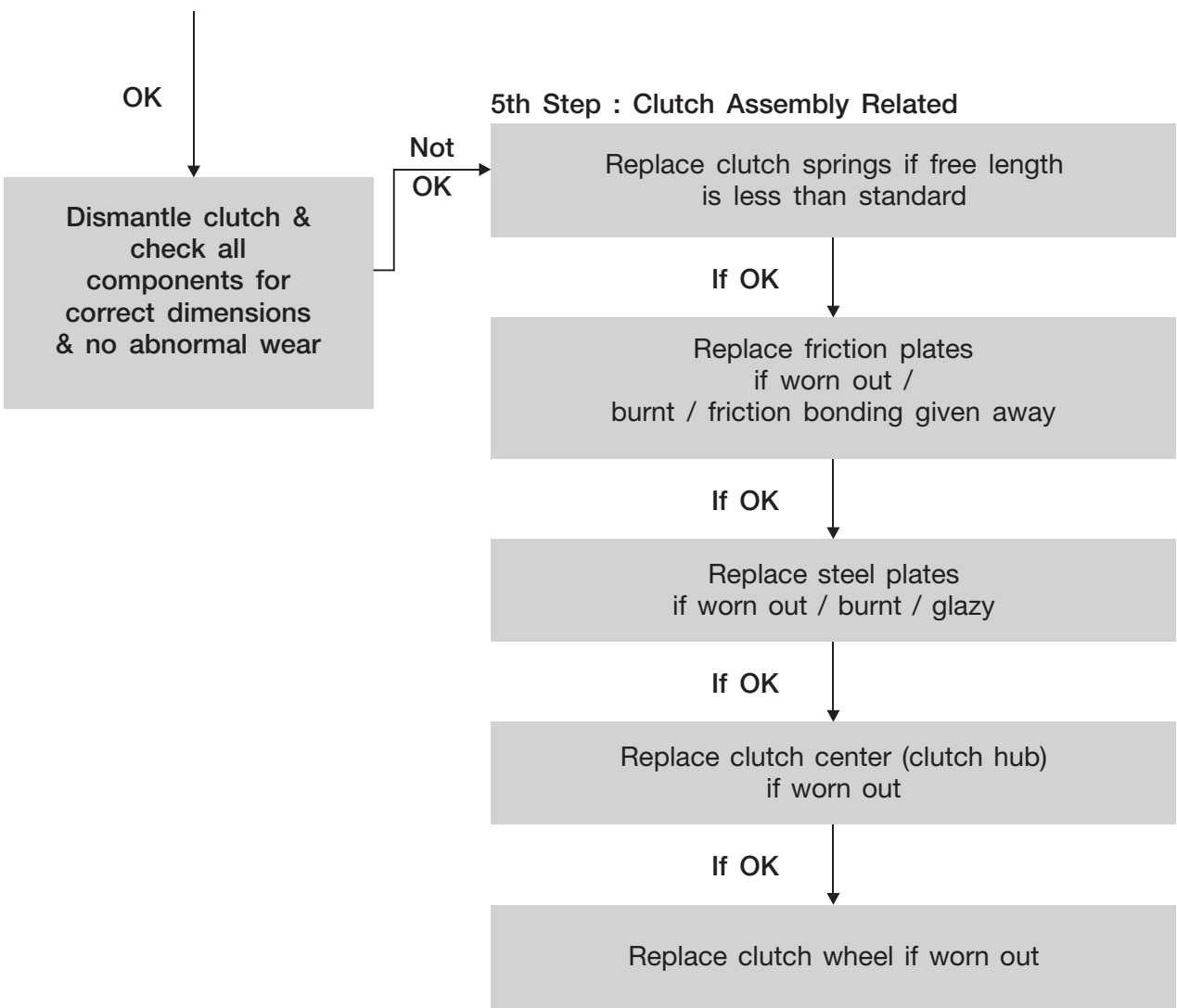
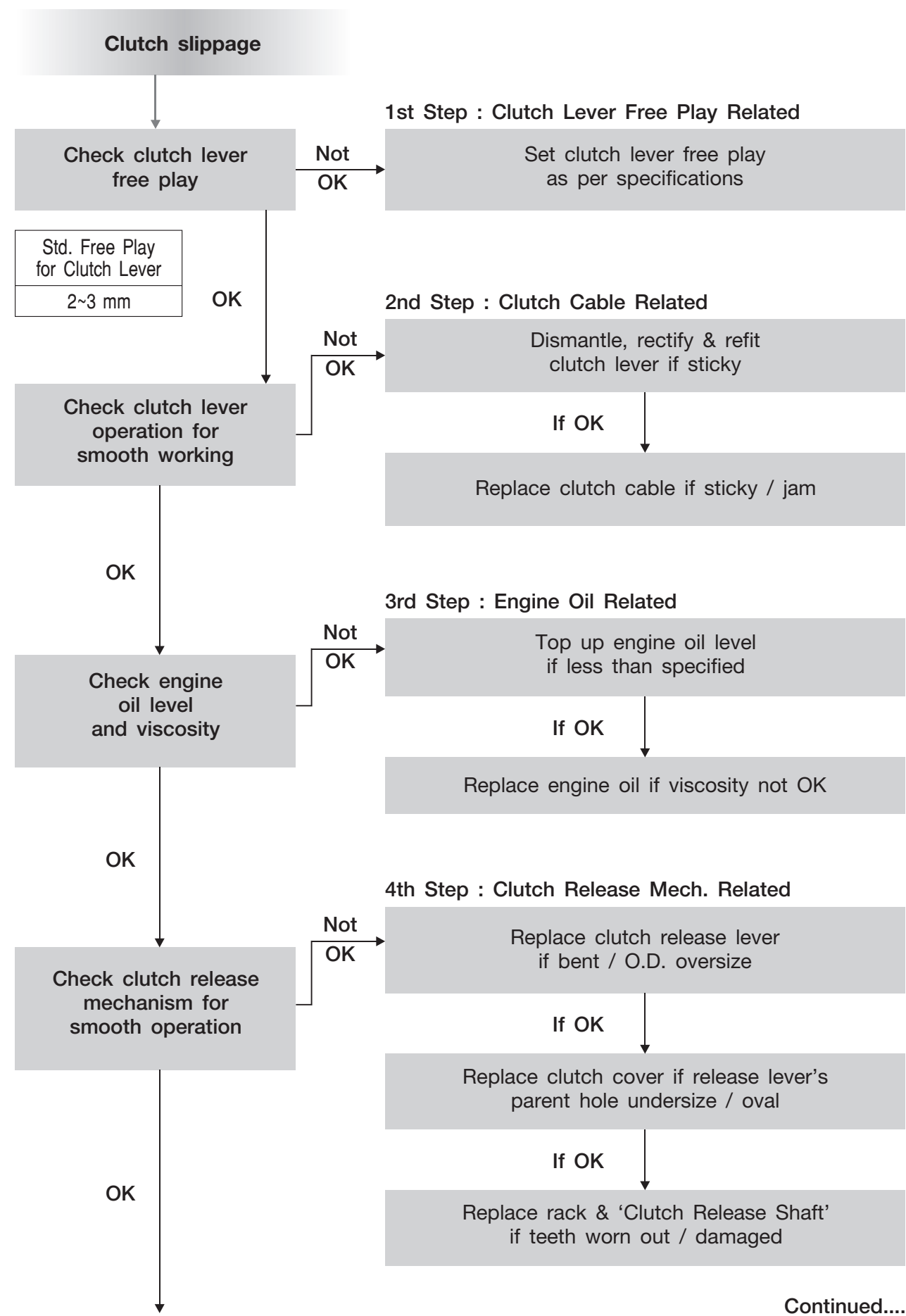


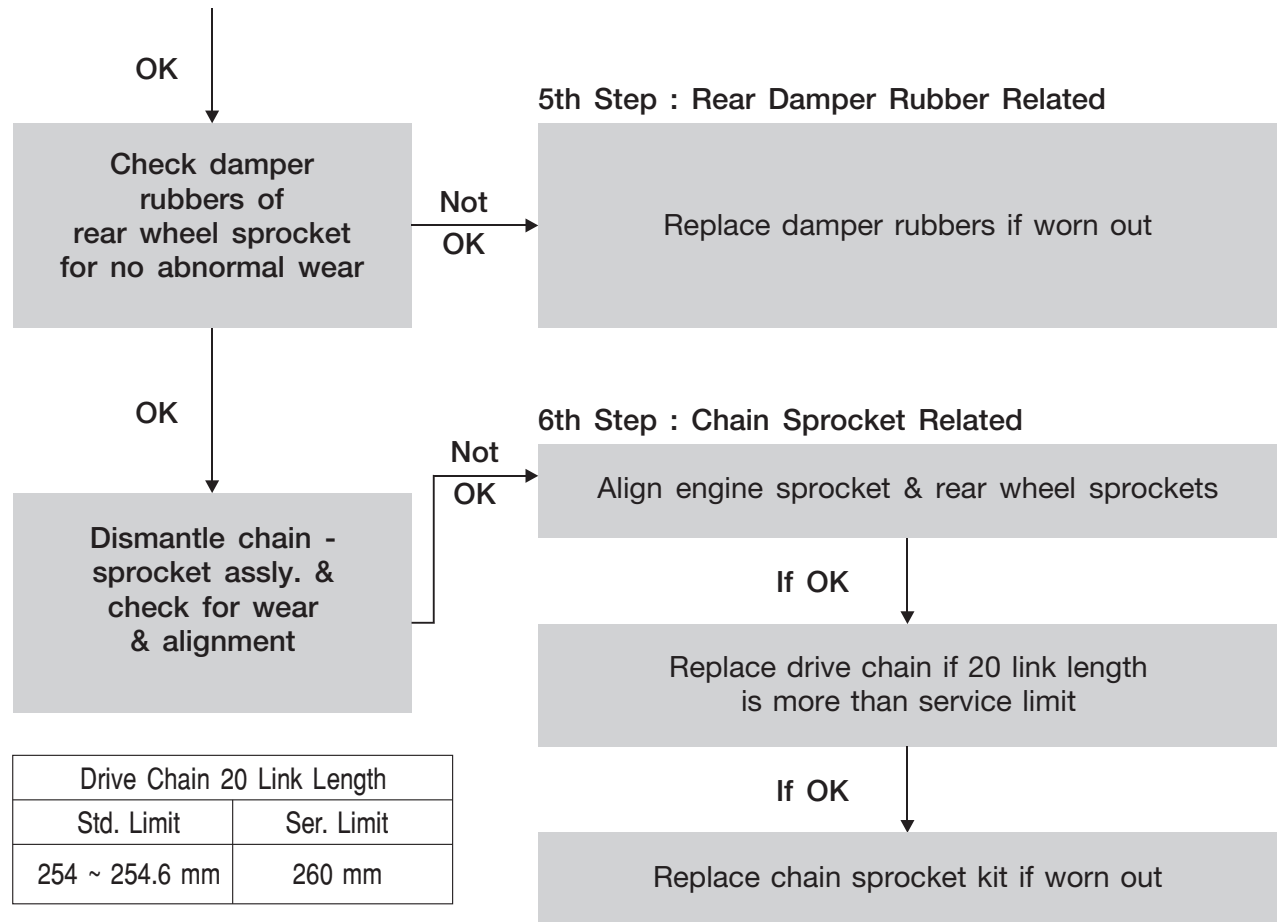
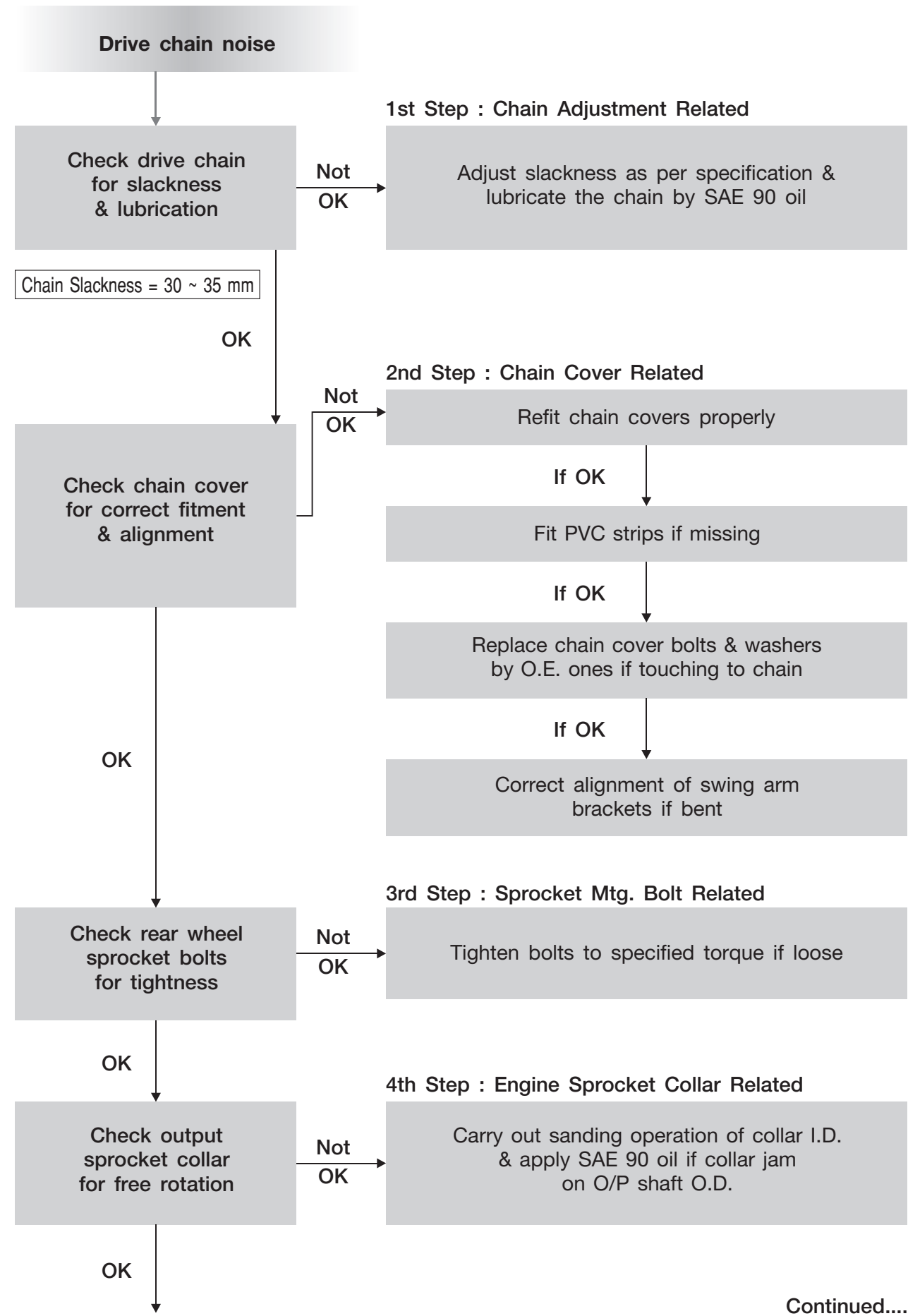


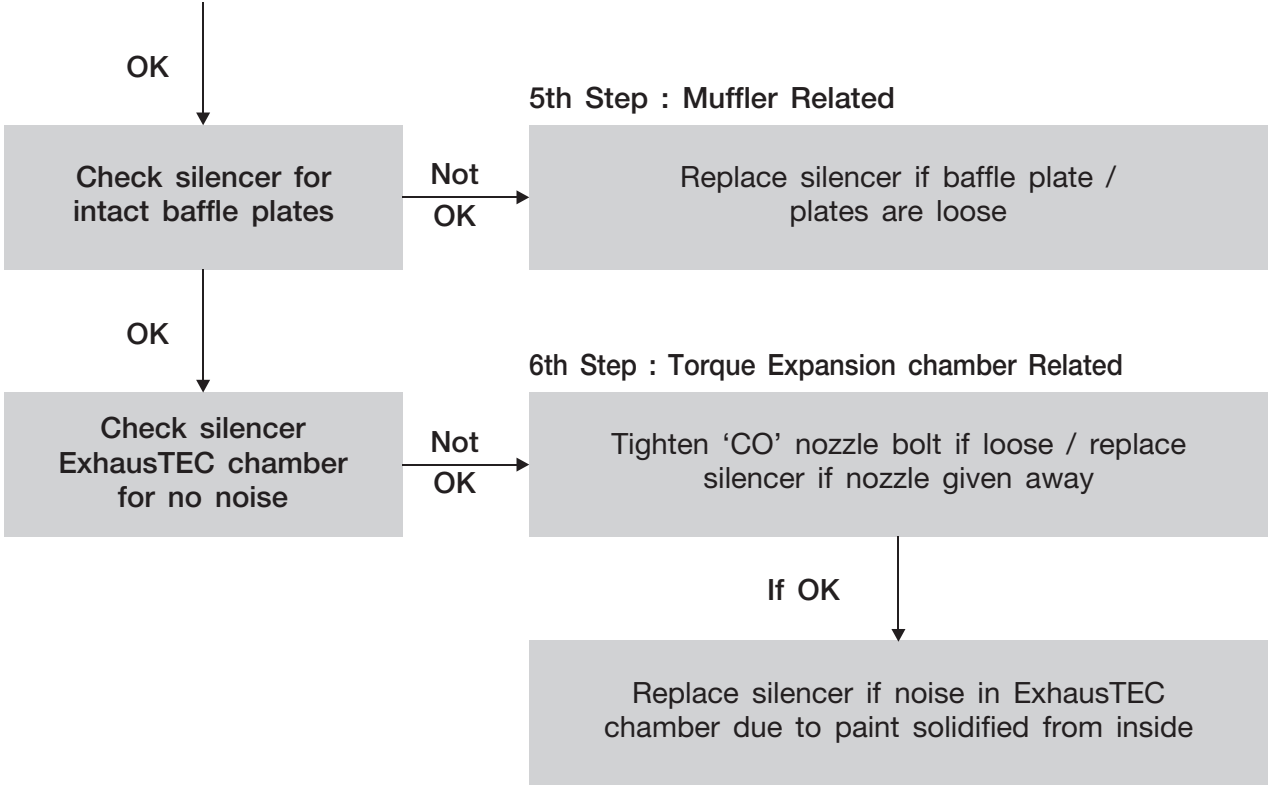
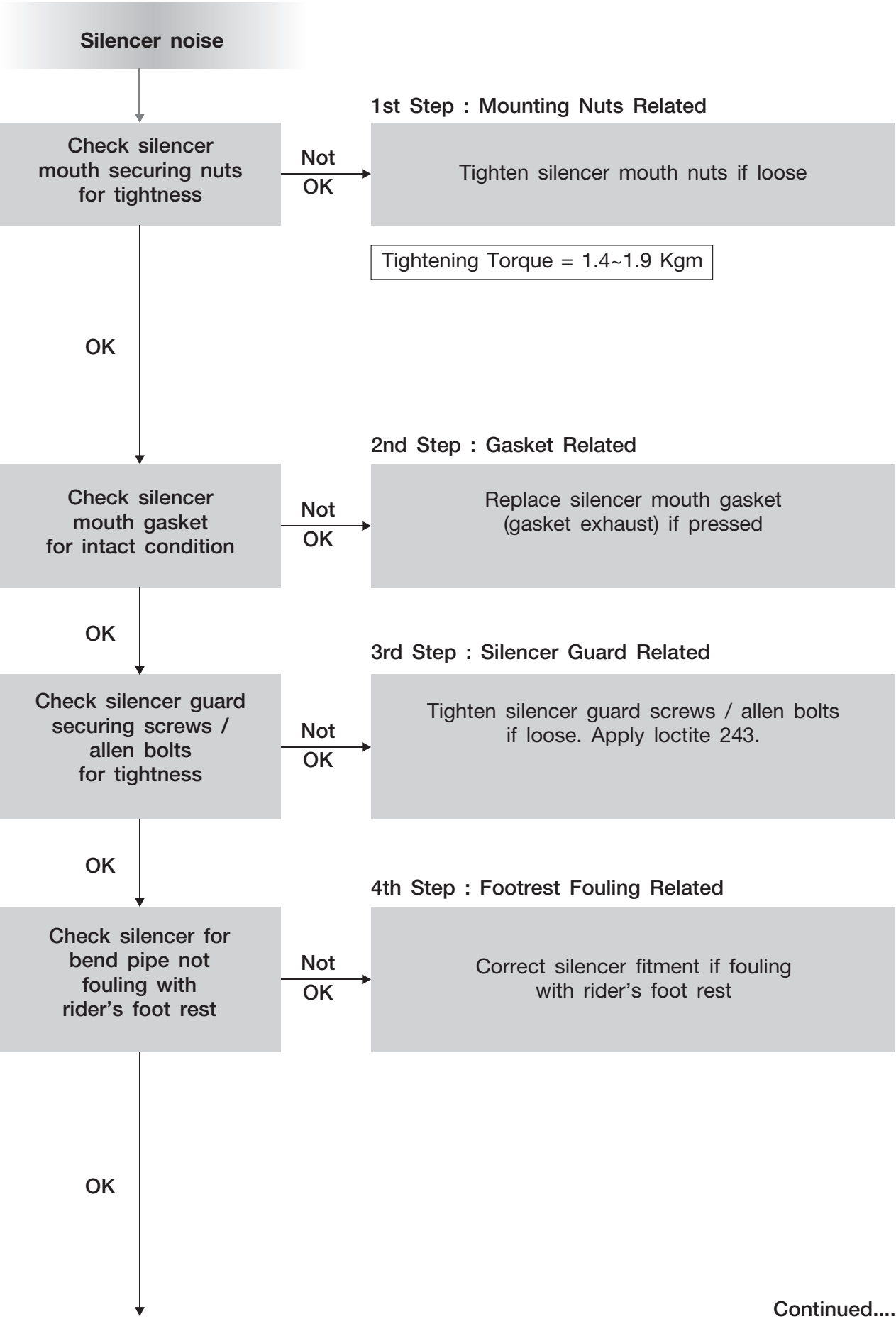


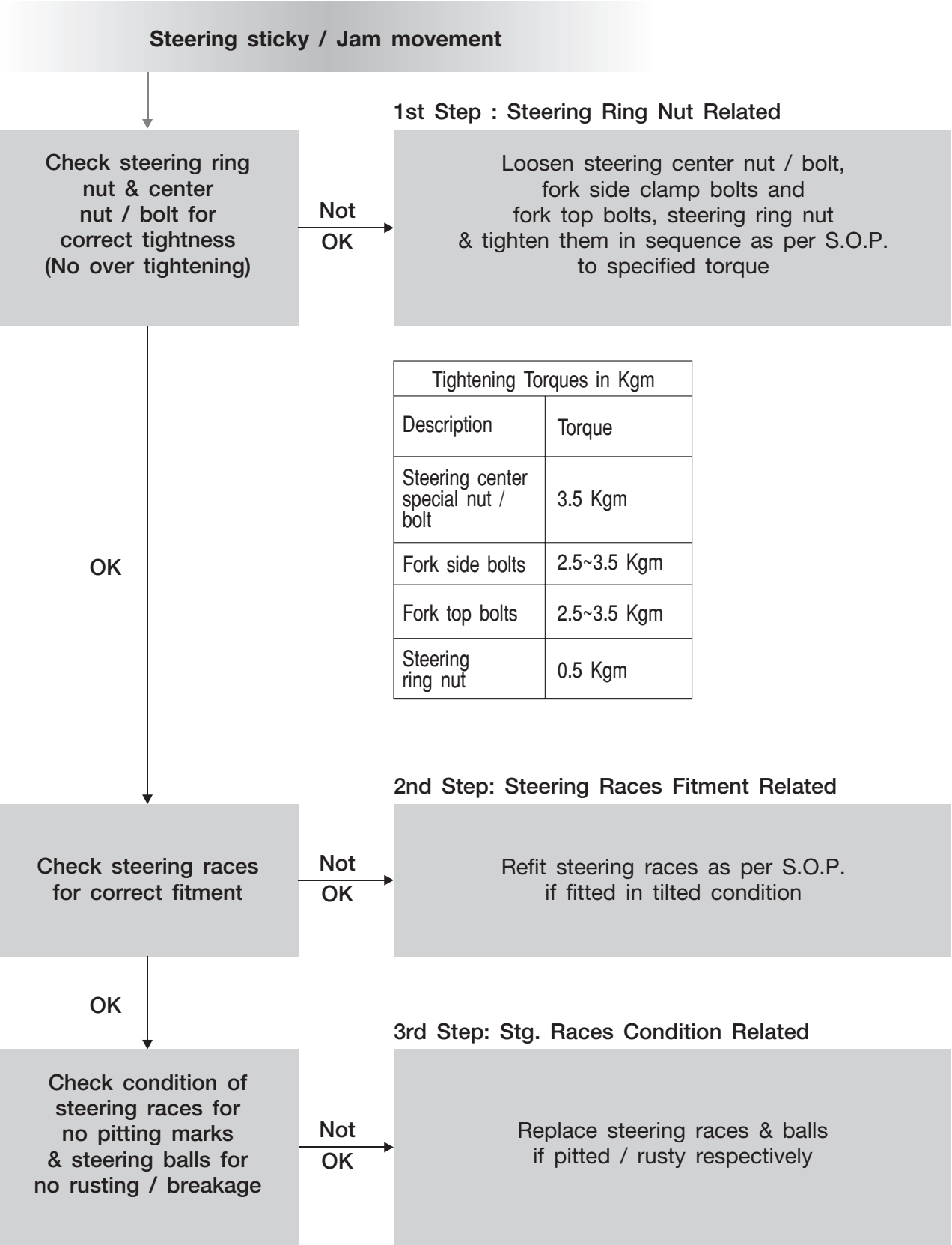




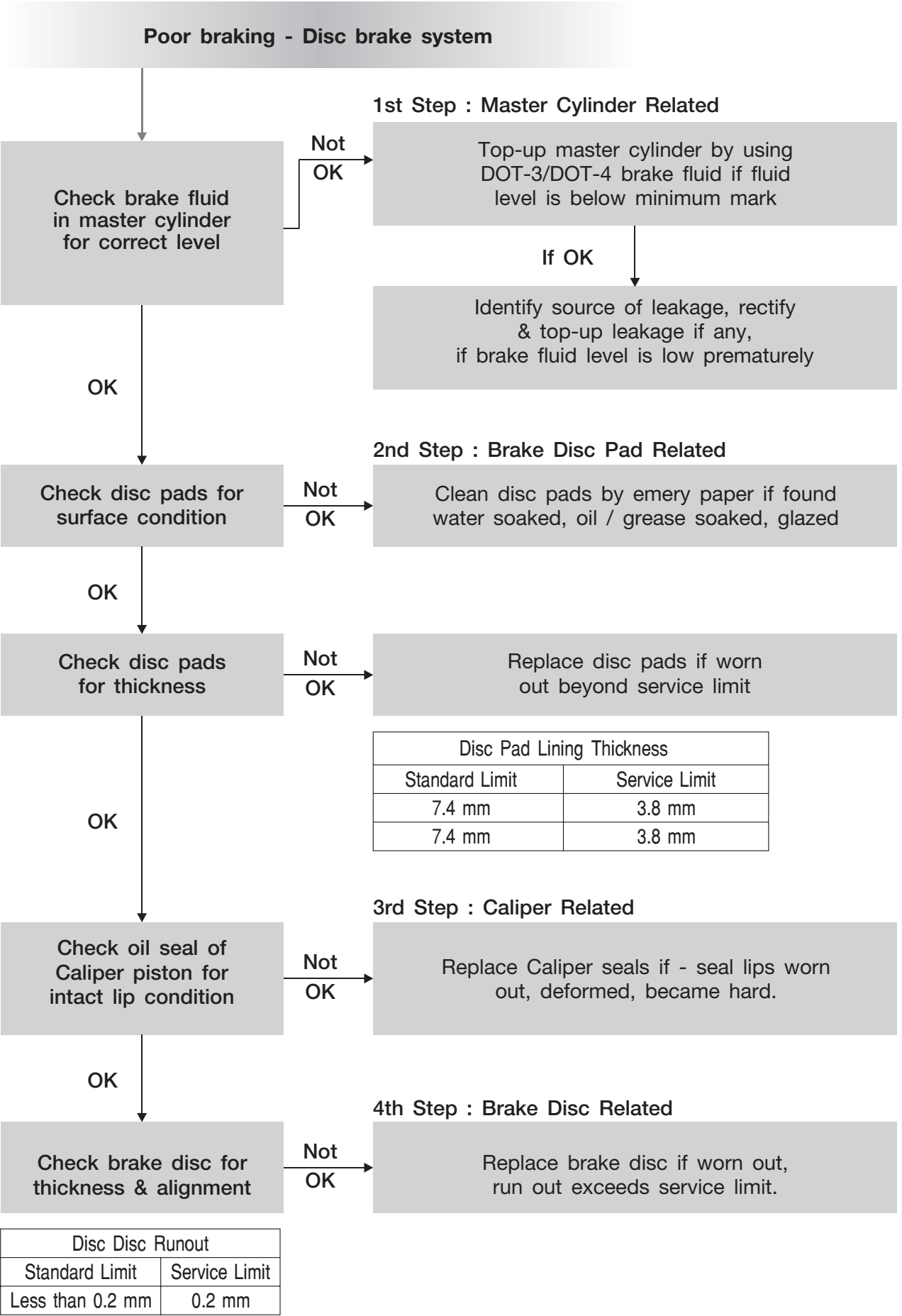


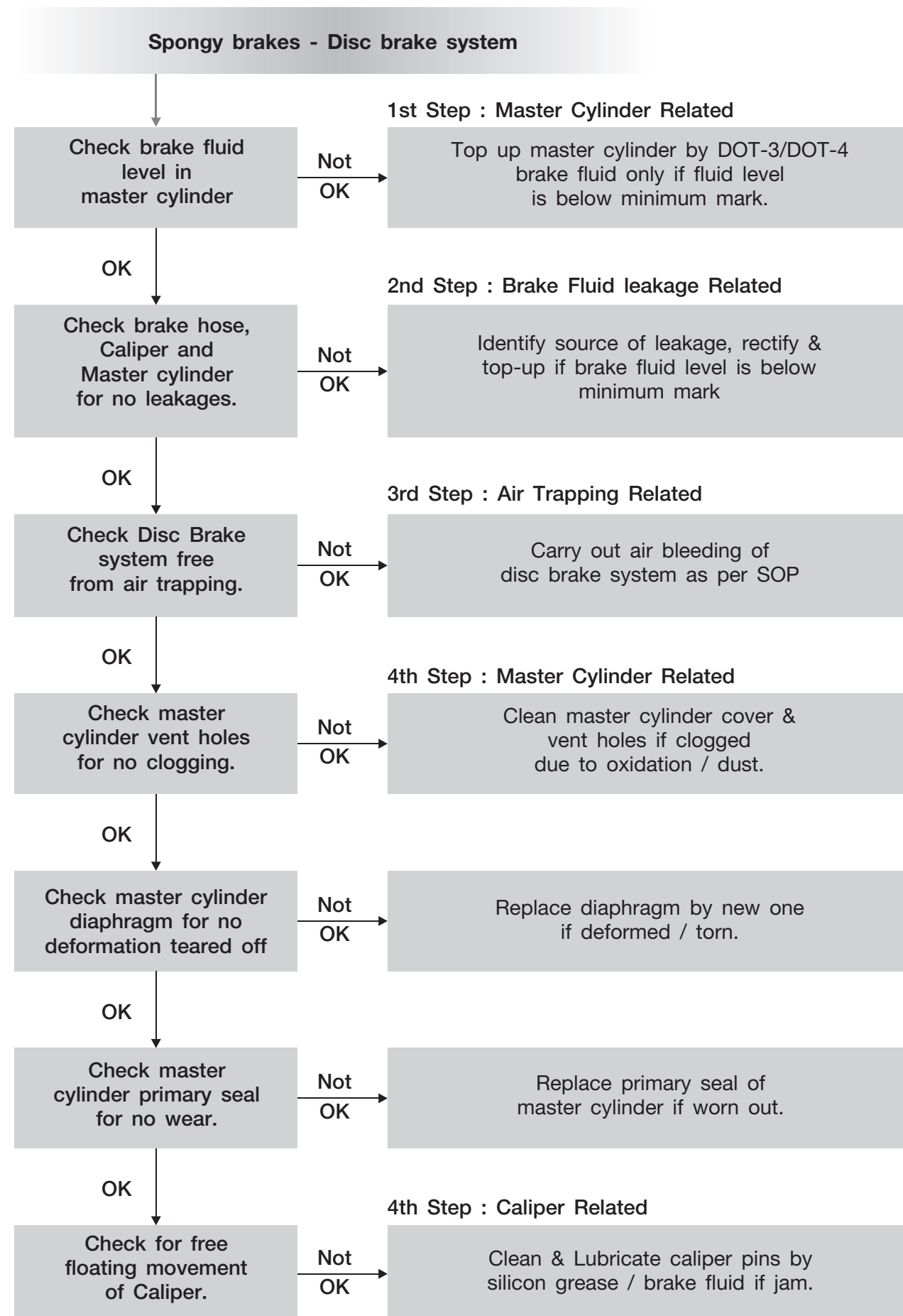






Note : Lubricate steering races and balls by Servo Gem RR-3 grease at every 10,000 Kms.



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